

JSC "SOUTH-KAZAKHSTAN MEDICAL ACADEMY"

"APPROVE"

Rector of SKMA, professor

M. Rysbekov

2022_y.



SOUTH KAZAKHSTAN
MEDICAL
ACADEMY


RESIDENCE EDUCATIONAL PROGRAM

7R01114 «RADIOLOGY»

Shymkent 2022

The educational residency program 7R01114 "Radiology" was developed on the basis of the order of the Minister of Health of the Republic of Kazakhstan dated July 04, 2022 No. ҚР DSM -63 "On approval of state compulsory standards for levels of education in the field of healthcare".

Position	Full name	Signature
Developed		
Head of the department, c.m.s.	Kasaeva L.T.	
Assistant of the department	Seytova A.A.	
Representative of practical healthcare		
Head of the Department of Radiation Diagnostics of the State Children's Center of Shymkent	Kaskabaev A.U.	
Minutes of the meeting of the department № 1a " 04 " " 08 " 2022		
Discussed at a meeting of the KOP residency		
COP Chairman	Kauyzbai Zh.A.	
Protocol № 5 " 04 " " 08 " 2022		
Agreed on the Clinical Council		
Chairman of the Clinical Council	Kauyzbai Zh.A.	
Protocol № 5a " 05 " " 08 " 2022		
Approved by the Academic Council		
Protocol № __12__ dated " __08__ " " __08__ " 2022		

ONTUSTIK-KAZAQSTAN MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ	 SKMA 1979	SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия»
Department of Phthisiopulmonology and Radiology The educational program of the residency		044-70/11 3стр. из 11

Educational program passport

1. **Mission of the educational program:** Training of competitive radiologists.
2. **The purpose of the educational program** is to train a highly qualified radiologist who has a system of universal, professional competencies, capable and ready for independent professional activity in the conditions of primary health care.

3. **Justification for the OP**

Radiology is a branch of medicine that studies the use of radiation methods for diagnosis (radiodiagnosis) and treatment (radiotherapy) of various diseases, as well as diseases and pathological conditions that arise when exposed to ionizing radiation on the human body.

Radiation research methods allow you to quickly identify the disease, analyze the development of the disease and determine the location of the damage. Currently, this is the main type of diagnostics, which is used at all stages of diagnosing and assessing the effectiveness of patient treatment.

Diagnostic methods in radiology include:

- X-ray diagnostics (X-ray);
- ultrasound diagnostics (ultrasound);
- magnetic resonance imaging (MRI);
- computed tomography (CT);
- mammography;
- densimetry.

A radiologist is a physician who has received appropriate postgraduate training and interprets medical images, communicates these findings to other physicians through a report or verbally, and uses imaging to perform minimally invasive medical procedures.

4. **Professional standard** on the basis of which the educational program was developed Professional standard "Radiology" Standard of organizations providing radiological care in the Republic of Kazakhstan Order of the Ministry of Health of the Republic of Kazakhstan of the DSM November 27, 2018

5. **Area of professional activity:** the area of professional activity of graduates who have completed the educational program 7R01114 Radiology includes in-depth development of theoretical issues of radiology; improvement of practical skills according to modern diagnostic principles, interpretation of examination results from the perspective of evidence-based medicine; independent provision of qualified medical care for various conditions and diseases.

6. **Objects of professional activity:**

- organization of health care management;
- organization of education;
- organization of social protection;
- a set of means and technologies aimed at creating conditions for protecting public health.

General information

№	Characteristics of OP	Data
1	Registration number	7R09100117
2	Code and classification of the field of education	7R01 Healthcare (medicine)
3	Code and classification of training areas	7R011 Healthcare
4	Group of educational programs	R014 "Radiology"
5	Name of the educational program	"Radiology"
6	Type of OP	Updated EP
7	Moscow Time level	7
8	The level of the NRK	7
9	ORC Level	7
10	Distinctive features of EP	No
11	List of competencies	<p>KC 1 Medical knowledge: Synthesis of professional and scientific medical knowledge to provide qualified medical assistance</p> <p>KC 2 Communication: Effectively interact with the patient, his environment, and healthcare professionals in order to achieve the best results for the patient</p> <p>KC 3 Professionalism: Coordination of activities in healthcare organizations. The ability to make decisions and be responsible for the result of providing qualified medical care</p> <p>KC 4 Personal and professional development: The ability to learn independently and train other members of a professional team, actively participate in discussions, conferences and other forms of continuous professional development</p> <p>KC 5 Regulatory and legal knowledge: The ability to act within the legal and organizational framework of the healthcare system of the Republic of Kazakhstan.</p> <p>KC 6 Research: The ability to research and evaluate the results of their professional activities, the application of principles of diagnosis of diseases based on scientific data.</p>

		The application of modern research methods in healthcare, taking into account bioethics, and the introduction of clinical practice.
12	Learning outcomes	<p>PO1 is able to assign an examination plan, conduct an examination and interpret a medical report based on the data obtained.</p> <p>PO2 is able to effectively interact with the patient who needs to be examined using medical imaging methods, his environment, healthcare professionals in order to achieve the best results for the patient</p> <p>PO3 is able to assess risks and use the most effective medical imaging methods to ensure a high level of safety and quality of medical care.</p> <p>RO4 is able to act within the legal and organizational framework of the healthcare system of the Republic of Kazakhstan when conducting visualization methods, work as part of interprofessional teams to implement the policy of strengthening the health of the nation</p> <p>RO5 is able to formulate adequate research questions, critically evaluate the professional literature on medical imaging techniques, effectively use international databases in their daily activities, participate in the work of the research team</p> <p>RO6 is able to train independently and train other members of a professional team, actively participate in discussions, conferences and other forms of continuous professional development.</p>
13	Form of study	Full - time
14	Language of study	Kazakh and Russian
15	Volume of credits	140
16	Duration of training	2 years
17	Awarded academic degree	Radiologist
18	Form of training	KZ 36LAA00011387
19	Accreditation of the OP	
	Name of accreditation body	IAR
	Duration of accreditation	10.06.2022 -09.06.2027 №AB4357
20	Information about the disciplines	appendix 1,2



Department of Phthisiopulmonology and Radiology

The educational program of the residency

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Appendix 1.1

Matrix for correlating learning outcomes in the educational program as a whole with the competencies being developed

	RS1	RS2	RS3	RS4	RS5	RS6
KC1	+				+	+
KC2			+	+	+	
KC3			+		+	
KC4	+					+
KC5			+	+	+	
KC6		+		+	+	

Appendix 1.2

The matrix of achievability of competencies/learning outcomes

№	Name of the discipline	Brief description of the discipline	Cycle (PD)	Component (RC, OC)	Number of cred.	Formed LO
1	Roentgenology	Organization of the radiological service and directive documents: orders, instructions, regulations. Biological effect of X-rays. Regulation of radiation diagnostic studies. X-ray examination methods: fluorography, fluoroscopy, radiography, tomography. The study of the recognition of a number of injuries and diseases, the study of organs and tissues using X-ray radiation. General radiosemiotics and	PD	RC	30	RS1 RS5 RS6

		X-ray diagnostics of diseases of the respiratory, cardiovascular, digestive, urinary and musculoskeletal systems.				
2	Pediatric roentgenology	Organization of radiological services in children's medical institutions. Biological effect of X-rays. Features of the technique of X-ray examination of organs and systems in children. Radiosemiotics of diseases of the musculoskeletal, respiratory, cardiovascular, digestive and genitourinary systems of children.	PD	RC	12	RS3 RS4 RS5
3	Radiology in mammology	The norm and interpretation of the data of radiation methods for diagnosing diseases of the mammary glands (mammography, tomosynthesis, digital contrast mammography, CT, MRI, PET / CT, radioisotope diagnostics). Mammographic classification according to BI-RADS system. Screening for breast cancer. Interventional diagnostic methods in mammology (ductography, pneumocystography, fine needle aspiration biopsy, trephine biopsy of mammary gland formations under the control of radiation methods, vacuum aspiration resection biopsy, stereotaxic biopsy on a digital mammograph, photodynamic scintigraphy and photodynamic therapy, etc.)	PD	RC	10	RS3 RS5
4	Ultrasound diagnostics	Organization of ultrasound service and directive documents: orders, instructions, regulations, reporting of ultrasound departments. Ultrasound techniques – one-dimensional echography, Dopplerography, duplex sonography. Software system ultrasound diagnostics of diseases in adults and children. Ultrasound of the breast. Features of ultrasound in newborns. Neurosonography.	PD	RC	20	RS1 RS6

5	Computed tomography	Organization of computed tomography in polyclinics and hospitals. Physical and technical fundamentals of CT – the principle of the method, types of installations, technologies, and scanning protocol, contrast technologies, reconstruction of tomograms, transformations. CT diagnostics of diseases of the musculoskeletal, cardiovascular, respiratory, digestive and urinary systems, and diagnosis of pelvic diseases.	PD	RC	20	RS3 RS4 RS5
6	Magnetic resonance imaging	Organization of magnetic resonance imaging in polyclinics and hospitals. Physico-biological fundamentals of MRI – the principle of the method, types of installations, technologies, and scanning protocol, contrast technologies, reconstruction of tomograms, transformations. MRI diagnostics of diseases of all organs and systems in adults and children of various ages.	PD	RC	20	RS2 RS4 RS5
7	Nuclear medicine	The use of radionuclide drugs. Radionuclide research methods: scanning, scintigraphy, single-photon and positron emission tomography. Radionuclide diagnostics of the endocrine, cardiovascular, osteoarticular system, liver and kidney pathology. Positron emission tomography (PET) is one of the most informative methods in the early diagnosis of serious diseases: cardiac, neurological, including oncological.	PD	RC	10	RS2 RS3 RS4
8	Radiation diagnosis of diseases of organs and systems	Thoracic radiology: pathology of the chest organs, mammary glands. Abdominal radiology: pathology of the abdominal cavity and retroperitoneal space.	PD	RC	12	RS3 RS4



9	Neuroradiology	<p>The importance of visual research methods in the diagnosis of nervous diseases. Radiation diagnostics of vascular and hereditary diseases. Visual diagnosis of multiple sclerosis. Visual diagnostics of acute traumatic brain injuries and their consequences. Visual diagnosis of brain tumors. Visual diagnostics of neurological diseases in children and adolescents.</p>	PD	OC	2	RS1 RS2 RS3
	Cardioradiology	<p>Radiation diagnostics and semiotics of diseases of the cardiovascular system: congenital and acquired heart defects, coronary heart disease, angina pectoris, pericarditis, heart failure, heart attacks, aneurysms (abnormal protrusion and thinning of the walls) of the aorta.</p>				
10	Oncoradiology	<p>Radiation diagnostics and semiotics of oncological diseases, early (preclinical) diagnosis of neoplasms, screening of oncological diseases, diagnosis and differential diagnosis of detected oncological changes, the use of positron emission tomography (PET) followed by CT or MRI to assess the prevalence of the tumor process at the level of the whole organism.</p>	PD	OC	2	RS1 RS2 RS3
	Interventional radiology	<p>The concept of interventional radiology. History of development. Materials for angiography. The main accesses to the vascular bed. Angiography of the arterial and venous system. Interventional radiology for PE and cardiovascular diseases.</p>				
	X-ray endovascular diagnosis and treatment	<p>Possibilities of using endovascular methods for examining patients suffering from cardiovascular disease distal, oncological, neurosurgical, gynecological, urological gical, cardiological kimi, surgical diseases. Basic principles</p>				

Matrix of compliance of RO with assessment methods

LO (codes)	Assessment methods									
	Verbal response	Testing	Essay	Patient examination demonstration	Assessment of mastery of diagnostic skills	Analysis of records in the medical history and outpatient card (diagnostic procedures)	Interpretation of research results	Grade 360°	Abstract\presentations Publications	Portfolio Clinical records Self-esteem
LO1	+	+		+	+	+	+	+		
LO2				+	+	+	+	+		
LO3				+	+	+	+			
LO4					+	+	+			
LO5	+		+						+	+
LO6	+			+					+	+

Work plan for the entire period of study

Cycle of disciplines	Discipline code	Name of disciplines/modules	Number of credits	General hours	audit or	RIC		1 year of training	2 year of training	form of control	FE
						српн	RTI C				
PD		Cycle of major disciplines	138	4140							
		Required component	134	4020							
PD	R-RI	Radiology	30	900	180	585	135	30		Exam	
	R-NM	Nuclear medicine	10	300	60	195	45	10		Exam	
UC	R-UD	Ultrasound diagnostics	20	600	120	390	90	20		Exam	
	R-RM	Radiology in mammology	10	300	60	195	45	10		Exam	

	R-CT	CT scan	20	600	120	390	90		20	Exam	
	R-MRI	Magnetic resonance imaging	20	600	120	390	90		20	Exam	
	R-PR	Pediatric radiology	12	360	72	234	54		12	Exam	
	R-KLD BOS	Comprehensive radiation diagnostics of diseases of organs and systems	12	360	72	234	54		12	Exam	
	Component of choice		4	120	24	78	18		4		
KV	R-IR	Interventional radiology	2	60	12	39	9		2	Exam	
	R-NR										
	R-Kar	Cardioradiology	2	60	12	39	9		2	Exam	
	R-Onk	Oncoradiology									
Total			138	4140	828	2691	621				
IC	Interim certification										
FE	Final examination		2	60					2		60
Total			140	4200	828	2691	621	70	70		60