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## ANALYSIS OF PRIMARY DISABILITY OF WOMEN DUE TO BREAST CANCER

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Based on the depersonalized database of the State Medical and Social Expertise Bureau of the Irkutsk Region, an analysis of primary disability in women due to breast cancer (BC) was conducted. Among the contingent of primary disabled people, women with the second disability group, living in urban areas and over 55 years of age, currently prevail. For 2009–2023, a statistically significant increase in the overall indicators of primary disability due to BC was noted: "gross" by 1.4 times and standardized - by 1.3 times. The increase in the average age of disabled women from 53.2 to 58.1 years is associated with both improved medical care and patient survival, and with the aging of the population. Despite the improvement of diagnostics [3], the multidirectional dynamics of the proportion of disability groups 1 and 2 (an increase in the share of group 1 from 14.8 to 18.4% and a statistically significant decrease in the share of group 2 from 57.7 to 48.2%) does not correlate with the data on primary breast cancer incidence by stage, which is explained by legislative changes in detailing the classification and criteria for the implementation of primary examination by medical and social expertise institutions. To prevent severe disability due to breast cancer, a set of measures is necessary: active interdepartmental cooperation of all interested specialists, effective diagnostics of breast cancer, accessibility of medical care, and the development of a regional prevention program.

**Keywords:** breast cancer, primary disability, disability groups, age groups, average age of disabled women.

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**Introduction.** Breast cancer (BC) is the main oncological pathology of women in Russia and around the world, leading to disability and death [7, 8, 10, 11]. In the Russian Federation, more than 80 thousand women are diagnosed with BC annually, 20 thousand die from it [4]. Assessing the state of population health is impossible without analyzing primary disability, including taking into account individual nosological forms [1, 6]. In addition, primary disability rates can serve as an indirect criterion for the quality of medical care in the field of diagnostics: a significant proportion of first-group

disabled people indicates that cancer was detected at advanced stages [8]. In 2023, the level of primary disability of the adult population of the Irkutsk region due to malignant neoplasms exceeded the all-Russian level by 19.0%; among the older population - by 29.6% [5].

**The aim of the study:** analysis of primary disability of women due to breast cancer in the Irkutsk region.

**Materials and methods of the study.** The study used a depersonalized database of women aged 18 years and older of the Main Bureau of the Medical and Social Expertise, reporting statistical

forms No. 7 for 2009-2011 and 2021-2023, and Irkutskstat data on the number of women in the Irkutsk region. The calculation of "crude" indicators of primary breast cancer incidence and newly diagnosed disability due to breast cancer was carried out for 5-year age groups for the average annual population, taking into account the UPN; standardized indicators - according to the world standard. The work used a graphical method and a statistical method: descriptive statistics, calculation of confidence intervals with a significance level of 95% (95% CI) using standard Windows programs (version 10.0).

**Results and discussion.** The structure of newly established disability of women in the Irkutsk region due to malignant neoplasms in 2023 is similar to 2009: breast cancer still ranks first (28.5%) [7], all subsequent localizations have changed places (Fig. 1).

The "crude" rates of newly established disability among women in the Irkutsk region due to breast cancer were 4.9 [4.4 ÷ 5.3] in 2009; 6.9 [6.4 ÷ 7.4] per 10,000 women over 18 in 2023; standardized rates were 2.6 [2.3 ÷ 2.9] and 3.4 [3.0 ÷ 3.7] per 10,000, respectively (Table 1). Thus, a statistically significant increase of 1.4 times in "crude" rates and 1.3 times in standardized rates was recorded.

In 2009, high rates of primary disability in women due to breast cancer were observed in the age groups from 50 to 74 years, excluding women aged 60-64 years: 50-54 years – 8.3 [6.5 ÷ 10.0]; 55-59 years – 10.4 [8.3 ÷ 12.4]; 65-69 years – 10.0 [7.2 ÷ 12.8] and 70-74 years – 7.9 [5.7 ÷ 10.2] per 10 thousand (Fig. 2). Since in these age groups the rates were more than 1.5 times statistically significantly higher than the overall rate, they can be considered risk groups in terms of primary disability due to breast cancer – the excess was 1.6-2.1 times. In 2023, the age groups from 55 to 74 years with an excess of the general indicator by 1.6-1.9 times were classified as risk groups for the level of primary disability of women due to breast cancer in the Irkutsk region: 55-59 years – 12.4 [9.8 ÷ 14.9]; 60-64 – 12.2 [9.9 ÷ 14.6]; 65-69 – 13.2 [10.8 ÷ 15.7] and 70-74 years – 10.7 [8.3 ÷ 13.2] per 10 thousand. In 2023, compared to 2009, a statistically significant increase in primary disability of women due to breast cancer by 2.3 times was noted only among women aged 60-64 years from 5.4 [4.0 ÷ 6.8] to 12.2 [9.9 ÷ 14.6] per 10 thousand.

A parallel analysis shows that the risk groups for primary breast cancer incidence are shifted to older age groups compared to the rates of primary disability

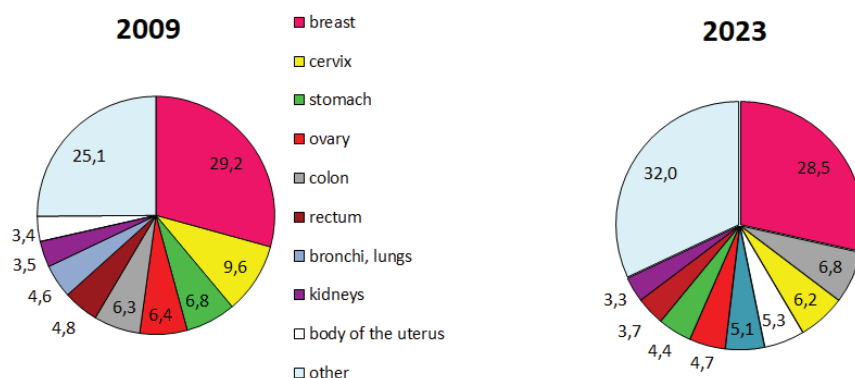


Fig. 1. Structure of primary disability of women in the Irkutsk region due to malignant neoplasms in 2009 and 2023. (%)

Table 1

Primary disability rates of women in the Irkutsk region due to breast cancer in 2009-2011 and 2021-2023 ("crude" and standardized, per 10 thousand. 95% CI)

years	"rough" indicators			standardized indicators		
	the entire population	urban population	rural population	the entire population	urban population	rural population
2009	4.9 [4.4÷5.3]	no data	no data	2.6 [2.3÷2.9]	no data	no data
2010	4.9 [4.5÷5.3]	no data	no data	2.7 [2.4÷3.0]	no data	no data
2011	5.2 [4.7÷5.6]	no data	no data	2.8 [2.5÷3.2]	no data	no data
2021	5.1 [4.7÷5.5]	5.5 [5.0÷6.0]	3.5 [2.7÷4.3]	2.6 [2.3÷3.0]	2.8 [2.47÷3.2]	1.9 [1.3÷2.46]
2022	5.9 [5.4÷6.4]	6.4 [5.8÷6.9]	4.0 [3.1÷4.9]	2.9 [2.6÷3.3]	3.1 [2.75÷3.5]	2.1 [1.4÷2.71]
2023	6.9 [6.4÷7.4]	7.3 [6.7÷7.9]	5.5 [4.4÷6.5]	3.4 [3.0÷3.7]	3.5 [3.1÷4.0]	2.7 [2.0÷3.4]

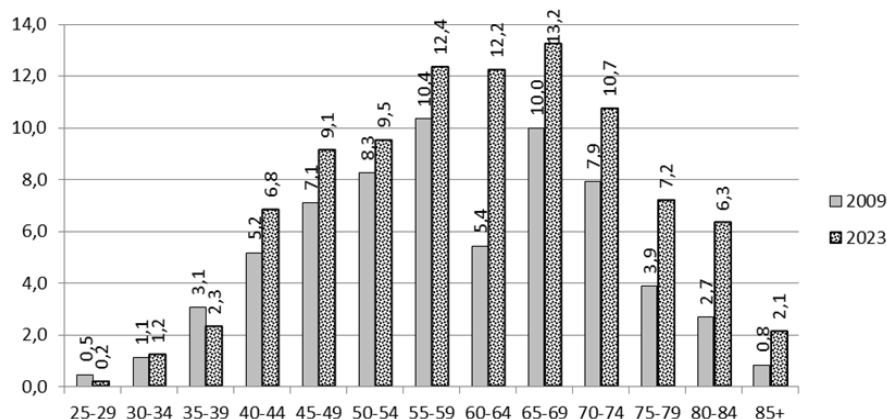
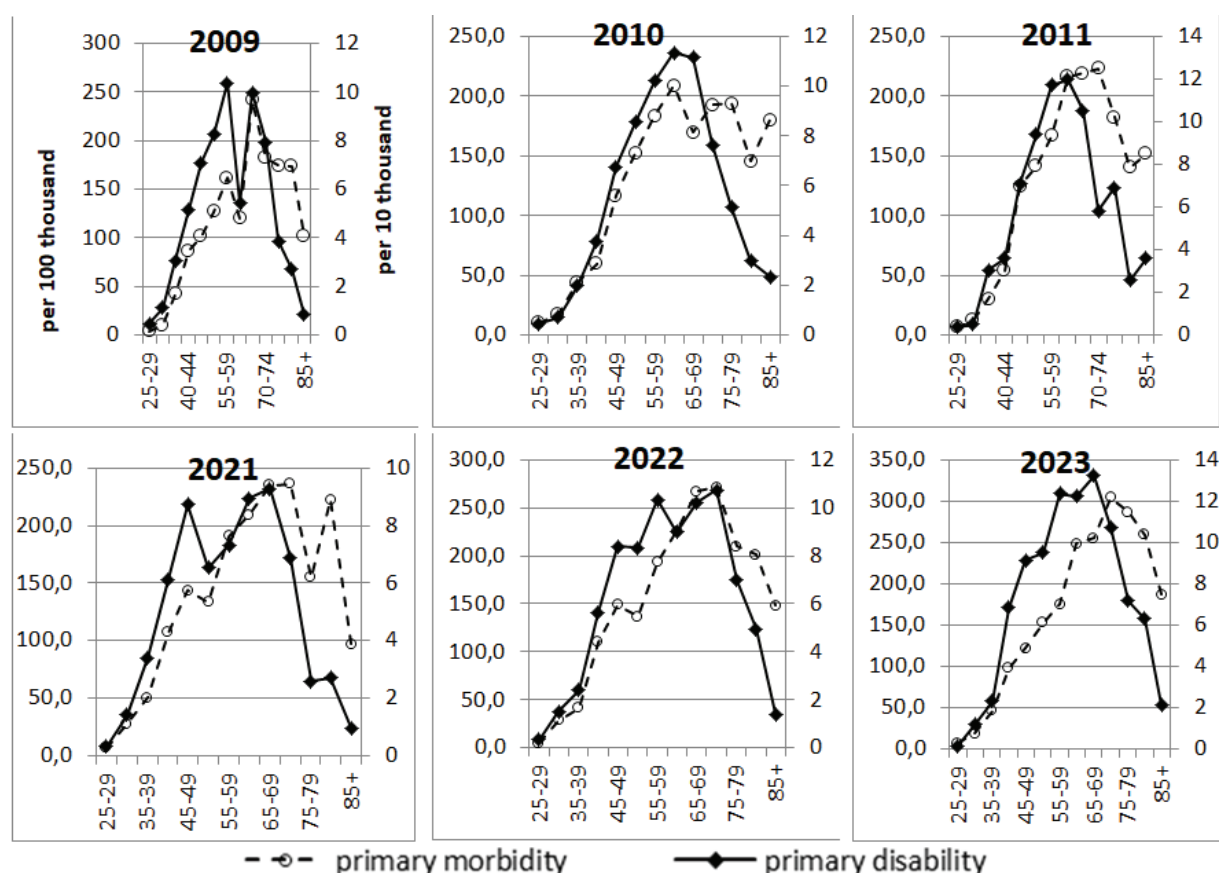


Fig. 2. Primary disability rates for women due to breast cancer in the Irkutsk region by individual age groups in 2009 and 2023 (per 10 thousand)

ty; the maximum rates for primary breast cancer incidence are recorded in the 70-74 year old group (Fig. 3).

Women who were first recognized as disabled due to breast cancer were distributed among disability groups in 2009: first – 14.8%; second – 58.7% and third – 26.5%; 2023 – 18.4; 48.3 and 33.3%, respectively (Table 2). During the study

period, the proportion of women with the second disability group has statistically significantly decreased, and in recent years this group has come to occupy less than 50% of the structure. The increase in primary disability rates due to breast cancer among middle-aged and retired people, the prevalence of the second group were also noted in other studies [7, 8].



**Fig. 3.** Rates of primary breast cancer incidence (per 100 thousand) and primary disability due to breast cancer (per 10 thousand) in the Irkutsk region in 2009-2011; 2021-2023

In the Irkutsk region, both in 2009 and in 2023, the first disability group was established for the first time for women at all stages of breast cancer (Table 2), but mainly at stage IV. The increase in the share of this disability group during the study period is associated with an in-

crease in the share of women with stage II of the oncological process. In 2023, the second disability group was established only in the presence of stages I-III of breast cancer, and in 2009, this disability group was also established for 15 women with stage IV and for 22 women without

specifying the stage (the total number of women is 513 people), which in total affected the decrease in the share of the second disability group. The third disability group was established for all stages of breast cancer, except for IV. But in 2023, compared to 2009, the proportion

**Table 2**

**Distribution of women with primary disability due to breast cancer by disability groups and breast cancer stages in the Irkutsk region in 2009 and 2023 (percentages, 95% CI)**

2009							
disability groups	stages						total
	0	I	II	III	IV	н/д	
1		0.2 [0.0÷1.6]	1.4 [0.4÷2.4]	2.7 [1.3÷4.1]	9.7 [7.1÷12.3]	0.8 [0.0÷1.6]	14.8 [11.7÷17.9]
2		1.8 [0.6÷3.0]	24.6 [20.9÷28.3]	25.1 [21.3÷28.9]	2.9 [1.4÷4.4]	4.3 [2.5÷6.1]	58.7 [54.4÷63.0]
3	0.2 [0.0÷1.6]	4.1 [2.4÷5.8]	17.3 [14.0÷20.6]	2.5 [1.1÷3.9]		2.3 [1.0÷3.6]	26.5 [22.7÷30.3]
2023							
disability groups	stages						total
	0	I	II	III	IV	н/д	
1		2.2 [1.1÷3.3]	4.5 [2.9÷6.1]	1.9 [0.9÷2.9]	9.7 [7.5÷11.9]	0.1 [0.0÷0.3]	18.4 [15.5÷21.3]
2		2.0 [1.0÷3.0]	21.1 [18.0÷24.2]	25.2 [21.9÷28.5]			48.3 [44.6÷52.0]
3	0.4 [0.0÷0.9]	11.6 [9.2÷14.0]	20.9 [17.9÷23.9]	0.3 [0.0÷0.7]		0.1 [0.0÷0.3]	33.3 [29.8÷36.8]

Note: statistically significant differences in proportions are indicated by shading similar cells in gray

of women with stage I in this disability group became statistically significantly higher, and the proportion of women with stage III and without stage determination decreased.

Thus, when analyzing the intra-group distribution of the proportion of women recognized as disabled for the first time due to breast cancer by the stage of the oncological process, statistically significant changes were identified in establishing disability groups 1 and 3, as well as a decrease in the proportion of group 2 as a whole. Such dynamics do not correlate with improved breast cancer diagnostics and establishing a diagnosis at an earlier stage in the Irkutsk region during the study period [3] and are associated primarily with changes in legislation. Currently, in the Russian Federation, disability caused by diseases, including breast cancer, as well as the consequences of injuries or defects, is established in accordance with the order of the Ministry of Labor and Social Protection of the Russian Federation dated 26.07.2024 N 374N "On approval of classifications and criteria used in the implementation of medical and social examination of citizens by federal institutions of medical and social examination". Previously, in 2009-2023, 4 orders were in force: the Ministry of Health and Social Development dated 23.12.2009 No. 1013n; the Ministry of Labor and Social Protection of the Russian Federation dated September 29, 2014 No. 664n, dated December 17, 2015 No. 1024n and dated 27.08.2019 No. 585n. If in 2009 the order contained only general formulations of persistent disorders of body functions and restrictions of the main categories of human life activities with degrees of severity, then with the introduction of each subsequent order, the classification and criteria for the initial examination of citizens aged 18 and older for malignant neoplasms were clarified and supplemented:

- 2014 – a quantitative system for assessing the severity of persistent functional impairment from 10 to 100%, in 10% increments, was introduced; in particular, a more detailed approach to breast cancer with different types of mastectomy and after tumor removal during the first 5 years;

- 2015 – criteria for establishing disability groups depending on the above-mentioned quantitative assessment system were clarified;

- 2019 – a detailed approach was given to the quantitative assessment of the severity of persistent dysfunctions of the body depending on the clinical and morphological prognostic factors, local-

ization, size, stage, histological structure of the tumor, etc., taking into account the treatment carried out that affects the prognosis and rehabilitation in accordance with the International Classification of Functioning, Disability, and Health.

During the study period, a statistically significant increase in the average age of disabled women by 2.7 years was noted, from 55.6 [54.7÷56.6] in 2009 to 58.3 years [56.8÷59.8] in 2023, which can be explained by the shift of risk groups to older age groups due to the higher survival rate of patients with the current level of medicine and improved medical care for women with breast cancer, as well as the aging of the population.

In the region, statistically significant differences were registered between the "crude" indicators of primary disability from breast cancer among women living in urban and rural areas (Table 1): in 2021-2022 by 1.6 times, in 2023 - by 1.3 times. Since statistically significant differences were noted in 2021-2022 according to standardized indicators, and they are absent in 2023, it is somewhat premature to draw a conclusion about higher levels of primary disability from breast cancer among women in urban areas due to the predominance of these residents in the region and differences in age structures. To identify possible reasons for the existing differences, further research is required taking into account the place of residence of women in terms of primary breast cancer incidence rates, access to medical care and other factors.

**Conclusion.** Currently, in the Irkutsk region, the highest rates of primary disability of women due to breast cancer are registered in the age groups from 55 to 74 years; the second group of disability predominates and the level of primary disability of women living in urban and rural settlements statistically significantly differs by 1.3-1.6 times. Over the past 15 years, statistically significant changes have occurred in the characteristics of primary disability of women due to breast cancer: "crude" indicators have increased - overall by 1.4 times, among women aged 60-64 - by 2.3 times; the standardized indicator has grown by 1.3 times; the average age of disabled women has increased by 2.7 years. The statistically significant decrease in the proportion of women with the second disability group due to breast cancer from 58.7 to 48.3% is only partially consistent with improved diagnostics [3]. The dynamics of the proportion of this disability group, as well as the growth in the proportion of group 1, is associated with changes in current legislation - an increasing detailing of

the criteria in the orders of the Ministry of Labor and Social Development of the Russian Federation in the quantitative assessment of the severity of persistent disorders of body functions used in the implementation of medical and social expertise during the initial examination of the adult population over 18 years of age due to diseases, including breast cancer. Unfortunately, the published official data on primary disability allow for analysis only by aggregated age groups [5], while detailed analysis and the formation of scientific and practical recommendations for improving the situation require access to detailed data [2]. When developing comprehensive preventive measures aimed at improving the health of the population, a combined study of morbidity, disability and mortality of the population is required, therefore, it is desirable to introduce uniform reporting statistical forms with differentiation by 5-year age and gender groups [9]. To reduce the burden of breast cancer on healthcare and society, comprehensive measures are needed: interdepartmental cooperation between oncology doctors, primary care physicians and other interested specialists; modern and accessible diagnostics of breast cancer, effective and efficient medical care; development of a regional prevention program for further improvement, development and perfection of all types of prevention [7, 11].

*The authors declare no conflict of interest.*

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S.N. Kiselev

## THE DYNAMICS OF INFANT MORTALITY RATES AND FETOINFANTILE LOSSES IN THE TERRITORIES OF THE FAR EASTERN FEDERAL DISTRICT

The aim of the study was to study the features of the dynamics of the infant mortality rate (including early neonatal mortality), as well as the indicators of perinatal mortality, stillbirth and fetoinfantile losses in the territories of the Far Eastern Federal District in comparison with the data for the Russian Federation for 2012–2023. In the Far Eastern Federal District, as in Russia as a whole, for several decades there has been a positive trend in reducing mortality in children up to 1 year. This is considered one of the important achievements of the region in the socio-economic and medical spheres. A detailed analysis and comparison of infant mortality rates in certain regions of the country is an important tool that allows you to quickly identify the most disadvantaged regions of the Russian Federation, and then understand in detail the causes of the current situation and its correction. The article carried out a retrospective analysis of statistical data on infant mortality in the subjects of the Far Eastern Federal District in the period 2012–2023. The emphasis is on the analysis of the following components: stillbirth, early neonatal mortality, perinatal mortality, infant mortality, the ratio of stillbirth to early neonatal mortality, fetoinfantile losses. It is concluded that there are areas with a low level of prevention of fetoinfantile losses and significant differences in the medical and social efficiency of the maternity and childhood service are assessed.

**Keywords:** infant mortality, stillbirth rate, early neonatal mortality, perinatal mortality, fetoinfantile losses.

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**Introduction.** The crisis demographic situation in the Russian Federation, accompanied by a low birth rate and high mortality rates of the population, poses many tasks for the health care system, among which the priority are protecting the health of women during pregnancy, protecting the health of children in the antenatal period and preserving the life of

already born children, the quality of their health in small generations that will appear in the coming years. Today it is the main challenge for the system of protection of motherhood and childhood, which requires solving the problem of saving every life that has taken place and the national gene pool, preserving Russia as an evolving state.

In Russia, infant mortality (IM), along with life expectancy and maternal mortality, is one of the key indicators characterizing the social well-being of the population. At the beginning of 2025, the Government of the Russian Federation prepared and published a "Unified Plan for Achieving the National Development

Goals of the Russian Federation until 2030 and for the Future until 2036," indicating specific targets in terms of health care that will be used to assess the effectiveness and efficiency of the work of the heads of regions. One such indicator is infant mortality. The IM indicator allows us to judge how successfully the regional authorities are coping with the problems associated with the birth and survival of children, ensuring the quality and availability of medical care for pregnant women and newborns, and the development of prenatal and neonatal care. Thus, reducing IM is one of the priority areas of activity of our state and medical communities, primarily neonatal and pediatric services.

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