

MINISTRY OF HEALTH PROTECTION OF UKRAINE

ODESSA NATIONAL MEDICAL UNIVERSITY

Department of normal and pathological clinical anatomy

I APPROVE

- Vice-rector for scientific and pedagogical work

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September 1, 2023

WORKING PROGRAM OF ELECTIVE EDUCATIONAL DISCIPLINE

"SECTION BIOPSY DIAGNOSTICS"

Level of higher education: second (master's degree)

Field of knowledge: 22 "Health care"

Specialty: 222 "Medicine"

Educational and professional program: Medicine

Odesa 2023

The work program is compiled on the basis of the educational and professional program "Medicine" for the training of specialists of the second (master's) level of higher education in the specialty 222 "Medicine" of the field of knowledge 22 "Health care", approved by the Scientific Council of ONMedU (protocol No. 8 of June 29, 2023).

Developers:

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The work program was approved at the meeting of the department of normal and pathological clinical anatomy Protocol No. 1 dated August 29, 2023.

Head of the department  Olena APPELHANS

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Approved by the subject cycle commission for medical and biological disciplines of ONMedU Protocol No. 1 dated August 29, 2023.

Head of the subject cycle methodical commission from medical and biological disciplines of ONMedU  Leonid GODLEVSKY

Reviewed and approved at the meeting of the department

Minute No. 1 of "01" September 2023

Head of Department  Lyubimkova Varvara
(signature) (First name, LAST NAME)

Reviewed and approved at the meeting of the department _____

Minute No. ___ of "___" _____ 20__

Head of Department _____
(signature) (First name, LAST NAME)

1. Description of the discipline

Name of the indicators	characteristics of the discipline	
	full-time education	
Total number:	necessary	
Loans - 3.0	Year of study	5
	semester	IX - X
Hours - 90	lectures	0
	seminars	30 hours
Content sections - 1	Individual work	60 hours
	Including individual tasks	0
	Form of final control	Credit

2. Purpose and objectives of the discipline

2.1. Objective: Mastering of knowledge and formation of elements of professional competencies in the field of professional and research innovation, and improvement of skills and competencies acquired in the study of previous disciplines.

Objectives:

1. Providing higher education students with knowledge on mastering the methods of diagnosing pathological processes and diseases by examining biopsies and postoperative material (light and electron microscopy, immunohistochemistry, autoradiography, histochemistry and cytochemistry); techniques of autopsy of the dead, determining the mechanisms of development of pathological conditions;

2. to provide higher education students with knowledge of clinical and anatomical analysis as a method, circumstances of diseases, peculiarities of their course, causes and mechanisms of death, their development (morphogenesis), structural basis of recovery, complications and consequences of diseases;

3. to provide higher education students with knowledge on determining the structure of clinical and pathological diagnoses, defining the role of clinical and anatomical conferences, treatment and control commission and commission for the study of fatalities; on filling in the basic pathological and anatomical documentation.

4. providing higher education students with knowledge of possible iatrogenic pathology.

As a result of studying the discipline, a higher education student must:

A higher education student should know:

- techniques for diagnosing pathological processes and diseases during the life of patients and after death (morphological methods, autopsy techniques);
- methods of clinical and anatomical analysis;
- principles of pathological diagnosis, the role of clinical and anatomical conferences, treatment and control commission and commission for the study of fatalities; rules for filling out basic pathological and anatomical documentation;
- variants of pathomorphosis of diseases arising from various therapeutic measures (iatrogeny);

A higher education student should be able to:

- Process the material for diagnostics;
- Establish a preliminary and pathological and anatomical diagnosis of the disease;
- Describe morphological (macroscopic, microscopic and ultrastructural) changes in tissues and organs in typical pathological processes and diseases;

- Evaluate autopsy results;
- Fill out medical records according to the material received;
- Fill out and issue a medical death certificate;
- Know the morphological signs of pathological processes;
- Describe the material obtained for diagnosis;
- Perform microscopic diagnostics;
- Draw conclusions based on macro- and microscopic examination of the material;
- Conduct differential diagnosis between pathological processes.

3. Content of the discipline

Content module 1.

Topic 1: Tasks, methods and organization of pathology service, its place in the health care system of Ukraine. Basic principles of organization of pathology service in health care facilities. Basic pathology documentation (orders, regulations, instructions). Mandatory forms of medical documentation in a pathological institution. History of the development of pathology service in Ukraine.

Topic 2. Method of examination of biopsy, surgical material and aftermath. Rules of research and procedure for processing documentation for the study of morphological material. Participation in macroscopic study, cutting, labeling of materials for vital morphological diagnosis. Rules for taking and processing material obtained from various organs and pathological formations.

Topic 3: Analysis and evaluation of the results of morphological examination of biopsies, surgical materials, and afterbirth. The role of morphological studies in the complex examination and treatment of patients.

Topic 4. Pathological autopsy of the deceased (adult, newborn, stillborn or fetus). The importance of autopsy as a reliable source of information about the causes of human death and mortality, the quality of diagnosis and treatment in health care facilities. The procedure for conducting an autopsy and preparing pathological documentation. Rules for the preparation of basic pathology documentation: "Medical Certificate of Death", "Medical Certificate of Perinatal Death". The procedure for drawing up a protocol of pathological autopsy of a corpse. The procedure for appointing and conducting pathological autopsies of corpses. General provisions. Procedure for conducting autopsies of corpses of persons who died in a hospital. The procedure for autopsies of corpses of persons who died outside the hospital. The procedure for autopsies of newborns and stillborns, children's corpses. Methods of pathological autopsy of the corpse. Features of autopsy of a newborn, stillborn or fetus.

Topic 5. Peculiarities of autopsies of the deceased from infectious diseases and especially dangerous infections.

Topic 6. Procedure for conducting autopsies of bodies of persons who died with suspected coronavirus disease (COVID-19). Requirements for the organization of burial of those who died from infections caused by COVID-19. Morphological changes in internal organs in coronavirus disease. Complications and causes of death in COVID-19.

Topic 7. Terminal states of the body. Definition. Mechanisms and stages of development. Pathology of resuscitation. The concept of resuscitation pathology, stages of development, diseases of the revived organism, causes and mechanisms of their development, principles of morphological diagnosis. Sudden cardiac death. Modern concepts, causes and mechanisms of development, morphological manifestations of acute heart failure and ventricular fibrillation. Morphological bases and equivalents of arrhythmias. Pathomorphologic bases of resuscitation and intensive care, their relationship with forensic assessment of changes in organs and tissues.

Topic 8. Pathological anatomy of multiple organ failure. Fundamentals of thanatology. Death, mechanisms, signs. Biological, medical, social aspects of chronic incurable disease. The concept of thanatogenesis. Structural mechanisms of cessation of vital organs in the natural course of the disease. Complications of the cessation of the heart, lungs, brain, kidneys, liver. Biological death - definition, causes and timing of development in the natural course of the disease. Early and late signs of

biological death and death of a resuscitated patient. Morphological characteristics of cadaveric changes.

Topic 9: Principles of formulating clinical and pathological diagnoses. Making a pathological diagnosis. Clinical and morphological analysis of the materials of the pathological autopsy of the corpse in terms of assessing the quality of lifetime diagnosis and treatment (pathological examination). Comparison of clinical and pathological diagnoses. Categories of diagnostic discrepancies. Writing a pathologic epicrisis. The International Classification of Diseases (ICD) is a regulatory document that ensures the unity of methodological approaches and international verification of materials. ICD 10th and 11th revision. Work with the International Classification of Diseases, X revision (1995) according to the pathological diagnosis of the autopsy.

Topic 10. Features of the course, variability of diseases. Pathomorphosis of diseases (natural and induced). Pathology of diagnostic and therapeutic procedures (iatrogeny).

Topic 11. Preparation and conduct of a meeting of the treatment and control commission, the commission for the study of fatalities and the clinical anatomical conference. Deontological and ethical aspects in pathological practice. The procedure for reviewing medical history.

Topic 12: Control of practical skills and theoretical knowledge. Credit class.

4. Structure of the elective discipline "Sectional biopsy diagnostics"

Topics to be covered	Number of hours			
	Total	including		
		lectures	seminars	SRS
Content module 1				
Topic 1: Tasks, methods and organization of pathology service, its place in the health care system of Ukraine. Basic principles of organization of pathology service in health care facilities. Basic pathology documentation (orders, regulations, instructions). Mandatory forms of medical documentation in a pathological institution. History of the development of pathology service in Ukraine.	8	0	2	6
Topic 2. Method of examination of biopsy, surgical material and aftermath. Rules of research and procedure for processing documentation for the study of morphological material. Participation in macroscopic study, cutting, labeling of materials for vital morphological diagnosis. Rules for taking and processing material obtained from various organs and pathological formations.	8	0	2	6
Topic 3: Analysis and evaluation of the results of morphological examination of biopsies, surgical materials, and afterbirth. The role of morphological studies in the complex examination and treatment of patients.	8	0	2	6

Topic 4. Pathological autopsy of the deceased (adult, newborn, stillborn or fetus). The importance of autopsy as a reliable source of information about the causes of human death and mortality, the quality of diagnosis and treatment in health care facilities. The procedure for conducting an autopsy and preparing pathological documentation. The rules for preparing basic pathology documentation: "Medical Certificate of Death", "Medical Certificate of Perinatal Death". The procedure for drawing up a protocol of pathological autopsy of a corpse. Methods of pathological autopsy of a corpse. Features of autopsy of a newborn, stillborn or fetus.	12	0	2	10
Topic 5. Peculiarities of autopsies of the deceased from infectious diseases and especially dangerous infections.	4	0	4	0
Topic 6. Procedure for conducting autopsies of bodies of persons who died with suspected coronavirus disease (COVID-19). Requirements for the organization of burial of those who died from infections caused by COVID-19. Morphological changes in internal organs in coronavirus disease. Complications and causes of death in COVID-19.	4	0	4	0
Topic 7. Terminal states of the body. Definition. Mechanisms and stages of development. Pathology of resuscitation. The concept of resuscitation pathology, stages of development, diseases of the revived organism, causes and mechanisms of their development, principles of morphological diagnosis. Sudden cardiac death. Modern concepts, causes and mechanisms of development, morphological manifestations of acute heart failure and ventricular fibrillation. Morphological bases and equivalents of arrhythmias. Pathomorphologic bases of resuscitation and intensive care, their relationship with forensic assessment of changes in organs and tissues.	6	0	2	4
Topic 8. Pathological anatomy of multiple organ failure. Fundamentals of thanatology. Death, mechanisms, signs. Biological, medical, social aspects of chronic incurable disease. The concept of thanatogenesis. Structural mechanisms of cessation of vital organs in the natural course of the disease. Complications of the cessation of the heart, lungs,	6	0	2	4

brain, kidneys, liver. Biological death - definition, causes and timing of development in the natural course of the disease. Early and late signs of biological death and death of a resuscitated patient. Morphological characteristics of cadaveric changes.				
Topic 9: Principles of formulating clinical and pathological diagnoses. Making a pathological diagnosis. Clinical and morphological analysis of the materials of the pathological autopsy of the corpse in terms of assessing the quality of lifetime diagnosis and treatment (pathological examination). Comparison of clinical and pathological diagnoses. Categories of diagnostic discrepancies. Writing a pathologic epicrisis. The International Classification of Diseases (ICD) is a regulatory document that ensures the unity of methodological approaches and international verification of materials. ICD 10th and 11th revision. Work with the International Classification of Diseases, X revision (1995) according to the pathological diagnosis of the autopsy.	8	0	2	6
Topic 10. Features of the course, variability of diseases. Pathomorphosis of diseases (natural and induced). Pathology of diagnostic and therapeutic procedures (iatrogeny).	4	0	4	0
Topic 11. Preparation and conduct of a meeting of the treatment and control commission, the commission for the study of fatalities and the clinical anatomical conference. Deontological and ethical aspects in pathological practice. The procedure for reviewing the medical history.	14	0	2	12
Topic 12: Control of practical skills and theoretical knowledge. Credit class.	8	0	2	6
<i>Total for content module 1</i>	90	0	30	60
Total hours	90	0	30	60

5. Topics of lectures/seminars/practical laboratory classes

5.1. Lecture classes are not provided

5.2. Topics of seminar classes of the elective discipline "Sectional biopsy diagnostics"

№	Topic. Content module 1.	Quantity of hours
1.	Topic 1. Seminar session 1. Tasks, methods and organization of the pathology service, its place in the health care system of Ukraine. Basic principles of organization of pathology service in health care facilities. Basic pathology documentation (orders, regulations, instructions). Mandatory forms of medical documentation in a pathological institution (unit).	2
2.	Topic 2. Seminar session 2. Method of examination of biopsy, surgical material and aftermath. Rules of research and procedure for documentation of the study of surgical material. Participation in macroscopic examination, cutting, labeling of material for lifetime morphological diagnosis.	2
3.	Topic 3. Seminar session 3: Analysis and evaluation of the results of morphological examination of biopsies, surgical materials, and afterbirth. The role of morphological studies in the complex examination and treatment of patients.	2
4.	Topic 4. Seminar session 4. Pathological autopsy of the deceased (adult, newborn, stillborn or fetus). The importance of autopsy as a reliable source of information about the causes of human death and mortality, the quality of diagnosis and treatment in health care facilities. The procedure for conducting an autopsy and preparing pathological documentation. Rules for issuing a "Medical Certificate of Death" and a "Medical Certificate of Perinatal Death". Procedure for drawing up the protocol of pathological autopsy of a corpse.	2
5.	Topic 5. Seminar session 5-6. Peculiarities of autopsies of deceased from infectious diseases and especially dangerous infections.	4
6.	Topic 6. Seminar session 7-8. The procedure for conducting autopsies of bodies of persons who died with suspected coronavirus disease (COVID-19). Requirements for the organization of burial of those who died from infections caused by COVID-19. Morphological changes in internal organs in coronavirus disease. Complications and causes of death in COVID-19.	4
7.	Topic 7. Seminar 9. Terminal states of the body. Definition. Mechanisms and stages of development. Pathology of resuscitation. The concept of resuscitation pathology, stages of development, diseases of the revived organism, causes and mechanisms of their development, principles of morphological diagnosis. Sudden cardiac death. Modern concepts, causes and mechanisms of development, morphological manifestations of acute heart failure and ventricular fibrillation. Morphological bases and equivalents of arrhythmias. Pathomorphologic bases of resuscitation and intensive care, their relationship with forensic assessment of changes in organs and tissues.	2
8.	Topic 8. Seminar session 10. Pathological anatomy of multiple organ failure. Fundamentals of thanatology. Death, mechanisms, signs. Biological, medical, social aspects of chronic incurable disease. The concept of thanatogenesis. Structural mechanisms of cessation of vital organs in the natural course of the disease. Complications of the cessation of the heart, lungs, brain, kidneys, liver.	2
9.	Topic 9: Seminar session 11. Principles of formulating clinical and pathological diagnoses. Making a pathological diagnosis. Clinical and morphological analysis of the materials of the pathological autopsy of the corpse in terms of assessing the quality of lifetime diagnosis and	2

	treatment (pathological examination). Comparison of clinical and pathological diagnoses. Categories of diagnostic discrepancies. Writing a pathologic epicrisis.	
10.	Topic 10. Seminar session 12-13. Features of the course, variability of diseases. Pathomorphosis of diseases (natural and induced). Pathology of diagnostic and therapeutic procedures (iatrogeny).	4
11.	Topic 11. Seminar session 14. Preparation and conduct of a meeting of the medical control commission, the commission for the study of fatalities and the clinical anatomical conference. Deontological and ethical aspects in pathology practice.	2
12.	Topic 12: Seminar session 15. Control of practical skills and theoretical knowledge. Credit class.	2
	Together	30

5.3. Practical classes are not provided

5.4. Laboratory classes are not provided

6. Topics for independent work of the elective discipline "Sectional biopsy diagnostics"

No.	Topic.	Number of hours
1.	Topic 1: History of the development of pathology service in Ukraine. Preparation for the seminar session 1.	6
2.	Topic 2. Method of examination of biopsy, surgical material and aftermath. Rules of research and procedure for processing documentation for the study of morphological material. Preparation for seminar session 2.	6
3.	Topic 3. Rules for taking and processing material obtained from various organs and pathological formations. Preparation for seminar session 2-3.	6
4.	Topic 4. Biological death - definition, causes and timing of development in the natural course of the disease. Early and late signs of biological death and death of the patient after resuscitation. Morphological characteristics of cadaveric changes. Preparation for the seminar session 9.	4
5.	Topic 5. The International Classification of Diseases (ICD) is a regulatory document that ensures the unity of methodological approaches and international verification of materials. ICD 10th and 11th revision. Work with the International Classification of Diseases, X revision (1995) according to the pathological diagnosis of autopsy. Preparation for the seminar session 9.	4
6.	Topic 6. Procedure for the appointment and conduct of pathological autopsies of corpses. General provisions. Procedure for conducting autopsies of corpses of persons who died in the hospital. The procedure for autopsies of corpses of persons who died outside the hospital. The procedure for autopsies of newborns and stillborns, children's corpses. Preparation for the seminar session 4.	6
7.	Topic 7. Methods of pathological autopsy of a corpse. Features of autopsy of a newborn, stillborn or fetus. Preparation for the seminar session 4.	4
8.	Topic 8: Pathomorphological basis of resuscitation and intensive care, their relationship with forensic assessment of changes in organs and tissues. Preparation for the seminar session 10.	6
9.	Topic 9: Preparation and holding of a meeting of the medical control	6

	commission, the commission for the study of fatalities and the clinical anatomical conference. Deontological and ethical aspects in pathology practice. Preparation for the seminar session 14.	
10.	Topic 10. The procedure for reviewing medical records. Preparation for the seminar session 14.	6
11.	Topic 11. Preparation for the test lesson. Preparation for the seminar session 15.	6
	Together	60

7. Teaching methods: conversation, solving clinical situational tasks, developing skills in microscopic and macroscopic diagnosis of pathological processes in organs and tissues, differential diagnosis using basic methods of pathomorphological examination, improving skills to interpret cell pathology and substantiate clinical and morphological characteristics of general pathological processes that cause disease manifestations, improving skills to determine the consequences of various pathological conditions. Teaching of the elective discipline "Sectional biopsy diagnostics" is provided by methodological developments for each practical lesson, visual teaching aids for each lesson (presentation), information resource of the department, structured algorithms for controlling skills.

Independent work in the study of an elective discipline is provided by methodological developments for independent work, visual teaching aids (presentations), the department's information resource, topics of independent work, and structured algorithms for controlling skills.

The course is completed with a test at the last practical lesson.

8. Control methods:

- tests of the final control of the level of knowledge on the topic of the seminar;
- an oral answer to a question on the current topic;
- solving clinical case studies;
- control of practical skills;
- offset.

Current control is carried out in seminars in accordance with the formulated tasks for each topic. When assessing learning activities, preference is given to standardized control methods: oral questioning, computer tests; solving (clinical) situational problems; structured written work. When mastering each topic, the student is assigned grades for the current learning activities on a 4-point traditional scale. The current academic performance is calculated as the current grade point average, i.e. the arithmetic mean of all grades received by the graduate student (applicant) on the traditional scale, rounded to 2 (two) decimal places, for example 4.75.

Assessment of current control in the discipline:

The value of the grade is **"excellent"**: a higher education student shows special creative abilities, is able to acquire knowledge independently, finds and processes the necessary information without the help of a teacher, is able to use the acquired knowledge and skills to solve problems, is able to produce innovative ways to solve problems, convincingly argues answers, independently reveals his or her own talents and inclinations.

The value of the grade is **"good"**: the higher education applicant is fluent in the studied amount of material, applies it in practice, freely solves exercises and tasks in standard situations, independently corrects the mistakes made, the number of which is insignificant.

The value of the grade is **"satisfactory"**: the higher education student is able to master a significant part of the theoretical material, but mainly in a reproductive form, shows knowledge and understanding of the main provisions, with the help of the teacher can analyze the educational material, correct errors, among which there are a significant number of significant ones.

The grade is "**unsatisfactory**": the higher education student has knowledge of the material at the level of individual fragments that make up an insignificant part of the educational material.

9. Forms and methods of final control.

The study of the discipline ends with a test. Only those higher education students who have no academic debt and have an average grade point average for current academic activities of at least 3.00 are allowed to participate in the final certification.

The obtained grade point average for a course is converted into a grade on a 200-point scale by multiplying the arithmetic mean by 40. The discipline is credited to the applicant if he or she has scored at least 120 points.

Scale for assessing the level of mastery of the discipline

Rating on a 200-point scale	Score on the national scale	
185,0 - 200	Excellent	5
151,0 - 184	Good.	4
120,0 - 150	Satisfactory	3
<120,0	Unsatisfactory	2

Independent work

Assessment of the independent work of a higher education student, which is provided for in the topic along with classroom work, is carried out during the current control of the topic at the relevant classroom lesson.

10. Methodological support

- Work program of the elective discipline
- Thematic plans for seminars and independent work
- The silhouette of an elective discipline;
- Textbooks:
 1. Fundamentals of Pathology by Robbins: in 2 volumes. Volume 1 / Viney Kumar, Abul K. Abbas, John C. Aster; translated from the 10th English edition. Publisher: All-Ukrainian specialized publishing house "Medicine." - XII. - 2019. - 420 p.
 2. Fundamentals of Pathology by Robbins: in 2 volumes. Volume 1 / Viney Kumar, Abul K. Abbas, John C. Aster; translated from the 10th English edition. Publisher: All-Ukrainian specialized publishing house "Medicine." - XII. - 2019. - 420 p.
 3. Pathomorphology: national textbook / V.D. Markovskiy, V.O. Tumanskyi, I.V. Sorokina [et al. Sorokina [and others]]; edited by V.D. Markovskiy, V.O. Tumanskyi - K.: VSV "Medicine", 2015. 936 p.
- Multimedia presentations;
- Video of lecture presentations;
- Situational pathomorphological tasks;
- Methodological developments of seminar classes, SRS;
- Electronic bank of test tasks
- Training tables (1200), stands;
- A museum with a collection of micro- and macro-drugs (1000 and 500 pieces, respectively).
- The microscopes are student microscopes.

Professional microscopes with video cameras.
Digital microscope.
Laptop.
Multimedia projector.

11. Questions to prepare for the final control

There is no final control.

List of recommended reading:

a) the main one:

1. Atlas of microdissections in pathomorphology / I.I. Starchenko, B.M. Filenko, N.V. Royko et al.
2. Essentials of pathology: textbook / Ya. Bondar, A.Romanyuk, V.Voloshyn, V. Gargin – Kharkiv, “Planeta-Print” Ltd, 2020, 219p.
3. Pathology: textbook / S.V. Sorokina, V.D. Markovskiy, D.I. Halata et al.; edited by S.V. Sorokina, V.D. Markovskiy, D.I. Halata.- 2-nd edition.- Kyiv : AUS Medicine Publishing, 2020. – 328p.+2 colour inserts (8p. + 12p.)
4. Pathology: textbook / S.V. Sorokina, V.D. Markovskiy, D.I. Halata et al.; edited by S.V. Sorokina, V.D. Markovskiy, D.I. Halata. – Kyiv : AUS Medicine Publishing, 2019. – 328p.+2 colour inserts (8p. + 12p.)

b) additional:

1. Sorokina I.V. Biopsy-autopsy course (clinical pathology) / I.V. Sorokina, V.D. Markovskiy. - Kharkiv, 2012. - 60 p.
2. Benign neoplasms of the maxillofacial bones in children / P.I. Tkachenko, I.I. Starenko, S.O. Bilokin [et al.
3. General pathomorphology / Starchenko I.I., Royko N.V., Filenko B.M. [et al.
4. Zerbino D.D. Pathomorphology and histology: an atlas / D.D. Zerbino, M.M. Bahriy, Y.Y. Bodnar, V.A. Dibrova - Vinnytsia: Nova Knyha, 2016. - 800 p.
5. Methods of morphological research / M.M. Bahriy, V.A. Dibrova, O.G. Papadynets, M.I. Hryshchuk; ed. M.M. Bahriy, V.A. Dibrova - Vinnytsia: Nova Knyha, 2016. - 328 p.
6. Novoseltseva T.V. Pathology of the reproductive and endocrine systems / T.V. Novoseltseva, B.M. Filenko, N.I. Gasiuk - Poltava: ASMI LLC, 2015. 199 p.
7. Pathomorphology: national textbook / V.D. Markovskiy, V.O. Tumanskyi IV. Sorokina et al. eds. V.D. Markovskiy, V.O. Tumanskyi - K.: VSV "Medicine". 2015- 936 p., color. ISBN 978-617-505-450-5

13. Information resources

1. <http://moz.gov.ua> - Ministry of Health of Ukraine
1. www.ama-assn.org - American Medical Association
2. www.who.int - World Health Organization
3. www.dec.gov.ua/mtd/home/ - State Expert Center of the Ministry of Health of Ukraine
4. <http://bma.org.uk> - British Medical Association
5. www.gmc.org - General Medical Council (GMC)
6. www.bundesaeztekammer.de - German Medical Association
7. <http://library.med.utah.edu/WebPath/webpath.html> - Pathology laboratory

8. **<http://www.webpathology.com/>** - Web Pathology
9. National Scientific Medical Library of Ukraine <http://library.gov.ua/>
10. Vernadsky National Library of Ukraine <http://www.nbuv.gov.ua/>