COMPARISON OF CORVUS ORIGINAL INVERSE-IMRT TO IMFAST OPTIMIZED PLANS

Original Inverse-IMRT MLC plans produced by NOMOS CORVUS software for the Siemens Primus accelerator generated excessive number of treatment segments. Typical plans would take 40 minutes or longer for treatment delivery. This length of treatment time lead to the concern that the probability of patient movement would increase. It could also potentially cause additional wear on the machine's parts and decrease the efficiency of the treatment unit

NOMOS CORVUS 3.0 allows the user to calculate plans using both original and IMFAST's optimized leaf segment plans. Original plans could consist of segments numbering in the high teens per gantry angle, depending upon the complexity of the case. The IMFAST optimization reduces the number of segments, thereby reducing treatment times.

Two patient cases were studied and the differences between segments were compared. In one case, the original treatment plan consisted of 102 segments, which takes approximately 35 minutes to treat. When optimized with IMFAST, only 45 segments were needed. This reduction cut treatment time in half. Similarly, in the second case, a 90 segment original plan was reduced to 42 segments using IMFAST optimization, but MU tolerances for IMFAST reconstruction had to be increased. Numerical comparisons and film overlays of the dose delivery proved to be within tolerance. A note of caution, original and IMFAST DVHs appear identical, because segment optimizations occur following DVH calculations.