

AbstractID: 3565 Title: Dynamic MLC for a simpler 4-field single isocenter breast technique: development, commissioning and verification

Purpose: Using dynamic multi-leaf collimation both for lung shielding and wedging of tangential breast fields, we created a simple, single isocenter breast technique, without blocks or physical wedges. This technique serves as a valuable intermediate step between traditional and full-fledged IMRT of the breast and superclavicular regions.

Method and Materials: We use a treatment planning system to determine wedge angle and shielding for the tangential fields. Dynamic MLC files are generated by combining the shielding and wedge angle using the Varian EDW GSTT tables. Concomitant boost fields are optional. We used film and EPI to commission and verify the dynamic MLC wedge.

Results: Dynamic MLC wedge techniques differ from traditional EDW treatments. Transmission through the MLC leaves, especially in the interleaf region and changes in head scatter and back scatter to the monitor unit chambers due to the increase in source to wedge distance. These factors cause the delivered wedge angle to be slightly shallower than that delivered by an EDW for a given planned angle. We used film to commission the dynamic MLC wedge delivery. For routine wedge angle verification, we found EPID to be reproducible, accurate and most convenient. By delivering 300 MU at 300 MU/min we could easily distinguish MLC wedges in 5° increments.

Conclusion: Incorporating dynamic MLC files as both shielding and wedging for breast fields is an easily implemented step towards IMRT. It simplifies the 4-field single isocenter breast technique by eliminating the need for block fabrication and expediting beam delivery.