

AbstractID: 8865 Title: A Permanent Breast Seed Implant as Adjuvant Radiation Therapy for Early Stage Breast Cancer: Radiation Safety Concerns

Recent data in the literature suggests that the irradiation of the surgical cavity alone may be adequate as adjuvant radiation therapy for patients with early stage breast cancer. To date, the following techniques have been used as the sole form of adjuvant radiation treatment: reduced tangent external beam therapy, low dose rate brachytherapy, and high dose rate brachytherapy using either a multi-catheter arrangement or the Mammosite balloon applicator. The authors propose a novel one hour operating room seed implant procedure as the sole form of adjuvant radiation therapy for a select group of breast cancer patients. Such a procedure would have a tremendous impact on those women that presently refuse adjuvant radiation therapy due to their time constraints or remote living conditions. In this presentation, we determine whether or not such an implant is feasible based on radiation safety considerations alone. Some of the initial considerations to be dealt with are as follows: the required volume to implant, the most suitable isotope to use for this implant, and the seed numbers and strengths. The two isotopes of consideration here are the widely used I-125 and Pd-103 seeds both now available in a rapid strand form. The CT scans of 10 potential breast cancer patients have been examined in order to determine implant volume. Radiation survey measurements and calculations were done using varying layers of bolus thickness. Extrapolating these results shows that whole body effective dose estimates to a spouse would be well below 1mSv per year after such an implant.