

Annex no. 2

Regulation of the Minister of Science and Higher Education on the standards of education preparing for the professions of doctor, dentist, pharmacist, nurse, midwife, laboratory diagnostician, physiotherapist and paramedic

of 26th June 2019 (Journal of Laws of 2019, item 1573)

III PARTICULAR EDUCATION OUTCOMES

E. CLINICAL SCIENCES- NON-SURGICAL TREATMENT (e.g. pediatrics, internal medicine, neurology, geriatrics, psychiatry, dermatology, oncology, family medicine, infectious diseases, rehabilitation, laboratory test, clinical pharmacology)

In regards of knowledge, the Graduate:

E.W1. knows genetic, environmental and epidemiological determinants of most common diseases;

E.W2. knows the principles of feeding healthy and ill children, principles of vaccinations and conducting medical check-up of a child

E.W3. knows and understands the causes, consequences, principles of diagnosing and therapeutic process in most common childhood diseases:

1) rachitis, tetany, convulsions,

2) heart defects, myocarditis, endocarditis and pericarditis, cardiomyopathy, cardiac dysrhythmia, heart failure, arterial hypertension, syncope,

3) acute and chronic lower and upper airways diseases, congenital disorders of respiratory system, tuberculosis, cystic fibrosis, asthma, allergic rhinitis, urticaria, anaphylactic shock, angioneurotic oedema,

4) anemia, haemorrhagic diathesis, bone marrow failure, childhood cancers, including solid tumors common for childhood,

5) acute and chronic stomachache, vomiting, diarrhea, constipation, gastrointestinal bleeding, peptic ulcer disease, non-specific enteropathy, pancreatopathy, cholestasis and hepatopathy, and other acquired diseases and congenital malformations of gastrointestinal tract,

6) urinary system infections, congenital anomalies of urinary system, congenital disorders of urinary system, nephrolithiasis, acute and chronic renal failure, acute and chronic nephritis, kidney in systemic disease, urination disorders, vesicoureteral reflux,

7) growth disorders, disorders of thyroid and parathyroid glands, adrenal glands diseases, diabetes, obesity, disorders of puberty and functions of gonads,

8) infantile diplegia, encephalitis and cerebrospinal meningitis, epilepsy,

9) most common infectious diseases of children

10) genetic disorders

11) connective tissue diseases, rheumatic fever, juvenile idiopathic arthritis, systemic lupus, dermatomyositis

E.W4. knows the problems of abused and sexually abused child, mental disability, behavioral disturbances - psychosis, additions, eating and excretion disorders,

E.W5. knows basic methods of fetal diagnosis and therapy,

E.W6. knows the most common life-threatening conditions in children and procedures for treating them in such conditions,

E.W7. knows and understands the causes, symptoms, the principles of diagnosing and treatment of most common internal diseases of adults and complications related to them:

1) circulatory system diseases, including: myocardial ischemia, heart defects, myocarditis, endocarditis and pericarditis, acute and chronic heart failure, arterial and venous vessels diseases, essential and secondary hypertension, pulmonary hypertension,

2) respiratory system diseases, including: respiratory tract diseases, chronic obstructive pulmonary disease, asthmatic bronchitis, cystic fibrosis, bronchiectasis, respiratory tract infections, interstitial lung disease, pleura and mediastinal diseases, obstructive and central sleep apnea, acute and chronic respiratory failure, respiratory tract neoplasms,

3) alimentary system diseases, including: diseases of oral cavity, esophagus, stomach and duodenum, intestines, pancreas, liver, bile ducts and gallbladder,

4) endocrine system diseases, including: diseases and disorders of hypothalamus and hypophysis, of thyroid and parathyroid glands, of adrenal cortex and medulla, of ovary and testis, neuroendocrinal tumors, endocrine polyglandular syndrome, various types of diabetes and metabolic syndrome: hypoglycemia, obesity and dyslipidemia,

5) kidney and urinary system diseases, including: acute and chronic renal failure, glomerulonephritis and interstitial nephritis, kidney cysts, renal calculus, urinary system infections, urinary tract neoplasms, in particular: bladder cancer and kidney cancer,

6) hematopoietic system disorders, including: bone marrow aplasia, anemia, granulocytopenia and agranulocytosis, thrombocytopenia, acute leukemia, myeloproliferative and myelodysplastic/ myeloproliferative neoplasms, myelodysplastic syndromes, mature B and T lymphocytes neoplasms, haemorrhagic diathesis, thrombosis, life-threatening conditions in hematology, blood disorders in other organs' diseases; blood donations and haemotherapy,

7) rheumatic diseases, including: systemic diseases of connective tissue, systemic inflammation of vessels, rheumatoid arthritis with spinal afflictions, bone metabolic diseases, including osteoporosis, osteoarthritis and uric arthritis,

8) allergic diseases, including: anaphylaxis, anaphylactic shock and angioneurotic oedema,

9) disorders of water and electrolyte balance and of acid-base balance: dehydration, hyperhydration, delectrolyte disorder, acidosis and alkalosis;

E.W8. knows and understands the course and symptoms of aging and the principles of comprehensive geriatric assessment, of interdisciplinary care of elderly patients;

E.W9. understands the causes and basis for differences between most common diseases affecting the elderly, and the principles of treatment in basic geriatric syndromes;

E.W10. knows and understands the basic principles of pharmacotherapy of elderly patients;

E.W11. knows and understands the threats related to hospitalization of the elderly;

E.W12. knows and understands the basic principles of organization of care of the elderly and the responsibilities of caregivers;

E.W13. knows and is able to differentiate the basic groups of neurological symptoms;

E.W14. knows and understands the causes, consequences, principles of diagnosing and therapeutic process of most common nervous system diseases, including:

- 1) headaches: migraine, tension-type headache and headache syndromes and trigeminal neuralgia,
- 2) cerebrovascular diseases, in particular cerebral stroke,
- 3) epilepsy,
- 4) nervous system infections, in particular: cerebrospinal meningitis, Lyme disease, HSV, neurotransmitter disorders,
- 5) dementia, including Alzheimer's disease, frontotemporal dementia, vascular dementia and other dementia syndromes,
- 6) basal ganglia pathologies, including Parkinson disease,
- 7) demyelinating neurological disorders, in particular - multiple sclerosis,
- 8) nervous and muscular systems disorders, including: amyotrophic lateral sclerosis and sciatica,
- 9) craniocerebral traumas, in particular- brain concussion

E.W15. knows the basic concepts of pathogenesis of mental disorders;

E.W16. knows a general symptomatology of mental health disorders and principles of their classification according to major classification systems;

E.W17. knows and understands the causes, symptoms, the principles of diagnosing and treatment of most common mental disorders, including:

- 1) schizophrenia,
- 2) affective and adaptation disorders,
- 3) eating disorders,
- 4) disorders related to psychoactive substance use,
- 5) sleep disorders;

E.W18. knows the principles of diagnosing and treatment in psychiatric emergencies, including the issue of suicides;

E.W19. knows the specific character of mental disorders and their treatment in children, youth and the elderly;

E.W20. knows the symptoms of mental disorders in the course of somatic diseases, their impact on the course of the basic disease and prognosis, and the principles of treating them;

E.W21. possesses knowledge on human sexuality and basic disorders related to it;

E.W22. knows the regulations concerning mental health protection with particular consideration of the principles concerning admission to psychiatric hospitals;

E.W23. knows environmental and epidemiological determinants of most common human cancers;

E.W24. knows the basis of early detection of neoplasm and the principles of screening tests in oncology

E.W25. knows the possibilities of present therapies of cancers (including multimodal therapy), the prospects of cellular and gene therapy and their undesirable effects;

E.W26. knows the principles of combined therapy in oncology, and the algorithms of diagnosing and treatment process in most common human cancers;

E.W27. knows and understands the causes, consequences, principles of diagnosing and therapeutic process of most common problems of palliative care, including:

- 1) symptomatic treatment of most common somatic symptoms,
- 2) treatment in cancerous cachexia, and prevention and treatment of bedsores,
- 3) most common palliative care emergencies;

E.W28. knows the principles of palliative care of terminal patients;

E.W29. knows the principles of pain management, including cancer and chronic pain;

E.W30. knows and understands the problems of disability, handicap or invalidism;

E.W31. knows the role and methods applied in medical rehabilitation;

E.W32. knows basic notions of prevention and procedures in case of occupational exposure to dangerous and harmful factors;

E.W33. principles of procedure in case of infectious disease detection;

E.W34. knows and understands the causes, symptoms, principles of diagnosing, treatment and preventive measures in most common bacterial, viral, parasitic and fungal diseases, including pneumococcal infections, viral hepatitis, AIDS, sepsis and hospital-acquired infections;

E.W35. knows the basic environmental and epidemiological features and determinants of most common human skin diseases;

E.W36. knows and understands the causes, consequences, principles of diagnosing and treatment of most common sexually transmitted diseases;

E.W37. knows and understands the causes, consequences, principles of diagnosing and treatment in most common inherited diseases;

- E.W38. knows and understands the causes, consequences, principles of diagnosing and treatment in most common diseases and specific problems in the family doctor's practice;
- E.W39. knows the types of biological material used in laboratory medicine and methods of taking samples;
- E.W40. knows theoretical and practical foundations of laboratory medicine;
- E.W41. knows and understands the possibilities and limitations of laboratory tests in emergencies;
- E.W42. knows the indications for implementing the monitored therapy;
- E.W43. defines basic concepts of pharmacoeconomics.

In regard of abilities, the Graduate:

- E.U1. proceeds the review of medical history with an adult patient;
- E.U2. proceeds the review of medical history with a child and the child's family
- E.U3. proceeds a complete and targeted physical examination of an adult
- E.U4. proceeds a complete and targeted physical examination of a child of any age
- E.U5. performs psychiatric examination
- E.U6. performs the basic hearing and visual field examinations, and the otoscopic examination
- E.U7. assesses the general condition, state of consciousness and awareness of a patient
- E.U8. assesses an infant's state according to Apgar scores, its maturity and responses
- E.U9. compares the anthropometric and blood pressure measurements with the data on centile charts
- E.U10. is able to assess the level of sexual maturity
- E.U11. carries out medical check-up
- E.U12. carries out differential diagnosis of most common diseases in adults and children
- E.U13. evaluates and describes patient's somatic and psychical condition
- E.U14. recognizes the direct life-threatening conditions
- E.U15. recognizes the conditions indicating alcohol, drugs and other substance consumption
- E.U16. plans diagnostic, therapeutic and preventive procedures
- E.U17. performs an analysis of potential adverse effects of particular medications and interactions between them
- E.U18. in case of ineffectiveness or contraindications to standard therapy, proposes the individualization of currently binding therapeutic guidelines and other treatment methods
- E.U19. recognizes symptoms of addiction to medicine and suggests medical procedure
- E.U20. qualifies a patient for home and hospital treatment
- E.U21. defines the conditions where life expectancy time, functional state or the preferences of a sick person limit the possibility of management, according to specifications for a particular illness
- E.U22. performs functional evaluation of a disabled patient

- E.U23. proposes rehabilitation program in most frequent illnesses
- E.U24. interprets laboratory tests and identifies the causes of aberrations
- E.U25. is able to apply nutritional therapy (including enteral and parenteral nutrition)
- E.U26. plans the procedure in case of exposure to blood-borne infections
- E.U27. qualifies patient for vaccination
- E.U28. takes samples for laboratory diagnostics
- E.U29. can perform basic procedures and medical operations, such as:
- a. temperature measurement, pulse measurement or non-invasive blood pressure measurement
 - b. monitoring of life parameters using heart rate monitor and pulse oximeter sensor
 - c. spirometry testing, oxygen therapy and assisted or controlled ventilation
 - d. insertion of oropharyngeal airway
 - e. intravenous, intramuscular and hypodermic injections; cannulation of peripheral vein; peripheral blood collection; blood culture collection; arterial blood collection; arterialized capillary blood collection;
 - f. nasal, pharyngeal and skin swab; pleural cavity puncture
 - g. catheterization of bladder in female and male, stomach probing, gastric lavage, and enema
 - h. standard electrocardiography at rest and its interpretation; electrical cardioversion and heart defibrillation
 - i. simple strip tests and blood glucose test
- E.U30. assists at performing the following procedures and operations:
- a. transfusion of blood and blood products
 - b. drainage of the pleural space
 - c. pericardiocentesis
 - d. peritoneocentesis
 - e. lumbar puncture
 - f. fine needle biopsy
 - g. epidermal tests
 - h. intradermal and scarification tests and their results' interpretation
- E.U31. interprets pharmaceutical characteristics of medical products and critically assesses commercial materials promoting medications
- E.U32. plans specialists' consultations
- E.U33. is able to implement proper procedures in acute poisoning
- E.U34. monitors condition of the patient poisoned with chemical substances or medicine
- E.U35. assesses bedsores and applies proper dressings
- E.U36. knows the procedure in case of traumas (apply dressing or immobilize; dress and stitch a

wound)

E.U37. recognizes patient's agony and confirms the death

E.U38. maintains patient's medical documentation

F. Clinical Sciences - operative treatment (anesthesiology and intensive care medicine, general surgery, orthopedics and traumatology, emergency medicine, surgical oncology, gynecology and obstetrics, urology, otolaryngology, ophthalmology, neurosurgery, transplantology, medical imaging)

As regards knowledge, the Graduate:

F.W1. knows and understands the causes, symptoms, principles of diagnosing and treatment in most common diseases requiring surgical intervention, giving consideration to the specific character of a tender age, including:

1. acute and chronic diseases of abdominal cavity
2. chest diseases
3. limbs and head diseases
4. knows selected issues of pediatric surgery, including traumatology and otolaryngology; failures and acquired diseases being an indication to surgical treatment in children

F.W3. knows the principles of qualification and performing basic operations and invasive diagnostic and therapeutic procedures

F.W4. knows the guidelines for safe surgery, patient's preparation, giving general or local anesthesia, and controlled sedation

F.W5. knows the post operative pain management and monitoring

F.W6. knows the indications and principles of application of intensive care

F.W7. knows the current guidelines for CPR in newborn, children and adults

F.W8. knows the principles of operation of the national integrated medical rescue system

F.W9. possesses knowledge on the female reproductive functions, related disorders and diagnostic and treatment procedures, referring in particular to:

1. menstrual cycle and its disorders
2. pregnancy
3. physiological and pathological labor and postpartum period
4. inflammations and neoplasms within sexual organs
5. birth regulation
6. menopause
7. basic methods of gynecological diagnoses and procedures

F.W10. possesses knowledge on the currently-used medical imaging, in particular:

1. radiological symptomatology of common diseases

2. instrumental methods and imaging techniques used for medical procedures
3. indications, contraindications and patient's preparation to particular types of imaging, and contraindications to apply contrast medium

F.W11. possesses knowledge on the diseases of the organ of sight, in particular:

1. knows and understands the causes, consequences, principles of diagnosing and treatment of most common eye diseases
2. knows ophthalmological complications of systemic diseases, including their ophthalmological symptomatology and proper procedures required in such cases
3. surgical procedures in particular eye diseases
4. knows the basic groups of medicine used in ophthalmology, including their adverse effects and interactions
5. knows the groups of medicine of general use, with related ophthalmological complications and contraindications, and explains their mechanisms

F.W12. possesses knowledge within laryngology, phoniatrics and audiology, including knowledge on:

1. the causes, the clinical course, therapeutic methods, complications and prognosis in diseases of nose, sinuses, paranasal sinuses, oral cavity, throat and larynx in adults
2. facial nerve and selected neck structures disorders
3. the principles of diagnosing and therapy in mechanical injuries of ears, nose, larynx and esophagus
4. principles of managing otolaryngological emergencies, including in particular the laryngeal dyspnea
5. principles of diagnosis and treatment of hearing, voice and speaking disorders
6. principles of diagnosis and treatment of head and neck neoplasm

F.W13. knows and understands the causes, consequences, principles of diagnosing and therapeutic process in most common diseases of central nervous system, within:

1. cerebral edema and its outcomes, with particular reference to emergencies
2. other intracranial cramping and its outcomes
3. craniocerebral traumas
4. vascular defects of the central nervous system
5. tumors of the central nervous system
6. spine and spinal cord failures

F.W14. possesses knowledge on the subject of transplantology, knows the indications to transplantation of irreversibly damaged organs and tissues, and the related procedures

F.W15.knows the principles of raising suspicion of and confirming brain death As regards abilities, the Graduate:

F.U1. assists at standard operative procedure, manages to prepare operative field and apply local

anesthesia

F.U2. can use basic surgical instruments

F.U3. obeys the principles of asepsis and antisepsis

F.U4. can dress a simple wound, apply and change a sterile surgical dressing

F.U5. inserts peripheral venous catheter

F.U6. performs the examination of nipples, lymph glands, thyroid and abdominal cavity with reference to acute abdomen; is able to perform per rectal examination

F.U7. analyzes the result of radiological examination concerning most common types of fractures, especially of long bones

F.U8. performs temporary immobilization of a limb, selects the immobilization type appropriate for application in typical clinical situations, and controls the proper blood supply in the limb after applying the immobilizing dressing

F.U9. can manage external bleeding

F.U10. can perform basic resuscitation procedures with application of an automated external defibrillator and other rescue procedures; provides first aid

F.U11. acts according to present algorithm of advanced resuscitation activities

F.U12. can monitor post operative period, basing on main life parameters

F.U13. recognizes objective signs and subjective symptoms of improper course of pregnancy (improper bleeding, uterus contraction)

F.U14. interprets the results of physical examination of a pregnant woman (blood pressure, fetal heart rate), and the results of laboratory tests proving pathology of pregnancy

F.U15. interprets the readings of cardiotocography (CTG)

F.U16. recognizes the labor start and improper duration of the labor

F.U17. interprets objective signs and subjective symptoms during the postpartum period

F.U18. specifies orders, indications and contraindications concerning methods of contraception

F.U19. performs ophthalmic screening

F.U20. recognizes ophthalmic conditions requiring immediate special care and provides initial qualified medical care in case of physical or chemical injuries to eyes

F.U21. evaluates the condition of an unconscious ill person and categorizes it, according to the binding international point scales

F.U22. recognizes the symptoms of an increasing intracranial pressure

F.U23. is able to assess the indications to suprapubic catheterization and to participate in this procedure

F.U24. assists at non-standard urological procedures (diagnostic and therapeutic endoscopy of urinal

system, lithotripsy and prostate gland biopsy)

F.U25.is able to perform basic laryngological examination of an ear, nose, throat and larynx

F.U26. performs basic hearing examination