

Evolution of radiation dose and image quality in a pediatric interventional cardiology system Dosis de radiación y calidad de imagen en un equipo de cardiología intervencionista pediátrico

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The optimized methodology and results of the new characterization in terms of dose and image quality of the x-ray system used in the main service of pediatric hemodynamics of Chile is presented. In addition, scatter dose rate values at the level of the eyes of operators in different thickness of absorbing medium and all acquisition modes available in the angiography are also presented. The characterization was performed according to the European protocols DIMOND and SENTINEL adapted to pediatric procedures. The entrance surface air kerma (ESAK) was measured and the image quality parameters signal-to-noise ratio (SNR) and a figure of merit (FOM) were calculated. The scatter dose rate was measured in units of personal equivalent dose. The ESAK for fluoroscopic modes ranged from 0.2 to 35.6 $\mu\text{Gy}/\text{frame}$ going from 4 to 20cm of polymethyl methacrylate (PMMA). For the cine mode, those values oscillated between 2.8 and 160.1 $\mu\text{Gy}/\text{frame}$. The values of the parameters of quality of image show a cor