

AbstractID: 1239 Title: Combining multiple tangential beams into step-and-shoot IMRT fields for breast IMRT treatment delivery

Forward IMRT planning technique is used in our institution to create Tangential breast IMRT plans. The goal is to produce a uniform dose distribution to the entire breast while minimizing dose to heart and ipsilateral lung. A forward IMRT breast plan consists of multiple tangential beams, with each gantry angle containing typically one open field and four MLC-blocked sub-fields, resulting in a dose distribution superior to conventional wedged tangential plans. One can achieve this by using "control points", a desirable functionality provided by some treatment planning systems (TPS), creating an IMRT field with multiple segments. However, older TPS without forward IMRT capability do not support control points; therefore a manually created forward IMRT breast plan may contain 10 individual beams where each beam is delivered separately. We have developed a technique to combine these individual beams into step-and-shoot IMRT beams so that it is faster and easier to deliver. There are several ways to achieve this. One can combine them using the: (a)Record-Verify system; (b)MLC files; or (c)RTP file. Method(a) is the easiest, but works only for limited number of Record-Verify system and LINAC combinations. Method(b) is also straightforward, but requires exporting, importing, combining, and editing of MLC files, and it is tedious and time-consuming. A computer script helps to reduce time and chance of error. Method(c) deals with RTP file, eliminating the need of importing and exporting MLC files. This technique is developed for forward IMRT breast plans, but it can be used for any other forward IMRT plans.