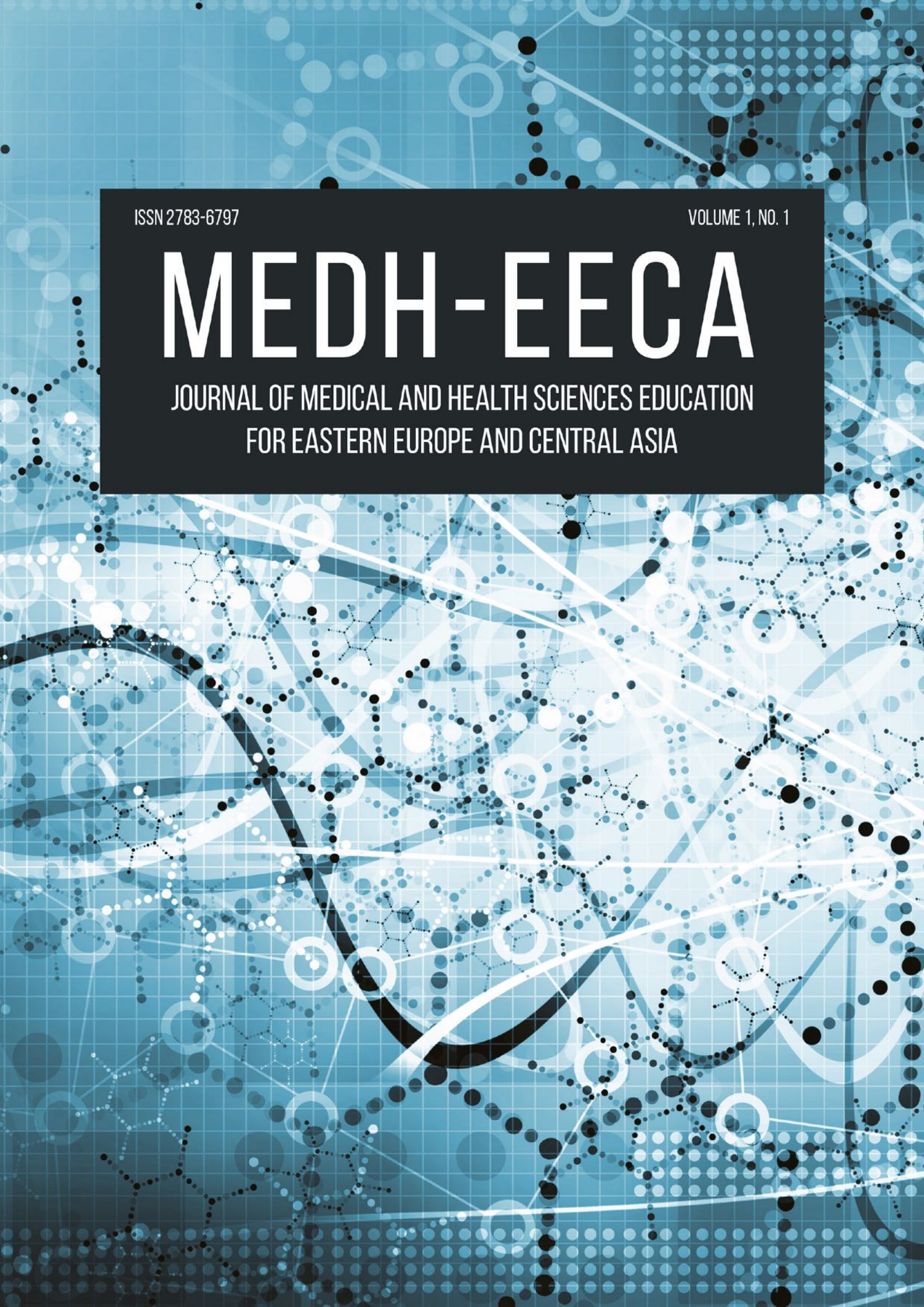


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# MEDH-EECA

JOURNAL OF MEDICAL AND HEALTH SCIENCES EDUCATION  
FOR EASTERN EUROPE AND CENTRAL ASIA



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**Aims and Scope**

The Journal of Medical and Health Sciences Education for Eastern Europe and Central Asia (MEDH-EECA, ISSN 2783-6797 is an annual, peer-reviewed, international general research and practice journal).

The purpose of the MED-EECA is to advance knowledge and disseminate research findings that are directly relevant to the practice of health science education, including multiple fields of medical, public health, nursing, and pharmaceutical training. The journal publishes scholarly papers on all aspects of health science education including: peer review evaluation and case studies; institutional

accreditation and training programme accreditation related materials; the theory, practice and policies relating to management, improvement of quality in medical and other health sciences education; new initiatives and models in learning and teaching that impact on quality and standards; links between quality assurance and employability of health-care staff; evaluation of the impact of quality procedures at national level; theoretical and practical analyses of quality and quality initiatives in health science training; comparative studies between institutions or countries, etc. In particular, the journal specifically aims to become a platform available for Eastern European and Central Asian countries to share the new ideas and demonstrate rapid and significant advancements in reforming the training of human resources for healthcare.

Original articles with scientific investigations and systematic literature reviews are welcomed from professionals of other health related fields on issues that have a direct impact on the area of staff training and strengthen evidence-based practice. Letters to the editor with commentaries on published papers or research and clinical issues, as well as short communications, will be taken into consideration and not left unanswered. This journal also provides space for announcements and an international calendar for professional conferences in the area of training of health-care professionals.

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# EDITORIAL

## SETTING PEER REVIEW INSTRUMENTS AND GOALS FOR MEDICAL AND HEALTH EDUCATION – SPRING project

Levan Metreveli, Batumi international university (BAU), Batumi Georgia

The SPRING project, which was financed in the framework of European ERASMUS+ KA2 programme began on the eve of COVID-19 pandemic in November 2019. Despite the restrictions related to travel bans, quarantines in participating countries we succeeded in running the training courses, conducting peer review external evaluation missions as well as implementing other project activities during the peak of the pandemic in 2020 and 2021. The reasons why we launched this project initiative were related to the inequalities of involvement of countries of Eastern Europe and Central Asia in process of creating common area of higher education according Bologna declaration. Seven project partner countries (Georgia, Bulgaria, Lithuania, Belarus, Moldova, Kazakhstan, Tajikistan) have a common historical past for the period prior to 1990's, when the Soviet bloc rather peacefully collapsed. The former Soviet political system was based on strong and highly controlled command economy allowing minimum level of freedom also in social, political, economic, and academic life of people. The system of general, professional, and higher education was an integral part of the political system, which placed an enormous importance on keeping all three domains of education in strictly defined and guarded ideological limits. The other side of this political pressure on higher education was huge built-in inefficiencies, waste of resources and corruption.

During period after 1989/90 the above-mentioned problems did not disappear at all and even have been aggravated by rapid economic decline in all post-Soviet countries and further worsening of situation in terms of inefficiency, under-allocation of resources and rampant corruption levels. In a new political

and economic reality, the young people have been facing poor opportunities of receiving good quality higher education and even worse prospective of finding decent jobs after graduation.

The rationale for establishing the project proposal was based on the assumption that the Higher Educational Institutions (HEI) from the group one countries which made relatively larger progress as programme countries (Bulgaria, Lithuania) will assist the HEIs from the rest of the group of partner countries involved. From the European perspective, this approach also looks especially attractive since it gathers under the same project the programme countries from the European Union and the "third countries". Therefore, such relative division into groups means that all partners learn from each other despite countries joining the Bologna process at different times (e.g., Georgia and Moldova in 2005, Kazakhstan in 2010, and Belarus in 2015).

With this such conceptual approach of selecting participating countries, we were expecting to achieve a high level of effectiveness and efficiency in improving educational and institutional performance of targeted universities. Furthermore, we tried to involve both public and private HEIs, so that project's achievements are equally applicable and usable by all kinds of HEIs across the covered regions and groups.

University medical education is of specific nature compared to other fields of study. In general, preparing health related professionals is a very resource (financial, technical, and human) demanding process, which also involves years of practice training and clinical exposure. On the other hand, it does not immediately fit to the three-cycle system of

education defined by the Bologna Process. Medicine and some other health practice specialties are regulated and licensed areas, which brings additional gravity and responsibility to the issues. Therefore, reforms brought about in the target countries experience more barriers in medical education compared to other areas.

For the purpose of identifying areas of focus for this proposal, we reviewed available literature published predominantly within the last 10 years. Our findings showed that some problems are general for all countries, and some are country specific. The following common problems could be mentioned:

**1. Old fashioned style of teaching.** As inherited from the Soviet Union, the academic process in medical education is still highly concentrated around teaching rather than learning. In practice, it translates into dominance of “paternalistic” style of giving knowledge, when professors are considered the centre of the study process and students are given a low decision power and limited options. This trend is manifested in different degrees across partner countries, but still represents one of the major obstacles in attaining good standards of medical education. This is also related with an immediate need in constant modernisation of programmes and curricula.

**2. Not equipped training infrastructure.** Based on the previous problem and also linked with inadequate technical (clinical) bases' provision, the graduates face a problem of low employability, after leaving the medical school (or even the residency programme), their clinical skills are still not sufficient for finding a decent job. This leads to a situation, when thousands of medical graduates either stay unemployed or start working in another industry. Eventually, it manifests even at macroeconomic level – improper planning and misallocation of resources, in other words the governments' and the nations' investments in medical education bring very low “return on investment”.

**3. Low motivation related to low salaries in the academic sector.** The quality of medical education is highly dependent on availability of qualified and motivated academic

personnel. All target countries face this problem, and it is rooted primarily from the lack of good incentives. According to the published data, basic monthly salary of a professor does not exceed 500 Euros in partner countries. While the majority of large public universities still heavily rely on tuition fees and government subsidies, there is not enough space for offering competitive benefit packages to highly qualified teaching and research staff.

**4. Foreign language proficiency of teachers is not sufficient.** Despite tendency of increase in offering English instructed educational programmes across the target countries, the majority of academic personnel have no or very limited English competence. Russian language provides some large scope but could not be “lingua franca” (common language) in university education in many cases. This in turn, heavily limits their prospects for professional growth, teachers and students exchange and stronger negotiation power at the point of employment/promotion.

**5. The level of internationalisation of medical education still remains unsatisfactory across the target countries.** Command of the English language as of a key to success is not appropriately reflected in the academic and administrative processes. Especially in large public universities with several thousand employees, due to fear against possible political dissatisfaction on the side of personnel and nationalistically minded political powers, English is not regarded as one of the essential components of the profile of hired academic personnel. Normally, the standard job descriptions state that fluency in a foreign language/English is desirable. Based on this, in the target universities, there are very few academicians, capable to effectively engage in international collaboration. And this situation remains a vicious circle in the partner countries, even after joining the Bologna process. The situation is somewhat better in English instructed private universities, but normally these institutions are small both in terms of numbers of students and employees and therefore, do not contribute positively to the overall picture. Preparing for international accreditation is another common need.

### 6. Financing of studies at the universities.

The other pressing issue is about universities' funding sources i.e., the public universities mainly rely on tuition fees and the government subsidies and the private ones – only on tuition fees. The share of the “soft money” (for both research and institutional development) and donations is critically low.

### 7. Lack of practical skills of graduates.

As it has been stated above, possession of adequate clinical skills by medical graduates remains an alarming problem in all partner countries. Some of the target universities have already introduced Objective Structured Clinical Examination (OSCE) as a tool of improving clinical abilities of students, but OSCE's role still remains significantly low at a larger scale. This issue is also important for other specialties such as specialists in pharmacy, specialists of public health etc.

Since the ultimate aim of SPRING project is to enhance the quality of medical and other health sciences education in targeted partner country universities, we believe that the project needs to address issues in the academic and administrative managerial domains simultaneously. These two areas are strongly interlinked and as the forthcoming analysis shows, most of the time, an issue in one domain cannot be solved with effective interventions in both. Our strategic key is to introduce a concept of peer review in both academic and administrative managerial fields.

The main aim and the most important objectives of the SPRING project are presented below.

**Main aim:** to enhance the quality of medical and other health sciences education in the involved partner countries and contribute to the initiation of changes of the same character in the rest of countries and universities.

#### Objectives:

1. Raising awareness on teaching quality peer review process as an effective instrument for substantiating ongoing improvements in academic and administrative domains of medical schools in targeted partner countries and beyond. Five awareness raising

workshops and 2 workshops for peer review experts were planned to be conducted for 5 countries during 2020–2021.

2. Developing a common framework and guidelines for peer review evaluation. Guidelines and standards (criteria) for evaluation were developed by the project partners. Guidelines/standards were prepared and piloted in 2020–2021.

3. Providing assistance and capacity building for universities, medical schools in effectively preparing for international accreditation. It was planned to conduct baseline peer review and follow-up missions in 12 universities. Self-evaluation reports were prepared, and missions were implemented in all of the 12 universities in 5 countries during 2021–2022.

4. Establishing a multinational peer review board (MPRB) as well as an independent cross-national Peer Review Association for Medical/Health Education of Eastern Europe and Central Asia (PRAMED-EECA) was planned. MPRB was established in 2020, the association was established in 2022.

5. Establishing an annual scientific-practical journal of “Peer Review in Medical/Health Education for Eastern Europe and Central Asia (PRIMED-EECA)”. The journal was established in 2022.

6. Disseminating the information on project achievements and other final products (actual review reports, PRIMED-EECA, case-reports, recommendations, etc.) to participant institutions in the programme and partner countries as well as respective ministries and national agencies concerned about health/education in EECA at large. Information on the project activities was published in mass media and also in the journal, which was established at the Lithuanian University of Health Sciences (LSMU) in Kaunas.

We believe that activities carried out in the framework of the SPRING project provided an opportunity to strengthen international collaboration between 14 universities in 7 countries as well as facilitated activities in implementing the Bologna process and building more harmonised European Area of Higher Education.

# INTERNAL EVALUATION OF QUALITY OF STUDIES AT THE LITHUANIAN UNIVERSITY OF HEALTH SCIENCES: GOOD PRACTICES AND CHALLENGES

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**Abstract.** The processes of globalisation and internationalisation significantly influence changes in higher education. Rising demands on higher education, technological development determine the desire to foster studies of the highest quality. Overall mission of the World Federation of Medical Education (WFME) is to improve the health for all through promotion of high-quality medical education. Enhancing the quality of medical education is a priority of the Lithuanian University of Health Sciences. The University has its own quality assurance system, where quality primarily is perceived as the quality of studies. The University's quality culture, as a culture of continuous improvement and positive change, is based on the values defined in the University's mission. Lithuanian University of Health Sciences internal quality assurance system is based on the policy of study quality assurance, continuous study quality control and improvement, external quality evaluation and international recognition and evaluation. The quality assurance system of LSMU in this article is provided as an example with a deep tradition of fostering quality culture and ensuring quality.

**Key words:** Study quality, external evaluation, internal quality assurance system, feedback.

## Introduction

No quality assurance system can function successfully without an agreed common concept of quality, quality assessment and improvement. Still, there are various definitions of quality because it is not easy to define it. Welzant et al. (2015) found that the concepts of quality have not changed much in recent decades and identified four main categories of how quality is defined:

- As something that conforms to a defined mission or purpose or a set of standards or criteria (purposeful);
- As something that leads to a positive change in student learning or personal growth (transformative);
- As being accountable to different stakeholders by using the available resources in an optimal manner (accountable);
- As something exceptional or achieving high standards (exceptional).

Quality in higher education is considered in a broad range of inter-related activities, such

as curriculum, teaching, student learning, assessment, student experience, student selectivity. Because of this multifaceted nature of quality, quality assurance in higher education institutions (HEIs) adopts different approaches and procedures (Gamage, Kelum AA, et al., 2020). Quality assurance can be defined as the planned and systematic activities put in place to ensure that quality requirements of an educational programme are fulfilled (Bowden J, Marton F, 2000). The quality assurance is a cyclical process, where quality of the educational programme is measured, the collected data sets are judged to identify strengths and weaknesses and an improvement plan is delineated (Dolmans D, Wolfhagen H, Scherpbieter, 2003). Quality assurance is a cyclical, systematic, structural, and integrated process, where monitoring and evaluation of an educational programme is carried out by using instruments for effective feedback involving students as much as possible. When reflecting about improving the institutional quality

assurance system it is important to answer to these questions: what is the quality of studies for us and how it is ensured? What do we assess? Who is involved in the evaluation? How does the external evaluation of the quality of studies take place and influence our internal quality assurance system? What international recognition are we seeking?

### 1. Quality assurance in Lithuanian higher education: main principles and regulations

The external quality assurance system concerns regulations, policies and practices that take place at the national higher education system level to assure quality of higher education programmes and institutions. The Centre for Quality Assessment in Higher Education (SKVC) is a Lithuanian national external quality assurance agency, operating since 1995. SKVC now performs the following types of evaluation: *evaluation of applications to establish new Higher Education Institutions; institutional review of Higher Education Institutions, evaluation of study fields, evaluation of new study programmes*. The Law on Higher Education and Research states that the Ministry of Education, Science and Sport initiates external review of HEI activities every seven years. The Minister of Education and Science of the Republic of Lithuania by Order No. V-2356 of 22 December 2010 authorised SKVC to organise external evaluation of higher education institutions. Higher education institutions can be accredited for 7 or 3 years. Higher education institution is assessed according to the following evaluation areas, based on the Order No. V-1529 of the Minister of Education, Science and Sports of the Republic of Lithuania “On the approval of the procedure for the external review and accreditation of higher education institutions and branches of foreign higher education’s institutions, evaluation areas and indicators” of December 2019.

1. Management
2. Quality assurance
3. Studies and research (art)
4. Impact on regional and national development

The review of a higher education institution must assess each of the evaluation areas

in points (5-point evaluation system). There are two types of decisions regarding the accreditation of higher education institution: 1) to evaluate the performance of the higher education institution positively; 2) to evaluate the performance of the higher education institution negatively.

External evaluation of study programmes on a regular basis began in Lithuania in 1999. Since 2020 evaluation of study fields has been proceeding in order to see the systematic view of all studies organised in Lithuania. All study programmes of the same study field are evaluated at the same time at all Lithuanian Higher Education Institutions.

The external evaluation and accreditation of the study fields are conducted according to the Order No. V-835 of the Minister of Education, Science and Sport of the Republic of Lithuania “On Approval of the Regulations for External Evaluation and Accreditation of Studies, Evaluation Fields and Indicators” of 17 July 2019 (new edition is approved by Order No. V-1535 of the Minister of Education, Science and Sport of the Republic of Lithuania of 20 December 2020). The external evaluation and accreditation of the studies in the study field include the separate evaluation and accreditation of the first cycle, second cycle and professional studies in the study field provided by the higher education institution (except for the residency). The quality of study fields is assessed according to the following 7 areas:

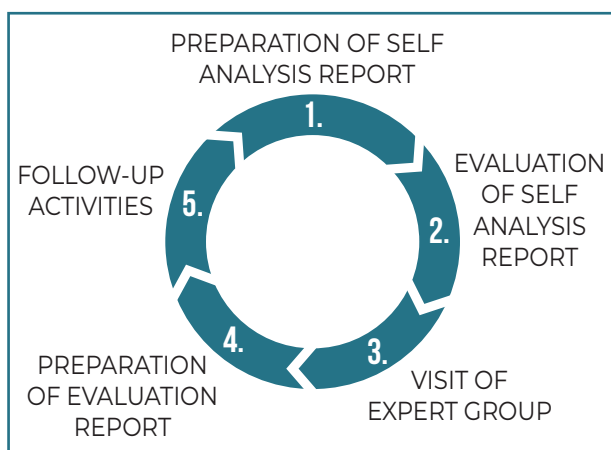
1. Study aims, outcomes and content
2. Links between science (art) and study activities
3. Student admission and support
4. Studying, student performance and graduate employment
5. Teaching staff
6. Learning facilities and resources
7. Study quality management and publicity

The quality of study fields is evaluated in points (5-point evaluation system). There are three types of decisions regarding the accreditation of the study field: 1) Accreditation for 7 years; 2) Accreditation for 3 years; 3) Non-accreditation.

The process of external evaluation of a higher education institution as well as evaluation



of quality of study fields have different stages, starting from the preparation of self-analysis report and finishing on follow up activities. A higher education institution is responsible for conducting self-evaluation and preparing a self-evaluation report and implementing follow-up activities. The report reveals the ability of a HEI to analyse and critically evaluate its performance and outline the prospects for its further development. Information in the self-evaluation report must be based on both quantitative and qualitative evidence. It is shown in Figure 1.



**Figure 1.** Stages of external evaluation of HEIs in Lithuania

The Law on Higher Education and Research allows HEIs to choose SKVC or another quality assurance agency that is enlisted in EQAR for evaluations of their study fields or study programmes. The study field accreditation decision in Lithuania is made only by the SKVC. In the case of institutional review SKVC is the only institution authorised by the Ministry of Education, Science and Sport to organise external evaluation of activities of HEIs and to accredit them.

Every higher education institution must have their own **internal quality assurance system**. It is stated in the Law on Higher Education and Research: “Every institution must have an internal quality assurance system approved by the institution and provide for the methods and means of ensuring the quality of the education and research it pro-

vides.” The 2015 Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) is a key document used as a guiding tool for the development of a national quality assurance framework in Europe, states the following four principles for quality assurance in the European Higher Education Area:

- Higher education institutions have primary responsibility for the quality of their provision and its assurance;
- Quality assurance responds to the diversity of higher education systems, institutions, programmes, and students;
- Quality assurance supports the development of a quality culture;
- Quality assurance takes into account the needs and expectations of students, all other stakeholders and society.

## 2. Internal quality assurance system at LSMU

Internal quality assurance system at LSMU is set by **Lithuanian and international documents and regulations** of higher education. University quality assurance system is based on the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) and implemented in accordance with 10 areas, which are mentioned in ESG: 1. Policy for Quality Assurance. 2. Design and Approval of Programmes. 3. Student centred teaching, learning and assessment. 4. Student Admission, Progression, Recognition and Certification. 5. Teaching Staff. 6. Learning Resources and Student Support. 7. Information management. 8. Public Information. 9. On-going Monitoring and Periodic Review of Programmes. 10. Cyclical External Quality Assurance. The internal quality assurance system is aligned with the University’s strategy, where one of the strategic objectives is competitive graduates and academic excellence:

... *By focusing on learning outcomes based on the acquisition of competencies, increasing the adaptation of students to changes in the environment, implementing new study programmes and / or forms, the University seeks to further increase the quality and value of studies. The renewal of the*

*study and internship infrastructure required by the university is a prerequisite for maintaining competitiveness in the international space, attracting not only foreign students, but also lecturers and researchers of the highest competencies. Not only the development of practice bases is necessary, but also the renewal and development of the infrastructure of simulation, virtual studies, and assessment of study results. Administration of study processes, monitoring of process efficiency, increase of administrative competencies are necessary to improve the study process itself.*

The study quality assurance policy is **implemented and/or coordinated** according to the competence in different levels by different bodies. The study quality assurance policy is established by the University Senate. It approves the internal system of quality assurance and controls how it is implemented. At the institutional level, the responsible party is the **Commission for Monitoring and Study Quality Assurance**, which coordinates monitoring, assessment, and improvement of the University study quality. Functions of the Commission are:

1. organising preparation and approval of study process quality assessment forms and the tools used for them;
2. coordinating the development of quality assurance of the study process at the faculties and other departments; selecting the areas to be assessed that determine the improvement of the quality of studies;
3. monitoring, analysing, and evaluating the results of the study process quality improvement at all levels (faculty, programme, subject);
4. when evaluating the results, it may, if necessary, invite the heads of the departments responsible for the study subjects, the deans of the faculties, lecturers, students, and other members of the academic community to discuss the results together and envisage possible ways to eliminate the shortcomings;
5. taking into account the results of the study process quality assessment, provides information, proposals regarding the study programmes, the quality of teaching and

the implementation, improvement, and changes of the study process;

6. announcing the results of monitoring, evaluation, and improvement of the quality of studies at the University on the University's website, intranet and in other ways, as well as publishing other data necessary for informing the public about the studies;
7. making decisions on the time and form of publication of the results of the study process quality assessment.

University **Faculties and Faculty Councils** coordinate and supervise the quality of study programmes implemented at the faculty, **Study Programme Committees** are responsible for the quality assurance of certain programmes, **Departments** (institutes, clinics) – evaluate and improve the quality of studies of the subjects taught by the departments, **Teachers** are responsible for the certain subject / module quality and **students** are responsible for their learning and active participation in improvement of quality of studies. So quality of studies – is everyone's responsibility and every member of the community is a nurturer of quality culture at different levels: the module / subject, department, faculty, University.

The following **processes** allow to ensure the quality of studies at the University:

- *Student and social partner participation in decision making.* Student representatives take part in all bodies, concerned with studies from highest ruling bodies (University Council, Senate, faculty councils) to committees and work groups. Social partners help ensure that programme contents, knowledge and skills students acquire, are up to date and correspond to labour market needs.
- *Collection and analysis of information, important for quality assessment.* Various quantitative and qualitative data, describing study process and study quality is collected – surveys of student, teacher and alumni opinion, statistical data, discussions on selected study quality topics. Collected information is analysed and assessed by the Study Quality Monitoring and Assurance Commission and the Uni-

versity's governing bodies: Rectorate, faculty councils, Senate.

- *Feedback about assessment results and study quality improvement measures.* Results of study quality assessment are presented not only to governing bodies of the university, but also the whole academic community: main assessment results are published in the university's weekly paper, and quality section of the university web page. Public information about study quality raises community awareness, helps to develop quality culture in the institution.

The quality of studies is determined by **measuring the criteria that define it.** The quality of studies at the Lithuanian University of Health Sciences is assessed according to the following four areas, each of which has appropriate assessment criteria and indicators:

1. High quality study programmes
2. Effective study process
3. Continuous improvement of teachers' qualifications
4. Ensuring study resources

Each of these areas has appropriate assessment criteria, which are shown in Figure 2.

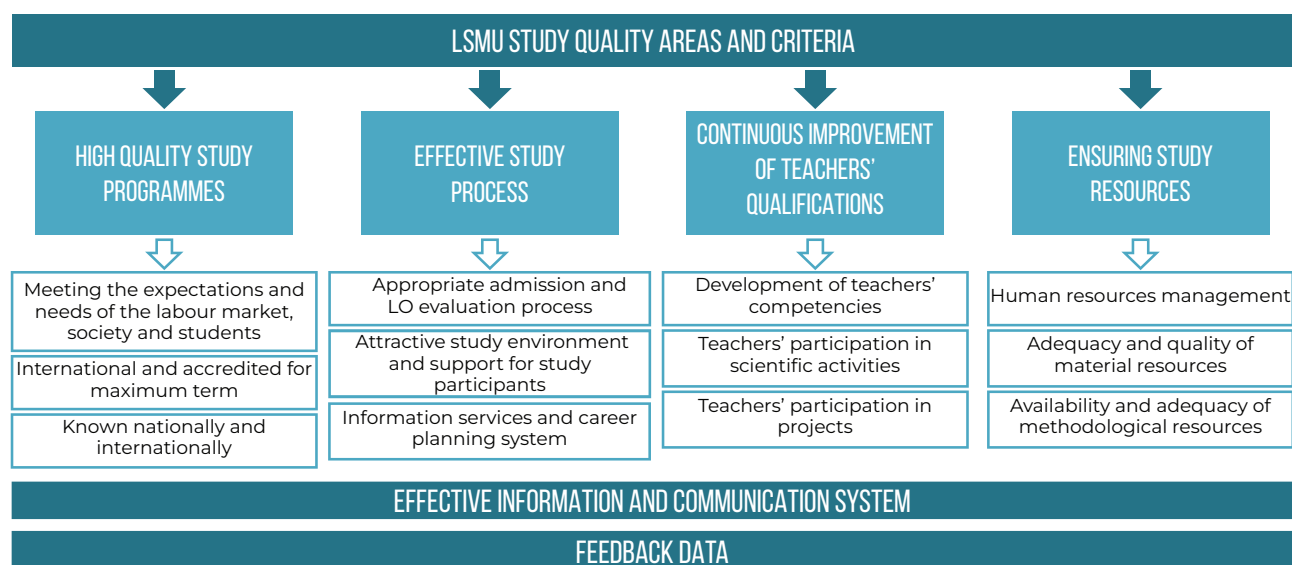
Medicine is a field that attracts people who want to have an impact, and this desire can be harnessed to improve medical education (Buja, 2019). One way to do this is to involve students in the quality improvement process,

encouraging them to provide feedback on quality.

### 3. Feedback – as a challenge for a successful quality assurance system

Feedback from different stakeholders is the key element in influencing the quality of studies. Knight (2002) states “feedback as this is a common area of concern for higher education institutions, being described as the sector’s ‘Achilles’ Heel’ in terms of quality”. The purpose of feedback organisation so as to improve the quality of studies is to collect relevant information for assessing the quality of studies in order to improve the study process, update and/or create new study programmes, ensure the improvement of faculty qualifications. (Feedback organisation procedure for improving the quality of studies at the Lithuanian University of Health Sciences, 2021). Feedback information is collected using various means (questionnaires, discussions, interviews, roundtable discussions, request and feedback boxes, forums, etc.) at the Lithuanian University of Health Sciences. Nevertheless, the University has its regular surveys for students, graduates, teachers, employees, staff.

Students have the right to have as good an education as possible and the community has



**Figure 2.** Lithuanian University of Health Sciences, Study Quality Areas and Criteria (from LSMU Study Quality Manual, 2021)

the right to well-educated and well-trained specialists. Patient-centred care in medical system has the link with student-centred learning approaches where communication and learning between two parties: doctor and patient, student and teacher, is an important factor in creating quality of future medical education. Particularly, one of the key elements of any quality assurance system is ensuring that the data are collated efficiently into a form which can be analysed and presented appropriately, sometimes it becomes a big challenge to involve young people into active participation. Low students' participation in surveys for the purpose of providing their feedback about the quality of studies is a relevant issue to all HEIs. In educational research, the online survey has become a popular method of data collection. It is easy to prepare, to collect and analyse data. Time efficiency has been noted as the major strength of online surveys (Park, Park, Wookjae Heo & Kim Gustafson, 2019). Nevertheless, low response rates of online surveys has been a concern for many researchers in the last few years; the response rate for web surveys is estimated to be 11 % lower than other survey modes (Yan & Fan, 2010).

There can be identified seven main factors affecting survey participation:




- length
- design (layout, wording, organisation)
- contact (personalised invitation, pre-notifications, and reminders)
- content (salience of topic)
- sponsorship
- incentive
- accessibility. (from: Park ,Park, Wookjae Heo & Kim Gustafson, 2019)

Other authors (Saleh A, Bista K, 2017) provide eleven recommendations regarding the use of online surveys and response rates:

1. Elicit the aid of authority figures, known personnel or organisations to the target population to distribute the survey, when possible.
2. Target a population that is more likely to hold interest in the research.
3. Consider offering an incentive for completing the survey.

4. Make every effort to craft a survey that is short and concise.
5. Inform the population in the invitation letter of the approximate time it will take to complete the survey.
6. Whenever possible, reduce the number or eliminate open-ended survey items.
7. Assure the participants of the anonymity and confidentiality of their responses.
8. Explain how the collected data will be handled, who will have access to them, and how the data will be stored and/or disposed of after the study is completed.
9. Personalise invitations to participate in the study and make them look professional.
10. Send at least one, but not more than three, reminders to the target population to motivate them to complete the survey.
11. Be aware of the time constraints related to the time-of-year for the target population.

Lithuanian University of Health Sciences developed a new instrument “Quality thermometer” for the student’s feedback in 2019. This survey is programmed at the University’s study information system and every student can evaluate each subject (module) by clicking clicking on the word “Rate” in his/her study record as it is shown in Figure 3.

| Total subjects: 4<br>Total credits: 30.00 Finished: 0 |                                                                              |             |            |                                                                                         |                                        |
|-------------------------------------------------------|------------------------------------------------------------------------------|-------------|------------|-----------------------------------------------------------------------------------------|----------------------------------------|
| No                                                    | Title                                                                        | Exam/Credit | Written by |                                                                                         |                                        |
| 1                                                     | <b>11 module. Special Nursing</b><br>10.00 ECTS<br>[SLF/SLK/SL(VM)-P247] >   |             |            |  0 | <input type="checkbox"/> Agree<br>Rate |
| 2                                                     | <b>12 module. Geriatric Nursing</b><br>11.00 ECTS<br>[SLF/SLK/SL(VM)-P248] > |             |            |  0 | <input type="checkbox"/> Agree<br>Rate |
| 3                                                     | <b>Biostatistics 2.00</b><br>ECTS<br>[MF/FMB/SL(VM)-P14]                     |             |            |  0 | <input type="checkbox"/> Agree<br>Rate |

**Figure 3.** LSMU student’s study record

This instrument aims to gain students’ opinion on a module/subject any time and encourage the students to provide their opinion about a situation when it has occurred. It also allows students to see how other students evaluated a module/subject and to know the

**Table 1.** Question of subject (module) evaluation in students' survey "Quality thermometer"

|   |                                                                                                                                                                                                                                                                                                    |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | I am satisfied with this module/subject (content, learning outcomes, learning material, criteria for the assessment, duration and timing)                                                                                                                                                          |
| 2 | I am satisfied with the quality of teaching (teachers' ability to engage students and provide the information, learning and teaching methods, relevance of tasks to learning content, feedback after the tasks, communication and cooperation, consultations and support, punctuality of teachers) |
| 3 | The timetable of particular module/subject was clear and stable                                                                                                                                                                                                                                    |
| 4 | I am satisfied with the learning resources (suitability of classrooms/laboratories, adequacy and quality of learning tools)                                                                                                                                                                        |
| 5 | The administrator of the study unit gives me full support and assistance with any questions                                                                                                                                                                                                        |

overall temperature of all modules/subjects at University.

This thermometer is useful for teachers as well, because they can see how the temperature is raising up or going down and initiate some changes immediately or think about gathering more information through diagnostic questionnaires with both quantitative and qualitative components such as: interviews, focus group discussions with the faculty and trainees/students, observations, document analysis.

Given that students prefer to complete short surveys, these were formulated with 5 short questions and 1 open question for evaluation of the module (subject) quality at LSMU (Table 1).

22.92 % of students participated in this survey and evaluated 604 subjects (modules) in 2019. We have noticed that student activity in evaluating subjects (modules) is higher at the end of the autumn semester than spring semester. 19.78 % of students participated in evaluating autumn semester subjects (modules) in 2021. Nevertheless, the University is planning new tools and methods for increasing the students' engagement in surveys. No less responsibility goes to teachers on encouraging students to be active participants in evaluating the teaching quality. According to Borch, I., Sandvoll, R. & Risør, T (2020), research has identified several explanations for why academics do not use survey responses: superficial surveys (Edström 2008), low desires

to develop teaching (Edström 2008; Hendry et al. 2007), little support with respect on how to follow up the data (Marsh and Roche 1993; Neumann 2000; Piccinin et al. 1999), absence of explicit incentives to make use of these data (Kember et al. 2002; Richardson 2005), time pressure at work (Cousins 2003), scepticism as to the relevance of students' feedback in teaching improvement (Arthur 2009; Ballantyne et al. 2000) and a belief that these surveys are mainly collected as part of audit and control (Harvey 2002; Newton 2000). So, finally, it is important to highlight that even the measurement tools are important in quality assurance and every institution chooses how the evaluation will be implemented, the spread of quality awareness among faculty, staff, and students, plays a significant role.

### Conclusion

1. In Lithuania, the quality of higher education is ensured through external and internal evaluation and self-evaluation. SKVC is responsible for external evaluation and accreditation, and each higher education institution is responsible for internal evaluation of study quality.
2. The quality of higher education institutions in Lithuania is assessed through external institutional evaluation of higher education institutions and evaluation of study fields.
3. LSMU Study quality analysis and assessment is performed at various University

levels – from departments and individual teachers to Study Programme Committees and University bodies, such as the Study Quality Monitoring and Improvement Commission, Student Union, Rectorate, Senate. The University has four assessment areas: study programmes, study process, teachers, and resources.

4. Gathering feedback from stakeholders is essential for quality assurance, but students' participation in study quality surveys remains still a challenge at LSMU. New quality assessment tools are being created and developed to meet students' expectations and needs, one of which is the "Quality Thermometer".

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## Vidinis studijų kokybės vertinimas Lietuvos sveikatos mokslų universitete: geroji praktika ir iššūkiai

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**Anotacija.** Globalizacijos ir internacionalizacijos procesai daro didelę įtaką pokyčiams aukštajame moksle. Didėjantys reikalavimai aukštajam mokslui, technologijų plėtra skatina vykdyti ir stiprinti aukščiausios kokybės studijas. Bendra Pasaulinės medicinos švietimo federacijos (WFME) misija yra gerinti visų sveikatą, skatinant aukštos kokybės medicininį išsilavinimą. Šiame straipsnyje pabrėžiama, kad Lietuvoje aukštosioms mokyklose galioja griežti kokybės užtikrinimo reglamentai ir procedūros, vertinant ir akredituojant tiek aukštąsias mokyklas, tiek jose vykdomas krypties studijas. Nepaisant to, kiekviena aukštoji mokykla turi savo kokybės standartą, kuris daugeliu atveju atliepia nacionalinius ir tarptautinius reikalavimus kokybei užtikrinti. Kokybės gerinimas yra Lietuvos sveikatos mokslų universiteto prioritetas. Universitetas turi savo kokybės užtikrinimo sistemą, kurioje kokybė pirmiausia suvokiama kaip studijų kokybė, pasiekama per dėstytojo ir studento sąveiką bei mokymosi aplinkos, kurioje studijų programų turinys, mokymosi galimybės bei išteklių atliepia Universiteto misijoje keliamus tikslus, kūrimą. Universiteto kokybės kultūra, kaip nuolatinio tobulėjimo ir teigiamų pokyčių kultūra, grindžiama Universiteto misijoje įvardinamomis vertybėmis – bendruomeniškumu, profesionalumu, akademiškumu, teisingumu ir atvirumu, kurias visas apjungia svarbiausia – pagarbos gyvybei vertybė. Lietuvos sveikatos mokslų universiteto vidinė kokybės užtikrinimo sistema turi gilią ištaką ir tarptautinę patirtį. Nuo 2001 metų Universitetas studijų kokybės vertinimo principus diegė remdamasis tarpinstituciniu bendradarbiavimu su Gento Universitetu (Belgija). Nuo tada studijų kokybė pradėta vertinti reguliariai. Straipsnyje pristatoma LSMU vidinė studijų kokybės sistema grindžiama vykdoma studijų kokybės užtikrinimo politika, nuolatinė studijų kokybės kontrole ir gerinimu, išoriniu kokybės vertinimu bei tarptautiniu pripažinimu ir vertinimu. LSMU kokybės užtikrinimo sistema pristatoma kaip pavyzdys, turintis gilią kokybės kultūros puoselėjimo ir kokybės užtikrinimo tradicijas, atsakant į tokius klausimus kaip: Kas mums yra studijų kokybė? Ką mes vertiname? Kas dalyvauja vertinime? Kaip vyksta išorinis studijų kokybės vertinimas Lietuvoje?

**Reikšmingi žodžiai:** Studijų kokybė, išorinis vertinimas ir akreditavimas, vidinė studijų kokybės užtikrinimo sistema, grįžtamasis ryšys.

# IMPACT AND CONSEQUENCES OF COVID-19 ON TEACHING AND LEARNING IN *NICOLAE TESTEMITANU* STATE UNIVERSITY OF MEDICINE AND PHARMACY OF THE REPUBLIC OF MOLDOVA

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**Abstract. Background.** The COVID-19 pandemic has impacted the world in many ways. From health issues at the individual level to sometimes catastrophic negative impact on the health-care systems around the world, the pandemic has affected the economic, social, and emotional well-being of societies. **Aim.** To evaluate the effects of the pandemic on teaching and learning domains at *Nicolae Testemitanu* State University of Medicine and Pharmacy, in order to get a broader picture of the effects of the pandemic on higher medical education in the Republic of Moldova. **Methods.** The observational study was conducted in the period of 2020–2021 in the *Nicolae Testemitanu* State University of Medicine and Pharmacy. Study instrument included an on-line questionnaire about the satisfaction of the employee and beneficiaries. Teachers and students answered questions about the methods of conducting classes initially on various platforms during the pandemic. **Results.** 64 008 questionnaires from students, residents, trainees, and other beneficiaries were collected, completed, and analysed. The average level of satisfaction increased from 93 % in 2019–2020 to 95 % in 2020–2021, which indicates an additional confidence and trust in the values and actions undertaken by the university community. The study revealed the challenges faced by higher medical education. These include the forced adaptation of students and teachers to online educational activities; declining quality of education; uncertainty in the applicability of the knowledge obtained and its use in practice, low level of skills of teachers and students in the use of digital tools, the gap in the digital culture of the younger and older generations of teachers.

**Key words:** teaching and learning, satisfaction, COVID-19 pandemic, methods of learning.

## Introduction

Over the last two years, the COVID-19 pandemic has impacted the world in many ways. From health issues at the individual level to sometimes catastrophic negative impact on the health systems around the world, the pandemic has affected the economic, social, and emotional well-being of societies. The consequences of the pandemic will probably be felt in the long run. Medical education has been affected both by the restrictions applied to all educational institutions and by the impact of the pandemic on the health system at national level. The contexts in which medical universities operate are variable, but are characterised by innovation, performance,

and flexibility [1]. All aspects of medical training have been affected by COVID-19 [2]. The pandemic has accelerated change, including in higher education, and there is a need for thorough understanding and exchange about where we are today and how to prepare for the future.

The *Nicolae Testemitanu* State University of Medicine and Pharmacy of the Republic of Moldova (SUMPh) is the only university in the country that provides higher medical and pharmaceutical education, trains specialists for the healthcare system of the country, and carries out scientific and clinical activities. SUMPh is a competitive institution at the national and international levels in the field of



higher medical and pharmaceutical education, post university programmes (residency training and continuous medical education), research, medical and pharmaceutical service provision targeting quality, access, and collaboration.

In retrospect, the 2020–2021 period was atypical not only for the SUMPh, but also for all higher education institutions in the Republic of Moldova. The entire university activity was affected by the COVID-19 pandemic, a situation that forced the reorganisation of the educational process with a major shift to online education. The educational process continued in a mixed way with reduced student-teacher interaction. The ability to organise practical activities was also severely compromised. We lost the opportunity to teach and learn at the patient's bedside, to communicate with the patient. University leadership, students and staff have been ongoingly challenged. Yet new opportunities arise to be explored and properly understood.

### **The main objective of the study**

To evaluate the effects of the pandemic on teaching and learning domains at *Nicolae Testemitanu* State University of Medicine and Pharmacy, in order to get a broader picture of the effects of the pandemic on higher medical education in the Republic of Moldova.

### **The methodology**

The observational study was conducted in the period of 2020–2021 in the Nicolae Testemitanu State University of Medicine and Pharmacy. Study instrument included an online questionnaire about the satisfaction of the employee and beneficiaries.

The comparative analysis of the activity reports of the teaching subdivisions as well as the questionnaires to assess the satisfaction of employees and beneficiaries were performed. According to the requirements of the Quality Management System Evaluations the following questionnaires were applied:

- questionnaire on the evaluation of teaching quality for students, residents, and trainees;
- customer satisfaction survey for the beneficiaries of SUMPh subdivisions;

- teachers', administrative and support staff satisfaction surveys.

During the academic year 2020–2021, 64 008 questionnaires from students, residents, trainees, and other beneficiaries were collected, completed, and analysed. A mixed quantitative evaluation was applied by assessing the level of satisfaction of the beneficiaries, as well as the qualitative analysis of the data identifying the areas of impact of the COVID-19 pandemic on the teaching and learning process. The pandemic impact on the resilience and adaptation of students and teachers was also assessed and analysed.

### **Results**

Between March 2020 and June 2021, the educational process in SUMPh was initially carried out exclusively online, in accordance with the epidemiological requirements at the country level. Thus, in a short period of time, a rapid transition was needed from the classical training with physical presence, both in the classes and in the practical settings, to the training in an exclusively online format. Teachers and students identified the methods of conducting classes initially on various platforms (*GoogleMeet*, *Zoom*, *Webex*, *Skype*, *Viber*, *WhatsApp*, etc.) with the adaptation of available technologies, in the context in which in the same home were several individuals (pupils, students, teachers, etc.) who had online lessons. Computerised networks at the University use modern technologies such as fiber optics, ADSL. All the chairs and subdivisions of SUMPh, including those located in medical institutions, are connected to the internal GMPU network and the Internet. In the university space (educational buildings and student campus) free access to Wi-Fi is constantly provided. In order to ensure access to online training and the necessary resources and to provide the opportunity for all students to connect to online teaching activities, the university has strengthened the endowment of student dormitories with modems.

In order to adapt the educational process to the restrictions imposed by the pandemic, the University carried out a series of actions. University Management Information System

(SIMU) was implemented at the university level which allowed the computerisation of administrative activities (human resources database, accounting, student and resident admission board, etc.) as well as the informatisation of the learning process (database of beneficiaries, monitoring of attendance, academic performance and quality of education; software for current and final assessment of acquired knowledge; electronic student assessment; electronic statements, reporting of the clinical activities, etc.).

In 2020, there was a significant increase in the exploitation of the Communication module of SIMU for students informing them on the organisation of the educational process, homework management and taking in of problems solved by students. Later in SIMU, for the development, recording and conducting of the lectures and practical work using the components of distance learning, a separate module “Live Courses” was created. The module was also used for the monitoring reports on the online teaching progress. The monitoring of the organisation and development of the online educational process was carried out by the heads of the didactic subdivisions, deans' offices, and the Didactic and Academic Management Department. In support of the online educational activity the following guidelines for teachers were developed:

- the guide “Creating and disseminating online lectures” on the Google classroom platform;
- the guide “Creating and Broadcasting Online Lectures” on the teachers' page in the SIMU;
- “Live Courses” module with Google Meet support.

The latter was synchronised with personal Google email accounts.

Another area of intervention was the adjustment of teaching materials for online training. For the good conduct of the on-line seminars, the practical works, and the training tools (communication, modelling/simulation, design, case studies, presentations of therapeutic procedures, video transmissions from the operating room, presentations of clinical cases, 3D animations, etc.) were devel-

oped and diversified. During the pandemic period, all departments placed in SIMU, MOODLE and on the WEB pages of the department their teaching materials, bibliographies, demonstrations, methodological recommendations, and course materials in all languages of instruction. Students were also granted access to links to national and international educational resources and began the process of distance learning through the use of various platforms. Both teachers and students at that time demonstrated receptivity, responsibility and understanding of context.

Important support was provided by the Scientific Medical Library of SUMPh, which provided access to a wide range of information resources, including electronic scientific editions, educational publications, and periodicals. The Library also provides *online* access to medical and pharmaceutical electronic resources of 23 databases and training programmes. The Library created its own information resources such as educational electronic library (317 books) and university repository which included staff publications (5 146 documents).

In order to effectively manage patients, gain experience in working with medical care systems and optimise student access to medical care system data, the University's site provides *online* access to Internet links of the Ministry of Health of Republic of Moldova, National Public Health Agency, World Health Organization, Agency for Medicines and Medical Products of the Republic of Moldova, National Health Insurance Company, National Agency for Quality Assurance in Education and Research, etc.

Effective communication with the beneficiaries in accordance with the Public Health Strategy, the epidemiological situation in the country and abroad, current legislation and regulations, national and international clinical guidelines, standardised clinical protocols, diagnostic and treatment algorithms, etc. were heavily supported and promoted. The knowledge gained facilitated faster involvement of students in medical practice and represents a practical way to standardise and improve the quality of medical services.

With the lifting of the pandemic restrictions, from 01.09.2020, the training at SUMPh was carried out in mixed method. In order to avoid the accumulation of a large number of people in an enclosed space, the theoretical courses in all compulsory subjects were conducted online. As for the seminars, practical and laboratory works, the educational process was carried out with the physical presence. An important achievement was the development of internships in country medical institutions. The internships were carried out in the public medical institutions, including the ones with COVID-19 profile departments, exclusively at the request of the students.

In partnership with MOH, NAPH and the Soros Foundation online training for students was developed for the correct application of individual protection measures and the reduction of the risk of COVID-19 infection.

The university provided the necessary conditions for obtaining relevant clinical experience, including a certain number and categories of patients. The university has a sufficient number and clinical bases of different categories, which include clinics, outpatient services, primary medical institutions, health centres, as well as clinical skills centres and laboratories that allow it to conduct clinical training using the possibilities of clinical bases and providing rotations in basic clinical disciplines.

The final/semester assessment process was performed in a mixed regime with the use of the computer-assisted examination forms in SIMU in the Academic Assessment Centre. Practical skills were developed in CUSIM, using standardised patients and high-fidelity simulators and mannequins. It should be noted that the semester evaluation was carried out according to the terms established by the Academic Calendar, with the mandatory observance of the "Instruction on protection measures to be applied to organise the activity of public and private educational institutions in the epidemiological context of COVID-19".

It is to be noted that in the pandemic context since 2020 the admission process was performed in online format, using the plat-

form "Admitere USMF". The platform allows the collection of exact and exhaustive data about the candidates, the objective development of the admission contest and serves as a platform for the database of the Teaching Module in SIMU. In pandemic SUMPh registered an increased enrolment rate in domestic students. However, SUMPh experienced a decrease in the number of international students' admission. It is possible that the decrease in enrolment of international students is a temporary phenomenon, and that international mobility will resume once any COVID-19 related restrictions are lifted.

The quality ensuring mechanisms for the online studies and assessments included monitoring of the student's attendance, teaching materials provisions, procedures for conducting online assessments. Thus, the process of monitoring students' attendance in classes was carried out using SIMU, which allowed determining the access to activities, the actual duration of their stay in teaching activities, homework, and individual work. The heads of teaching subdivisions, deans' offices and the Didactic and Academic Management Department were able to monitor the organisation and development of teaching activities, through direct access to courses and seminars conducted online, but also through reports generated by the system.

The Department of Information and Communication Technology ensured the proper functioning of the University Management Information System and provided consultations and support for the creation and management of online lessons using various platforms.

Thus, questionnaires were applied to assess the satisfaction of the beneficiaries with reference to the educational process carried out during the pandemic period. In the academic year 2020–2021, 64 008 questionnaires were completed by students, residents, trainees, and other beneficiaries (clients). Due to the lack and/or decrease of the number of beneficiaries registered in the Medical Scientific Library, Sports Complex, Food, etc. during the pandemic period, the number of questionnaires decreased insignificantly from 65 548

in 2019–2020 to 64 008 in 2020–2021. However, the average level of satisfaction increased from 93 % in 2019–2020 to 95 % in 2020–2021, which indicates an additional confidence and trust in the values and actions undertaken by the university community.

The Figure 1 illustrates the level of satisfaction according to educational programmes within SUMPh.

Thus, the highest results were determined in the Pharmacy programme, due to the fact that the practical training is carried out in laboratories, production areas and communication pharmacies, whose activity was not stopped during the pandemic. The online organisation of the theoretical courses was appreciated as positive by the majority of students. Good results were also obtained for the beneficiaries of the dental programme, whose training was mainly performed in the simulation centres. This allowed the students to develop practical skills, but also to feel safe, in the context of airborne transmission of the infection – Sars-CoV-2.

The 97% satisfaction of the beneficiaries of the postgraduate residency education programme is possibly determined by the active involvement of resident doctors in providing medical care to patients in various medical institutions, volunteering later in 2021 in the vaccination campaigns. The lowest level of satisfaction was for the international students who, being away from home, endured intense emo-

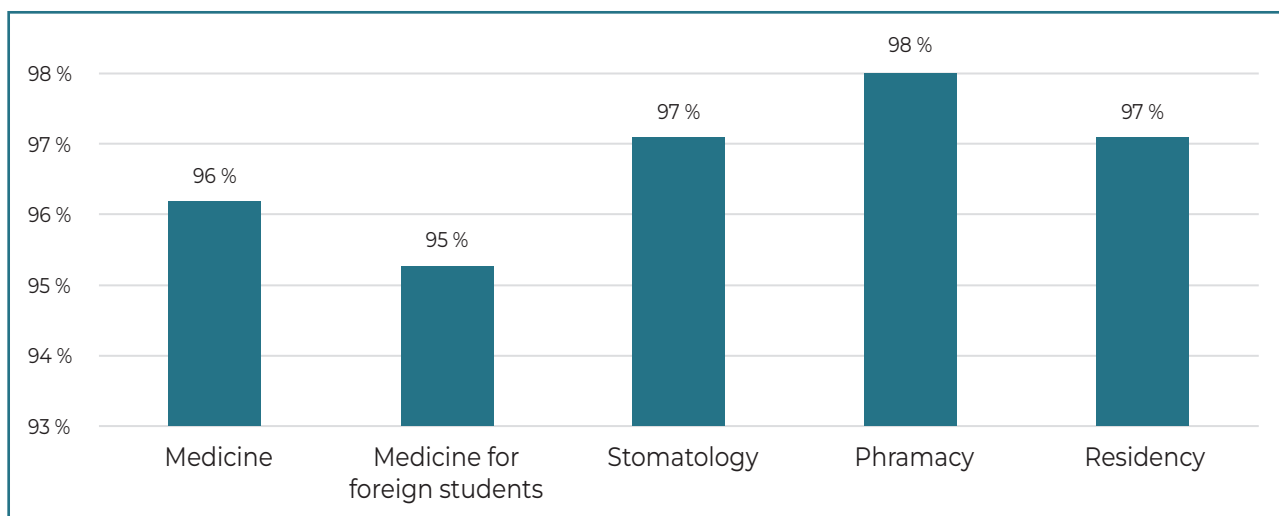
tional stress caused by uncertainties about their own safety and that of their families.

The Figure 2 represents the analysis of the data regarding the training during the pandemic highlighted the students' opinions on the following areas: the quality of online training, the volume and relevance of information provided in online courses, the efficiency of performing and presenting tasks for individual work and the assessment of final assessment methods.

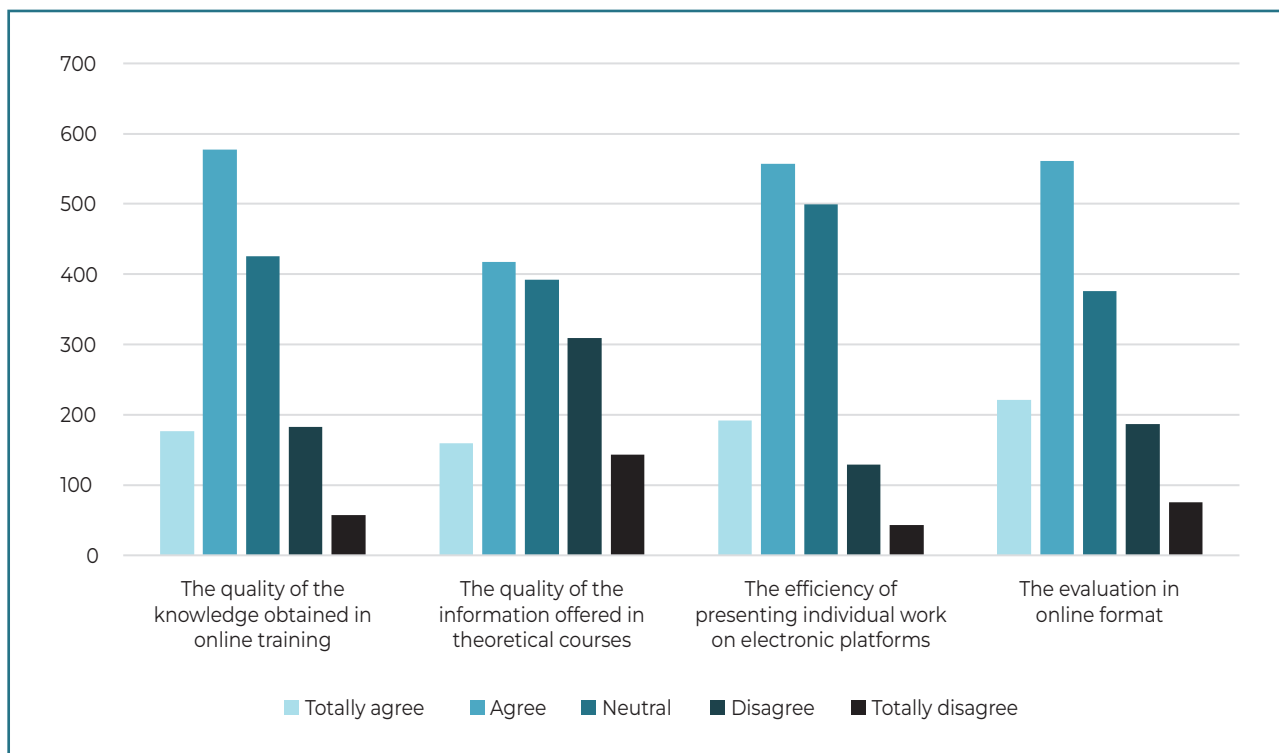
The analysis of the presented data identified a rather high level of positive appreciation of the educational process during the pandemic. At the same time, it was interesting to analyse the qualitative data, namely the opinion and attitude of both teachers and students with reference to the educational process during this period.

The dynamics of the average level of satisfaction for the employees of the teaching subdivisions are as follows: year 2018 – 91 %; year 2019 – 94 %; year 2020 – 93 %; year 2021 – 93 %. Although the level of satisfaction is similar to previous years with an insignificant decrease. The focus though was to identify and understand the qualitative aspects that are beyond the numbers.

Thus, the analysis of the qualitative data from the questionnaires completed by the teachers highlighted the following problems that they have faced since the establishment of the COVID-19 pandemic:



**Figure 1.** The level of satisfaction according to educational programmes



**Figure 2.** The evaluation of the study process during the self-isolation period

### 1. Insufficient teachers

On the one hand, the pandemic seriously affected the health of teachers. Many of them were infected, followed by long periods of convalescence, many cases regrettably resulting in death. On the other hand, teachers had to focus on clinical activity. COVID-19 depleted the healthcare system and required the mobilisation of all reserves.

Another reason is the fact that some teachers were not prepared for the online training, especially during the period of self-isolation. Based on the needs of the educational process, for the academic year 2020–2021 where of the 154 full-time employees out of whom 101 were university assistants, 46 associate professors and 7 university professors. Part-time contracting for the cumulative activity (internal / external) was reserved for the 132 employees, out of whom 100 were university assistants, 25 associate professors and 7 university professors. Thus, the recruitment during the COVID-19 period proved to be stable. However, the recruitment of new academic staff is slowing down, and especially administrative staff.

### 2. Digital skills

Such obstacles as unstable internet connection, unavailability of the computer devices but also insufficient skills in using modern technologies are only a few to be mentioned. In order to strengthen digital skills, the continuous professional training of academic staff was carried out through short-term training modules in online format and the development of tutorials for the use of digital teaching, learning and assessment tools. The process of teacher training in the use of modern/interactive pedagogical methods was continued in the Psychopedagogical module.

### 3. Teaching preparatory work workload

Another common impact on teaching activities was that the staff had to spend more time on teaching activities due to the sudden shift to remote learning and the need to develop teaching materials or adapt them for online training. However, due to the fact that the majority of staff could not travel to conferences and meetings and could not undertake field work or other planned events of physical presence which could not be simu-

lated remotely, they spent more time on the elaboration of teaching materials or publications.

Some authors wrote articles on research outcomes rather than starting new lab-work or starting new field-based data collection, others were involved in COVID-19 management, and they were able to provide the results of observational or case studies. The majority of academics reported an increase in workload.

#### **4. Mental health**

The analysis of students' perceptions and attitudes regarding online instruction identified a number of issues they faced. For the students, the pandemic period was a challenge, they mentioned negative psycho-emotional states (stress, demotivation, frustration, depression, and anxiety). These conditions had a negative impact on the study process. Students expressed concerns such as: *"I will not meet the challenges and deadlines", "fear that I will fail the assessments" or "if I have connection problems and I will not be able to present the paper"*.

#### **5. Knowledge and skills applicability**

One area of concern was the applicability of the knowledge gained and the possibility of using it in practice. Due to the pandemic, the students could not actually perform the manoeuvres on patients at the patient's bedside, as they were previously accustomed to. The students reported that the level of "fear of patients" increased, both in the context of the risk of infection, but also the fear that they were not prepared for a real clinical situation.

#### **6. Human interaction and communication**

The most difficult activities during the online training period for medical students were communication with colleagues, assimilation and understanding of courses or knowledge, clarification of questions in the learning process but also planning and organising personal time. These have led to concerns about academic achievement. Students often mentioned the lack of motivation to continue the educational process.

## **Discussion**

During the pandemic, certain activities had been stopped. The teaching and learning were one of the areas most impacted by the pandemic, first because SUMPPh had to shift in March 2020 the education process from face-to-face to online without the necessary preparation as it was not planned for.

In terms of disrupted activities, the most cited categories were:

- a) international activities, particularly mobility;
- b) social events and extracurricular activities, including business trips, internships, field trips, job fairs, open days, sports or arts events and other practical performances;
- c) the disruption of practical and face-to-face education.

Offering remote teaching and learning is one thing, but another important issue is student access to the remote offer. The University had taken different measures in order to support students who did not have access to remote teaching and learning. It was given priority to assure Wi-Fi access to students' campus, increase the number and provide material support to students by SIMU, web page and online university library. The SUMPPh increased the use of various digital tools. The results of the annual evaluation clearly demonstrated that some disciplines lend themselves more easily to remote teaching and learning. Particularly for clinical disciplines the situation was more complex, and additional measures were taken, to ensure that the learning objectives were achieved.

In terms of readiness of academic staff to shift to online teaching, there were divergent levels of readiness across the institution. It is interesting to note that some disciplines indicated they had less prior experience with online or distance teaching and learning before the pandemic. In the first year of the pandemic due to the actions taken by the university administration this number increased to 95 %, and to 100 % in academic year 2020–2021. The qualitative data analysis of the questionnaire of academic staff confirms that it is an important need for capacity building in order to prepare staff to be equipped to leverage the opportunities of online or remote

learning as a complement to more traditional face-to-face learning.

International activities were among the most negatively affected by the pandemic, with reduced international student enrolment, as well as reduced staff and student mobility. At the same time, the number of virtual exchanges increased as well as collaborative online learning or attendance of students and staff at international scientific events.

During the pandemic some staff or students have been affected directly by contracting the disease, and it was necessary to postpone some evaluation activities or switch from on-site to remote learning process. The change in working environment was enjoyable for some members of staff, for others it meant isolation. For others, it meant having to juggle several tasks – looking after children at home or taking care of elderly family members. For this reason, the University increased the institutional support for both physical health as well as mental health of staff and students and has conducted multiple vaccination campaigns.

The SUMP is generally satisfied with their crisis management and communications during the pandemic, thus in the auto-evaluation by the subdivisions and beneficiaries are for the great majority positive. On the positive side, the University was able to carry out exams despite the pandemic, however the exams had to be conducted under new conditions, for example online or mixed formats. SUMP was able to graduate last year's cohort of students in 2020 and 2021. It is positive to note that in the majority of cases, the pandemic did not disrupt learning paths of students and that many were able to continue and complete their studies although it may have been different than anticipated.

The great challenge and need of all teaching subdivisions registered both in 2020 and 2021, remains. Thus, the conduct of online classes, which led to the revision of teaching materials, their accessibility in electronic format, presentation of course notes in the online environment, the implementation of various applications and platforms for the smooth running of lectures, courses and practical hours shall be continued.

These challenges are commonly faced by many universities that conducted classical training before the pandemic. However, the conservatism of medical schools prevented the adoption of more radical pedagogical approaches. The COVID-19 pandemic has forced medical schools to break through barriers overnight and make the fastest change in the history of medical education [3].

The analysis of the qualitative data showed clearly that the students feel intensely the disadvantages of distance learning in the medical field, and their most frequent comments were: "*medicine is NOT done online*"; "*Medicine is for people and with people*" [4]. Students would have preferred to study the "real" cases at the patient's bedside, as well as some implementations such as telemedicine which has a significant potential to be retained as a teaching method, even after the end of the pandemic [5].

The online teaching process allowed for the continuation of medical education during the pandemic. Overcoming this crisis requires learning certain lessons and maximising the benefits of both face-to-face and online teaching and to improve the effectiveness of medical education in the future.

Combining online components into a medical curriculum will allow us to take advantage of the strengths of this environment, such as efficiency and the ability to support asynchronous and autonomous learning, which involves and promotes intrinsic learning in medical students [6].

## Conclusion

In the pandemic the traditional method of teaching has been replaced by online teaching. Online teaching offers students the opportunity to learn another side of solving various problems by applying new teaching methodologies and techniques. The university has looked for new ways to teach online and has solved the problems caused by the pandemic in the distance education system, emphasising the satisfaction of employees and beneficiaries without diminishing the quality of training.

However, the study revealed the challenges faced by higher medical education in the

Republic of Moldova in the conditions of the pandemic. These include the forced adaptation of students and teachers to online educational activity; declining quality of education; uncertainty in the applicability of the knowledge obtained and its use in practice, low level of skills of teachers and students in the use of digital tools, the gap in the digital culture of the younger and older generations of teachers. Also, the study revealed a number of contradictions in the subsequent implementation of distance learning in higher medical education such as:

- the reduction of economic costs by universities for its organisation but quality deterioration of education received by students;
- decrease in the workload of teachers in the classroom but an increase in key tasks associated with checking tasks, setting them on educational portals, development of electronic courses, employment in scientific activities, tenacity, etc.;
- increasing leisure time by partially replacing their courses with electronic courses and modules taught by other professors at other universities;
- tendency to reduce the number of faculty members.

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## QUALITY ASSURANCE IN THE MEDICAL EDUCATION OF BULGARIA

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**Abstract. Background.** In today's dynamic world a multitude of challenges call for reforms in the medical education with the aim of increasing its efficiency, quality, and accountability. The quality of education and training has always been a focal point in the medical education in Bulgaria. **Objectives.** To present the development of quality assurance (QA) in medical education in Bulgaria, and to study the structure and organisation of quality management systems in the Medical Universities at the moment. **Methods.** Quality assurance in Bulgarian medical education over the period 1995–2020 was explored. Content analysis was used to study official documents of national authorities in higher education and accreditation, as well as internal documents of the Medical Universities. A questionnaire was developed to elicit information on quality assurance and accreditation. **Results.** Medical Universities in Bulgaria introduced comprehensive Quality Assurance System and formulated Quality Policy with accordance to their mission in the late 1990s. They established operating Quality Management Systems (QMS) based on ISO and EFQM model. Results of the quality assessment are publicly available and performance indicators are shared with key stakeholders. Internal audits and reviews of the QMS are conducted annually. Audit teams include certified auditors from the main structural units of the University. Essential element of the education QA are the surveys among students. Regular attestation of the teaching staff is conducted, and the results are taken into account in determining the individual remuneration. **Conclusions.** Quality of education has always been a part of the medical academic tradition in Bulgaria. Quality assurance is a challenging area of action and scientific exploration for the Medical Universities in Bulgaria. Although a high homogeneity in the institutional norms, organisational structure, and processes concerning quality assurance in medical education has been observed, systemic research on these aspects of quality assurance in the national context is still insufficient.

**Key Words:** Quality assurance; accreditation, medical education, Quality management system; internal audits.

### Introduction

In today's dynamic world conventional medical education is facing a multitude of challenges. Some of them are brought about by the turbulently changing society – the shifts towards knowledge-based economy, innovation and disruptive technologies, climate change, demographic trends of ageing and migration, profound value changes, complexity, and open communication. Others are related to the recent developments in health,

medicine, and the healthcare – chronic diseases and threatening new epidemics, evolving healthcare needs, high demands and expectations of the interest groups, new style of medical practice and service delivery, personalised medicine, and medical advancements, increasing costs. These external and internal pressures call for reforms in the medical education with the aim of increasing its efficiency, quality, and accountability [1, 2]. The complexity of the environment and high expectations

towards medical graduates make quality the central principle and driver of modern medical education [3].

Medical education in Bulgaria has a long and rich tradition established with the founding of the first Medical Faculty in Sofia in 1917. To date, it has undergone a number of transformations and significant changes, always retaining its important role in meeting societal needs – from training of highly competent doctors to participating in improving the health of Bulgarian population. At the dawn of the market economy transition post 1989, with the adoption of recent European trends in health and education policy, medical education in the country was reformed. In the period 1995–2004, the Higher Medical Institutes were transformed into Medical Universities (MUs) comprised of several faculties, with the faculties of Medicine retaining traditionally a leading position. In accordance with the Higher Education Act (HEA) adopted in 1995 [4], Medical Universities went through the process of institutional accreditation by the National Evaluation and Accreditation Agency (NEAA), and the faculties of medicine underwent programme accreditation.

The quality of education and training has always been a focal point. Particular importance was given to it in the harmonisation of national higher education system with the requirements of the Bologna Declaration and the European Higher Education Area [5]. The introduction of procedures for institutional and programme accreditation forced universities to rethink the concept of quality medical education, to improve their quality assurance systems, to build an institutional structure and to train experts in quality assessment and management. A very important moment in the development of the quality of medical education was Bulgaria's accession to the European Union (EU). The newly created opportunities for free movement of medical professionals within the Union increased the pressure on universities to educate doctors who provide care of comparable quality with their Western European peers. Today, medical schools have well-established, well-functioning quality assurance

systems and foster an institutional culture of quality.

### **Objectives**

This article aims to present the development of quality assurance in medical education in Bulgaria, and to study the structure and organisation of quality management systems in the Medical Universities at the moment.

### **Methods**

The development of quality assurance in Bulgarian medical education over the period 1995–2020 was explored. We used content analysis to study the legislative acts in the field of higher education, regulating the quality assurance and accreditation processes; publications of the Ministry of Education and Science (MES) and the NEAA; official reports of the Standing Committee on Healthcare and Sports of NEAA on the results of institutional accreditations of MUs and programme accreditations of specialties from the regulated professions in the field of healthcare; official documentation of higher medical schools on quality assurance.

A questionnaire was developed to elicit information on quality assurance and accreditation of the MUs. We analysed and compared the internal regulatory framework of the Medical Universities related to quality, quality policy, internal quality assurance and quality management system, the participation of students and other stakeholders in the quality assurance process, the organisation's capacity for continuous quality improvement.

Medical universities in Bulgaria are specialised higher educational institutions which train professionals in the field of medicine, dentistry, pharmacy, public health, and healthcare. There are 4 medical universities in the country, located in some of the biggest cities – Sofia, Plovdiv, Varna, and Pleven. Medical faculties have been established in three other universities, and public health faculties exist in 4 other universities. Medical education operates in an increasingly regulated environment [6]. Education for 15 healthcare regulated professions is carried out accord-

ing to uniform state requirements. The single educational minimum for theoretical and practical training is determined on a national level and carried out by all medical schools. Training in medicine lasts 6 years, leading to a master's degree and professional qualification "Physician".

The accreditation of higher education institutions (HEI) in Bulgaria is regulated by the Higher Education Act. It is carried out by NEAA, a specialised governmental agency for evaluation, accreditation, and quality control of the activities of higher education institutions and post-accreditation monitoring and control. NEAA was established at the end of 1996 and initially focused on studying international experience and applying good practices to the conditions and traditions of higher education in Bulgaria [7]. In the following years as the Agency gained its own experience, the harmonisation of NEAA's criteria and procedures with the European standards and guidelines for higher education became the focal point.

The harmonisation of the national criteria, procedures and methodological guidelines applied by NEAA with the Standards for Quality Assurance in the European Higher Education Area contributed significantly to improving the relevance and visibility of the Bulgarian higher education system in the European Educational Area. This alignment grew the public confidence in higher education in Bulgaria and in NEAA as a guarantor of its quality. NEAA was accepted in ENQA in 2016 and is registered in the official Register of Quality Assurance Agencies (EQAR).

Medical Universities in Bulgaria undergo periodic institutional evaluation and accreditation, as well as programme accreditation of specialties in regulated professions, unregulated specialties, and doctoral programmes. The institutional accreditation is granted based on an evaluation of HEI organisational performance, of its effectiveness in quality assurance and quality enhancement of all activities. Upon applying for accreditation with the NEAA, the universities have to submit a request form, a self-evaluation report on meeting the institutional accreditation cri-

teria, a report on implementing the mandatory recommendations of the Accreditation Council (AccS) from previous accreditation and post-accreditation procedures. Additional supporting documents are required. If an accreditation procedure is begun, the NEAA Accreditation Council, based on the proposition of the Standing Committee on Healthcare and Sports (SC), determines the composition, and specifies the tasks of an Expert group assigned to the application. The Expert group collects, systematises, and analyses the submitted documents and all information related to the procedure. During a field visit to the University, the experts gather additional information and evidence from the institution and carry out meetings with students, academic staff, employers, and other stakeholders. Afterwards the Expert group prepares and submits to the SC a report on the findings of the visit. Topics of assessment are the internal system for educational quality maintenance and control, the compliance of the University structure, its performance within the European quality standards [7, 8]. The SC reviews the report and determines a quantitative evaluation. A summary report to the Accreditation Council is produced and a well-reasoned evaluation grade is proposed. The final decision on granting or refusing accreditation is made by the AC. The affirmative decision contains the evaluation grade, the period of accreditation and the HEI capacity for the period of accreditation.

Bulgarian Medical Universities started elaborating their policy on quality assurance in the late 1990s. Specificity of medical education and its highly regulated status led to the application of very similar approaches to quality assurance by all MUs. Internal structures were developed to organise and coordinate quality assurance processes at institutional and faculty levels. Most of these included Institutional and Faculty Commissions on Quality. Over the period 2002-2008, all MUs established the position of Vice-Rector on Quality and Accreditation thus declaring their commitment to quality in the management and development of HEI. The newly elected vice-rectors and the newly established admi-

nistrative offices/department on quality further developed policies, organisational structures and governance for quality assurance and improvement, and set up internal quality management system with all pertaining procedures and documentation. Training certifying modules for internal auditors were introduced. All MUs set up functional units of qualified auditors with specific knowledge of medical education quality. Continuous monitoring, regular assessment, and reporting of performance at all structural levels became a substantial part of the quality control at all Medical Universities. The long-standing tradition of quality was aligned with the principles of the Bologna Declaration and evolved to modern objectives, forms, and processes of quality assurance [9].

## Results

Medical Universities have developed and introduced comprehensive systems of quality assurance. In different official documents, they have formally affirmed their commitment to the quality and high professional standards of the educational, scientific, organisational, and other activities. One of the Medical Universities published a policy statement on quality (2017), while another has it as a part of the University Quality Guide which is regularly updated (2016, 2018, 2020). Policy on quality is stated in a separate Chapter “Quality Management” of the Regulations for the structure and activity of another Medical University (last update 2022). Medical University-Sofia presented its commitment to quality in specific Rules for management, structure, and criteria of a system for evaluation and maintenance of the quality of training and the academic staff of the Medical University (2019).

The Universities declare in their policy statements two important aspects of quality assurance – the principles of quality assurance to which the institutional QAS adheres and the institutional strategic objectives of quality assurance. Among the most frequently stated principles of QA are: focus on satisfying stakeholders’ expectations; compliance with the highest educational standards; involvement of students, academic and administrative

staff in quality improvement; effective leadership; constant feedback; accountability and transparency; evidence-based decisions; constant improvement.

All Medical Universities have established operating comprehensive systems for the quality management of education. Quality management is carried out through a structure governed by national normative documents, internal rules and regulations, decisions of the General Assembly (GA), the Academic Council (AC) and orders of the Rector. The quality performance of the main structural units of the University are periodically assessed through the QA procedures. Results of the assessment are publicly disclosed, and performance indicators are shared with key stakeholders. The Quality Management System (QMS) of MU-Varna is based on the EFQM model and ISO. QMS of the other three MUs are based on ISO, with an update undertaken in 2018. QMS is subject to continuous internal and external monitoring and assessment in order to maintain and improve it. QMSs operate on three levels, encompassing all structural units of the Universities.

The standards, procedures, and mechanisms for ensuring the quality of the educational process and the responsibilities at the different organisational levels are clearly stated in the Quality Manual or equivalent document on quality assurance. Based on the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) – Part 1 (1-10) and the National standards for institutional accreditation, MUs have developed their institutional systems of standards for the quality of education and the academic staff. The standards apply to all components of the educational process: students’ admission; preparation, approval, updating of the educational documentation; teaching methods; examination procedures; the quality of the academic staff; monitoring and assessment of student progress and achievements; the relationships with stakeholders and external partners; monitoring the quality of administrative services for students, educational resources, and information management. Key indicators of educational outcomes and

quality improvement have been determined for the purposes of constant quality monitoring and regular self-assessment.

At the University level the analysis and coordination of the quality assurance is managed by the University Quality Commission (UQC). Two of the Medical Universities have established UQC, one of them has Central commission for quality management, while another has University commission for management and assessment of the education quality. In these collective bodies, representation and participation of the basic structural units, the students and the main stakeholders is ensured. The members of the UQS vary from 12 up to 46. Usually, the Chairperson of the UQC is the Vice-Rector of quality and accreditation, and in one of the Universities – the Director of the International Cooperation, Accreditation and Quality Directorate. Students are represented in UQCs just by the Chairperson of the Student Council (in two of the MUs) and with representatives of the undergraduate students, postgraduate students, and PhD students in the other two MUs. The stakeholders are underrepresented in the UQCs in all of the MUs. MU-Sofia has officially included one employers' representative and MU-Varna engaged the Chairperson of the Alumni Club as members of their Commissions. MUs maintain close working relations with the key stakeholders – health institutions as the main employers in the healthcare, professional associations, alumni, etc. The limited availability of stakeholders' representatives in the UQCs is explained by the fact that few of their members hold high-managerial positions in healthcare institutions, regional and national health authorities, and professional organisations.

The work of the UQC is regulated by the Rules of Procedure of the UQC or by the University regulations. All activities of the UQS on QA are regularly reported and assessed (twice in a year) by the Academic Council of the University.

At the level of the main structural units of the University (faculty, college, branch) Quality Commission is established with a membership of minimum 7 to maximum 21 rep-

resentatives of the academic departments, students, and stakeholders. The main objectives of these commissions are permanent monitoring and control over the functioning of QMS within the unit. They carry out continuous observation and self-assessment of all quality aspects related to educational programmes, student-centred education, stages of student life cycle for which the unit is responsible, teaching staff development and competency, student support and learning resources, information management for the processes of IQA at the unit. These QCs organise and coordinate the implementation of preventive and corrective actions against discrepancies between the faculty performance indicators and standards of the IQA. Some Faculties of the MUs have developed and introduced internal rules and guidelines for QA and self-assessment of quality at the faculty and department level (Dental Medicine Faculty in MU-Sofia, Faculty of Public Health in MU-Varna and in MU-Pleven). Faculty QCs work on strengthening further the quality culture at the institution. They help adapt the QMS system to changing external environment, regulatory requirements, and public demands regarding the quality of medical education.

Medical Universities have created special Quality Units (usually affiliated with the Vice-Rector on quality and accreditation) to provide coordination and administrative assistance to academic and service units and for the improvement of the QMS.

Medical Universities carry out cyclical internal self-assessment of quality assurance processes and activities at all levels. Internal audits and reviews of the QMS are conducted annually according to a predetermined schedule. Audit teams include certified quality auditors from the main structural units of the University. In 2006 Medical University-Pleven first among the Medical Universities started training and certification of the internal auditors and established an organised team of quality experts officially recognised by the National Board of the certified auditors. Gradually, the rest of the Universities developed similar structures and nowadays they

maintain a database of their certified auditors. Each MU has on record more than 30 auditors from the academic staff, students, and administrative staff. The auditors undergo yearly training to get updated about the new legislative developments in QA of higher education and requirements of the QMS. Auditing reports present a qualitative assessment of the compliance of the units with the standards and procedures of QMS. Results from the internal audits are reported to the Academic Council and become publicly known. Internal audits have proved their value in quality assurance and quality improvement in the Medical Universities. When introduced as a tool of IQA, the audit was perceived by the departments as an additional bureaucratic burden. Actually, the regular internal audit procedures helped MUs effectively focus the individual and institutional energy and efforts on quality improvement. They have facilitated building up a common understanding and positive attitude to quality among the entire medical academic community.

Students are the largest internal stakeholder group at the University and their participation in the process of quality assurance in medical universities is of higher importance [10, 11]. It has been ensured through student active involvement in the governing bodies of the MUs and in the decision-making processes with reference to all important aspects of university activities. Essential element of the education QAS are the surveys among students from different specialties of the Medical University. The UQCs have developed the assessment framework and the specific instruments to explore the opinion of undergraduate, postgraduate and PhD students on quality issues, such as teaching and organisation of the educational process, practical training, undergraduate internships, application campaign, administrative services and facilities, readiness for scientific career, corruption in the system of higher medical education. Although the instruments study the same topics, the content and formulations of the questions differ between the Universities. Questionnaires used in the student surveys are in electronic format and are available to

the students online at any time, but the students are officially invited to share their opinion about quality twice a year. Results of the surveys are carefully analysed by the Quality Commissions at university and faculty levels and are publicly announced. Based on these analyses adequate actions are taken to introduce changes and eliminate discrepancies in the quality of education. Students' feedback is also shared with the teaching professors. The student assessment is taken into account with a predetermined weight in the final attestation assessment of the academic staff in two of the Medical Universities.

Assurance of the teaching staff quality is a substantial component of the integral policy on the quality of medical education [12]. In recent years Medical Universities have implemented well-planned programmes to stimulate and enhance professional competence and the motivation of academic teachers. In order to assist in the adequate career development and the progression of an effective academic career, universities have provided a supportive institutional environment and fair procedures of competition and assessment.

Attestation is the main mechanism for ensuring and maintaining high professional competence and scientific results of the academic staff at the Medical Universities. It is carried out in compliance with the provisions of the Higher Education Act, the internal norms, and the specific regulations of the Universities for the comprehensive periodical assessment of the academic staff. Each MU has created a University Attestation Commission (UAC) to organise and coordinate the assessment process. UQC and UAC have elaborated procedures, guidelines, and instructions for the attestation. Effective systems of indicators, criteria, and scales for the assessment of different academic staff categories have been established, self-assessment forms and other operational documentation have been created to ensure the completeness of the individual assessment.

In Medical University-Plovdiv the attestation procedure starts in the departments as a peer-review of the self-assessment cards and the attached evidence. Comprehensive attes-

tation is based on the evaluation of individual achievements in the area of scientific activity and publication metrics, the educational activity, the academic development, and administrative activity. Clear qualitative and quantitative criteria are used in the assessment and the students' opinion about the quality of teaching is accounted for. The peer-review team analyses the documentation and presents individual written recommendations for the future academic development. The final grade which measures the individual compliance of academic teachers with the standards of professional qualification, quality of teaching, research activities and academic development is awarded by the UAC.

In the other three MUs the assessment is carried out completely by the UAC and the individual grades are approved by the Faculty Committee. The results of the last academic staff attestation reported at the institutional accreditation of MUs in 2019 reveal that between 5% and 20% of the assistant-professors were assessed unsatisfactory whereas only 2-3% of the professors got such a grade.

Attestation results are taken into account in determining the individual remuneration of teachers. They are a serious incentive to improve the quality of teaching, research, and academic development. Teachers with the highest attainments in education and research are supported financially for publishing scientific papers in top quartile medical journals and for the participation in scientific forums; they have an advantage when applying in competitions for a higher academic position and qualify better for academic awards based on their contributions to the teaching, research, and community service. The staff members with an unsatisfactory attestation are reassessed within a year and according to the requirements of HEA – in the case of a repeated negative assessment their employment contract is terminated by the Rector. Medical Universities provide opportunities for the enhancement of pedagogical skills of teachers, for participation in educational and research projects, scientific forums, short-term and long-term specialisations, training,

and academic mobility in foreign academic and research institutions.

### Conclusion

Quality of education is not a new concept for the Bulgarian Medical Universities. It has always been a part of the medical academic tradition. It is the outside world that emphasises the need for attention to the quality of education and training in Medicine. It is the relationship between higher medical education and society which has changed. Society demands that the Medical Universities of today rethink their roles and social responsibilities, especially in the post-COVID-19 recovery. They have to be able to produce reliable doctors, with a profound understanding, high-level qualifications and with the right mix of skills: transversal competences, e-skills for the digital era, creativity, and flexibility. Based on the principles of academic autonomy the Medical Universities in Bulgaria have to develop further their strategic leadership and capacity to manage change through effective self-knowledge and quality assurance.

Quality assurance in medical education is a constant striving for excellence in education, in medical research, in clinical work and community service. It enables Medical Universities to provide an excellent educational experience for the students and the academic staff, empower them with high-level competencies, and to grow creative and independent thinkers, aspiring leaders, capable, confident, and successful professionals in medical practice and science. QA is a challenging area of action and scientific exploration for the Medical Universities in Bulgaria. Although we observe a high homogeneity in the institutional norms, organisational structure, and processes concerning quality assurance in medical education, systemic research on these aspects of quality assurance in the national context is still insufficient.

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## ACQUIRING QUALITY EXPERTISE SKILLS BY PARTICIPATING IN PEER REVIEW MISSIONS TO HIGHER EDUCATIONAL INSTITUTIONS

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**Abstract.** Peer review has become an essential part of international accreditation of higher educational institutions (HEI). The effectiveness and success of the accreditation process depend greatly on professionalism and competences of the peer reviews (PRs), persons of equal position / professional knowledge working in the same or close field of knowledge. The purpose of the study was to define the idea and applications of peer review, analyse the responsibilities, roles, and tasks of PRs, specify their competences, and share personal experience regarding the effective preparation for peer review activities. PRs have been found to possess adequate interpersonal communication skills, academic writing skills sufficient for evaluative report-writing, good time management and team-building skills among many others. Thus, acquiring quality expertise skills by the peer review experts seems critically important. Developing essential skills and competences in the peer review process contributes to the effectiveness of the review process and brings benefits to the reviewing and reviewed parties involved.

**Key Words:** peer review, accreditation, medical education, quality expertise skills.

### Introduction

Accreditation has become an essential component of an effective system of higher medical / health education worldwide. It proves to be a powerful instrument of education quality assurance and improvement. Being employed in many educational systems which are constantly evolving, still accreditation includes similar assessment domains and accreditation process elements [1, 2].

Assessment procedure regarding the quality and effectiveness of higher education institution (HEI): its organisational structure and functioning, educational programmes, staff, and overall performance, is carried out by external experts / peer reviewers (PRs). These are specialists in the field reviewed and knowledgeable about higher education in general.

A peer review procedure is usually based on a self-evaluation report (SER) provided by a HEI, thorough analysis of the documentation

of HEI under review, on-site (online) visits by the team of experts and writing a final report.

Thus, peer review in the accreditation of HEI assumes that the quality of higher education can be provided through an evaluation process by which PRs using the established standards in higher education make the judgements aimed to provide and improve the quality of higher education.

To fulfil the assigned mission, PRs are expected to possess specific competences and characteristics. These allow the reviewers to look for, assess, and document evidence of HEI's compliance with the established requirements (standards). PRs are supposed to understand the traditions and best practices in the system of higher education in the field reviewed and must be capable to identify the strengths and weaknesses of HEI regarding its mission, values, and strategies. Peer reviewing assumes the involvement of PRs in interviewing various target groups, which

requires the development of proper communication skills in experts. Therefore, acquiring quality expertise skills by the peer review experts seems critically important. Participating in instructional workshops and peer review on-site / online missions to HEIs as part of the Erasmus KA2 project “Setting peer review instruments and goals for medical (health) education” / SPRING activities seems to be instrumental in developing peer review experience in international accreditation of HEIs providing higher medical / health education.

We describe here the experience of experts from Grodno State Medical University (GrSMU) in developing quality expertise skills through the implementation of the SPRING project (2019–2022) by participating in the instructional workshops, undergoing peer review procedures at GrSMU, participating in peer review missions to partner universities of Georgia. Given the described above issues of PRs’ training, in this paper we are interested to define the idea and applications of peer review, analyse the responsibilities, roles and tasks of PRs, specify the competences of the reviewers, and share personal experience regarding the effective preparation to peer review activities.

## Methods

GrSMU participated as a partner university in the implementation of the SPRING project involving 14 universities (from 7 countries) providing higher medical / health education. One of the project’s objectives was to create a multinational peer review board uniting a pool of experienced reviewers for accrediting medical universities, establishing, and building consistency for a continuous peer review process of academic programmes and processes and administrative policies, procedures, and actions across the targeted partner countries and beyond. For this purpose, the process of PRs training was initiated. It involved the participation of administrative and academic staff from partner universities in the instructional distance learning workshops aimed at training HEIs’ administrative and academic personnel in the accreditation procedure.

GrSMU hosted three such seminars attended by more than 40 administrative and academic staff members. The workshops were organised by the Lithuanian University of Health Sciences (Kaunas, Lithuania), Medical University (Sofia, Bulgaria), together with BAU International University (Batumi, Georgia). The workshop programmes were aligned by design to the requirements and standards of World Federation of Medical Education (WFME), standards and guidelines for quality assurance in the European Higher Education area (for medical education), Agency for public health education accreditation. During the sessions of the workshops, intensive online training was organised using lectures rotation, role-playing games, working in small groups (from three to ten people).

An instructional baseline and follow-up missions (“on-site visits”) to GrSMU were organised in an online format due to COVID-19 pandemic restrictions. Prior to the date of baseline mission, the working group of the project from GrSMU developed a SER on GrSMU activities. The requirements for this report were previously developed by the project board and presented to all participating universities of the SPRING project.

The online visit schedules were designed according to the requirements of WFME for international accreditation of medical universities. Upon completion of a baseline mission the team of reviewers from four countries developed a list of suggestions and recommendations for the improvement of GrSMU activities. Based on this list a plan of GrSMU improvement activities was elaborated.

Before the follow-up mission a GrSMU report on the implementation of the improvement plan activities was presented to the team of PRs. During the follow-up mission the project working group from GrSMU presented the results of the improvement plan implementation and organised several interviews with various target groups.

The SPRING project involved the performing of working group members from GrSMU as PRs as well. As part of a four-member accreditation team from the SPRING project partner universities two GrSMU academic staff

members visited four HEIs of Georgia, providing medical / health education, for the purpose of determining whether the HEIs meet accreditation standards. The team evaluated how well the HEIs are achieving their stated purposes, identified best practices, provided suggestions or recommendations for institutional improvement related to the standards, and submitted the peer review expert group report to the multinational peer review board. On-site visits involved several interviews with target groups (administration, academic staff, students, stakeholders).

Prior to the on-site visits the evaluation team received SERs from the HEIs reviewed and related evidence providing sufficient details on the evaluation process, as well as on the activities related to ongoing quality improvement.

By means of all these activities related to the preparing and conducting HEI accreditation process, the SPRING project participants underwent training aimed at raising awareness on peer review process as an effective instrument for substantiating ongoing improvements in academic and administrative domains of medical schools.

## Results and discussion

### *Peer review application areas*

Literally, *peer review* means the evaluation of scientific, academic, or professional activities by peers (persons of equal position / professional knowledge) working in the same or close field of knowledge. It may be employed for various professional areas.

In science, peer review is the process where peer scientists evaluate the work quality of other researchers. Peer review is seen as a formal quality assurance mechanism through which academic manuscripts are evaluated and selected for publication or grant allocation. Thus, in context of science peer review serves the functions of research methodology and argumentation evaluating and assisting in the novelty and expected impact assessment [3]. In addition, peer review encourages the authors to meet the accepted high standards of their field and ensures the dissemination of objective research data [4].

In academic context peer review is related to quality assurance. Areas of assessment may be the quality of education at individual departments, the entire educational institution, or the quality of individual educational programmes provided.

Peer review can be implemented on different levels of the educational systems. The review of all teaching-related activities may be intended for either formative (development) or summative (personnel decision) purposes [5]. Effective peer review involves certain training prior to the participation in the evaluation process, facilitating a culture of trust and empowerment, regular review of the quality system by all stakeholders, clear documentation of the improvements made, systematic reviewers rotation, inclusion of student feedback [6].

International accreditation or external evaluation involves peer review as well. It is a process of checking the HEI's activities by the peers to ensure they meet the established criteria, identify any deviations from the standards, and provide suggestions or recommendations for improvements [7]. The effectiveness and success of the accreditation process depend greatly on the contribution, effort, and time of experts who are selected for peer review teams based on their professional background, expertise, and experience.

### *Primary responsibilities of PRs in the external accreditation process*

The primary goal of a peer review is to evaluate the quality of HEI activities against the established criteria, and to make a recommendation to the accrediting body concerning HEI accreditation. A secondary objective is to give suggestions or recommendations on quality improvement and to offer HEI the benefits of a strategic audit. To accomplish these tasks PRs are supposed to verify the information presented in SER and to obtain on-site information sufficient to generate a comprehensive profile of HEI reviewed. The reviewers typically act as fact finders for the accrediting body; they are involved in the processes of thorough observation, evaluation, verification, and reporting. PRs are empow-

ered to give suggestions to the host institutions for improving the quality of teaching, research, administration, and services.

Thus, PRs have two primary responsibilities:

- providing public certification of HEI quality through thorough analysis of HEI's fulfilment of the established accreditation criteria;
- supporting institutional improvement offering consultation assistance to improve the quality of education.

The first task of PRs is to analyse SER and evaluate the evidence provided. This preliminary evaluation process will be supportive during further on-site observation and verification process. To this end, PRs are expected to be competent readers, detecting as much relevant information about the HEI, as possible, to investigate institutional documentation, and identify the issues and areas for clarification before the visit itself.

During the on-site visit to the accredited HEI PRs obtain evidence by observing facilities and equipment, studying the selected documents, interviewing target groups (administrative and academic staff, students, alumni, stakeholders). PRs take responsibility for checking the validity of the data in the institutional SER and their being based on thorough institutional analysis. They have to verify whether the institution satisfies the established criteria for accreditation.

#### *Expectations from the peer review teams*

There are certain qualification and personal qualities required from PRs. They are expected to manifest professionalism, competence, objectivity, and fair judgment.

PRs are to be academically qualified, having graduate degrees in educational disciplines reviewed and educational administration. Peers engaged in educational programmes accreditation are to be experts in several domains of expertise related to the programmes under review, as well as have to be experts in self-evaluation process, particularly in the areas of accreditation and administration. All PRs have to be familiar with higher education accreditation standards of WFME and be aware

of student assessment in higher education programmes.

The effectiveness of the accreditation process depends largely upon the commitment and professionalism of PRs. Thus, PRs are expected to fulfil their tasks in a professional manner. They are to exercise their best judgment in using WFME requirements to evaluate an HEI. When making decisions, whether positive or negative, they shall be unbiased and objective, even in the face of conflicting personal feelings or preferences. Certain conversations with HEI staff (e.g., feedback discussion) require careful discussion handling. It involves careful preparation beforehand, establishing rapport, exploring reactions to the information that has been shared, collective agreement among the reviewers and HEI staff [8]. Thus, PRs are supposed to be effective listeners and interviewers, demonstrating politeness and confidence when dealing with conflict situations, being prepared to work in a team, which requires a balance between individual and collective performance. In addition, PRs are expected to have skills in consensus decision-making and be able to provide strong evidence and reasons for the decisions made.

The implementation of the accreditation procedure requires specific competences from the reviewers: certain skills in the computer and information technology, interviewing, academic writing, working in a team, time management and many others. These characteristics allow PRs to evaluate and document the evidence of HEI's complying with WFME requirements. PRs are supposed to understand the traditions, values, and trends in higher medical / health education and to identify what is appropriate for HEI's in the terms of mission, vision, and values. So, PR's are required to demonstrate fairness in making decisions, appreciation of good education practices, cultural sensitivity, open-mindedness, tolerance to other ways of delivering higher education, collegiality, and readiness to accept feedback.

One important aspect of PRs' performance is the requirement to protect confidentiality through keeping in confidence all the mate-

rials and information provided by the HEI under the accreditation process as well as the interviews with HEI staff and stakeholders. Decisions are to be made based on collegial discussions involving only the accredited reviewers.

#### *Peer review education and training*

Modern literature contains data on training PRs in science publication review. Some scientific journals provide online reviewer instructions which are focused on the logistics, professionalism, and ethics of the review process [9, 10].

PRs' proficiency in education and accreditation requires continual improvement as well. The effectiveness of PRs' pool is to be enhanced through education and training programmes. Within the period of the SPRING project implementation several distance learning workshops were held with the purpose to equip PRs with all the essential knowledge prior to participation in any institutional evaluation. The workshops schedules covered the most important issues of conducting international accreditation: the competence framework for graduates of medical training programmes; leadership in public health and university training; quality assurance and quality culture in medical and public health higher education; approaches to quality assessment in higher education; quality assurance and experience of ASPHER and APHEA in public health programme accreditation; development of self-assessment report communication skills and conflict management in process of academic peer review and accreditation, etc. During the workshops PRs underwent training or professional development on the application of WFME criteria for accreditation, policies, and the specific processes integral to HEI evaluation. PRs are expected to regularly attend education and training programmes as needed to effectively fulfil their roles. Unawareness of the peer review process and its essential components increases the risk for unsuccessful accreditation for those being under review and for the reviewers as well. Both parties may experience negative emotions

towards each other and the review process itself which may interfere with an effective collaboration.

#### *Benefits of the peer review in education and accreditation process*

Peer review is an essential component of any comprehensive quality assessment and improvement. Research has shown that peer review has several benefits: it provides and encourages feedback, fosters excellence, encourages involvement [11]. Being a relatively flexible and non-bureaucratic process peer review is aimed at professional learning [12]; it is also seen as a means of fostering quality teaching and student learning [13].

Peer review is instrumental in recognising strengths and weaknesses and helps HEIs to elaborate their improvement strategies and to achieve the highest possible standards of performance. One of the most valuable benefits of peer reviewing is professional development. Through the observations and in-depth review processes, PRs themselves can learn about new teaching strategies and best education and administration practices. Other benefits include developing accreditation skills and widening the network of professional contacts.

#### **Conclusion**

The success of peer review mission depends largely on PRs' experience and effective performance. PRs are required to have adequate interpersonal communication skills, academic writing skills sufficient for evaluative report-writing, good time management and team-building skills among many others.

Becoming a peer reviewer in higher medical / health education is an excellent way to learn more about the quality assurance system. Through participating in the accreditation missions to HEIs providing higher medical / health education reviewers can certainly benefit from any peer review familiarising themselves with the best education and administration practices, discussing improvement strategies, collaborating with colleagues, promoting team-teaching and compliance with the established standards.

An instructional role of the SPRING project in the development of principal peer review skills and competences is critically important. Provided theoretical knowledge and practical training workshops together with real on-site / online peer review missions contributed greatly to the development of the essential professional qualities and competences of the participating staff of partner universities and created a pool of professional and devoted reviewers.

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## QUALITY ASSURANCE AND REGULATION OF THE EDUCATIONAL PROGRAMMES IN THE MEDICAL UNIVERSITIES OF KAZAKHSTAN

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**Abstract.** Quality assurance in medical education is an important issue for the provision of competent professionals. Reforms of the medical education system in Kazakhstan have made it possible to introduce a process of standardisation and accreditation (at institutional and specialised level). Moreover, two Kazakh agencies are recognised at the international level and became full members of the European Network for Quality Assurance in Higher Education network and successfully entered the European Quality Association for Recycling. Medical universities are focused on providing quality education, and as evidence they are accredited by various organisations. In addition, the policy of the autonomy of universities helped strengthen the competitive environment and introduce educational programmes (EP) focused on the needs of the market. Regulation of educational programmes at the national level provided by the register which includes 4 stages, as submission of the application of the university, checking the correctness of application, conducting an examination of the EP and introduction of the EP to the Register. Regulation of EP in Asfendiyarov KazNMU includes seven steps where positive decision means that this programme can be presented for the registry at National level. At Asfendiyarov Kazakh National Medical university in 2021 delivered 82 educational programmes at different levels, where 6 of them were joint programmes with other universities. All these programmes have been accredited.

**Key Words:** education system, quality assurance, accreditation, university autonomy, Kazakhstan.

### Introduction

One of the priorities of the World Federation for Medical Education (WFME) is to improve health for all through the promotion of excellence in medical education, as well as an initiative to improve the quality of education at the international level [1, 2]. The quality assurance of medical education should be focused on the specifics of the local health-care system, and include the development, maintenance, improvement, and evaluation of the level of training of medical specialists that meet the expectations of the recipients of medical care [3, 4]. Brian M. Wong and co-authors have proposed in their research as future steps to increase the capacity of teachers on quality issues, the implementation of competency-based accreditation standards

and assessment methods both during training and on certification exams [5].

Kazakhstan supports the WFME initiatives and a national system of the assessing the quality of education includes procedures such as licensing, attestation, accreditation, license control, intermediate state control (external assessment of educational achievements), ratings. State regulation in the field of education is carried out through legal support, education quality management, standardisation, and control [6].

The quality assurance system in higher education in Kazakhstan has the following stages:

- 2001–2005 – introduction of the state accreditation procedure;
- 2006–2012 – the beginning of the transition from quality control to quality assur-

ance, the transfer of state accreditation functions to an independent competitive environment;

- 2010 – signing of the Bologna Declaration and confirmation of commitment to the European Standard and Guidelines (ESG);
- 2013–2017 – joining the European Network for Quality Assurance in Higher Education (ENQA) network and the European Quality Association for Recycling (EQAR) registry of two national agencies, revising the standards of national accreditation bodies in accordance with the requirements of ESG 2015, participation of Kazakhstan as a government member in the EQAR Assembly, positioning of Kazakhstani universities in international rankings. A variety of stakeholders began to be widely involved in the accreditation process, a complete rejection of the attestation procedure for civilian universities;
- 2018 – expansion of the academic and managerial independence of universities, changes in legislative acts and regulatory documents regulating the activities of the system of higher and postgraduate education in the country.

The progress of the Kazakh quality assurance system highlights the recognition of two Kazakh agencies, the Independent Agency for Accreditation and Rating (IAAR) [7] and the Independent Agency for Quality Assurance in Education (IQAA)[8] at the international level and became full members of ENQA and successfully entered EQAR [9].

According to the structure, accreditation is divided into institutional, implying accreditation of the institution as a whole (for example, a university, academy, institute) and specialised, intended for the accreditation of individual educational programmes (specialties).

The autonomy of universities within the framework of the Bologna process was implemented in Kazakhstani higher education by changing the State Educational Standards of specialties to the two levels of the State Educational Standards: for Undergraduate and Postgraduate Education in 2012 [10]. These standards are of a framework nature, do not take into account the specifics of a particu-

lar specialty. They do not spell out the qualification characteristics of a graduate with a description of the functions of professional activity, requirements for professional competencies, and there is no concentrated presentation of the content of the educational programme by cycles of disciplines. In other words, there is no subject for state control. Hence, the decision to abandon the state certification procedure from 2015 seems quite logical.

Since 2015, state certification has been completely replaced by institutional and specialised accreditation for universities, and state control is carried out by state bodies in the form of license checks.

According to the Rules for the recognition of accreditation bodies, including foreign ones, and the formation of a register of recognised accreditation bodies, accredited educational organisations, and educational programmes, three Registers have been formed:

- Register 1 – a list of accreditation bodies,
- Register 2 – a list of accredited educational organisations,
- Register 3 – a list of accredited educational programmes.

In 2018, Register 1 included 8 accreditation agencies: 5 Kazakhstani (IQAA, IAAR, Kazakhstan Association for Modern (Elite) Education (KAZSEE), European Consortium for Accreditation (ECA), Independent Agency for Recognition and Quality Assurance in Education (ARQA,) and 3 foreign agencies from Europe (The Accreditation Agency for Study Programmes in Engineering, Informatics, Natural Sciences and Mathematics (ASIIN), Foundation for International Business Administration Accreditation (FIBAA), Music Quality Enhancement (MusiQuE).

The National Chamber of Entrepreneurs of the Republic of Kazakhstan “Atameken” (atameken.kz), together with the Ministry of Education and Science of the Republic of Kazakhstan (MoES), has been conducting an independent assessment of educational programmes (EP) of Kazakhstani universities since 2018. The rating of EP of universities is carried out in various areas, including Health and Welfare (Medicine), separately for each specialty



(General Medicine, Dentistry, Public Health, Pharmacy, Nursing). In 2018, the rating was carried out according to the following criteria:

- statistical data (development of an educational programme with the participation of associations and / or employers, investments in an educational programme, the amount of practical experience in this area of teaching staff, accreditation of an educational programme)
- average salary of graduates
- percentage of employed graduates
- results of alumni survey
- expert review.

In 2018, 535 educational programmes were evaluated, 1632 opinions were received from 198 experts. In the course of the rating, it was revealed that 35.4 % of graduates do not work in their specialty, and 40 % of graduates did not find a job within 12 months. 430 educational programmes do not have accreditation, only 31 universities have foreign accreditation of educational programmes. The study also showed the lack of opportunity for most students to choose disciplines and teachers, as it should be under the Bologna system. In 2019, the rating system was improved and included 17 criteria. Each criterion had its own weight in the rating and scores from 0 to 5.

The purpose of our study is to investigate the implementation of educational programmes within the autonomy of the university on the example of Asfendiyarov Kazakh National medical university (KazNMU).

## Methods

An appraisal was conducted of regulatory documents related to the education system in medical universities of Kazakhstan. Inspection of the documents focused on the Bologna process implementation, approaches, and challenges in implementing this process. Information covered, including orders, methodological recommendations, roadmap, and programme description, was available through the website of the Ministry of Health (MoH) of the Republic of Kazakhstan, and MoES. Search stream items were derived by a combination of words with 'Education system and process and quality'.

Details on processes of implementation and role of the new regulatory documents at university level were obtained from the KazNMU.

## Results

### *The regulation of educational programmes at national level*

In Kazakhstan, the introduction of educational programmes is regulated on the basis of the order of the MoES, No. 665 "On Approval of the Algorithm for Inclusion and Exclusion of Educational Programs in the Register of Educational Programs of Higher and Postgraduate Education" of 4 December 2018. The purpose of the register is to form a unified information environment by taking into account all EP implemented by higher educational institutions. The register is maintained in electronic format in the information system "Unified Higher Education Management System" (ESUVO).

The inclusion of educational programmes in the Register is carried out in 4 stages,

1. Submission of the application of the university for the introduction of the educational programme in the Register.
2. Checking the correctness of filling out the application.
3. Conducting an examination of the EP
4. Introduction of the EP to the Register.

At the first stage, the correctness of filling out the application form is confirmed, in case of incorrect filling out of the form, the Application is returned to the university for revision with an indication of the reasons, after revision the university resubmits the Application. When evaluating the quality of the EP, experts may request additional information. The Expert is determined by the Operator in accordance with the direction of training in the educational programme. After the examination, the expert gives an opinion "to include the educational programme in the Register" or "not to include the educational programme in the Register". If the result of the examination is negative, the EP is sent for revision, after which a second examination is carried out. After approval, the SP is included in the Register, after which access to the Passport of this programme is opened. The data entered into the

Register must be updated by the Operator at least once a year. The exclusion of the educational programme from the Register is carried out by the Operator on the basis of:

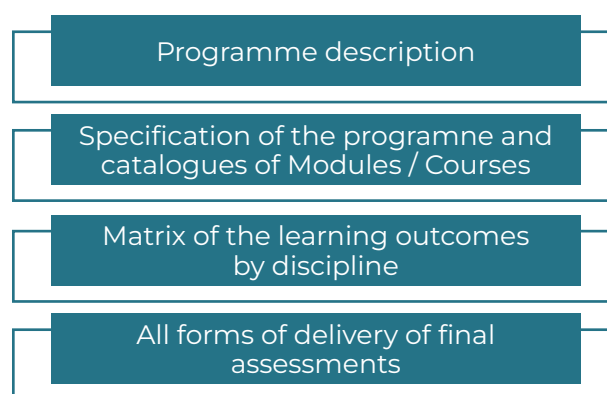
- application of the university for the exclusion of the EP from the Register;
- deprivation of accreditation and / or license, attachment to the license (extract from the protocol of the commission of the authorised or accreditation body);
- loss of relevance of the EP (absence of a contingent for the EP for 2 years in a row).

#### *Regulation of educational programmes in Asfendiyarov KazNMU*

The developers of the EP are employees of one or more departments. The EP development process includes the following steps:

1. Study of the need for practical healthcare (based on the results of the questionnaire and the demand of focus groups, meetings with employers, study of the need for regional characteristics). This process is discussed at a round table with employers, Educational Programme Committee and Deans of Schools / Faculties.
2. Review from employers (2 or more);
3. Basis for the development of the EP;
4. Learning outcomes;
5. Minutes of the discussion with employers or interested parties.
6. Upon completion of the development of the EP, the decision of the Dean's Office meeting is submitted for consideration and further discussion to the Committee of Educational Programmes.

7. The main procedure for the examination of programmes is an examination of the quality of the EP by the Commission for Quality Assurance, operating at each School / Faculty. The Quality Assurance Commission fully conducts an examination for compliance with all regulatory legal acts, for the sufficiency of material and human resources for this EP. Figure 1 shows the structure of the programmes.



**Figure 1.** Structure of the presented programmes

1. The quality Educational-methodical complex is assessed by external experts according to the following criteria:
  - relevance of the thematic content;
  - compliance of the expected learning outcomes with market requirements;
  - availability of competence-criteria assessment of learning outcomes.
2. The general decision of the expert opinions is submitted for consideration by the Academic Committee under the University Senate.

**Table 1.** The number of new educational programmes from 2019–2021 at KazNMU

| Level of the education | 2019 |                 | 2020 |                 | 2021 |                 |
|------------------------|------|-----------------|------|-----------------|------|-----------------|
|                        | N    | Joint programme | N    | Joint programme | N    | Joint programme |
| Undergraduate          | 12   | 2               | 14   | 2               | 9    | 2               |
| Master's degree        | 14   | 3               | 26   | 4               | 25   | 4               |
| PhD                    | 5    |                 | 5    |                 | 5    |                 |
| Residency              | 36   |                 | 44   |                 | 43   |                 |
| Total                  | 67   |                 | 89   |                 | 82   |                 |

Evaluation of EP in KazNMU is carried out in accordance with the provision on the Academic policy of KazNMU, "Regulations on educational programmes", standard of operative process (SOP) "Formation, discussion of educational programmes" [11]. Table 1 presents the number of EPs at KazNMU. All of them have been accredited by various organisations.

## Discussion

Kazakh universities are experiencing difficulties in systematising the work that regulates the normative documentation of the internal quality assurance system. This issue in the number of universities is limited by the quality management system developed on the basis of the requirements of ISO 9001 and others. As internal documents regulating the application of mechanisms and tools for quality assurance, the provisions for quality assurance, documented procedures, quality policy, education quality manual, charter of the university and other internal university documents. There is no systematic understanding of the order of development and approval, as well as planning for the development of educational programmes. Often, teaching staff of the universities do not own a coherent system – educational programmes should be developed in accordance with The National Quality Framework (NQF), The Ontario Qualifications Framework (OQF), professional standards and be consistent with the Dublin descriptors and the European Qualifications Framework. The procedure for the development, approval and revision of educational programmes must be concurred with the scientific and pedagogical team and regulated by the internal documents of the university. Social responsibility should be present in all accreditation processes at all levels [12], training employers and students [13–15] to actively engage in the development of the EP and the quality assurance system is important. For the future sustainable development it is crucial to continue works based on WFME standards [16] and widely involve different types of stakeholders [17–19].

## Conclusion

The accession of the Republic of Kazakhstan to the Bologna process has made it possible to make positive changes in the system of higher medical education, to improve the quality assurance system. The national quality assurance system includes both external and internal quality control of education, and its main tasks are related to the external assessment of educational achievements of students at all levels of education, as well as the assessment of the activities of participants in the educational process, improving the teaching and learning process, ensuring the continuity of assessment results between the stages of the continuous education system, comparative monitoring of the compliance of national state compulsory education standards with international educational standards. However, further improvement is required in the processes of administering EPs in the field of Health and assessing their quality, both at the national and institutional levels, which will ensure, in the future, international accreditation.

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## ADVANTAGES OF AN INTEGRATED COURSE (PHYSIOLOGY AND BIOCHEMISTRY) IN MD CURRICULUM

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**Abstract.** Integration is an innovative and multidimensional issue in modern medical undergraduate education. Medical schools are gradually moving away from a traditional discipline-based curriculum to an integrated one, as discipline-based learning does not provide comprehensive understanding of the studied topics. It contributes to the study of each discipline separately, without connection with other disciplines and the clinical context. Integrated learning ensures the relationship between fundamental and clinical sciences, which is very important for the formation of students' motivation and interest. Our study deals with the biomedical course – Body Function that integrates two modules Physiology and Biochemistry. The study is distinctive as previously this type of integration has not been studied in Georgia.

**Key Words:** physiology / biochemistry integration, integrated teaching.

### Introduction

The goal of undergraduate medical education is training of a physician with adequate knowledge of health and diseases, reasonable medical skills, and a healthy attitude toward patients and their families [1]. Currently, teaching in a medical college is considered an “ever-evolving” process [2]. It is a hurdle in any medical college that a teacher needs to deliver vast medical knowledge in a short schedule, and students need to remember, retain, interpret, and apply it. In Georgia, various teaching-learning methods are exercised in medical education, such as didactic lectures, role plays, seminars, case studies, demonstrations through videotapes, problem-based learning (PBL), and tutorials to facilitate learning among medical students. In addition, it is observed that to witness the progress in medical education more emphasis should be focused on teaching methods along with technological advancement [3]. In addition, absenteeism is an ongoing prob-

lem in many higher education institutions, especially in medical education. Literature has identified many direct and indirect factors influencing absenteeism among medical students. Among them, absenteeism was strongly related to the lack of subject interest, poor relations with demonstrators, irrelevant teaching methods and strategies, unfavourable learning environment, ill-health excessive social mobilisation, and easy availability of online learning content [4]. Despite the advancement of technologies that makes the medical classes more interactive, entertaining, and presentable, low attendance at lectures persists as a challenge. It is significant to analyse the perception of quality of teaching and learning methodology to develop analytical approaches in problem areas and the difficulty posed by the students to overcome absenteeism [5]. One of the best approaches to reinforce medical education at the delivery level is understanding the student's perception of teaching and learning methods.

**Effective learning.** Analysis of the reviewed literature has shown that the vast majority of it is oriented towards finding the most appropriate ways for effective learning of students. The articles emphasise that using active methods promotes students' interest and efficient learning. It relates both articles that belong to a magazine focused on education, with a strong orientation towards educational methodology and magazines of science. Interest in these learning techniques is everlasting and pervasive. Therefore, we have selected articles from other fields, not just those belonging to science [6–10]. We were interested not only in the recently published articles to make an analogy between ideas already enshrined vis-à-vis the current concept of modernisation of educational methods [11–13]. We note a concern of scientific research toward identifying ways to contribute to the efficiency of learning in students, a tendency toward critical thinking techniques by highlighting the effectiveness of the application of active learning methods determined in the literature that formed the basis of the findings described below. From taxonomic classification of the objectives according to the typology of knowledge and applied knowledge denoted for students, we proceeded to the predictive identification in the content and methods of teaching / learning / assessment-oriented optimisation of learning for students. For the first category, we selected problem-based learning (PBL). For the process of learning (declarative, conceptual) to provide in-depth knowledge has approved the use of the technique of spiral steps. Peter Schwartz's article [15], "Problem-based Learning: Case Studies, Experience and Practice", treats the impact of problem-based learning (PBL) on the learning process and makes an analogy with the traditional methods of learning. The author wished to emphasise the role of PBL in assimilating knowledge, specialised skills and training, and differentiated levels or cycles of the learning process. For starters, the author explains what this method is, or should we call it a learning technique. PBL method is a method of active learning in which students are encouraged to create and

solve problems in groups. This technique is based on the principle of resolving the problems as the starting point in understanding and integration of new knowledge into information already accumulated. According to the PBL method, individual study respects the following stages:

1. programming: every student knows the problem and chooses the means, solutions, settlement times, and steps;
2. selecting sources: based on the keywords students seek for information;
3. study sources: according to the topic, students have their sources of information, and the information provided is the subject of critical analysis;
4. the preparation of the report: after a self-criticism, according to the notes and sources quoted, the student makes a report;
5. presentation of the report in a brief and synthetic form;
6. critical interpretation of the group.

Involving students actively and independently in learning, they resort to the process of analysis, reflection, creation, application / creation, understanding, consolidation, generalisation and evaluation. The learning process contributes to the interactive critical thinking and internal cognitive structures that determine correlations between new knowledge, knowledge transfer, and cognitive inferences. Blended individual study and group work lead to the development of techniques and procedures for creatively resolved problems based on pre-existing knowledge through their integration into the system. PBL determines the development schemes of critical, innovative, and exploratory thinking [14–16].

Our study is focused on the integrated learning of Physiology and Biochemistry in the Neuroscience module as an interdisciplinary form of integration. Our study is distinctive as this type of integration of physiology & biochemistry at the level of undergraduate education has not been studied in Georgia. Integration of these disciplines at the post-graduate and residency levels is used to enhance the reporting and improve the overall quality of patient care.

We also chose this as the use of the physiology & biochemistry integration is more beneficial for both disciplines. All learning goals and objectives were investigated and revised by experts. The educational resources and logistic material were well prepared. It used to be vertically implemented as individual disciplines and not horizontally integrated as the interdisciplinary study courses. The exams are held with short case scenarios. It provides the integration of the knowledge of both study courses. We agree that the development or revision of a medical curriculum is not a simple task, but it is mandatory in some circumstances to do periodic upgrading according to the outcomes, student performance, and external challenges. Our medical faculty has adopted an integrated-based system, and we had to make some changes based on the received feedback.

## Methods

The research was conducted among MD Programme students at the Georgian National University SEU and the Caucasus International University (CIU). The interviewed students were of both sex, 20–21 years old, attended 95 % of the classes and received more than 50 % of the maximum grade in the final exam. Each interviewed group included 30–34 students. The survey was an online type, using Reg.seu.edu.ge in the Georgian National University SEU (time of the cc 2021, 2022) and an offline using a printed questionnaire in the Caucasus International University (time of the survey 2019, 2021). The questionnaire developed by us assessed satisfaction with the results of integrated teaching of the subjects and the assessment system itself. The data were analysed using SPSS IBM software 23.

Confidentiality of the survey was ensured at all levels of the study.

Students' participation in the survey was voluntary.

## Results

In our paper, we deal with the study course in Neuroscience. The survey of the students showed that they were satisfied with the results achieved in all integrated subjects. Spe-

cifically, a high rate was observed in neuroscience – more than 50 % in all cases (Table 1). Supposedly, the reason was that the studied topics were based on the latest research and review papers. In this case, the students found the studied material interesting, although the usefulness of the subject they assessed at a relatively low rate. It should be due to the vertical integration of the curriculum. They have not taken the courses in clinical subjects that were based on fundamental knowledge of neuroscience. The students expressed some satisfaction with the assessment system. It was probably, based on semester and exam assessments. This rate always lags behind the desired rate of achievement of learning outcomes.

In the subjects with high rate of relevance of the studied material, students had already studied, or were studying during the survey. The prerequisites of each course from the second semester were integrated subjects as well.

It must be noted that students all expressed satisfaction with the neuroscience (Table 2). No one chose “I do not know” / “I find it difficult to answer”.

In other integrated courses of the curriculum, a smaller percentage of students expressed satisfaction with the subjects. The number of dissatisfied students, in this case, was higher than in neuroscience. It was also more complicated to answer the question – “I do not know” / “I find it difficult to answer”. The reason for it may be:

- a) the complexity of the studied material;
- b) the interests of the students;
- c) the obtained assessments.

We should note that the assessment system and teaching methods (interactive lectures, working group work, laboratory training, PBL) were the same in all integrated subjects.

The above-mentioned teaching methods were used at two different universities (SEU and CIU). The survey of the CIU students showed a specifically high rate in the teaching methods of and the interest in subjects, which is likely to be due to the higher quality of basic knowledge of the students (Table 3).

**Table 1.** The level of satisfaction with the results of teaching and the assessment methods in basic subjects (Georgian National University SEU)\*

| Question          |              | The results (goals) of studying were achieved (%) | The material studied was interesting (%) | The material studied was useful (%) | The assessment system was adequate (%) |
|-------------------|--------------|---------------------------------------------------|------------------------------------------|-------------------------------------|----------------------------------------|
| Neuroscience      | Physiology   | 100.00                                            | 35.29                                    | 26.47                               | 44.12                                  |
|                   | Biochemistry | 82.35                                             | 55.88                                    | 26.47                               | 47.06                                  |
| Body Function I   | Physiology   | 61.76                                             | 41.18                                    | 35.29                               | 58.82                                  |
|                   | Biochemistry | 64.71                                             | 52.94                                    | 44.12                               | 58.82                                  |
| Body Function II  | Physiology   | 85.29                                             | 35.29                                    | 32.35                               | 47.06                                  |
|                   | Biochemistry | 61.76                                             | 38.24                                    | 35.29                               | 47.06                                  |
| Body Function III | Physiology   | 58.82                                             | 44.12                                    | 41.18                               | 55.88                                  |
|                   | Biochemistry | 64.71                                             | 47.06                                    | 41.18                               | 55.88                                  |

\*The number of students questioned – N = 34.

**Table 2.** The level of satisfaction with the basic subjects (Georgian National University SEU)\*\*

| Question          |              | Very satisfied (%) | Satisfied (%) | Not satisfied (%) | Don't know/difficult to answer (%) |
|-------------------|--------------|--------------------|---------------|-------------------|------------------------------------|
| Neuroscience      | Physiology   | 91.18              | 8.82          | 0                 | 0                                  |
|                   | Biochemistry | 67.65              | 32.35         | 0                 | 0                                  |
| Body Function I   | Physiology   | 58.82              | 17.65         | 14.71             | 8.82                               |
|                   | Biochemistry | 61.76              | 29.41         | 5.88              | 2.95                               |
| Body Function II  | Physiology   | 76.47              | 8.82          | 14.71             | 0                                  |
|                   | Biochemistry | 67.65              | 5.88          | 8.82              | 17.65                              |
| Body Function III | Physiology   | 50.00              | 0             | 26.47             | 23.53                              |
|                   | Biochemistry | 50.00              | 0             | 26.47             | 23.53                              |

\*\*The number of students questioned – N = 34.

**Table 3.** The level of satisfaction with the results of teaching and the assessment methods in basic subjects (Caucasus International University)\*\*\*

| Question      |              | The results (goals) of studying were achieved (%) | The material studied was interesting (%) | Satisfied with the teaching methods (%) |
|---------------|--------------|---------------------------------------------------|------------------------------------------|-----------------------------------------|
| Neuroscience  | Physiology   | 87.10                                             | 77.41                                    | 74.19                                   |
|               | Biochemistry | 90.32                                             | 83.87                                    | 74.19                                   |
| Organ Systems | Physiology   | 93.55                                             | 83.87                                    | 67.74                                   |
|               | Biochemistry | 77.41                                             | 70.97                                    | 67.74                                   |

\*\*\*The number of students questioned – N = 31.



(The students have a higher barrier to overcome to obtain the right to study at CIU).

### Discussion

The first and second-year curriculum is divided into four blocks (teaching units), and each block is 15 weeks in duration. The taught topics in each block are as follows:

- **Block 1:** Basic concepts of General Neurophysiology: peripheral nervous system and spinal cord and muscles.
- **Block 2:** Central nervous system and special senses.
- **Block 3:** Blood, Cardiovascular and respiratory systems
- **Block 4:** Gastrointestinal system, nutrition, endocrine, reproductive systems, kidneys, and electrolytes.

Objectives for conducting integrated teaching were identified as follows:

- To impart integrated knowledge of organ structure, body functions, and their regulation and mechanism of physiological and biochemical processes.
- To improve deep learning, PBL, and critical thinking skills.

Integrated teaching was conducted in the form of temporal coordination of physiology and biochemistry with the correlation of learned topics to clinical settings.

Topics for integrated teaching were chosen from all blocks. Currently, we are presenting the results from Block 2 Neuroscience. The content was organised around the Central Nervous system and sensory system. The module consists of lecture classes, case-based learning, and the sessions of laboratory-based learning. The students were required to present and discuss the topics in small groups under the supervision of a facilitator. The schedule was designed in such a way, that the interrelated topics within the subjects or disciplines were within the same week. The non-relevant topics during the week were reorganised to maintain the continuity of the course and were represented by lecture classes, case-based learning and laboratory classes without time integration and vertical integration.

### Conclusion

Integration of the study courses of Physiology and Biochemistry was conducted among MD Programme students. The study affirms that students learn best when they are actively involved in knowledge acquisition, personally involved in learning, blend theory with practice, and critically analyse the information. A strong argument favouring modern methods and techniques is that the students were more open to academic curricular activities.

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