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**Dose Volume Histogram (DVH) Analysis in Intensity Modulation Radiation Therapy (IMRT) Treatments for Prostate Cancers** ANIL PYAKURYAL, Northwestern Memorial Hospital / University of Illinois at Chicago — Studies have shown that as many as 8 out of 10 men had prostate cancer by age 80. Prostate cancer begins with small changes (prostatic intraepithelial neoplasia (PIN)) in size and shape of prostate gland cells, known as prostate adenocarcinoma. With advent in technology, prostate cancer has been the most widely used application of IMRT with the longest follow-up periods. Prostate cancer fits the ideal target criteria for IMRT of adjacent sensitive dose-limiting tissue (rectal, bladder). A retrospective study was performed on 10 prostate cancer patients treated with radiation to a limited pelvic field with a standard 4 field arrangements at dose 45 Gy, and an IMRT boost field to a total isocenter dose of 75 Gy. Plans were simulated for 4 field and the supplementary IMRT treatments with proposed dose delivery at 1.5 Gy/fraction in BID basis. An automated DVH analysis software, **HART** (S. Jang et al., 2008, Med Phys **35**, p.2812) was used to perform DVH assessments in IMRT plans. A statistical analysis of dose coverage at targets in prostate gland and neighboring critical organs, and the plan indices (homogeneity, conformality etc) evaluations were also performed using HART extracted DVH statistics. Analyzed results showed a better correlation with the proposed outcomes (TCP, NTCP) of the treatments.

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