AbstractID: 7495 Title: A Retrospective Study of Total Treatment Time versus Prostate Gland Volume in HDR Prostate Brachytherapy for Two Institutes

In High Dose Rate (HDR) remote afterloading procedures it is customary to use a second check that can be done in a reasonably short period of time to verify that a patients treatment time is within an acceptable tolerance. The second check is fairly straightforward for a single line application but becomes more difficult to perform when multi-catheter volumes are being treated. The authors have examined the feasibility of using a patient history of total treatment time as a function of prostate gland volume to predict with some uncertainty whether or not the total treatment time for any given HDR prostate patient is correct to within an acceptable tolerance. We have plotted total treatment time (normalized to a 10 Ci source and a Rx dose of 1000 cGy) versus prostate gland volume for HDR prostate patients at two institutions. The total treatment times and prostate gland volumes were taken directly from the Nucletron Plato treatment planning software (v.14.2.2). In addition, a simplified theoretical plot of treatment time versus gland volume was generated to compare with the above plots using Meredith tables that give mg-hrs required for given volumes. Our results show that the use of such plots provide reassurance that a gross error is not about to happen. We also examine the need for each institution to develop and use its own plotted data and how the theoretical plot can give indications on how much treatment margin one institution uses over another. Other implications will be discussed.