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Z. Bilous[1], N. Grechkivska[2], L. Kobak[1], N. Drobinska[1], M. Butynska[1]

[1] Danylo Halytsky Lviv National Medical University, Lviv, Ukraine

[2] Bohomolets National Medical University, Kyiv, Ukraine

Addressing Occupational Diseases; Integrating the Discipline at Danylo Halytsky Lviv National Medical University

Introduction. Occupational diseases result from exposure to harmful factors in the work environment and poor working conditions. These factors can directly or indirectly cause health problems in employees. Occupational diseases are more likely to occur under specific working conditions than in the general population. The nature of these diseases is determined by the way harmful factors or combinations of factors affect a person during work, as well as the strength, concentration, and duration of their impact [1-3].

The establishment of specialized clinics for occupational diseases during the early twentieth century represented a significant advancement in the field. Milan's pioneering institution, founded in 1910, served as a model for similar facilities worldwide. Meanwhile, the Ukrainian Institute of Occupational Medicine, established in 1923 and now known as Kharkiv Research Institute of Occupational Health and Diseases, played a pivotal role in Ukraine. The official list for diagnosing occupational diseases, ratified in Ukraine in 1928, serves as the basis for determining such conditions [1].

Within the broader framework of training for a master's degree in medicine, the study of occupational diseases has long been and remains an essential discipline. The primary objective of this course is to equip students with the skills necessary for examining patients, taking appropriate action, and treating the most prevalent occupational diseases. Moreover, it aims to familiarize them with organizational measures for preventing such diseases, principles of professional selection, and labor examination. Developing the ability to recognize the presence of occupational diseases in patients is crucial. This not only addresses medical concerns related to preventing the onset and progression of these diseases among workers, but also addresses socio-economic issues, including retaining the nation's workforce and reducing social disability payments.

The aim of the study. To examine the issue of occupational diseases and the teaching methods employed in this area at Danylo Halytsky Lviv National Medical University.

Materials and methods. In conducting the study, we utilized content analysis, systematic and comparative analysis, and the bibliosemantic method to review current research on the contemporary understanding of occupational diseases. Relevant literature was sourced from scientometric databases such as PubMed-NCBI, Medline, ResearchGate, Cochrane Library, and EMBASE using specific keywords like "occupational diseases" and "competencies."

Our analysis focused on the allocation of hours for the teaching of "Occupational Diseases" to an average student group at Danylo Halytsky Lviv National Medical University since 2005 till 2024. We recorded total number of hours, hours designated for lectures and practical classes, and time spent on writing medical histories for this discipline. Our findings for academic year 2023/2024 closely resemble those of the academic year 2022/2023.

Results and discussion. According to the latest report by the World Health Organization (WHO), an estimated 160 million cases of occupational diseases are recorded annually, resulting in a mortality rate of approximately 1.7 million individuals each year. Notably, the average incidence of occupational diseases in Ukraine, as reported by the WHO Office for Europe, stands at about 13 per 100,000 people, whereas these rates are 43 and 30 per 100,000 people in the European Union and all European countries, respectively [4].

A substantial trend in the detection of occupational diseases in Ukraine is its wave-like nature, with a significant wave emerging in 2000 and persisting to the current day. This heightened detection may be attributed to the enactment of the Laws of Ukraine "On Occupational Safety and Health" and "On Compulsory State Social Insurance of Workers against Occupational Accidents and Occupational Diseases that Caused Disability," as well as the establishment of the Social Insurance Fund

for Occupational Accidents and Diseases. These legislative and institutional measures have augmented the financial compensation for health impairments resulting from working conditions [4].

The determination of occupational diseases is carried out by a specialized commission comprising experts from specialized clinics, in accordance with the approved list by the Ministry of Health. The process is governed by the Resolution of the Cabinet of Ministers of Ukraine N 1662 dated 08.11.2000, "On Approval of the List of Occupational Diseases (Annex 1)," as amended by subsequent resolutions and the "Instruction on the Application of the List of Occupational Diseases" N 374/68/338 of 29.12.2000. Additionally, the Resolution of the Cabinet of Ministers of Ukraine N 1112 of 25.08.2004 outlines the "Procedure for Investigation and Record Keeping of Accidents, Occupational Diseases, and Accidents at Work."

In Ukraine, respiratory system disorders are prevalent among occupational diseases due to a significant number of individuals working in environments with industrial dust, as well as professions involving exposure to high or low atmospheric pressure.

According to the State Statistics Committee of Ukraine, nearly one in three individuals employed in production (28.9 %) works in conditions that do not meet sanitary and hygienic standards. Industries with the highest risk of occupational diseases include coal mining (74.1 % of workers in unfavorable conditions), metallurgy (59.6 %), gas (55.6 %), oil and gas (50.6 %), and chemical and petrochemical industries (43.2 %) [4].

The educational and professional program (EPP) in the field of Medicine at the second (master's) level of higher education has been meticulously designed to align with the stipulations set forth in the Standard of higher education for the second (master's) level, specifically in the field of Health Care and the specialty of Medicine. This program, as outlined and enforced by the Ministry of Education and Science of Ukraine through Order N 1197 dated 08.11.2021, encompasses the requisite European Credit Transfer System (ECTS) credits, a comprehensive list of graduate competencies, the normative content of training for higher education applicants, the certification process, and the requirements for internal quality assurance of higher education. The foundational principles of this educational and professional program are based on a multitude of regulatory documents, thus providing a robust framework for the training of aspiring professionals in the field of Medicine.

The Educational Program Portfolio (EPP) facilitates the realization of the pedagogical cycle in line with the seventh level of the National Qualifications Framework (NQF) of Ukraine, which aligns with the second level of the European Higher Education Area (Frameworks of Qualifications in the European Higher Education Area - FQ-EHRA) and the seventh level of the European Qualifications Framework (European Qualifications Frameworks 3 level - EQF-LLL). It enables the acquisition of specialized conceptual knowledge encompassing contemporary scientific advancements in the professional domain or area of expertise, serving as the bedrock for original thought, research, and critical analysis of issues within and at the fringes of knowledge domains.

The study of "Occupational Diseases" necessitates the development of specific competencies by the learner [6], comprising integral, general, and professional proficiencies.

The integration of competencies entails the adept application of acquired general and professional skills to address intricate challenges within the medical profession and practical issues in the realm of healthcare, as dictated by specific catalogues of disease symptoms and syndromes, emergency situations, physiological conditions, diseases necessitating specialized patient management, medical procedures, as well as considerations pertaining to forensic and military evaluations, or other intricate problem-solving requirements, encompassing research and innovation in the medical domain. This skill set also encompasses the capacity for independent and continuous learning.

The encompassed general competencies include:

1. Abstract thinking, analysis, and synthesis;
2. Acquisition and assimilation of contemporary knowledge;
3. Application of knowledge in practical scenarios;
4. Comprehensive grasp of the subject matter and professional practice;
5. Adaptability and adeptness in novel situations;
6. Informed decision-making;
7. Proficiency in collaborating within a team;
8. Strong interpersonal communication skills;
9. Proficiency in utilizing information and communication technologies;
10. Capability to search, process, and analyze information from diverse sources;
11. Resilience and determination in fulfilling tasks and responsibilities;.
12. Consciousness of equal opportunities and gender-related issues;
13. Ability to comprehend their rights and obligations as a member of society, recognizing the value of a civil (free, democratic) society and the necessity for its sustainable development, as well as the principles of the rule of law, human and civil rights and freedoms in Ukraine;
14. Proficiency in preserving and advancing moral, cultural, and scientific values and accomplishments of society, grounded in an understanding of the history and developmental patterns of the subject, its position within the broader system of knowledge about nature and society and in societal development and technology, and the ability to engage in various types and forms of physical activity for active recreation and a healthy lifestyle.

Special (professional, subject) competencies encompass a range of essential skills, including:

1. Proficiency in gathering medical information about the patient and analyzing clinical data;
2. Ability to identify the necessary list of laboratory and instrumental studies and to evaluate their results effectively;

3. Capability to form a preliminary and clinical diagnosis of the disease;

4. Skill in selecting the appropriate mode of work and rest during the treatment and prevention of diseases;

5. Competence in prescribing proper nutrition during the treatment and prevention of diseases in patients of different age groups, including infants, children, adolescents, and adults;

6. Proficiency in determining the principles and nature of treatment and disease prevention in adults, as well as patients in childhood and adolescence;

7. Proficiency in managing emergency conditions in adults, children, and adolescents;

8. Competence in selecting strategies and delivering emergency medical care to a child;

9. Capability to execute medical and evacuation procedures;

10. Proficiency in conducting medical procedures;

11. Aptitude to address medical challenges in unfamiliar settings with limited information, while considering social and ethical responsibilities;

12. Proficiency in maintaining comprehensive medical records, including electronic documentation;

13. Ability to effectively communicate knowledge, conclusions, and arguments on healthcare issues to both specialists and non-specialists, including students;

14. Commitment to ethical principles in patient care and laboratory animal research;

15. Dedication to upholding professional and academic integrity, ensuring the reliability of scientific findings;

The competencies aligned with the NQF descriptors are outlined in a "Competency Matrix" [6, 7].

Given the unpredictable nature of occupational injuries to organs and systems, the development of occupational diseases, and their life-threatening implications, it is crucial for doctors across all specialties to be well informed about the clinical manifestations, specific actions, and treatment of such diseases.

From 2005 to 2024, the total hours dedicated to the "Occupational Diseases" course decreased by threefold (fig. 1). The highest number of academic hours (48) was documented in the 2009/2010 academic year, while the lowest (16) was observed in 2022 / 2023.

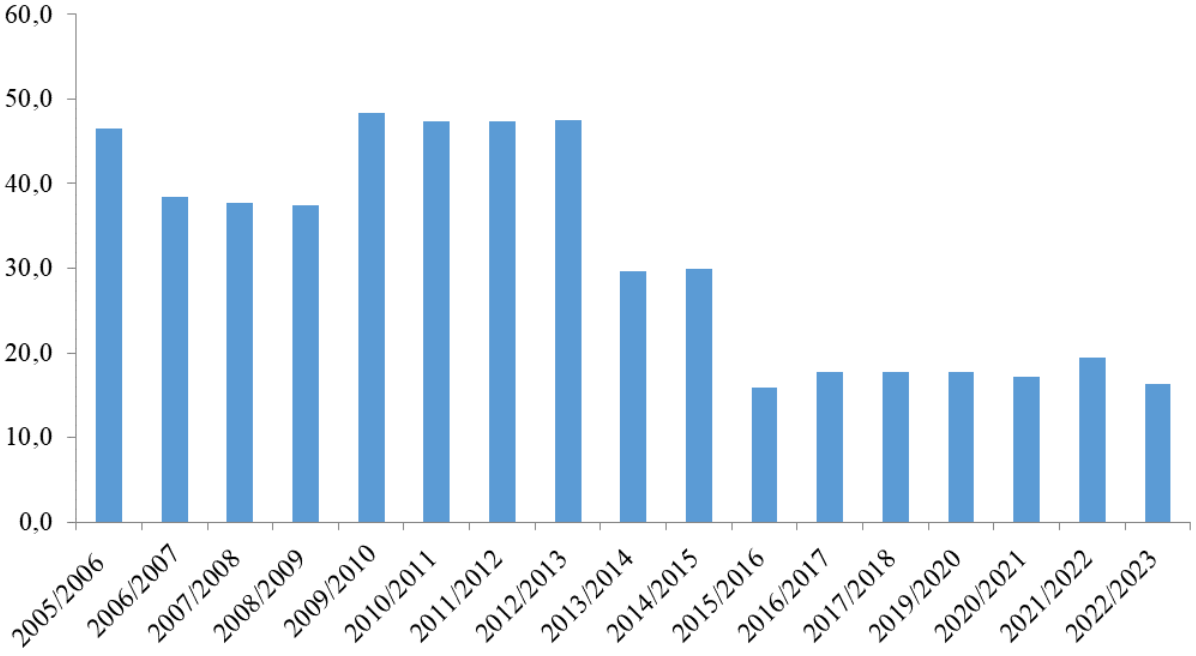

Fig. 1. The total number of academic hours in the discipline "Occupational Diseases" in 2005-2023.

Note. Calculated for one student group.

The allocation of hours for practical classes has significantly changed, as shown in fig. 2. The reduction in practical class hours corresponds to the overall decrease in academic hours for the course "Occupational Diseases" during the period under investigation.

Given that the Department of Internal Medicine No. 1 of LNMU is based in the specialized occupational pathology department of the Lviv Regional Clinical Hospital, students now have the opportunity to work directly with relevant patients. As a result, the time required for processing and documenting a patient's medical history has been reduced during this period (fig. 3).

The academic hours allocated to lecture presentation of relevant material have undergone a significant reduction, as illustrated in fig. 4. In the 2005/2006 academic year; the maximum number of hours per academic group was 18. However, since the 2013/2014 academic year, this allocation has been reduced by a factor of three.

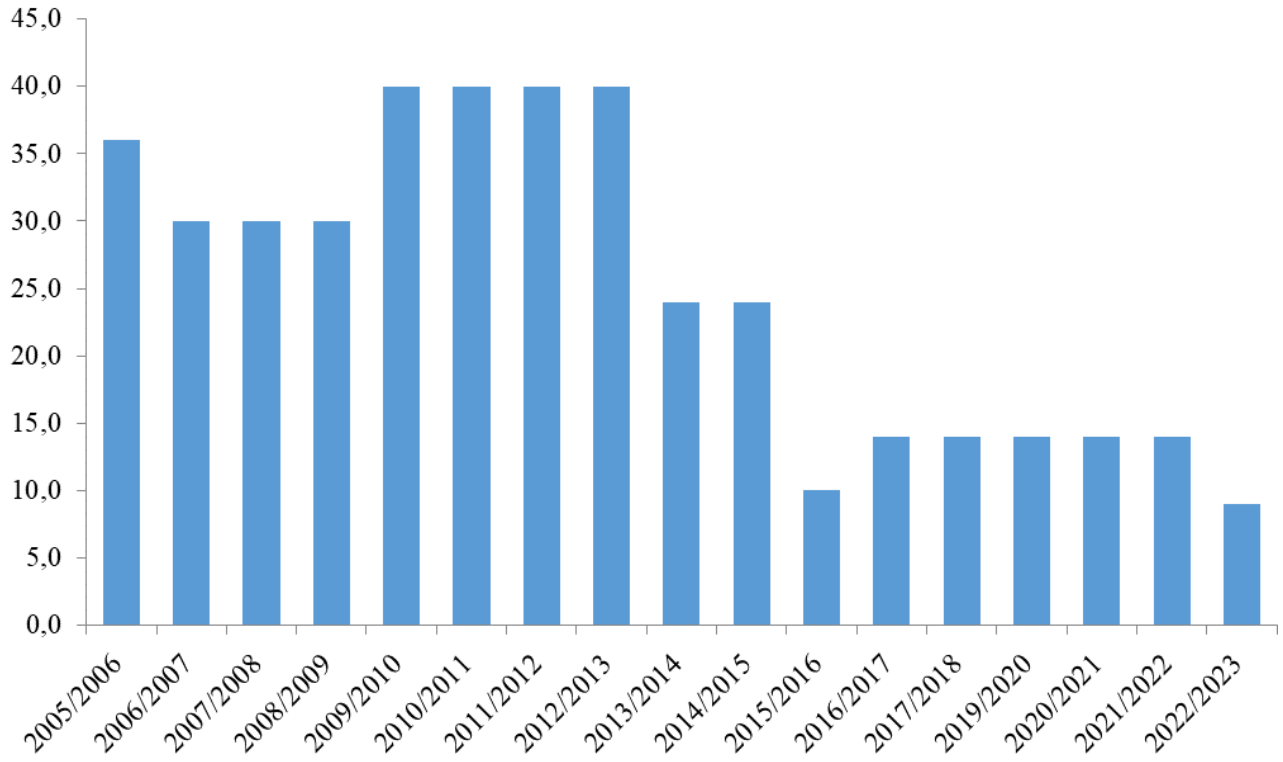

Fig. 2. Number of hours for practical classes in 2005-2023.

Note. Calculated for one student group.

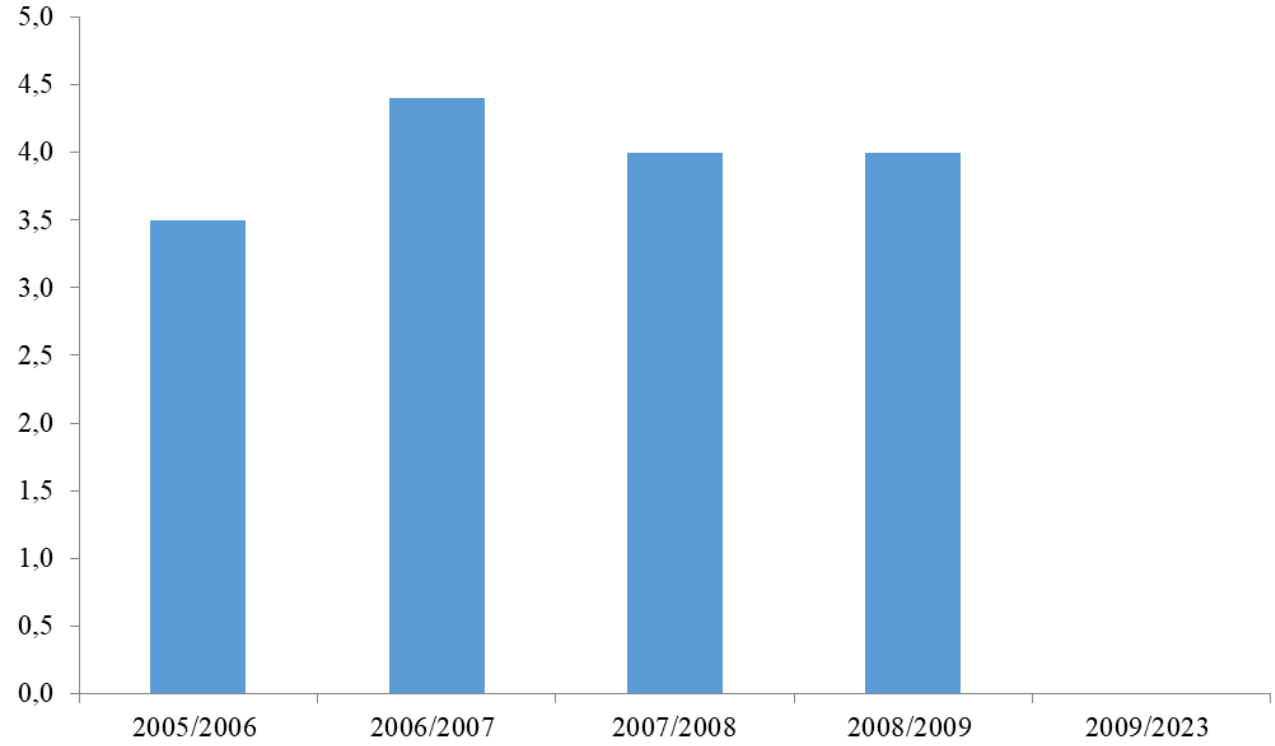

Fig. 3. Number of hours spent on writing a medical history of a patient with occupational pathology in 2005-2023.

Note. Calculated for one student group.

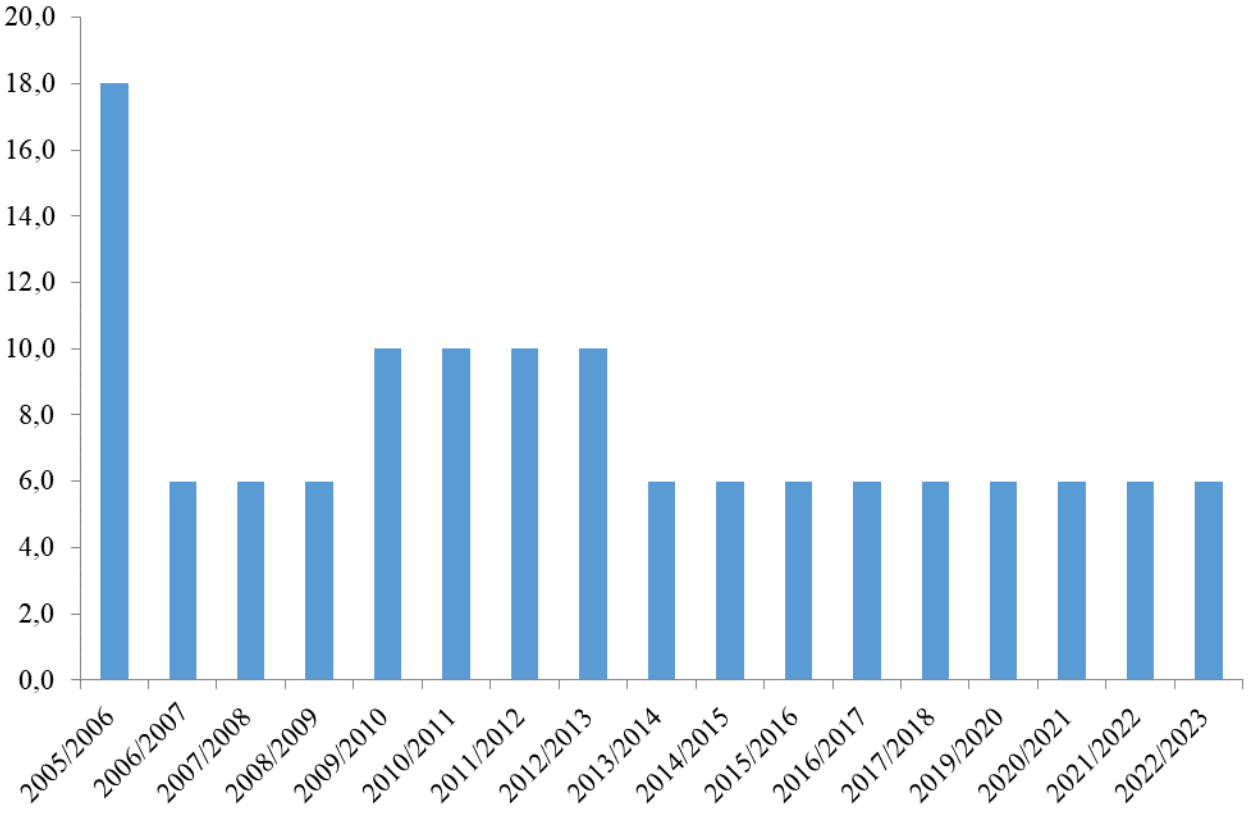

Fig. 4. Number of lecture hours in 2005-2023 academic years.

Note. Calculated for one student group.

Conclusions. Occupational diseases present a significant challenge for the healthcare system, not only in Ukraine but also globally, in terms of both morbidity and mortality. Given the continued operation of industries with unfavorable or hazardous working conditions, it is unlikely that there will be a rapid reduction in these indeces.

Between 2005 and 2024, there has been a significant reduction in the total number of hours and the hours allocated for lectures and practical classes in the educational and professional syllabus for the discipline "Occupational Diseases." Additionally, no hours have been allocated for writing a medical history for nearly a decade. This negative trend limits the amount of processed information available for the second (master's) level of education, even if all competencies, relevant knowledge, and skills in the discipline "Occupational Diseases" are acquired.

We recognize the potential for enhancing the study "Occupational Diseases" through the incorporation of various didactic methods in the educational process. This necessitates an increase in the allocated academic hours to further improvement the professional development of higher education students specializing in the field of 22 "Health Care," particularly within the specialty of 222 "Medicine."

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Conflict of interest
The authors declare no conflicts of interest.

Addressing Occupational Diseases; Integrating the Discipline at Danylo Halytsky Lviv National Medical University

Z. Bilous, N. Grechkivska, L. Kobak, N. Drobinska, M. Butynska

Introduction. Occupational diseases are those that result from exposure to unfavorable, harmful, or dangerous factors in the production environment and work process. These factors can directly or indirectly cause health disorders in employees. Professional pathology has long been and continues to be a crucial component of a physician's comprehensive training, culminating in the attainment of a master's degree. The primary objective of the occupational diseases learning curriculum is to instruct students in the techniques of patient examination, diagnosis, and treatment of prevalent occupational ailments, as well as in organizational strategies to prevent their occurrence, and the principles of professional selection and labor examination. It is essential to maintain vigilance in identifying and addressing occupational diseases in patients. Doing so will not only help in addressing medical concerns related to prevention and the escalation of severity among working individuals, but also in mitigating social and economic issues. These include preserving the productivity of the nation's workforce and reducing the need for social benefits due to work incapacity. Given the unpredictable nature and life-threatening potential of certain pathologies, it is imperative that doctors across all specialties possess knowledge about the clinical aspects, specific diagnostic features, and treatment of occupational diseases. Mastering the discipline "Occupational diseases" involves obtaining certain competencies by students.

The aim of the study. To examine the issue of occupational diseases and the teaching methods employed in this area at Danylo Halytsky Lviv National Medical University.

Materials and methods. The analysis of the number of hours allocated to the average statistical group of students during the period since 2005 till 2023 at Danylo Halytsky Lviv National Medical University has been conducted.

Results. During period under investigation, there was a threefold decrease in the total number of hours, as shown in graph 1. The maximum number of academic hours - 48 - was documented in academic year 2009-2010, and the minimum - 16 - was in 2022-2023. The number of academic hours allocated for practical classes has also undergone significant changes, as depicted in graph 2. The number of practical hours is calculated for one academic group. The decline in the number of hours for practical classes corresponds to the decrease in the total number of academic hours in the discipline "Occupational diseases" for the specified period. During this period, the hours for writing and processing the medical history of a patient with symptoms of an occupational disease were reduced. Academic hours for the lecture presentation of the material were also significantly reduced: the maximum hours per student group was 18 – in academic year 2005-2006, and till academic year 2013-2014 it was reduced threefold. The indeces for academic year 2023-2024 are similar to those of the period 2022-2023.

Conclusion. Occupational diseases have been and continue to be a significant issue within the healthcare system, not only in Ukraine, but worldwide, in terms of both morbidity and mortality rates. Given the efficient functioning of industries with unfavorable or harmful working conditions, there is little chance for a rapid decrease in these indeces. Between the academic years 2005-2006 and 2023-2024, there has been a notable reduction in the total number of academic hours and hours allocated for lectures and practical classes in the discipline "Occupational diseases." Furthermore, there has been a complete absence of hours allocated for writing the history of the disease for almost a decade. This concerning trend, despite the acquisition of relevant knowledge and skills, significantly limits the amount of processed information at the master's level of education. We believe that improving the "Occupational diseases" syllabus can be achieved by engaging various didactic mechanisms into the learning curriculum

for this discipline. This improvement requires an increase and a fixed number of academic hours to support the professional growth of students in higher education, particularly those in the field of 22 "Healthcare" and the specialty of 222 "Medicine".

Keywords: occupational diseases, competences.

Погляд на проблему професійних хвороб; викладання цієї дисципліни у Львівському національному медичному університеті імени Данила Галицького

З. О. Білоус, Н. В. Гречківська, Л. О. Кобак, Н. В. Дробінська, М. І. Бутинська

Вступ. Професійні хвороби досі є у списку не подоланих людством хвороб. Постійні вдосконалення і модернізація технологічних процесів, контроль за умовами праці, дотримання санітарних норм не забезпечують повноцінного зникнення нозологій, об'єднаних професійними чинниками та шкідливостями.

Професійні хвороби посідають важливе місце в підготовці спеціяліста за напрямом 222 «Медицина» галузі знань 22 «Охорона здоров'я» під час отримання знань, умінь і навичок згідно зі стандартом вищої освіти, який забезпечується набуттям здобувачем освіти основних компетентностей (інтегральних, загальних і фахових).

Мета. Дослідити проблему професійних хвороб та викладання цієї дисципліни у Львівському національному медичному університеті імени Данила Галицького.

Матеріяли й методи. Проаналізовано динаміку змін кількости академічних годин упродовж 2005/2024 навчальних років, виділених для подання лекційного матеріялу, практичних занять і написання студентом історії хвороби з дисципліни «Професійні хвороби».

Результати. За вказаний період виявлено зменшення загальної кількости академічних годин утричі, що відповідно відбилося на їхній кількости для лекцій і практичних занять, хоча формально «матриця компетентностей» передбачає успішне засвоєння матеріялу з дисципліни «Професійні хвороби».

Висновки. Професійні хвороби були і є важливою проблемою системи охорони здоров'я не лише в Україні, а й у всьому Світі.

Із 2005 по 2024 навчальні роки, згідно з освітньо-професійною програмою навчальної дисципліни «Професійні хвороби», суттєво скоротилися як загальна кількість годин, так і кількість годин, виділених на лекції та практичні заняття, а години для написання історії хвороби за майже 10 крайніх років не були виділені зовсім.

Ключові слова: професійні хвороби, умови праці, компетентности.

Information about the authors

1. Zoryana Bilous; Danylo Halytsky Lviv National Medical University, Department of Internal Medicine N 1 (69, Pekarska Str., Lviv, 79010; +380(32) 276 97 63); PhD, Associate Professor; 15 Osvytska St., Lviv, 79066; +38(097) 333 51 47; zoryanabilous@gmail.com; https://orcid.org/0000-0002-8301-2474
2. Nataliia Hrechkivska; Bogomolets National Medical University, Acting Director of the Educational and Research Center (13, Taras Shevchenko Boulevard, Kyiv, 01601; +380(44) 360 78 80); Doctor of Medicine, Professor; +380(95) 845 99 34; nv.grechkovska@gmail.com; https://orcid.org/0000-0001-6497-2149
3. Lyubov Kobak; Danylo Halytsky Lviv National Medical University, Department of Internal Medicine N 1 (69, Pekarska Str., Lviv, 79010; +380(32) 276 97 63); PhD, Assistant Professor; 7, Hrabianky Str., Lviv, 79053; +380(67) 585 20 10; https://orcid.org/0000-0002-2700-4007
4. Nataliia Drobinska; Danylo Halytsky Lviv National Medical University, Department of Internal Medicine N 1 (69, Pekarska Str., Lviv, 79010; +380(32)276 97 63); PhD, Assistant of the Department; 30, Shota Rustaveli Str., Lviv, 79005; +380(93) 112 59 91; doktornataliia@gmail.com; https://orcid.org/0000-0002-4714-3688
5. Marta Butynska; Danylo Halytsky Lviv National Medical University, Department of Internal Medicine N 1 (69, Pekarska Str., Lviv, 79010; +380(32) 276 97 63); Assistant Professor; 46, Naukova Str., Lviv, 79060; +380(97) 906 03 91; didukhmarta12@gmail.com