



Ministry of Health Tashkent Medical Academy
Evaluation of the Radiation Safety Service in the X-Ray
Diagnostic Department of Jarkurgan District,
Surkhandarya Region

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Abstract: Topicality: Since the first days of our independence, the health of the population has been under the special attention of the President of the Republic of Uzbekistan and the Government. Decree №-2017 of the President of the Republic of Uzbekistan dated November 10, 1998 "On the State Program for the Reform of the Health Care System of the Republic of Uzbekistan" formed the basis of systematic, step-by-step reforms to create a national model of the health care system. One of the main components of the national model of health care is the formation of a modern material and technical base, the implementation of new technologies in practical health care.

The President of the Republic of Uzbekistan dated September 7, 2011 "On measures to implement the project "Improving the health care system (Health-3)" in financial cooperation of the World Bank with the International Development Association decree №-1614 and May 29, 2014 Association is being implemented on the basis of decisions №-2182 "On additional measures related to the implementation of the project "Improving the health care system (Health-3)".

Today, 46 X-ray diagnostic departments are operating in cities and districts of Surkhandarya region. Based on the Decision of the President of the Republic of Uzbekistan №-1614, new X-ray diagnostic devices are being provided within the framework of the "Health-3" project. This requires improvement of the radiation safety service and elimination of deficiencies. We will study the example of one of our selected facilities, the Treatment and Prevention Institution (TPI) belonging to the Jarkurgan District Medical Association (MA).

The purpose of our work: to identify deficiencies in the working conditions of employees (category A) working with ionizing light sources in radiological facilities, to study their radioactive safety and to make recommendations.

Objects:

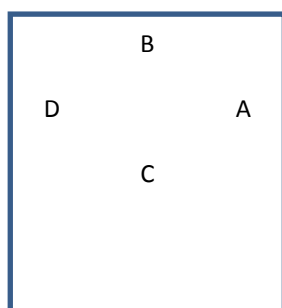
1. Classification of radiological objects in selected DPMs.
2. Conducting general dosimetric inspections in selected DPMs.

Methods of the work: Sanitary method (task 1), method of inspection with equipment (task 2).

The result of the work: Our selected object, the building of the X-ray diagnostic department at the Central Hospital of Jarkurgan, was built in 2014 based on the project and was put into operation in 2015. The building consists of 2 floors, the first floor is for Diagnostics, and the second floor is for Planned Surgery. 2 radiologists, 4 laboratory assistants, 2 junior medical workers work in the department. X-ray diagnostic department consists of 3 rooms. The treatment room (size 6x6 m, 36 m²) has black film on the windows, local and general ventilation, and artificial lighting.

The metal parts of the X-ray apparatus ("FLEXA VISION") are connected to the ground, the mass is weighted, the rooms are tiled, not covered with insulating materials. The doors are tightly closed, covered with lead bars, protected by bars, and the walls are treated with barium. The control panel (size 3x3 m, 9m²) is artificially lit, the room is equipped with cooling and heating devices, and the laboratory room (size 3x2.5 m, 7m²) is artificially lighted.

Dosimetric examination: Device type "FLEXA VISION" remote control No. 1296388410 Device passport 51865 Power in the tube 100 kV, current through the tube 1 Ma Filter 2 mm Aluminum Measurement was carried out with a dosimeter of type RM1703-02 No. 2141229.



Rooms adjacent to the X-ray room.

Housekeeper's room above the cabinet.

Not under the cabinet.

A street behind the wall

B is the control panel behind the wall

A photo lab behind the wall

Staircase area behind G wall

MEASUREMENT RESULTS

№	Measurement points	Dose strength
1.	On the cabinet	-
2.	Under the cabinet	-
3.	A is behind the wall	The instrument is less than sensitive.
4.	B is behind the wall	The instrument is less than sensitive.
5.	V is behind the wall	The instrument is less than sensitive.
6.	G is behind the wall	The instrument is less than sensitive.
7.	Radiologist position Screen window	0,029 МКЗВ
8.	Screen apron	0,025 МКЗВ
9.	Small protective cover	0,017 МКЗВ
10.	X-ray technician position	0,026 МКЗВ
11.	Watch window	0,016 МКЗВ
12.	Security door	The instrument is less than sensitive.
13.	Behind the control panel wall	The instrument is less than sensitive.
14.	X-ray laboratory protection	The instrument is less than sensitive.

Conclusion: In the dosimetric measurements carried out in the X-ray diagnostic apparatus "FLEXA VISION" installed in the X-ray diagnostic department of the Central Hospital of the District Medical Association of Jarkurgan district, no excess was detected. Measurements meet the requirements of SanQvaM No. 0194-06.

Recommendations:

1. Covering the surface of the treatment room with insulating material.
2. Covering the windows of the treatment room with lead coverings.
3. Replacement of the general ventilation system.