

MINISTRY OF HEALTH OF THE REPUBLIC OF BELARUS  
EDUCATIONAL INSTITUTION  
BELARUSIAN STATE MEDICAL UNIVERSITY

Контрольный  
экземпляр



APPROVED

by First Vice-Rector, Professor

I.N.Moroz

12.08. 2023

Reg # UD-L.06/2324/edu.

**UROLOGY**

**Curriculum of educational institution in the educational discipline for the  
specialty 1-79 01 01 «General Medicine»**

**Sub-Residency «General Clinical Practice»**

Minsk 2023

Curriculum is based on the educational program of educational institution in the educational discipline «Urology» for the Sub-Residency «General Clinical Practice (for foreign citizens)», approved 11.08.2023, registration # УД-Л.06/2324/уч.цyb.

**COMPILERS:**

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**RECOMMENDED FOR APPROVAL:**

by the Department of Urology of the Educational Institution «Belarusian State Medical University»  
(protocol # 13 of 29.06.2023);

by the Scientific and Methodological Council of the Educational Institution «Belarusian State Medical University»  
(protocol # 7 of 10.08.2023)

## EXPLANATORY NOTE

«Urology» is an educational discipline containing systematized scientific knowledge on the methods of diagnosis and treatment of the diseases of urinary system organs in children, adolescents, men and women and sexual system in boys and men.

The purpose of teaching the discipline «Urology» for the sub-residency «General Clinical Practice (for foreign citizens)» is a formation at students' academic, socio-personal and professional competences to provide medical assistance to patients with diseases of the genitourinary system.

The tasks of teaching the discipline are to develop the students' scientific knowledge about etiology, pathogenesis, clinical manifestations of diseases of genitourinary organs as well as practice skills necessary for:

diagnosis and differential diagnosis of acute conditions of urinary system in girls and women, urinary and sexual systems in boys and men;

analysis of laboratory and imaging studies;

diagnosis, treatment, prevention of urological diseases;

follow up and rehabilitation of patients with urological diseases.

Teaching and successful learning of the discipline «Urology» for the sub-residency «General Clinical Practice (for foreign citizens)» is based on student's knowledge and skills in the following academic disciplines:

General Chemistry. The electrolyte composition of the blood, urine, blood buffer systems. Acid-base balance.

Latin Language. Latin and Greek word-of-speech elements, terminology.

Medical Biology and General Genetics. Biological basis of the Cell Biology. Cell Reproduction. Conducting medical genetic research and its role in the diagnosis and treatment of urological diseases.

Human Anatomy. The structure of the human body, its systems, organs, tissues, sexual and age characteristics of the body.

Normal Physiology. Basic physiology of organs and systems of the human body.

Histology, Cytology, Embryology. Histological tissue structure. Methods of histological and cytological evaluation. Embryogenesis of the urinary organs.

Pharmacology. Basics principles. Antibacterial and anti-parasitic medications.

Pathological Anatomy. Concept of inflammation.

Pathological Physiology. Basics of pathogenesis. Negative impact of the environmental factors (biological factors - viruses, bacteria, protozoa). Role of the body reactivity in pathogenesis.

Microbiology, Virology, Immunology. Bacteriological and immunological methods in diagnosis of surgical infections. Basics of chemotherapy and antiseptics.

General Surgery. Evaluation of the patient with suspected surgical disease. Basics of asepsis and antiseptics. Desmurgy. Diagnosis and treatment of bleeding,

indications for blood transfusion and its components. Diagnosis and treatment of common surgical diseases.

Topographic Anatomy and Operative Surgery. Anterior abdominal wall, peritoneum and retroperitoneum. Surgical instruments. Most common surgical procedures in children, adolescents and adults.

Internal Diseases. Evaluation of the patient with internal disease. Features of the diagnosis and treatment in children, elderly patients, patients with Diabetes, Immunodeficiencies. Nutrition therapy. Prevention, Follow up. Urinary tract infections. Chronic kidney disease. Renal failure.

Oncology. Malignant tumors of kidney, bladder, prostate, testicle and penis.

As a result of studying the discipline «Urology» for the sub-residency «General Clinical Practice (for foreign citizens)» students should

**know:**

principles of epidemiological safety in medical care;  
 medical ethics and deontology rules;  
 etiology, pathogenesis, clinical manifestations of urological diseases;  
 diagnosis, treatment, prevention and rehabilitation of patients with urological diseases; clinical guidelines for evaluation and treatment of patients with urological diseases;

causes and mechanisms of complications, treatment and prevention of complications;

cure criteria for patients with urologic diseases;

principles of medical examination of patients with urological diseases;

**be able to:**

perform physical examination of the urinary system organs in children and adolescents, men and women;

establish plan of care for the most common urological diseases;

interpret the results of basic and advanced diagnostic methods in urological diseases;

establish a diagnosis of a disease of the genitourinary system;

complete medical records;

**master:**

diagnostic methods for urological diseases;

kidney, bladder palpation, digital prostate exam;

care for patients with urinary incontinence, persistent cystostoma, nephrostoma, ureterocutaneostoma; urinary retention syndrome, requiring recurrent catheterization.

Total number of hours for the study of the discipline is 42 academic hours. Classroom hours according to the types of studies: practical classes - 28 hours; student-independent work (self-study) - 14 hours.

Intermediate certification is carried out in accordance with the curriculum of the institution of education in the form of a credit (12 semester).

Form of education is full-time.

## THEMATIC PLAN

Section (topic)	Number of class hours
	practical
1. Diagnosis and treatment of urological diseases in outpatient settings	7
2. Micturition disorders. Urinary incontinence	7
3. Emergency urological conditions	7
4. Andrology	7
<b>Total hours</b>	<b>28</b>

### CONTENT OF THE EDUCATIONAL MATERIAL

#### 1. Diagnosis and treatment of urological diseases in outpatient settings

*Asymptomatic bacteriuria.* Definition of «asymptomatic bacteriuria», etiology, pathogenesis. Clinical course of asymptomatic bacteriuria, follow up, outcomes and prognosis in women of different age groups and in pregnant women. Diagnosis, treatment of asymptomatic bacteriuria, prevention of pyelonephritis in patients with asymptomatic bacteriuria.

*Cystitis.* Definition, etiology and pathogenesis, classification, contributing factors (local and systemic). Acute and chronic cystitis (including caused by bladder stones, tumor, leukoplakia, simple bladder ulcer, atonia, bladder tuberculosis, benign prostatic hyperplasia): symptoms, diagnosis, differential diagnosis, treatment, prevention.

*Pyelonephritis.* Definition, classification, etiology, pathogenesis, symptoms, differential diagnosis of acute serous and acute purulent pyelonephritis, conservative treatment, indications for surgical treatment. Septic shock. Urosepsis. Patients follow up after acute purulent pyelonephritis. Pyelonephritis in pregnancy: definition, etiology, pathogenesis, symptoms, diagnosis and treatment.

*Prostatitis.* Etiology, pathogenesis, classification. Acute and chronic prostatitis, prostate stones: symptoms, diagnosis and treatment. Effect of prostatitis on erectile and reproductive function in men.

*Pelvic pain syndrome.* Definition, etiology, pathogenesis. Differential diagnosis between urological and other causes of «pelvic pain» syndrome.

Examination of the patients with inflammatory diseases of the genitourinary system, history taking, physical examination; plan of care, interpretation of laboratory and imaging studies; diagnosis. Intravenous urogram, urethrography, cystography and interpretation of their results.

#### 2. Micturition disorders. Urinary incontinence

Classification of urination disorders in men and women. Causes, differential diagnosis. Diagnostic algorithm depending on causes of urinary disorders.

Etiology and pathogenesis of stress urinary incontinence, significance of pelvic floor muscles in development of stress urinary incontinence, diagnosis, differential diagnosis with other types of urinary incontinence.

Overactive bladder: etiology, pathogenesis, symptoms, diagnosis, treatment.

Conservative treatment of urinary incontinence, indications, contraindication, outcomes. Surgical treatment of urinary incontinence, indications, outcomes. Midurethral slings. Surgeries to strengthen the pelvic floor muscles.

Hydrodynamic knots of urinary system, the most common causes of urostatics, diagnosis. Indications for percutaneous puncture nephrostomy, ureteral stenting, ureterocutaneostomy. Urinary diversion in acute and chronic urinary retention. Patients care with nephrostomy, cystostomy, ureterocutaneostomy, urethral catheter. Ostomy clinic.

Examination of patients with micturition disorders, urinary incontinence, history taking, physical examination; plan of care; interpretation of laboratory and imaging studies; diagnosis; indications for surgical treatment. Care for patients with cystostomy, nephrostomy, urethral catheter, ureterocutaneostomy.

### **3. Emergency urological conditions**

*Acute urinary retention.* Definition, etiology, pathogenesis, symptoms, diagnosis. Differential diagnosis between acute urinary retention and anuria. First aid. Urinary diversion. Bladder catheterization in women and men, indications, step of the procedure.

*Gross hematuria.* Definition, classification, symptoms, diagnosis and treatment. Bladder tamponade.

*Acute scrotum.* Definition, symptoms, diagnosis, differential diagnosis of testicular torsion and other acute scrotal conditions.

*Renal colic.* Etiology and pathogenesis. The role of upper urinary tract occlusion in the pathogenesis of renal colic. Symptoms. Diagnostic protocol in patient with suspected renal colic. Differential diagnosis between renal colic and «acute abdomen». A sequence of interventions in treating renal colic. Possible complications of late diagnosis and/or inadequate treatment of renal colic.

*Acute paranephritis.* Classification, etiology, pathogenesis, symptoms, diagnosis, differential diagnosis treatment.

Examination of patients with urologic emergencies, history taking, physical examination; plan of care, interpretation of laboratory and imaging studies; diagnosis; indications for surgical treatment.

### **4. Andrology**

Epidemiology of the disease at various ages, etiology and pathogenesis of benign prostatic hyperplasia (BPH). Pathological anatomy changes occurring in the prostate gland against the background of its hyperplasia. Clinical course of BPH. The concept of scoring the symptoms of BPH on IPSS and QOL scales. Differential diagnosis of benign prostatic hyperplasia with chronic prostatitis, RPMs, urethra strictures, bladder tumors, bladder cervical sclerosis. The progression of BPH flow and clinical manifestations of the disease at different stages. Urinary retention

(ishuria). Types of ishuria. First aid for acute urinary retention. Lower urinary tract syndrome (irritative, obstructive, postmicturitional), diagnosis, clinical value.

Conservative treatment for BPH. Types of surgical treatment BPH. Indications and contraindications to various types of conservative treatment BPH. Indications and contraindications for BPH surgery.

Infertility in men. Definition of the concept. Prevalence, etiology and pathogenesis of infertility. Physiology of sperm maturation. Protocol of examination (physical, hormonal laboratory diagnostics, research of ejaculate, medical-genetic research, auxiliary methods, etc.). Qualitative and quantitative criteria of ejaculate healthy man. Methods of ejaculate removal. The most frequent disorders of the composition of ejaculate, prognosis of conception depending on the severity of the disorder. Diagnostic and curative value of testicular biopsy. Treatment of male infertility: conservative, surgical, using assisted reproductive technology, effectiveness of treatment methods.

Diseases of the penis: fibrosis, paraphimosis, short frenulum, meatal stenosis, fibroplastic erection of the penis (Peyronie's disease). Etiology, pathogenesis, clinical manifestations, diagnosis, treatment. Acute diseases of the penis and urethra (urethritis, balanoposthitis, cavernoma, priapism): etiology, pathogenesis, clinical manifestations, diagnosis, treatment.

Penile abnormalities (concealed penis, hypospadias, congenital penile curvature, epispadias): etiology, pathogenesis, clinical manifestations, diagnosis, treatment.

Gathering complaints from patients with benign prostatic hyperplasia, abnormalities and diseases of the penis, history of the disease, physical examination, preparation of a plan of laboratory and instrumental examination, interpretation of the results of laboratory and instrumental methods of research, formulation of diagnosis, drawing up of treatment plan, substantiation of indications to surgery, drawing up of operative intervention plan, assistance in performing surgery, postoperative management of the patient, appointment and correction of measures of medical rehabilitation of patients taking into account the results of research, registration of medical documentation.

**EDUCATIONAL METHODOLOGICAL CARD OF EDUCATIONAL DISCIPLINE «UROLOGY» FOR THE SUB-RESIDENCY  
«GENERAL CLINICAL PRACTICE (FOR FOREIGN CITIZENS)»**

Section, topic #	Section (topic) name	Number of in-class hours		Self-studies	Training aids	Literature	Form of knowledge assessment
			practical				
1.	Diagnosis and treatment of urological diseases in outpatient settings	7		4	1-4	1-4	1-3, 5, 6
2.	Micturition disorders. Urinary incontinence	7		3	1-4	1-3	1-3, 5, 6
3.	Emergency urological conditions	7		4	1-4	1-5	1-3, 5, 6
4.	Andrology	7		3	1-4	1-4	1-6
	<b>Total hours</b>	<b>28</b>		<b>14</b>			



## INFORMATION AND INSTRUCTIONAL UNIT

### LITERATURE

#### **Basic:**

1. Zebentaev, A. A. Urology : lecture course for students of medical universities / A. A. Zebentaev, P. V. Plotnikov. - Vitebsk : VSMU, 2017. - 188 p.

#### **Additional:**

2. Smith and Tanagho's general urology / eds : Jack W. McAninch, Tom F. Lue. – 2013. - 726 p.

3. Urology : textbook for students of higher medical educational institutions of 4-th accreditation level / S. P. Pasiechnikov [и др.]; ed. by S. P. Pasiechnikov. - Vinnytsia : Nova Knyha, 2016. - 393 p.

4. Гаврусев, А. А. Общая урология : симптомы заболеваний, инфекции мочевых путей, неотложные состояния, мочекаменная болезнь = General urology: urological symptoms, urinary tract infection, basic urological emergencies, urolithiasis : учеб.-метод. пособие. – Минск : БГМУ, 2020. – 23 с.

5. European association of urology. Guidelines. – Nederland : EAU, 2016. – 1374p.

### CHARACTERISTICS OF THE USED TRAINING METHODS

Traditional methods of teaching the academic discipline are used: practice classes as well as elements students' self-studies.

It is recommended to organize educational process utilizing traditional and modern educational technologies (simulation training, «standardized patient» technique, various forms of communication, test and other competency assessment systems, etc.).

Practice classes are carried out in Hospital Urology departments. During practice classes under supervision of teaching physician (professor), students taking patients' history, performing physical examination, learn to create plan of diagnostic approach, interpret results of laboratory and imaging studies, establish the diagnosis and treatment plan, complete medical records. Practice training is done by solving situational tasks, mastering physical examination skills, diagnosis and differential diagnosis, conducting procedures using electronic-mechanical, virtual and multi-component simulators.

Independent extracurricular learning consists of the study of basic and additional literature, text books and medical journals, preparation of abstracts, presentations and brief reports on the most common urological topics, learning self-study topics, preparation for practice classes and credit.

Students are introduced to safe working environment, international requirements and ethical standards during practice urology classes.

### LIST OF TRAINING AIDS

1. Multimedia presentations.
2. Videos.
3. Inpatient and outpatient medical records.
4. Simulation equipment.

### LIST OF AVAILABLE DIAGNOSTIC TOOLS

Assessment of a student's academic achievements is carried out using the higher education institutions evaluation tools and technologies:

typical tasks in various forms (oral, written, test, situational, simulation);  
abstracts;

patients' medical records (inpatient and ambulatory) and results of additional diagnostic tests (laboratory, functional, imaging studies).

The following forms of knowledge control are used for competences assessment:

Oral form:

1. interview.

Written form:

2. tests;
3. abstracts.

Oral-written form:

4. credit.

Technical form:

5. electronic tests.

Simulation form:

6. Assessment using electromechanical simulators.

### LIST OF PRACTICAL SKILLS

1. Kidney palpation.
2. Examination and palpation of external genitalia (in patients with tumors, anomalies, injuries, inflammatory diseases).
3. Bladder palpation and percussion (in patient with acute and chronic urinary retention).
4. Digital rectal examination (in patients with prostate diseases).
5. Vaginal examination (in patients with the stones of the lower third of the ureter and bladder tumors).
6. Bladder catheterization in a woman.
7. Bladder catheterization in a man.
8. Performing intravenous urography, urethrography, cystography and interpretation of their results.
9. Care for patients with cystostomy, nephrostomy, urethral catheter, ureterocutaneostomy.

10. Introduction of drugs for therapeutic and diagnostic purposes in the urethra and bladder.

11. Interpretation of the results of basic and additional methods of research in urological diseases.

12. Formalization of medical documentation

13. Care for patients with cystostomy, nephrostomy, urethral catheter, ureterocutaneostomy.

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**TECHNICAL TRANSLATION:**

Master's student of the Minsk State Linguistic University, Department of Linguodidactics and Foreign Language Teaching Methods



D.D. Rudenko

Curriculum content, composition and accompanying documents comply with the established requirements.

Dean of the Medical Faculty for International Students of the educational institution «Belarusian State Medical University»

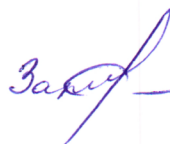
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