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**DISABILITY STATUS DUE
TO OCCUPATIONAL DISEASES:
UKRAINE, 2015-2018***SE «Dnipropetrovsk medical academy of Health Ministry of Ukraine»**Department of medical and social expertise and rehabilitation**V. Vernadsky str., 9, Dnipro, 49044, Ukraine**ДЗ «Дніпропетровська медична академія МОЗ України»**кафедра медико-соціальної експертизи і реабілітації ФПО**(зав. – д. мед. н. проф., І.С. Борисова)**вул. В. Вернадського, 9, Дніпро, 49044, Україна**e-mail: doctorinnaborisova1@gmail.com***Цитування:** *Медичні перспективи. 2021. Т. 26, № 1. С. 232-238***Cited:** *Medicni perspektivi. 2021;26(1):232-238***Key words:** *indices of disability, professional diseases, medical and social expertise***Ключові слова:** *показники інвалідності, професійні захворювання, медико-соціальна експертиза***Ключевые слова:** *показатели инвалидности, профессиональные заболевания, медико-социальная экспертиза*

Abstract. Disability status due to occupational diseases: Ukraine, 2015-2018. Borysova I.S. *The economic burden of disability due to occupational diseases is significant: the economic losses "due to health problems related to work" in the developed world exceed 1,25 trillion US dollars and amount to 4 to 6% of GDP. A large number of employees work in Ukraine in unfavorable conditions. The study analyzes the dynamics of disability due to occupational diseases in Ukraine for the period from 2015 to 2018 using the example of Dnipropetrovsk, Lviv and Donetsk regions. The results of the study proved that the indicators of disability due to occupational diseases in these areas have a pronounced upward trend. It has been determined that the number of injured or aggrieved persons who received occupational diseases in the Dnipropetrovsk, Lviv and Donetsk regions is 78.5% of the total number of those in Ukraine with occupational diseases. The proportion of those who were initially recognized as disabled due to occupational diseases increased in 2015-2018, increased in these areas and amounted in absolute numbers: in the Dnipropetrovsk region – 906 people (2018) against 705 people (2016); in the Lviv region – 273 people against 239 people, respectively; in Donetsk region – 193 people against 108 people, respectively. Primary disability rate for 2015-2018 period increased by 28.5% in Dnepropetrovsk to almost 50% in Donetsk region. The proportion of those who were initially recognized as disabled due to work injury in the Dnipropetrovsk region was 159 people (2018) against 123 people (2016); in the Lviv region: 42 people against 11 people, respectively; in the Donetsk region: 28 people against 11 people, respectively. The rate of primary disability due to work injury also increased by 29.2% in the Dnipropetrovsk region and by 53% in the Donetsk region. The number of persons with disabilities recognized for the first time depended on age and length of service in hazardous conditions. Persons with 10-19 years of work experience in 2015-2018 accounted for 89.2%. According to our data, 50.1% of workers aged 40 to 49 years are recognized as persons with disabilities, 40% – from 50 to 59 years of age. It is important that in 2018 in 5% of cases, an occupational disease caused disability among workers at the age of 39. In 2018 (as in 2016 and in 2017) in Ukraine, the main conditions that resulted in occupational diseases were: imperfection of mechanisms and working tools – 23.9%; the imperfection of the technological process – 19.5% and the ineffectiveness of the personal protective equipment – 13.5% of their total number. In the structure of disability due to occupational diseases, diseases of the musculoskeletal system occupied the 1st place; 2nd place – respiratory diseases; 3rd place – injuries and poisoning.*

Реферат. Состояние инвалидности вследствие профессиональных заболеваний: Украина, 2015-2018.

Борисова И.С. *Экономическое бремя от инвалидности вследствие профессиональных заболеваний является весьма значительным: экономические потери "из-за проблем со здоровьем, связанных с трудом" в развитых странах мира превышают 1,25 триллиона долларов США и составляют от 4 до 6% ВВП. В Украине в неблагоприятных условиях работает большое количество работников. В исследовании проведен анализ динамики инвалидности вследствие профессиональных заболеваний в Украине за период с 2015 по 2018 год на примере Днепропетровской, Львовской и Донецкой областей. Результатами исследования доказано, что показатели инвалидности вследствие профессиональных заболеваний в данных областях имеют выраженную*

тенденцию к росту. Определено, что количество пострадавших лиц, получивших профзаболевания, в Днепропетровской, Львовской и Донецкой областях составляет 78,5% от общего количества пострадавших по Украине, которые имеют профзаболевания. Удельный вес первично признанных инвалидами вследствие профессиональных заболеваний возрос за 2015-2018 гг. в данных областях и составил в абсолютных цифрах в Днепропетровской области: 906 человек (2018) против 705 человек (2016 г.); во Львовской области: 273 человека против 239 человек соответственно; в Донецкой области: 193 человека против 108 человек соответственно. Показатель первичного выхода на инвалидность за период 2015-2018 гг. повысился на 28,5% в Днепропетровской и до практически 50% в Донецкой областях. Удельный вес первично признанных инвалидами вследствие трудового увечья в Днепропетровской области составил 159 человек (2018) против 123 человек (2016 г.); во Львовской области: 42 человека против 11 человек соответственно; в Донецкой области: 28 человек против 11 человек соответственно. Показатель первичного выхода на инвалидность вследствие трудового увечья также повысился на 29,2% в Днепропетровской области и до 53% в Донецкой области. Количество впервые признанных лицами с инвалидностью зависело от возраста и стажа работы во вредных условиях. Лица со стажем 10-19 лет в 2015-2018 гг. составили 89,2%. Согласно нашим данным, признано лицами с инвалидностью работников в возрасте от 40 до 49 лет – 50,1%, от 50 до 59 лет – 40%. Важно, что в 2018 году в 5% случаях профессиональное заболевание стало причиной инвалидности у работников в возрасте до 39 лет. В 2018 г. (как и в 2016, и в 2017 гг.) в Украине основными обстоятельствами, в результате которых возникли профессиональные заболевания, стали: несовершенство механизмов и рабочего инструмента – 23,9%; несовершенство технологического процесса – 19,5% и неэффективность работы средств индивидуальной защиты – 13,5% от их общего количества. В структуре инвалидности вследствие профессиональных болезней 1 место занимали заболевания костно-мышечной системы; 2 место – болезни органов дыхания; 3 место – травмы и отравления.

Every year, 270 million industrial accidents and 160 million occupational diseases are registered in the world. At the same time, about 2.3 million people die each year [6]. According to the International Labor Organization, the number of workers in non-sanitary conditions increased from 17.1% (1997) to 33.4% in 2016. Research conducted in different countries in recent years indicate the growth of occupational pathology [8, 10]. Approximately 200,000 people in 2017 received compensation for occupational diseases in South Africa [11].

In Ukraine, an average of 160 people are injured at work every day, of which more than 20 become disabled and 4-5 die. Every million tons of coal mined in Ukraine costs the lives of 5 miners [5]. Accordingly, the economic burden of disability due to occupational diseases is quite significant. WHO experts estimate that economic losses "due to work-related health problems" in the world exceed 1.25 trillion US dollars and account for 4 to 6% of GDP. In the countries of the European Union, due to absence from work due to occupational diseases, an average of up to 10 working days is lost per employee, which causes, taking into account all employees, the loss of working time of about 700 million working days. In the UK, for production reasons, there is a loss of 18 million working days, which is 11 billion pounds of damage annually. This is more than state spending on cardiovascular disease or tumors. According to the European Agency for Safety and Health at Work, 360 million days a year in Europe are lost due to sick leaves of the

workers; in 2000 alone, such losses amounted to € 55 million.

In Ukraine in 2005 about 2,500 cases of occupational diseases were registered [2, 7]. In 2016, according to the Committee for Hygienic Regulation of Ukraine, it is known that this figure increased to 6-8 thousand with fluctuations in different years from 2.5 to 15.5 thousand [5].

Thus, the problem of disability due to occupational diseases due to the associated economic losses remains quite relevant.

The aim of the work was to study the dynamics and structure of disability due to occupational diseases in Ukraine for the period 2015-2018 on the example of the state of primary disability in Dnipropetrovsk, Lviv and Donetsk regions.

MATERIALS AND METHODS OF RESEARCH

There was performed a retrospective analysis of the dynamics of disability indices due to occupational diseases in the Municipal Institution (MI) of LRC "Lviv Regional Center for Medical and Social Expertise" (chief physician – V.Y. Reshota), MI "Regional Clinical Center of MSE of Dnipropetrovsk Regional Council" (Director – M.V. Martynenko) and MI "Regional Center of the MSE of the Donetsk Regional State Administration" (chief physician – T.P. Goncharova) for the period 2015-2018. There were analyzed medical and social cases and referrals for medical and social examination (Form 088/o) of patients who were examined by doctors of regional and/or interdistrict specialized occupational pathology MSEC. Statistical processing was performed using descriptive and variational

statistics methods. The calculation of the obtained results was performed on a personal computer using licensed programs STATISTICA 6.1 (Statsoft Inc., Serial No. AGAR909E415822FA) [3].

RESULTS AND DISCUSSION

Specialized occupational pathology MSEC in Dnipropetrovsk, Lviv and Donetsk regions conduct medical and social examination of patients with

occupational diseases and patients with occupational injuries. The service area consisted of all cities and districts of the above areas. The main indicators of the work of the specialized occupational pathology commissions of MSE of Dnipropetrovsk, Lviv and Donetsk regions for the period 2016-2018 are given in Table.

The main indicators of disability due to occupational diseases and events related to production, in Dnepropetrovsk, Lviv and Donetsk regions, 2016-2018

Indicator	Dnepropetrovsk region			Lviv region			Donetsk region		
	2016	2017	2018	2016	2017	2018	2016	2017	2018
Declared disabled	705	783	906	239	348	273	108	192	193
Due to occupational disease including	582	634	747	197	309	262	97	220	221
Of them - I group	2	2	1	-	-	-	-	-	-
II group	5	5	3	1	2	1	2	3	-
III group	575	627	743	196	307	261	95	215	221
Due to traumas and external factors	1538	1297	1260	-	39	25	-	-	-
Due to work injury including	123	149	159	42	11	11	11	28	28
Of them - I group	7	6	4	-	-	-	-	-	1
II group	62	66	60	5	-	2	-	3	5
III group	54	77	95	37	11	9	11	25	22

As can be seen from the data in Table 1, the proportion of people initially recognized as disabled due to occupational diseases increased during 2015-2018 in these regions and was in absolute numbers in the Dnipropetrovsk region: 906 people (2018) against 705 people (2016); in Lviv region: 273 people against 239 people respectively; in Donetsk region: 193 people against 108 people respectively. Thus, the rate of primary disability increased during this period from 28.5% in Dnipropetrovsk region to almost 50% in Donetsk region. The number of people initially recognized as disabled due to occupational injuries in these regions also had a clear upward trend. Thus, in absolute numbers, this indicator in Dnipropetrovsk region was: 159 people (2018) against 123 people (2016); in Lviv region: 42 people against 11 people respectively; in Donetsk region: 28 people against 11 people respectively. Thus, the rate of primary disability

due to disability increased during this period from 29.2% in Dnipropetrovsk region to 53% in Donetsk region.

Physicians of specialized MSEC widely practice the establishment of third-degree disability in primary patients. In 2018, in the regions analyzed, as in 2015-2018, the majority of patients were diagnosed with third-degree disability due to occupational diseases. In the Dnipropetrovsk region such patients ranged from 575 in 2016 to 743 in 2018; in the Lviv region – 196 in 2016 and 261 in 2018; in the Donetsk region – 95 in 2016 and 221 in 2018. The establishment of third-degree disability group primarily for people of working age is due to the need for adequate adaptation of patients to socio-economic conditions, their reintegration into public life; possible labor rehabilitation in the form of transition to harmless working conditions, as well as in the form of acquiring a completely new profes-

sion, which is now guaranteed by the legislation of Ukraine. Unfortunately, an unfavorable trend was found in the Dnipropetrovsk region as for defining a certain number of patients with I disability group, which indicates more severe cases of both occupational diseases and occupational injuries. This issue needs systematic study. Possible reasons for the trend identified in the study may be: the patient's reluctance to consult an occupational pathologist in the early stages of the disease, late referral of the patient to MSEC and more dangerous working conditions at work, leading to more serious injuries

and injuries with significant limitation of activities of daily living.

The increase in disability rates due to occupational diseases depends primarily on the prevalence of this pathology. In general, in Ukraine in 2018 compared to 2017 and 2016, the number of occupational diseases decreased by 3.7%, or by 72 diseases (from 1,951 to 1,879).

Indices of primary disability due to occupational diseases as a percentage of the total number in the regions of Ukraine during 2015-2018 are shown in Figure 1.

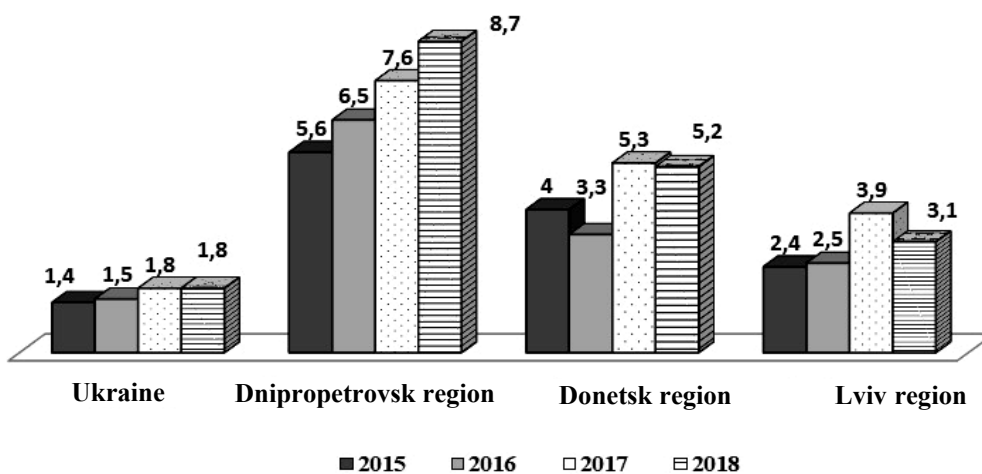


Fig. 1. Indices of primary disability due to occupational diseases (%) in regions of Ukraine, 2015-2018

Indices of primary disability due to accidents at work in terms of 10 thousand population in the

regions of Ukraine for the period of 2015-2018 are shown in Figure 2.

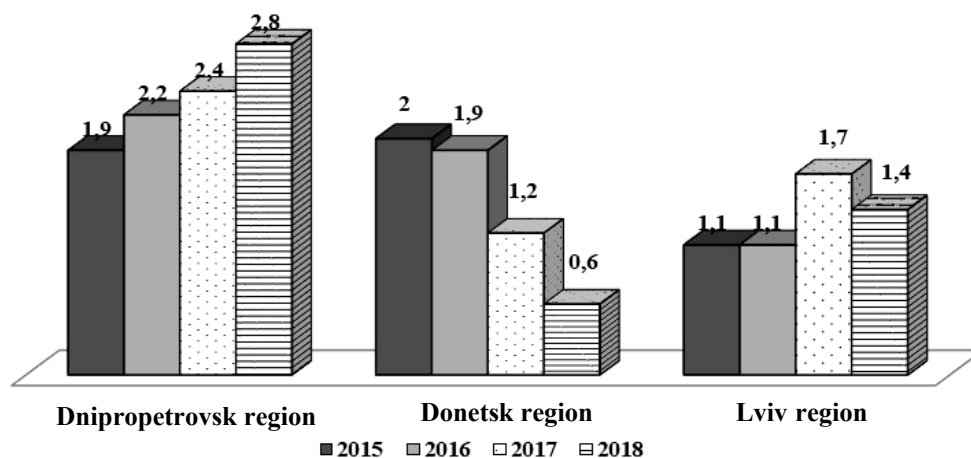


Fig. 2. Indices of primary disability due to accidents at work (per 10 thousand population), 2015-2018

Indices of primary disability due to accidents at work in 2015-2018 tend to increase in the Dnipropetrovsk region (1.6 in 2015 and 2.8 in 2018). Indices in the Lviv region are almost stable (1.1 in 2015 and 1.4 in 2018). Unfortunately, the decrease in this index in the Donetsk region (2.0 in 2015 to 0.6 in 2018) is quite artificial, due to the fact that this is happening against the background of a decrease in the number of enterprises.

Among the occupational diseases that were the cause of disability, in the same period the 1st place was occupied by diseases of the musculoskeletal system; the 2nd – respiratory diseases; the 3rd – injuries and poisoning. Thus, lung diseases and diseases of the musculoskeletal system and connective tissue, including osteochondrosis of the spine and radiculopathy, are the main nosological forms that form disability due to occupational diseases in Dnipropetrovsk, Lviv and Donetsk regions.

It is proved that in the coal industry the risk of developing diseases associated with harmful working conditions is 5-10 times higher than in other dangerous enterprises. In this regard, the coal industry today remains the most dangerous industry for health [1, 2, 9]. The results of our study convincingly proved that the leading occupational diseases, which caused the most frequent cases of physical dysfunction and definition of disability groups – radiculopathy and dust bronchitis, which occurred in miners.

According to the analysis of age indicators, it was determined that employees who worked in arduous and harmful conditions from 10 to 29 years were most often recognized as disabled due to an occupational disease, which is confirmed by other studies [1, 2, 7, 8]. The number of first-recognized persons with disabilities in 2016-2018 with such length of service in hazardous conditions was 89.2%. According to our data, employees with disabilities aged 40 to 49 years – 50.1%, from 50 to 59 years – 40%. It is important that in 2018, in 5% of cases, occupational disease was the cause of disability in employees under 39 years of age.

Thus, our study identified an unfavorable trend in the growth of disability, which is exacerbated by the fact that more than 90% of those initially recognized as disabled in the period 2015-2018 in Ukraine are people of working age.

The state can influence disability indices through the formation of social policy. Only comprehensive government measures, such as: improving the mechanisms and working tools and improving the safety of the technological process can overcome the trend identified in the work as to increase in the primary disability due to occupational diseases.

Potential in the fight against the growth of disability are determined by the degree of understanding of this problem and its solution through the logistical and logistical support of the medical sector, the definition of preventive priorities, including informal preventive medical examinations. Periodic medical examinations today reveal no more than 50% of all cases registered in the country during the year, which indicates the low efficiency of periodic medical examinations in the country as a whole. Most researchers today argue that the prevention of occupational diseases through mandatory occupational examinations of employees of special professions today also does not work fully due to the formal attitude of doctors and the transfer of these examinations to the commercial level. Thus, the situation with periodic medical examinations of workers engaged in work in hazardous conditions, today in the state can be described as critical due to the fact that the percentage of compliance with all procedural requirements for examinations is low, due to the fact that some professional examinations are performed without the use of the necessary laboratory and instrumental tests.

Society can maximally influence the causes of occupational diseases and disabilities in order to prevent them by improving the effectiveness of personal protective equipment. This can be done by strengthening safety rules in injurious enterprises, primarily coal mines. It is also important to strengthen the responsibility of employees for violations of safety rules by miners (smoking, non-use of safety equipment). Such steps are defined by law [6]. It is also inadmissible to violate the requirements of Article 8 of the Law of Ukraine "On labor protection" regarding the provision of employees with special clothing, special footwear and other personal protective equipment in accordance with the procedure and standard norms. In ensuring safe work and prevention of injuries at work are important factors of a personal nature – knowledge of the supervisor of the personality of each employee, his psyche and personality traits, medical indicators and their compliance with work parameters, attitude to work, discipline, job satisfaction, mastering the skills of safe work methods, knowledge of norms and rules on labor protection and fire safety, his attitude to other workers and the whole team. The State Labor Service of Ukraine has determined the frequency of conducting safety meetings on labor protection. Failure to comply with the above requirements is explained by the fact that government losses on pensions, recourses and benefits related to accidents at work are 1.5 times higher than the funds spent on labor protection measures.

CONCLUSIONS

1. Indices of disability due to occupational diseases in Dnipropetrovsk, Lviv and Donetsk regions have a clear tendency to increase and cause an increase in this index in Ukraine.

2. Medical and vocational rehabilitation - effective means of promoting social integration into the society of persons with disabilities. Comprehensive state measures to eliminate the main causes of occupational diseases will help to overcome this trend: strengthening effective state

control over hygienic standards in industries with harmful factors; improvement of mechanisms and working tools; increasing the safety of technological processes. A medical component to reduce the burden of disability due to occupational diseases should be to strengthen the responsibility of medical institutions for the results of professional examinations.

Conflict of interest. The author declares the absence of a conflict of interest.

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