

## Catalog of elective subjects

1. **Department: "Hygiene and epidemiology"**
2. **Level of preparation (bachelor / internship / magistracy / residency)**
3. **Specialty: "" General Medicine "**
4. **Course: 3**
5. **Name of elective discipline: "Clinical epidemiology"**
6. **The number of credits - 5**
7. **Purpose: the development and application of such methods of clinical observation, which enable students to draw fair conclusions, conduct retrospective and prospective studies.**
8. **Tasks:**
  - to teach students to distinguish between the main types of clinical research;
  - to teach the basic skills of using the database of clinical epidemiology;
  - teach to critically evaluate medical information regarding clinical epidemiology;
  - to give knowledge of the theoretical, methodological and organizational bases of clinical diagnosis for infectious and parasitic diseases;
9. The rationale for the choice of discipline: Clinical epidemiology is the selection and systematization of reliable results of various methods of diagnosis and treatment, the development and application of methods of clinical observation, which make it possible to draw fair conclusions, avoiding the influence of systematic and random errors. To exclude systematic errors take into account the features of patient selection.

### 10. Learning outcomes (competencies):

<b>Knowledge (cognitive sphere)</b>	<b>Skills and abilities (psychomotor sphere)</b>	<b>Personal and professional competencies (relationships)</b>
<p>Demonstrates knowledge of the subject;</p> <p>knows the methods of clinical research, the system of epidemiological diagnosis;</p> <p>owns the principles of organizing and conducting research in the field of clinical epidemiology;</p> <p>knows the method of calculating the intensive and extensive indicators, assessing the clinical research indicators, predicting the manifestations of the epidemic process of infectious and non-communicable diseases;</p> <p>knows the Code of the Republic of Kazakhstan "On the health of the people and the health care system";</p> <p>Knows the methodology for calculating and assessing population health indicators.</p>	<p>able to conduct clinical research facilities;</p> <p>able to conduct research in the field of this discipline;</p> <p>able to develop a set of measures for the prevention and reduction of infectious diseases, the prevention of importation and the spread of especially dangerous infections;</p> <p>able to maintain accounting records using computer technology;</p> <p>able to present and interpret legislation on the protection of public health, sanitary, environmental legislation of the Republic of Kazakhstan, the legal framework for the activities of specialists of the state sanitary and epidemiological service;</p> <p>able to present personal judgments, arrange in the</p>	<p>able to promote healthy lifestyle among the population;</p> <p>able to implement methods of collecting, storing and processing information used in clinical epidemiology;</p> <p>able to transfer to students their own knowledge and skills in working with information (educational, reference, scientific);</p> <p>Own the skills of public speaking with the presentation of their own judgments, analysis and synthesis of information in the studied area.</p>

	form of an abstract, presentation, project and present at practical classes, student meetings, student scientific conferences, etc.	
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**11. Prerequisites:**

**12. Post requisites:**

**13. Literature:**

1. Amireev S.A. Standards and algorithms for activities with infectious diseases. Volume 1: A Practical Guide. –Evero, 2014.

2. Amireev S.A. Standards and algorithms for activities with infectious diseases. Volume 2: a practical guide. –Evero, 2014.

3. Infectious diseases and epidemiology: a textbook. - M.: GEOTAR - Media, 2013.- additional:

1. S. A. Amireev Immunization in practice [Text]: a practical guide / [and others]. - Almaty: [b. and.], 2013. - 448 p.

2. Alshinbaeva, G. U. Infectious diseases with the basics of epidemiology: a textbook. - Astana: ANkr, 2014. - 364 p.

3. Duysenbaeva, P. R. Current approaches to the study of epidemiology, clinic, diagnosis, treatment, prevention of measles, rubella, chicken pox and scarlet fever in children: a textbook. - Almaty: Evero, 2014. - 140 p.

4. Epidemiology. In 2 t. T. 1: textbook / N. I. Briko [et al.]. -; Rec. GBOU VPO "First MGMU them. IM Sechenov". - M.: Medical Information Agency LLC, 2013. - 832 p. : il.

5. Epidemiology. In 2 t. T. 2: textbook / N. I. Briko. -; Rec. GBOU VPO "First MGMU them. IM Sechenov". - M.: Medical Information Agency LLC, 2013. - 656 pp., Ill.

**Electronic resources.**

1. Infectious diseases and epidemiology [Electronic resource]: studies. for honey Universities / V.I.Pokrovsky [et al.]. - Electronic text data. (39.6 MB) - M., 2009. - 816 hrs. El. opt.disk (CD-ROM). - 1 copy

2. Schloss Leopoldskron Infectious Diseases and Epidemiology '98 [Electronic resource]: cornell Seminar in Saizburg / Leopoldskron Schloss. - Electron. text data. (623 MB). [S. l. : s.n.], 1998. - email. opt.disk (CD-ROM). - 1 copy Translation of the title: Infectious diseases and epidemiology.

**1. Department of Obstetrics and Gynecology**

**2. Level of training-Bachelor**

**3. Educational program-6B10101 «General medicine»**

**4. Course – 4,**

**number of credits-5,**

**number of hours-150.**

**5. Name of elective discipline-Obstetrics**

**Goal:**

Obstetrics is a fundamental branch of clinical medicine. Protection of reproductive health, management of pregnancy, childbirth and the postpartum period is the main task of this discipline. A qualitative indicator of the work of any maternity service is the reduction of maternal and perinatal morbidity and mortality. In the diagnosis and treatment of obstetric complications at the present stage, it requires the mandatory use of clinical protocols in this specialty. Competencies in this area are mandatory for a graduate of the Faculty of General Medicine, who must know the clinical and physiological characteristics of the female body in different age periods, be able to carry out not only therapeutic and diagnostic, but also preventive measures of physiological and pathological obstetrics.

**The content of the discipline:**

Formation of knowledge, skills and abilities in the diagnosis and management of pregnancy, childbirth and the postpartum period, primary health care and prevention of common obstetric pathology, training in the basics of practical skills of normal and pathological obstetrics and perinatology.

**Tasks:**

1. To give students up-to-date knowledge about the main manifestations of the most common obstetric conditions and gynecological pathologies;
2. Teach them to provide emergency care for the most common obstetric conditions and gynecological diseases, to make an observation plan, to provide the necessary care to the patient;
3. Teach to observe and control sanitary and hygienic and anti-epidemic regimes in obstetric and gynecological institutions in accordance with regulatory documents;
4. Teach to train (advise) patients and family on family planning and contraception issues;
5. Teach to provide pre-medical care for emergency conditions in obstetrics and gynecology.

**Justification:**

Organization of women's health protection in the Republic of Kazakhstan. Help in emergency situations should be a doctor of any specialty, this is especially important in obstetrics, where the life of the mother and fetus depends on the speed and skill of the doctor. Treatment of diseases, taking into account the obstetric and gynecological status in the presence of concomitant obstetric pathology; emergency care for pregnant women, women in labor, women in labor.

The role of the doctor in the prevention of diseases in women, the influence of the course of pregnancy and childbirth. Infection in the development of purulent-septic complications in pregnant women and postpartum women. Critical periods of pregnancy, stages of development of the embryo/fetus; changes that occur in the body of a woman during pregnancy. Complicated course of pregnancy (early toxicosis, gestosis, anemia, infection)

**Learning outcomes (competencies)**

1) Knowledge and understanding:

- demonstrates knowledge of the subject and tasks of obstetrics and gynecology;

2) Applying knowledge and understanding

- knows the methods of research and primary care in obstetrics and gynecology;

- has the skills of medical examination and prevention of pathology in obstetrics and gynecology

3) Formation of judgments

- uses the acquired knowledge to understand the features of etiopathogenesis, clinic, complications and extragenital diseases during pregnancy;

- applies the theoretical knowledge gained in midwifery for further study at the internship level;

4) Communication skills

- demonstrates communication skills when interacting with different people in different obstetric situations;

- demonstrates professional behavior – responsibility, productivity, self-esteem, reflection;

5) Learning skills or learning abilities

- demonstrates readiness and ability to acquire new knowledge;

Prerequisites: Anatomy, physiology, and pathology.

Post-requirements: Nursing care in obstetrics and gynecology

**Literature**

basic:

1. Bodyazhina I. I. Obstetrics: textbook 1,2,3 Vol.- Evero, 2015

2. management of Obstetrics and gynecology for paramedics and obstetricians: Ed. V. N. Prilepskoy, V. E. Radzinsky. Moscow, 2007. - 688 P.

3. Radzinsky V. E. Obstetrics: textbook + CD. Moscow, 2008-904 P.

4. Gynecology: textbook /L. N. Vasilevskaya [and doctor].] 6-E izd. - Rostov B/D, 2007

additional:

1. urgent assistance in obstetrics and gynecology: management / Ed. "What's The Matter?" - 2nd ed., ISPR. and the ball. Moscow: GEOTAR-media, 2011.

2. Kailyubayeva G. zh. physiology of pregnancy. Dorodovoy care : educational and methodological support / G. zh. Kailyubayeva, G. N. Baimusanova; MZ RK-2-OE izdaniye-Karaganda: AKNUR, 2019. - 132 H

**1. Department of Obstetrics and Gynecology**

**2. Level of training-Bachelor**

**3. Educational program-6B10101 « General medicine »**

**4. Course – 4, number of credits-4, number of hours-120.**

**5. Name of elective discipline- Gynecology**

**Goal:**

Formation of competencies for the diagnosis and management of patients with gynecological diseases, provision of primary medical care and prevention of common gynecological pathologies, training in the basics of practical skills used in gynecology. To improve the communication skills of interpersonal communication and counseling of patients with gynecological pathology.

**The content of the discipline:**

Neuroendocrine regulation of the menstrual cycle. Methods of examination of a gynecological patient with an assessment of the specific functions of the female reproductive system and the functions of organs related to sexual organs in anatomical and functional relations. Functional diagnostic tests. Screening methods. Classification, clinic, modern methods of diagnosis and principles of treatment of gynecological diseases.

**Tasks:**

1. To give students up-to-date knowledge about the main manifestations of the most common obstetric conditions and gynecological pathologies;
2. Teach them to provide emergency care for the most common obstetric conditions and gynecological diseases, to make an observation plan, to provide the necessary care to the patient;
3. Teach to observe and control sanitary and hygienic and anti-epidemic regimes in obstetric and gynecological institutions in accordance with regulatory documents;
4. Teach to train (advise) patients and family on family planning and contraception issues;
5. Teach to provide pre-medical care for emergency conditions in obstetrics and gynecology.

**Justification:**

Organization of women's health protection in the Republic of Kazakhstan. Formation of competencies for the diagnosis and management of patients with gynecological diseases, provision of primary medical care and prevention of common gynecological pathologies, training in the basics of practical skills used in gynecology. To improve the communication skills of interpersonal communication and counseling of patients with gynecological pathology.

**Learning outcomes (competencies)**

1) Knowledge and understanding:

- demonstrates knowledge of the subject and tasks of obstetrics and gynecology;

2) Applying knowledge and understanding

- knows the methods of research and primary care in obstetrics and gynecology;

- has the skills of medical examination and prevention of pathology in obstetrics and gynecology ;

3) Formation of judgments

- uses the acquired knowledge to understand the features of etiopathogenesis, clinic, complications and extragenital diseases during pregnancy;

- applies the theoretical knowledge gained in midwifery for further study at the internship level;

4) Communication skills

- demonstrates communication skills when interacting with different people in different obstetric situations;

- demonstrates professional behavior – responsibility, productivity, self-esteem, reflection;

5) Learning skills or learning abilities

- demonstrates readiness and ability to acquire new knowledge;

Prerequisites: Anatomy, physiology, and pathology.

Post-requirements: Nursing care in obstetrics and gynecology

### **Literature**

basic:

1. Bodyazhina I. I. Obstetrics: textbook 1,2,3 Vol.- Evero, 2015
2. management of Obstetrics and gynecology for paramedics and obstetricians: Ed. V. N. Prilepskoy, V. E. Radzinsky. Moscow, 2007. - 688 P.
3. Radzinsky V. E. Obstetrics: textbook + CD. Moscow, 2008-904 P.
4. Gynecology: textbook /L. N. Vasilevskaya [and doctor].] 6-E izd. - Rostov B/D, 2007

additional:

1. urgent assistance in obstetrics and gynecology: management / Ed. "What's The Matter?" - 2nd ed., ISPR. and the ball. Moscow: GEOTAR-media, 2011.
2. Kailyubayeva G. zh. physiology of pregnancy. Dorodovoy care : educational and methodological support / G. zh. Kailyubayeva, G. N. Baimusanova; MZ RK-2-OE izdaniye-Karaganda: AKNUR, 2019. - 132 H

### **1. Department: Microbiology, Virology and Immunology**

### **2. Level of training: Bachelor's degree**

### **3. Specialty: "Medicine"**

### **4. Course: 5**

### **5. Name of the elective discipline: "Vaccinoprophylaxis"**

### **6. Number of credits: 4 credits (120 hours)**

**7. Purpose:** to acquaint students with modern scientific developments on immunity against infection, description of immunobiological preparations included in the vaccination calendar, storage and transportation of vaccines, organization of vaccination, epidemiological supervision of vaccination prevention and legal issues of vaccination. Analysis and presentation of medical information based on evidence-based medicine, participation in scientific research, development of the ability to introduce new methods aimed at preserving public health.

### **8. Objectives:**

- To study the patterns of formation of the body's resistance to infectious diseases (immunity).
- Development and improvement of methods of serological and allergic diagnostics of infectious diseases.
- Development and application of biological products (vaccines, immune serums, gammaglobulins for specific prevention and treatment of human infectious diseases)

9. The content of the discipline. Types of vaccines. Classification of vaccines. Development of immunological drugs. Sources of infection. Mechanisms of transmission of infection. National vaccination calendars. Compatibility of vaccines. Immunological preparations used for vaccine prophylaxis in excess of the National Calendar of preventive vaccinations. The algorithm of action during vaccination. Contraindications and adverse events during vaccination. The rights and obligations of citizens of the Republic of Kazakhstan in the field of immunoprophylaxis. Registration, investigation and prevention of post-vaccination complications. Recommendations for emergency immunoprophylaxis. Vaccination according to epidemic indications.

### **10. Justification of the choice of discipline:**

Vaccination is a system of measures carried out in order to prevent, limit the spread and eliminate infectious diseases through preventive vaccinations. In the territory of the Republic of Kazakhstan, all vaccinations are carried out in accordance with the national calendar of preventive vaccinations. The national calendar of preventive vaccinations is a scheme of mandatory vaccinations carried out at a certain age for children and adults, which allows the most complete protection of a person from infection. Every year, the resistance of infectious agents to antibacterial drugs and other medicines increases, and therefore treatment becomes difficult. Many infections

occur at lightning speed and can lead to death or disability. According to the World Health Organization, more than 12 million children die worldwide every year, 2/3 of these deaths are caused by diseases that could be prevented with vaccines.

**11. Learning outcomes (competencies):**

LO 1	Applies in practice fundamental knowledge in the field of biomedical, clinical, epidemiological and socio-behavioral sciences.
LO 10	Applies scientific principles, methods and knowledge in medical practice on the basis of continuous self-education and development.
LO 11	Analyzes the results of the conducted research and his professional activities based on scientific data.

**12. Prerequisites:** the structural organization of human physiological processes, microbiology and immunology.

**13. Details:** infectious diseases with clinical immunology and microbiology.

**14. Literature:**

1. General Immunology: Okula. Seitkhanova B.T. Almaty: Evero 2014. – 160 P.
2. Medalyk microbiology, virology and immunology : okulyk. Volume 2. Volume 1 / kazakhtilin Auy. I. Kudaibergenuly; edited by V. V. Zverev. - M. : GEOTAR - Media, 2016. – 416 p.
3. Medalyk microbiology, virology and immunology: okulyk. Volume 2. In 2 volumes / Kazakh. til. aud. I. Kudaibergenuly. - M. : GEOTAR - Media, 2016. - 480 P.
4. General Immunology: Okulyk / A.A. Shortanbaev, S.V. Kozhanova. - Almaty, 2008. – B. 452
5. Klimov V.V. Fundamentals of immunology: a textbook. Tomsk: SibSMU Publishing House, 2017. 169 P.
6. Khaitov.M., Ignatiev G.A. I. Sidorovich.G. X19 Immunology: Textbook. — M.: Medicine, 2000. - 432 p.
7. L. K. Reshetnikova. Immunology. - Blagoveshchensk, 2019. 176 P.

**1. Department: Pharmacology, Pharmacotherapy and Clinical Pharmacology**

**2. Level of training: baccalaureate**

**3. OP: "General Medicine"**

**4. Course: 5**

**5. Name of elective discipline: Clinical Pharmacology**

**6. Number of loans: 4**

**7. Purpose: to develop students' clinical thinking skills, the choice of medicines in adults and children with the main syndromes of internal diseases.**

**8. Tasks:**

- teach the dosage regimen of drugs taking into account the individual characteristics of the patient;
- teach to predict side effects of drugs based on the individual characteristics of the patient;
- teach to evaluate the possible interactions of drugs taking into account the individual characteristics of the patient;

9. Content of the discipline: Clinical pharmacology is a medical discipline that scientifically studies the effects of drugs on the human body in order to increase the efficiency and safety of the clinical use of drugs. The main sections of clinical pharmacology are pharmacodynamics - the study of the totality of the effects of a drug substance and its mechanisms of action, and pharmacokinetics - the study of the routes of administration, distribution, biotransformation and excretion of drugs from the body. It studies side effects, especially the effects of drugs depending on gender, age, drug interactions when used together.

10. Justification of the choice of discipline: Clinical pharmacology is a science that studies the interaction of drugs with the body of a healthy and sick person, develops principles and methods

for studying the effects of pharmacological drugs in a clinical setting, and is the scientific basis for pharmacotherapy. Knowledge of clinical pharmacology is absolutely necessary for the doctor in connection with the need to use the principles of an effective and safe choice of medicines.

11. Learning outcomes (competency):

<b>Knowledge (cognitive sphere)</b>	<b>Skills (psychomotor sphere)</b>	<b>Personalities and professional competencies (relationships)</b>
<ul style="list-style-type: none"> <li>- Knows the features of the pharmacokinetics and pharmacodynamics of drugs and methods for assessing the quality of life of a particular patient</li> <li>- Knows risk factors and clinical manifestations of major adverse drug reactions.</li> <li>- Knows the basic principles of dosage of drugs, depending on the pathological and physiological parameters of the human body;</li> <li>- Knows possible drug interactions.</li> <li>- Knows clinical recommendations (treatment protocols) regarding the provision of medical care to the population</li> <li>• • -</li> </ul>	<ul style="list-style-type: none"> <li>- Able to make the choice of the most effective and safe medicines, taking into account age-related aspects and the condition of patients, determine the optimal dosage regimen;</li> <li>- Able to choose the dosage form of the drug, dose, frequency and duration of administration of the drug.</li> <li>- Is able to control and make a forecast of the risk of side effects of drugs;</li> <li>- Able to prevent and apply correction methods when they occur;</li> <li>- Knows the clinical protocol for diagnosing and treating diseases.</li> <li>- Able to analyze the effect of drugs on the totality of their pharmacological effects on the body.</li> </ul>	<ul style="list-style-type: none"> <li>- communicates its own knowledge, opinions and skills on the principles of communication with patients (in adults and children) in clinical practice.</li> <li>-Able to communicate information, ideas, problems and solutions to both specialists and non-specialists.</li> <li>- argues the formulary based on the treatment protocol.</li> <li>-Able to use types of literature (educational, scientific, reference) and computer databases on clinical pharmacology and evidence-based medicine</li> <li>- develops a treatment plan for children, taking into account the clinical picture.</li> </ul>

12. Prerequisites: Pharmacology-1, Pharmacology-2

13. Post-requisites: General medical practice-1, General medical practice-2

14. Literature:

Primary:

1. Kalieva, S. S. Clinical pharmacology and rational pharmacotherapy. Volume 1: textbook / Sh. S. Kaliev., N. A. Minakova. - Almaty: Evero, 2016 .-- 460
2. Kalieva, C. S. Clinical pharmacology and rational pharmacotherapy. Volume 2: textbook / S. S. Kaliev, N. A. Simokhin. - Almaty: Evero, 2016 .-- 288 p.
3. Greenhalch T. Basics of evidence-based medicine: textbook: translation from English. / Under the editor. GS Kemelova; in the Kazakh language aud. T. K. Sagatova. –M .: GEOTAR- Media, 2014
4. Kulmagambetov I. R. Clinical pharmacology. Part 1: textbook / I. R. Kulmagambetov. - Almaty: Evero, 2014. - 320 p. c.
5. Kulmagambetov I. R. Clinical pharmacology. Part II: textbook / I. R. Kulmagambetov. - Almaty: Evero, 2014. - 392 p. c.
6. Petrov V.I. Evidence Based Medicine: Textbook. allowance / V.I. Petrov, S.V. Disadvantage .- ; Rec. Textbook. By med and farm. the formation of Russian universities. - M .: GEOTAR-Media, 2012

Additional:

1. Rational pharmacotherapy in oncology: hands, for practitioners / ed. M.I. Davydova, V.A. Gorbunova. - M.: GEOTAR-Media, 2015. -844s.
2. Petrov V.I. Clinical pharmacology and pharmacotherapy in real medical practice: master class: textbook / V.I. Petrov.-; Rec. GOU DPO "Russian med. Acad. postgraduate education. " - M.: GEOTAR-Media, 2011 .-- 880 p.: Ill.
3. Lecture complex - on the subject of effective use of drugs: lecture complex / Department of Pharmacology, Pharmacotherapy and Clinical Pharmacology. - Shymkent: SKSPhA, 2016. - 65 pages.
4. Rakhimov K.D. Guidelines for the safe use of medicines: a guide / K.D. Rakhimov, K.A. Zordinova; Ministry of Health of the Republic of Kazakhstan; Almaty state Institute of Advanced Doctors Research Institute of Pharmacology and Toxicology; National Acad. Sciences of the Republic of Kazakhstan .- Almaty: B. and., 2009.- 244s.

Electronic editions:

1. Petrov, V. I. Clinical pharmacology and pharmacotherapy in real medical practice, master class [Electronic resource]: textbook / V. I. Petrov. - The electron. text data (63.5 MB). - M.: Publishing Group "GEOTAR-Media", 2011. - 880 p. email opt. disk (CD-ROM).
2. . Doctor's consultant. Clinical Pharmacology. Version 1.1 [Electronic resource]: manual. - The electron. text data (132 Mb). - M.: Publishing Group "GEOTAR-Media", 2010. - Email. opt. disk (CD-ROM).

- 1. Department:** Phthisiopulmonology and radiology
- 2. Level of preparation:** Bachelor's degree
- 3. Educational program:** 6B10101 “General Medicine”
- 4. Course:** 5
- 5. Name of the elective discipline:** “Visual diagnostics”
- 6. Number of credits:** 4

**7. Goal:** To develop in the graduate the knowledge and skills to carry out effective activities for the radiological diagnosis of diseases and damage to organs and systems, observing measures to protect patients and medical workers; on the use of practical and communication skills to evaluate research results, agrees with the principles of evidence base, ensuring further successful application in clinical practice.

**8. Contents of the discipline:** Visual diagnostics - in the higher education system consists of studying theoretical and practical issues of general practice of radiology diagnostics using innovative technologies. Having studied the discipline, the graduate conducts preclinical radiation diagnostics (screening) and evaluates pathological changes in organs and systems in radiological images; knows the main radiological symptoms and syndromes of various diseases; conducts differential diagnostics; interprets X-ray results

**9. Objectives:** To teach how to interpret visualization data of various organs and systems during X-ray, ultrasound, radioisotope studies, computed tomography, magnetic resonance imaging; teach how to use X-ray data for differential diagnosis of various diseases.

**10. Justification for choosing the discipline:** Radiation diagnostics includes x-ray, radionuclide, ultrasound, magnetic resonance imaging, computed tomography, medical thermography (thermal imaging). In addition, it is adjacent to the so-called interventional radiology, which includes the implementation of therapeutic interventions based on radiation diagnostic procedures. Physical and technical foundations of visual research methods. Protection of patients and personnel from ionizing and non-ionizing radiation. To provide knowledge about the principles of obtaining modern diagnostic images, the essence of each method (X-ray analogue and digital radiography, tomography, ultrasound techniques, magnetic resonance and computed tomography, radionuclide studies, etc.), the capabilities and limits of different visualization methods.



### **11. Learning outcomes (competencies):**

1. Demonstrates patterns of radiation image formation and differential radiation diagnosis of diseases and injuries of various organs and systems;

Demonstrates the properties of the indications for the use of contrast agents, most widely used in the study of various human organs and systems, especially when used in children;

2. Identifies specific anamnestic features in adults and children of different ages and obtains the necessary information about the disease.

Determines the need for special radiation (x-ray, ultrasound, computed tomography, magnetic resonance, radiological) studies in adults and children of different ages;

3. Able to formulate radiation studies and analyze radiograms in various projections of organs and anatomical areas in standard and additional projections of various ages, identifying morphological and functional symptoms of diseases;

Able to carry out differential diagnostics, draw up a protocol for radiological examinations, formulate and substantiate a clinical and radiological report;

4. Interacts with patients to establish a trusting relationship, provides information in a form understandable to the patient, explains to him the essence of the proposed activities and the results of radiation studies;

Interacts with students, teachers, medical workers in compliance with ethics and deontology;

5. Able to apply personal judgment based on the results of radiological diagnostics, prepare presentations, use personal judgment and collected information to prevent exposure to ionizing and non-ionizing rays and compose electronic presentations on the topic, work with literature, electronic databases and computer training programs

**12. Prerequisites:** basics of radiology diagnostics, introduction to the clinic, propaedeutics of internal diseases.

**13. Postrequisites:** internal medicine, surgery, traumatology, obstetrics and gynecology, oncology

### **14. Literature:**

1. **The Unofficial Guide to Radiology: 100 Practice Chest X-Rays (Unofficial Guides to .Medicine).** by Nihad Khan | 1 February 2017 |

2. [Chapman & Nakielny's Aids to Radiological Differential Diagnosis](#)

by Hameed Rafiee MBBS FRCR | 8 November 2019

3. **Cardiovascular Magnetic Resonance Made Easy.**

4. Radiology in Medical Practice

ABM Abdullah, 2009

[Radiology in Medical Practice](#)

5. [Felson's Chest Roentgenology](#) 2020

6. [Weir & Abrahams' Imaging Atlas of Human Anatomy](#) 2024

### **Catalog of elective disciplines for the 2024-2025 academic year**

**1. Department:** Microbiology, Virology and Immunology

**2. Level of training:** Bachelor's degree

**3. Specialty:** 6B10101 "General medicine"

**4. Course:** 5

**5. Name of the elective discipline:** "Vaccinoprophylaxis"

**6. Number of credits:** 4 credits (120 hours)

**7. Purpose:** to acquaint students with modern scientific developments on immunity against infection, description of immunobiological preparations included in the vaccination calendar,

storage and transportation of vaccines, organization of vaccination, epidemiological supervision of vaccination prevention and legal issues of vaccination. Analysis and presentation of medical information based on evidence-based medicine, participation in scientific research, development of the ability to introduce new methods aimed at preserving public health.

### **8. Objectives:**

- To study the patterns of formation of the body's resistance to infectious diseases (immunity).
- Development and improvement of methods of serological and allergic diagnostics of infectious diseases.
- Development and application of biological products (vaccines, immune serums, gammaglobulins for specific prevention and treatment of human infectious diseases)

9. The content of the discipline. Types of vaccines. Classification of vaccines. Development of immunological drugs. Sources of infection. Mechanisms of transmission of infection. National vaccination calendars. Compatibility of vaccines. Immunological preparations used for vaccine prophylaxis in excess of the National Calendar of preventive vaccinations. The algorithm of action during vaccination. Contraindications and adverse events during vaccination. The rights and obligations of citizens of the Republic of Kazakhstan in the field of immunoprophylaxis. Registration, investigation and prevention of post-vaccination complications. Recommendations for emergency immunoprophylaxis. Vaccination according to epidemic indications.

### **10. Justification of the choice of discipline:**

Vaccination is a system of measures carried out in order to prevent, limit the spread and eliminate infectious diseases through preventive vaccinations. In the territory of the Republic of Kazakhstan, all vaccinations are carried out in accordance with the national calendar of preventive vaccinations. The national calendar of preventive vaccinations is a scheme of mandatory vaccinations carried out at a certain age for children and adults, which allows the most complete protection of a person from infection. Every year, the resistance of infectious agents to antibacterial drugs and other medicines increases, and therefore treatment becomes difficult. Many infections occur at lightning speed and can lead to death or disability. According to the World Health Organization, more than 12 million children die worldwide every year, 2/3 of these deaths are caused by diseases that could be prevented with vaccines.

### **11. Learning outcomes (competencies):**

**LO 1:** organizing conditions for effective and safe vaccination;

**LO 2:** understanding the need for vaccination and the legal basis for vaccine prevention;

**LO 3:** mastery of methods for long-term planning and processing of results in the field of vaccine prevention;

**LO 4:** mastering the skill of analytical generalization and data analysis from the perspective of evidence-based medicine.

**12. Prerequisites:** the structural organization of human physiological processes, microbiology and immunology.

**13. Details:** infectious diseases with clinical immunology and microbiology.

**14. Literature:**

1. General Immunology: Okula. Seitkhanova B.T. Almaty: Evero 2014. – 160 P.
2. Medalyk microbiology, virology and immunology : okulyk. Volume 2. Volume 1 / kazaktilin Auyl. I. Kudaibergenuly; edited by V. V. Zverev. - M. : GEOTAR - Media, 2016. – 416 p.
3. Medalyk microbiology, virology and immunology: okulyk. Volume 2. In 2 volumes / Kazakh. til. aud. I. Kudaibergenuly. - M. : GEOTAR - Media, 2016. - 480 P.
4. General Immunology: Okulyk / A.A. Shortanbaev, S.V. Kozhanova. - Almaty, 2008. – B. 452
5. Klimov V.V. Fundamentals of immunology: a textbook. Tomsk: SibSMU Publishing House, 2017. 169 P.
6. Khaitov.M., Ignatiev G.A. I. Sidorovich.G. X19 Immunology: Textbook. — M.: Medicine, 2000. - 432 p.
7. L. K. Reshetnikova. Immunology. - Blagoveshchensk, 2019. 176 P.

**1. Department: Phthisiopulmonology and radiology**

**2. Level of preparation: Bachelor's degree**

**3. Educational program: 6B10101 “General Medicine”**

**4. Course: 5**

**5. Name of the elective discipline: “Visual diagnostics”**

**6. Number of credits: 4**

**7. Goal:** To develop in the graduate the knowledge and skills to carry out effective activities for the radiological diagnosis of diseases and damage to organs and systems, observing measures to protect patients and medical workers; on the use of practical and communication skills to evaluate research results, agrees with the principles of evidence base, ensuring further successful application in clinical practice.

**8. Contents of the discipline:** Visual diagnostics - in the higher education system consists of studying theoretical and practical issues of general practice of radiology diagnostics using innovative technologies. Having studied the discipline, the graduate conducts preclinical radiation diagnostics (screening) and evaluates pathological changes in organs and systems in radiological images; knows the main radiological symptoms and syndromes of various diseases; conducts differential diagnostics; interprets X-ray results

**9. Objectives:** To teach how to interpret visualization data of various organs and systems during X-ray, ultrasound, radioisotope studies, computed tomography, magnetic resonance imaging; teach how to use X-ray data for differential diagnosis of various diseases.

**10. Justification for choosing the discipline:** Radiation diagnostics includes x-ray, radionuclide, ultrasound, magnetic resonance imaging, computed tomography, medical thermography (thermal imaging). In addition, it is adjacent to the so-called interventional radiology, which includes the implementation of therapeutic interventions based on radiation diagnostic procedures. Physical and technical foundations of visual research methods. Protection of patients and personnel from ionizing and non-ionizing radiation. To provide knowledge about the principles of obtaining modern diagnostic images, the essence of each method (X-ray analogue and digital radiography,

tomography, ultrasound techniques, magnetic resonance and computed tomography, radionuclide studies, etc.), the capabilities and limits of different visualization methods.

#### **11. Learning outcomes (competencies):**

1. Demonstrates patterns of radiation image formation and differential radiation diagnosis of diseases and injuries of various organs and systems;

Demonstrates the properties of the indications for the use of contrast agents, most widely used in the study of various human organs and systems, especially when used in children;

2. Identifies specific anamnestic features in adults and children of different ages and obtains the necessary information about the disease.

Determines the need for special radiation (x-ray, ultrasound, computed tomography, magnetic resonance, radiological) studies in adults and children of different ages;

3. Able to formulate radiation studies and analyze radiograms in various projections of organs and anatomical areas in standard and additional projections of various ages, identifying morphological and functional symptoms of diseases;

Able to carry out differential diagnostics, draw up a protocol for radiological examinations, formulate and substantiate a clinical and radiological report;

4. Interacts with patients to establish a trusting relationship, provides information in a form understandable to the patient, explains to him the essence of the proposed activities and the results of radiation studies;

Interacts with students, teachers, medical workers in compliance with ethics and deontology;

5. Able to apply personal judgment based on the results of radiological diagnostics, prepare presentations, use personal judgment and collected information to prevent exposure to ionizing and non-ionizing rays and compose electronic presentations on the topic, work with literature, electronic databases and computer training programs

**12. Prerequisites:** basics of radiology diagnostics, introduction to the clinic, propaedeutics of internal diseases.

**13. Postrequisites:** internal medicine, surgery, traumatology, obstetrics and gynecology, oncology

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#### **4. Literature:**

1. **The Unofficial Guide to Radiology: 100 Practice Chest X-Rays (Unofficial Guides to .Medicine).** by Nihad Khan | 1 February 2017 |

2. [Chapman & Nakielny's Aids to Radiological Differential Diagnosis](#)

by Hameed Rafiee MBBS FRCR | 8 November 2019

3. **Cardiovascular Magnetic Resonance Made Easy.**

4. Radiology in Medical Practice

ABM Abdullah, 2009

[Radiology in Medical Practice](#)

5. [Felson's Chest Roentgenology](#) 2020

6. [Weir & Abrahams' Imaging Atlas of Human Anatomy](#) 2024