

# Prakiraan risiko pajanan radiasi sinar x pada pekerja radiasi di departemen radiologi rumah sakit umum pusat nasional cipto mangunkusumo 2014 = Estimated risk of x ray radiation exposure to radiation workers department of radiology at general hospital national center cipto mangunkusumo 2014

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## Abstrak

Radiografer secara umum mempunyai tugas dan tanggung jawab untuk melakukan pemeriksaan pasien secara radiografi meliputi pemeriksaan untuk radiodiagnostik termasuk kedokteran nuklir dan ultrasonografi (USG) dan melakukan tindakan proteksi radiasi dalam mengoperasikan peralatan radiologi. Penelitian ini bertujuan memprakirakan risiko pajanan radiasi sinar-X pada pekerja radiasi di Departemen Radiologi RSUPN Cipto Mangunkusumo. Dalam perhitungan prakiraan risiko pajanan radiasi sinar-X, dosis pajanan radiasi sinar-X radiografer diperoleh dari hasil pengukuran film badge. Data pola aktifitas (lama kerja, frekuensi pajanan dan masa kerja) diperoleh berdasarkan hasil wawancara pada 35 radiografer di Departemen Radiologi RSUPN Cipto Mangunkusumo.

Berdasarkan perhitungan yang dilakukan, nilai rata-rata Excess Cancer Risk (ECR) lifetime ( $4,8E-2$ ) dan realtime ( $1,9E-2$ ). Karena secara teoretis karsinogenisitas tidak mempunyai nilai ambang atau non threshold, maka prakiraan risiko dinyatakan unacceptable (dosis tidak dapat diterima) bila  $ECR < E4$ . Kisaran angka  $E-4$  diperoleh dari nilai default karsinogenistas yang digunakan oleh US-EPA (1990). Berdasarkan perhitungan ECR lifetime dan ECR realtime diperoleh gambaran prakiraan risiko efek karsinogenik yang terjadi pada radiografer di Departemen Radiologi RSUPN CM, dinyatakan acceptable pada risiko kanker baik pada ECR lifetime maupun realtime.

*Radiographer in general have a duty and responsibility to audit includes examined patients for radiodiagnostic including nuclear medicine and ultrasonography (USG), and radiation protection in radiology and operating equipment. This study aims to estimated the risk of X-ray radiation exposure to radiographer in the Department of Radiology RSUPN Cipto Mangunkusumo using Environmental Health Risk Analysis (ARKL). In calculating the estimated risk forecasts ARKL, risk of X-ray radiation exposure dose radiographer obtained from measurements of the film badge. Data patterns of activity (duration of work, frequency of exposure and years of work) obtained based on the results of a survey of 35 radiographers in the Department of Radiology RSUPN Cipto Mangunkusumo.*

*Based on the calculations performed, the average value of Excess Cancer lifetime Risk (ELCR) is  $4,8E-2$  and the value of Excess Real-time Cancer Risk (ERRC) the average is  $1,9E-2$ . Because theoretically carcinogenicity has non-threshold value, then the forecast is declared unacceptable when  $ECR < E-4$ . Range of numbers obtained from the  $E-4$ , carcinogenicity default values used by the US-EPA (1990). Based on the calculation of the ELCR and ERRC forecasts illustrate the risk of carcinogenic effects that occur in the radiographers in the Department of Radiology RSUPN CM, acceptable on cancer risk both in the ELCR and ERRC.*