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Tendencies in disability of the population as a result of malignant neoplasms in Ukraine (on the example of the Poltava region)

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ABSTRACT

Aim: To study the dynamics of the prevalence and structure of primary disability, including due to cancer, among the population of the Poltava region.

Materials and Methods: The study used a retrospective analysis - the depth of the research search was six years (2019-2023); a comparative analysis - to establish the differences in disability indicators. Determining the trends of disability: analyzing the dynamic series.

Results: The rate of initial disability due to neoplasms (including malignant) for 2019-2023 in Ukraine population is generally stable with a slight downward trend, in the Poltava region, there is a slight downward trend during the years 2019-2021, starting from 2022, begins to increase sharply, while throughout Ukraine the indicator remains stable. Among the able-bodied population of the Poltava region: if until 2021 the picture is identical to the indicators among the adult population, then starting from 2022 the disability of this contingent in the Poltava region begins to increase, while in Ukraine - to decrease. In 2023 among the population of the Poltava region, diseases of the musculoskeletal system became the cause of disability in 20.5 per 10,000 working-age population (I rank place); from circulatory system diseases was 12.3 (II rank place); the rate of disability from a neoplasm is 16.1 (III rank place).

Conclusions: Analysis of the dynamics and structure of disabling pathology is important and necessary, as it allows to identify diseases that lead to permanent disability, as well as to develop medical and social measures to prevent disability.

KEY WORDS: malignant neoplasms, disability, tendencies

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INTRODUCTION

Malignant neoplasms are a complex, socially significant pathology due to their high rates of morbidity, disability and mortality among the adult population of Ukraine.

About 10 million new patients with various oncological pathologies appear in the world annually. According to the forecasts of the European Parliamentary Commission, by 2030, the number of cancer diseases may increase by another 45% [1-3].

Many studies confirm that cancer is the second most important cause of death in the world [4, 5].

According to the rate of spread of oncological pathology, Ukraine ranks second in the European region. Over the past 10 years, more than 160,000 Ukrainians become cancer patients annually, and about 90,000 die from cancer, including about 30% within a year after establishing of a oncological diagnosis [6].

According to the National Cancer Registry of Ukraine, persons aged 55-74 years dominate the age structure of the incidence of malignant neoplasms in the population of Ukraine. In the structure of mortality from malignant neoplasms at the age of 55-74 years: lung cancer prevailed in men (24.0%), and breast cancer (20.3%) in women. Among the other most frequent oncological causes of death in men of this age were malignant neoplasms of the stomach, prostate gland and colorectal cancer, and in women - malignant tumors of the colon, ovary, uterine body and stomach cancer [7].

With the constant development of medical and preventive technologies, as a result of earlier detection and, accordingly, earlier start of treatment, the survival rate of patients with oncological pathology is increasing [8]. For example, in the United States, the survival rate is 87% among all cancers diagnosed in people aged 50 and older [1]. Patients who have successfully coped with the disease continue to live with the adverse con-

sequences of the disease and anticancer treatment for a long time, and this confirms the need to consider issues regarding the ability of individuals and communities to continue a full quality life.

According to the Law of Ukraine "On the Basics of Social Protection of Persons with Disabilities in Ukraine", a person with a disability is a person with a persistent disorder of the body's functions, which, when interacting with the external environment, can lead to the limitation of his/her life activities, and as a result of which the state is obliged to create conditions for the implementation her rights on an equal basis with other citizens and to ensure her social protection. Disability as a measure of the degree of loss of health is determined by an expert examination in medical and social examination institutions [9, 10].

Nowadays, the medical and social expertise on disability in Ukraine is conducting by medical and social expert commissions. Depending on the degree of the disease, its nosological type and the existing/expected disability group, commissions of a general profile and a specialized profile can be organized.

The medical and social examination system is a set of tools, procedures and measures implemented by state and non-state institutions to assess functioning, vital activities, health and needs for social assistance due to health conditions; causes, time of onset of the disability group; implementation of effective measures for the prevention of disability; rehabilitation of persons with disabilities, their adaptation to social life. Statistical information, which is the basis for planning of rehabilitation measures, for solving social protection issues, etc., plays a big role in solving of such tasks [11].

AIM

The purpose of this work is to study the dynamics of the prevalence and structure of primary disability, including due to cancer, among the population of the Poltava region.

MATERIALS AND METHODS

ACCOUNTING FORMS

In this statistical study, as sources of primary statistical information the following materials were studied: reports on diseases of malignant neoplasms (form No.7) [12]; notification of contingents of patients with malignant neoplasms (form No.35) [13], inspection reports by the medical and social expert commission (form No.157/o) [14].

DATA PROCESSING

The study used a retrospective analysis - the depth of the research search was six years (2019-2023). A comparative analysis was used to establish the differences in disability indicators in the Poltava region in relation to national indicators. Determining the trends of disability was carried out by analyzing the dynamic series, namely the alignment of the dynamic series with the establishment of the rate of increase/decrease. Visibility indicators were used to objectify the changes. All calculations were performed using MS Excel 2016 software package.

RESULTS

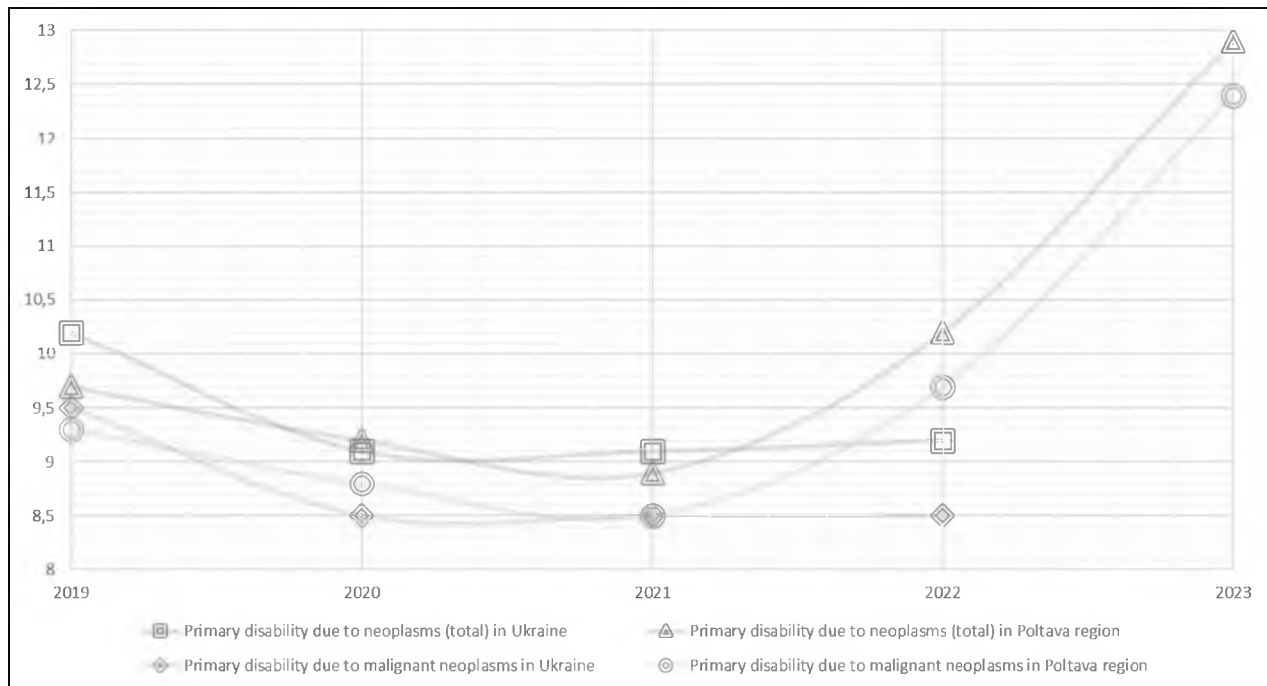
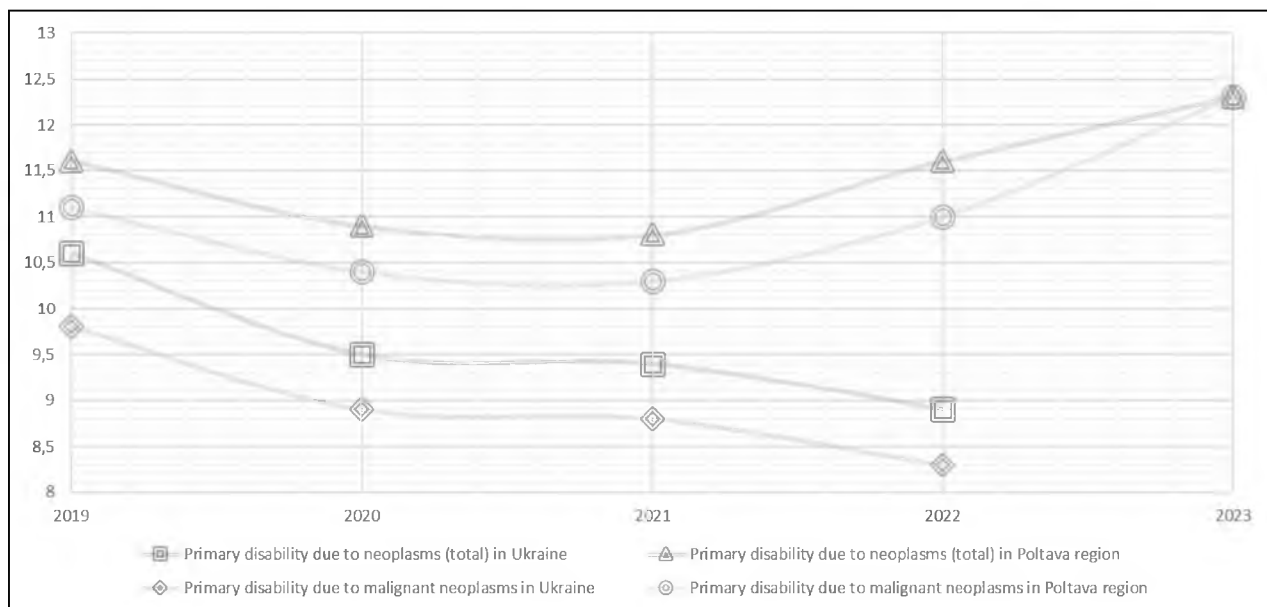
The indicator of "primary disability or invalidization" means the frequency of primary disability, i.e. the total number of persons recognized as disabled for the first time in a year. The rate of primary disability in the Poltava region per 10,000 adult population in 2023 was 85.9, against 65.3 in 2022. At the same time, the rate of primary disability in the Poltava region per 10,000 of the relevant population among persons of working age in 2023 was 93.8, against 76.7 in 2022. Probably, the growth of the indicator occurs due to an increase in the number of recognized persons with disabilities of retirement age (indicator among the adult population) and internally displaced persons (indicator among the working age).

Table 1. Indicators of primary disability due to neoplasms (including malignant ones) in the Poltava region and Ukraine for 2019-2023 (per 10,000 adult population)

Years	Primary disability due to neoplasms (with malignant ones)		Primary disability separately due to malignant neoplasms	
	Ukraine	Poltava region	Ukraine	Poltava region
2019	10,2	9,7	9,5	9,3
2020	9,1	9,2	8,5	8,8
2021	9,1	8,9	8,5	8,5
2022	9,2	10,2	8,5	9,7
2023	-	12,9	-	12,4

Table 2. Indicators of primary disability due to neoplasms (including malignant ones) among adults in the Poltava region and Ukraine for 2019-2023 (per 10,000 working-age population)

Years	Primary disability due to neoplasms (with malignant ones)		Primary disability separately due to malignant neoplasms	
	Ukraine	Poltava region	Ukraine	Poltava region
2019	10,6	11,6	9,8	11,1
2020	9,5	10,9	8,9	10,4
2021	9,4	10,8	8,8	10,3
2022	8,9	11,6	8,3	11,0
2023	-	12,3	-	12,3

**Fig. 1.** Dynamics of indicators of primary disability due to neoplasms (including malignant ones) in the Poltava region and Ukraine for 2019-2023.**Fig. 2.** Dynamics of indicators of primary disability among working-age population due to neoplasms (including malignant ones) in the Poltava region and Ukraine for 2019-2023.

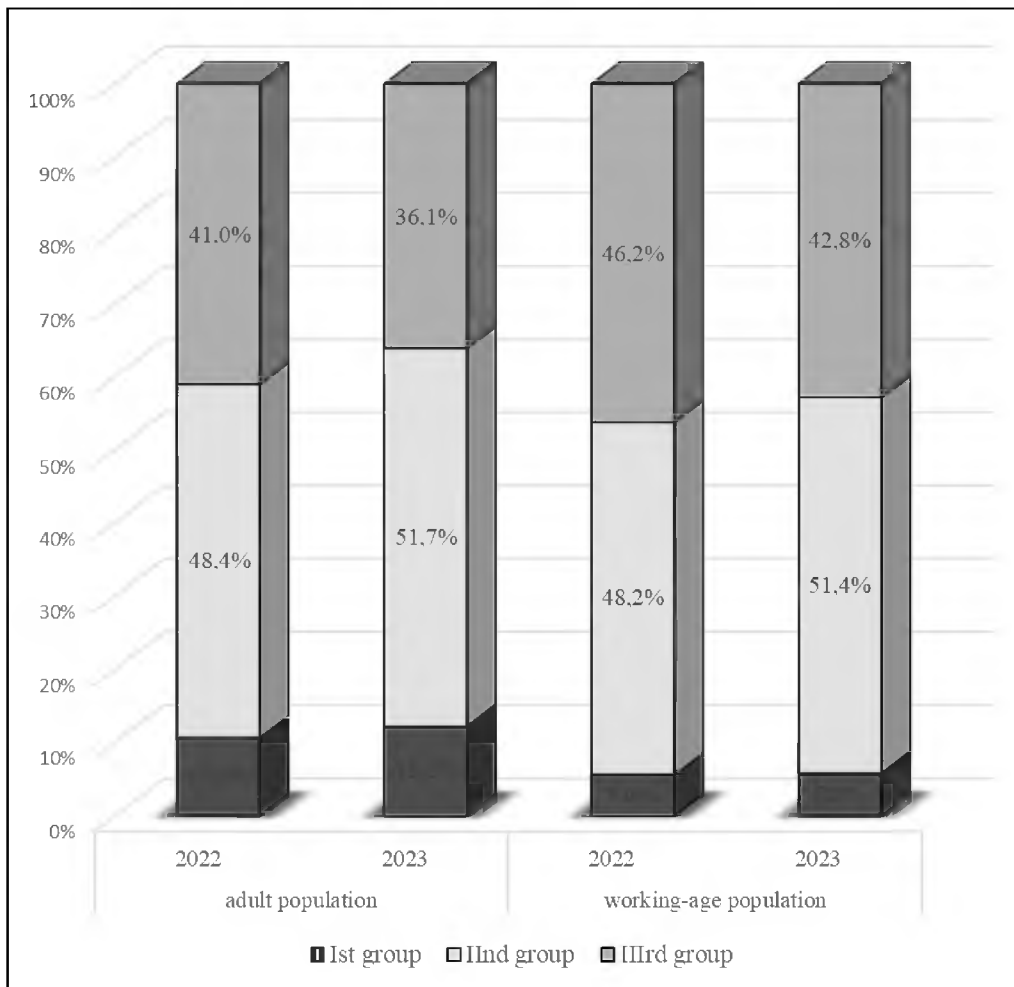


Fig. 3. Structure of primary disability of adults and working-age population of Poltava region in 2022-2023.

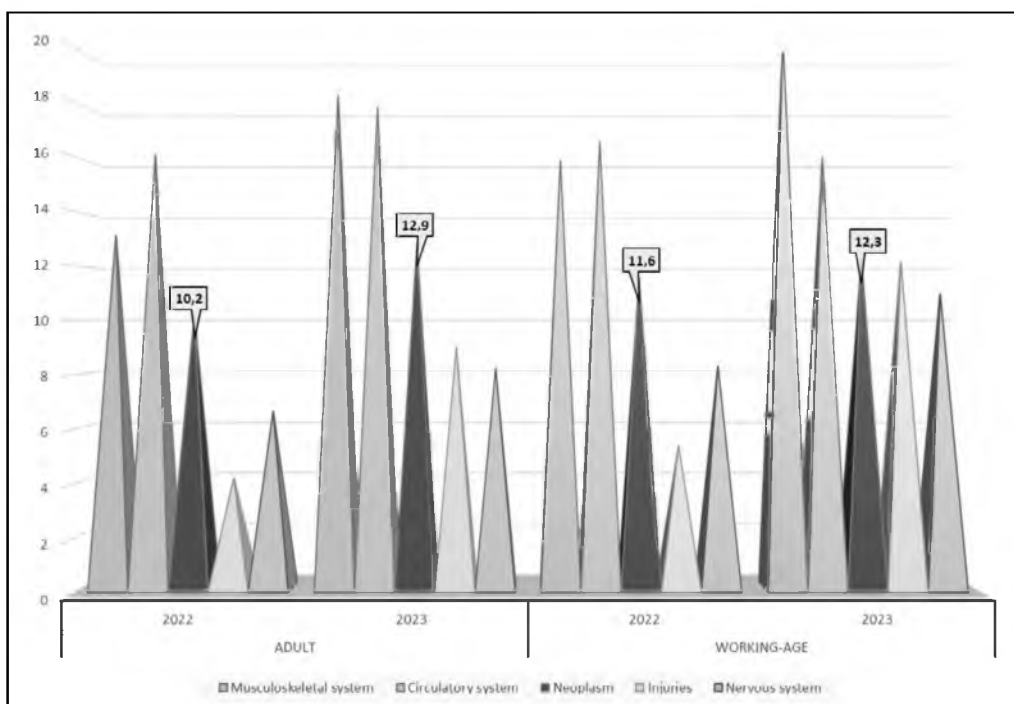


Fig. 4. Nosological structure of primary disability in Poltava region in 2022-2023.

The rate of initial disability due to neoplasms (including malignant) for 2019-2023 in Ukraine both among adults and among the working-age population is gener-

ally stable with a slight downward trend (Table 1, 2). As for the situation in the Poltava region, here, both among the adult population and among the able-bodied, there

Table 3. Structure of primary disability according to nosology in Poltava region (rate per 10,000 population)

Rank place	Nosology	2023		2022	
		Adult population	Working-age population	Adult population	Working-age population
1	Diseases of the musculoskeletal system	18,4	20,5	13,2	16,0
2	Diseases of the circulatory system	18,0	16,1	16,2	16,7
3	Neoplasms	12,9	12,3	10,2	11,6
4	Injuries	9,0	12,2	4,1	5,3
5	Diseases of the nervous system	8,2	11,0	6,6	8,3

Table 4. Analysis of the dynamics of the indicator of primary disability in the Poltava region for 2019-2023 (indicator per 10,000 adult population)

Year	Value	Absolute increase (decrease)	Visibility index, %	Growth index (decrease), %	Growth rate (decrease), %	Value by the moving average method ¹
Primary disability due to neoplasms (with malignant ones)						
2019	9.7	-	100.0	-	-	9.7
2020	9.2	-0.5	94.8	94.8	-5.2	9.3
2021	8.9	-0.3	91.8	96.7	-3.3	9.4
2022	10.2	1.3	105.2	114.6	14.6	10.7
2023	12.9	2.7	133.0	126.5	26.5	12.6
Primary disability separately due to malignant neoplasms						
2019	9.3	-	100.0	-	-	9.3
2020	8.8	-0.5	94.6	94.6	-5.4	8.9
2021	8.5	-0.3	91.4	96.6	-3.4	9.0
2022	9.7	1.2	104.3	114.1	14.1	10.2
2023	12.4	2.7	133.3	127.8	27.8	12.1

Table 5. Analysis of the dynamics of the indicator of primary disability in the Poltava region for 2019-2023 (indicator per 10,000 working-age population)

Year	Value	Absolute increase (decrease)	Visibility index, %	Growth index (decrease), %	Growth rate (decrease), %	Value by the moving average method ¹
Primary disability due to neoplasms (with malignant ones)						
2019	11.6	-	100.0	-	-	11.5
2020	10.9	-0.7	94.0	94.0	-6.0	11.1
2021	10.8	-0.1	93.1	99.1	-0.9	11.1
2022	11.6	0.8	100.0	107.4	7.4	11.6
2023	12.3	0.7	106.0	106.0	6.0	12.3
Primary disability separately due to malignant neoplasms						
2019	11.1	-	100.0	-	-	11.0
2020	10.4	-0.7	93.7	93.7	-6.3	10.6
2021	10.3	-0.1	92.8	99.0	-1.0	10.6
2022	11	0.7	99.1	106.8	6.8	11.2
2023	12.3	1.3	110.8	111.8	11.8	12.2

is a slight downward trend during the years 2019-2021, starting from 2022, the primary disability of the adult population begins to increase sharply, while throughout Ukraine the indicator remains stable (Fig.1). A more interesting picture is observed among the able-bodied

population of the Poltava region: if until 2021 the picture is identical to the indicators among the adult population, then starting from 2022 the disability of this contingent in the Poltava region begins to increase, while in Ukraine - to decrease (Fig.2).

As for the distribution of primary disability of the adult population by disability groups, the figures are almost identical to those of previous years. In 2023, among the adult population, the number of persons with disabilities by group was: Ist group – 1,176 people (12.2%), against 775 people (10.6%) in 2022, IInd group – 4,972 people. (51.7%), against 3541 people (48.4%) in 2022, IIIrd group - 3470 people (36.1%), against 2989 people (41.0%) in 2022. In turn, among the working-age population, the number of persons with disabilities in 2023 was: Ist group - 428 people (5.8%), against 335 people (5.6%) in 2022, IInd group - 3761 people (51.4%), against 2882 people (48.2%) in 2022, IIIrd group - 3124 people (42.8%), against 2761 people (46.2%) in 2022 (Fig.3).

The presence of a large number of persons with disabilities, who are assigned to the IIIrd group, implies a high rehabilitation potential and a positive prognosis for rehabilitation.

Regarding the nosological structure of primary disability, in 2023 among the population of the Poltava region, diseases of the musculoskeletal system became the cause of disability in 20.5 per 10,000 working-age population (in 2022 – 16.0) and 18.4 per 10,000 adults population (in 2022 – 13.2); the level of primary disability from circulatory system diseases was 12.3 per 10,000 of the working-age population (11.6 in 2022) and 12.9 per 10,000 of the adult population (in 2022 – 10.2); the rate of disability from a neoplasm is 16.1 per 10,000 working-age population (16.7 in 2022) and 18.0 per 10,000 adult population (16.2 in 2022); disability due to injuries is 12.2 per 10,000 of the working population (5.3 in 2022) and 9.0 per 10,000 among the adult population (4.1 in 2022); disability due to diseases of the nervous system is 11.0 per 10 thousand of the working-age population (in 2022 - 8.3) and 8.2 thousand among the adult population (in 2022 - 6.6) (Table 3).

Statistical data indicate that the rates of primary disability of the working-age population almost always exceed the rates of primary disability among the adult population (Fig.4).

The analysis of the trend of invalidation of the adult population of the Poltava region as a result of neoplasms in general and malignant neoplasms separately indicates significant fluctuations in the indicator from a decrease in 2020 and 2021 to an increase in 2022 and 2023. Thus, compared to 2019, in 2020 the rate of primary disability from neoplasms decreased by 5.2%, and from malignant neoplasms - by 5.4%, in 2021 by 8.2% and 8.6%, respectively. From 2022, there is a sharp increase in both indicators of primary disability: due to neoplasms, the increase compared to 2019 is 33%, and for malignant neoplasms - 33.3% (Table 4).

A practically similar picture is observed when analyzing indicators of primary disability among the able-bodied

population, however, the general picture of an increase in the level of indicators in 2023 compared to 2019 is less pronounced: an increase in the indicator of disability due to neoplasms by 6%, and malignant neoplasms by 10.8% is noted (Table 5).

DISCUSSION

As it know, demographic indicators, morbidity and disability indicators are among the main indicators that certify the health of the population. Disability itself, as a statistical indicator, reflects not only the level of health of the population, but also the quality of medical and preventive measures.

O. V. Shirokov [15] indicate a decrease in the level of primary disability in Ukraine in 2018-2020, which coincides with the data for the Poltava region for the corresponding years, however, starting from 2022, an upward trend is observed. This is most likely due to the increase in the population of the region due to internally displaced persons during the Russian-Ukrainian war.

According to S.A. Misyak [16] indicator of primary disability per 10,000 adult population of Ukraine with neoplasms in 2001-2010 ranged from 8.5 to 9.5, that is, it is within the same limits as today. The second indicator that he took into consideration is the share (%) of able-bodied oncology patients who have been assigned a disability group, relative to the total number of persons with disabilities caused by malignant neoplasms. During 2001-2010, this indicator in the Poltava region ranged from 69.0 to 89.0, and in 2019-2023, it was 83.5, respectively; 83.4; 84.8; 79.2; 66.1. The decrease in 2023 is due, perhaps, to a significant decrease in the number of the working population due to going abroad and participating in hostilities.

Changes in the structure of primary disability among the able-bodied population are interesting. According to available studies [17], in the years 2010-2012, in the Poltava region, diseases of the circulatory system took first place (indicator per 10,000 able-bodied population): in 2010 – 13.2, in 2012 – 11.4 per 10,000 population; the second place is neoplasms: 10.2 and 10.4 per 10,000 population, respectively. Diseases of the musculoskeletal system took third place; the fourth and fifth - injuries and diseases of the nervous system. According to our data, according to similar indicators (per 10,000 working-able population) in Poltava region in 2022, the first place was occupied by diseases of the circulatory system (16.7), the second place by diseases of the musculoskeletal system (16.0), the third place – neoplasms (11.6), and in 2023 the disposition has changed slightly: I place – diseases of the musculoskeletal system (20.5), II place – diseases of the circulatory system (16.1), III place – neoplasms (12.3). As can be seen from the given data, changes occurred both

in the value of the indicators in the direction of increase, and in the value of the share of each nosological group and, accordingly, the ranking place.

CONCLUSIONS


The results of the conducted medical and statistical research indicate an increase in the level of primary disability. Statis-

tical data indicate that the indicators of primary disability of the population of working age almost always exceed the indicators of primary disability among the adult population.

Analysis of the dynamics and structure of disabling pathology is important and necessary, as it allows to identify diseases that lead to permanent disability, as well as to develop medical and social measures to prevent disability.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest.

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