Purpose: To evaluate the ability of AlignRT (VisionRT Ltd., London, UK) to accurately position patients receiving whole breast or chestwall irradiation and the impact of AlignRT on portal image dose.

Methods and Materials: Twenty whole breast or chestwall cases set-up using AlignRT at our site were compared to a series of 20 similar patients set-up without the use of AlignRT over the same time span. All patients were set-up head first supine, on a Quest Breastboard (Qfix, Avondale, PA). The AlignRT patients were positioned with an AlignRT region of interest that encompassed the ipsa-lateral chest minus the breast tissue drawn on a surface created from the patient contour generated in treatment planning. Non-AlignRT patients were positioned using skin marks added in simulation. Positional accuracy was verified by qualitative evaluation of portal imaging on the first treatment day, then once weekly.

Results: The percentage of port images that were deemed unacceptable by therapists or radiation oncologists (> 3 mm deviation from simulation position) was 7.5 +/- 8.1% for the AlignRT group (with a range of 0 - 15%). In 14 of the 20 cases, one or fewer port images were unacceptable over the entire treatment. For the non-AlignRT group 20 +/- 14% (0-45%) of the images were unacceptable. In only 6 of the 20 cases one or fewer port images were found to be unacceptable over the course of treatment.

Conclusion: As judged by port images, AlignRT is able to provide a more accurate positioning of whole breast and chestwall patients, with a reduction in port dose and in set-up time, compared to the use of lasers and skin marks. The reduced number of rejected port images strongly suggests that AlignRT gives a more consistent, reproducible set-up on non-port days than skin marks alone.