

## AbstractID: 10900 Title: A Comparison of Cysto-Conray II to Readi-Cat 2 Contrast Material for use in Rectal Balloons During Proton Therapy

**Purpose:** In our clinic, a rectal balloon filled with contrast is used to fixate and localize the prostate during proton treatments. We have traditionally used a 70%/30% mixture of water/Cysto-Conray II, which is iodine-based. After having a small leak in a rectal balloon, an alternative solution was investigated, namely Readi-Cat 2 (a barium sulfate suspension), due to iodine related allergies, as well as increasing cost of the contrast, and dilution requirements.

**Method and Materials:** The likelihood of an allergic reaction, as well as cost, was evaluated for the Cysto-Conray and Readi-Cat. The electron densities were compared by importing a CT scan of the contrast agents into a treatment planning work station. A depth scan was taken in a water tank after the proton beam passed through the contrast agents allowing the attenuation of the proton beam to be measured. X-rays were taken of patients where rectal balloons containing both types of contrast were used and evaluated. The amount of preparation required for the Cysto-Conray and Readi-Cat was also considered.

**Results:** The Readi-Cat 2 has a lower risk of an allergic reaction and is six times less expensive than the Cysto-Conray. The electron densities were found to be 1.18 and 1.28 for the Readi-Cat and Cysto-Conray respectively. Both contrast agents have comparable proton range attenuation and visibility on x-rays. The Cysto-Conray requires being diluted with water, whereas the Readi-Cat has no dilution requirements.

**Conclusions:** It has been determined that the Readi-Cat 2 is a contrast agent that can be used instead of the Cysto-Conray II solution. The Readi-Cat is cheaper than the Cysto-Conray, has a minimal risk of allergy, has a comparable attenuation of the proton beam, can be easily seen with the imaging equipment in the treatment room, and requires no dilution before using.