

AbstractID: 1438 Title: A Model for In-air Output Factor Calculation

The variation of in-air output factor with field shape and size has been studied extensively in the past. For IMRT, this problem is even more important as each field is composed of many irregularly shaped small fields. The purpose of this work was to develop an algorithm to calculate in-air output factors. This model differs from prior methods in that it depends on fewer measured data, and is applicable to any field shape and size. Our model constructs an extended source distribution based on output factors measured at the isocenter. In addition, we explicitly account for backscatter into the monitor chamber from the collimating jaws. Using these, we can calculate in-air output factors for different field configurations. The model has been used to calculate output factors from a Varian 2100C/D and a Elekta Precise accelerator. We found that in general the calculated in-air output factors agreed with the measured values to within 1%.