

**MINISTRY OF SCIENCE AND HIGHER EDUCATION
RUSSIAN FEDERATION**

**FEDERAL STATE AUTONOMOUS EDUCATIONAL INSTITUTION OF
HIGHER EDUCATION
NORTH-CAUCASUS FEDERAL UNIVERSITY**

Methodological Guidelines
for Students on arranging and performing independent work
in the Discipline of "Hospital Surgery, Pediatric Surgery"
for Students majoring (Specialty) in 31.05.01 General Medicine

Explanatory Note

The purpose of mastering the discipline: "Hospital Surgery, Pediatric Surgery" is one of the main, basic components of a specialist's independent professional medical and diagnostic activities and takes on a leading role in the clinical training of a young doctor.

Objectives of the discipline: to continue studying the basics of clinical surgery with an analysis of the course of surgical diseases and their complications; to familiarize students with new sections of the discipline and more complex forms of pathological processes; to expand and improve students' knowledge of differential diagnosis, formulation of clinical diagnosis; to pay special attention in the learning process to issues of early diagnosis and indications for surgical treatment of acute diseases of the abdominal cavity; to teach students to determine therapeutic tactics based on the specific characteristics of the patients they have studied; to familiarize students with and facilitate their mastery of methods of preoperative preparation and postoperative management of patients; to improve students' skills and abilities in providing assistance in emergency situations and in emergency surgery; to train their registration of medical documentation.

Methodological Recommendations for Studying Theoretical Material

When performing the independent study of theoretical material, the student must follow the rules as set below. The working curriculum of the respective academic discipline shall be recommended to be used as the basis for such activity. According to the schedule of classroom lessons and independent work, a different number of hours is to be allocated for studying individual topics. A significant portion of the student's independent work should be allocated to mastering the material on the covered topic, writing a summary (notes) on the specified theoretical blocks, and searching for additional literature based on the NCFU library and via the Internet system. The lecture material shall not cover all theoretical material; the greater part of it must be mastered through independent work. Given the above, working with the recommended literature is mandatory. Special attention must be paid to the content of the main provisions and conclusions, the explanation of phenomena and facts, and the understanding of the practical application of the theoretical issues under consideration. In the process of this work, the student should strive to understand and memorize the main provisions of the material being considered, the examples illustrating it, as well as to understand the illustrative material. Preparation should be completed by drawing up a plan (summary/notes) on the material (issue) being studied. This allows for the creation of a concentrated, concise representation of the issues being studied. First, studying the recommended literature is to be done. Special attention must be paid to the content of the main provisions and conclusions, the explanation of phenomena and facts, and the understanding of the practical application of the theoretical issues under consideration.

During this work, the student should strive to understand and memorize the main provisions of the material being considered, the examples illustrating it, as well as to understand the illustrative material. Preparation should be completed by drawing up a plan (summary/notes) on the material (issue) being studied. This allows for the creation of a concentrated, concise representation of the issues being studied. If necessary, one should seek (advice) consultation from the instructor. When going to a consultation, it is necessary to thoroughly think through the questions that require clarification. Keeping records contributes to turning reading into an active process, mobilizing motor memory along with visual memory. The following should be born in mind: a student who systematically keeps records creates their own individual stock of auxiliary materials for a quick review of what has been read and for the mobilization of accumulated knowledge. Records are especially important and useful when they reflect the thoughts that arose during independent work.

It is important to develop the students' capacity to compare sources and to think through the material being studied.

Improving note-taking skills among students is of great importance.

The instructor may recommend the following main forms of recording to students: a plan (simple and detailed), excerpts, and theses (abstracts).

The results of note-taking can be presented in various forms.

- A plan is an outline of the read material, a brief (or detailed) list of questions reflecting the structure and sequence of the material.
- A detailed plan fully replaces a summary.
- A summary (notes) is a systematized, logical presentation of the source material. Four types of summaries are distinguished:
 - Outline-summary (Plan-notes) – this is an expanded, detailed plan in which sufficiently detailed records are provided for those points of the plan that need explanation.
 - Textual summary – this is the reproduction of the most important provisions and facts of the source.
 - Free summary – these are clearly and briefly formulated (stated) main provisions resulting from a deep understanding of the material. It may contain excerpts, quotations, and theses; part of the material may be represented by a plan.
 - Theme-based summary – this is compiled on the basis of studying a number of sources and gives a more or less exhaustive answer according to a certain scheme (issue).

Methodological Guidelines for the Preparation for Practical Activities

When preparing for practical activities, the recommendation implies studying the control questions for the given lesson and the theoretical material from one's own notes.

The main form of work during the lessons is an interview (discussion). Each student must be ready to speak on all issues raised in the plan and demonstrate maximum activity during their consideration.

The speech must be constructed freely, convincingly, and with arguments. The instructor ensures that the speech is not reduced to a reproductive level (simple reproduction of the text); simple reading of the summary is also not allowed.

It is necessary for the speaker to show their own attitude towards what they are talking about, express their personal opinion and understanding, substantiate it, and be able to draw the correct conclusions from what has been said. In doing so, the student may refer to the entries in the summary, directly to the primary sources, use knowledge of previously studied disciplines, etc. In addition, to obtain a grade at an advanced level, students solve situational tasks based on the results of the mastered topics.

During the execution of practical works, a defense of practical skills is provided, the full list of which is specified in the fund of assessment tools.

Methodological Recommendations for the Preparation of Presentations and Reports

The report must contain elements of novelty; along with the fundamental aspect, an analysis of the current state of the problem under study must be carried out, as well as inclusion in regional issues. The report must include an introduction, a theoretical part, a conclusion, a list of literature, and a presentation that reveals the essence of the topic in graphs, pictures, diagrams, and formulas.

The report is recommended to be submitted on 1 printed sheet. The text of the work must be printed with 1.5 line spacing on one side of a standard sheet (A4) of white paper.

The text and other printed elements of the work must be black, and the contours of letters and signs must be clear, without halos and shading. The font must be Times New Roman, size 14. The titles of chapters and paragraphs are highlighted in bold. The sheet with text must have margins: left – 30 mm, right – 10 mm, top – 20 mm, bottom – 20 mm.

Page numbering of the text is done in the lower right corner of the sheet. It is necessary to number pages starting from the page where the Introduction is printed, on which the number 3 is placed. After that, all pages, including appendices, are numbered.

List of additional literature.

1. Ambulatory Surgery in Children [Electronic resource] / V.V. Levanovich, N.G. Zhila, I.A. Komissarov - Moscow: GEOTAR-Media, 2014.
<http://www.studmedlib.ru/book/ISBN9785970430163.html>
2. Pediatric Urology-Andrology [Electronic resource: textbook] / M.P. Razin, V.N. Galkin, N.K. Sukhikh. - Moscow: GEOTAR-Media, 2011.
<http://www.studmedlib.ru/book/ISBN9785970420645.html>
3. Surgery of the Abdomen and Perineum in Children. Atlas/Edited by A.V. Geraskin, A.N. Smirnov. 2012.- 508 p.: ill. EBS "Student's Consultant"
www.studentlibrary.ru/book/isbn9785970420065
4. Surgery of the Abdomen and Perineum in Children: Atlas [Electronic resource] / Ed. by A.V.Geraskin, A.N. Smirnov - Moscow: GEOTAR-Media, 2012.
<http://www.studmedlib.ru/book/ISBN9785970420065.html>
5. "Diagnosis of Acute Abdominal Diseases [Electronic resource]: A Guide / Vlasov A.P., Kukosh M.V., Saraev V.V. - Moscow: GEOTAR-Media, 2012. - (Series "Specialist Doctor's Library")." - <http://www.studmedlib.ru/book/ISBN9785970421574.html>
6. Surgical Diseases [Electronic resource] textbook / edited by V. S. Savelyev, A. I. Kirienko. - 2nd edition, revised and expanded. - M. GEOTAR-Media, 2014.
<http://www.studmedlib.ru/book/ISBN9785970431306.html>

List of resources for the Internet information and telecommunications network required to master this subject.

- Computed Medical Imaging - http://www.nobelprize.org/nobel_prizes/medicine/laureates/1979/cormack-lecture.html
- Russian Association of Pediatric Surgeons - www.radh.ru
- Surgical Workshop - e-surgeons.ru
- Central Scientific Medical Library - <http://www.scsml.rssi.ru/>
- School of Modern Surgery - www.websurg.ru

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9th Semester

SECTION 1. ABDOMINAL SURGERY

Laboratory work No. 1

Topic 1. Acute appendicitis

Acute appendicitis: definition. Clinical picture: acute catarrhal appendicitis, acute phlegmonous appendicitis, gangrenous appendicitis. Clinical picture of atypical forms of acute appendicitis: appendiceal empyema, retrocecal appendicitis, pelvic appendicitis, subhepatic location of the appendix. Left-sided acute appendicitis. Differential diagnosis. Treatment: typical appendectomy, retrograde appendectomy. Retroperitoneal appendectomy. Features of surgical intervention in various forms of acute appendicitis. Complications of acute appendicitis.

Protocol design: describe the results obtained. Make appropriate conclusions.

Laboratory work No. 2

Topic 2. Acute cholecystitis

Clinical picture of acute cholecystitis. Catarrhal cholecystitis. Phlegmonous cholecystitis. Gangrenous cholecystitis. Perforated cholecystitis. Purulent cholangitis. Diagnosis: ultrasound, laparoscopy, endoscopic retrograde cholangiopancreatography (ERCP), cholangiography. Treatment of acute cholecystitis. Cholecystectomy. Cholecystostomy. Features of laparoscopic cholecystectomy. TUES.

Protocol design: describe the results obtained. Make appropriate conclusions.

Laboratory work No. 3

Topic 3. Acute pancreatitis

Classification: I. Edematous (interstitial) pancreatitis. II. Sterile pancreatonecrosis. III. Infected pancreatonecrosis. Clinical picture. Diagnostics. Laboratory diagnostics. Instrumental diagnostics. Endoscopic retrograde pancreatocholangiography and endoscopic papillotomy. X-ray diagnostic methods. Differential diagnostics. Treatment. Conservative therapy. Surgical treatment. Forecast.

Protocol design: describe the results obtained. Make appropriate conclusions.

Laboratory work No. 4

Topic 4. Complications of Peptic Ulcer Disease

Perforated gastroduodenal ulcers. Classification. Etiology: perforation of a chronic ulcer; perforation of an acute ulcer. Main features of the pathology. Diagnostics. Symptoms. Physical examination data. Diagnostic methods. Differential diagnosis. Treatment. Surgical tactics. Peptic ulcer disease complicated by bleeding. Classification. Pathophysiological disorders in the body. Diagnostics. Differential diagnosis. General issues of medical tactics. Endoscopic stoppage of bleeding. Surgical tactics. Peptic pyloroduodenal stenosis.

Protocol design: describe the results obtained. Make appropriate conclusions.

Laboratory work No. 5

Topic 5. Acute intestinal obstruction

Etiology of mechanical (especially strangulated) intestinal obstruction. Pathogenesis. Pathomorphology. The leading symptoms of acute intestinal obstruction are pain, vomiting, and delayed stool and gas. Diagnostics. Instrumental diagnostics. Differential diagnostics. Treatment. Conservative treatment. Surgical treatment. The problem of intestinal intubation. Postoperative management of patients.

Protocol design: describe the results obtained. Make appropriate conclusions.

Laboratory work No. 7

Topic 11. Parasitic diseases of the liver

Echinococcosis. Distribution. Etiology and pathogenesis. Pathological anatomy. Classification. Clinical symptoms. Complications. Calcification of the cyst. Suppuration of the cyst. Aseptic necrosis. Mechanical jaundice. Portal hypertension. Cyst rupture (into the abdominal or pleural cavity, pericardial cavity, or bronchial tree). Diagnostics. Treatment. Prevention of echinococcosis. Alveococcosis. Etiology and pathogenesis. Pathological anatomy. Classification. Clinical symptoms. Diagnostics. Treatment. Prevention.

Protocol design: describe the results obtained. Make appropriate conclusions.

Laboratory work No. 9

Topic 15. Diseases of the rectum and perianal area

Hemorrhoids. Etiology and pathogenesis. Clinical manifestations. Complications. Diagnosis and differential diagnosis. Classification. Conservative treatment. Surgical treatment of hemorrhoids. Anal fissure. Etiology and pathogenesis. Clinical picture of anal fissure. Complications. Diagnostics. Differential diagnosis. Conservative treatment. Surgical treatment of anal fissures. Forecast. Acute paraproctitis. Etiology. Pathogenesis. Classification of acute (aerobic) paraproctitis. Clinical manifestations. Complications. Diagnostics. Differential diagnosis. Treatment. Forecast. Anaerobic paraproctitis. Anaerobic clostridial paraproctitis. Non-clostridial anaerobic paraproctitis. Putrid paraproctitis. Chronic paraproctitis (rectal fistula). Etiology and pathogenesis. Clinical manifestations. Complications. Diagnostics. Classification. Differential diagnosis. Treatment. Epithelial coccygeal duct. Etiology. Clinical symptoms. Classification. Diagnostics. Differential diagnosis. Treatment.

Protocol design: describe the results obtained. Make appropriate conclusions.

Laboratory work No. 10

Topic 1. Chest injury

Pleural puncture. Pericardial puncture. Thoracoscopy. Bronchoscopy and esophagoscopy. Differential diagnosis. Treatment tactics. Closed chest injury. Chest. Fractures of ribs and sternum. Damage to the lungs. Tears of the trachea and major bronchi. Heart injury. Ruptures of the aorta. Damage to the diaphragm. Open injury breasts. Penetrating wounds. Lung injury. Damage to the trachea and bronchi. Injuries to the pericardium and heart. Damage to the esophagus and thoracic lymph duct. Complications.

Protocol design: describe the results obtained. Make appropriate conclusions.

SECTION 3. CARDIOVASCULAR SURGERY

Laboratory work No. 13

Topic 1. Congenital heart and major vascular defects

Defects of the interventricular septum. Hemodynamic essence of the defect. Clinical picture. Diagnostics. Treatment. Tetralogy of Fallot. Hemodynamic essence of the defect. Clinical picture. Diagnostics. Treatment. Coarctation of the aorta. Hemodynamic essence of the defect. Clinical picture. Diagnostics. Treatment

Protocol design: describe the results obtained. Make appropriate conclusions.

Topic 2. Acquired Heart Defects

Mitral valve insufficiency. Classification. Clinical symptoms. Diagnostics. Treatment. Forecast. Aortic stenosis. Clinical picture. Treatment. Aortic insufficiency. Treatment. forecast. Valvular heart disease. Clinical picture and diagnosis. Operative treatment. The problem of infectious endocarditis. Diagnostics. Surgical treatment. Prevention of relapse of infectious endocarditis.

Protocol design: describe the results obtained. Make appropriate conclusions.

Topic 3. Pericarditis

Main features of pathology. Pathomorphology. Classification. Clinical symptoms. Acute pericarditis. Fibrinous pericarditis. Exudative pericarditis. Adhesive pericarditis. Compartment pericarditis. Clinical course. Diagnostics. Differential diagnosis. Treatment. Conservative drug therapy. Percutaneous punctures of the pericardial cavity. Drainage of the pericardial cavity, pericardiostomy.

Protocol design: describe the results obtained. Make appropriate conclusions.

SECTION 4. ENDOCRINE SURGERY

Laboratory work No. 16

Topic 1. Goiter

The main features of pathology. Etiology and pathogenesis. Classification. Nodular goiter. Clinical picture. Physical examination. Diagnostics. Treatment. thyroid cyst. Follicular thyroid adenoma. Papillary thyroid adenoma (cystadenoma). Thyrotoxic thyroid adenoma (Plummer's disease). Multinodular goiter. Diffuse non-toxic goiter. Diffuse toxic goiter. Surgical treatment of goiter. Postoperative complications.

Protocol design: describe the results obtained. Make appropriate conclusions.

SECTION 6. PEDIATRIC SURGERY

Laboratory work No. 18

Topic 1. Introduction to Pediatric Surgery. History of Development. Features of Pediatric Surgical Diseases.

Anatomical and physiological features of a child from the perspective of a pediatric surgeon
Methods of clinical and instrumental research
Preparing a child for surgery.
Features of performing surgical interventions in children
Anesthesiological and resuscitation care for children with surgical diseases.
Features of infusion therapy and parenteral nutrition in pediatric surgery.

Protocol design: describe the results obtained. Make appropriate conclusions.

Laboratory work No. 19

Topic 2: Emergency abdominal and purulent surgeries in children

Acute appendicitis: clinical picture, diagnosis, and treatment. Periappendicular infiltrate: clinical picture, diagnosis, and treatment. Appendicular peritonitis: clinical picture, diagnosis, and treatment. Cryptogenic peritonitis. Intestinal obstruction, intussusception. Acute, chronic osteomyelitis, arthritis. Atypical forms of osteomyelitis. Purulent infection of soft tissues.

Protocol design: describe the results obtained. Make appropriate conclusions.

Laboratory work No. 20

Topic 3. Elective and outpatient surgery

Inguinal hernia: clinical picture, diagnostics, surgeon's tactics. Indications for surgical treatment. Features of inguinal hernias in girls. Congenital and acquired inguinal hernia. Hydrocele of the testicular membranes. Surgeon's tactics when hydrocele is detected. Cryptorchidism: the process of testicular descent, ectopia and testicular retention. Tactics in the abdominal form of cryptorchidism. Varicocele: diagnosis, treatment methods. Tactics for right-sided and bilateral varicocele. Swollen scrotum syndrome: Morgagni's hydatid necrosis, testicular torsion.

Protocol design: describe the results obtained. Make appropriate conclusions.

Laboratory work No. 21

Topic 4. Pediatric Traumatology

Injuries to the upper and lower extremities: clavicle fracture, humerus fracture, forearm bone fracture, hand bone fracture, femoral bone fracture, shin bone fracture. Injuries to the spine and pelvic bones
Traumatic brain injury. Features of concussion and brain contusions. Thermal burns in children. Rules for determining the burn area. Burn disease. Frostbite in children, general freezing syndrome.

Protocol design: describe the results obtained. Make appropriate conclusions.

Laboratory work No. 22

Topic 5. Pediatric Orthopedics

Congenital clubfoot: clinical picture, diagnosis, treatment methods. Torticollis: types, diagnosis, treatment tactics. Postural disorders, kypho-scoliosis. Differential diagnosis of postural disorders and scoliosis. Osteochondropathies (b-n Perthes, Sheyerman-Mau, Calvet, bone cysts): clinical picture, diagnosis, treatment tactics. Benign and malignant bone tumors.

Protocol design: describe the results obtained. Make appropriate conclusions.

Laboratory work No. 23

Topic 6. Pediatric Urology-Andrology

Hydronephrotic transformation of the urinary system. Differential diagnosis of hydronephrosis and pyeloectasia. Ureterohydronephrosis: refluxing and non-refluxing. Vesicoureteral reflux. Rules for performing micturating ureterocystography. Cystoureterohydronephrosis. Infravesical obstruction and posterior urethral valves. Kidney injury. Neurogenic bladder, enuresis.

Protocol design: describe the results obtained. Make appropriate conclusions.

Laboratory work No. 24

Topic 7. Surgery of newborns

Syndrome of "acute abdomen and intestinal obstruction" in newborns and infants. Respiratory failure syndrome caused by surgical diseases of newborns. Purulent surgical infection of soft tissues and bones in newborns. Meconium peritonitis. Ulcerative-necrotizing enterocolitis. Acute form of Hirschsprung's disease.

Protocol design: describe the results obtained. Make appropriate conclusions.

Laboratory work No. 25

Topic 8. Pediatric thoracic surgery

Diseases and malformations of the lungs: pulmonary agenesis, congenital lobar emphysema, pulmonary sequestration, and arteriovenous fistulas. Malformations of the chest: keel-shaped and funnel-shaped chest, and Poland syndrome. Chemical esophageal burns and scarred esophageal narrowings. Bacterial lung destructions. The role of the Kazan School of Pediatric Surgeons. Congenital Heart Defects.

Protocol design: describe the results obtained. Make appropriate conclusions.

Laboratory work No. 26

Topic 9. Pediatric abdominal surgery

Abdominal pain syndrome "Palpable tumor" syndrome. Pylorospas and pylorostenosis. Chronic constipation in children. Hirschsprung disease. Congenital and acquired intestinal obstruction. Doublets of the gastrointestinal tract. Atresia of the anus and rectum.

Protocol design: describe the results obtained. Make appropriate conclusions.

List of basic and additional literature required for the study of the discipline.

List of primary literature:

1. "Pediatric Surgery [Electronic Resource]: Textbook / edited by Yu. F. Isakov and A. Yu. Razumovsky; responsible editor A. F. Dronov. – Moscow: GEOTAR-Media, 2015." – <http://www.studmedlib.ru/book/ISBN9785970434970.html>
2. Drozdov, A. A.
 Pediatric Surgery Electronic resource: Textbook / A. A. Drozdov, M. V. Drozdova. - Pediatric Surgery, 2020-02-05. -Saratov: Nauchnaya Kniga, 2019. - 159 p. - The book is in the premium version of the IPR BOOKS electronic library. - ISBN 978-5-9758-1725-9, unlimited copies.
3. Polyclinic and Hospital Pediatric Surgical Dentistry: Textbook / A.K. Korsak, A.N. Kushner, T.N. Terekhova, Yu.V. Zenkevich; edited by A.K. Korsak. - Minsk: Vysheyshaya shkola, 2016. - 528 p. ill. - <http://biblioclub.ru/>. - Bibliogr.: p. 520-524. - ISBN 978-985-06-2634-9, copies unlimited.
4. Bolshakov, O.P. Operative Surgery and Topographic Anatomy: Textbook / O.P. Bolshakov. – St. Petersburg: Peter, 2018. – 432 pp.
5. Kuznetsov, N.A. General Surgery / N.A. Kuznetsov. – Moscow: MEDpress-Inform, 2018. – 896 pp
6. Selezneva, T.D. General Surgery: Textbook / T.D. Selezneva. - Moscow: Riord, 2017. -288 Children's Surgery with Traumatology and Orthopedics: Electronic Resource: Textbook and Methodological Guide / L.S. Muravko / N.M. Stepanova / S.L. Druchkova / S.G.Gaymolenko. - Chita: Chita State Medical Academy, 2010. - 307 p. -The book is in the basic version of the IPRbooks electronic library.
7. Traumatology and orthopedics: textbook/ [N.V. Kornilov]; Ed. N.V. Kornilova. - 3rd Ed., DOP. And perab.- M.: G ASBOTAR-media, 2014.- 592c. Il. ASBBS "student consultant" www.studentlibrary.ru/booc/isbn9785970420287.html

List of additional literature.

1. Ambulatory Surgery in Children [Electronic resource] / V.V. Levanovich, N.G. Zhila, I.A. Komissarov - Moscow: GEOTAR-Media, 2014.
<http://www.studmedlib.ru/book/ISBN9785970430163.html>
2. Pediatric Urology-Andrology [Electronic resource: textbook] / M.P. Razin, V.N. Galkin, N.K. Sukhikh. - Moscow: GEOTAR-Media, 2011.
<http://www.studmedlib.ru/book/ISBN9785970420645.html>
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<http://www.studmedlib.ru/book/ISBN9785970420065.html>
5. "Diagnosis of Acute Abdominal Diseases [Electronic resource]: A Guide / Vlasov A.P., Kukosh M.V., Saraev V.V. - Moscow: GEOTAR-Media, 2012. - (Series "Specialist Doctor's Library")." - <http://www.studmedlib.ru/book/ISBN9785970421574.html>
6. Surgical Diseases [Electronic resource] textbook / edited by V. S. Savelyev, A. I. Kirienko. - 2nd edition, revised and expanded. - M. GEOTAR-Media, 2014.
<http://www.studmedlib.ru/book/ISBN9785970431306.html>

**List of resources for the Internet information and telecommunications network
required to master this subject.**

- Computed Medical Imaging - http://www.nobelprize.org/nobel_prizes/medicine/laureates/1979/cormack-lecture.html
- Russian Association of Pediatric Surgeons - www.radh.ru
- Surgical Workshop - e-surgeons.ru
- Central Scientific Medical Library - <http://www.scsml.rssi.ru/>
- School of Modern Surgery - www.websurg.ru