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## ASSESSMENT OF PERSONNEL DOSE BURDEN AND QUALITY OF OPERATIONAL PARAMETERS OF X-RAY RADIOLOGICAL EQUIPMENT OF MEDICAL ORGANIZATIONS OF THE NUR-SULTAN CITY

**M.M. Bakhtin, Ye.T. Kashkinbaev, M.N. Aumalikova, D.S. Ibrayeva, M.K. Sharipov,  
P.K.Kazymbet**

*Institute of Radiobiology and Radiation Protection, NcJSC Astana Medical University (Nur-Sultan, Kazakhstan)*

[bakhtin.m@amu.kz](mailto:bakhtin.m@amu.kz)

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**Introduction:** The results of the assessment of the radiation situation of the workplace, the dose burden of medical personnel, as well as the results of monitoring the operational parameters of X-ray radiological units of medical organizations in Nur-Sultan city are presented.

**Methods:** Personnel dosimetric control measured with TLD, monitoring of operational parameters of X-ray diagnostic equipment at the Piranha dosimeter.

**Results:** The average annual effective dose for X-ray diagnostic department workers is 0.72mSv, for intervention department workers it is 1.27mSv, which is in permissible level. At workplaces of the Department of Radiology and Nuclear Medicine, the dose rate of X-ray radiation varies from 0.01 $\mu$ Sv/h to 0.04 $\mu$ Sv/h. At the workplaces of the personnel of the catheterization department, the X-ray dose rate varies from 0.01 $\mu$ Sv/h to 0.91 $\mu$ Sv/h, which does not exceed the standard value. According to the results of monitoring operational parameters in 2 radiographic and 3 fluoroscopic devices, deviations from the image quality standard were revealed. The difference between the edges of the light and radiation fields exceeded 1.5 to 2 times the permissible value. The divergence of the edges of the light and radiation fields leads to irradiation of the undiagnosed zones of the body and neighboring internal organs. The deviation of the perpendicularity of the beam exceeded the permissible value of 1.5°. Deviation of the perpendicularity of the beam affects the incorrect diagnosis, as the displacement of organs. In the mammography apparatus, the difference between the edges of the light and radiation fields exceeded the permissible value by 3 times. During the research, traces of scratching the compression spoon were found in the images in the mammography apparatus of a pure phantom. When monitoring the compression force of compression of the mammography apparatus, the parameter maximum force of automatic compression exceeded the permissible value. Values of the parameters of the anode voltage, radiation yield and dose linearity as dose repeatability in radiographic, fluoroscopic, angiographic and mammographic devices in permissible value.

**Conclusion.** The revealed deviations in the operational parameters of medical X-ray equipment indicates the need for periodic monitoring to identify technical malfunctions, as reduce the high dose burden for patients and medical personnel.