

Dosis Transmisi Berkas Sinar-X 6 MV untuk Lapangan Tidak Teratur dengan Variasi Blok

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Abstrak

ABSTRAK

Tesis ini membahas dosis transmisi pada lapangan yang diblok dengan cerrobend untuk berkas sinar- X 6 MV, pesawat linear accelerator Siemens Primus 2D Plus dengan lapangan dasar 20 cm x 20 cm. Pengukuran dilakukan dengan ionisasi chamber PTW 2D Array seven29 pada titik dalam phantom akrilik untuk lapangan yang diblok dan lapangan yang tidak dilindungi blok dengan tiga bentuk blok yang divariasikan. Blok pertama panjang 10 cm dengan lebar variasi 1, 2, 3 cm dengan kedalaman pengukuran 2.0, 2.5, 3.0, 3.5, 4.0 cm, blok kedua 10 cm x 8 cm dengan kedalaman 5, 8, 10, 12, 15 cm dan blok ketiga diasumsikan untuk pengobatan kanker serviks, 4 buah blok segitiga sama sisi dengan sisi 10 cm dengan kedalaman 5, 8, 10, 12, 15 cm. dari hasil pengukuran diperoleh nilai transmisi dosis 5.9 % - 19.93%, transmisi dosis akan semakin menurun dengan kenaikan lebar blok cerrobend dan sedikit meningkat dengan kenaikan kedalaman. Hasil pengukuran dibandingkan dengan hasil TPS.

<hr><i>ABSTRACT</i>

The focus of this study is determined the transmission dose in phantom medium from 6 MV X ray with Siemens Primus linear accelerator 2D Plus with basic field 20 cm x 20 cm. Measurements were taken with the ionization chamber PTW seven29 2D array at a point in the acrylic phantom, for blocked and unblok fields. Three irregular fields were selected, first field (I) simulated to treatment beam for supraclavicular region, 20 x 20 cm² field size with a cerrobend block to protect throat region. The size of the block was 7 cm thickness, 10 cm length, with various widths of 1, 2, and 3 cm. Measurements were carried out at the depth of 2.0, 2.5, 3.0, 3.5, and 4.0 cm. The second field (II) was also 20 x 20 cm, blocked field at right-upper corner to cover surface area of 10 x 8 cm². Data were collected at the depth of 5, 8, 10, 12, and 15 cm . The third field (III) assumed for cervix cancer treatment, field size was also 20 x 20 cm² with four corner area was blocked by 10cm x 10cm triangles. Measurement was done at the depth of 5, 8, 10, 12, and 15 cm. measured transmission dose values ranged from 5.9% - 19.93%, dose transmission at the center a blocked area refer to the dose at unblocked area decrease with increasing block width and a little increase with the depth. The measurement results compared with TPS.</i>