Purpose: To present dosimetric data for patients undergoing Accelerated Partial Breast Irradiation (APBI) using the Mammosite® and Strut-Adjusted Volume Implant (SAVI) applicators.

Methods: We have treated 35 patients with Accelerated Partial Breast Irradiation (APBI) using high dose rate brachytherapy. These patients were treated per guidelines specified in the NSABP B-39/RTOG 0413 protocol. The patients undergoing APBI have been treated with Mammosite® applicator (N=20) and SAVI applicator (N=15). The Mammosite® applicator used for all 20 patients was a single channel applicator. Single or multiple dwell positions were used as warranted by the type of balloon used and other clinical factors. The SAVI Applicator is a single-entry, multi-catheter device available in different sizes with 7, 9 and 11 catheters. The use of multiple catheters facilitates dose sculpting to improve treatment plan quality as well as reduce the skin dose. Each treatment plan was evaluated for conformance of the dose to the PTV using commonly used dosimetric parameters. These parameters included balloon/cavity volume, PTV volume, V90, V100, V150 and V200.

Results: The median V90 for the treatment plans delivered using the Mammosite® applicator was 99.7% (96.7%-99.8%) whereas it was 98.8% (96%-100.0%) for the patients treated with the SAVI applicator. Other data including the V100, V150, V200 and skin dose will be presented. The impact/ importance of the data presented is that it provides useful information about the range of dosimetric parameters to be expected in treatment planning of APBI cases using these applicators.

Conclusions: Our results indicate that both the Mammosite® and SAVI applicators allow treatment planning and delivery of APBI per the guidelines specified in the NSABP B-39/RTOG 0413 protocol.