

Purpose: To quantify the skin dose on the medial side of the breast due to the use of a foam pad to support the patient in the prone treatment position.

Methods and Materials: A phantom was constructed to measure the skin dose with a parallel-plate chamber. The chamber side of the phantom faced medially so that it faced the pad. The phantom was then treated repeatedly with the pad at various distances from the phantom. A buildup experiment was also performed on the phantom without the pad and with the pad set at 2.5cm away from the surface of the chamber. Performance was assessed by measuring the skin dose as a function of distance and as a percentage of the target dose. It was also assessed by the buildup region created by the pad to the one without a pad present.

Results: Examination of the skin dose versus the distance to the pad revealed a dependence on distance. This can result in the total dose increasing as much as 50%. The pad when positioned 2.5cm from the breast adds a bolus to the breast of about 3mm on the medial side of the breast.

Conclusions: This project revealed that skin dose increases through the use of the supportive pad. The experiment however is a worst-case scenario. A normal treatment would have reduced skin dose due to the use of multiple beam angles. In the future, skin dose has to be considered for prone treatments with a support pad.

Conflict of Interest: Funded in part by TomoTherapy, Inc.