

AbstractID: 9141 Title: Field-in-field technique to reduce high dose regions in the treatment of the axillary and supraclavicular lymph nodes

*Purpose:* To eliminate the 10-30% excess dose in the standard parallel opposed beam treatment of the axillary and supraclavicular lymph nodes to decrease related skin toxicity.

*Materials and methods:* In a field-in-field technique a new field was added to the supraclavicular (SCLAV) field with the projection of the posterior axillary boost (PAB) field blocked out. With appropriate weighting of the 3 fields equal (prescription) doses can be delivered to 3 cm under both the blocked and unblocked part of the SCLAV and to the midplane under the PAB field. The weightings can be obtained by solving a simple linear equation system (e.g. in Excel).

The field-in-field technique was planned with Eclipse treatment planning system on 12 patient CT scans and compared to the standard two beam arrangement. Film measurements were made on phantom to evaluate the match of the field-in-field with the PAB field at a depth of 3 cm and at the skin surface. In addition, plans were calculated in phantoms to study the relationship of the weighting and the separation.

*Results:* The prescription requirements, similar coverage to the standard technique, and minimal excess dose were all achieved with the proposed technique. The average maximum dose for the 12 sample CT scans decreased from 119.8% as treated to 107.9%. The match between the proposed SCLAV field-in-field and PAB field used was good and would be clinically acceptable.

*Conclusions:* The proposed field-in-field technique provides more uniform coverage for the treatment of the supraclavicular/axillary region in the treatment of breast cancer. Since the third field is only a rearrangement of the MLCs in the supraclavicular field, it does not add much to either the planning or the treatment time.