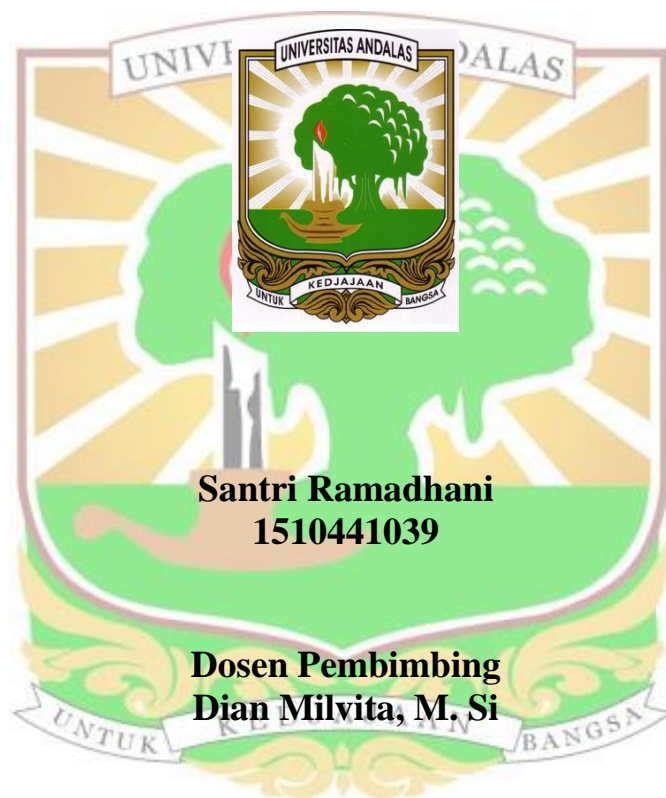


**ESTIMASI LAJU DOSIS RADIASI YANG LOLOS MELALUI
DINDING PRIMER DAN SEKUNDER BERDASARKAN
BEBAN KERJA PESAWAT TELETERAPI Co-60
DI INSTALASI RADIOTERAPI RSUP. DR. M. DJAMIL PADANG
(STUDI KASUS JANUARI - JUNI 2019)**

Skripsi



**JURUSAN FISIKA
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS ANDALAS
PADANG**

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ABSTRAK

Telah dilakukan penelitian tentang estimasi laju dosis radiasi yang lolos melalui dinding primer dan sekunder, berdasarkan beban kerja pesawat teletrapi Co-60 di instalasi radioterapi RSUP. Dr. M. Djamil Padang. Penelitian menggunakan data sekunder berupa data dosis pasien, pekerja radiasi periode Januari-Juni 2019 dan data desain dinding ruang penyinaran Co-60. Metode perhitungan menggunakan persamaan analitik dari SRS No. 47 IAEA. Hasil yang didapatkan adalah nilai beban kerja pesawat Co-60 per minggu berkisar antara (6,4-288) Gy m² per minggu. Nilai ini masih berada di bawah rekomendasi NCRP No. 49. Hasil perhitungan estimasi laju dosis radiasi yang lolos melalui dinding primer berkisar antara (5,35 x 10⁻⁹-1,99 x 10⁻⁶) Sv per minggu, sedangkan estimasi laju dosis radiasi yang lolos melalui dinding sekunder akibat radiasi bocor berkisar antara (2,27 x 10⁻¹⁴- 2,41 x 10⁻⁶) Sv per minggu dan melalui dinding sekunder akibat radiasi hambur berkisar antara (1,56 x 10⁻¹⁷- 1,94 x 10⁻⁹) Sv per minggu. Nilai estimasi laju dosis radiasi yang didapatkan masih berada di bawah nilai batas dosis (NBD) yang ditetapkan oleh BAPETEN No. 3 Tahun 2013 pasal 30 dan 31 tentang limitasi dosis radiasi untuk pekerja radiasi dan masyarakat umum.

Kata kunci : Beban kerja pesawat, dinding primer, dinding sekunder, IAEA, NBD, NCRP



**ESTIMATION OF RADIATION DOSE RATE THAT PASSES
THROUGH THE PRIMARY AND SECONDARY WALLS
BASED ON WORK LOAD OF TELETHERAPY Co-60
IN RADIOTHERAPY INSTALLATION
RSUP. DR. M. DJAMIL PADANG
(CASE STUDY JANUARY-JUNE 2019)**

ABSTRACT

Research has been conducted on the estimation of the rate of radiation doses that pass through the primary and secondary walls, based on the workload of the Co-60 teletherapy instrument in the radiotherapy installation of RSUP. Dr. M. Djamil Padang. The research using secondary data that are the patient dose and radiation workers for the January-June 2019 period and Co-60 wall design data. The method of calculation was analytic equations from Safety Report Series (SRS) International Atomic Energy Agency (IAEA) No. 47. The result show that the workload value of Co-60 ranges from (6.4-288) Gy m² week. This value was still lower than the recommendation of NCRP No. 49. The results of the calculation of the estimated radiation dose rate that passes through the primary wall obtained ranged between (5.35 x 10⁻⁹-1.99 x 10⁻⁶) Sv per week, while through the secondary wall due to the leakage of radiation ranged between (2.27 x 10⁻¹⁴-2.41 x 10⁻⁶) Sv per week and through the secondary wall due to scattering radiation ranged between (1.56 x 10⁻¹⁷-1.94 x 10⁻⁹) Sv per week. The estimated value of the radiation dose obtained is still lower than the value of dose limit (NBD) determined by BAPETEN No. 3 of 2013 articles 30 and 31 concerning the limitation of radiation doses for radiation workers and general public.

Keywords: Workload of aircraft, primary wall, secondary wall, IAEA, NBD, NCRP