



Syllabus «Pediatric surgery»

1. General information

Name of the faculty	Medical
Educational program (branch, specialty, level of higher education, form of education)	22 «Health care», 222 «Medicine», second (master's) level of higher education, full-time
Academic year	2023-2024
Name of discipline, code	Pediatric surgery
Department (name, address, phone, e-mail)	Lviv City Clinical Children's Hospital 79059 Lviv, P.Orlyka str. 4 phone/fax: +38(032) 2939739, +38(032)2917050 Lviv Regional Children's Clinical Hospital "OKHMATDYT" 79008 Lviv, Lysenko str. 31 phone/fax: +38 (032)276-96-33 Western Specialized Children's Medical Centre 79035, Lviv, Dnisterska str. 27 phone: +38 (032) 270-45-01 e-mail: kaf_pedsurgery@meduniv.lviv.ua
Head of the department	Assoc. Prof., MD, PhD, Kuzyk A. kuzykandrij@hotmail.com
Year of study	5 year
Semester	IX- X
Name of the faculty	Obligatory
Teachers	Kuzyk A. – MD, PhD, Assoc. Prof., kuzykandrij@hotmail.com Nakonechnyy A. – MD, PhD, Prof., andrurol@gmail.com Pereyaslov A. – MD, PhD, Prof., perejaslow_andre@yahoo.com Kulyk O., – MD, PhD, Professor, helenakulyk@meta.ua Dats R. – MD, PhD, datsroman@ukr.net Nykyforuk O. – MD, PhD, dr_olesyamn@hotmail.com Nakonechnyi R. – MD, PhD, nrostyslav@gmail.com Hyzha L. – MD, PhD, lilya0505@meta.ua Kens K. – MD, PhD, konstantinkens@gmail.com Kolivoshka Yu. – Assist. Prof. , dr.yuriy.kol@gmail.com Fedus V. – MD, PhD, dr.viktoriafedus@gmail.com Silvester I. – MD, PhD, koraira24@rambler.ru
Number of ECTS credits	1,5
Number of hours (lectures / practical classes / independent work of students)	45 (6/17/22)
Language of instruction	Ukrainian / English

Information for consultation	According to the schedule

2. ANNOTATION

Pediatric surgery is one of the fundamental clinical disciplines in the system of higher medical education, the knowledge of which is necessary for the quality training of professionals in health care system. This is due to the fact that knowledge of pediatric surgery occupies a leading position in treatment of surgical pathology in children. In recent decades, pediatric surgery has been supplemented by new methods of diagnosis and treatment. State standards of higher medical education also apply that a doctor, pediatric surgeon must be able to diagnose and use different diagnostic methods and choose the best methods of surgical treatment in pediatric surgery.

Knowledge of pediatric surgery will allow the future doctor to choose the optimal diagnostic method for pathologies of different organs and systems, to interpret the data of diagnostic methods, evaluate the possibilities of different treatments and choose the optimal method of surgical treatment of surgical pathology in children.

3. METHODS AND AIMS OF THE DISCIPLINE

The aim of the discipline "Pediatric Surgery" is to acquire theoretical and practical knowledge of etiology, pathogenesis, classification, clinical manifestations, methods of diagnosis, conservative and surgical treatment, prevention and rehabilitation of children with surgical pathology, skills of clinical, laboratory and instrumental examination of the child in compliance with medical ethics and deontology principles, the acquisition by the student professional skills in maintaining medical records.

Acquisition by the student of knowledge and professional skills in differential diagnosis of surgical diseases of children, dispensary supervision of healthy and sick children in an outpatient setting and providing emergency care during the most common emergencies in children based on knowledge of age, anatomical and physiological features of the child's body.

Formation of the ability to use knowledge, skills, abilities to solve typical problems of the doctor in health care, the scope of which is provided by certain lists of syndromes and symptoms of diseases, emergencies, physiological conditions.

The main tasks of studying the discipline "Pediatric Surgery" are:

- teach students to identify typical clinical syndromes and symptoms of surgical diseases in children;
- diagnose and provide medical care in emergencies in pediatric diseases;
- interpret the general principles of treatment, rehabilitation and prevention of the most common surgical diseases and injuries in children;
- to determine the prognosis of life, health and quality of life in common surgical diseases and injuries in children;
- make a plan of examination and interpret the results of laboratory and instrumental methods of examination in children;
- demonstrate the ability to perform the necessary medical manipulations;
- provide emergency medical care in emergency cases in pediatric surgery;
- demonstrate the ability to maintain medical records;
- have moral and deontological principles of professional subordination in children's surgery

4. COMPETENCE AND LEARNING OUTCOME

In accordance with the requirements of the Standard of Higher Education, discipline ensures students' acquisition of *competences*:

Integral competence: The ability to solve complex problems, including those of a research and innovation nature in the field of medicine. Ability to continue learning with a high degree of autonomy

General competence (GC):

GC1. Ability to abstract thinking, analysis and synthesis

GC2 Ability to learn and master modern knowledge

GC3. Ability to apply knowledge in practical situations

GC4. Knowledge and understanding of the subject area and understanding of the professional activity

GC5. Ability to adapt and act in a new situation

GC6. Ability to make informed decisions

GC7. Ability to work in a team

GC8. Interpersonal skills

GC10. Skills in the use of information and communication technologies

GC11. Ability to search, process and analyze information from various sources

GC12. Definiteness and perseverance in terms of tasks and responsibilities

GC13. Awareness of equal opportunities and gender issues.

GC14 The ability to realize one's rights and responsibilities as a member of society, to realize the values of a civil (free democratic) society and the need for its sustainable development, the rule of law, the rights and freedoms of a person and a citizen in Ukraine..

GC15. The ability to preserve and multiply moral, cultural, scientific values and achievements of society based on understanding the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, technology and technologies, to use various types and forms of motor activity for active rest and leading a healthy lifestyle.

Special (professional) competence (PC):

PC1. Skills of interviewing and clinical examination of a patient with surgical pathology

PC2. Ability to determine the required list of laboratory and instrumental studies and evaluate their results

PC3. Ability to establish a preliminary and clinical diagnosis of the disease

PC4. Ability to determine the required mode of work and rest in the treatment of diseases

PC5. Ability to determine the nature of nutrition during the treatment and prophylaxis of diseases

PC6. Ability to determine the principles and nature of treatment and prophylaxis of diseases

PC7. Ability to diagnose emergencies

PC8. Ability to determine tactics and provide emergency medical care

PC9. Ability to carry out medical and evacuation measures Emergency care skills

PC10. Skills to perform medical manipulations

PC11. Ability to solve medical problems in new or unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethical responsibility

PC16. Ability to maintain medical documentation, including electronic forms.

PC21. Convey understandable one's own knowledge, conclusions and arguments on health care problems and related issues to specialists and non-specialists, in particular to people who are

studying.

PC24. Adhere of ethical principles when working with patients and laboratory animals

PC25. Adhere of professional and academic integrity, to be responsible for the reliability of the obtained scientific results

Program learning results (PLR):

PLR 1. Have thorough knowledge of the structure of professional activity. To be able to carry out professional activities that require updating and integration of knowledge. To be responsible for professional development, the ability for further professional training with a high level of autonomy.

PLR 2. Understanding and knowledge of basic and clinical biomedical sciences at a level sufficient for solving professional tasks in the field of health care.

PLR 3. Specialized conceptual knowledge that includes scientific achievements in the field of health care and is the basis for conducting research, critical understanding of problems in the field of medicine and related interdisciplinary problems

PLR 4. To isolate and identify the leading clinical symptoms and syndromes according to standard methods, using the previous data of the patient's history, the data of the patient's examination, knowledge about the person, his organs and systems, to establish a preliminary clinical diagnosis of the disease.

PLR 5. Collect complaints, history of life and diseases, evaluate psychomotor and physical development of the patient, state of organs and systems of the body, based on the results of laboratory and instrumental studies, evaluate information regarding the diagnosis, taking into account the age of the patient.

PLR 6. To establish the final clinical diagnosis by making a reasoned decision and analyzing the received subjective and objective data of clinical, additional examination, differential diagnosis, observing the relevant ethical and legal norms, under the supervision of the managing physician in the conditions of the health care institution.

PLR 7. Assign and analyze additional (mandatory and optional) examination methods (laboratory, functional and/or instrumental) of patients with diseases of organs and body systems for differential diagnosis of diseases.

PLR 10. Determine the necessary mode of work, rest and nutrition based on the final clinical diagnosis, observing the relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes.

PLR 14. Determine tactics and provide emergency medical care in emergency situations in limited time in accordance with existing clinical protocols and standards of treatment.

PLR 16. Form rational medical routes for patients; to organize interaction with colleagues in their own and other institutions, organizations and institutions; to apply tools for the promotion of medical services in the market, based on the analysis of the population needs, in the conditions of the functioning of the health care institution, its division, in a competitive environment.

PLR 17. Perform medical manipulations in the conditions of a medical institution, at home or at work based on a previous clinical diagnosis and/or indicators of the patient's condition by making a reasoned decision, observing the relevant ethical and legal norms.

PRL 18. To determine the state of functioning and limitations of a person's vital activities and the duration of incapacity for work with the preparation of relevant documents, in the conditions of a health care institution, based on data about the disease and its course, peculiarities of a person's professional activity, etc. Maintain medical documentation regarding the patient and the contingent of the population on the basis of regulatory documents.

PLR 21. Search necessary information in the professional literature and databases of other

sources, to analyze, evaluate and apply this information.

PLR 22. Apply modern digital technologies, specialized software, and statistical data analysis methods to solve complex healthcare problems.

PLR 24. To organize the necessary level of individual safety (own and the persons he cares for) in case of typical dangerous situations in the individual field of activity.

PLR 25. to convey understandable one's own knowledge, conclusions and arguments on health care problems and related issues to specialists and non-specialists

PLR 27. Communicate freely in the national and English languages, both orally and in writing to discuss professional activities, research and projects.

5. THE STRUCTURE OF THE DISCIPLINE

Discipline	Number of credits, hours, including				Year of study (semester)	Type of control
	Total Credits/hours ECTS	Auditory		Student's out of class work		
		Lectures (hours)	Practical classes (hours)			
Pediatric surgery	1,5 credits / 45 hours	6	17	22	5th (9-10 sem)	Differentiated zalik

Lectures

№	TOPIC	Hours
1.	Pediatric abdominal surgical emergencies. Inflammatory diseases of abdominal cavity in children: acute appendicitis, peritonitis, necrotizing enterocolitis. Congenital and acquired intestinal obstruction.	2
2.	Multiple trauma in children. Traumatic shock in children. Abdominal trauma. Thoracic trauma and trauma of esophagus. Gastrointestinal bleeding.	2
3.	Childhood cancers. Benign and malignant tumors, embryonal tumors.	2
Total		6

Practical classes

№	Topic	Hours
1.	Acute appendicitis, peritonitis in children: <ul style="list-style-type: none"> ➤ features of acute appendicitis in different age groups; ➤ complicated forms of acute appendicitis; ➤ primary peritonitis; ➤ neonatal peritonitis. ➤ Clinic. Rehabilitation after surgery. ➤ Diagnosis and differential diagnosis of acute surgical pathology in children with manifestations of SARS-CoV-2 infection and children who had SARS-CoV-2 	3

2.	Acquired intestinal obstruction: <ul style="list-style-type: none"> ➤ adhesive intestinal obstruction; ➤ intussusception; ➤ short bowel syndrome; ➤ strangulated intestinal obstruction General principles of bowel transplantation.	3
3.	Congenital intestinal obstruction: <ul style="list-style-type: none"> ➤ malrotation; ➤ duodenal atresia and stenosis; ➤ volvulus; ➤ hypertrophic pyloric stenosis; ➤ intestinal atresia and stenosis; ➤ meconium ileus; ➤ Hirschsprung's disease. 	3
4.	Pediatric urologic emergencies: Diseases of urogenital system: <ul style="list-style-type: none"> ➤ hydronephrosis, ureterohydronephrosis; ➤ vesicoureteral reflux, ➤ megaureter; ➤ infravesical obstruction. Urolithiasis: <ul style="list-style-type: none"> ➤ renal colic; ➤ pyelonephritis. Acute scrotum: <ul style="list-style-type: none"> ➤ traumatic injuries of the external genitalia; ➤ testicular torsion and torsion of spermatic cord; ➤ torsion of an appendix testis; ➤ orchitis, orchiepididymitis. 	3
5.	Multiple trauma in children: <ul style="list-style-type: none"> ➤ traumatic disease; ➤ traumatic shock. Closed abdominal trauma: <ul style="list-style-type: none"> ➤ hollow organ injuries; ➤ parenchymal organs injuries. Traumatic injuries of the genitourinary system: <ul style="list-style-type: none"> ➤ renal trauma; ➤ bladder trauma Gastrointestinal bleeding in children, portal hypertension: <ul style="list-style-type: none"> ➤ hemorrhagic gastritis; ➤ gastro-esophageal reflux; ➤ causes of bleeding in case of intussusception, intestinal torsion; ➤ solitary polyps and intestinal polyposis; ➤ anal fissure; ➤ bleeding from esophageal varices 	3
6.	Childhood cancers. Benign and malignant tumors embryonal tumors: <ul style="list-style-type: none"> ➤ teratoma, teratoblastoma; ➤ nefroblastoma; ➤ neuroblastoma; ➤ leiomyosarcoma, rhabdomyosarcoma. Bone tumors. Liver Tumors: <ul style="list-style-type: none"> ➤ benign (hemangioma, hamartoma, hepatocellular adenoma); ➤ malignant (hepatoblastoma, hepatocellular carcinoma). 	2

	Vascular anomalies: ➤ vascular tumors (hemangioma); vascular malformations (capillary, venous, lymphatic, arterial, mixed).	
Total		17

Student's out of class work

№	TOPIC	Hours	Type of control
1.	Laparoscopy in children. Laparocentesis in children.	4	Workbook
2.	Purulent-inflammatory diseases of bones and joints in children. Purulent-inflammatory diseases of soft tissue in children. Purulent diseases of lungs, pleura and mediastinum. Surgical sepsis. Multiple organ dysfunction syndrome. Bases of antibacterial therapy in children.	4	
3.	Neonatal surgery	4	
4.	Congenital malformations of bones and joints	3	
5.	Diagnostic abilities of ultrasound, CT, MRI and other methods of examinations for early diagnosis of surgical diseases in children	4	
6.	Practical work with patients	3	
Total		22	

6. TYPES OF CONTROL (CURRENT AND FINAL)

Types of educational activities of graduate students according to the curriculum are:

- a) practical classes,
- b) independent work of students
- c) case history

Practical classes include:

- 1) conducting an objective examination of a healthy child by students;
- 2) examination of children with surgical pathology;
- 3) detection of symptoms and syndromes observed in surgical diseases;
- 4) preliminary and clinical diagnosis;
- 5) differential diagnosis of various surgical diseases that cause emergencies in pediatric patients;
- 6) providing pre-hospital care to children with surgical pathology;
- 7) solving situational clinical problems, problems according to the test tasks.

Current control is carried out during practical classes and aims to verify the assimilation of students' learning material. Forms of current control are:

- a) test tasks with the choice of one correct answer, with the definition of the correct sequence of actions, with the definition of conformity, with the definition of a certain area in the photo or diagram ("recognition");

- b) solving typical situational problems;
- c) control of practical skills.

At each practical lesson the student answers 20 questions (tests on the topic of practical lesson, standardized questions, knowledge of which is necessary to understand the current topic, lecture course and independent work related to the current lesson; demonstrates knowledge and skills of practical skills according to the topic of practical lesson).

The form of final control in the study of "Pediatric Surgery" is a differentiated zalik. Students who have completed all types of work provided for in the curriculum, completed all missed classes and scored at least the minimum number of points in the discipline are admitted to the final control.

The form of *final control* is standardized, includes control of theoretical and practical training.

The final control consists of the following stages:

I stage - protection of medical history (work with the patient, control of practical skills, registration of medical history) from 0 to 9 points.

Stage II - solving two situational tasks - 0 - 6 points (for each task from 0 to 3 points).

Stage III - solving test tasks in the amount of 65 tests at 1 point for each correctly solved test (from 0 to 65 points).

The maximum number of points that a student can score when taking a differentiated zalik is 80 points.

The minimum number of points in the differentiated test - not less than 50 points.

The current control is carried out during the classes and aims to check the assimilation of educational material by students.

Forms of assessment of current educational activities are standardized and include control of theoretical and practical training.

Evaluation of current educational activities. During the assessment of mastering each topic for the current educational activity of the student marks are set on a 4-point (national) scale. This takes into account all types of work provided by the curriculum. The student must receive a mark from each topic for further conversion of marks into points on a multi-point (200-point) scale.

Comprehensive assessment of educational activities is carried out by setting the traditional assessment, which is converted into points, respectively, in each of the classes, the student receives in practice: grade "5" - if he performed correctly at least 90% of educational tasks; grade "4" - if student performed correctly at least 80% of educational tasks; grade "3" - if student correctly completed at least 60% of educational tasks; grade "2" - if student correctly completed less than 60% of educational tasks; At the final stage of the lesson, the teacher puts the amount of points scored and the traditional score in the journal of success.

Students' independent work is assessed during the current control of the topic in the relevant classroom. Assimilation of topics that are submitted only for independent extracurricular work is controlled during the final control.

Semester differentiated zalik is a form of final control, which consists in assessing the student's mastery of educational material in the discipline on the basis of current control and completed individual test tasks in the last lesson.

The form of final control is standardized, includes control of theoretical and practical training.

The final control consists of the following stages:

I stage – medical history (work with the patient, control of practical skills, registration of medical history) from 0 to 9 points.

Stage II - solving two situational tasks - 0 - 6 points (for each task from 0 to 3 points).

Stage III - solving test tasks in the amount of 65 tests at 1 point for each correctly solved test (from 0 to 65 points).

Scheme of accrual and distribution of points received by students:

The **maximum number** of points that a student can score for the current academic activity for admission to the test is 200 points.

The **minimum number** of points that a student must score for the current academic activity for admission to the test is 120 points.

The calculation of the number of points is based on the grades obtained by the student on a 4-point (national) scale during the study of the discipline, by calculating the arithmetic mean (CA), rounded to two decimal places. The resulting value is converted into points on a multi-point scale as follows:

$$x = \frac{CA \times 120}{5}$$

For convenience, the table of recalculation on a 200-point scale is given:

**Recalculation of the average score for current activity in multi-point scale
for scale for discipline**

4 score scale	200 score scale	4 score scale	200 score scale	4 score scale	200 score scale	4 score scale	200 score scale
5	120	4,45	107	3,91	94	3,37	81
4,95	119	4,41	106	3,87	93	3,33	80
4,91	118	4,37	105	3,83	92	3,29	79
4,87	117	4,33	104	3,79	91	3,25	78
4,83	116	4,29	103	3,74	90	3,2	77
4,79	115	4,25	102	3,7	89	3,16	76
4,75	114	4,2	101	3,66	88	3,12	75
4,7	113	4,16	100	3,62	87	3,08	74
4,66	112	4,12	99	3,58	86	3,04	73
4,62	111	4,08	98	3,54	85	3	72
4,58	110	4,04	97	3,49	84	Less then 3	Not enough
4,54	109	3,99	96	3,45	83		
4,5	108	3,95	95	3,41	82		

The **maximum number** of points that a student can score when taking a differentiated test is 80.

The **minimum number** of points in the differentiated test - not less than 50.

The grade for the discipline, which ends with a differentiated credit, is defined as the sum of points for the current educational activity (not less than 72) and points for the differentiated zalik (not less than 50).

Points from the discipline are independently converted into both the ECTS scale and the 4-point (national) scale. ECTS scale scores are not converted to a 4-point scale and vice versa.

The scores of students studying in one specialty, taking into account the number of points scored in the discipline are ranked on the ECTS scale as follows:

ECTS	Statistical indicator
A	The best 10% of students
B	Next 25 % of students

C	Next 30 % of students
D	Next 25 % of students
E	Last 10 % of students

Ranking with assignments of grades "A", "B", "C", "D", "E" is carried out for students of this course who study in one specialty and have successfully completed the study of the discipline. Students who receive grades FX, F ("2") are not included in the list of ranked students. Students with an FX grade automatically receive an "E" score after retaking.

Scores of discipline for students who completed the program successfully converted a traditional 4-point scale by absolute criteria, which are listed in the table below:

(Points) Score 4-point scale	(Points) Score 4-point scale
From 170 till 200 points	5
From 140 till 169 points	4
From 139 till min.	3
Less than min. points	2

The ECTS score is not converted to the traditional scale, as the ECTS scale and the four-point scale are independent.

The objectivity of the assessment of students' knowledges is checked by statistical methods (correlation coefficient between ECTS assessment and assessment on a national scale).

7. THE LIST OF QUESTIONS for the final control of knowledge of pediatric surgery for 5th year students

Acute abdominal processes

1. Modern views on the etiology and pathogenesis of acute appendicitis.
2. Features of the structure of the abdominal cavity and appendix, which determine the clinical course of appendicitis in children.
3. Features of acute appendicitis in young children (up to 3 years).
4. Features of examination of young children with suspected acute appendicitis.
5. Differential diagnosis of acute appendicitis.
6. Diagnosis and treatment of appendicular infiltrate.
7. Atypical forms of acute appendicitis. Features of clinic and diagnostics.
8. Primary pelvioperitonitis. Diagnosis, treatment.
9. Peritonitis. Classification. Diagnosis.
10. Differential diagnosis of acute appendicitis and primary peritonitis.

11. Symptom of comparative doped percussion (According to AR Shurinko). Survey methods and evaluation criteria.
12. Auxiliary methods of examination of children with suspected acute appendicitis, their informativeness and diagnostic value.
13. Open and laparoscopic appendectomy: advantages and disadvantages.
14. The origin and location of Meckel's diverticulum.
15. Meckel's diverticulitis. Clinical manifestations, diagnosis, treatment.
16. The main causes, clinical manifestations of peritonitis in newborns.
17. Criteria for the patient's readiness for surgery for peritonitis.
18. Principles of preoperative preparation of a patient with peritonitis. Criteria for the child's readiness for surgery.
19. Principles of treatment of appendicular abscess.
20. Features of the clinic and treatment of peritonitis in newborns with extremely low body weight.

Acquired intestinal obstruction. Intussusception

1. Classification of intestinal obstruction in children.
2. The main clinical symptoms of idiopathic intussusception in children.
3. Describe additional methods for diagnosing intussusception in children.
4. Indications for conservative straightening of the intussusception in children.
5. Contraindications to conservative straightening of the intussusception in children.
6. The essence of conservative straightening of the intussusception in children.
7. Radiological signs of high and low intestinal obstruction.
8. Complications of intussusception, their prevention and principles of treatment.
9. The main reasons, classification of postoperative connective intestinal obstruction.
10. The main pathogenetic factors of early postoperative connective intestinal obstruction.
11. Principles of conservative treatment of early postoperative connective intestinal obstruction.
12. The main causes of spastic and paralytic intestinal obstruction.
13. Principles of preoperative preparation for mechanical intestinal obstruction. Criteria for patient readiness for surgery.
14. Features of preoperative preparation at high and low intestinal obstruction.
15. Characteristics of the main drugs used to restore the volume of circulating blood.
16. Bezoar as a cause of high intestinal obstruction. Clinical manifestations, methods of treatment.
17. Foreign bodies of the gastrointestinal tract in children. Clinical manifestations, diagnosis, possible complications.
18. Therapeutic tactics for foreign bodies of the gastrointestinal tract in children.
19. Post-burn stenosis of the esophagus and pyloric stomach as a cause of gastrointestinal obstruction in children. The main causes, clinical manifestations.
20. Principles of treatment after burn stenosis of the esophagus and pyloric stomach in children.

Congenital intestinal obstruction

1. Features of the clinical course and modern methods of diagnosis of congenital hypertrophic pylorostenosis.
2. Preoperative preparation, surgical treatment of congenital hypertrophic pylorostenosis. Possibilities of laparoscopy.
3. Duodenal intestinal obstruction: causes, prenatal diagnosis, diagnostic algorithm in the newborn.
4. Stages of physiological rotation of the intestine.

5. Classification of disorders of rotation and fixation of the intestine. Clinical manifestations, diagnosis and treatment of intestinal rotation disorders, period I.
6. Syndrome (triad) Ice. Definitions, clinical manifestations, principles of treatment.
7. Disorders of intestinal rotation, period III. Types, clinical manifestations, methods of diagnosis and principles of treatment.
8. Complications of rotational anomalies, their prevention and treatment.
9. Classification of small bowel atresia. Pre- and postnatal diagnosis. Principles of treatment.
10. Hirschsprung's disease. Definitions, anatomical forms.
11. Clinical manifestations of Hirschsprung's disease depending on the form of the course.
12. Modern principles of diagnosis of Hirschsprung's disease.
13. Principles of surgical treatment of Hirschsprung's disease depending on the anatomical form, clinical course and age of the child.
14. Intestinal dysgangliosis, hypogangliosis and other disorders of intestinal motility. Clinical manifestations, possibilities of diagnosis and differential diagnosis with Hirschsprung's disease.
15. Meconium intestinal obstruction. Etiology, pathogenesis, clinical manifestations.
16. Conservative and surgical treatment of meconium intestinal obstruction.
17. Anorectal malformations in boys. Types, clinical manifestations.
18. Anorectal malformations in girls. Types, clinical manifestations.
19. Cloacal form of anorectal atresia. Classification, concomitant defects, clinical manifestations, complications.
20. Modern principles of treatment of anorectal malformations

Urology of childhood

1. Define the syndrome of swollen scrotum. Name inflammatory and non-inflammatory diseases that are manifested by swollen scrotum syndrome.
2. The mechanism of occurrence and clinical manifestations of testicular torsion in newborns and young children (extravaginal form of torsion).
3. The mechanism of occurrence and clinical manifestations of testicular torsion in older children (intravaginal form of torsion).
4. Diagnosis and principles of treatment of egg torsion in children.
5. Clinical manifestations, additional methods of examination and principles of treatment of Morgan's hydatid torsion in children.
6. Differential diagnosis of testicular torsion and Morgani's hydatid torsion in children.
7. The main types and clinical manifestations of closed lesions of the scrotum and its organs.
8. Therapeutic tactics for traumatic injuries of the scrotum and its organs.
9. The main etiological factors and clinical manifestations of acute nonspecific orchepididymitis.
10. Diagnosis and principles of treatment of acute nonspecific orchepididymitis in children.
11. Complications of surgical diseases of the scrotum, their prevention and principles of treatment.
12. Kidney injury: classification, clinical manifestations.
13. Laboratory and instrumental methods of examination, which are the most informative in renal injury.
14. Bladder injury: mechanism, classification.
15. Clinical manifestations and principles of treatment of extraperitoneal rupture of the bladder.
16. Clinical manifestations and principles of treatment of intraperitoneal rupture of the bladder.
17. What are the main mechanisms and clinical manifestations of urethral injury?
18. What additional methods of examination are most informative for different types of urethral injuries?
19. Features of pathogenesis, clinical manifestations and diagnosis of urolithiasis in children.
20. Principles of conservative and surgical treatment of urolithiasis in children.

Multiple trauma. Closed abdominal trauma. Gastrointestinal bleeding in children

1. Multiple trauma in children: definition, epidemiology and pathogenesis in childhood.
2. Classification of traumatic (hypovolemic) shock by severity. Diagnostic criteria of I-III degree of traumatic shock.
3. Therapeutic tactics for traumatic (hypovolemic) shock of the first degree.

4. Therapeutic tactics for traumatic (hypovolemic) shock of the second degree.
5. Treatment tactics for traumatic (hypovolemic) shock of III degree.
6. Epidemiology, the mechanism of closed abdominal trauma in children. The main clinical manifestations and traditional methods of diagnosis.
7. Expediency, diagnostic and therapeutic possibilities of laparoscopy for closed abdominal trauma in children. Contraindications to laparoscopy for closed abdominal trauma in children.
8. The mechanism and clinical manifestations of pancreatic injury in children.
9. Laboratory and instrumental diagnosis of pancreatic injury. Principles of treatment of traumatic pancreatitis.
10. Etiology, mechanism and clinical manifestations of injuries of the hollow organs of the abdominal cavity.
11. Diagnosis of injuries of the hollow organs of the abdominal cavity.
12. Liver damage in closed abdominal trauma: classification, clinical manifestations.
13. Laboratory and instrumental methods of research in traumatic liver disease.
14. Therapeutic tactics for liver injury.
15. Hemobilia: definition, clinical manifestations.
16. Laboratory and instrumental methods of diagnosis, principles of treatment of hemobilia.
17. Trauma of the spleen: classification, clinical manifestations.
18. Diagnosis and treatment of splenic trauma.
19. Differential diagnosis of injuries of parenchymal and hollow organs in closed abdominal trauma.
20. Damage to the internal organs of the abdominal cavity in newborns: causes, main types of injuries, clinical manifestations, diagnosis, treatment tactics.
21. Clinical signs of bleeding from the upper digestive tract (esophagus, stomach, duodenum).
22. Clinical signs of bleeding from the upper middle parts of the GIT (small intestine).
23. Clinical signs of bleeding from the lower parts of the GIT (rectum).
24. What is the cause of bleeding from varicose veins of the esophagus?
25. What is the cause of bleeding in case of Meckel's diverticulum?
26. What is the cause of bleeding during intussusception?
27. What is the cause of bleeding in case of intestinal torsion?
28. What is portal hypertension, forms of portal hypertension?
29. What are the most common causes of portal hypertension?
30. Diagnostic methods of portal hypertension.
31. Characteristic signs of portal hypertension in children.
32. Features of the Blackmore probe design and what it is used for. Features of its installation in children.
33. The value of sandostatin to stop gastrointestinal bleeding in children.
34. Conservative and operative methods of intervention to stop bleeding in portal hypertension in children.
35. Causes of prehepatic portal hypertension in children.
36. Methods of port system shunting.
37. Causes of bleeding in NEC in newborns.
38. Causes of bleeding in intestinal polyposis in children, methods of their diagnosis.
39. Causes of bleeding in gastroesophageal reflux (hernia of the esophageal orifice of the diaphragm, peptic structures, Barrett's esophagus).
40. True and false bleeding from GIT, causes in children.

Pediatric oncology

1. Features of childhood oncology. General principles of diagnosis and treatment of malignant neoplasms in children.

2. Sacrococcygeal teratoma: definition, anatomical and morphological classification and clinical manifestations.
3. Diagnosis of sacrococcygeal teratoma (possibilities of prenatal diagnosis, instrumental research methods, tumor markers) and treatment tactics.
4. Differential diagnosis of sacrococcygeal teratoma and meningocele.
5. Hemangioma: definition, classification, clinical manifestations.
6. Treatment tactics for hemangiomas in children.
7. Lymphangioma: definition, classification, clinical manifestations.
8. Methods of diagnosis and principles of treatment of lymphangiomas.
9. Dermoid cyst: definition, typical localization, clinical manifestations, principles of treatment.
10. Nephroblastoma (Wilms' tumor): definition, clinical manifestations, connection with other disorders of embryogenesis.
11. What laboratory and instrumental methods are used to diagnose nephroblastoma? Principles of nephroblastoma treatment.
12. Neuroblastoma: definition, typical anatomical localization, clinical manifestations.
13. Principles of diagnosis of neuroblastoma (verification of the diagnosis, diagnosis of the primary focus, assessment of the biological activity of the tumor, diagnosis of possible metastases). Principles of neuroblastoma treatment.
14. Differential diagnosis of retroperitoneal neuroblastoma and nephroblastoma (Wilms' tumor).
15. What malignant bone tumors are most common in childhood? The significance of injury in the etiology of bone tumors. Clinical manifestations of bone tumors.
16. Laboratory and instrumental methods of diagnosis, principles of treatment of malignant bone tumors.
17. From which precursor tissues do soft tissue sarcomas develop? Which of them are most common in childhood? Principles of diagnosis and treatment.
18. Clinical manifestations and diagnosis of mediastinal tumors.
19. Types and clinical manifestations of benign pigmented skin tumors.
20. Risk factors for melanoma, its early and late clinical signs. Acronym ABCD (assymetry, borders (bleed), change, diameter).

Purulent surgical infection

1. International Classification of Sepsis (American College of Chest Physicians / Society of Critical Care Medicine Consensus Conference, 1992).
2. Clinical manifestations of systemic response to inflammation (SIRS). Features of the systemic response to inflammation (SIRS) criteria in children depending on age.
3. Clinical criteria of septic shock.
4. Principles of treatment of sepsis. The role of ECMO (extracorporeal membrane oxygenation) in the treatment of sepsis.
5. Anatomical and physiological features of the skin and subcutaneous tissue in newborns, which determine the course of purulent-inflammatory diseases.
6. Necrotic phlegmon of the newborn: etiological factors, pathogenesis, clinical manifestations.
7. Diagnosis and principles of treatment of necrotic phlegmon of the newborn.
8. Purulent mastitis of newborns: causes, clinical manifestations, principles of treatment.
9. Differential diagnosis of mastitis and physiological swelling of the mammary glands in newborns.
10. Omphalitis: definition, causes, classification, clinical manifestations.
11. Diagnosis and treatment of omphalitis depending on the form of the disease.
12. Causes, clinical manifestations, principles of treatment of pararectal abscess in children.
13. Features of the structure and blood supply of long bones in children.

14. Clinical manifestations of acute hematogenous osteomyelitis (AHO) in children.
15. Laboratory and instrumental methods for the diagnosis of acute hematogenous osteomyelitis in children.
Specific radiological signs of AHO of long bones.
16. Differential diagnosis of AHO and tuberculous otitis.
17. Principles of treatment of AHO s in children.
18. Anatomical localization, clinical manifestations of acute hematogenous osteomyelitis in newborns.
19. Radiological signs, principles of treatment of acute hematogenous osteomyelitis in newborns.
20. Clinical and radiological signs of atypical forms of osteomyelitis in children.

8. RECOMMENDED LITERATURE

Bases literature

1. Ashcraft's pediatric surgery. Sixth edition / G.W. Holcomb, J. P. Merphy, D. J. Ostlie (Eds.) – Elsevier, 2014. – 1165 p.
2. Ashcraft's Pediatric Surgery / edited by G. W. Holcomb III, J. P. Murphy, associate editor D. J. Ostlie. – 5th ed. – SAUNDES Elsevier, 2010 – P. 322 – 329, 853 – 996.
3. Lewis Spitz, Arnold Coran Operative Pediatric surgery /CRC Press, 2013. – 1134p.
4. Mario L. Fundamentals of Pediatric Surgery / L. Mario. – Springer, 2017. – 444 p.
5. Mattei P. Fundamentals of Pediatric Surgery / P. Mattei. – Springer, 2017. – 935 p.
6. Operative pediatric surgery. 2nd edition / Edited by M.M. Ziegler, R.G. AziGChan, D. von Allmen, T.R. Weber. – McGraw-Hill Education, 2014. – 1397 p.
7. Operative pediatric surgery. Seventh edition / Edited by L. Spitz and A.G. Coran. – CRC Press, 2013. – 1134 p.
8. Pediatric Surgery. V. 2. Seventh edition / Arnold G. Coran, A. Caldamone, N. Scott Adzick et al. – Elsevier, 2012. – 848 p.
9. Prem Puri, Michael E. Höllwarth, Pediatric surgery / Springer Science & Business Media, 2006. – 634p.
10. S.I. Schwartz and all Principles of Surgery, Companion handbook 7th ed. / Saunders, Philadelphia Pennsylvania, 1998. – 1136p.

Additional literature:

1. Mattei P. Fundamentals of Pediatric Surgery / P. Mattei. – Springer, 2011. – 956 p.
2. Operative pediatric surgery. 2nd edition / Edited by M.M. Ziegler, R.G. AziGChan, D. von Allmen, T.R. Weber. – McGraw-Hill Education, 2014. – 1397 p.
3. Operative pediatric surgery. Seventh edition / Edited by L. Spitz and A.G. Coran. – CRC Press, 2013. – 1134 p.
4. Pediatric Surgery. V. 2. Seventh edition / Arnold G. Coran, A. Caldamone, N. Scott Adzick et al. – Elsevier, 2012. – 848 p.
5. Steven Stylianos, Richard H. Pearl. Abdominal Trauma / in: Coran A. G. Pediatric surgery. – 7th ed. / editor in chief, Arnold G. Coran; associate editors, N. Scott Adzick . . . [et al.] – 2012, – P. 289-309.
6. Rebeccah L. Brown, Richard A. Falcone Jr., Victor F. Garcia. Genitourinary Tract Trauma / in: Coran A. G. Pediatric surgery. – 7th ed. / editor in chief, Arnold G. Coran; associate editors, N. Scott Adzick [et al.] – 2012, – P. 311–325
7. Richard S. Davidson, B. David Horn. Musculoskeletal Trauma / in: Coran A. G. Pediatric surgery. – 7th ed. / editor in chief, Arnold G. Coran; associate editors, N. Scott Adzick . . . [et al.] – 2012. – P.327–336.
8. Peter F. Ehrlich, Robert C. Shamberger. Wilms' Tumor in: Coran A. G. Pediatric surgery. – 7th ed. / editor in chief, Arnold G. Coran; associate editors, N. Scott Adzick . . . [et al.] – 2012. – P. 423–440.

9. Marshall Z. Schwartz. Hypertrophic Pyloric Stenosis in: Coran A. G. Pediatric surgery. – 7th ed. / editor in chief, Arnold G. Coran; associate editors, N. Scott Adzick . . . [et al.] – 2012. – P.1021–1028.
10. Paul M. Columbani, Stefan Scholz. Intussusception in: Coran A. G. Pediatric surgery. – 7th ed. / editor in chief, Arnold G. Coran; associate editors, N. Scott Adzick . . . [et al.] – 2012. – P. 1093–1110.

Source of internet information:

1. Access Medicine - <http://accessmedicine.mhmedical.com>
2. UpToDate – <http://www.uptodate.com/home>
3. PubMed - <https://www.ncbi.nlm.nih.gov/pmc/>
4. Medscape eMedicine - https://emedicine.medscape.com/pediatrics_surgery
5. American Pediatric Surgical Association - <https://eapsa.org/>
6. www.ExamConsult.co.uk
7. www.medicalstudent.com