The dosimetry of hip irradiation for the prevention of heterotopic bone formation following arthroplasty is complicated by the use of custom shielding in the treatment portal which affects machine output and depth dose factors. Irradiation is usually required in a 24 hour period following surgery often rendering the use of computerized dosimetry techniques impractical. A manual calculation approach, based on correction factors for the output and depth dose as a function of field and block geometry is presented for ^{60}Co, 6 MV, 10 MV and 18 MV beams.

Relative dose factors (RDF) and percentage depth doses (PDD) were measured in a water phantom for various combinations of field size, block size and separation between adjacent blocks. These measured values were divided by the corresponding measured values for open fields, resulting in correction factors to be applied for calculations of monitor units (MU) or treatment times.

For the open fields and blocks investigated, the correction factors for RDF can be parametrized as a function of the separation between two adjacent blocks and the photon beam energy. In addition to block separation and beam energy, the depth dose correction factors depend also on the depth. The model predicts the RDF of the treatment portal to within 2% and the PDD or TMR to within 2% for treatment fields used clinically. This approach serves as a quick and accurate predictor of MU or treatment time required to deliver the prescribed dose without the need for computerized treatment planning.