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**Medical Applications: Proton Radiotherapy**

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Proton therapy is a highly advanced and precise form of radiation treatment for cancer. Due to the characteristic Bragg peak associated with ion energy deposition, proton therapy provides the radiation oncologist with an improved method of treatment localization within a patient, as compared with conventional radiation therapy using X-rays or electrons. Controlling disease and minimizing side effects are the twin aims of radiation treatment. Proton beams enhance the opportunity for both by facilitating maximal dose to tumor and minimal dose to surrounding tissue. In the United States, five proton radiotherapy centers currently treat cancer patients, with more in the construction phase. New facilities and enabling technologies abound. An overview of the treatment modality generally, as well as of the capabilities and research planned for the field and for the Hampton University Proton Therapy Institute in particular, will be presented.