

Using Proton Therapy to Treat Prostate Cancers

Overview

Patients with prostate cancer have several treatment options. One new treatment tool in the cancer-fighting toolbox is proton therapy. Physicians at the Maryland Proton Treatment Center use the latest pencil-beam scanning (PBS)/intensity modulated proton therapy (IMPT) to target tumors with unmatched precision, while minimizing damage to surrounding healthy tissue.

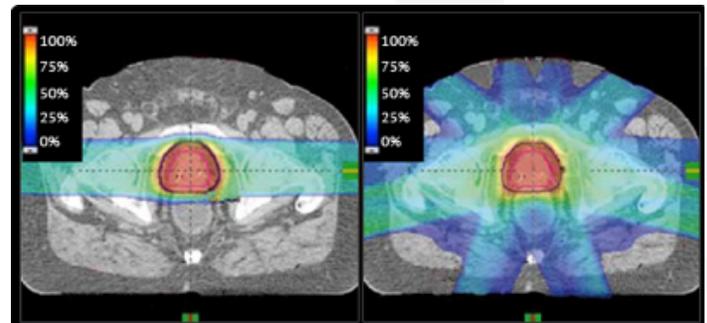
This revolutionary treatment is a non-invasive and low-risk option that improves the quality of life for patients with prostate cancer. In particular, men with non-metastatic, prostate cancer will likely benefit from this treatment. Research studies have shown that proton therapy treatment may reduce the incidence of long-term side effects seen with conventional photon treatment, such as an impact on urinary, bowel, and erectile function. Fewer side effects during treatment may also allow for increased compliance to treatment.

Patients with high-risk prostate cancer will likely benefit most from proton therapy because their lymph nodes can be treated with fewer side effects than intensity modulated radiation therapy (IMRT). Proton therapy also is less likely to cause a radiation-induced secondary cancer than IMRT because the surrounding healthy tissues are minimally affected by the precise treatment.



Proton Therapy Versus Photon Therapy

Proton therapy allows for the same high dose of radiation to be delivered to the tumor while minimizing exposure to surrounding healthy tissues and organs. The image to the right shows the areas surrounding the prostate exposed to radiation (dose delivered to tumor and surrounding tissue shown in color) during treatment. The proton therapy on the left delivers significantly less radiation to the surrounding areas than the photon treatment on the right.



Proton therapy

Photon therapy

Physicians continue to study the benefits of proton therapy. A recent study compared the different treatment modalities' effects on quality of life. This study found that more men treated with IMRT reported moderate to severe problems with rectal urgency and frequent bowel movements than men treated with proton therapy.¹

MPTC-Specific Clinical Trial Offerings

Our mission is to develop tomorrow's therapies for the treatment of cancer. All patients treated at the center have access to a wide range of clinical trials available through the Maryland Proton Alliance, including currently open and additional planned in-house and multi-institutional clinical trials.

Current clinical trials at MPTC include:

- NCT01255748: Evaluation Tracking Project: A Prospective Chart Review of Patients Treated with Radiation Therapy
- NCT01230866: A Phase III Prospective Randomized Trial of Standard-fractionation vs Hypofractionation with Proton Radiation Therapy for Low Risk Adenocarcinoma of the Prostate

¹ "Comparative Effectiveness Study of Patient-Reported Outcomes following Proton Therapy or IMRT for Prostate Cancer." Cancer. 2014 April 1; 120(7): 1076-1082.



- NCT01617161: Prostate Advanced Radiation Technologies Investigating Quality of Life (PARTIQoL): A Phase III Randomized Clinical Trial of Proton Therapy Versus IMRT for Low or Intermediate Risk Prostate Cancer

For more information on our currently available clinical trials, **please call our research department at 410-369-5353.**



Outcomes

Your patients may be hesitant to explore the various treatments for prostate cancer and may pose questions related to side effects and outcomes. Proton therapy is an effective, less invasive and low-risk option for treatment that can improve the quality of life for cancer patients and survivors. We continue to study not only the effectiveness of the treatment, but the impact on our patients' lives.

In a study published in *Cancer*, men less than 60-years-old who underwent proton therapy had excellent outcomes in erectile dysfunction and urinary incontinence.² Another study showed five-year outcomes of proton therapy patients to be exceptional, with minimum toxicity and outstanding patient-reported outcomes in regards to urinary incontinence, gastrointestinal side-effects, and sexual function.³

Another recent study found that proton therapy proposed the best physical and biological treatment plans compared to photon derived plans.⁴

About the Maryland Proton Treatment Center

The Maryland Proton Treatment Center is affiliated with the University of Maryland Marlene and Stewart Greenebaum Comprehensive Cancer Center, an NCI-designated comprehensive cancer center. MPTC is focused on clinical excellence, affordability, accessibility, as well as comfort and convenience for your patients. In addition, our team has initiated the Maryland Proton Alliance to bring the latest research and clinical trials to patients and physicians. MPTC is one of the few centers in the country to offer proton therapy at a cost-neutral rate for patients treated here as compared to the cost of receiving IMRT at University of Maryland Medical Center.

MPTC provides a unique level of proton therapy experience and expertise. Our University of Maryland Department of Radiation Oncology physicians have a combined 20-plus years of proton therapy experience. Associate Professor and MPTC Medical Director Charles Simone has more than 5 years of experience from the University of Pennsylvania Proton Therapy Center; Professor Robert Malyapa has more than 12 years of experience from the Paul Scherrer Institute, which is world renown as a key innovator of proton therapy, and University of Florida Proton Therapy Institute; Assistant Professor Adeel Kaiser has three years of experience from the Loma Linda Proton Therapy Center and Assistant Professor Shahed Badiyan trained at the Paul Scherrer Institute.

Contact Information

To refer a patient or to discuss treatment options with one of our physicians, please call **410-369-5200** or email us at **info@mdproton.com**.

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² "Erectile Function, Incontinence, and Other Quality of Life Outcomes Following Proton Therapy for Prostate Cancer in Men 60 Years Old and Younger." *Cancer*. 2012 September 15; 4619-4626.

³ "Five-year outcomes from 3 prospective trials of image-guided proton therapy for prostate cancer." *Int J Radiation Oncol Biol Phys*, Vol. 88, No. 3, pp. 596e602, 2014; 0360-3016

⁴ "Pelvic Lymph Node Irradiation Including Pararectal Sentinel Nodes for Prostate Cancer Patients: Treatment Optimization Comparing Intensity Modulated X-rays, Volumetric Modulated Arc Therapy, and Intensity Modulated Proton Therapy." *Technology in Cancer Research and Treatment*. 2015 April; 14(2): 181-189.