

DANYLO HALYTSKY LVIV NATIONAL MEDICAL UNIVERSITY

Department of Social Medicine, Economics and Organization of Health Care



«APPROVED»

First Vice-Rector for Research and Pedagogical Work

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
EDUCATIONAL DISCIPLINE PROGRAM

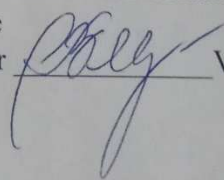
«EVIDENCE-BASED MEDICINE METHODOLOGY»

VB 1.48

for the training of second-level (master's) higher education professionals
in the field of knowledge 22 "Healthcare" specialty 221 "Dentistry"



Discussed and approved
at the methodical meeting of the department
of Social medicine, economics and
organization of Health care
Danylo Halytsky LNMU
(minute No 8 dated 13 June 2023)
Head of the department
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Approved by
the Specialized methodical commission
of Preventive medicine
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INTRODUCTION

The curriculum for the academic discipline "Evidence-Based Medicine Methodology" is designed in accordance with

Educational and Professional Program "Dentistry,"
Higher Education Standard of the second (master's) level
field of knowledge 22 "Health Care,"
specifically in the specialization of 221 "Dentistry."

Description of the academic discipline (abstract):

The academic discipline "Evidence-Based Medicine Methodology" is an elective course that involves the mastery of contemporary principles of evidence-based medicine and levels of evidence. This course enables dental students to acquire information on issues related to the evidence-based approach in the field of dentistry, aiming to uncover the potential of evidence-based medicine as a technology for preserving health and improving the quality of life.

Structure of academic discipline	Credits, hours,				Year of study, Semester	Form of control
	Total	Auditory		Self-independent study		
		lectures (hours)	Practical classes (hours)			
"Evidence-Based Medicine Methodology"	2 credits / 60 hours	0	30	30	4-year (VII/VIII term)	credit

The subject of the academic discipline encompasses modern principles of evidence-based medicine, levels of evidence, as well as the regularities of population health and its protection system, including dental health. It covers the promotion and organization of dental care for the population and the methodology for determining, analyzing, and evaluating key indicators of dental health based on specific criteria, all in relation to influencing factors.

Interdisciplinary connections: "Evidence-Based Medicine Methodology" as an academic discipline:

- Is based on students' study of related disciplines such as the history of medicine, informatics and computer technologies, ethics, hygiene and ecology, epidemiology, sociology, and medical sociology, as well as basic economic theories.

- Contributes to the formation of a preventive direction in the activities of future doctors, taking into account the possible impact of factors of various origins on the health status of the population and risk assessment in the development of comprehensive medical and social measures in interaction with the public health system.

- Contributes to the formation of an economic worldview and basic competencies regarding the methodology of economic analysis of the activities of dental institutions in modern conditions.

1.Objectives and tasks of the academic discipline:

1.1 Goal: The mastery of necessary knowledge, skills, and competencies for the research, analysis, and evaluation of population health indicators, organization, resource provision, and the functioning of the health care system. Also, the development of evidence-based medicine recommendations for the prevention and elimination of harmful effects of factors, and improvement of dental care organization for the population.

1.2 The main objectives of the academic discipline "Evidence-Based Medicine Methodology" include:

- Mastery of the basic concepts and concepts of evidence-based medicine;
- Acquisition of modern principles of evidence-based medicine;
- Mastery of the regularities of formation and methods of evaluating population health indicators, including dental health.

- Mastery of the theoretical foundations and methods for evaluating the healthcare system, organizing various types of medical care, including dental care, and ensuring its accessibility and quality.
- Acquisition of methods for determining, analyzing, and evaluating key indicators of dental health based on specific criteria and in relation to factors influencing it.

1.3 Competencies and learning outcomes facilitated by the discipline.

In accordance with the requirements of the Higher Education Standard, the discipline ensures the acquisition of the following competencies by students:

• *General Competencies:*

GC-1: Ability for abstract thinking, analysis, and synthesis.

GC-2: Knowledge and understanding of the subject area and awareness of professional activities.

GC-3: Ability to apply knowledge in practical activities.

GC-4: Ability to communicate in the state language both orally and in writing.

GC-5: Ability to communicate in English.

GC-6: Skills in using information and communication technologies.

GC-7: Ability to search, process, and analyze information from various sources.

GC-8: Ability to adapt and act in a new situation.

GC-9: Ability to identify, pose, and solve problems.

GC-10: Ability to be critical and self-critical.

GC-11: Ability to work in a team.

GC-12: Commitment to environmental preservation.

GC-13: Ability to act socially responsibly and consciously.

GC-14: Ability to exercise rights and fulfill duties as a member of society, understanding the values of a civil (free democratic) society, the necessity of its sustainable development, the supremacy of the law, and the rights and freedoms of individuals and citizens in Ukraine.

GC-15: Ability to preserve and enhance moral, cultural, scientific values and achievements of society based on an understanding of the history and regularities of the subject area, its place in the general system of knowledge about nature and society, and in the development of society, technology, and technologies, using various types and forms of physical activity for active recreation and maintaining a healthy lifestyle.

• *Specialized (professional, subject-specific) Competencies:*

SC-1: Ability to collect medical information about the patient and analyze clinical data.

SC-2: Ability to interpret the results of laboratory and instrumental studies.

SC-4: Ability to plan and conduct preventive measures for diseases of the oral cavity and maxillofacial area.

SC-5: Ability to design the process of providing medical care, determining approaches, plans, types, and principles of treating diseases of the oral cavity and maxillofacial area.

SC-10: Ability to organize and conduct therapeutic-evacuation measures.

SC-12: Ability to organize and conduct screening examinations in dentistry.

SC-13: Ability to assess the impact of the environment on the health of the population (individual, family, population).

SC-14: Ability to maintain normative medical documentation.

SC-15: Processing of state, social, and medical information.

SC-16: Ability to organize and conduct rehabilitation measures and care for patients with diseases of the oral cavity and maxillofacial area.

SC-17: Ability to provide legal support for one's own professional activities.

Detailed competencies according to the descriptors of the National Qualifications Framework in the form of a "Competency Matrix"

Competency Matrix

№	Competence	Knowledge	Skills	Communication	Autonomy and responsibility
		Kn1 – Specialized conceptual knowledge	S 1 – Solving complex tasks and problems,	C 1 – Clear and unambiguous	AR 1 – Decision-making in complex and

		acquired during training and/or prof. activities at the level of the latest achievements, which are the basis for original thinking and innovative activities, in particular in the context of research work	which requires updating and integrating knowledge, often in conditions of incomplete/insufficient information and conflicting requirements	presentation of one's own conclusions, as well as the knowledge and explanations that justify them, to specialists and non-specialists, in particular to persons who are studying	unpredictable conditions, which requires the application of new approaches and forecasting
		Kn 2 – Critical understanding of problems in education and/or professional activity and on the border of subject areas	S 2 – Conducting research and/or innovative activities	C 2 – Use of foreign languages in professional activities	AR 2– Responsibility for the development of professional knowledge and practices, assessment of the strategic development of the team
1	Ability to collect medical information about the patient and analyze clinical data.	Kn 2	S 1	C 1, C 2	
2	The ability to interpret the results of laboratory and instrumental research.	Kn 1	S 1		AR 1
3	The ability to plan and carry out measures for the prevention of diseases of the organs and tissues of the oral cavity and maxillofacial region.	Kn 2	S 1	C 1	AR 1
4	The ability to design the process of providing medical care: to determine the approaches, plan, types and principles of treatment of diseases of the organs and tissues of the oral cavity and maxillofacial area.	Kn 1	S 1		AR 1
5	Ability to organize and carry out medical evacuation measures.	Kn 1, Kn 2	S 1	C 1	AR 1, AR 2
6	Ability to organize and conduct a screening examination in dentistry.	Kn 1	S 2	C 1	AR 2
7	The ability to assess the impact of the environment on the state of health of the population (individual, family, population).	Kn 2	S 2		
8	Ability to maintain regulatory medical documentation.			C 1	AR 1
9	Processing of state, social and medical information.	Kn 2		C 1, C 2	AR 1, AR 2
10	Ability to organize and carry out rehabilitation measures and care for patients with diseases of the oral cavity and ASHL.	Kn 1	S 1	C 1	
11	The ability to legally secure one's own professional activity.	Kn 1		C 1	AR 2

Learning Outcomes:

Program Learning Outcomes influenced by the educational discipline:

PLO-6: Plan and implement measures for the prevention of dental diseases among the population to prevent the spread of dental diseases.

Learning Outcomes: Program Learning Outcomes influenced by the educational discipline:

PLO-7: Analyze the epidemiological situation and implement measures for mass and individual, general and local pharmacological and non-pharmacological prevention of dental diseases.

PLO-12: Organize the conduct of therapeutic and evacuation measures among the population, military personnel, in emergency situations, including wartime, during the deployed stages of medical evacuation, taking into account the existing system of medical evacuation support.

PLO-14: Analyze and evaluate state, social, and medical information using standard approaches and computer information technologies.

PLO-15: Evaluate the impact of the environment on the health of the population in medical institutions using standard methodologies.

PLO-16: Formulate goals and determine the structure of personal activities based on the analysis of specific social and personal needs.

PLO-17: Adhere to a healthy lifestyle, use self-regulation and self-control techniques.

PLO-18: Be aware of and operate within one's civic rights, freedoms, and obligations, enhancing the general educational and cultural level.

PLO-19: Adhere to the requirements of ethics, bioethics, and deontology in professional activities.

PLO-20: Organize the necessary level of individual safety (own and for those under care) in case of typical hazardous situations in the individual field of activity.

2 Information Volume of the Educational Discipline

The study of the educational discipline is allocated 60 hours, equivalent to 2 ECTS credits.

3 Structure of the Educational Discipline

No	Topic name	Lectures	Practical lesson	independent work	individual work
1	History of development and world experience of evidence-based medicine.	-	3	-	-
2	Clinical epidemiology, its significance for stomatology.	-	-	3	-
3	Stages of evidence-based medicine.	-	3	-	-
4	Modern trends in the development of evidence-based medicine in dentistry.	-	-	4	-
5	Dental health of the population and organization of dental care.	-	3	-	-
6	Principles and practice of dental audit.	-	-	4	-
7	Patient rights in scientific research.	-	3	-	-
8	Summary and grouping of statistical data into variational series.	-	3	-	-
9	Advantages and disadvantages of different sources of dental information.	-	-	3	-
10	Quantitative and qualitative indicators of the analysis of medical and statistical information.	-	-	4	-
11	Evidence-based prevention of dental diseases.	-	3	-	-
12	Concept of quality and efficiency of dental care, their criteria.	-	3	-	-
13	Medical errors and liability.	-	-	4	-
14	Advocacy, communication and social mobilization in the interests of dental health.	-	3	-	-
15	Evidence-based dentistry and marketing.	-	3	-	-
16	The Cochrane Library and the Cochrane Collaboration.	-	-	4	-
17	Methods of scientific research.	-	-	4	-
18	Scientific publication as a mechanism for implementing scientific research. Test	-	3	-	-
Total hours 60 / 2.0 ECTS credits		0	30	30	0
Final control		Credit			

4 Lecture hours in the discipline "Methodology of evidence-based medicine" are not provided

5 Thematic plan of practical (seminar) classes

№	Topic name	Number of hours
1	History of development and world experience of evidence-based medicine.	3
2	Stages of evidence-based medicine.	3
3	Dental health of the population and organization of dental care.	3
4	Patient rights in scientific research.	3
5	The role of patients in scientific research.	3
6	Evidence-based prevention of dental diseases.	3
7	Concept of quality and efficiency of dental care, their criteria.	3
8	Advocacy, communication and social mobilization in the interests of dental health.	3
9	Evidence-based dentistry and marketing.	3
10	Scientific publication as a mechanism for implementing scientific research.	3
Total		30

6 Thematic plan of students' independent work

№ з/п	Topic name	Number of hours	Kind of control
1	Clinical epidemiology, its significance for stomatology.	3	Current control in practical classes
2	Modern trends in the development of evidence-based medicine in dentistry.	4	Current control in practical classes
3	Principles and practice of dental audit.	4	Current control in practical classes
4	Advantages and disadvantages of different sources of dental information.	3	Current control in practical classes
5	Quantitative and qualitative indicators of the analysis of medical and statistical information.	4	Current control in practical classes
6	Medical errors and liability.	4	Current control in practical classes
7	The Cochrane Library and the Cochrane Collaboration.	4	Current control in practical classes
8	Methods of scientific research.	4	Current control in practical classes
Total		30	

7. Individual tasks are not included in the working curriculum for the academic year.

8. Teaching methods

- Verbal methods: lecture, conversation, narration, explanation, literature review;
- Visual methods: illustration, demonstration, observation;
- Practical methods: situational tasks, independent work, research-based work;
- Interactive methods: discussion, small group work, brainstorming, case method, role-playing.

9. Control methods

Types of control:
current and final.

Competences acquired by the student in the process of learning from each subject of the academic discipline are tentatively evaluated according to the following criteria:

- 5 / "excellent" - the student perfectly mastered the theoretical material of the topic of the lesson, demonstrates deep and comprehensive knowledge of the relevant topic, the main provisions of scientific primary sources and recommended literature, thinks logically and constructs an answer, freely uses the acquired theoretical knowledge when analyzing practical material, expresses his attitude to certain

problems, demonstrates a high level of assimilation of practical skills;

- 4/"good" - the student has mastered the theoretical material of the lesson well, has the main aspects from primary sources and recommended literature, explains it in a reasoned way; possesses practical skills, expresses his thoughts on certain problems, but certain inaccuracies and errors are assumed in the logic of the presentation of theoretical content or in the performance of practical skills;

- 3/"satisfactory" - the student has basically mastered the theoretical knowledge of the educational topic, orients himself in primary sources and recommended literature, but answers unconvincingly, confuses concepts, additional questions cause the student uncertainty or lack of stable knowledge; when answering questions of a practical nature, reveals inaccuracies in knowledge, does not know how to evaluate facts and phenomena, connect them with future activities, makes mistakes when performing practical skills;

- 2/"unsatisfactory" - the student has not mastered the educational material of the topic, does not know scientific facts, definitions, hardly orients himself in primary sources and recommended literature, lacks scientific thinking, practical skills are not formed

10 Current control, aimed at checking students' learning of educational material, is carried out by means of an oral survey, written testing and solving situational tasks.

10.1. *Assessment of current educational activities.* During the evaluation of the mastery of each topic for the current educational activity, the student is assigned a 4-point (national) grade. At the same time, all types of work provided for by the discipline program are taken into account. The student receives a grade for each topic for further conversion of grades into points on a multi-point (200-point) scale.

Independent work of students is evaluated during the current control of the topic in the corresponding lesson.

11 The form of the final control of study success - credit.

It is conducted on the basis of the results of the enrollment of all works in practical classes. The semester credit for the discipline is carried out after the end of its study, before the beginning of the examination session

12 Scheme of accrual and distribution of points received by students:

The maximum number of points that a student can score for the current educational activity while studying the discipline is 200 points.

The minimum number of points that a student must score for the current educational activity to enroll in the discipline is 120 points.

The calculation of the number of points is carried out on the basis of the grades received by the student on a traditional scale during the study of the discipline during the semester, by calculating the arithmetic average (AA), rounded to two decimal places. The obtained value is converted into points on a multi-point scale as follows:

$$x = \frac{AA \times 200}{5}$$

For convenience, a calculation table is given on a 200-point scale:

Recalculation of the average grade for the current activity into a multi-point scale for disciplines ending with credit

4-grade scale	200-grade scale	4-grade scale	200-grade scale	4-grade scale	200-grade scale	4-grade scale	200-grade scale
5	200	4.45	178	3.92	157	3.37	135
4.97	199	4.42	177	3.89	156	3.35	134
4.95	198	4.4	176	3.87	155	3.32	133
4.92	197	4.37	175	3.84	154	3.3	132
4.9	196	4.35	174	3.82	153	3.27	131
4.87	195	4.32	173	3.79	152	3.25	130

4.85	194	4.3	172	3.77	151	3.22	129
4.82	193	4.27	171	3.74	150	3.2	128
4.8	192	4.24	170	3.72	149	3.17	127
4.77	191	4.22	169	3.7	148	3.15	126
4.75	190	4.19	168	3.67	147	3.12	125
4.72	189	4.17	167	3.65	146	3.1	124
4.7	188	4.14	166	3.62	145	3.07	123
4.67	187	4.12	165	3.57	143	3.02	121
4.65	186	4.09	164	3.55	142	3	120
4.62	185	4.07	163	3.52	141	Less than 3	Not enough
4.6	184	4.04	162	3.5	140		
4.57	183	4.02	161	3.47	139		
4.52	181	3.99	160	3.45	138		
4.5	180	3.97	159	3.42	137		
4.47	179	3.94	158	3.4	136		

Points from the discipline are independently converted both to the ECTS scale and to the 4-point (national) scale. Points from the ECTS scale are not converted into a 4-point scale and vice versa.

Points of students studying in one specialty, taking into account the number of points scored in the discipline, are ranked on the ECTS scale as follows:

ECTS assessment	Statistical indicator
A	The best 10% of students
B	The next 25% of students
C	The next 30% of students
D	The next 25% of students
E	The last 10% of students

Ranking with the assignment of grades "A", "B", "C", "D", "E" is carried out for students of this course who are studying in one specialty and have successfully completed the study of the discipline. Students who receive grades of FX, F ("2") are not listed as ranked students. Students with an FX grade automatically receive an "E" grade after retaking.

Discipline points for students who have successfully completed the program are converted to a traditional 4-point scale according to the absolute criteria shown in the table below:

Discipline points	Evaluation on a 4-point scale
From 170 to 200 points	5
From 140 to 169 points	4
From 139 points to the minimum number of points that the student must score	3
Below the minimum number of points that the student must score	2

The ECTS grade is not converted to the traditional scale, as the ECTS scale and the four-point scale are independent.

The objectivity of the evaluation of students' educational activity is checked by statistical methods (correlation coefficient between the ECTS grade and the grade on the national scale).

13 Methodological support

- Test questions on the topics of practical classes
- Test questions of the final module control

- List of theoretical questions for the final modular control
- Tasks for current control of knowledge *Задачі для підсумкового контролю знань*
- List of tasks for independent work
- Lecture notes
- Study guide for practical classes
- Study guide for students' independent work

14 Recommended reading

The main one

1. Public health: textbook for students. higher med. education institutions - Kind. 3 - Vinnytsia: "New Book", 2013. - 560 p.
2. Oxford Textbook of Global Public Health, 6th edition. Edited by Rogers Detels, Martin Gulliford, Quarraisha Abdool Karim and Chorh Chuan Tan. - Oxford University Press, 2017. - 1728 p.
3. Medical Statistics at a Glance Text and Workbook. Aviva Petria, Caroline Sabin. – Wiley-Blackwell, 2013. – 288 p.
4. Social medicine and the organization of health care (for students of stomatological faculties of higher medical educational institutions of Ukraine of IV level of accreditation. - K.: Kniga plyus, 2010. - 328 p.

Auxiliary

1. Board Review in Preventive Medicine and Public Health. Gregory Schwaid. - ELSEVIER., 2017. – 450 p.
2. Donaldson's Essential Public Health, Fourth Edition. Liam J. Donaldson, Paul Rutter - CRC Press, Taylor&Francis Group, 2017 - 374 p.
3. Jekel's epidemiology, biostatistics, preventive medicine and public health. Fourth edition. David L. Katz, Joann G. Elmore, Dorothea M.G. Wild, Sean C. Lucan. - ELSEVIER., 2014. - 405 p.
4. Oxford Handbook of Public Health Practice, Fourth Edition. Charles Guest, Walter Ricciardi, Ichiro Kawachi, Iain Lang. - Oxford University Press, 2012. - 656 p.
5. Primer of Biostatistics, Seventh Edition. Stanton A. Glantz - McGraw-Hill Education, 2012. - 320 p.
10. Population of Ukraine. Demographic yearbook. - K.: Derzhkomstat of Ukraine. (access mode: www.ukrstat.gov.ua).
11. Popchenko T.P. Reforming the sphere of health care in Ukraine: organizational, regulatory and legal and financial and economic support. - K.: NISD, 2012. - 96 p.
14. Annual report on the state of health of the population, the sanitary-epidemic situation and the results of the health care system of Ukraine. 2016 / Ministry of Health of Ukraine, State University "UISD of Ministry of Health of Ukraine". - Kyiv, 2017. - 516 p.

15. Information resources

- Legislation of Ukraine. Electronic resource: zakon.rada.gov.ua/
- Medical legislation of Ukraine. Electronic resource: <http://mozdocs.kiev.ua/>
- Statistical data of Ukraine. Electronic resource: <http://www.ukrstat.gov.ua/>
- Statistical data of the Lviv region. Electronic resource: <https://www.lv.ukrstat.gov.ua/>
- Public Health Center of the Ministry of Health of Ukraine <https://phc.org.ua/>
- Ukrainian database of medical and statistical information "Health for all": <http://medstat.gov.ua/ukr/news.html?id=203>
- World Health Organization www.who.int
- WHO European Regional Office www.euro.who.int/ru/home
- Cochrane Center for Evidence-Based Medicine www.cebm.net
- Cochrane Library www.cochrane.org
- US National Library of Medicine - MEDLINE PubMed www.ncbi.nlm.nih.gov/PubMed
- Canadian Center for Evidence in Health www.cche.net
- Center for Disease Control and Prevention www.cdc.gov
- British Medical Journal www.bmj.com
- Journal of Evidence-Based Medicine www.evidence-basedmedicine.com