One Step Educational Program for Medicine (English Medium)

One Step Educational Program for Medicine

Program Supervisor - Associate Professor Nino Ivanishvili, MD, PhD

Program Co-Supervisor – Doctor of Medicine Wolf Christopher J. A. (Germany) Qualification to be awarded - Medical Doctor (MD) Program Volume by ECTS – 360 ECTS Language of Instruction - English

Preconditions for admission to the program

One Step Undergraduate Educational Program for MD can be attended by a person holding a state certificate confirming the completion of full basic educational level (National School Leaving Certificate) or its equivalent, who will pass the Unified National Examination and based on the obtained scores, will gain the right to study at university on the specialty of medicine, or the applicants under the Law of Georgia on Higher Education, Article 52, para 3.

Admission of foreign citizens is regulated according to legislation established by the Ministry of Education and Science of Georgia. In accordance with the law of Georgia on Higher Education, Article 52, para 3, foreign citizen candidates seeking for admission to educational program are required to hold the document certifying the knowledge of English (not less than B1 level), by internationally recognized certificate (IELTS, TOEFL, Cambridge English, UNIcert®, EnglishScore etc.)

Or

Present the document certifying the education covered in English language for foreign citizens (e.g. school leaving certificate, college diploma etc.), also Georgian citizens, having covered the full basic education in English abroad, or its equivalent, who have studied last 2 years at the basic education level abroad, must present respective document certifying the latter (e.g. school leaving certificate, college diploma etc.)

Or

Pass the exam organized by the university for foreign citizen candidate, certifying the knowledge competency level in English, minimum at the abovementioned (B1) level (exam must include the following components: listening, reading and reasoning / analysis of the text, speaking).

Structure of the program

The medical doctor education program takes 6 years of undergraduate study. This involves 360 credits, which includes:

Minimum 330 credits - specialty mandatory (compulsory) courses/modules and scientific-research skills components.

Maximum 30 credits - mandatory elective courses (general and/or free components).

330 credits: compulsory study courses/modules and scientific-research skills components.

Specialty basic compulsory study courses: 17 credits for the sciences studying the normal development, structure and functioning of human body (Principles of genetics, medical chemistry,

medical physics, general biochemistry, cytology and embryology), which are incorporated into one comprehensive educational block named "Life Sciences".

Specialty basic compulsory integrated study courses/modules: 63 credits; it involves thematically integrated biomedical sciences and normal structure and functioning of human body (normal organ system modules, each of them including normal human anatomy, physiology, biochemistry, histology and clinical skills components).

Specialty pre-clinical compulsory integrated study courses/modules: 52 credits; it involves pathology of organ systems modules (each of them including pathology, pharmacology and clinical skills components); this also includes general pathology, general pharmacology, general surgery, microbiology, virology and immunology subjects.

Specialty clinical compulsory study courses: 157 credits Specialty compulsory study courses: 28 credits Scientific skills compulsory study courses: 13 credits

30 credits: Compulsory elective study courses (general and/or free components) Semesters VII, VIII, IX, X, XI, XII – teaching by clinical rotations.

Precondition for awarding the qualification

The medical doctor qualification is earned by a student who collects not less than 360 credits after completion of the education program.

The goal of the education program

The goal of MD undergraduate higher education program is consistent with the University mission, which implies the training of qualified competitive medical graduates, able to get employed easily both at local or international market, according to their qualifications.

The program goals include: development of competencies relevant to international standards which are indispensable for the graduates to perform their practice; the latter implies acquiring of theoretical knowledge as well as development of scientific and clinical skills, ethical values and professional responsibilities inherent for doctor's profession. In addition, the program also prepares the graduates to pursue their further professional career, in residency, at doctorate degree, or at alternative postgraduate study courses; the program encourages the scientific activity in theoretical fields of medicine and other healthcare areas, which do not imply independent medical activity.

Program goals also imply the giving of medical education indispensable for the implementation of medical doctor activities which is compatible with World Federation of Medical Education (WFME) standards, national qualification frame and field descriptors of higher education.

The program goal is to give the medical graduate the knowledge, competencies and skills of the field needed for their independent activity as a doctor; these include: **medical knowledge** – fundamental knowledge of biomedical, behavioral, social and clinical sciences; **clinical reasoning** – ability to assess clinical cases, develop the investigation plan, differentiate the diagnosis, develop the disease treatment plan, participate in medical board; **practical skills** – providing the emergency medical care, development of skills for drug prescription, providing practical medical procedures, communication skills with patients, their families and colleagues, guide their medical activity by legal and ethical principles, providing individual approach to patients, considering the psycho-social aspects of their disease, application of evidence-based principles and knowledge, searching, collecting, treating and effective application of

analyzed information within medical context, application of scientific-research principles and methods in practical activity, involvement in public health issues and effective collaboration within healthcare system, providing a quality medical service and readiness for professional growth, high responsibility for professional ethics, tolerance, empathy and confidentiality, critical thinking and self-criticism, gaining the skills of independent as well as group working with multidisciplinary team, communication skills both in their mother language as well as in foreign languages.

Study outcomes:

Knowledge and understanding

The medical graduate has sectoral knowledge which includes biomedical, behavioral, social, clinical sciences and fundamental sectoral principles of the field.

The medical graduate has fundamental and profound knowledge in the following fields: Biomedical sciences:

- Normal function of human body (physiology)
- Normal structure of human body (anatomy, histology)
- Normal metabolism and hormonal function of human body (biochemistry)
- Normal immune function of human body and microbiology
- Normal cell biology
- Normal molecular biology
- Normal human development (embryology)

Behavioral and social sciences:

- Psychology
- Human development (infant, adolescent, adult, elderly)
- Sociology
- Clinical sciences:
- Pathological structure and mechanism of disease (pathology)
- Infection (microbiology)
- Immunity and immune disorders
- Clinical immunology
- Genetics and inherited disorders
- Knowledge of clinical sciences in different medical specialties and subspecialties;
- Clinical access and experience gained by clinical practice in the following fields of medical

service:

- Treatment of patients with acute disorders on site of accident and in emergency department
- Treatment of internal diseases in ambulatory department
- Practice in primary health care setting
- Treatment of elderly patients
- Treatment of pediatric patients
- Treatment of patients in terminal stage, palliative care
- Treatment of psychiatric patients
- Treatment of gynecological disorders, management of physiological delivery
- Treatment of critical states in intensive care unit
- Treatment of different profile disorders (cardiology, nephrology, pulmonology etc.)
- Anesthesiology

- Rehabilitation medicine
- Treatment of different surgical profile disorders (e.g. urology, traumatology)

Medications and their administration

- Use of antibiotics and antibioc resistance
- Principles of drug administration
- Specificities of drug administration in elderly
- Specificities of drug administration in small age
- Drug side effects
- Drug interrelations
- Transfusion of blood and blood products
- Action of drugs, pharmacokinetics
- Pharmacogenomics
- Drug groups
- Special drugs

Public health:

- Prevention of disease
- Life style, diet and meals
- Public health support
- Disease screening and surveillance
- Healthcare for the elderly
- Gender issues in public health
- Epidemiology
- Influence of cultural and ethical factors on healthcare
- Distribution of resources and healthcare economy
- Global health and inequality

Ethical and legal issues in medical practice:

- Patient rights
- Rights of individuals with limited capacities in medical service field
- Principles of attitude and collaboration with colleagues

Doctor's role in public health:

- Legislation related with medicine
- Professional regulation systems
- Clinical audit principles
- Healthcare availability routes

Medical graduate understands:

- Psychological aspects related to the patient's disease

- Importance of public health and healthcare measures, involvement in public health issues and effective working in healthcare system.

Skills

The medical graduate has sectoral skills including the following:

- 1. Patient consultation:
- Collects the medical history (anamnesis)
- Applies the physical examination

- Applies clinical reasoning and decision making
- Gives definitions and advices
- Provides patient support and keeping their rights
- Evaluates the patient's psych emotional state

2. Assessment of clinical cases, setting the clinical investigation plan, making differential diagnosis, discussion about disease management plan

- Understands and assesses the difficulty of clinical manifestation of disease
- Administers the respective investigations and interprets the results
- Makes differential diagnosis
- Leads the discussion of disease management plan with patients and their caregivers
- Defines risks and benefits of treatment outcomes for the patient
- Provides care for patients in terminal stage and their families
- Provides the management of chronic diseases
- 3. Provision of first aid in medical emergencies (first aid and resuscitation skills), ability to define

priorities

- Detects and evaluates emergency medical states (DRSABCDE)
- Provides age-specific basic first aid in neonates, infants and elderly
- Applies basic life support and CPR techniques according to recent guidelines
- Provides first aid in traumas according to guidelines (performed on simulator)
- Provides first aid in anaphylactic shock

4. Knowledge of drug prescription

- Provides correct and clear prescription of drugs, considering age-related aspects
- Correlates respective drugs with clinical context
- Discusses the relevance of drug or alternative treatment and evaluation of potential benefits and

risks for the patient

- Provides treatment of pain and distress
- Considers the drug interrelations during administration of treatment

5. Application of practical procedures

- Implements the assessment of vital signs<mark>: pulse,</mark> respiration, temperature
- Implements blood pressure measurement (on patient)
- Implements saturation measurement (on patient)
- Implements washing of hands and dressing of gloves
- Implements peripheral venipuncture (on simulator)
- Implements insertion of peripheral vein catheter (on simulator)
- Implements venous injections and application of infusion set (on simulator)
- Implements subcutaneous and intramuscular injections (on simulator)
- Implements oxygen support (oxygen therapy on patient)
- Implements transportation of patients and their treatment (simulator / simulated patient)
- Implements application of sutures (simulator)
- Provides treatment of wounds and application of bandages (simulated patient)
- Implements urinary bladder catheterization (simulator)
- Implements performing urinalysis
- Implements recording of ECG (on patient)
- Implements ECG interpretation

- Applies functional respiratory tests
- Applies inhalation drugs
- Implements sampling of nasal and nasopharyngeal swab test (on simulator)
- Implements utilization and disposal of individual protective supplies (gloves, suit, medical

glasses, shield, mask, respirator, foorwear, cap)

6. Effective communication skills within medical context

- Guides effective communication with patients
- Guides effective communication with colleagues
- Guides effective communication for bad news
- Guides effective communication with relatives
- Guides effective communication with disabled persons
- Guides effective communication for getting informed consent
- Guides effective written communication (including medical records)
- Guides effective communication in case of conflict
- Guides effective communication via mediator
- Guides effective communication with legal officers and MAs media
- Guides effective communication with any person, despite of their social, cultural, religious or

ethnic roots

- 7. Application of ethical and legal principles in medical practice
- Provides confidentiality
- Provides application of ethical principles and analysis skills during medical treatment
- Provides informed consent and making of respective records
- Provides issuance of death certificate
- Provides application for autopsy (according to Georgian legislation standards)
- Provides application of Georgian and international law principles during medical treatment
- Provides guidance of medical activity in multicultural society
- 8. Assessment of psychological and social aspects related to patient's disease
- Provides assessment of disease manifestation and its psychological burden on patient
- Provides assessment of disease manifestation and its social burden on patient
- Provides evaluation of disease-related stress
- Provides evaluation of alcohol and drug-related stress
- 9. Application of evidence-based principles, skills and knowledge
- Provides application of evidence-based principles in medical practice
- Provides correct definition and application of respective literature review
- Provides critical assessment of published literature, making of conclusions and its application in practice

10. Effective use of information and information technologies within medical context

- Provides adequate recording and filing of clinical notes
- Provides application of modern information technologies in practice
- Provides search for specific information resources
- Files of information and its application as needed;
- Has skills for portfolio making (personal records)

11. Application of biomedical scientific principles, methods and knowledge in medical practice and research

- Knows the methodology for scientific research and its application
- Knows the prevention of communicable and non-communicable diseases
- Has skills for making research hypothesis, study design, detailed planning, treatment of acquired data and making of conclusions
 - Knows how to use biomedical science research novelties in clinical practice
- Knows how to produce scientific review/resume based on critical analysis of scientific literature in biomedical field
 - Knows the ethical principles in scientific research

12. Implementation of health supporting measures, involvement in public health issues, effective collaboration in healthcare system

- Applies the treatment which minimizes the risk of any harm for the patient
- Applies the measures to prevent the infection breakout
- Understands their own health issues with regard to professional duties
- Assesses of their own health

- Participates in public health support measures and events as an individual as well as on population scale.

13. Professionalism

- Can lead the doctor-patient relationship with regard to responsibility and altruism
- Observes the ethic principles
- Shows proper attitude to colleagues
- Shows Empathy
- Shows time managment skills
- Shows interprofessional skills
- Shows creativity
- Shows Leadership skills
- Shows Team working abilities
- Shows Readiness for continuous professional development

Responsibility and autonomy

The medical graduate is able to:

Consult the patient independently

- Independently evaluate the clinical cases and administer the investigations, make differential diagnoses, develop and take responsibility for disease management plan

- Take responsibility on undertaking the medical practice considering the ethical and legal principles

- Independently evaluate the psycho-social aspects related to patient's disease

- Undertake medical practice without bias and based on ethical principles, work both independently and within team, creative thinking, propose initiative, work with multidisciplinary team, understand their own limits, take responsibility to search for assistance, proceed continuous self-development and life-long learning independently

- Reveal professional behavior and attitude in every aspect of medical practice, have fair,

unbiased, modest attitude, reveal responsibility, empathy, respect, altruism, respect differences and keep confidentiality

- Have responsibility for providing high quality medical service and keeping high competence

- Understand and discuss ethical issues related to cases in practice
- Understand and manage conflict of interests
- Reveal professionalism in communication and its technologies

- Regularly judge and evaluate their own actions using internal or external data resources, in order to achieve perfection of learning and knowledge capacities

- Communicate by patient-oriented approach, which increases the trust and autonomy sense in patient, reveal empathy, respect and sympathy;

- Own the skills of optimizing physical environment for patient comfort, dignity, privacy, inclusion and safety

- Understand the situations when values, errors or views of patients, doctors or other medical professionals may have influence on patient care quality and respectively modifies the approach to patient

- Use innovatively the knowledge, technologies and methods
- Have their own self-esteem, initiative and pragmatism

- Have short and long term career and personal plans, aiming and working on precise direction with realistic development plan and respective actions

- Have positive relations with doctors and other colleagues, in order to substantiate and collaboration management of patient

- Participate in professional social life, within professional and other working frames

- Discuss and agree with doctors and other colleagues from healthcare system about overlapping and common responsibilities during episodic and ongoing management of patient

- Get involved in the process of common decision making together with doctors and other colleagues

- Reveal respect to other colleagues

- Develop strategies for mutual understanding, management of different point of views and conflict resolution in order to support collaborative environment

- Perform effective verbal and written communication for safe transfer of patient to other specialist, other environment or other management step.

Professionalism during work:

- Is able to define when there is a time to refer the patient management to other doctor of specialist

- Understands his/her own expertise frames and demonstrates the need of involving other professionals in the process for optimal care of the patient, which may include effective, respective and timely consultations

Is able to define, analyze and interpret the data, deal with informational and personal limits and taking respective decisions.

Student assessment system

The student assessment at single-level undergraduate medical education program provided by University Geomedi LLC is guided by the European Credit Transfer System (ECTS), law of Georgia on Higher Education and by order #03 of January 5, 2007 of Minister of Science and Education of Georgia on the Approval of the Procedures for Calculating Higher Education Programs with Credits and the assessment system defined by the above, which implies the following:

• 5 types of positive assessment:

a.a) (A) excellent-91%-100%

a.b) (B) very good-81-90%

a.c) (C) good-71-80%

a.d) (D) satisfactory-61-70%

a.e) (E) acceptable-51-60%

• 2 types of negative assessments:

b.a) (FX) couldn't pass- 41-50% -Which means that more work is needed. The student **can** enroll in independent work and is given the right of an additional test.

b.b) (F) Fail-Less than 40%. Work carried out by the student is not enough and the student must retake the subject.

The term assessment of the student is defined by the sum of midterm assessment and final exam scores and is max. 100.

The summary assessment implies two components – midterm and final assessments. Each element has its percentage in overall assessment system, which is independently defined by the lecturer; (1) 70/30 or (2) 60/40, which means that in first case, intermediate assessment accounts for 70% of total summary scores, while the final exam gives only 30%; in second case, intermediate assessment accounts for 60% of total scores, while the final exam give only 40%.

Intermediate assessment is divided into several components (midterm exam, activity on seminars/practical classes, presentation, quiz, situational tasks, essays etc.); percentage of these components in total assessment is defined by the lecturer.

The minimal competency limit of intermediate assessment which also is the precondition for admission to final exam, is minimum 50% of intermediate assessment scores.

Final exam is an essential condition for final assessment. The minimal competency limit for passing the final exam is 50%+1 of total max. points; if students term assessment is between 41-50, then they are granted the second chance to retake the final exam. If the student's intermediate assessment score is less than 41, then they must take this subject again. In case if student's intermediate assessment score is 51 or higher, they must overcome the minimal competency limit on final exam, otherwise the subject will be considered as failed.

A student has the right to take an additional exam in the same semester (weeks 20-21), no earlier than 5 days after the announcement of the final exam results.

Assessment components are defined by the course supervisor according to the subject specificities.

Assessment of normal organ system modules:

The Midterm assessment (intermediate assessment) components:

• Summary quiz – is done 1 time during the module, by test format, in each subject of the module separately, by respective lecturer of the subject; it is based on clinical case format and assessed by max 5 points (share value from the total max score – 2.8 points). The total summed score of quizzes held in all 5 subject components is max 14 points (2.8 x 5 = 14).

The quiz includes **5 clinical cases** (each of them assessed by 1 point for correct answer). Clinical case is presented by multiple-choice test format with 4 options, with only 1 correct answer - **total - 5 points** (**1 x 5 = 5 points**) in each subject component;

• **Seminar activity** – for each study course of the module, except for clinical skills (anatomy, physiology, histology, biochemistry) assessment is done on weekly basis, by 4 points every week. The final overall score will be counted by arithmetic mean principle, **Total - 16 points**;

The minimum competency threshold for each study course (anatomy, physiology, histology, biochemistry) of the module, except for clinical skills, is 1 point out of 4.

Clinical skills seminar activity assessment (total max 10 points) is held by situational tasks. Students are given a situational task weekly, which is graded on a scale of 0-5. A student can earn 0-10 points throughout the module. The minimum competency threshold in the clinical skills component is 5 points (out of 10).

• **Midterm exam** – midterm exam is held in test format, in the exam center, assessed by **max. 20 points**; the test is based on clinical cases, built on the knowledge of all subject components of the module. The test is based on clinical cases (taking into account the topics of all the study courses included in the module). The test consists of 20 questions, with four possible answers, only one of which is correct. Each correct answer is valued at 1 point.

A student who has received at least 50% of the midterm grade and has passed the minimum competency threshold for each study courses included in the module will be admitted to the final exam.

Final assessment:

• The final exam is held at the exam center, in the form of a test, and is scored with a maximum of 28 points.; The test is based on clinical cases, built taking into account the topics of all study courses included in the module, except for clinical skills. The test consists of 28 questions with four possible answers, only one of which is correct. Each correct answer is worth 1 point.

The minimum competency threshold for the test part of the final exam is 15 points (out of 28).

Final exam in clinical skills: The final exam in clinical skills is administered as a mini-OSCE (Objectively Structured Clinical Examination), in a clinical simulation center, at an appropriate number of thematically arranged exam stations for 4 minutes at each station.

The maximum score for the Mini-OSCE exam is 12 points for all norm modules (the number of stations and, accordingly, the distribution of points per station varies depending on the specifics of each module).

The minimum competency threshold for clinical skills (mini-OSCE) is 6 points (out of 12). The minimum competency threshold for the final assessment is 21 points (out of 40).

If a student has earned the right to take an additional exam (41-50 points), he/she takes the additional exam only in the component (mini-OSCE/test) in which he/she failed to pass the minimum competency threshold.

- Assessment of organ system pathology modules:
- The Midterm assessment (intermediate assessment) components:

• Summary quiz – is done 1 time during the module, by test format, in each study course of the module separately, by respective lecturer; it is based on clinical case format and assessed by max 5 points (share value from the total max score – 4.6 points). The total summed score of quizzes held in all 3 subject components is max 14 points (4.6 x 3 = 14).

• The quiz includes **5 clinical cases** (each of them assessed by 1 point for correct answer). Clinical case is presented by multiple-choice test format with 4 options, with only 1 correct answer -total - 5 points (1 x 5 = 5 points) in each subject component;

• **Seminar activity** – for each study course of the module, except for clinical skills (pathology, pharmacology) assessment is done on weekly basis, by 8 points every week. The final overall score will be counted by arithmetic mean principle. **Total - 16 points**;

The minimum competency threshold for each study course (pathology, pharmacology) of the module, except for clinical skills, is 2 points out of 8.

Clinical skills seminar activity assessment (total max 10 points) includes practical exam, which is held by situational tasks, on weekly basis throughout the module, which evaluated by 0-5 points. The student can collect 0-10 points during the module. The minimum competency threshold in the clinical skills component is 5 points (out of 10).

• Midterm exam – midterm exam is held in test format, in exam center, assessed by max. 20 points; the test is based on clinical cases, built on the knowledge of all 3 subject components of the module. Each test includes 20 clinical cases in test format, with only one correct answer. Each of them is assessed by 1 point for correct answer.

A student who has received at least 50% of the midterm grade and has passed the minimum competency threshold for each study courses included in the module will be admitted to the final exam.

✤ Final assessment:

*

• The final exam is held at the exam center, in the form of a test, and is scored with a maximum of 24 points; the test is based on clinical cases, built on the knowledge of all subject components of the module, except for clinical skills. The test consists of 24 questions with four possible answers, only one of which is correct. Each correct answer is worth 1 point.

The minimum competency threshold for the test part of the final exam is 13 points (out of 24).

✤ Final exam in clinical skills: is held in Mini-OSCE format (objectively structured clinical exam), at clinical simulation center. At an appropriate number of thematically arranged exam stations for 4 minutes at each station.

. The maximum score for the Mini-OSCE exam is 16 points for all pathology modules (the number of stations and, accordingly, the distribution of points per station varies depending on the specifics of each module).

The minimum competency threshold for clinical skills (mini-OSCE) is 8 points (out of 16).

The minimum competency threshold for the final assessment is 21 points (out of 40).

Minimum grade for passing final exam is 21 points (out of 40).

If a student has earned the right to take an additional exam (41-50 points), he/she takes the additional exam only in the component (mini-OSCE/test) in which he/she failed to pass the minimum competency threshold.

- Assessment of clinical study courses:
- The Midterm assessment (intermediate assessment):

• The midterm assessment is divided into components (midterm exam, oral presentation of theoretical material, demonstration of clinical skills, and analysis of results (assistance, patient examination, data registration, demonstration of clinical skills, etc.).

The minimum competency threshold for the midterm assessment, which is a necessary prerequisite for passing the final assessment, is at least 50% of the midterm assessment.

Midterm exam is assessed by 20 points and is conducted as follows:

1) **Test-based part**, is conducted in the exam center. Test consists clinical-case based MCQ questions – assessed by maximum 10 points.

2) Mini-CEX exam (Mini clinical examination) – held at clinical department, assessed by maximum
10 points, minimum competency barrier – 5 points;

The minimum competency threshold for midterm assessments is set at 30 points (a student who has accumulated at least 30 points in midterm assessments and has passed the minimum competency threshold for the mini-clinical exam is eligible to take the final exam).

- Final assessment:
- Final exam is held in the exam center, in a test format.
- ✤ 1) Tests is based on clinical cases, assessed by maximum 20 points;

The minimum competency threshold for the test part of the final exam is 11 points (out of 20).

◆ 2) OSCE – is held in clinical simulation center, in OSCE stations, constructed accordingly with the module topics with respective number of stations, with 4 minutes given to each station. OSCE exam total max score is 20 points. The number of stations and respectively, the shared value of points for each station will be individually defined for each clinical rotation.

The minimum competency threshold for the OSCE portion of the final exam is 10 points (out of 20). The minimum competency threshold for the final assessment is 21 points (out of 40).

If a student has earned the right to take an additional exam (41-50 points), he/she takes the additional exam only in the component (mini-OSCE/test) in which he/she failed to pass the minimum competency threshold.

The student has the right to take the supplementary exam in the same semester, no later than 5 days after the announcement of the final exam results.

Employment field

The medical graduate can be employed as Doctor Assistant ("Junior Doctor"), performing their function under the supervision, guidance and responsibility of the person legally empowered to do the independent medical activity (law of Georgia about "Medical Acitvity" art.5). the graduate of the educational program has the legal right to: a) take the postgraduate residency course (in Georgia or abroad on the equivalent professional program, which is approved by the legislation of that country) and after passing the unified national certification exam, gain the official right of independent medical activity (law of Georgia about "Medical Activity" art. 17); b) continue their study at doctorate level as PhD student, take on the lecturing or the scientific activity; c) get employed in healthcare organizations which do not require independent medical activity.