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A Systemic Analysis of Cancer Care for Breast Cancer Patients in Poland

ORGANIZATION AND OPERATION OF THE SYSTEM

COST OF ILLNESS

CHALLENGES AND PROPOSED CHANGES

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TABLE OF CONTENTS

INTRODUCTION	5
CHALLENGES IN BREAST CANCER CARE IN POLAND	7
Cancer Epidemiology in Poland	7
Cancer Care in Poland	16
Quality of Life of Cancer Patients	25
BREAST CANCER TREATMENT	30
Breast Cancer Treatment Under Various Types of Health Care Services	31
Centers Specializing in Breast Cancer Treatment	41
B.9.FM Drug Program	42
SURVEY RESULTS	57
Characteristics of Study Population	58
Treatment—Therapies Used and Their Impact on Patients' Well-Being	59
The impact of illness and treatment on work and social life	68
The economic impact of breast cancer and its treatment	70
The Psychological Consequences of the Disease	71
Summary	72
THE COST OF BREAST CANCER IN POLAND	73
Direct Costs – Medical Costs	74
Indirect Costs	76
Cost Summary	93
Social Security Transfers	94
A MODEL FOR THE CARE OF BREAST CANCER PATIENTS	96
The Current Situation Regarding Breast Cancer Treatment in Poland	96
The Developed Model	97
Expected Benefits of Implementing the Model	99
COMMENTS FROM REPRESENTATIVES OF THE MEDICAL COMMUNITY (IN ALPHABETICAL ORDER)	102
COMMENTS FROM REPRESENTATIVES OF PATIENT ORGANIZATIONS (IN ALPHABETICAL ORDER)	111
ASSESSMENT OF THE SOCIOECONOMIC IMPACT OF INNOVATIVE THERAPIES	117
REFERENCES	124

INTRODUCTION

Cancer treatment is one of the most serious challenges facing the healthcare system in Poland. Year after year, both the number of new cancer cases and cancer-related deaths are rising, which is placing an increasing burden on the system. A particularly significant problem is the shortage of qualified medical personnel—including oncologists and oncology nurses—which, combined with the growing number of patients, leads to an overload on healthcare providers and longer wait times for diagnosis and treatment.

Breast cancer, as the most common malignant tumor among women, remains one of the main areas of health intervention in Poland. Despite increased public awareness and the development of prevention programs, the number of new cases continues to rise, and epidemiological projections indicate a further increase in the coming years. This phenomenon places a significant burden on the healthcare system and requires constant adjustments to health policy and treatment funding.

In response to these challenges, measures are being taken to improve the organization and effectiveness of the cancer care system. One of the key projects is the implementation of the National Cancer Network (KSO), which aims to ensure consistent standards of care, better coordination of services, and monitoring of treatment quality. Despite its ambitious goals, the implementation of the KSO is facing significant obstacles, such as delays in the accreditation of pathology laboratories, insufficient data digitization, and the lack of uniform quality indicators. Another challenge is the low participation rate in screening programs—particularly mammography—which in Poland remains below the EU average. As a result, many cases of cancer are diagnosed at advanced stages of the disease, which significantly reduces the effectiveness of treatment.

To improve the effectiveness of breast cancer treatment, the B.9.FM drug program, which includes modern cancer therapies, is being systematically developed. Between 2019 and 2025, the number of drug substances covered by the program increased from 6 to 15, which significantly expanded therapeutic options and patients' access to innovative treatments. Currently, 8 drug substances are reimbursed in oral form, 5 in intravenous form, and 2 in subcutaneous form. Expanding the range of treatment options, including the development of subcutaneous medications, can help shorten the duration of visits to treatment centers, improve patient comfort, and reduce hospitalization costs. Although the costs of the B.9.FM program are steadily rising, they represent an investment in more effective, personalized treatment that can yield long-term benefits for both patients and the healthcare system as a whole.

The economic impact of breast cancer is significant and includes both public expenditures funded by the National Health Fund and costs borne directly by patients and the national economy. It is estimated that indirect costs—primarily resulting from lost productivity—account for approximately 73% of the total costs associated with the disease. In 2024, patient out-of-pocket expenses were estimated at PLN 1.38 billion, while the NFZ's direct expenditures totaled PLN 3.58 billion. These data confirm that breast cancer has not only a medical dimension but also a significant socioeconomic impact.

This report presents a comprehensive analysis of the situation regarding breast cancer treatment in Poland, taking into account epidemiological data, access to treatment, quality of care, and the main barriers to the system's functioning. Based on the analysis, recommendations were developed, along with a care model whose implementation could help improve treatment outcomes, increase access to modern therapies, enhance patients' quality of life, and optimize costs incurred by the healthcare system.

CHALLENGES IN BREAST CANCER CARE IN POLAND

Cancer Epidemiology in Poland

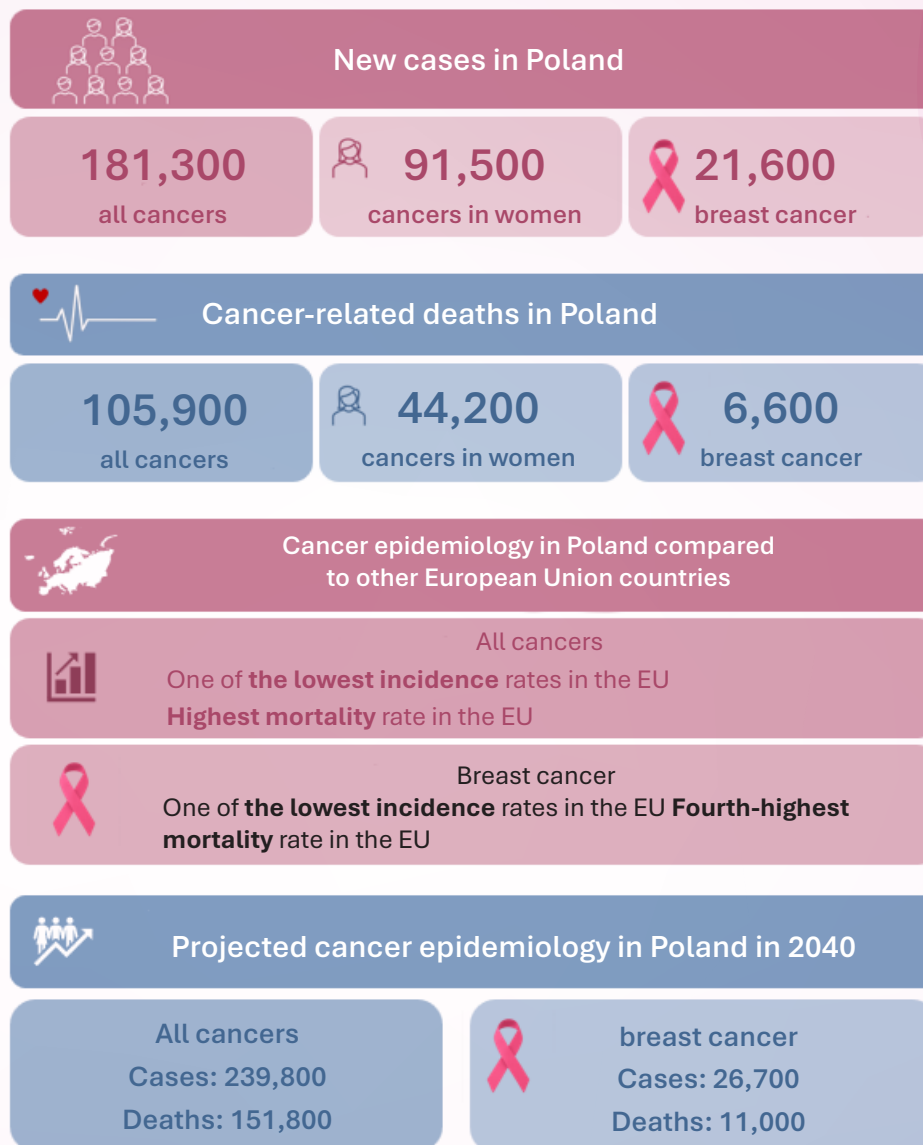


Figure 1. Summary: Cancer epidemiology in Poland and in Europe

Cancer is one of the most serious health, social, and economic challenges facing modern society. Its impact on public health is steadily increasing. In 2022, Poland recorded 181,000 new cases of cancer and 96,000 cancer-related deaths. It is estimated that there are currently more than 1.35 million people living in the country who have been diagnosed with cancer [1].

In 2022, malignant tumors were the second leading cause of death—accounting for 23% of deaths among men and 20% among women. They are a particularly significant problem among young and middle-aged people (ages 25–64). Among women, cancer has long been the leading cause of premature death, accounting for 27% of cases in the younger age group and as many as 42% among women aged 45–64 [1].

The incidence of cancer increases significantly with age—the risk of developing cancer increases tenfold between younger and older age groups. Among people over the age of 65, cancer accounts for approximately 25% of deaths among men and nearly 20% of deaths among women [1]. Given the aging population—currently, 17% of men and 24% of women in Poland are 65 or older—we can expect a further increase in the number of cancer cases and deaths, which poses a significant challenge to the healthcare system.

Prostate cancer remains the most commonly diagnosed cancer among men (23.3% of all cases). It is characterized by the steepest rise in incidence, with a relatively stable—though slightly increasing since 2004—mortality rate. Lung cancer ranks second (13.7%); despite a decline in incidence, it remains the leading cause of cancer deaths among men, accounting for approximately 25% of deaths. Colorectal cancer ranks third (11.7%), with an increase in the number of new cases observed while mortality rates remain relatively stable [1].

Among women, the most commonly diagnosed cancers are breast, colorectal, lung, and endometrial cancers. Although lung cancer ranks only third in terms of incidence, it is currently the most common cause of cancer-related deaths among women (17.9%), ahead of breast cancer (14.9%) and colorectal cancer (11.8%) [1].

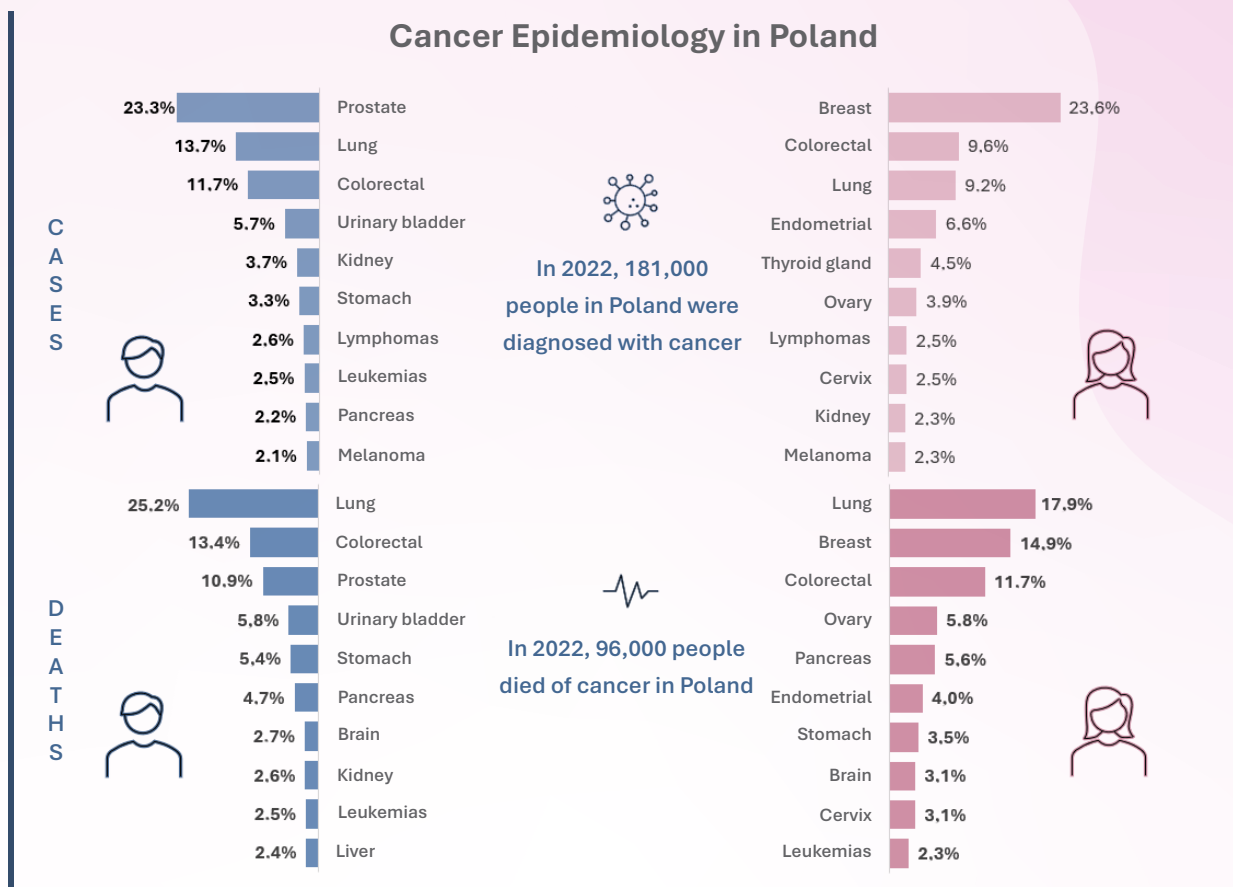


Chart 1. Cancer incidence and mortality in Poland according to KRN Data [1]

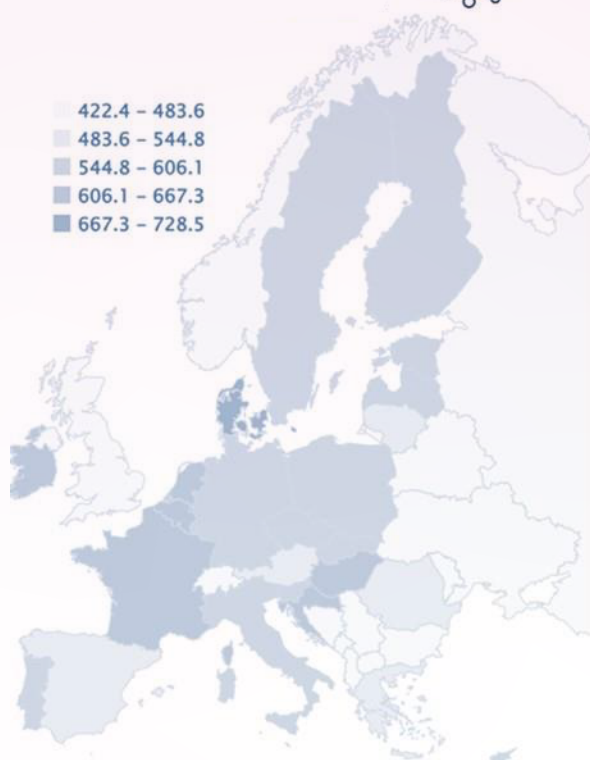
According to data from the European Cancer Information System (ECIS), the number of new cancer cases in Poland in 2022 was 202,000 [2], which is 11% higher than the figure reported by the National Cancer Registry (Krajowy Rejestr Nowotworów, KRN). This discrepancy may stem from differences in data sources—the data in the KRN is often updated at a later date, as the registry gradually fills in missing reports from previous years.

According to ECIS estimates, the cancer incidence rate in Poland in 2022 was 548.3 per 100,000 inhabitants. Compared to other European Union countries, Poland has a moderate incidence rate—below the EU average, which stood at 571.5 per 100,000 people [2].

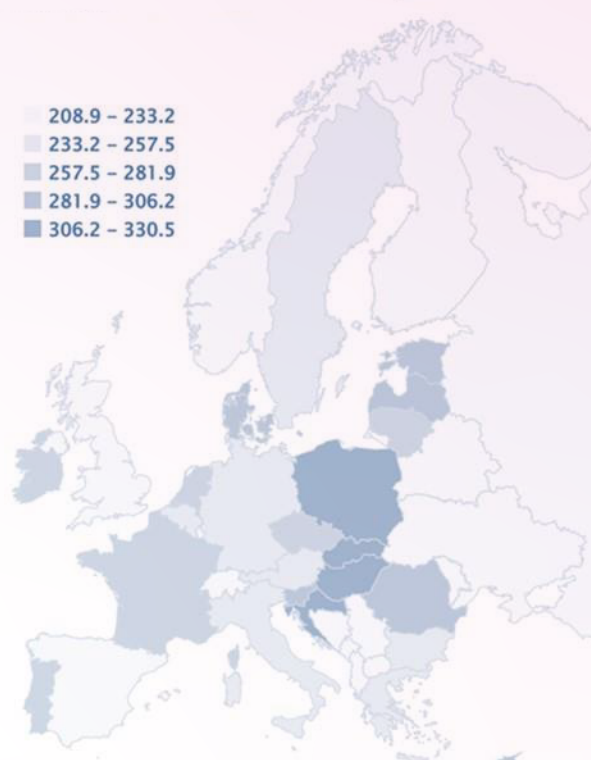
The situation is considerably less favorable with regard to mortality due to cancer. Poland had the highest cancer mortality rate in the entire European Union—330.5 per 100,000 inhabitants—while the EU average was 264.3 per 100,000 [2].

Cancer epidemiology in European Union countries

Cancer incidence in 2022



Cancer mortality in 2022



ECIS, age-standardized rate per 100,000 people (based on the 2013 European population)

Chart 2. Cancer incidence rates and cancer mortality rates in European Union countries according to ECIS [2]

Breast Cancer

The World Health Organization (WHO) reports that in 2022, as many as 2.3 million women worldwide were living with a diagnosis of breast cancer, and approximately 670,000 died from the disease [4]. This makes this type of cancer one of the most common, particularly in highly developed regions of the world, such as North America, Western Europe, and Australia. The marked increase (and continuing rise) in breast cancer incidence can be attributed to the modern lifestyle of people in wealthy countries: lack of physical activity, an unhealthy diet, and being overweight or obese—all of which increase the likelihood of the carcinogenesis process beginning. Added to this are delayed childbearing, having fewer children, short breastfeeding periods, and then the use of hormone replacement therapy during menopause. Another significant factor is increased exposure to environmental pollution and the growing use of stimulants. These factors lead to a situation where,

currently, in countries with a high human development index (HDI), one in 12 women will be diagnosed with breast cancer at some point in her life (by comparison, among women living in countries with a low HDI, the figure is one in 27) [4].

In Poland, breast cancer has been a major public health problem for years. According to data from the National Cancer Registry (KRN), in 2022, as many as one in four cancers diagnosed in Polish women was breast cancer. The incidence of this cancer has been steadily rising over the past five decades. Mortality trends are not so stable—the initial increase in the number of deaths leveled off in the mid-1990s, and then began to decline between 1996 and 2010 [5]. Unfortunately, there has been an adverse reversal of this trend in recent years, and breast cancer is now the second leading cause of death among women in Poland, right behind lung cancer (Chart 1). This is particularly evident in the oldest age group (65+), in which breast cancer remains the most common diagnosis—accounting for 19% of cases and 14% of deaths. In this same age group, colorectal cancer (12% of cases, 13% of deaths), lung cancer (12% of cases, 18% of deaths), endometrial cancer (6% of cases, 4% of deaths), and ovarian cancer (3% of cases, 5% of deaths) also account for a significant proportion [7].

In total, in Poland in 2022, 21,554 women and 164 men were diagnosed with breast cancer, and 6,611 (101 men) died from the disease [7].

In addition to modifiable risk factors for breast cancer, there are a number of genetic factors that predispose individuals to early carcinogenesis. Currently, more than 10 genes are known whose pathogenic germline variants (present in all of a woman's cells) significantly increase the risk of breast cancer. The link to a hereditary predisposition to cancer has been most thoroughly studied for the *BRCA1*, *BRCA2*, *CHEK2* and *PALB2* genes. Women who carry these mutations should receive particularly intensive preventive care and be made aware that adverse changes in their genome can be passed down from one generation to the next [6].

According to ECIS, in 2022, Poland had one of the lowest breast cancer incidence rates among all EU countries [2]. The average breast cancer incidence rate in EU countries was 164.1 per 100,000 women, while in Poland this rate was 23% lower, at 125.6 per 100,000 [2].

New cases of breast cancer in EU countries

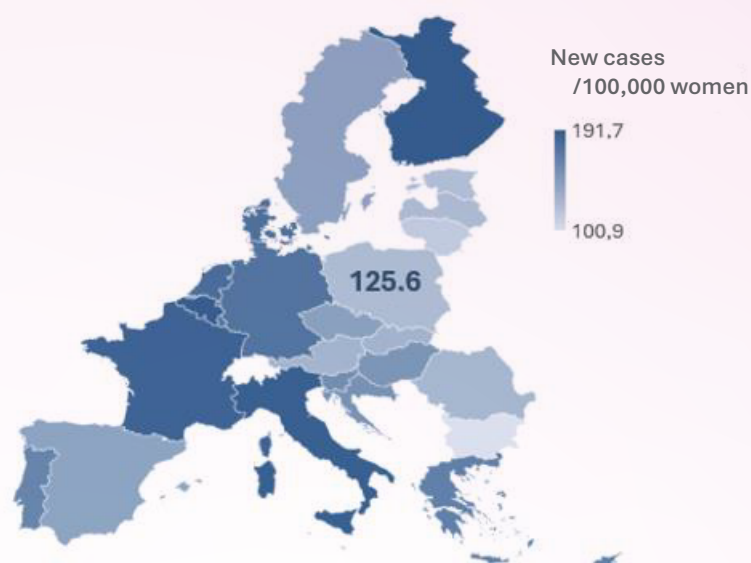


Chart 3. Number of new cases of breast cancer per 100,000 women in European Union countries, according to ECIS [2]

Despite a lower incidence rate, Poland has one of the highest breast cancer mortality rates compared to other EU countries—44.9 per 100,000 women (EU average: 42/100,000) [2]. Higher mortality rates than in Poland were recorded only in Italy, Germany, and Greece. The high breast cancer mortality rate in Poland is mainly due to late detection, when the disease is already at an advanced stage.

Deaths from breast cancer in EU countries

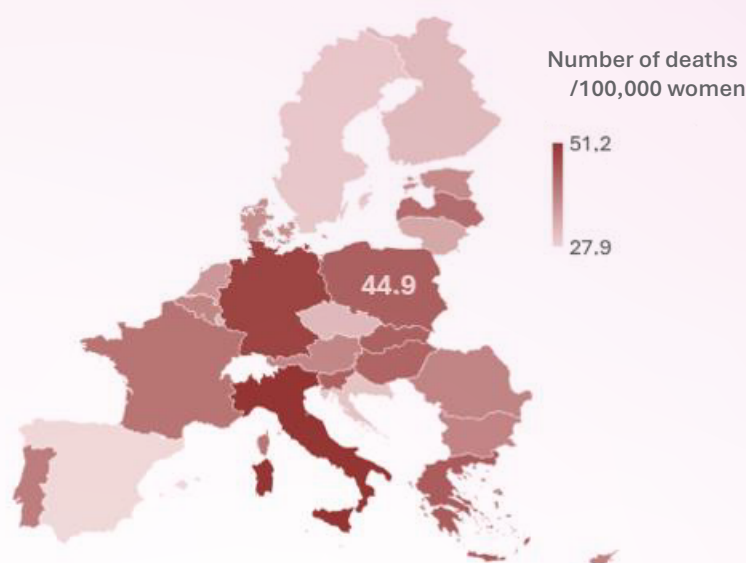


Chart 4. Number of breast cancer deaths per 100,000 women in European Union countries, according to ECIS [2]

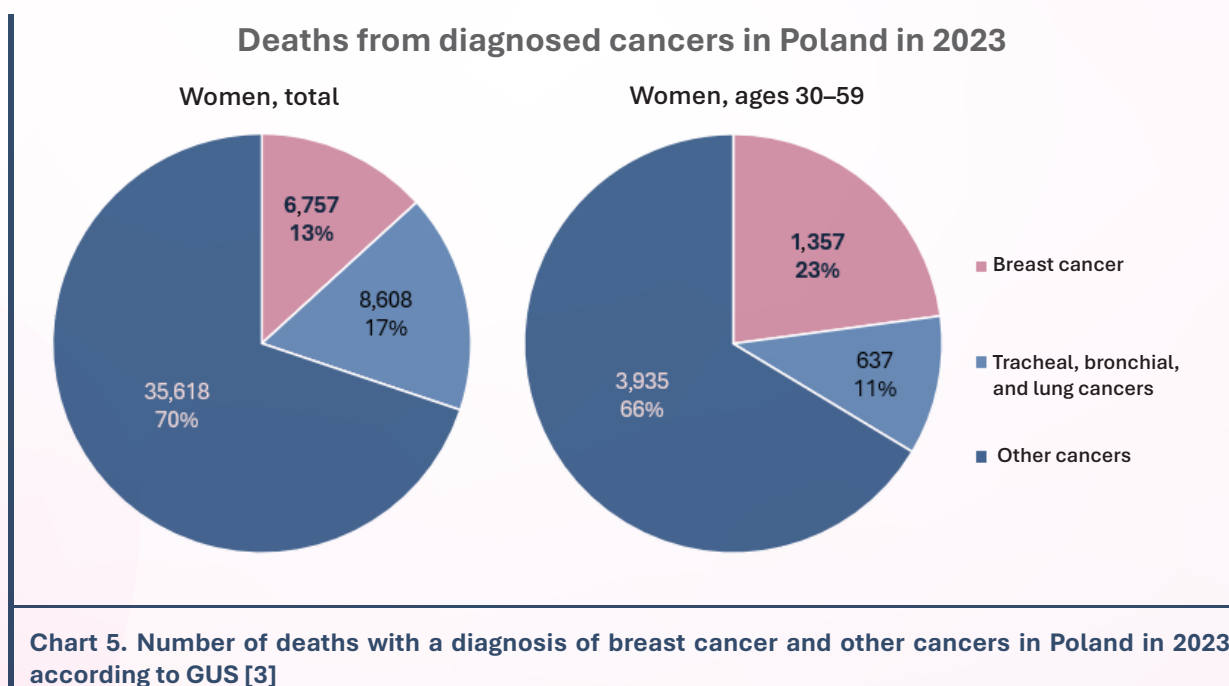
For many years, cancer has been the second most common cause of death in Poland (after cardiovascular disease). In 2023, according to data from the Central Statistical Office (Główny Urząd Statystyczny, GUS), the number of deaths among women due to cancer was 51,000, accounting for 25.5% of all deaths. Malignant tumors are the leading cause of potential years of life lost (PYLL) among women in Poland. According to data from the Central Statistical Office, in 2022, as many as 34.2% of all years of life lost prematurely among women were attributed to cancer. By comparison, the percentage for men was 17.3%. This indicator—which takes into account not only the number of deaths but also the age at which they occur—particularly highlights the scale and consequences of cancer in women. It shows that cancer not only claims the most lives, but also takes them too early—during the period of greatest professional, family, and social activity. This is not only a tremendous personal and emotional loss, but also a serious challenge for the healthcare system and the economy.

Breast cancer (ICD-10: C50) was the cause of 6,800¹ deaths in Poland (the second leading cause of death among women after tracheal, bronchial, and lung cancers). Breast cancer is the leading cause of death among Polish women aged 30 to 59—not only among cancers, but overall as well.

¹ female deaths, including 99.8% of deaths certified by a physician

In this regard, it ranks higher than, among others, cardiovascular diseases—including ischemic heart disease and cerebrovascular diseases—as well as traffic accidents [3]. According to the latest data published by the Central Statistical Office for the year 2023, breast cancer accounted for the largest percentage of all deaths among women in this age group. These statistics indicate that breast cancer is not only a serious oncological problem, but also one of the leading causes of premature mortality among women in Poland. Such a high number of deaths—despite the availability of screening and increasingly advanced treatment methods—raises serious questions about the effectiveness of the system for prevention, early diagnosis, and treatment of breast cancer. This problem also has significant social and economic implications—it affects working women, who are often mothers and primary caregivers, meaning that the consequences of their premature death extend far beyond the healthcare system.

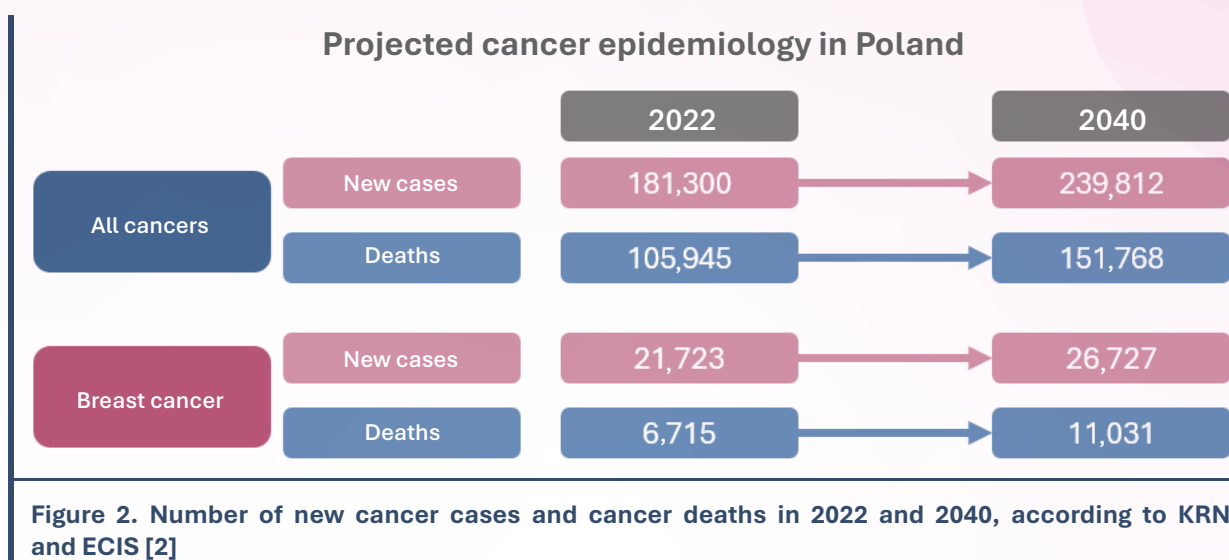
In light of these data, it is essential to step up efforts to promote health education, improve access to screening, and accelerate the implementation of effective treatments in order to reverse this negative trend and increase the chances of a long life for women affected by this disease.



Projected Epidemiology

ECIS data show that the projections for the number of new cancer cases and cancer-related deaths in Poland through 2040 are alarming. It is estimated that the number of new cancer cases in Poland in 2040 could reach as many as 239,800, including 110,100 among women. It is projected that by 2040, the number of new breast cancer cases in

Poland will increase by 8.7%, reaching 26,727 cases. Similar upward trends are observed in the number of cancer-related deaths. According to ECIS, the number of deaths from all types of cancer in Poland in 2040 could reach as many as 151,800. (66,500 in women). Particularly alarming is the nearly twofold increase in the number of deaths from breast cancer. According to ECIS, the number of deaths in Poland from this type of cancer in 2040 could exceed 11,000 [2].



Cancer Care in Poland



Shortage of medical staff

staff shortages among oncologists and oncology nurses



DiLO Cards



Increase in the number of cards issued from 2019 to 2025



Decline in the timeliness of diagnostics between 2019 and 2025



National Cancer Strategy

Implementation of the National Cancer Strategy has been delayed—of the 32 tasks planned for 2024, only 7 have been completed, and many have been postponed. There is a lack of coordinated care, uniform treatment standards, and effective monitoring, which limits the actual benefits for patients.

National Cancer Network

The National Cancer Network, launched in 2025, was intended to ensure uniform standards for diagnosis and treatment; however, its implementation is hampered by, among other things, the lack of an IT system, delays in accreditation, and the absence of quality indicators. According to the Alivia Foundation, the coordinated care system remains largely theoretical—patients still have limited access to comprehensive treatment, rehabilitation, and social support.

Figure 3. Summary: Oncology care

Healthcare professionals

Oncologists

According to data from the Supreme Medical Chamber (as of March 1, 2025), there are only 1,230 physicians registered in Poland with a specialty in clinical oncology, of whom 1,217 are actively practicing [8]. Experts from the National Cancer Center warn that Poland is short about 500 oncologists [9]. The extent of the shortage of specialists is also reflected in the number of available residency positions in this field. In the spring 2025 residency selection process, 148 residency positions in clinical oncology were offered throughout Poland; however, only 27 candidates were ultimately accepted—which represents just

18.2% of the available positions [10]. Although this figure is 10 percentage points higher than in 2024, it still points to a serious shortage of doctors training in this key specialty.

The workforce situation for oncologists in Poland – 2025

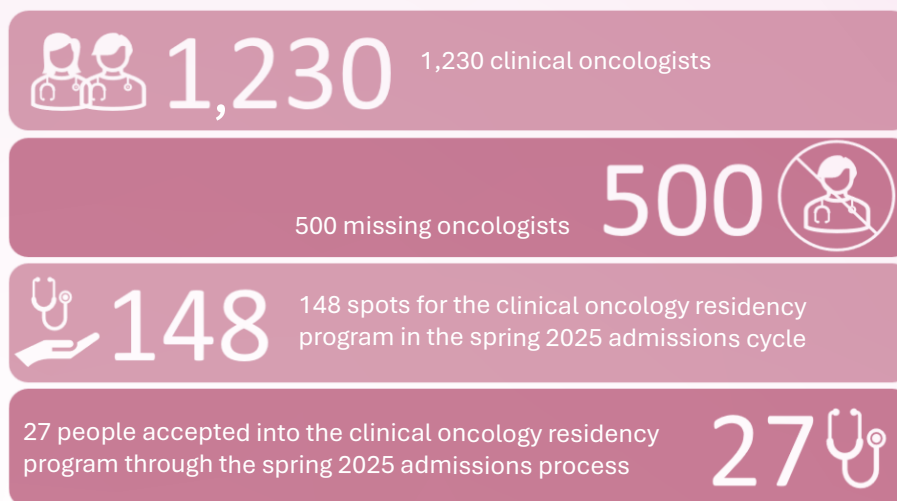


Figure 4. Clinical oncologists in Poland: availability vs. the needs of the healthcare system [8-10]

Oncology Nurses

Data from the Supreme Chamber of Nurses and Midwives show a marked increase in the number of nurses holding the title of oncology nurses in recent years. In 2020, there were 2,483 oncology nurses in Poland, and by 2024, that number had increased by 68%, reaching 4,179. This represents an 11% increase compared to 2023 [11].

It is worth noting, however, that during the same period (2020–2024), the total number of nurses with a specialization increased by as much as 80%. As a result, the proportion of oncology nurses among all specialist nurses decreased slightly—from 4.22% in 2020 to 3.94% in 2024 [11].

The need for oncology nurses is reflected in the list of priority specialization areas for 2025. Oncology nursing has been designated a priority specialty in four provinces: Dolnośląskie, Małopolskie, Mazowieckie, and Śląskie. In addition, three other regions—Lubelskie, Świętokrzyskie, and Zachodniopomorskie—have included them as a secondary specialization. By comparison, in 2024, oncology nursing was identified by as many as 11 provinces, including 4 that listed it as a secondary priority [12].

According to a report by the Supreme Chamber of Nurses and Midwives on the current and projected staffing situation, the progressive aging of the nursing workforce poses a significant challenge to the healthcare system. In 2012, the average age of nurses was 46.9 years, and by 2022, it had risen to 54.1 years. Forecasts for 2030 indicate that the

average age could reach as high as 57.2 years [13]. In turn, the latest data (from late 2024) from the Szczecin Chamber of Nurses and Midwives confirm that the average age of nurses in this region has already exceeded 55 years [14].

The current situation regarding oncology nurses in Poland

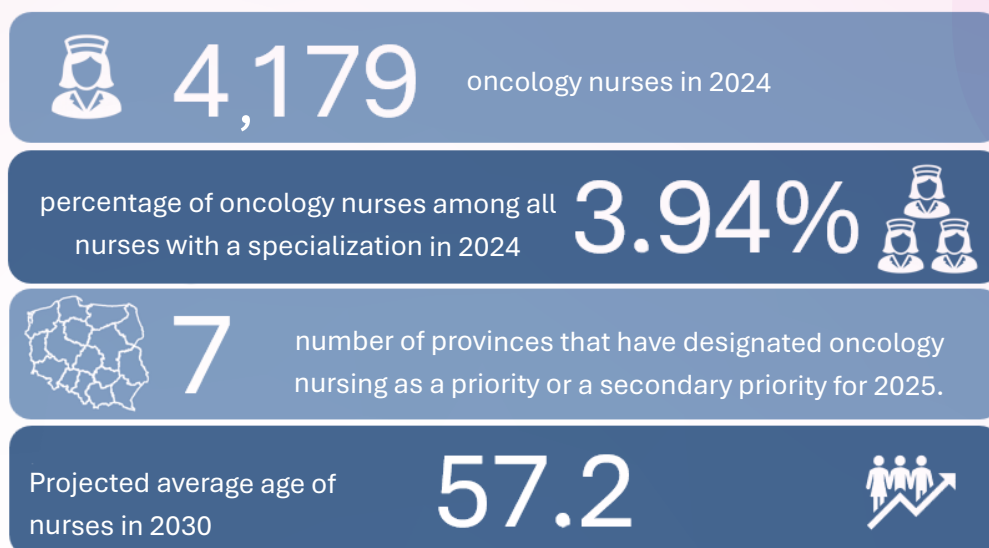


Figure 5. Data on oncology nurses in Poland in 2025 [8-13]

Systemic Changes in Cancer Care in Poland

For many years, systemic changes have been implemented in Poland with the aim of improving the functioning of cancer care. The most important of these include: the so-called Oncology Package, the National Cancer Strategy, and the National Cancer Network [15].

Systemic changes in cancer care in Poland



Figure 6. Systemic changes in cancer care in Poland [15]

DiLO Card

In 2015, the so-called “oncology package” was introduced, a key component of which is the Cancer Diagnosis and Treatment Card (DiLO). Its main goal is to streamline the care pathway for patients with suspected or diagnosed cancer within the healthcare system. The DiLO card serves as a referral, enabling patients to begin treatment as part of rapid cancer therapy [15].

One of the main purposes of the DiLO card is to provide patients with quick access to diagnostic services. In the case of preliminary diagnosis, this period is 28 days from the date of placement on the waiting list or from the date a suspected cancer is identified and a DiLO card is issued. For in-depth diagnostics, the time limit is 21 days from the completion of the initial diagnostic evaluation or the diagnosis of cancer and the issuance of the DiLO card [15].

The number of DiLO cards issued increases every year. In 2024, 403,300 cards were issued (12% more than in 2023). By the end of August 2025, 292,400 had already been issued, and assuming this trend continues through the end of the year, the projected number of cards issued in all of 2025 could exceed 407,000 [16].

Unfortunately, the opposite trend is observed with regard to the timeliness of diagnosis, as there has been a decline in timeliness in recent years (2022–2024). For the preliminary assessment, the decline in 2024 compared to 2019 was 8.5 percentage points (p.p.), and for the in-depth assessment, it was 4.8 p.p. [16].

Data from the Alivia Cancer Foundation from 2025 provides additional context. Under normal circumstances, cancer patients waited an average of 106 days for an MRI scan, 63 days for a CT scan, and up to 46 days for the scan report. The average wait time for the first oncology appointment was 47 days under the standard procedure and 23 days under the DiLO card procedure. More than one-third of the patients surveyed (38%) waited more than three months from the onset of their first symptoms to receive a cancer diagnosis [18].

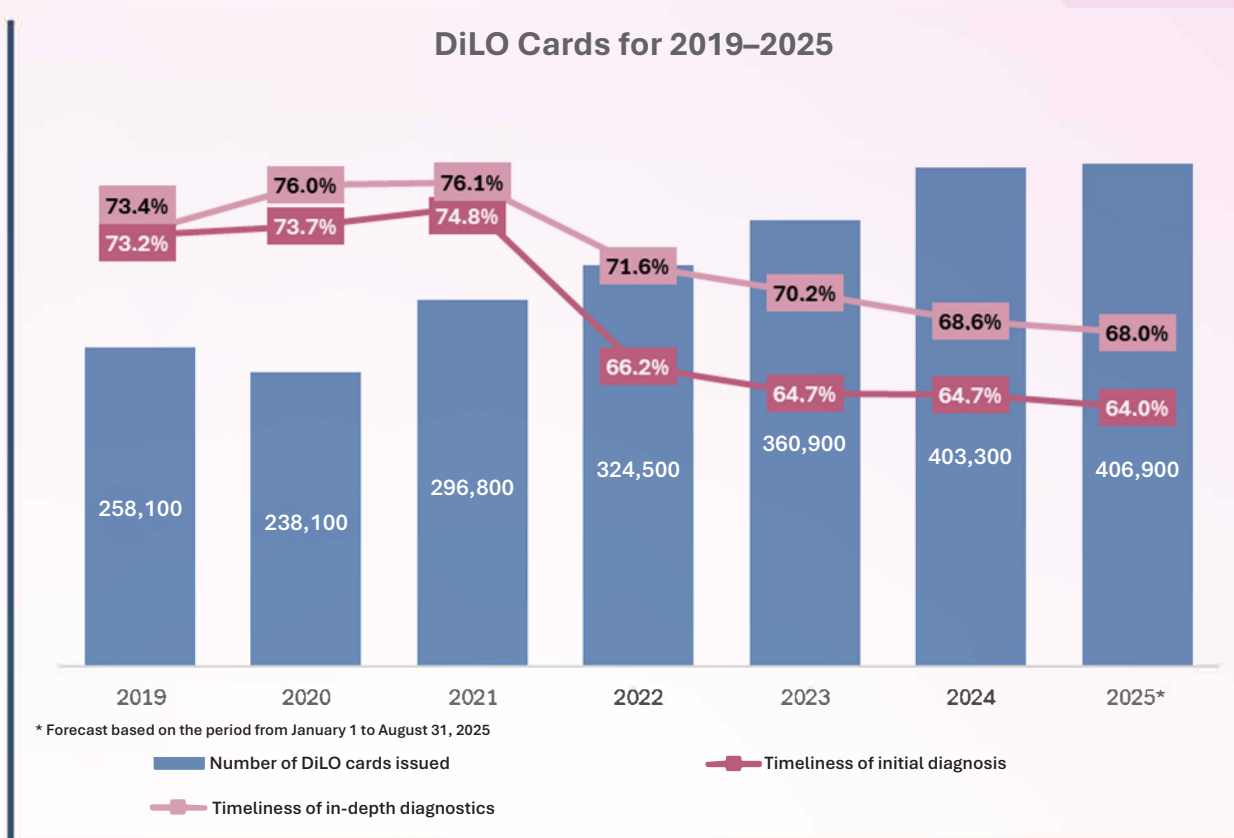


Chart 6. Number of DiLO cards issued and timeliness of diagnostics in 2019–2025 [16]

The observed decline in the timeliness of diagnostic services, coupled with an increase in the number of DiLO cards issued, may indicate a significant strain on the healthcare system caused by an excessive number of patients and insufficient medical staff and infrastructure.

National Cancer Strategy

The National Cancer Strategy (Narodowa Strategia Onkologiczna, NSO) is a government strategic program for 2020–2030 aimed at comprehensively reforming the oncology care system in Poland. The main objectives of the Strategy include: increasing the percentage of patients who survive at least five years after completing treatment, reducing cancer incidence, and improving patients' quality of life—both during and after cancer treatment.[17]

According to Alivia Cancer Foundation, an analysis of the implementation of the NSO during the program's first four years of operation reveals serious systemic shortcomings. Among the key problems identified were, among others: the lack of measurable indicators for assessing the effectiveness of actions and mechanisms for monitoring them; frequent changes to schedules and redefinitions of objectives without transparent justifications; and a formalistic approach to reporting. In addition, attention was drawn to significant regional disparities in access to benefits and the lack of an independent, external evaluation of progress in implementing the Strategy [21].

Key challenges in implementing the National Cancer Strategy

1. Lack of meaningful performance metrics



The ministry evaluates tasks formally, without measuring the outcomes experienced by patients.

2. Frequent changes to deadlines and redefinitions of goals



Many tasks were postponed or “completed” in a simplified, more achievable form.

3. A formalistic approach to reporting



Tasks are often considered complete based on a one-time action, rather than a comprehensive, systematic implementation

4. Significant regional disparities in access to benefits



Many solutions are available only in certain centers or provinces, and access to modern diagnostics, treatment, and psychological care remains highly unequal.

5. Lack of an independent, external evaluation of activities



The assessment of progress in implementing the NSO should involve not only the Ministry of Health, but also independent civil society organizations and external experts.

Figure 7. Key challenges in implementing the National Cancer Strategy [21]

In order to increase the effectiveness of the NSO’s implementation and improve the situation of cancer patients, the Alivia Cancer Foundation recommends that the Ministry of Health take the following actions:

- Introduction of a requirement to report the effects of NSO based on clearly defined and measurable health indicators that are publicly available.
- Prohibition on making changes to objectives and deadlines without prior consultation—any change should be preceded by a public justification and the opinions of experts and patient representatives.
- Ensuring independent monitoring of the implementation of the NSO, with the participation of patient organizations and experts not directly affiliated with the government.
- Publication of data on the effectiveness of initiatives—campaigns and programs should be evaluated transparently and made available to the public [21].

One of the key components of the Strategy is Area 5—Investments in the cancer care system. Its goal is to ensure that patients have access to high-quality diagnostic and therapeutic services, to standardize cancer care at all stages of the so-called patient pathway, and to reduce regional disparities in access to treatment.

Although four years have passed since the start of the NSO, the objectives for Area 5 have not been met according to schedule. In particular: the failure to fully implement a coordinated care system; non-standardized and unmonitored diagnostic and treatment pathways; and the lack of effective mechanisms to ensure that treatment complies with current clinical standards. The extent of the failure to complete tasks in this area is confirmed by data on the schedule of activities planned for 2024 [20]. In 2024, 32 projects were scheduled to be carried out in this area. Only 7 of them were completed, while in 15 cases, the completion dates were changed [20]. Furthermore, no tools have been implemented to effectively monitor the course of treatment (e.g., the e-DiLO electronic record). Despite formal reporting, there is no consistent and effective mechanism for monitoring the quality of care, which means there is no guarantee that patients are treated in accordance with current medical standards.

Polish cancer patients still have to wait too long to receive a diagnosis and begin treatment. The therapeutic process is often neither monitored nor coordinated, which negatively affects the effectiveness of treatment and the patient's comfort. The latest report from the Alivia Cancer Foundation indicates that many tasks formally considered completed do not translate into actual improvements in patients' situations.

Implementation of tasks under Area 5—Investments in the cancer care system

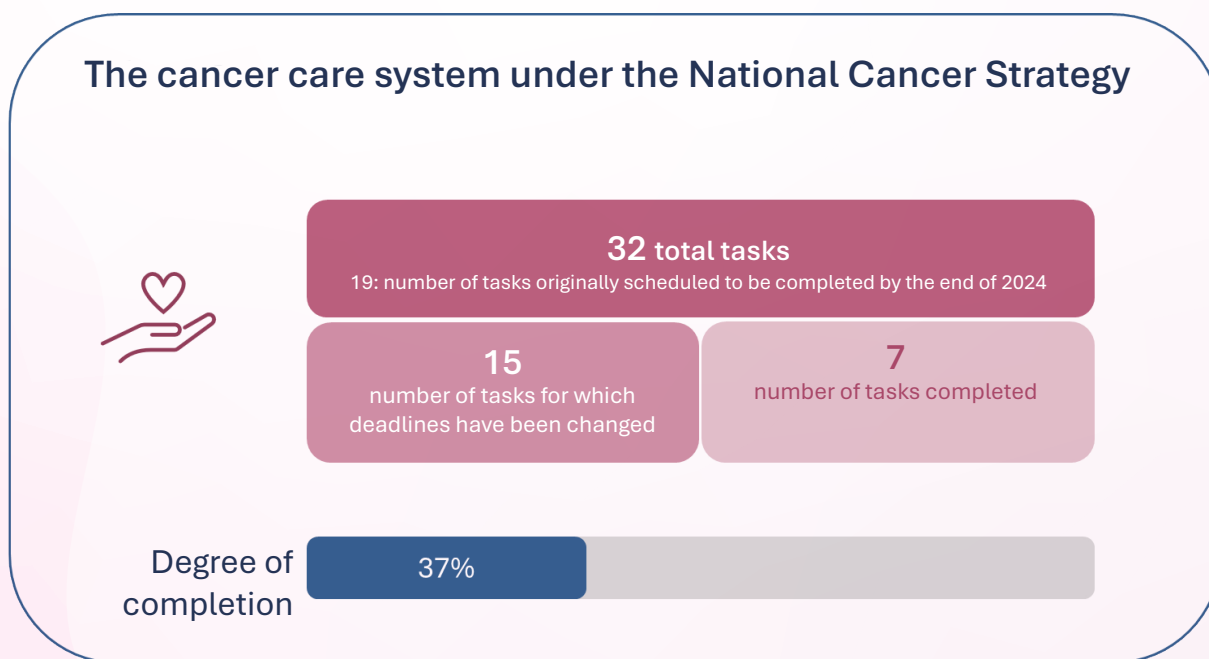


Figure 8. Implementation of tasks under Area 5—Investments in the cancer care system [20, 21]

National Cancer Network

One of the key elements of the National Cancer Strategy is the National Cancer Network (Krajowa Sieć Onkologiczna, KSO), which was launched on April 1, 2025. Its goal is to ensure that all patients have access to diagnosis and treatment according to uniform standards, regardless of where they live. The network consists of SOLO hospitals at three levels of care and partner centers providing outpatient care. In practice, this means that Level I centers provide individual components of treatment, while higher-level centers offer a complete treatment pathway—from diagnosis to radiotherapy [22].

Despite its ambitious goals, the implementation of the KSO faces numerous obstacles. Prof. Piotr Rutkowski points to the lack of a fully developed ICT system, delays in the accreditation of pathology laboratories, and the absence of uniform quality indicators as key challenges facing Polish oncology [23]. Another problem is the low rate of participation in mammography screening—well below the EU average—which means that a significant proportion of cases are detected at advanced stages of the disease [24].

The Alivia Foundation is particularly critical of the KSO's operations. In its report, it points out that the coordinated care system remains largely theoretical rather than actually implemented. There is a lack of standardized diagnostic and treatment pathways, and patients in many regions face barriers to accessing comprehensive care. Goals related to rehabilitation and social support also remain unfulfilled—despite the Ministry of Health's declarations, a nationwide network of rehabilitation centers has not been established, and patients continue to report a lack of access to social counselors or social workers. According to Alivia, the publication of informational materials is no substitute for an actual support system, and data on the number of patients receiving assistance are still not being tracked [21].

In July 2024, the NFZ published a list of facilities included in the National Cancer Network. It includes 258 SOLO hospitals, of which 159 operate at Level I, 73 at Level II, and 26 provide comprehensive care under SOLO III. The largest number of such centers were established in the Śląskie (42) and Mazowieckie (37) provinces, while the fewest were in the Lubuskie and Świętokrzyskie provinces, where five centers each are planned [25].

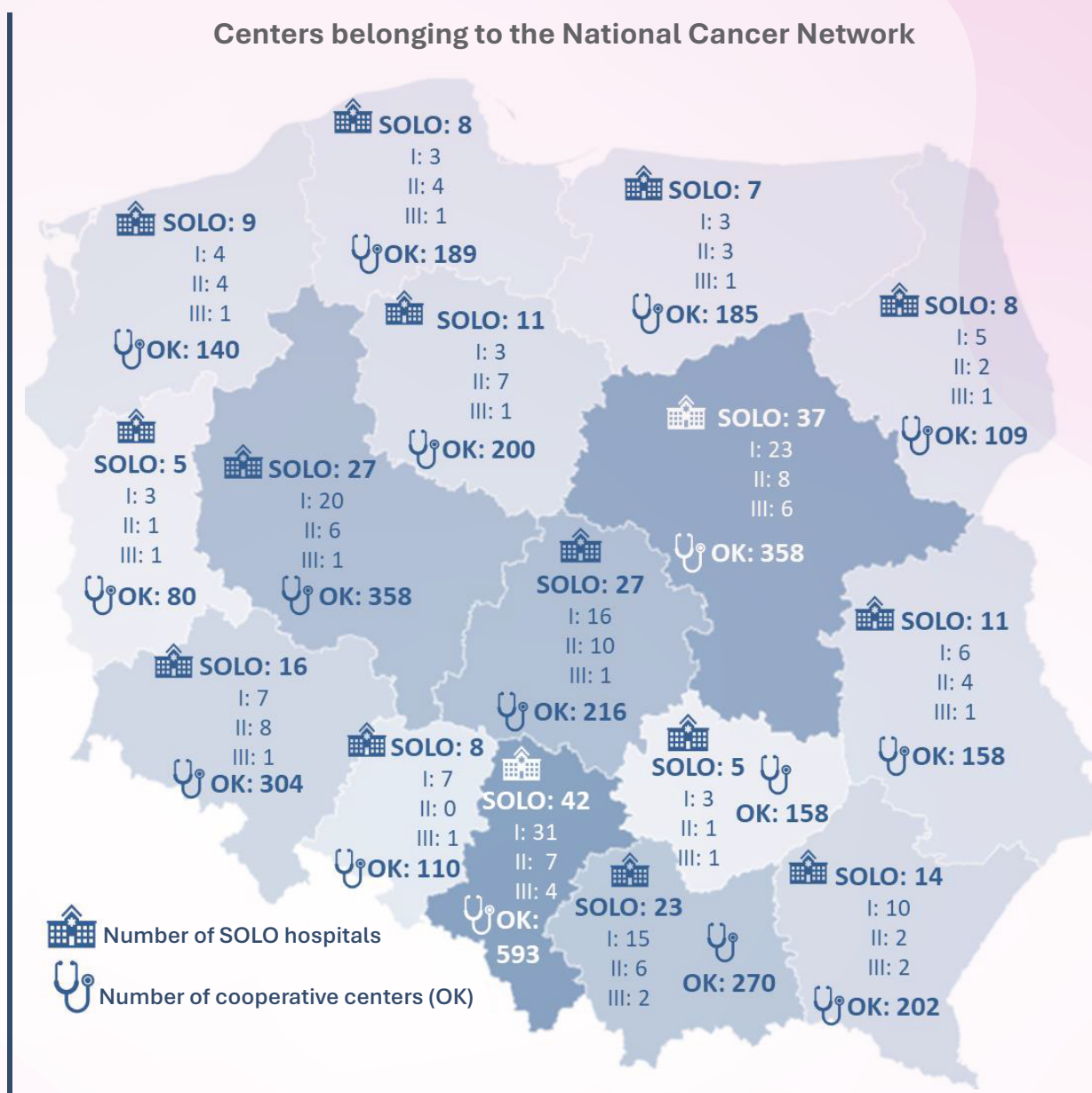


Figure 9. Number of healthcare providers belonging to the National Cancer Network in individual provinces

The network is supplemented by 3,630 partner facilities that provide outpatient specialist care. The largest number of them is in the Śląskie province (593), and the smallest in the Lubuskie province (80). It is worth noting that in 2023, a total of 4,998 AOS facilities provided oncology services, which means that the number of centers available under the KSO is approximately 22% lower. This could result in limited access to treatment, especially for patients from smaller towns, who will be forced to travel farther to specialized centers.

Quality of Life of Cancer Patients

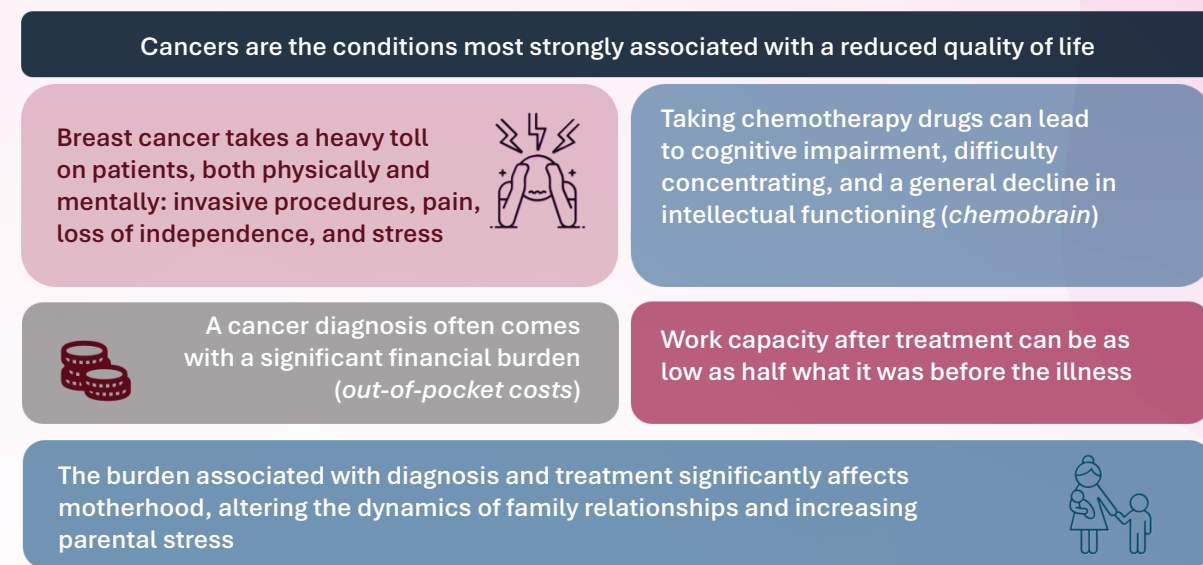


Figure 10. Summary: Quality of Life of Cancer Patients

Epidemiological analyses confirm that the functional impairments and disabilities that typically accompany chronic conditions significantly reduce patients' quality of life (QoL) [26]. A cross-sectional study by Krawczyk-Suszek et al. (2024), which included 7,620 patients with 13 different medical conditions in Poland, showed that cancer, cardiovascular diseases, and nervous system disorders are the conditions most strongly associated with a reduced quality of life [27]. Of all the patient groups analyzed, it was cancer patients who recorded the lowest scores, especially in terms of the mental component summary (MCS), where as many as 73% of participants reported a quality of life below average (by comparison, for cardiovascular and neurological diseases, the figures were 60% and 56% of respondents, respectively). Patients with cancer also had the lowest chances of a better quality of life in the physical component summary (PCS), where as many as 76% of those observed reported a quality of life below average [27].

Breast cancer (BC), which is one of the most serious epidemiological problems in Poland and one of the most commonly diagnosed cancers, also places a tremendous burden on patients (Figure 11). Diagnosis and treatment take a heavy toll on their bodies as they are subjected to complex procedures (biopsies, CT scans, MRI scans, and others) that cause pain, stress, and anxiety [28]. Surgical procedures followed by recovery complicated by radiation or chemotherapy are associated with a significant reduction in mobility and independence, which further contributes to a sense of helplessness and dependence on others. An additional challenge is the high prevalence of Post-Mastectomy Pain Syndrome (PMPS), characterized by chronic neuropathic pain in the chest, armpit, or arm, which significantly reduces patients' quality of life and impairs their daily functioning

[29]. Biological medications can cause allergic reactions, including reactions against the body's own tissues, and can reduce the body's natural ability to fight infections [30]. The illness also prevents patients from working, leading to frustration and anxiety about the future, including financial concerns [28].

An extremely important aspect of breast cancer is the fact that the disease often affects relatively young women (one in five patients is under 50 years of age) [31]. The burden associated with diagnosis and treatment significantly affects motherhood, altering the dynamics of family relationships and increasing parental stress. A cross-sectional study by Shin et al. (2023), which analyzed clinical factors related to parental stress in 600 mothers with breast cancer, found that they were more than twice as likely to develop depression as childless patients (OR=2.25; 95% CI: 1.01–5.05) [32]. This finding suggests that the responsibility for raising children and concern for their future constitute an additional source of psychological stress that exacerbates depressive symptoms among young women with breast cancer.

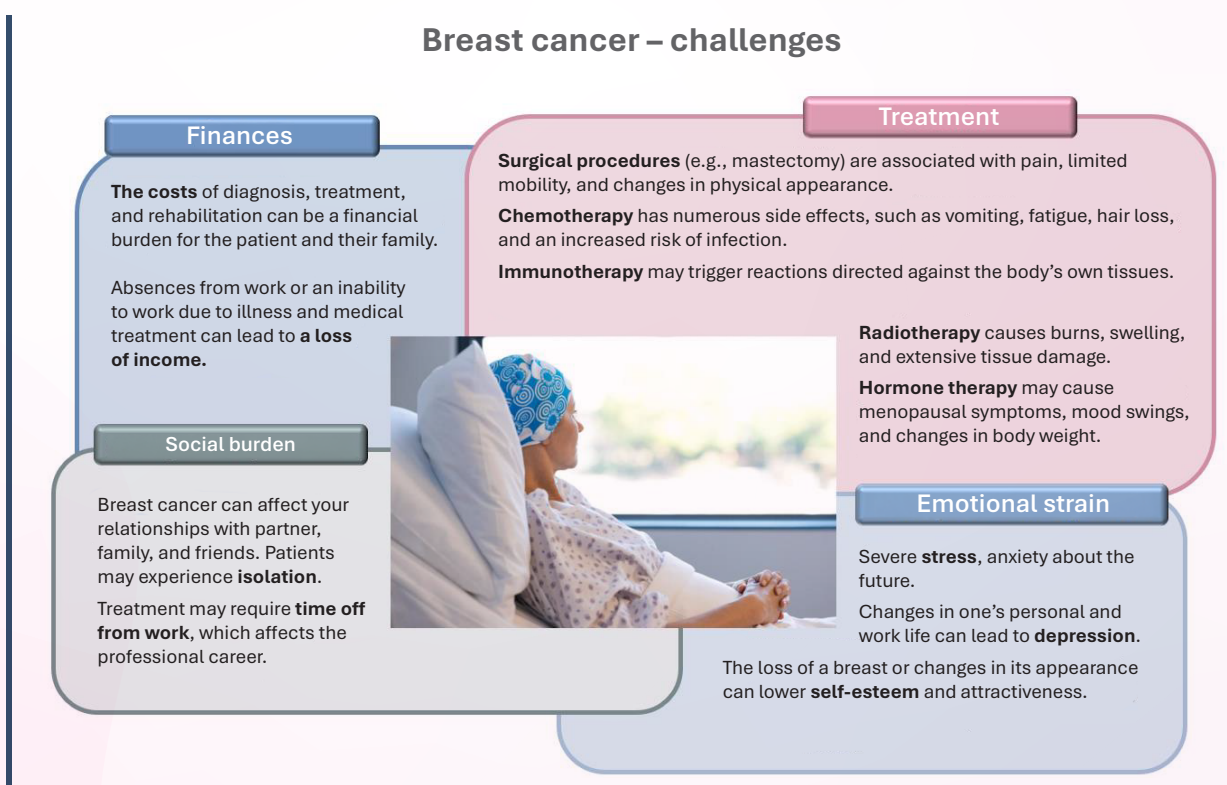


Figure 11. The challenges faced by women with breast cancer [28-30, 33-35]

Chronic exposure to stress associated with cancer and long-term use of medications, particularly chemotherapy drugs, can lead to cognitive impairment in patients, commonly referred to as “chemobrain” or “chemofog.” Women affected by this symptom experience, among other things, a decline in short-term memory, difficulty concentrating, a decrease in information processing speed, and a general decline in intellectual functioning. This phenomenon, which until recently was marginalized, is now recognized as one of the significant complications of cancer treatment. According to recent studies, it affects as many as 15% to 50% of patients who have completed breast cancer chemotherapy, and its impact on quality of life is sometimes compared to other long-term side effects of treatment, such as chronic pain or chronic fatigue syndrome [33,34]. Importantly, in one out of every three women who have undergone chemotherapy, “chemobrain”-like symptoms persist for months or years after treatment ends, significantly affecting their ability to return to work, fulfill family responsibilities, and function socially [35].

The Financial Situation of Breast Cancer Patients

The lengthy, multi-stage diagnostic and treatment process means that breast cancer generates significant costs for both the healthcare system and the social security system. At the same time, it places a significant financial burden on the patients themselves and their families [36]. Regular trips to specialized centers for follow-up exams and continued treatment take up time and money. Additional expenses include, among other things, the purchase of supportive medications used during chemotherapy, specialized foods, and oral nutritional supplements, as well as the cost of additional medical services that are not always reimbursed [37]. At the same time, the illness often prevents people from working, which results in a decrease in household income. In many cases, it is also necessary to finance long-term care, which further exacerbates the financial burden. As a result, patients and their families often face serious financial problems, accompanied by a sense of uncertainty and additional stress [28].

Faced with economic difficulties, women battling breast cancer are forced to resort to a wide range of coping strategies—from making personal sacrifices and taking on additional work to actively seeking external financial support (Figure 12). Systematic review by Liu et al. (2025), which aimed to compile and conduct a synthetic analysis of qualitative studies describing the experiences of women with breast cancer in coping with the financial burden (so-called *financial toxicity*) showed that many of these needs—especially regarding systemic safeguards—remain unmet [38].

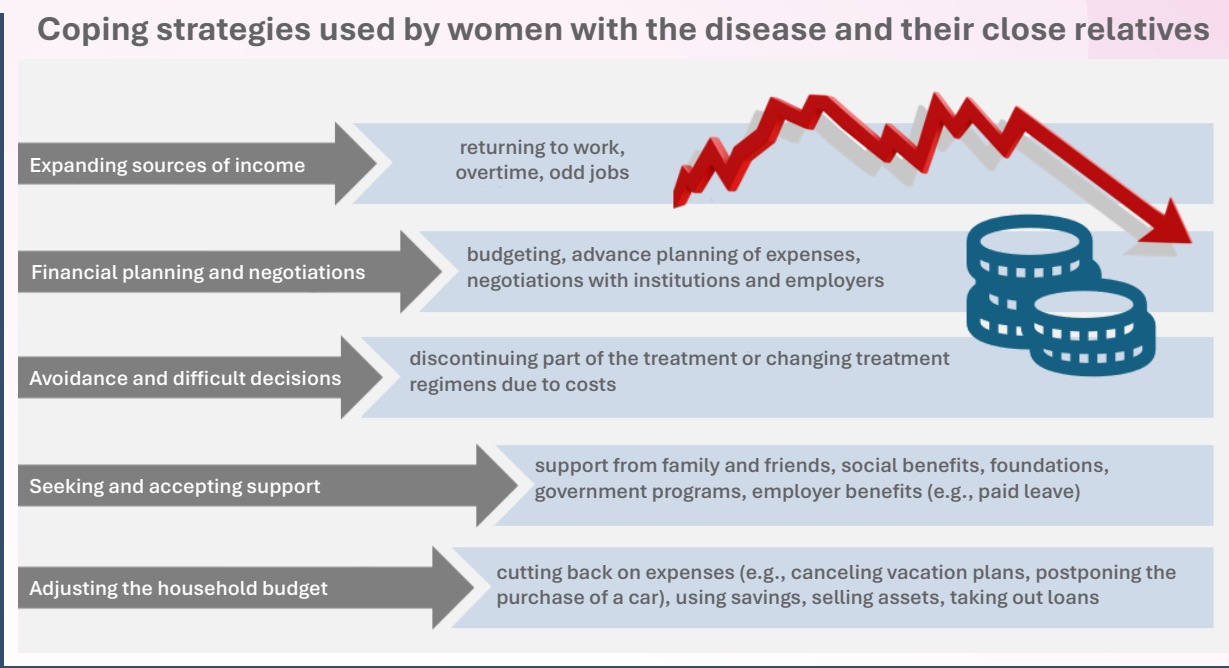


Figure 12. Financial strategies used by women with cancer and their close relatives [38]

Studies from Western European countries show that, despite public funding for cancer treatment, breast cancer patients incur significant out-of-pocket costs. These include, among other things, the purchase of supportive medications, equipment, and prosthetics; transportation costs to cancer treatment centers; and expenses related to home care. Unfortunately, Poland still lacks detailed analyses of out-of-pocket expenses incurred by patients, which makes it difficult to fully assess the national situation.

Table 1 compiles available data from studies conducted in Spain, Germany, and the United Kingdom, illustrating the scale and structure of the costs incurred by women with the disease and highlighting the most significant areas of financial hardship.

Table 1. The extent of costs incurred by women with health conditions in Western European countries [39-42]

Country, publication	Average out-of-pocket expenses	Details
Spain Fernandez-Rodriguez et al., 2024 [39]	EUR 1,511 / year (PLN 6,420)	Expenses for medications: EUR 317, equipment (including prosthetics): EUR 488, transportation: EUR 566, and payment for care/assistance: EUR 140. Average 15.9% decline in annual income following diagnosis
Germany Schneider et al., 2023 [40]	EUR 566 (PLN 2400)	51.9% of women reported out-of-pocket expenses; the average loss was EUR 5,463

Country, publication	Average out-of-pocket expenses	Details
United Kingdom Parsekar et al., 2021 [41]	GBP 1,100 / year (PLN 5,400)	No detailed data available
Germany ESMO, 2018 [42]	EUR 200 / month (PLN 850)	Transportation is the main cost. 37.2% of patients report a loss of income

ESMO – European Society for Medical Oncology; OOP – out-of-pocket expenses.

Employment Among Women with Breast Cancer

Women who have had breast cancer, even when the disease has had a favorable outcome, often face difficulties in maintaining or resuming their work. The main barriers include: reduced work capacity, absenteeism and presenteeism, mental health issues, sleep disorders, and discrimination by employers [43]. A prospective study based on interviews with 32 women who had undergone treatment for breast cancer found that, at the time of their return to work, their subjectively assessed ability to work was half what it had been before their illness; after one year, a trend toward improvement was observed, though it did not reach statistical significance [43]. Similar observations were made by Yang et al. (2022), who, in an 11-year follow-up study of women after breast cancer treatment, demonstrated that even one year after surgery, many patients still experienced residual disability resulting in a reduced or completely lost ability to work [44].

The results of a study conducted at the Tarnów Amazonki Club, involving 60 women who had undergone a mastectomy, are consistent with the above observations. Before surgery, 75% of the women with breast cancer from the Amazonki group in Tarnów were employed, but after treatment, as many as 41.7% of them did not return to work. A return to work was more common among patients with a higher education (65.5%) and residents of large cities, while women with only a primary or vocational education were more likely to give up work. Only 20% of the respondents were fully satisfied with their employment situation after treatment, and more than half (53.3%) reported that their occupational and personal activities had been limited compared to the period before treatment [45].

Although studies clearly indicate that a return to work for patients after breast cancer treatment is associated with a better prognosis and a higher quality of life [44,76], many women still face significant barriers to re-entering the workforce, which underscores the need for systemic measures to support this group of patients.

BREAST CANCER TREATMENT

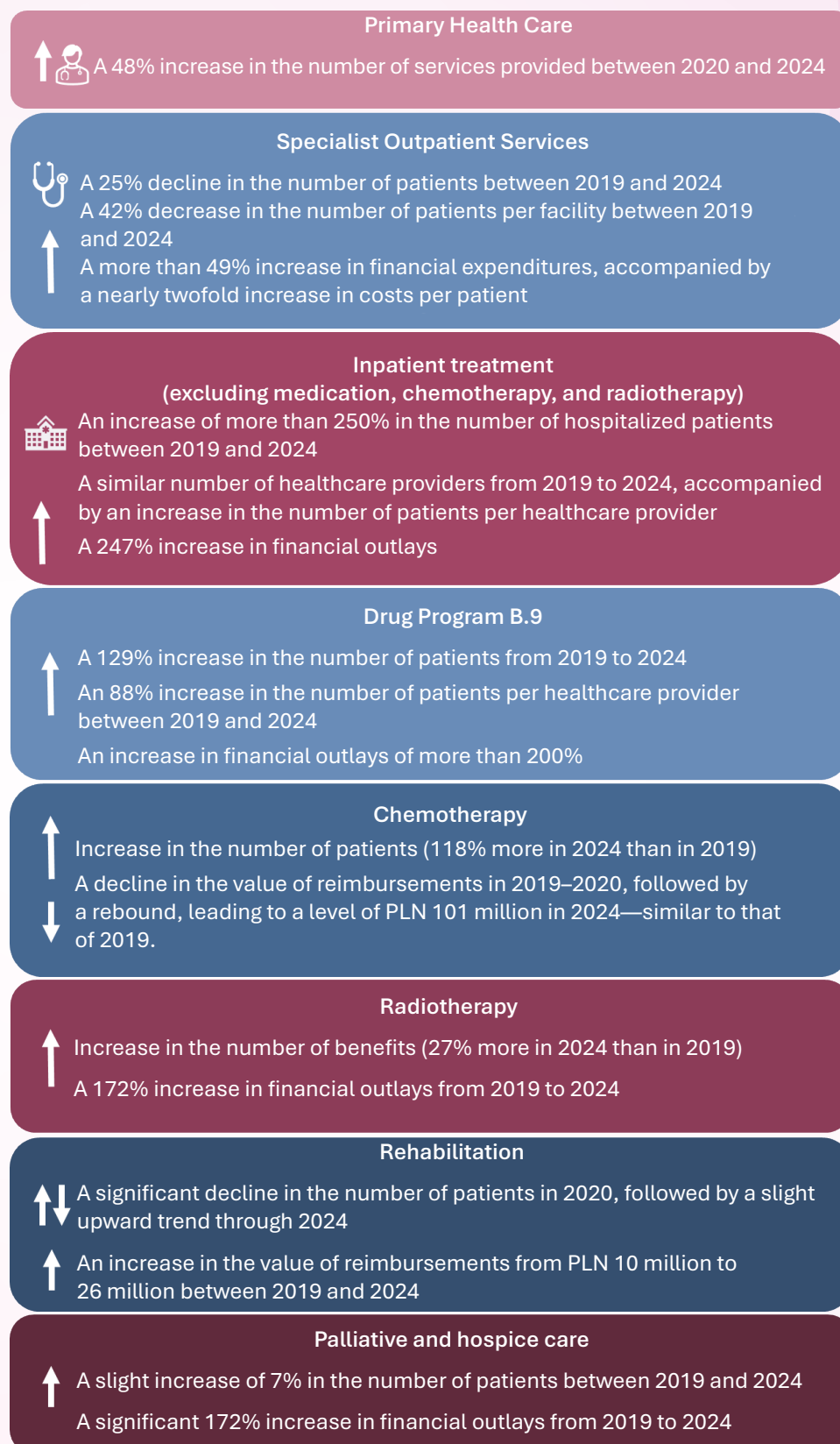


Figure 13. Summary: Breast cancer treatment

Breast Cancer Treatment Under Various Types of Health Care Services

The treatment of breast cancer requires an integrated, multidisciplinary approach that encompasses all levels of health care—from primary care (POZ) through outpatient specialist care (AOS) to inpatient treatment, rehabilitation, and palliative and hospice care. The diagnostic process should begin in primary care, where doctors conduct initial examinations—including imaging and screening—and then refer patients for further, in-depth diagnostics within the specialized care system. Collaboration among specialists from various fields—including clinical oncologists, surgeons, radiation oncologists, radiologists, and psychologists—is crucial, as it enables the development of a personalized treatment plan tailored to the stage of the disease and the patient's individual needs.

Telemedicine may play an increasingly important role in the care of breast cancer patients. Although its use is currently limited, the development of telemedicine could significantly improve access to specialists, speed up consultations, and enable remote monitoring of patients' health, which is particularly important for those living far from cancer centers.

Oncological rehabilitation is also an integral part of comprehensive care, including, among other things, physical therapy following surgery, psychological support, and health education. Palliative and hospice care also remains extremely important, as it helps alleviate the symptoms of advanced disease, supports patients and their families, and improves quality of life at every stage of treatment.

Primary Health Care

The number of primary care services provided to patients diagnosed with malignant breast cancer has increased in recent years (2020–2024) [55].

Services provided under primary care following a diagnosis of breast cancer

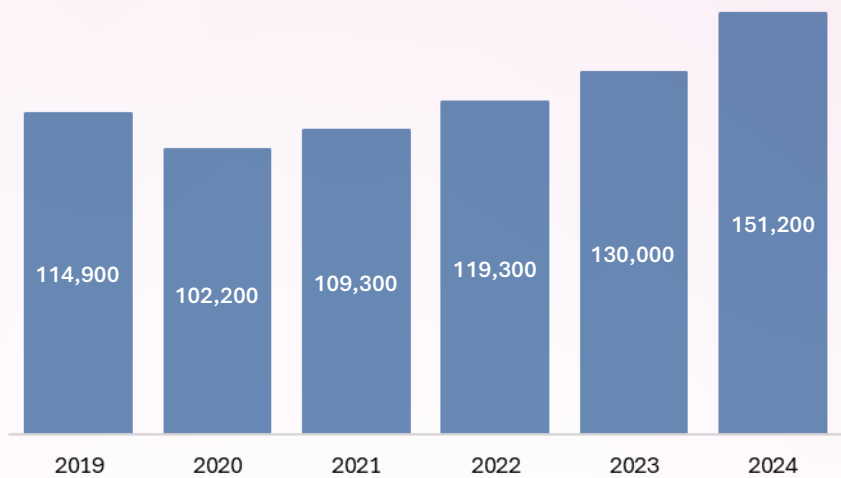


Chart 7. Number of primary care services provided for patients diagnosed with breast cancer from 2019 to 2024, according to BASiW [55]

Outpatient Specialist Care

AOS plays a significant role in the management of patients with breast cancer. In this regard, oncology outpatient clinics play a particularly important role, as they provide in-depth diagnostics, monitor the effects of systemic and surgical treatment, and adjust therapy based on the stage of the disease and the clinical response. In practice, access to AOS can be difficult due to the limited number of oncologists and specialized clinics, particularly outside of major cancer centers.

In 2024, there was a slight decrease in the number of patients receiving AOS services—to approximately 148,000, compared to 196,000 in 2019. The number of facilities providing these services between 2019 and 2024 remained at a similar level, ranging from 1,966 in 2019 to 2,100 in 2024. During the same period, the average number of patients per facility decreased from 100 to 70 [46].

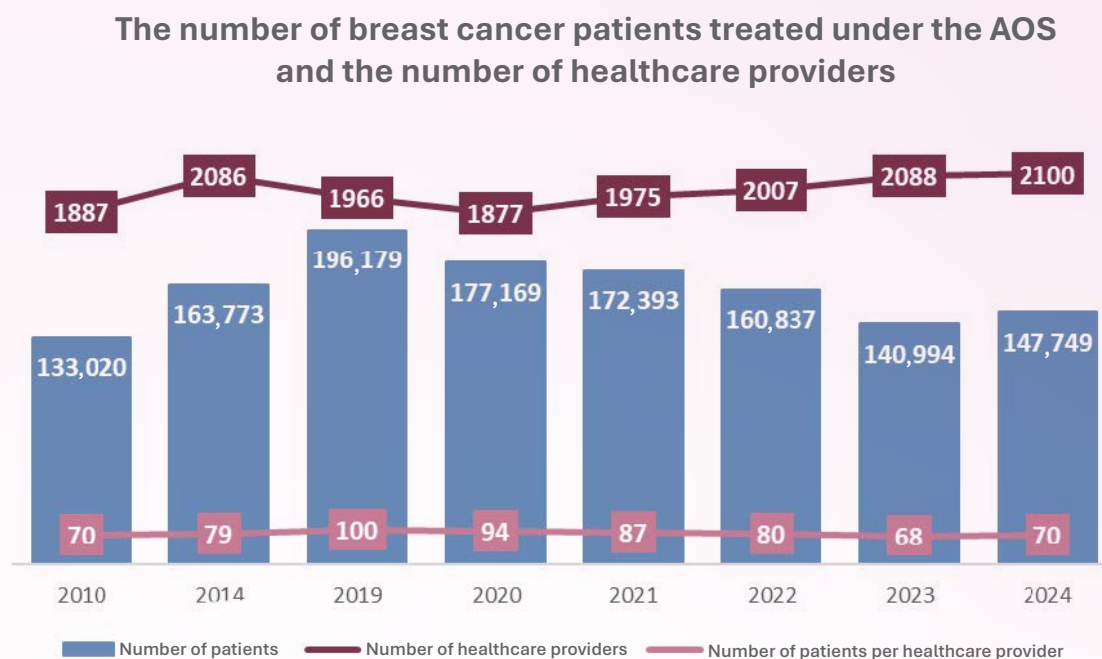


Chart 8. The number of breast cancer patients treated under the AOS and the number of healthcare providers in 2010, 2014, 2019–2024 according to NFZ data [46]

During the period under review, there was a significant increase in financial expenditures on the treatment of breast cancer patients in outpatient specialist care. Between 2019 and 2024, the value of reimbursements increased by more than 49%, from PLN 93 million to PLN 138 million. At the same time, the cost of treatment per patient nearly doubled—from PLN 473 to PLN 936.

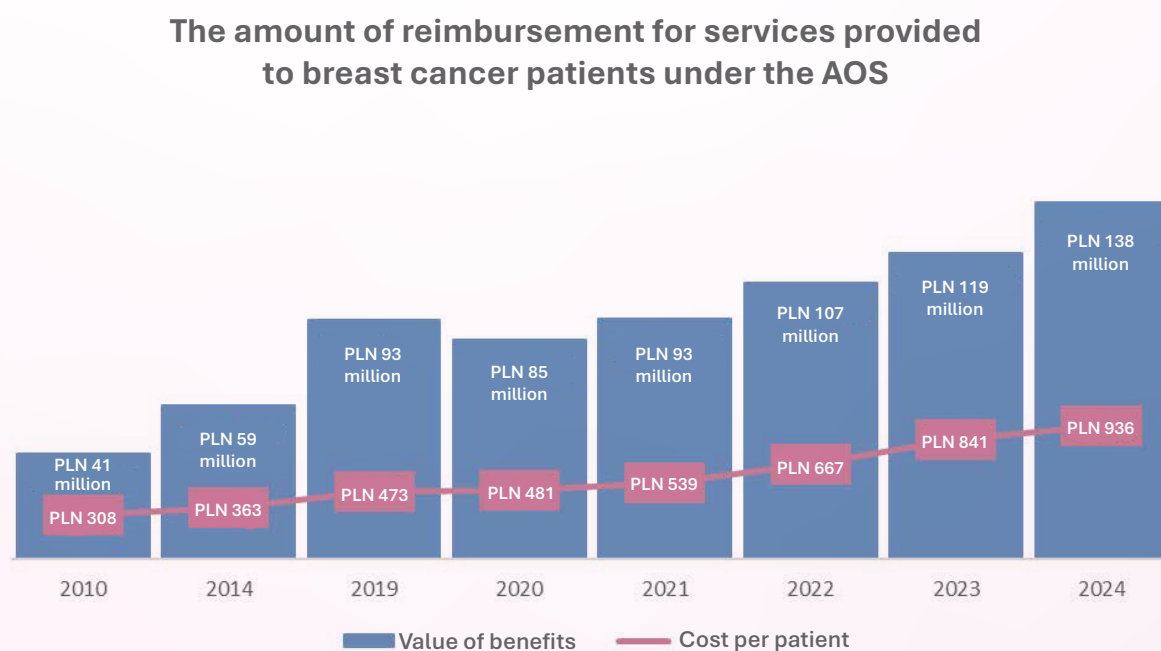


Chart 9. The amount of reimbursement for services provided to breast cancer patients under the AOS in 2010, 2014, 2019–2024 according to NFZ data [46]

Inpatient Treatment

In 2024, more than 162,000 patients were hospitalized due to breast cancer. Between 2019 and 2024, there has been a steady increase in the number of patients requiring hospitalization. The number of healthcare providers remained at a similar level during the period under review [46].

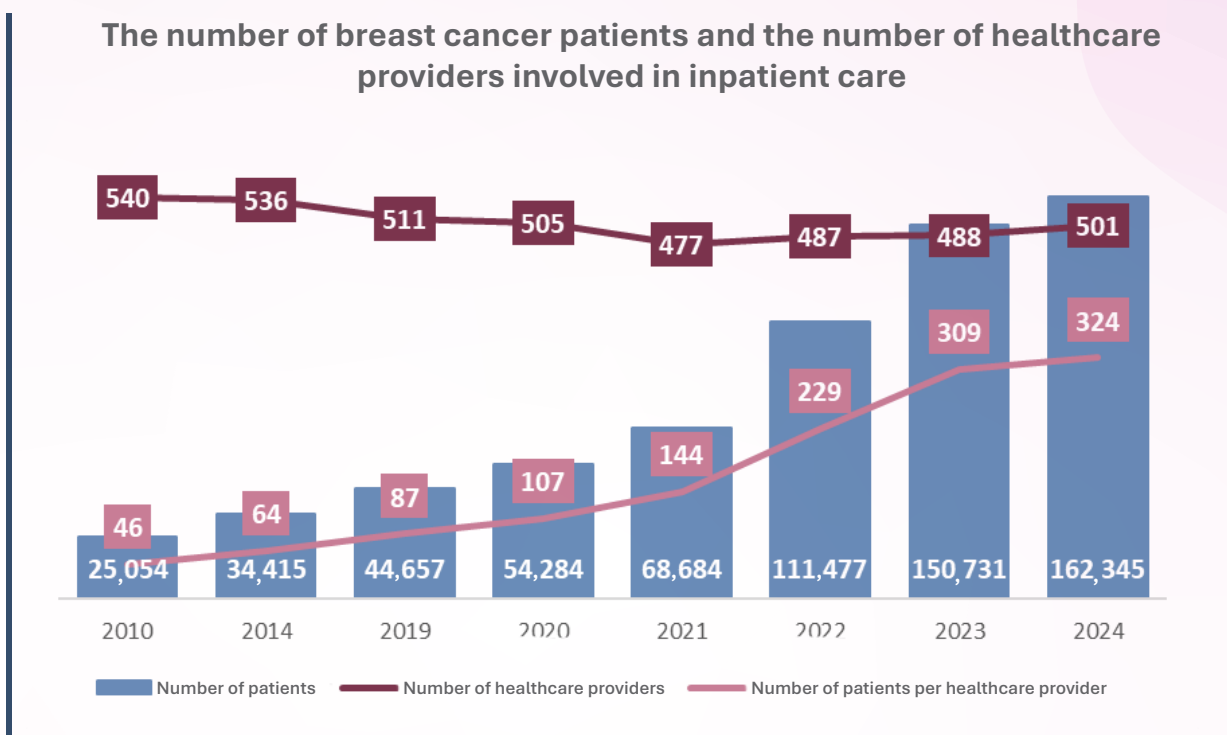


Chart 10. Number of breast cancer patients and number of healthcare providers offering inpatient treatment in 2010, 2014, and 2019–2024 according to NFZ data [46]

During the study period, there was a marked increase in spending on inpatient care for breast cancer patients. Between 2019 and 2024 alone, the amount of reimbursements increased by more than 240%, rising from PLN 337 million to PLN 1,171 million [46].

Reimbursement and cost of inpatient treatment for a breast cancer patient

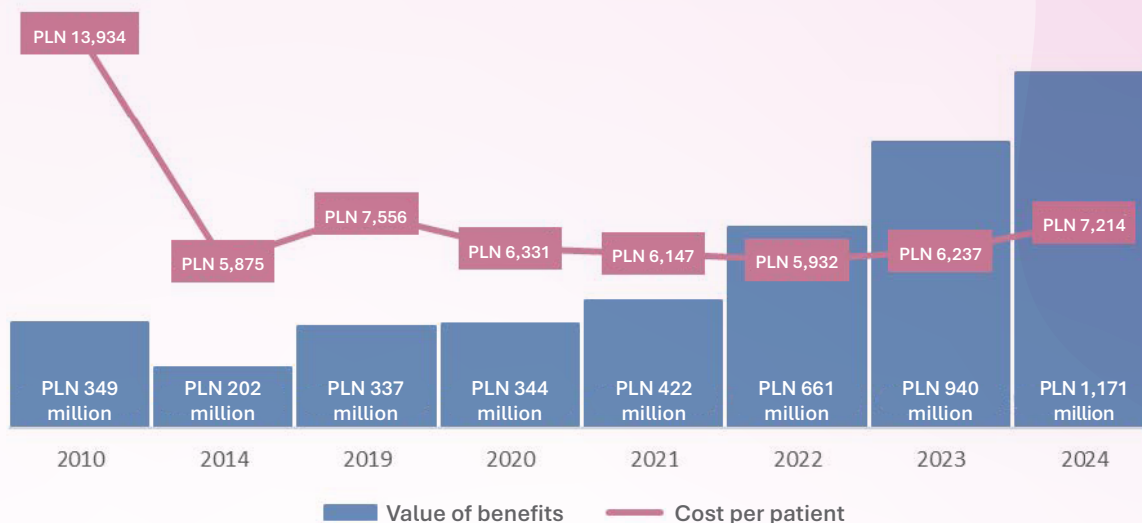


Chart 11. Reimbursement and cost of inpatient treatment for a breast cancer patient in 2010, 2014, 2019–2024 according to NFZ data [46]

Chemotherapy

Between 2019 and 2024, the number of patients receiving chemotherapy rose steadily, reaching over 51,000 in 2024 [46]. At the same time, the number of healthcare providers remained at a similar level.

The number of breast cancer patients receiving chemotherapy and the number of healthcare providers

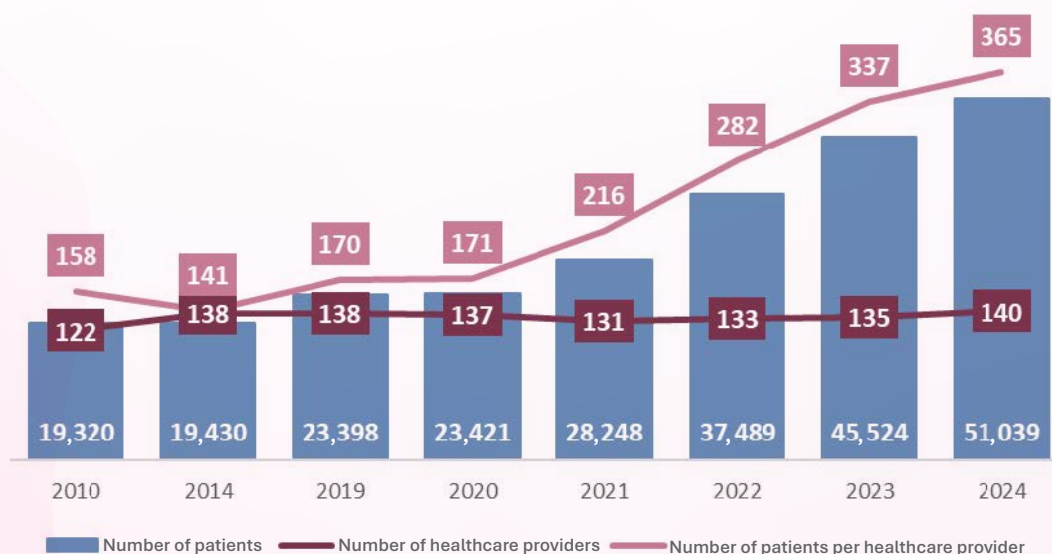


Chart 12. The number of breast cancer patients receiving chemotherapy and the number of healthcare providers in 2010, 2014, and 2019–2024 according to NFZ data [46]

Between 2019 and 2020, the value of chemotherapy reimbursements for breast cancer patients declined, after which it began to rise again, reaching PLN 101 million in 2024—a level similar to that of 2019. A similar trend was observed in per-patient healthcare costs, which amounted to PLN 1,975 in 2024 [46].

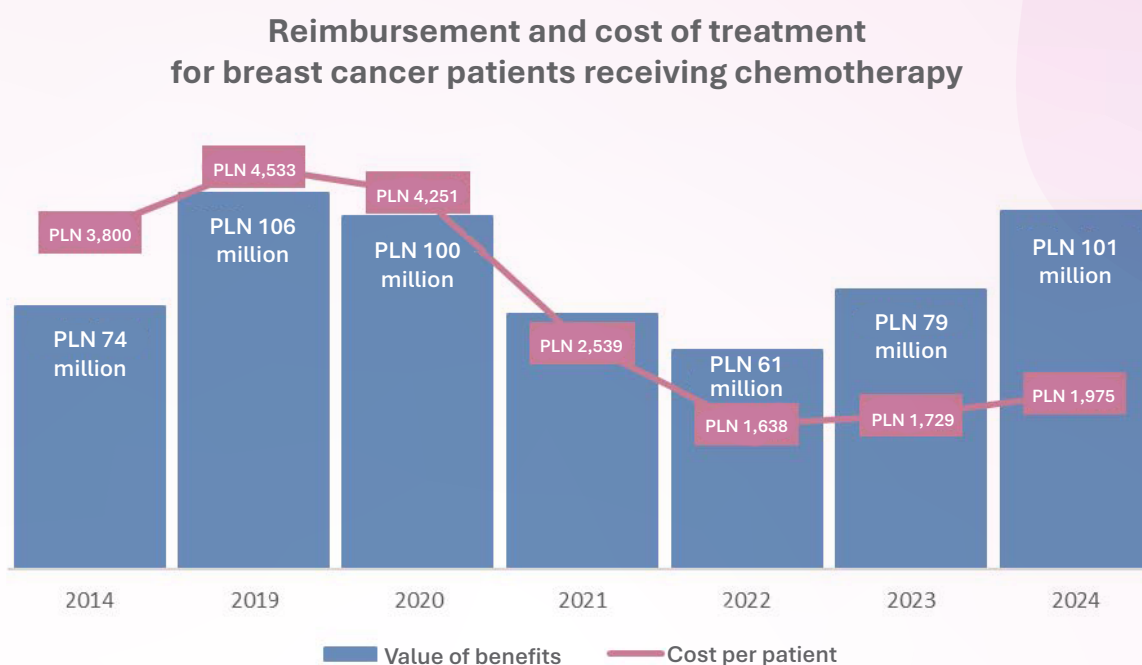


Chart 13. Reimbursement and cost of treatment for breast cancer patients receiving chemotherapy in 2010, 2014, 2019–2024 according to NFZ data [46]

Radiotherapy

Between 2019 and 2024, the number of patients undergoing radiotherapy increased only slightly, as did the number of centers providing these services.

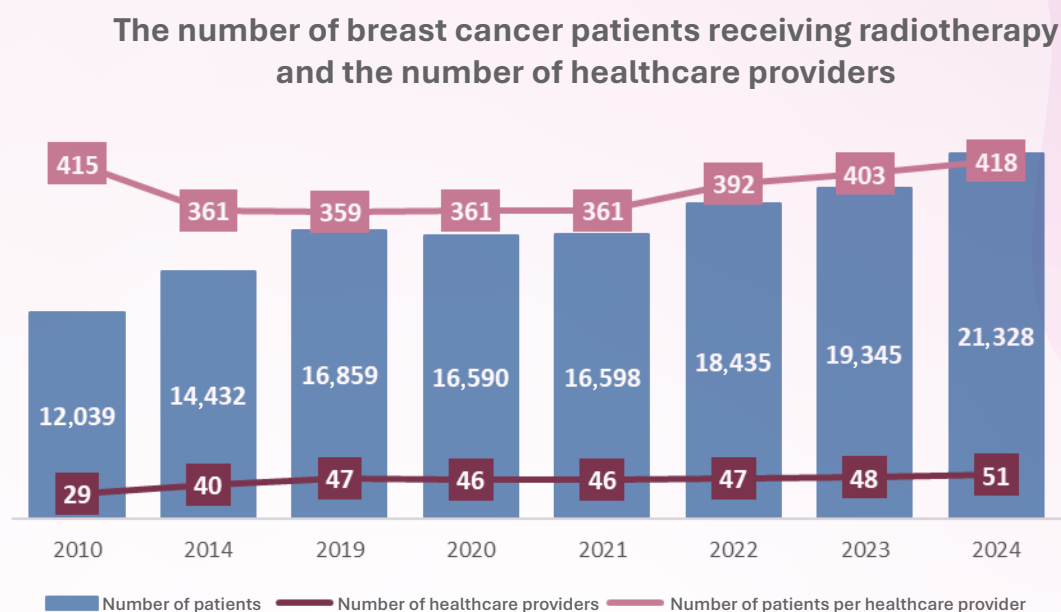


Chart 14. The number of breast cancer patients receiving radiotherapy and the number of healthcare providers in 2010, 2014, and 2019–2024 according to NFZ data [46]

In contrast to the relatively stable number of patients, the reimbursement amount increased significantly between 2019 and 2024—from PLN 263 million to PLN 716 million [46]. A similar trend was observed in the cost of treatment per patient.

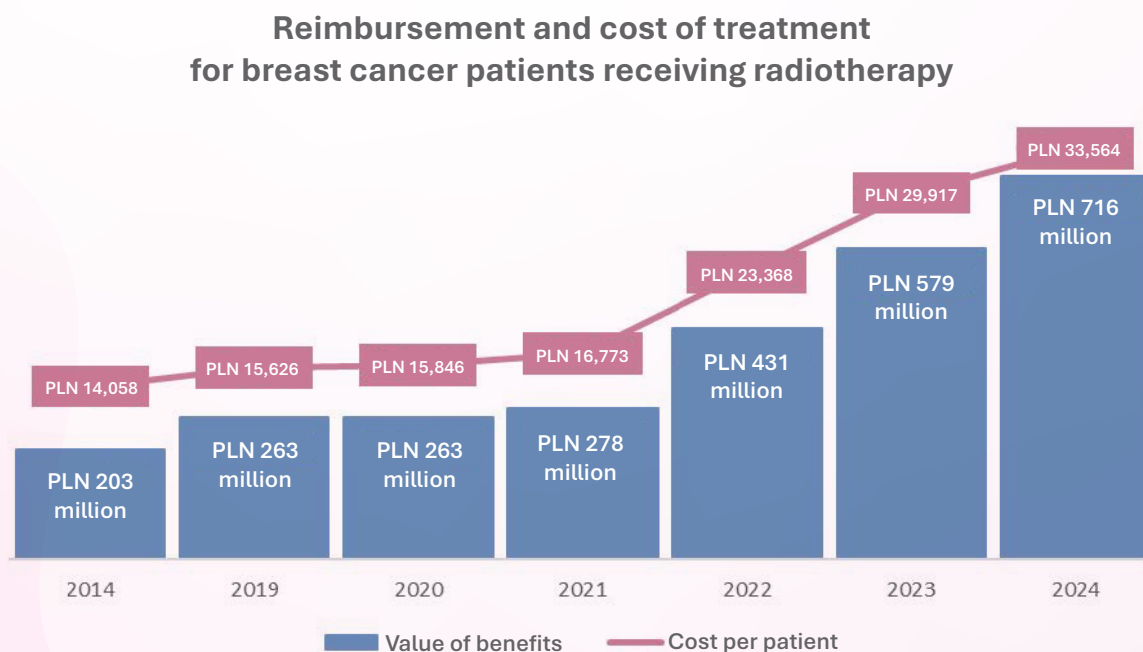


Chart 15. Reimbursement and cost of treatment for breast cancer patients receiving radiotherapy in 2010, 2014, 2019–2024 according to NFZ data [46]

Rehabilitation

The number of breast cancer patients receiving rehabilitation between 2020 and 2024 remained at a similar level (with a slight upward trend). In 2024, the number stood at 15,433, though this still fell short of the 2019 figure of 18,479 patients. In contrast, between 2020 and 2024, the value of reimbursements rose from PLN 10 million to PLN 26 million [46].

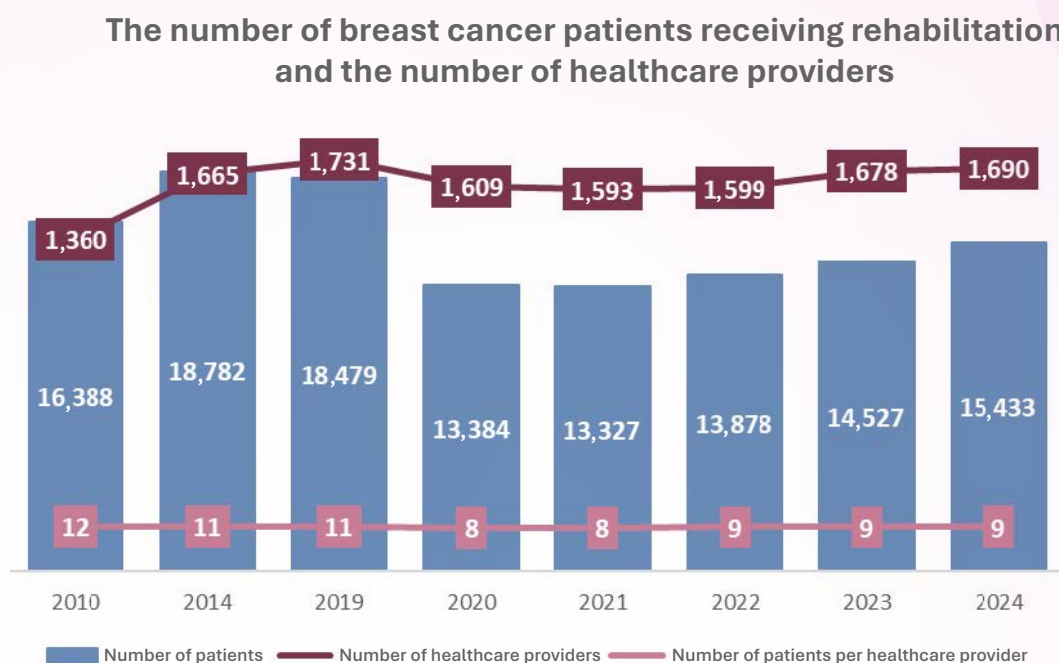


Chart 16. The number of breast cancer patients receiving rehabilitation and the number of healthcare providers in 2010, 2014, and 2019–2024 according to NFZ data [46]

Reimbursement and cost of treatment for breast cancer patients undergoing rehabilitation

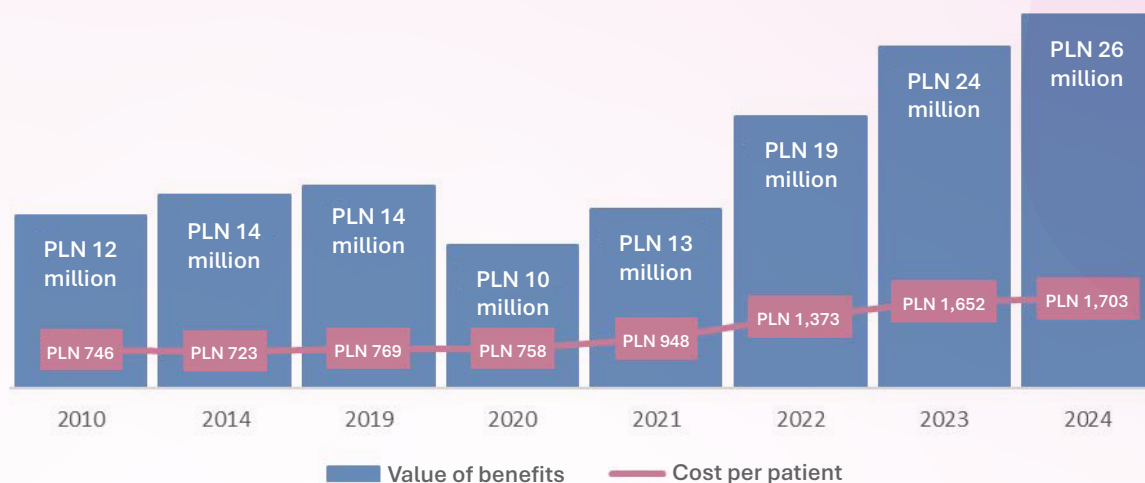


Chart 17. Reimbursement and cost of treatment for breast cancer patients undergoing rehabilitation in 2014, and 2019–2024 according to NFZ data [46]

Palliative and hospice care

In 2024, 8,000 patients with breast cancer received palliative and hospice care. Between 2020 and 2024, the number of patients receiving this care increased slightly. The number of healthcare providers during the period under review ranged from 14 to 16. In contrast, the value of reimbursements and the cost per patient increased significantly during that time, by more than 150% [46].

Patients receiving palliative and hospice care and the number of healthcare providers

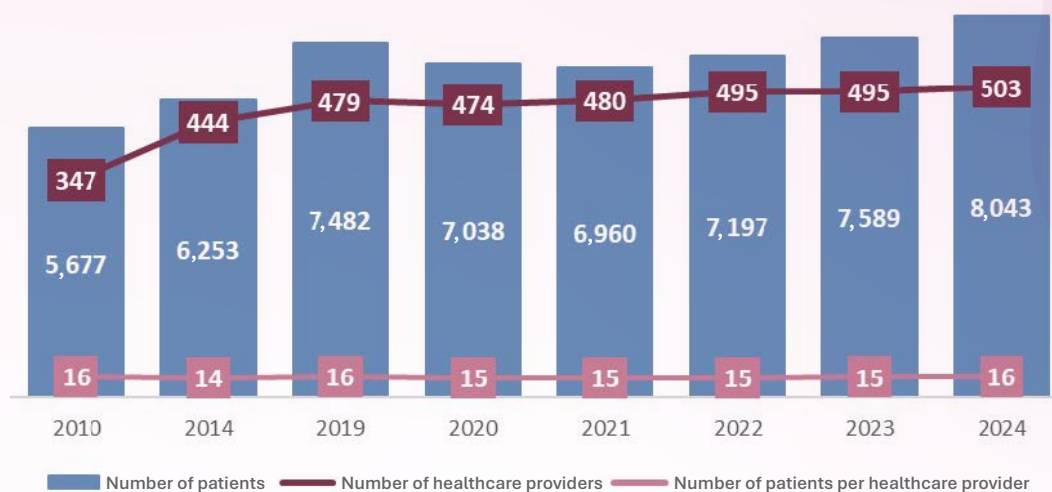


Chart 18. Patients receiving palliative and hospice care and the number of healthcare providers in 2014, and 2019–2024 according to NFZ data [46]

Reimbursement and cost of treatment for patients receiving palliative and hospice care

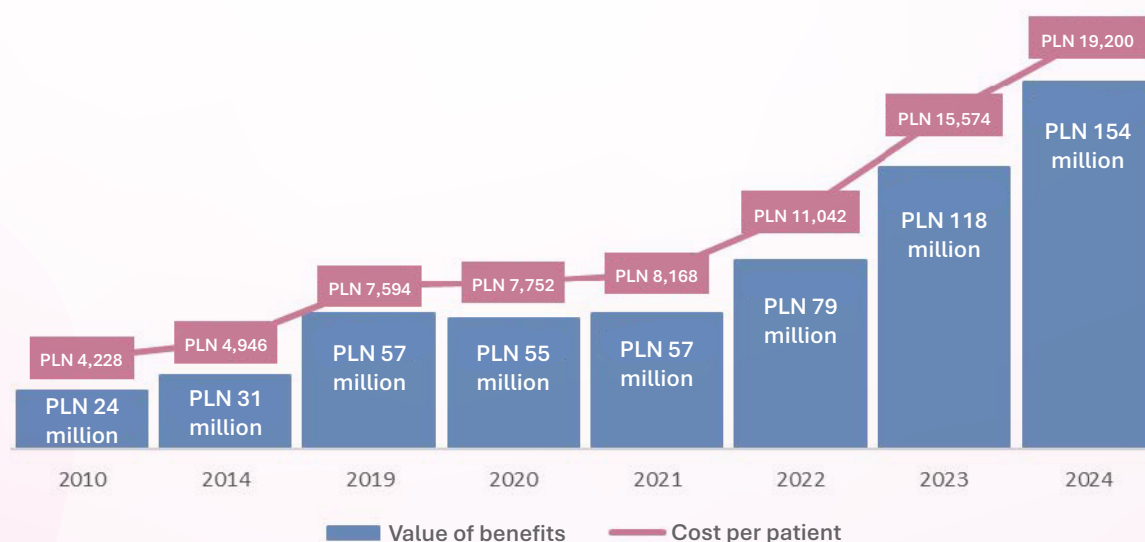


Chart 19. Reimbursement and cost of treatment for patients receiving palliative and hospice care in 2014, and 2019–2024 according to NFZ data [46]

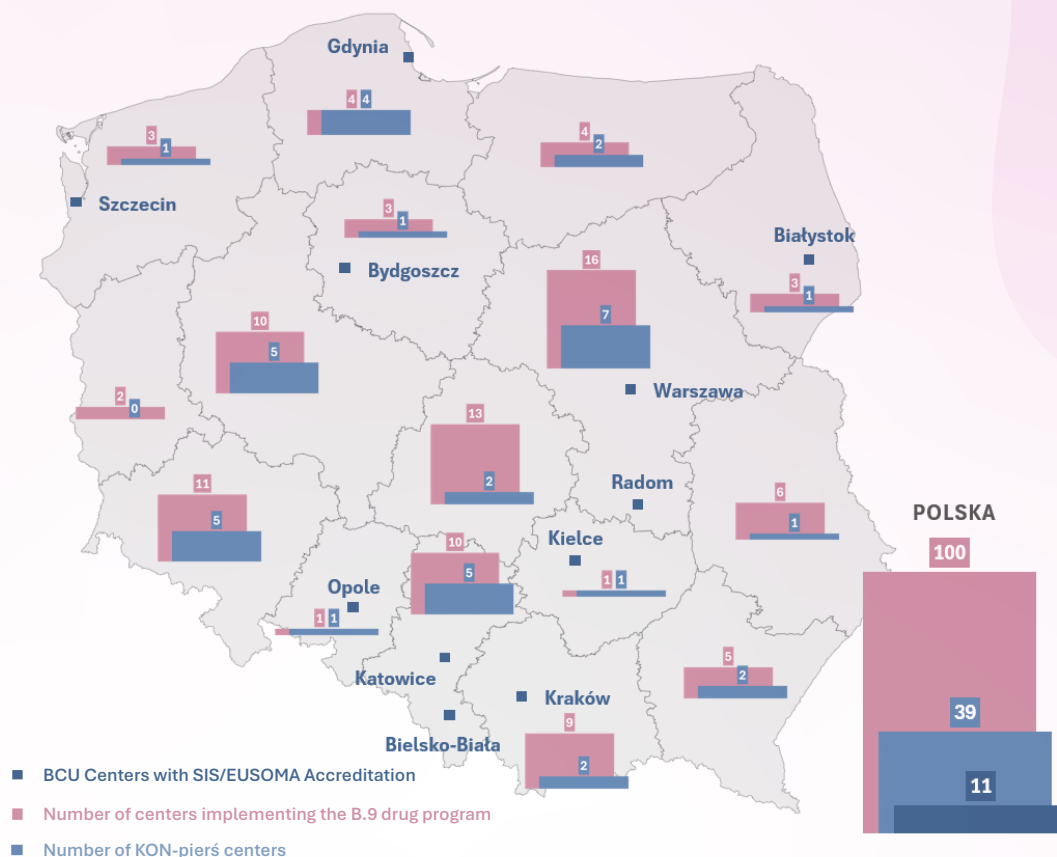
Centers Specializing in Breast Cancer Treatment

In Poland, breast cancer treatment is primarily provided at three types of specialized centers: facilities accredited as *Breast Cancer Units*, Breast Cancer Competence Centers, and facilities implementing the B.9.FM drug program for the treatment of patients with breast cancer (ICD-10: C50). Centers with international SIS (*Senologic International Society*) or EUSOMA (*European Society of Breast Cancer Specialists*) accreditation have the highest standards. Obtaining this status requires meeting strict criteria, such as organizing weekly multidisciplinary conferences, appointing a treatment coordinator, and adhering to specific diagnostic deadlines [53]. There are currently 11 such units in operation: 10 with SIS accreditation [47, 48, 49, 50, 51] and one—the Białystok Cancer Center—with EUSOMA accreditation [52]. Some of them have held these certifications for many years, while others—such as the Beskidzkie Cancer Center (2021), the Radomskie Cancer Center (2022), and the UCK SUM in Katowice (2022)—have obtained them relatively recently.

The second category consists of Breast Cancer Competence Centers (formerly Breast Cancer Centers), established in 2021 to implement the program “Comprehensive Oncology Care for Breast Cancer Patients” (KON-pierś). These facilities must meet high-quality standards, including, among other things, a specified number of breast surgeries, mammograms, and biopsies performed annually, as well as the use of standardized diagnostic and therapeutic procedures. Currently, 39 centers provide KON-pierś services, whereas there were only 19 at the start of the program [54].

The third group consists of centers participating in the B.9.FM drug program, which provides access to modern systemic therapies. It currently includes approximately 100 institutions, including all 39 Breast Cancer Competence Centers [54]. Of these, 11 also hold international accreditation, which confirms that they meet the highest standards of care for breast cancer patients.

BCU centers, KON-piers centers, and centers implementing the drug program



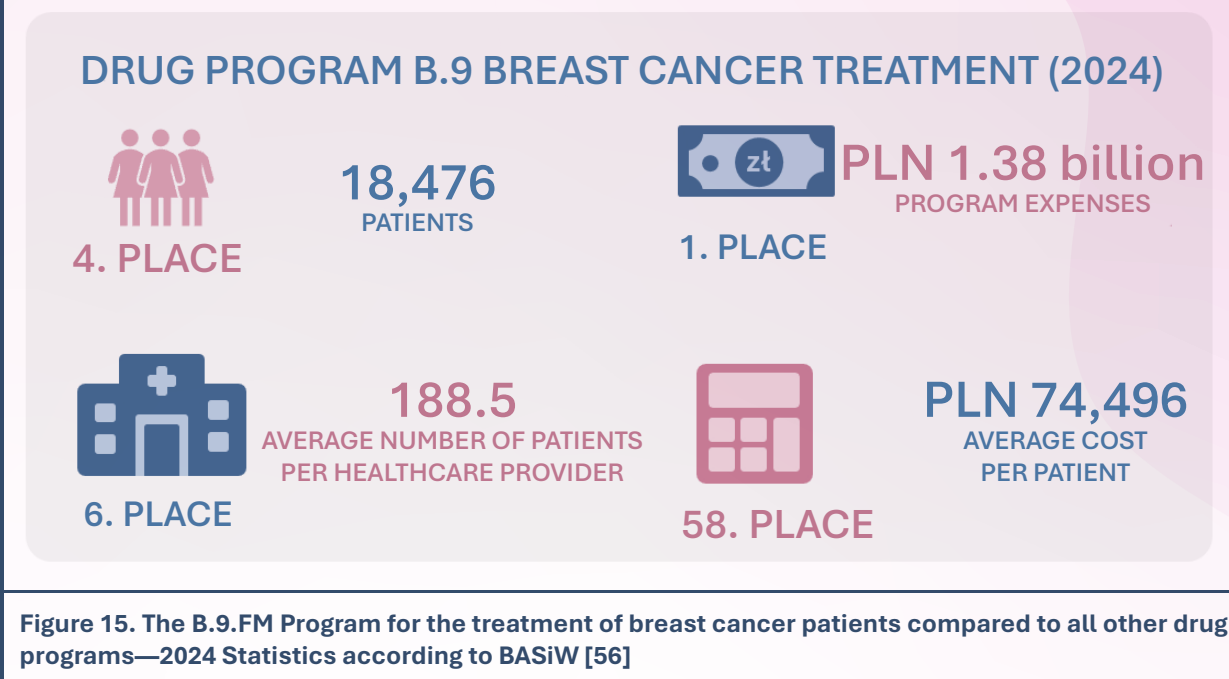
As of June 2025.

BCU – Breast Cancer Unit; SIS – Senologic International Society; EUSOMA – European Society of Breast Cancer Specialists;
KON-piers – centers providing comprehensive cancer care for patients with breast cancer

Figure 14. BCU centers, KON-piers centers, and centers implementing the drug program (2025)

B.9.FM Drug Program

B.9.FM Drug Program—Breast cancer treatment for patients with breast cancer (ICD-10: C50) was one of the key oncology programs in 2024 in terms of reimbursement value. With expenditures totaling nearly PLN 1.38 billion, it is the most expensive program not only among oncology programs but also among all drug programs. In terms of the number of patients, the B.9.FM program ranked fourth among all drug programs and first among oncology programs, while the average cost of treatment per person ranked only 58th out of 130 reimbursed programs [56].



Implementation of the B.9 Drug Program for 2019–2024

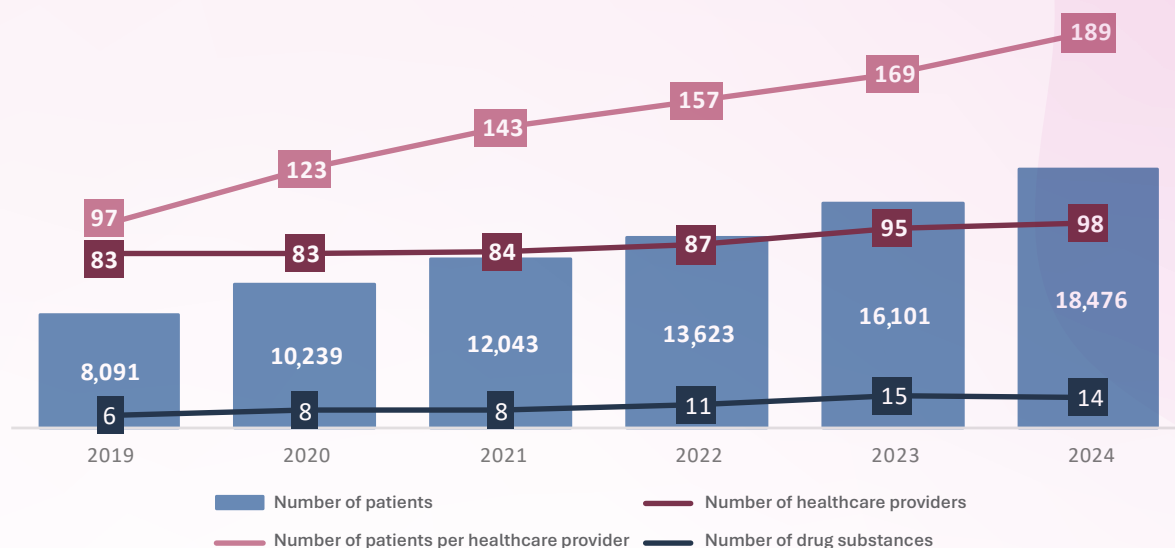


Chart 20. The number of patients, drug substances, and healthcare providers, as well as the average caseload of healthcare providers in the B.9.FM drug program for 2019–2024, according to BASiW data [56]

Between 2019 and 2024, there was a marked increase in spending on treatment under the B.9.FM drug program; the amount of reimbursements rose by 212%, from PLN 442 million to PLN 1,376 million.

The cost of treating breast cancer patients under the drug program

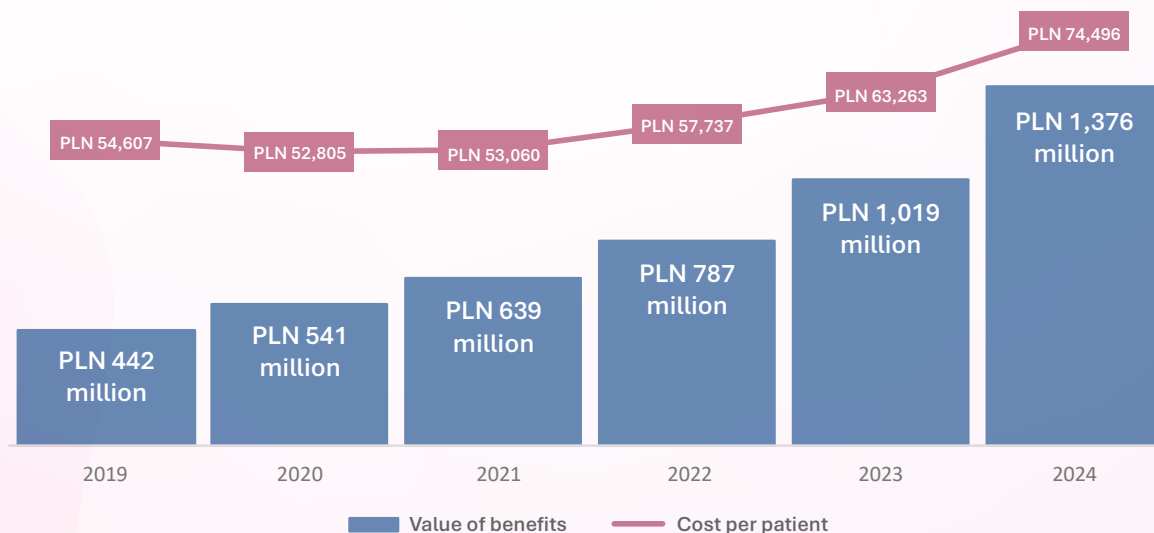


Chart 21. The cost of treating breast cancer patients under the drug program B.9.FM in 2019–2024 according to BASiW [56]

In 2024, the B.9.FM drug program was implemented by 98 healthcare providers in all provinces of Poland. The largest number of patients received treatment in the following provinces: Mazowieckie (3,153 patients) and Śląskie (2,436 patients). In terms of the number of facilities, the largest number of healthcare providers operated in the Mazowieckie (16) and Łódzkie (12) provinces. Conversely, the fewest patients were treated in the Lubuskie (338) and Opolskie (334) provinces, and the fewest centers implementing the program were found in the Świętokrzyskie and Opolskie provinces—one each [56].

Legend:

- Number of patients
- Number of healthcare providers
- Number of patients per healthcare provider
- Percentage of patients from outside the province

Regional Data:

Region	Number of patients	Number of healthcare providers	Number of patients per healthcare provider	Percentage of patients from outside the province
Northwest	861	3	287	12%
North Central	921	4	230	9%
North East	533	4	133	13%
Central	1,092	3	364	16%
South Central	1,310	12	109	6%
South East	1,046	6	174	5%
South West	1,601	11	146	9%
West	338	2	169	7%
Central West	1,551	9	172	6%
Central South	334	1	334	5%
Central East	2,436	10	244	13%
Central North	1,275	8	159	7%
Central South	695	1	695	8%
Central West	334	1	334	5%
Central East	859	5	172	7%
Central North	1,310	12	109	6%
Central South	1,601	11	146	9%
Central West	338	2	169	7%
Central East	1,046	6	174	5%
Central North	1,275	8	159	7%
Central South	695	1	695	8%
Central West	334	1	334	5%
Central East	859	5	172	7%
Central North	1,310	12	109	6%
Central South	1,601	11	146	9%
Central West	338	2	169	7%
Central East	1,046	6	174	5%
Central North	1,275	8	159	7%
Central South	695	1	695	8%
Central West	334	1	334	5%
Central East	859	5	172	7%
Central North	1,310	12	109	6%
Central South	1,601	11	146	9%
Central West	338	2	169	7%
Central East	1,046	6	174	5%
Central North	1,275	8	159	7%
Central South	695	1	695	8%
Central West	334	1	334	5%
Central East	859	5	172	7%
Central North	1,310	12	109	6%
Central South	1,601	11	146	9%
Central West	338	2	169	7%
Central East	1,046	6	174	5%
Central North	1,275	8	159	7%
Central South	695	1	695	8%
Central West	334	1	334	5%
Central East	859	5	172	7%
Central North	1,310	12	109	6%
Central South	1,601	11	146	9%
Central West	338	2	169	7%
Central East	1,046	6	174	5%
Central North	1,275	8	159	7%
Central South	695	1	695	8%
Central West	334	1	334	5%
Central East	859	5	172	7%
Central North	1,310	12	109	6%
Central South	1,601	11	146	9%
Central West	338	2	169	7%
Central East	1,046	6	174	5%
Central North	1,275	8	159	7%
Central South	695	1	695	8%
Central West	334	1	334	5%
Central East	859	5	172	7%
Central North	1,310	12	109	6%
Central South	1,601	11	146	9%
Central West	338	2	169	7%
Central East	1,046	6	174	5%
Central North	1,275	8	159	7%
Central South	695	1	695	8%
Central West	334	1	334	5%
Central East	859	5	172	7%
Central North	1,310	12	109	6%
Central South	1,601	11	146	9%
Central West	338	2	169	7%
Central East	1,046	6	174	5%
Central North	1,275	8	159	7%
Central South	695	1	695	8%
Central West	334	1	334	5%
Central East	859	5	172	7%

The highest average caseload per healthcare provider was recorded in the Świętokrzyskie province (695 patients per center). Figures above the national average (189 patients per healthcare provider) were recorded in six provinces: Kujawsko-Pomorskie, Pomorskie, Świętokrzyskie, Śląskie, Zachodniopomorskie, and Opolskie.

The lowest caseload was recorded in the Łódzkie province (109 patients per center).

Nationwide, approximately 9.8% of patients received treatment outside the province where they lived. The lowest percentage of patients coming from other regions (5%) was recorded in the Lubelskie and Opolskie provinces, while the highest was recorded in the Podlaskie (14%) and Kujawsko-Pomorskie (16%) provinces [56].

The results of the analysis indicate that, although the B.9.FM program is implemented nationwide, there are significant differences in the availability of services and the caseload at individual centers. In some provinces, such as Świętokrzyskie and Opole, individual facilities serve a very large number of patients, which can negatively affect the quality and availability of treatment. The uneven distribution of healthcare providers highlights the need to better balance the network of facilities in order to relieve the burden on the most overloaded facilities and improve equitable access to treatment. In addition, the significant proportion of patients seeking treatment outside their province of residence indicates that, in some regions, the availability of care is insufficient or less accessible, which creates additional organizational challenges for patients and places a burden on the system. Optimizing the distribution and number of healthcare providers could therefore help improve the quality of care and reduce the need for patients to travel between provinces.

Geographic availability of the B.9.FM DP

In 2023 (the most recent data available on territorial coverage), the B.9.FM drug program for breast cancer patients was implemented by 101 centers across 101 organizational units. The average distance that patients had to travel by car from their municipality of residence to the nearest center offering the program was 38 km, while the longest trip was 111 km [60].

An analysis of travel time shows that the average travel time by car to the center was 45 minutes, although patients from the most distant locations had to spend as much as 114 minutes traveling [60].

It is worth noting that these figures are based on travel to the nearest center offering the program. In practice, as the analysis by province shows, some patients receive treatment outside their place of residence, which means that the actual travel distances and times could be significantly longer.

Geographic availability of the B.9.FM DP in 2023



Figure 17. Geographic availability of the B.9.FM drug program in 2023 according to BASiW [60]

Medications in the Drug Program

Women with breast cancer have been treated under the B.9.FM drug program for nearly 20 years. The first data on this treatment program appeared in the NFZ's 2005 report. It is estimated that more than 80,000 patients have already been included in the program.

Over the past nine years, a total of 17 drug substances have been included in the reimbursement program. The drug that has been in use the longest is intravenous trastuzumab, which has been available in the chemotherapy catalog since March 2023. Effective October 1, 2025, reimbursement will also cover the following new therapies: Phesgo (pertuzumab + trastuzumab, subcutaneous injections, SC) and Truqap (capivasertib, oral tablets). In addition, the indications for existing drugs have been expanded: Kisqali (ribociclib, oral tablets) and Trodelvy (sacituzumab govitecan, intravenous solution). The following drugs are currently available in the program:

- 5 compounds administered as an intravenous infusion,
- 8 compounds administered orally,
- 2 compounds administered subcutaneously.

Medications in the B.9.FM drug program in 2012–2025

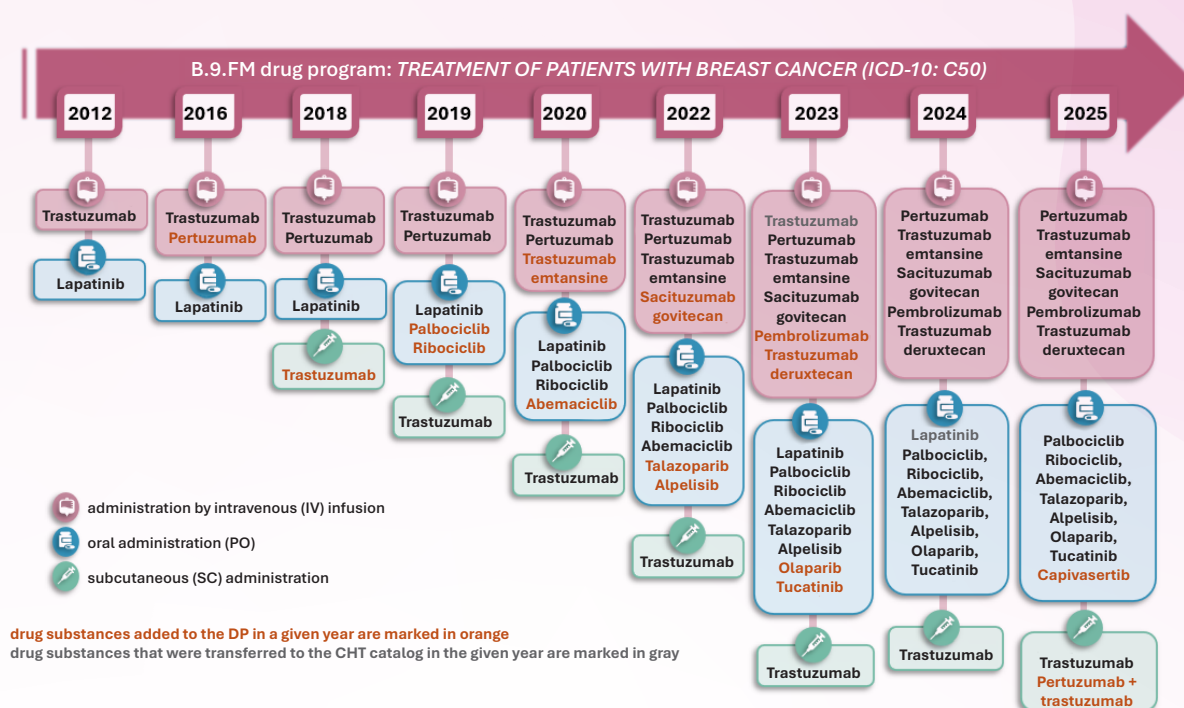


Figure 18. B.9.FM drug program: treatment options available for breast cancer patients from 2012 to 2025 [62]

Between 2012 and 2024, there has been a steady increase in the number of patients treated under the program. In 2019, approximately 8,100 women participated in the program, and by 2024, that number had risen to 18,500—an increase of 128%. During the same period, the NFZ's expenditures on the program rose from PLN 442 million to PLN 1,376 million (an increase of 212%) [56].

Payers' expenses for medications and related services in B.9.FM DP

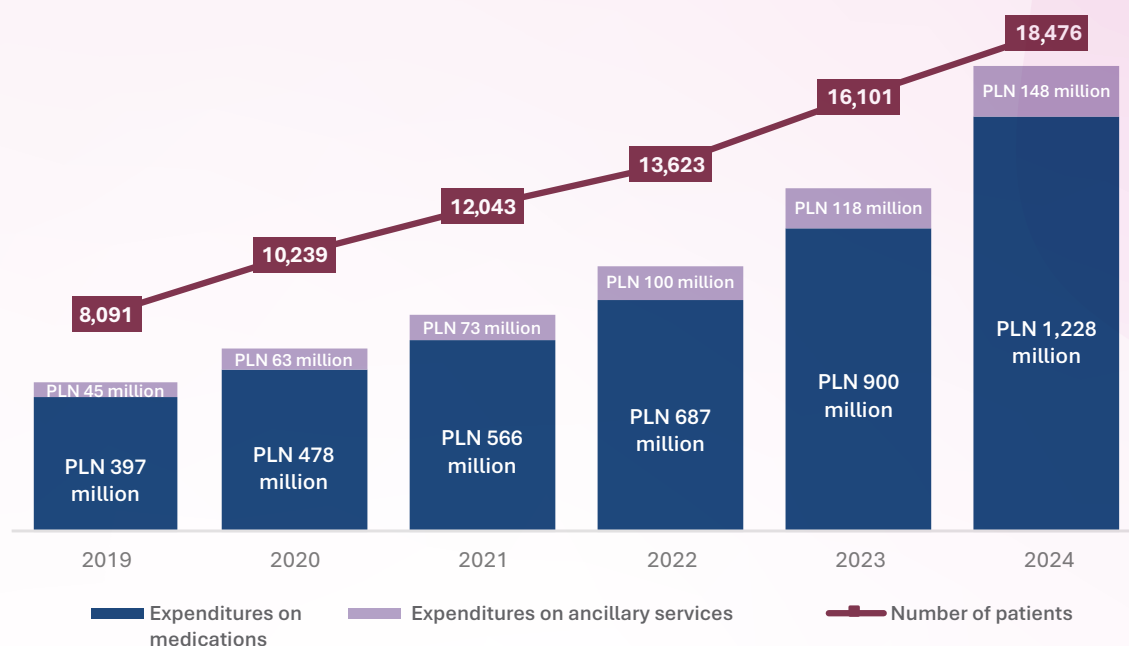


Chart 22. Expenditures by the payer on medications and related services from 2019 to 2024, and the number of patients treated under B.9.FM DP [56]

In 2024, approximately 18,500 breast cancer patients were treated under the B.9.FM drug program. Total spending on drug reimbursements amounted to PLN 1.23 billion. The largest proportion of this amount was attributable to intravenously administered medicines, which accounted for 69% of the total costs. Oral medications accounted for 25% of expenditures, while subcutaneous medications accounted for 6% [56].

Four drugs accounted for the largest share of the cost structure: pertuzumab (21%), trastuzumab emtansine (16%), and pembrolizumab (21%). In terms of the number of patients, the most commonly used drugs were subcutaneous trastuzumab and olaparib, each of which was administered to 4,900 patients. Pertuzumab (3,900 patients) and ribociclib (3,400) followed [56].

Number of patients and reimbursement amounts for medications used in B.9.FM DP, 2024

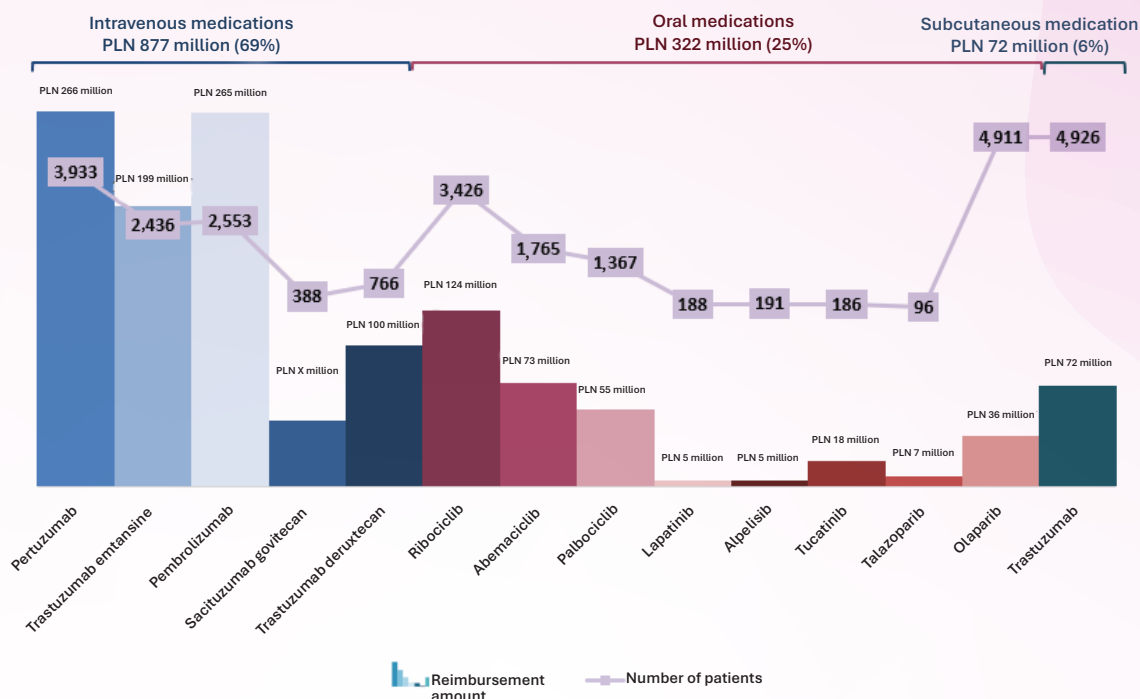


Chart 23. Number of patients and the value of reimbursements for drugs used in B.9.FM DP in 2024, broken down by route of administration [56]

When analyzing the average reimbursement cost per patient, the highest figures were recorded for trastuzumab deruxtecan—PLN 130,113. The next items on the list were: sacituzumab govitecan (PLN 120,830) and pembrolizumab (PLN 103,799).

It is worth noting that the published data do not take into account risk-sharing mechanisms (e.g., payback), which means that the actual costs incurred by the public payer may be lower than what the official statistics indicate.

The total value of drug reimbursements and the per-patient reimbursement amount for drugs covered under B.9.FM DP in 2024

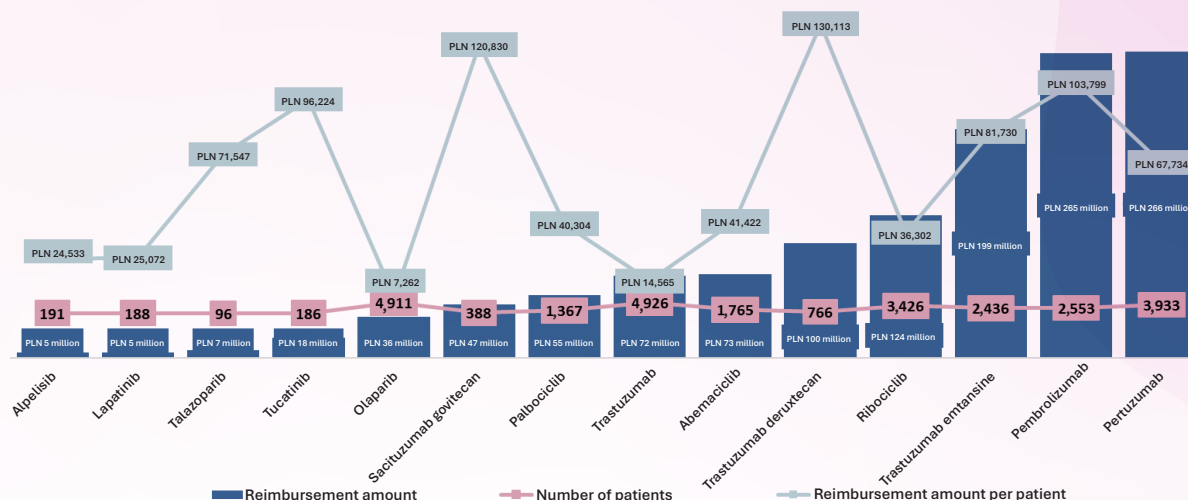


Chart 24. The value of drug reimbursements and the value of reimbursements per patient for drugs used in B.9.FM DP in 2024, broken down by drug substance [56]

Benefits provided under the drug program

From 2019 to 2024, under the B.9.FM drug program, it was possible to bill for four types of services:

- hospitalization
- same-day hospitalization
- outpatient admission of the patient
- diagnostics in the drug program.

During the period under review, the structure of benefits under the B.9.FM drug program underwent changes.

- Diagnostics in the drug program—its share increased from 35% in 2019 to 38% in 2024, indicating a gradual rise in the importance of this stage in the therapeutic process.
- Same-day hospitalizations—there was a decrease from 47% to 39%, which may suggest that some services have been shifted to other delivery models.
- Outpatient care—the use of this service is on the rise, reflecting the growing role of outpatient care in the treatment of patients enrolled in the program [56].

- Hospitalization – its share has remained stable; however, as the number of patients and services has increased, there has been a noticeable rise in the number of patients entering the program.

Share of services provided under B.9.FM DP in 2019–2024

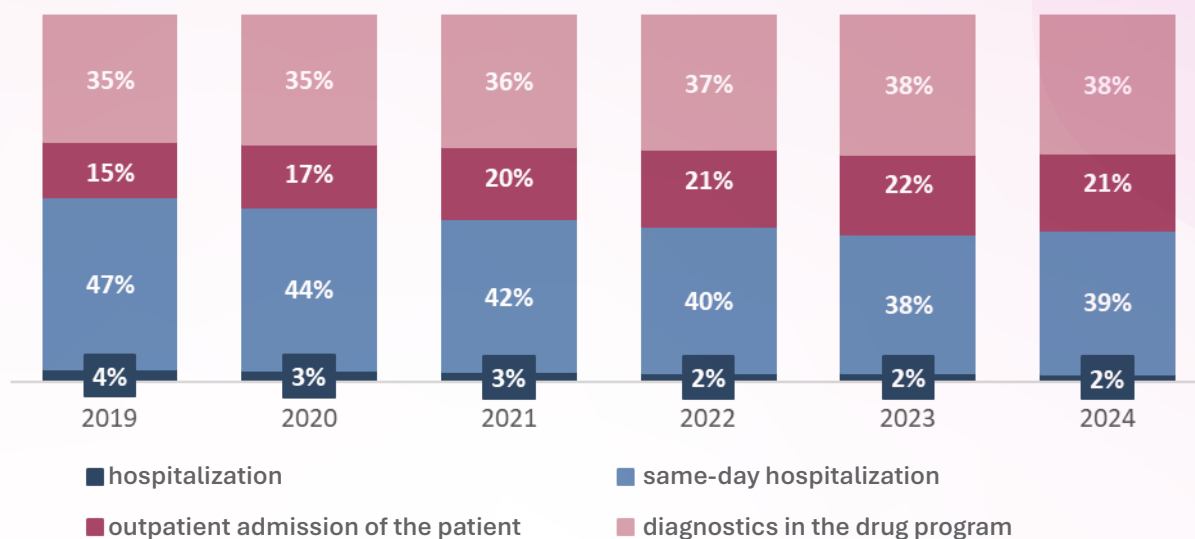


Chart 25. Share of services provided under B.9.FM DP in 2019–2024 [56]

Hospitalization

Between 2019 and 2024, the number of hospitalizations under the B.9.FM drug program increased by 56%, which also led to a similar increase in the number of patients receiving this type of treatment. This means a steady influx of new patients into the program [56].

At the same time, the value of reimbursements for inpatient services nearly doubled—from PLN 5 million in 2019 to PLN 10 million in 2024. This increase reflects not only a higher number of services provided but also rising costs of inpatient care [56].

Provision of the “Hospitalization” service as part of B.9.FM from 2019 to 2024

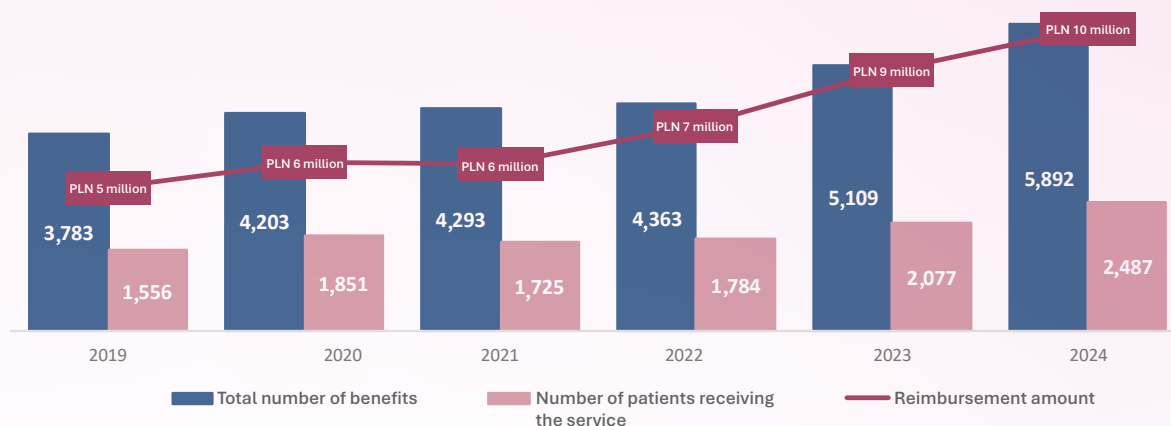


Chart 26. Provision of the “Hospitalization” service as part of B.9.FM from 2019 to 2024 [56]

Same-Day hospitalization

Although the share of same-day hospitalizations in the service mix of the B.9.FM program decreased from 47% to 39%, their number increased by more than 60% during the period under review. At the same time, the value of benefit reimbursements more than doubled. This means that same-day services continue to play an important role, although their relative importance is declining in favor of other delivery models [56].

Provision of the “Same-Day Hospitalization” service as part of B.9.FM from 2019 to 2024

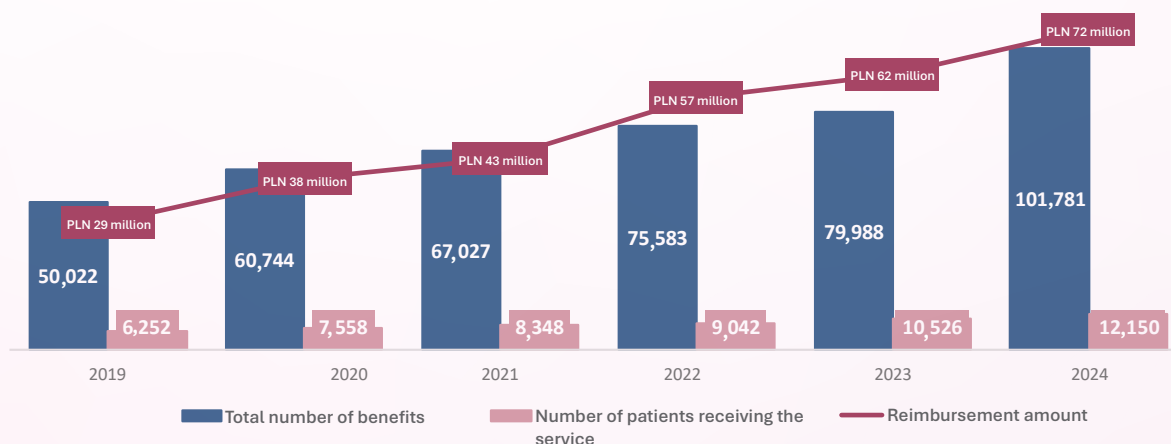


Chart 27. Provision of the “Same-Day Hospitalization” service as part of B.9.FM from 2019 to 2024 [56]

Outpatient admission of the patient

The largest increase was recorded in outpatient admissions. Between 2019 and 2024, the number of services provided increased by more than 240%, and the number of patients by 187%. At the same time, the value of reimbursements more than quadrupled—from PLN 1.7 million to PLN 8.3 million [56].

The rapid growth of this form of care underscores its increasing role in the treatment of patients enrolled in the B.9.FM drug program. Outpatient care allows for more efficient use of resources, reduces the need for hospitalization, and improves access to treatment [56].

Provision of the “Outpatient Admission of a Patient” service as part of B.9.FM from 2019 to 2024

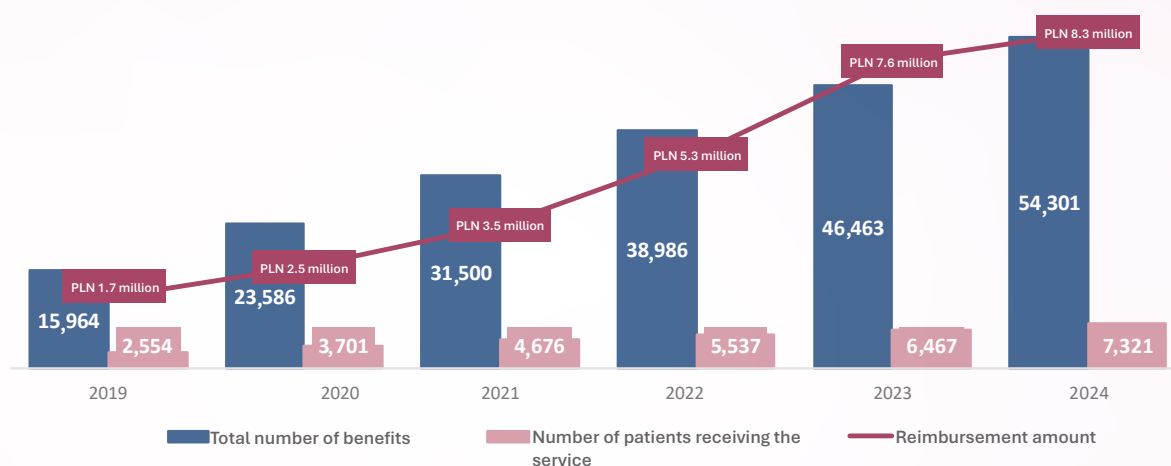


Chart 28. Provision of the “Outpatient Admission of a Patient” service as part of B.9.FM from 2019 to 2024 [56]

Diagnostics in the drug program

Diagnostics are playing an increasingly important role in the service structure of the B.9.FM program. Its share rose from 35% in 2019 to 38% in 2024, while the number of services provided and the number of patients undergoing diagnostic testing more than doubled [56].

Of particular note is the increase in the value of reimbursements—more than a fourfold increase, from PLN 10 million in 2019 to PLN 43 million in 2024. This indicates the growing importance of diagnostic tests in the process of enrolling and monitoring patients in the program [56].

Provision of the “Diagnostics” service as part of B.9.FM from 2019 to 2024

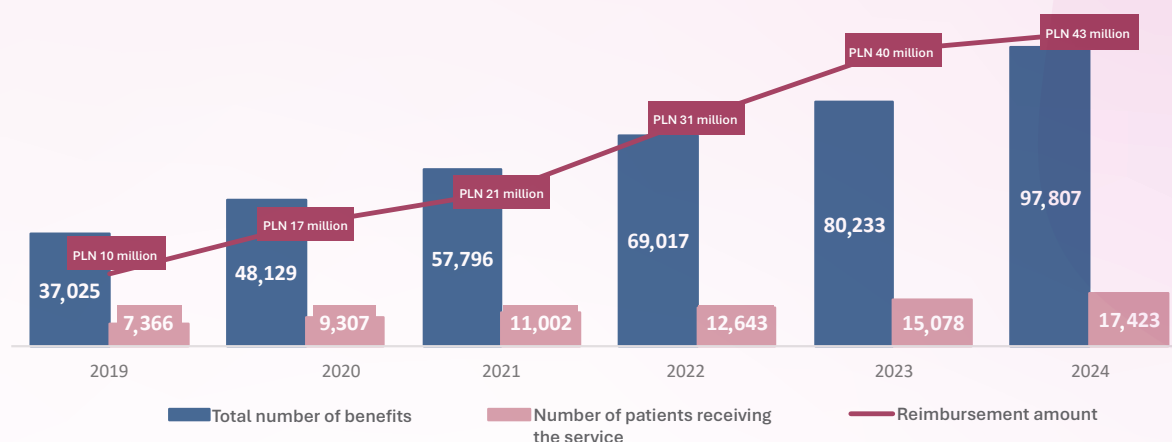


Chart 29. Provision of the “Diagnostics” service as part of B.9.FM from 2019 to 2024 [56]

Waiting Lists for Treatment Under the Drug Program

In August 2025, the average wait time for a service in relation to breast cancer was 1.74 days [61]. It is worth noting, however, that for some healthcare providers, this period was significantly longer. The longest wait times were recorded in the Opolskie province—16.5 days (34 people waiting at a single healthcare provider)—and in the Pomorskie province—12.6 days (10 people waiting at four healthcare providers). In the Zachodniopomorskie, Świętokrzyskie, Kujawsko-Pomorskie i Podlaskie provinces, no people were reported to be waiting in line. For patients in stable condition, the average wait time was 3.24 days, while for urgent cases, it was only 0.24 days [61].

Average wait time under the B.9.FM drug program

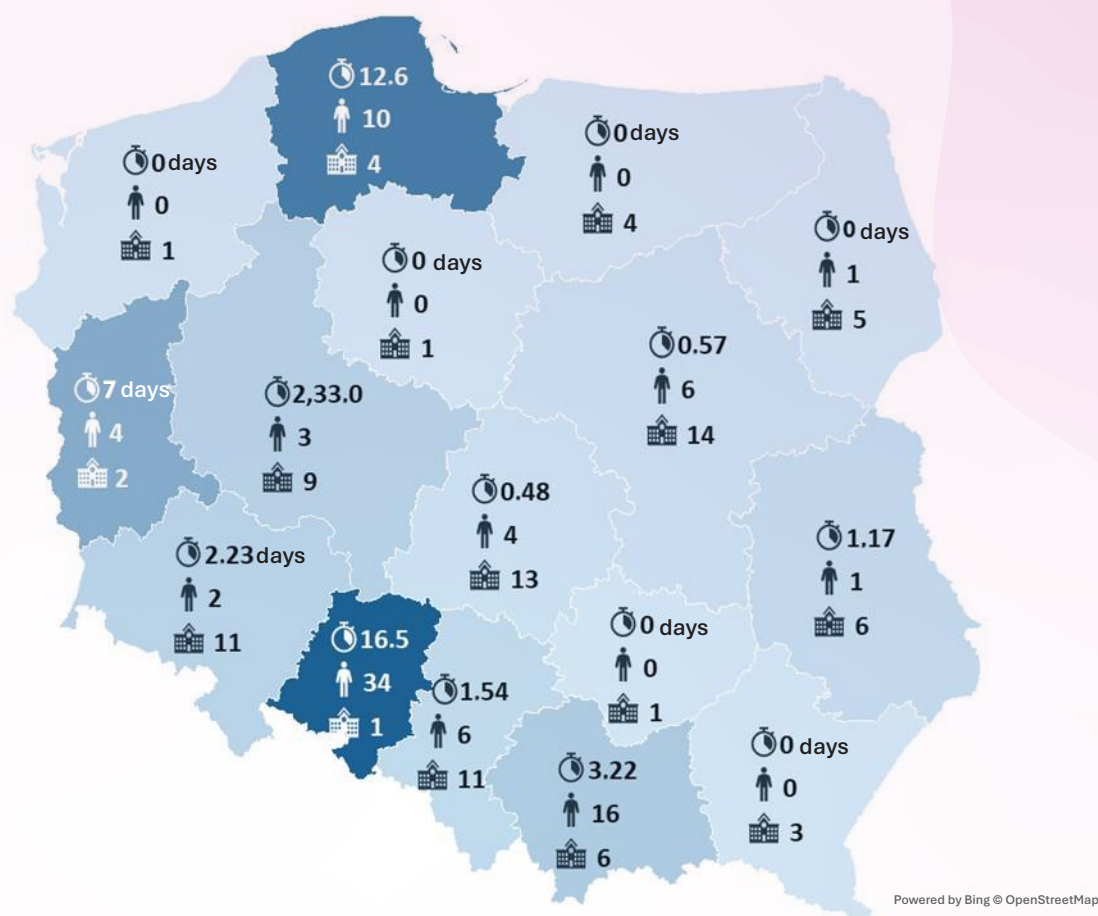


Chart 30. Average wait time, number of patients on the waiting list, and healthcare providers delivering services under the B.9.FM drug program as of August 31, 2025 [61]

Data on average wait times and the number of patients on waiting lists for cancer treatment should be interpreted with caution. The actual number of patients on the waiting list is likely higher than the figures reported by the NFZ, in part due to the restrictive eligibility criteria for drug programs [57], which mean that some patients are waiting to meet those criteria and are not included in the official statistics. As a result, a significant number of patients face long wait times—according to a report by the Alivia Foundation, more than one-third (36%) of people diagnosed with cancer in 2024 waited more than three months to begin treatment [58].

SURVEY RESULTS

Employment status



74% of patients are employed or self-employed
58% average patient productivity during work
66% of patients had to reduce their working hours
16% of caregivers had to reduce their working hours
31% of caregivers took time off work due to a loved one's illness
11% of caregivers took sick leave to care for a loved one



7 days average length of a patient's sick leave
31 days average duration of a patient's sick leave
11 days average length of a caregiver's leave due to a close relative's illness
13 days average duration of a caregiver's sick leave

The economic impact of breast cancer and its treatment



12 average number of visits related to medication administration
17 average number of all visits related to breast cancer treatment
54 km average distance from the patient's place of residence to the center (1% of patients travel more than 350 km)



PLN 100 average cost of travel to the center
 (Only 4% of patients do not incur travel costs to the center, and for 4% of patients, this cost exceeds PLN 350)
PLN 39 average additional costs associated with a visit to the center (For 3% of patients, these costs exceed PLN 350)
PLN 173 amount of lost earnings due to a visit to the center (For 21% of patients, this amount exceeds PLN 500)
PLN 100 the amount of lost earnings by a caregiver due to a close relative's stay at the center
PLN 319 patient's out-of-pocket medical expenses related to a close relative's breast cancer

The psychological consequences of the disease



85% of patients experienced a decline in their mental health
43% reported a decline in the well-being of other family members
25% show lack of education about the disease and possible treatments

Figure 19. Summary of survey results

Breast cancer remains one of the most commonly diagnosed malignant tumors both in Poland and worldwide. The consequences of the disease extend far beyond the medical aspect, as they affect patients' physical and mental health and also impact their family, work, and social lives, as well as their economic situation.

The modern approach to cancer treatment increasingly takes into account precisely those non-medical factors that significantly determine patients' quality of life and the effectiveness of treatment.

A survey was conducted in response to the need for a comprehensive understanding of the experiences of women with breast cancer. Its objective was to conduct a comprehensive assessment of the impact of the disease and its treatment on various aspects of daily life, including the clinical characteristics of the study population, the course of treatment, and the social, occupational, economic, and psychological consequences.

Characteristics of Study Population

The study took the form of an anonymous online questionnaire aimed at people diagnosed with breast cancer. Anyone could participate, regardless of gender; however, in the end, only women responded. A total of 289 questionnaires were collected, and the average age of the participants was 47 years.

In the study group, the most commonly diagnosed type of breast cancer was hormone-dependent breast cancer (53%), while HER2-positive breast cancer was diagnosed in 22% of patients. It is worth noting that 1% of the respondents were unable to identify the subtype of the disease. In terms of disease stage, 44% of the patients were in the early stages (0–II), 46% were in the advanced stages (III–IV), and 10% were unable to determine the stage of their cancer.

An analysis of how treatment was organized revealed that 24% of patients were enrolled in a medication program, 34% received treatment outside the program, and as many as 43% were unaware of how their treatment was organized. The fact that some patients were unable to identify the type of cancer, the stage of the disease, or the nature of the treatment they were receiving indicates either limited knowledge about the disease and available treatment options or inadequate doctor-patient communication. These results underscore the need to intensify educational efforts aimed at increasing patients' knowledge about the course of the disease and available treatment options.

Characteristics of study population

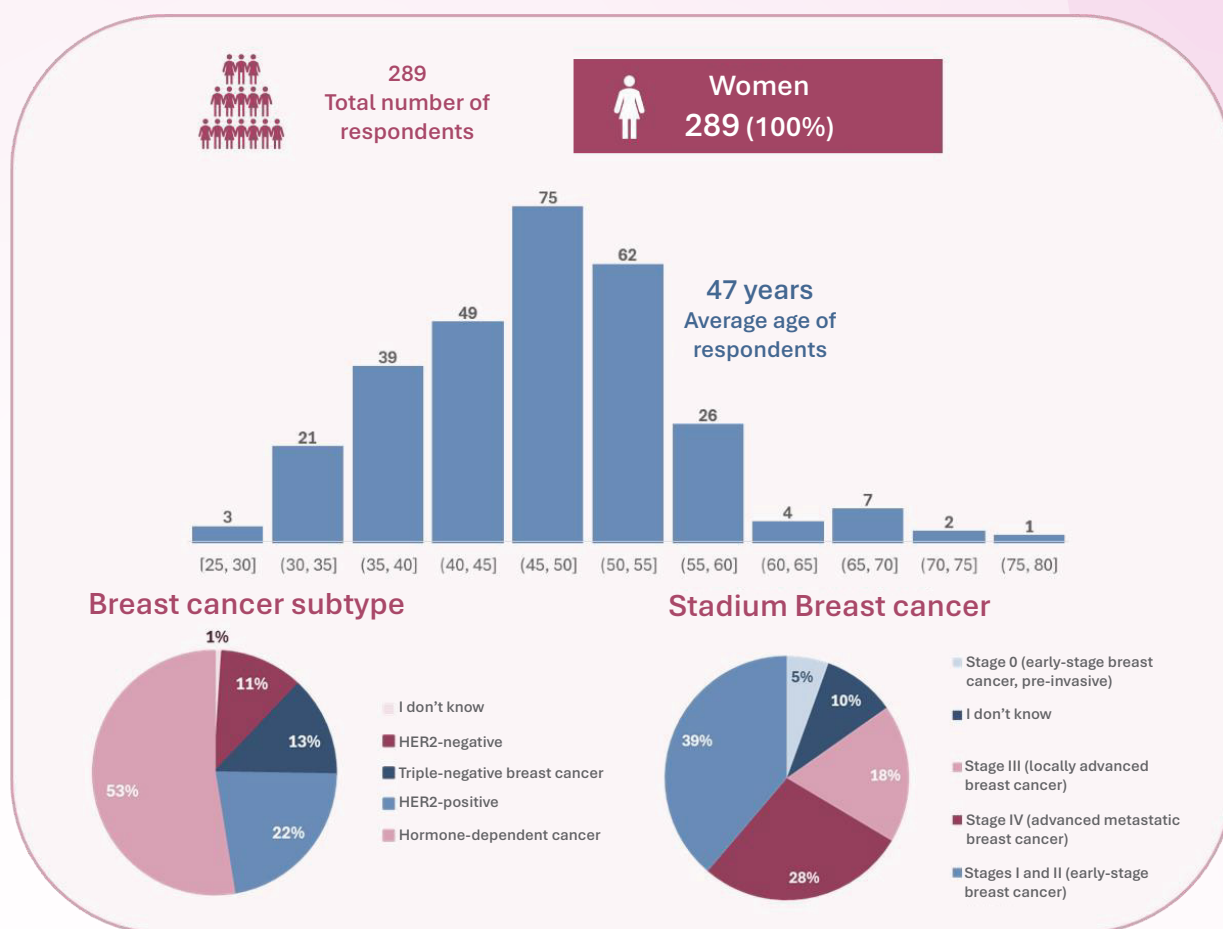


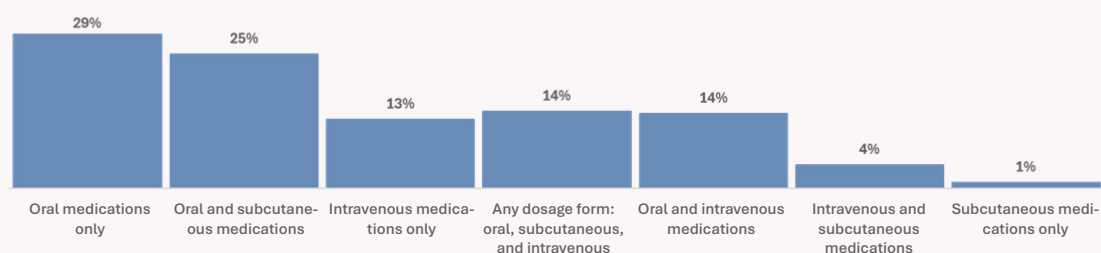
Figure 20. Characteristics of study population

Treatment—Therapies Used and Their Impact on Patients' Well-Being

An analysis of data on pharmacological treatment showed that 31% of patients were taking one medication, 37% were taking two medications, 6% were not receiving any drug therapy at the time of the study, and the remaining patients were taking at least three medications as part of their primary treatment for breast cancer. The most common route of administration was oral (29%), and in the case of dual therapy, a combination of oral and subcutaneous administration (25%).

Medications used as primary treatment of breast cancer

Frequency of use of specific treatment modalities for patients with breast cancer



Number of medications taken as part of the primary treatment for breast cancer

16 (6%)
of patients are not
currently receiving
medication for the
treatment of breast cancer

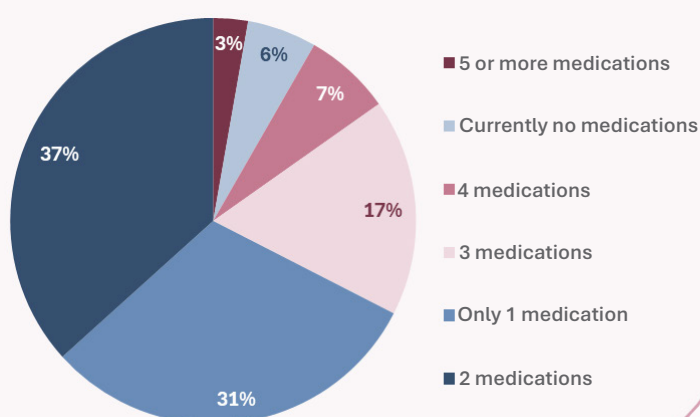


Figure 21. Medications used as primary treatment of breast cancer – results of the survey

The study showed that the drug dosage form significantly affects the patients' well-being. The analysis examined both the comfort and discomfort associated with the procedure, the pain experienced, and possible complications. The best well-being outcomes were observed among patients treated with oral and subcutaneous medications. All patients receiving subcutaneous therapy rated their well-being as a 3 on a six-point scale (0 = poor, 5 = very good). More than 70% of patients treated with oral-subcutaneous regimens—across all available treatment options—as well as with oral-intravenous combination therapy, rated their well-being as at least satisfactory (≥ 3).

Drug dosage form and well-being during administration/intake

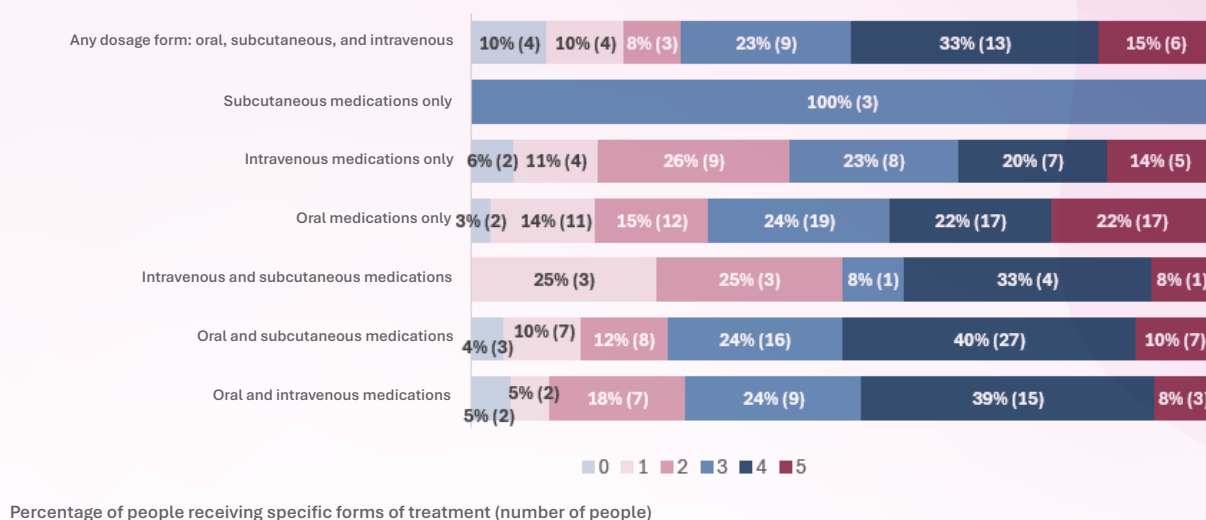


Figure 22. Drug dosage form and well-being during administration/intake

35% of the patients had previously received treatment with another type of medication. Oral medications were the most commonly used (32%), followed by a combination of oral and subcutaneous administration (27%). Among patients with prior treatment experience: 9% switched from a treatment regimen that included all routes of administration to an oral-only regimen, while 7% switched from a regimen that included all routes of administration to a regimen combining oral and subcutaneous administration, or from an intravenous regimen to an oral regimen.

Table 2. A comparison of the most common past and current forms of treatment among survey respondents

Medications previously taken	Current forms of treatment	Number of patients
Any dosage form: oral, subcutaneous, and intravenous	Oral medications only	9
Intravenous medications only	Oral and subcutaneous medications	7
Any dosage form: oral, subcutaneous, and intravenous	Oral medications only	7
Intravenous medications only	Oral and intravenous medications	6
Oral and intravenous medications	Oral and subcutaneous medications	5
Oral and subcutaneous medications	Oral and intravenous medications	5

The study analyzed the impact of the most common changes in treatment regimens on patients' quality of life, including, among other things, the number of visits to the center, the ease of administering the medication, and the occurrence of complications related to its administration. It has been observed that switching from intravenous to oral therapy offers the greatest benefits, primarily by reducing the number of visits to the clinic and making medication administration more convenient.

The impact of changes in drug administration on selected treatment factors



Chart 31. The impact of changes in drug administration on selected treatment factors

The study indicates that patients made frequent visits to the center due to their illness. The average number of visits related solely to medication administration was 12 per year. However, the total number of visits related to breast cancer treatment—including follow-up examinations and radiotherapy—was higher, averaging 17. More than 20% of patients had

to make more than 26 visits per year, which indicates a significant time and organizational burden that hinders their professional work and daily functioning. An analysis of the number of visits to the center related to drug administration, broken down by route of administration, indicates that oral formulations are the least burdensome treatment method from an organizational standpoint. In their case, the majority of patients (66%) had between 0 and 5 visits per year.

Number of visits to the center for medication administration, by route of administration

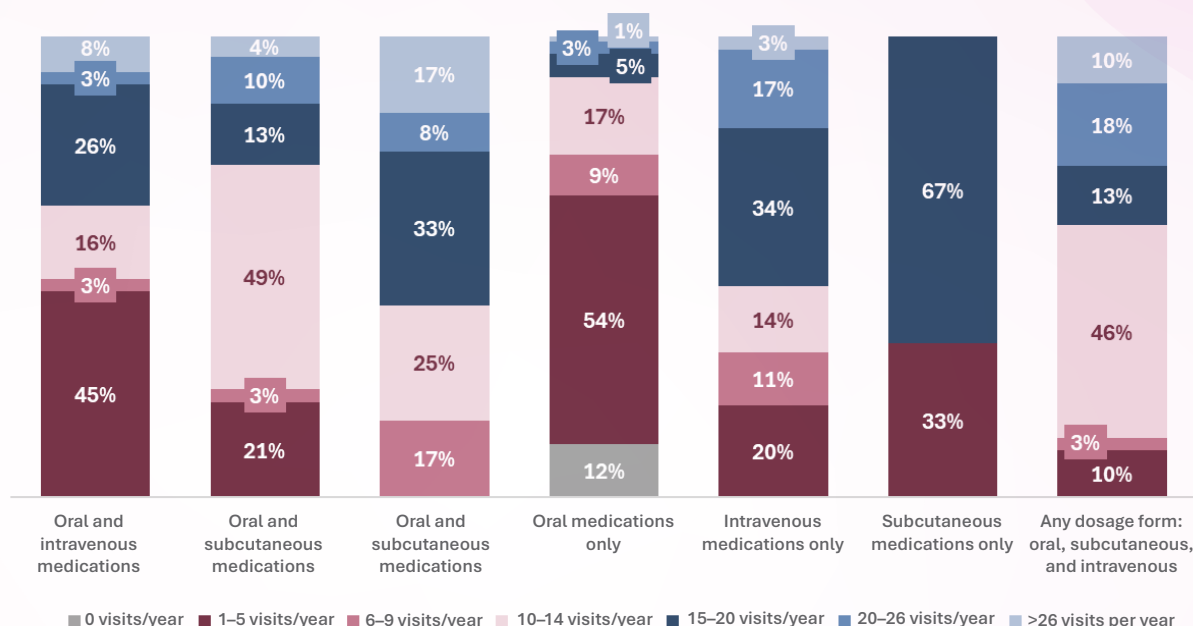
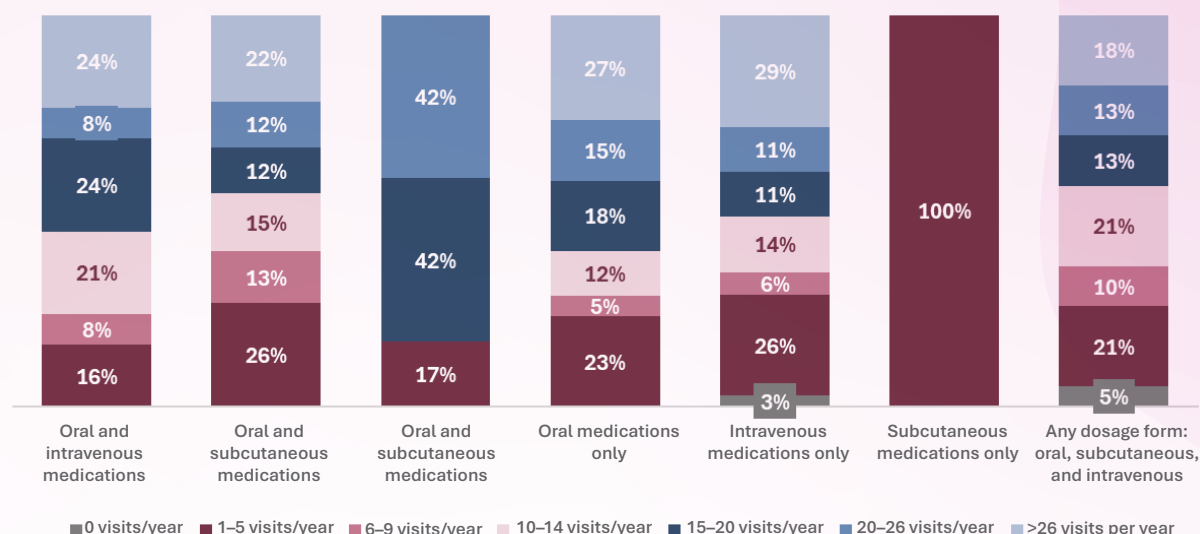


Chart 32. Number of visits to the center for medication administration, by route of administration

However, a breakdown of the frequency of all visits reveals significant variation depending on the type of treatment used. The greatest organizational burden was associated with regimens that included both intravenous and subcutaneous medications—as many as 42% of patients required 15–20 visits per year, and another 42% required as many as 20–26 visits. Even in the case of intravenous therapy alone, the frequency of visits was high, as approximately 11% of patients attended 20–26 visits per year, and 29% attended more than 26 visits. The burden was significantly lower with oral therapy and oral therapy combined with subcutaneous therapy—in about one-quarter of the patients, the number of visits did not exceed 5 per year, and for the rest, it most often ranged from 6 to 14. The least demanding form of therapy remained subcutaneous treatment alone, in which all patients had only 1–5 visits per year.

Total number of visits to the center by route of administration**Chart 33. Total number of visits to the center by route of administration**

The form of administration also had a significant impact on the length of the visit. The shortest visits were recorded for oral administration, with more than 60% lasting less than 1 hour, while for subcutaneous administration, as many as 67% of visits were completed in less than 30 minutes. The longest visits were those involving intravenous administration and the combination regimen (intravenous and subcutaneous), where each visit lasted more than 1.5 hours. An overall analysis also confirmed this trend—visits related to oral treatment were relatively short (about 50% lasted less than 1 hour), and the majority of subcutaneous treatment visits (67%) were completed in less than 30 minutes.

The duration of a visit to the center for medication administration, depending on the form of administration

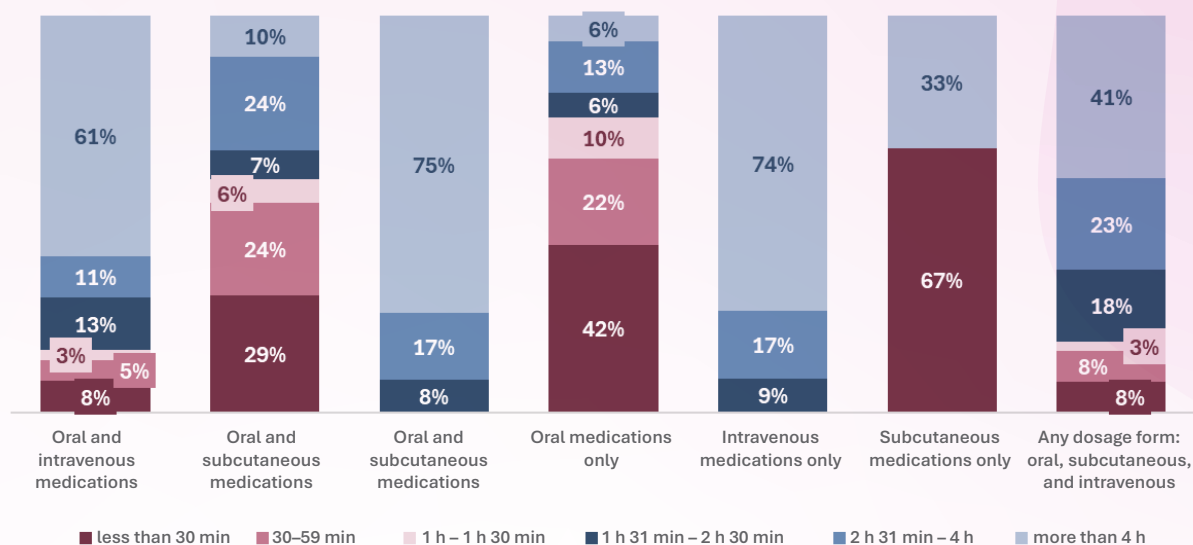


Chart 34. The duration of a visit to the center for medication administration, depending on the form of administration

Total number of visits to the center by route of administration

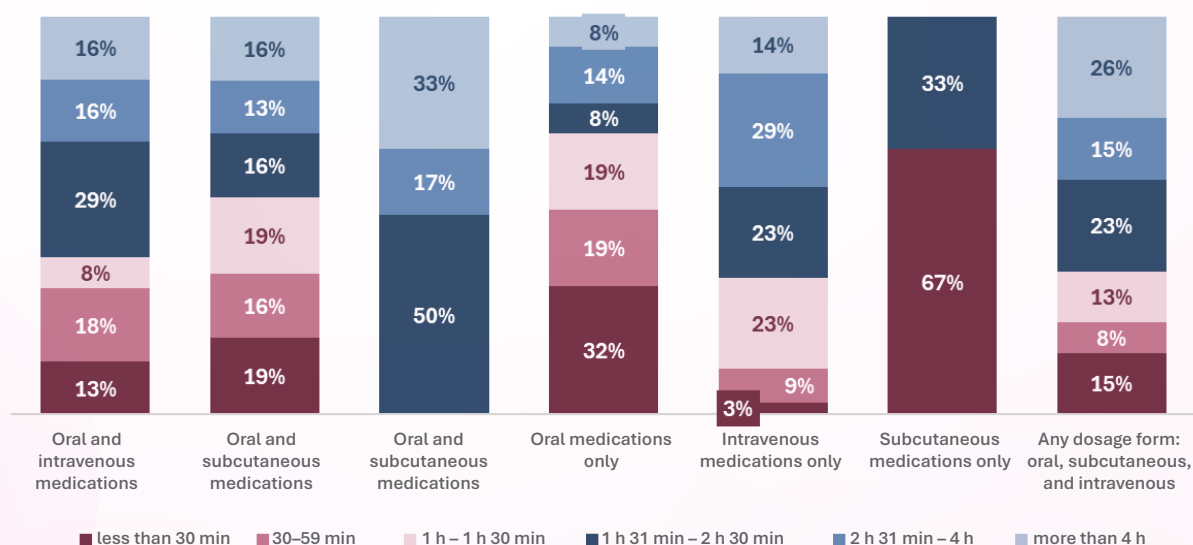


Chart 35. Total number of visits to the center by route of administration

Breast cancer had a significant impact on the respondents' employment status. More than 60% of patients reported that the frequency and duration of their breast cancer treatment appointments significantly disrupted their work, rating this impact at least 3 points on a six-point scale (0 – no impact, 5 – very significant disruption). A similar percentage of respondents indicated that the illness had an equally significant impact on their family life. These findings confirm that the consequences of the disease extend far

beyond health, causing significant disruption both in the workplace and within the family environment, which may require additional support measures.

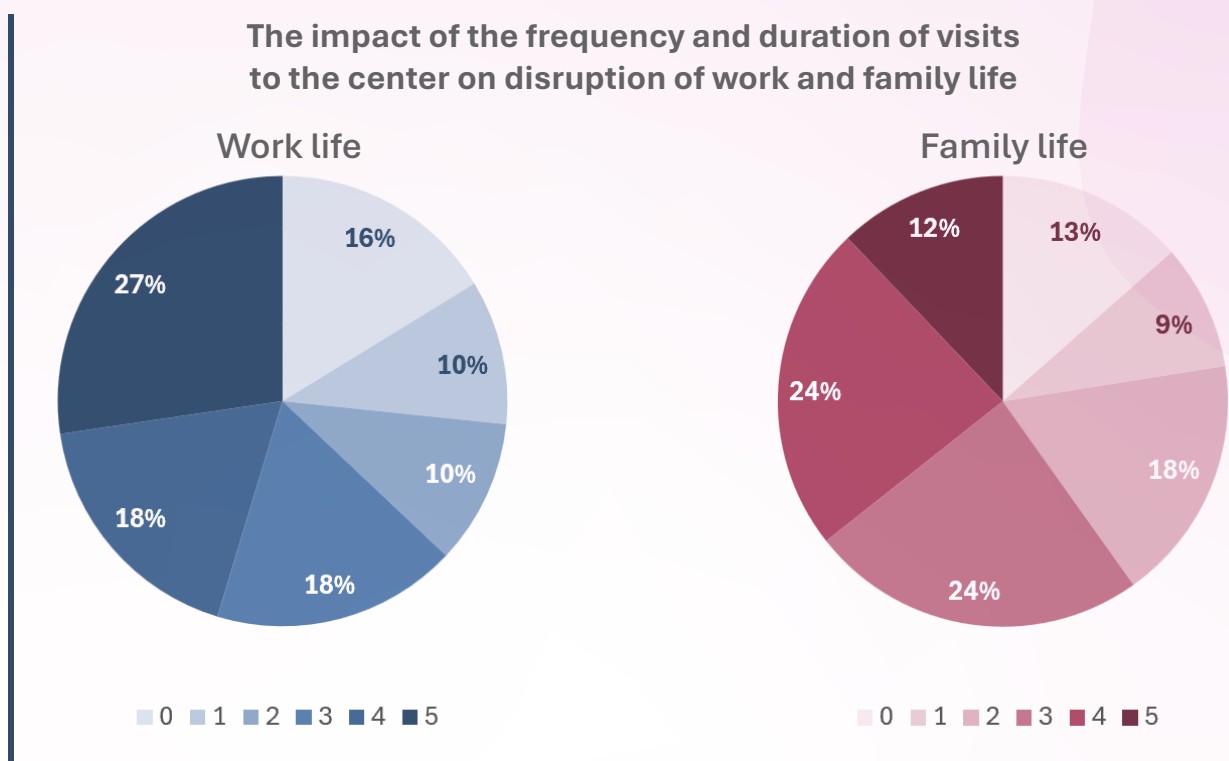


Chart 36. The impact of the frequency and duration of visits to the center on disruption of work and family life A score of 0 indicates no impact, and a score of 5 indicates a very high level of disruption.

It should be emphasized that the degree of disruption to work and family life associated with the need to visit the center varied depending on the route of administration of the drug. The smallest impact on these areas was observed in patients receiving only subcutaneous treatment—as many as 67% of them rated this impact at a maximum of 2 points on a six-point scale (0—no impact, 5—very significant disruption). In the group of patients treated exclusively with oral medication, the distribution of responses was even, as approximately 50% reported an effect of 2 points or less, while the remaining 50% rated it at 3 points or more. The greatest disruption to work life was reported by patients receiving both intravenous and subcutaneous treatment (75% rated the impact at 3 points or higher), while with regard to family life, the greatest burden was associated with intravenous treatment (71% of ratings were 3 points or higher).

The impact of the frequency and duration of visits to the center on disruption of work and family life depending on the route of administration of the drug

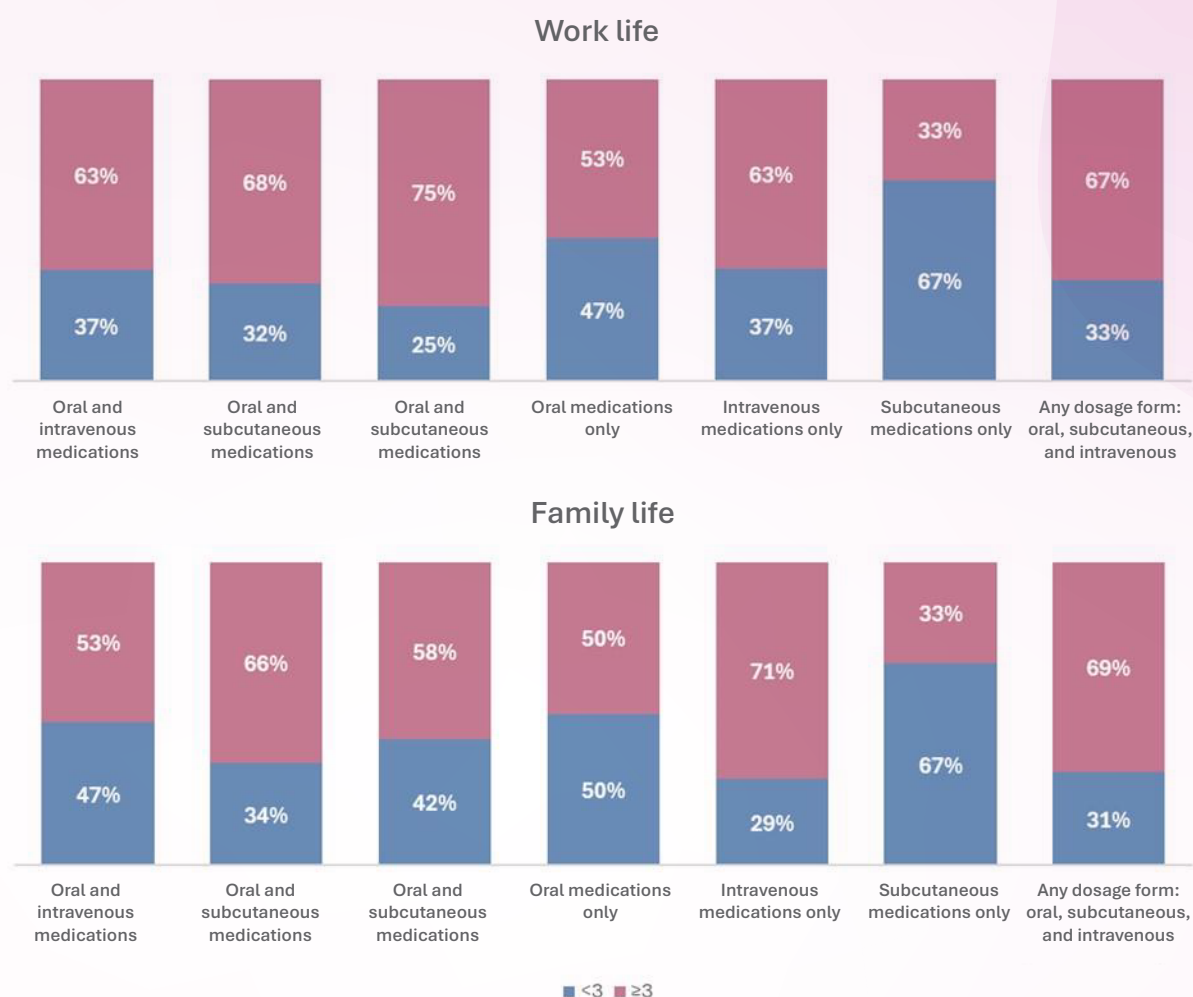


Chart 37. The impact of the frequency and duration of visits to the center on disruption of work and family life depending on the route of administration of the drug A score of 0 indicates no impact, and a score of 5 indicates a very high level of disruption.

The study results clearly indicate that the form of administration has a significant impact on both the patients' well-being and their daily functioning. Oral and subcutaneous therapies provided the greatest benefits; they were rated as more comfortable, less painful, and associated with a shorter length of stay at the center. For oral treatment, the number of hospital visits was the lowest—for most patients, it did not exceed 5 per year. Subcutaneous therapies showed similar benefits and were also characterized by a very short administration time (less than 30 minutes).

In contrast, intravenous treatment and combination regimens (intravenous plus subcutaneous) entailed the greatest organizational burden—patients had to attend as many as several dozen visits per year, each lasting more than 1.5 hours, which caused significant disruption to their work and family lives.

In summary, oral and subcutaneous therapies not only improve patients' well-being but also reduce the number and duration of visits to the clinic, thereby easing the burden associated with treatment. The results indicate that choosing less invasive methods of drug administration can significantly improve the quality of life for breast cancer patients.

The impact of illness and treatment on work and social life

Breast cancer significantly affects patients' ability to continue their occupational and social activities. The illness and the associated treatment often lead to reduced productivity, the need to quit one's job, or a reduction in working hours. These effects extend not only to the patients themselves, but also to their families and social circles, impacting their daily functioning and relationships.

Among the group of economically inactive patients (26%), as many as 66% had quit their jobs due to illness. Among those still working (74%), average productivity fell to 58%. Two-thirds of those surveyed reduced their weekly work hours by an average of 18 hours. Sick leave was another source of disruption: 73% of respondents took sick leave for an average of 31 days per year, with nearly half spending more than a month on sick leave. About 50% of patients spent part of their vacation time on treatment, and 13% had to devote more than 19 days a year to this purpose. Due to breast cancer, 31% of patients currently receive one of the social benefits, such as a disability pension, a cash benefit, or a rehabilitation benefit.

The illness also affected family life and daily responsibilities. As many as 70% of patients reported having to cut back on activities such as caring for their children or grandchildren, cleaning, or cooking—by an average of 15 hours per week.

The impact of the disease on patients' work life

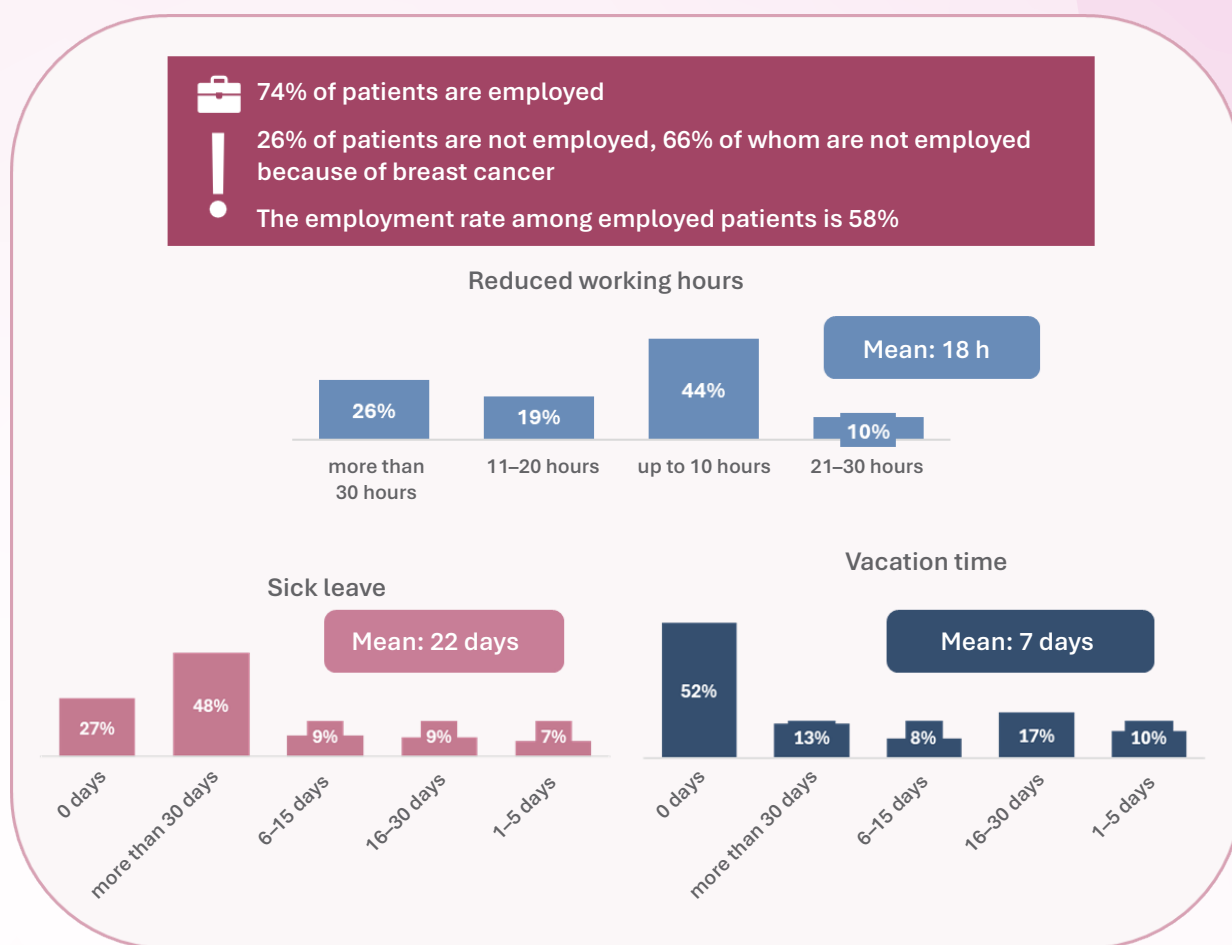


Figure 23. The impact of the disease on patients' work life

Caregivers also felt the effects of the illness: 16% had to reduce their working hours (by an average of 15 hours per week), and 11% left their jobs entirely. One in three caregivers took vacation time to provide care, and 11% took sick leave. These data show that the burden of the disease affects not only the patients themselves but also those closest to them.

The impact of the disease on patients' work life

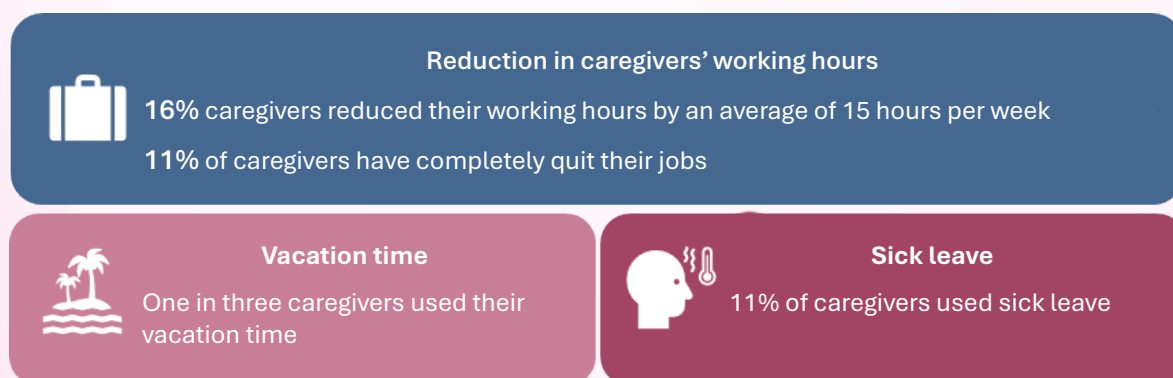


Figure 24. The impact of the disease on caregivers' work life

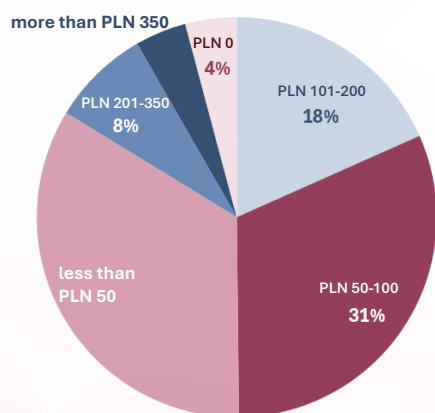
The economic impact of breast cancer and its treatment

Patients who commute to treatment centers travel an average of 54 km, which places a significant financial and organizational burden on them. Travel involves spending time and incurring additional costs, and for people who live farther away from the treatment center, this becomes a particular challenge. As many as 4% of respondents have to travel more than 200 km to reach the center.

The average cost of travel alone was approximately PLN 100 per visit, but for some patients it was significantly higher—for 4% of those surveyed, it exceeded PLN 350. The expenses also included other treatment-related needs, such as providing care for children, the elderly, or sick people staying at home. In addition, some patients—especially those who live far away or are undergoing intensive treatment cycles—were forced to arrange for lodging and meals near the center. On average, this generates an additional PLN 39 per visit, although for 3% of patients, the monthly costs associated with caring for their close relatives, lodging, and meals exceeded PLN 350.

Costs incurred by patients in connection with travel to the center

Travel expenses to the center for the purpose of administering medication



Additional costs associated with the visit

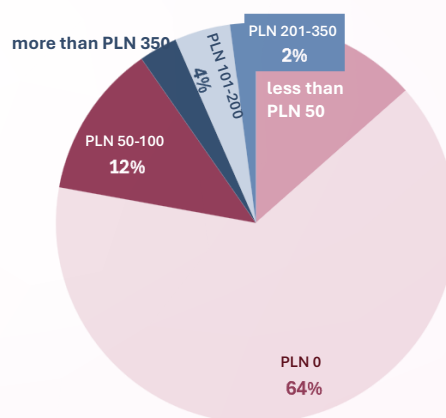


Chart 38. Costs incurred by patients in connection with travel to the center

Lost income also represents a significant burden. The average amount of lost earnings for patients was PLN 173 per visit, and for 20% of respondents, it even exceeded PLN 600. The patients' relatives who accompanied them also incurred financial losses—an average of PLN 100 per visit.

All of these factors mean that frequent visits to a treatment center place a significant strain on the household budget and cause additional stress for patients and their families.

In addition, about 20% of the patients surveyed reported using the services of charitable organizations that support people battling breast cancer. The most frequently cited forms

of assistance included: consultations with specialists (35%), fundraisers for treatment or the purchase of medications (33%), educational workshops (33%), support groups (30%), the purchase of wigs (24.5%), and rehabilitation (25%).

More than 90% of the patients also incurred out-of-pocket medical expenses—mainly for visits to specialists (71%), tests and medications (more than 60%), and wigs (32%). The monthly costs associated with the illness averaged PLN 319, which often placed a significant burden on the family budget.

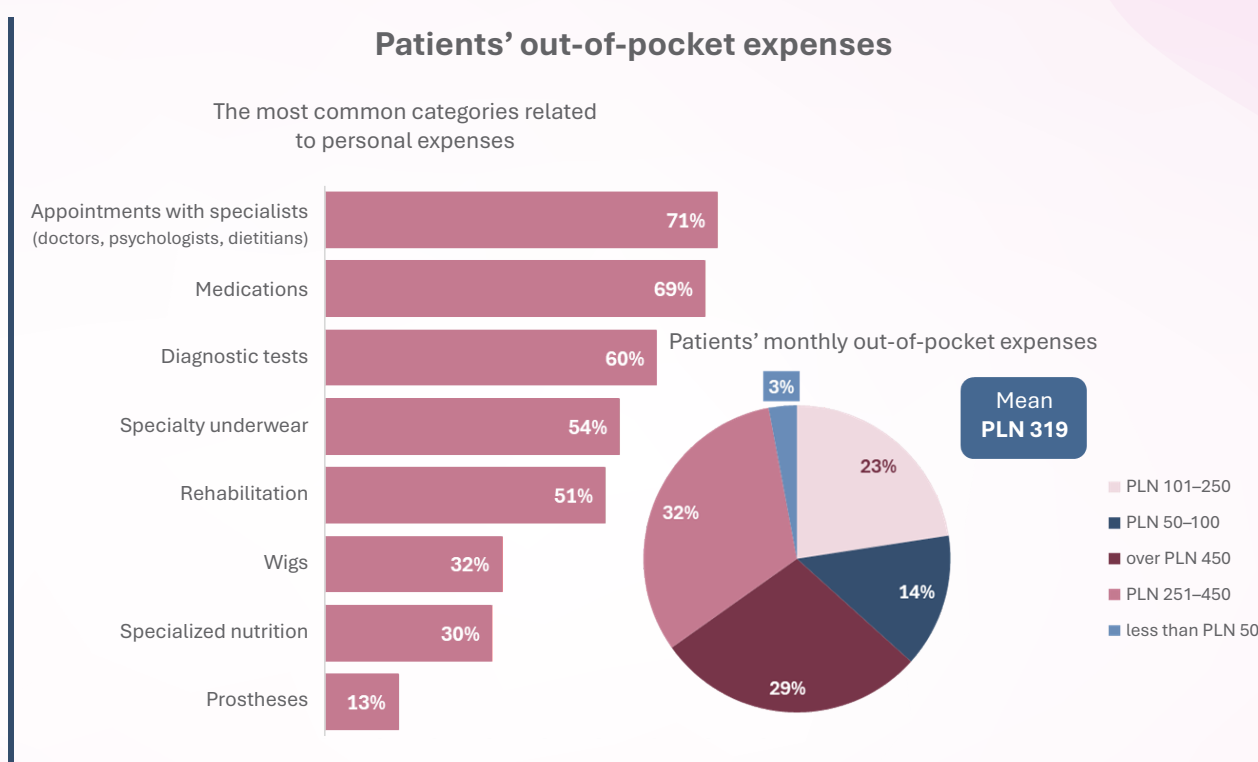


Figure 25. Categories and costs related to patients' out-of-pocket expenses

The Psychological Consequences of the Disease

Breast cancer is not only a medical challenge, but also a deeply distressing psychological experience. Illness and long-term treatment affect a person's sense of security, self-esteem, and social relationships, often leading to anxiety, low mood, and chronic stress. These effects are significant both for patients' quality of life and for their ability to function within their families and at work.

On a psychological and social level, the situation is also cause for concern. 85% of patients experienced a decline in mental health, including lower self-esteem, anxiety, depression, and chronic pain. In 43% of cases, this emotional burden affected family members, and more than half of the patients reported a deterioration in their financial situation. In addition, 25% of respondents highlighted the lack of adequate education about the disease and available treatment options.

Summary

In summary, breast cancer is not merely a medical issue—it is a systemic phenomenon that also affects patients' occupational activity, financial aspects, and social life. The study's findings clearly demonstrate the need to implement systemic solutions: streamlining the organization of the treatment process (including a reduction in the number of visits), increasing the availability of oral and subcutaneous therapies, implementing mechanisms to compensate for travel and care costs, and ensuring standard psychological support for both patients and their close relatives.

THE COST OF BREAST CANCER IN POLAND

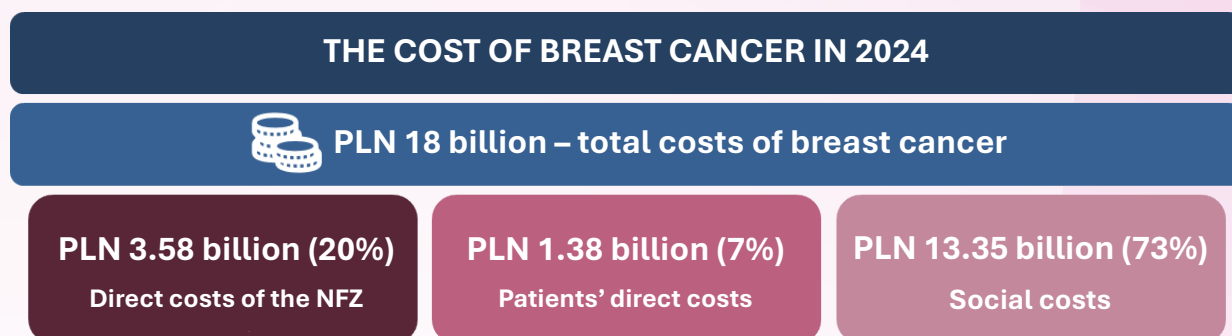


Figure 26. Summary: The cost of breast cancer in Poland in 2024

The costs associated with breast cancer in Poland are not limited solely to expenses for treatment and medical care. The disease also generates significant indirect costs resulting from lost productivity among patients and their caregivers, as well as from reduced household income. Added to this are the costs that are difficult to measure—those related to a reduced quality of life, stress, and the psychological burden that the disease entails.

The costs of breast cancer treatment can be broken down into:

- **medical costs**—including services covered by the NFZ (diagnostics, hospitalization, systemic treatment, radiotherapy, surgical procedures) and patients' out-of-pocket expenses, such as for supportive medications or rehabilitation,
- **patients' direct costs**—such as travel to cancer centers, lodging when treatment takes place away from home, as well as additional expenses related to doctor's visits or the purchase of specialized undergarments and prostheses,
- An important element are **indirect costs** resulting from the loss of ability to work during treatment and recovery, long-term inability to perform professional duties, or premature death. These include both sick leave and so-called presenteeism—that is, reduced work performance caused by the effects of illness and treatment. Another significant burden is the loss of productivity among caregivers, who give up some of their occupational activities to provide support to the patient.

Breast cancer therefore affects not only patients' health, but also the financial situation of their families and society as a whole, generating multifaceted costs—both financial and social.

Direct Costs – Medical Costs

NFZ Costs

Breast cancer treatment in Poland is funded by the NFZ in the following areas:

- Primary Health Care (POZ)
- Outpatient Specialist Care (AOS)
- Inpatient treatment, including, among other things:
 - o drug programs (e.g., B.9.FM – breast cancer treatment)
 - o chemotherapy (CHEM)
 - o radiotherapy (RT)
 - o surgical procedures
- Rehabilitation
- Palliative and hospice care

Services provided under primary care are billed on a flat-rate basis (according to a capitation rate); therefore, their costs have not been included in this analysis. Data on the amount of NFZ reimbursements for the treatment of patients with a primary diagnosis of ICD-10 code C50 (breast cancer) or a primary diagnosis of Z51 and a concurrent diagnosis of C50 in 2024 were obtained through direct communication with the NFZ.

Table 3. Costs incurred by the NFZ for breast cancer treatment in Poland in 2024, according to data obtained from the NFZ

Scope	Total cost
Outpatient Specialist Care (AOS)	PLN 138,221,116
Drug Program	PLN 1,272,681,023*
Chemotherapy	PLN 100,793,501
Radiotherapy	PLN 715,848,444
Inpatient treatment (excluding the drug program, chemotherapy, and radiotherapy)	PLN 1,171,201,150*
Rehabilitation	PLN 26,279,388
Palliative and hospice care	PLN 154,425,941
Total	PLN 3,579,450,563

*There is a discrepancy between the data provided by the NFZ and the data available in the BASIW database regarding the costs of the drug program (according to NFZ data, the cost in Poland was PLN 1.27 billion, while according to BASIW, it was PLN 1.38 billion). For this reason, we assume that the NFZ included only the costs of medications in the drug program's expenses, as the amount is similar to that reported by the BASIW database (PLN 1.27 billion vs. 1.23 billion according to BASIW). However, the cost of services related to the implementation of the DP is included in the cost of inpatient care.

Patients’ direct costs

According to the survey results, breast cancer patients incur additional expenses related to the treatment of their disease, including, among other things, visits to specialists, diagnostic tests, and the purchase of medications and medical devices. The average monthly cost of these expenses is PLN 319 per patient. By extrapolating this figure to the entire population of breast cancer patients in 2024—which, according to NFZ data, numbered 231,422—and taking into account the percentage of patients who actually incurred these expenses, it was estimated that total private spending on medical care that year amounted to approximately PLN 829 million.

Table 4. Patients’ out-of-pocket expenses for breast cancer treatment in Poland in 2024

Monthly cost per patient	Annual cost per patient	Patient population	Percentage of patients incurring medical expenses related to breast cancer	Total out-of-pocket expenses for patients
PLN 319	PLN 3,833	PLN 231,422	93%	PLN 828,780,638

The analysis also took into account the costs associated with breast cancer treatment, which include out-of-pocket expenses incurred by patients during their visits to the center. These costs included, among other things, travel to the center and additional expenses related to the visit, such as hiring someone to care for children or other family members, lodging, and meals.

The average values for patients’ commuting costs and additional expenses were determined based on the results of a survey (details are provided in the section “Survey Results”). The average number of patient visits to the center per year was also derived from the survey.

Table 5. Average patient expenses associated with a visit to the center

Average commuting cost	Average additional costs associated with the visit	Average total patient out-of-pocket expenses associated with a visit
PLN 100	PLN 39	PLN 140

To estimate the total costs associated with breast cancer treatment, the average patient expenditure per visit and the average annual number of visits to the center were extrapolated to the entire breast cancer patient population.

Table 6. Total direct costs incurred by patients and caregivers associated with visits for breast cancer treatment

Average patient out-of-pocket costs per visit	Number of visits to the center per year	Patient population	Total costs associated with visits
PLN 140	17.0	231,422	PLN 548,912,564

The total direct costs incurred by patients—including costs related to visits to medical facilities and other expenses associated with the purchase of medications and diagnostic tests—amounted to over PLN 1.38 billion in 2024.

Table 7. Total patients' direct costs

Costs associated with visits to the center	Other expenses	Total cost
PLN 548,912,564	PLN 828,780,638	PLN 1,377,693,202

Indirect Costs

Social costs—along with direct costs—are a significant component of the total economic burden associated with breast cancer. These encompass a wide range of indirect losses resulting from the course of the disease, affecting not only patients and their families but also the national economy through their impact on the labor market, household incomes, and social development processes. This analysis identifies the following cost categories:

Societal perspective

- **Short-term absenteeism**—The treatment of breast cancer, which includes surgery, chemotherapy, radiotherapy, and targeted therapies, often requires prolonged sick leave.
- **Long-term absenteeism**—Breast cancer remains one of the main reasons why women of working age leave the labor market. In many cases, this leads to the need to grant disability benefits, and in cases of premature death, to irreversible socioeconomic losses.
- **Presenteeism**—Patients who continue to work often experience chronic fatigue, a weakened immune system, mood disorders, or physical limitations. These factors significantly reduce their productivity, affecting work performance and the organization's operations.
- **Unpaid work**—In the context of the indirect costs of illness, a significant component of the economic burden is the unpaid household work performed by patients and

their families. Daily tasks, such as cleaning, cooking, or caring for children, often have to be taken over by the patient's close relatives, which results in a loss of time that could otherwise be spent on work or other activities. Although this form of work does not generate direct financial expenses, its economic value is significant.

- **Informal care**—A significant portion of social costs is generated by care provided by family members. The partners, children, or parents of patients are often forced to limit their occupational activities by reducing their working hours, taking frequent sick leave, or quitting their jobs altogether.

In addition, the report describes how breast cancer affects the financial situation of patients and their families. Due to illness, patients and their caregivers often reduce their working hours or take sick leave, which results in lower household income.

The perspective of patients and their caregivers

- **Decline in household income**—One consequence of illness is a decline in a family's total income, which is not fully offset by sick pay or disability benefits. Long-term leaves, limitations on career advancement, and the loss of promotion opportunities exacerbate the negative economic effects in the long term.

Taking indirect costs into account is a key element in a comprehensive assessment of the economic impact of breast cancer. It emphasizes the importance of investing in prevention programs, rapid and effective diagnostic procedures, comprehensive rehabilitation, and systemic psychological and vocational support. These measures can significantly reduce the negative social and economic impacts associated with the disease.

Methodology for Estimating Indirect Costs

The methodology for indirect costs being developed applies the human income capitalization method, in accordance with the recommendations in the literature. This method is firmly grounded in economic theory and relatively easy to apply in practice, which explains its widespread popularity in economic research [63, 64].

The analysis was conducted from two perspectives:

- **social**, taking into account the impact of lost productivity on the national economy,
- **patients and caregivers**, relating to the direct financial consequences in the form of lost income.

Societal perspective

From a societal perspective, the value of lost productivity was estimated based on gross domestic product (GDP) per worker, which is the recommended measure in macroeconomic analyses. This indicator reflects not only the value of a given employee's work, but also the indirect effects of reduced utilization of other factors of production (e.g., machinery, capital) during the employee's absence. [63]

Given the declining marginal productivity of labor, using average GDP per worker could lead to an overestimation of losses. A correction factor (CF) of 0.65 was applied for the adjustment, in accordance with the European Commission's recommendations.

The average value of a day of lost productivity (K_{day}) was determined using the human capital method according to the following formula:

$$K_{day} = \frac{GDP_{2024}}{P_{2024}} \cdot CF \cdot \frac{1}{D_{p2024}}$$

GDP_{2024} – Gross Domestic Product in 2024, according to GUS data

P_{2024} – Number of people employed in 2024, according to GUS data

CF – correction factor

D_{p2024} – number of working days in 2024, taking into account vacation time

Data on the number of employed persons and GDP figures were taken from official publications of the Central Statistical Office (GUS) [66, 67].

Table 8. GDP loss per day of sick leave in 2024

GDP_{2024}	P_{2024}	CF	D_{p2024}	K_{day}
PLN 3,641,210,000,000	15,169,658	0.65	228	PLN 684.30

To convert the value of a day of lost productivity (K_{day}) to a value corresponding to one hour (K_h), an 8-hour workday was assumed. The value of one hour of lost productivity in 2024 was PLN 85.54.

Table 9. GDP loss per hour of sick leave in 2024

K_{day}	Daily work hours	K_h
PLN 684.30	8 h	PLN 85.54

The perspective of patients and caregivers

For some patients diagnosed with breast cancer and their caregivers, the disease necessitates a reduction in work hours, resulting in a loss of part of their income. The value of a lost workday (U_{day}) was estimated based on the average monthly wage in the national economy in 2024, according to Central Statistical Office data. The calculations were performed using the following formula:

$$U_{day} = W_{2024} \cdot 12 \cdot \frac{1}{D_{p2024}}$$

W_{2024} – the average monthly wage in the national economy in 2024, according to GUS data

D_{p2024} – number of working days in 2024, taking into account vacation time

Table 10. Average value of lost workday—the perspective of patients and caregivers

W_{2024}	D_{p2024}	U_{day}
PLN 8,477.21	228	PLN 446.17

The average value of a lost workday in 2024 was estimated at PLN 446.17. Assuming an 8-hour workday, the value of a lost hour of work (U_h) amounted to PLN 55.77.

Table 11. Average value of a lost work hour – the perspective of patients and caregivers in 2024

K_{day}	Daily work hours	K_h
PLN 446.17	8 h	PLN 55.77

Societal perspective

Absenteeism

The indirect costs of breast cancer related to absenteeism included in the analysis include:

- short-term absenteeism – related to an employee’s absence from work due to illness,
- long-term absenteeism – related to permanent incapacity to work and premature death.

Short-term absenteeism

Sick leave

The cost of lost productivity due to patient sick leave was estimated based on the number of sick leave days reported to ZUS with the ICD-10 code: C50, and the average daily loss of productivity.

$$K_{absence} = K_{day} \cdot L_{days_of_absence}$$

$K_{absence}$ – average value of a day of lost productivity

$L_{days_of_absence}$ – number of sick leave days with ICD-10 code: C50

Table 12. The cost of lost productivity due to sick leave among breast cancer patients in 2024

Number of days of sick leave	GDP loss per day of sick leave	Total cost of patient sick leave
1,452,329	PLN 684.30	PLN 993,833,098

Reduction in working hours

Due to the symptoms of the disease and the course of treatment, patients with breast cancer often decide to reduce their working hours. According to the survey results, 74% of patients were employed, and 66% of them reduced their working hours by an average of 18 hours per week (3.7 hours per day). Taking into account the 228 working days in 2024, this translates to an average annual reduction in working hours of 836 hours per patient. Overall, this means that in 2024, the population of patients undergoing treatment for breast cancer lost more than 28 million work hours.

Table 13. Number of reduced work hours in breast cancer patients in 2024

Patient population	Employed patients	Percentage of patients who reduced their working hours	Number of hours reduced per patient	Number of working days, including days off	Total number of reduced patient work hours
69,591	74%	66%	3.7	228	28 million

Taking into account the value of an hour of lost productivity in 2024 ($K_h = \text{PLN } 85.54$), the value of the reduction in working time for patients with breast cancer in 2024 amounted to over PLN 2.4 billion.

Table 14. The value of lost productivity due to reduced patient working hours in 2024

Total number of reduced patient work hours	K_h	The value of reduced patient working hours
28,170,340	PLN 85.54	PLN 2,409,631,078

Total costs of short-term absenteeism

The total cost of lost productivity due to short-term absenteeism among breast cancer patients in 2024 amounted to over 3.40 billion PLN

Table 15. Total costs of short-term absenteeism

The value of patient absenteeism	The value of reduced patient working hours	The value of short-term absenteeism
PLN 993,833,098	PLN 2,409,631,078	PLN 3,403,464,176

Long-term absenteeism

Long-term absenteeism refers to a lasting reduction in productivity resulting from a patient's complete cessation of work or permanent resignation from employment. Most often, it results from being granted the right to a disability pension. Loss of employment may also result from premature death.

Premature deaths

The high mortality rate associated with breast cancer leads to the loss of people of working age, which results in a reduction in the labor force and, consequently, a decline in national income. To estimate the productivity losses resulting from premature deaths, the same economic parameters as those used in the analysis of absenteeism were applied: GDP per worker, adjusted by a coefficient ($\beta = 0.65$), 228 working days per year, and a 5% annual discount rate, in accordance with Polish HTA guidelines [65].

Mortality data by age group and sex were obtained from the National Cancer Registry (the most recent data available are for 2022) [68], while employment rates by sex were obtained from the Central Statistical Office [67].

Productivity losses resulting from premature deaths were estimated using the following formula:

$$K_{(age_group)} = L_{deaths(age_group)} \cdot \frac{GDP_{2024}}{P_{2024}} \cdot CF \cdot \sum_{t=0}^N \frac{1}{(1+r)^t} O_{employed(av_age+t)}$$

$K_{(age_group)}$ – the cost of lost productivity due to premature death in a given age group

$L_{deaths(age_group)}$ – number of deaths in a given age group

GDP_{2024} – Gross Domestic Product in 2024, according to GUS data

P_{2024} – number of people employed in 2024, according to GUS data

CF – correction factor

$O_{employed(av_age+t)}$ – percentage of people employed in a given year ($av_{gr\ age}$ – the midpoint of the age range for the group) in 2024

r – discount rate

N – number of years worked

Table 16. Total costs of premature death among breast cancer patients in 2024

Age groups	Men	Women
15–19	PLN 0.00	PLN 0.00
20–24	PLN 0.00	PLN 0.00
25–29	PLN 0.00	PLN 10,996,989.01
30–34	PLN 0.00	PLN 64,956,111.02
35–39	PLN 0.00	PLN 160,118,311.08
40–44	PLN 2,988,529.16	PLN 208,702,560.13
45–49	PLN 2,515,347.24	PLN 286,221,977.79
50–54	PLN 4,848,230.16	PLN 215,957,818.14
55–59	PLN 6,888,974.60	PLN 118,879,374.11
60–64	PLN 2,937,168.87	PLN 0.00
Total	PLN 20,178,250.03	PLN 1,065,833,141.29
Total	PLN 1,086,011,391.32	

The estimated total costs of lost productivity associated with the premature death of breast cancer patients in 2024 amount to PLN 1.09 billion.

Disability Related to Breast Cancer

Breast cancer not only poses a threat to patients' lives, but also results in long-term disability due to treatment complications, disease recurrence, or metastases.

It leads to a significant decline in quality of life and limits career opportunities, and consequently generates additional costs for the healthcare system and the economy (including in the form of benefit payments and lost productivity).

To measure the number of years lived with a disability, we used the YLD (Years Lived with Disability) index, which measures the number of years lived in a state of less than full health. This index is calculated as the product of the number of cases of a disease, its average duration, and the weight assigned to the disease entity based on its severity.

According to data from the *Institute for Health Metrics and Evaluation* (IHME), the estimated value of YLD for breast cancer in Poland in 2024 was 14,170.64 years [69].

Table 17. YLD values for breast cancer in Poland in 2024, according to IHME data

Age group	Overall	Men	Women
15–49 years	2,595	21	2,574
50–69 years	6756	90	6666
≥70 years	4,819	85	4,734
Total	14,170	195	13,974

To account for the loss of productivity associated with disability, a coefficient of 0.65 was applied, in accordance with recommendations in the health economics literature. Estimates of productivity losses were calculated as the product of the YLD index value for a given age group, the average GDP per capita adjusted by this coefficient, and the percentage of people in the labor force in that age group (based on data from the Central Statistical Office [GUS]).

$$K_{disability(age)} = \frac{GDP_{2024}}{P_{2024}} \cdot CF \cdot YLD_{(age)} \cdot O_{employed(age)}$$

$K_{disability(age)}$ – the cost of lost productivity due to disability for a given age group

GDP_{2024} – Gross Domestic Product in 2024, according to GUS data

P_{2024} – number of people employed in 2024, according to GUS data

CF – correction factor

$YLD_{(age)}$ – the number of years lived with a disability for a given age group

$O_{employed(age)}$ – percentage of employed people in a given age group

Based on the adopted methodology, the total costs of lost productivity due to disability resulting from breast cancer in Poland in 2024 were estimated at PLN 694 million.

Table 18. The total cost of productivity loss associated with disability among breast cancer patients in 2024

Sex	15–49 years	50–69 years	>70 years
Men	PLN 2,024,015	PLN 7,229,424	PLN 743,344
Women	PLN 238,292,830	PLN 427,461,140	PLN 18,428,443
Total	PLN 240,316,845	PLN 434,690,564	PLN 19,171,787
Total	PLN 694,179,196		

Total Costs of Long-Term Absenteeism

The total costs of long-term absenteeism related to breast cancer in Poland in 2024 were estimated at PLN 1.8 billion.

Table 19. Total costs of absenteeism related to breast cancer in 2024

Premature deaths	Disability	The total cost of absenteeism
PLN 1,086,011,391	PLN 694,179,196	PLN 1,780,190,588

Presenteeism

The indirect costs of breast cancer related to presenteeism refer to losses resulting from reduced productivity among individuals who remain employed despite their illness. In the survey, the majority of patients (94%) were receiving treatment for breast cancer; therefore, the results mainly pertain to individuals currently undergoing treatment.

According to available publications, the greatest decline in productivity was observed in patients undergoing active treatment. Studies involving women with metastatic breast cancer in the Netherlands and Sweden reported a decrease in productivity of approximately 70% during treatment and approximately 40% immediately after treatment ended [77]. Other European studies indicate a decline in productivity ranging from 13% to 20% [78, 79, 80, 81]; however, these studies covered a period much later after diagnosis or completion of treatment, which makes it difficult to directly compare the results. These differences may stem from both different research methods and the specific characteristics of the study population. The studies available in the literature mainly focus on patients within various healthcare systems, work cultures, and socio-professional contexts, which may influence how declines in productivity are perceived and reported. The analysis estimated the costs of presenteeism exclusively for patients currently undergoing treatment, as the survey results primarily concern this group. According to data from the literature, patients experience the greatest decline in productivity during treatment. The approach taken is conservative, as the estimates apply only to patients currently undergoing treatment and

do not include those who have completed treatment, who may also experience a decline in productivity, albeit to a lesser extent.

Data received from the NFZ show that in 2024, there were 69,591 patients actively undergoing treatment—including both those treated under the B.9.FM DP and those receiving chemotherapy.

The results of the survey made it possible to identify four groups of respondents based on two factors: reduced working hours and the use of leave.

Table 20. Survey results related to productivity loss, broken down by patient subgroups

Population	Percentage	Average reduction in working hours per week	Average number of sick days per year	Loss of productivity
Reduction of working hours, sick leave	48%	15	33	66%
Reduction of working hours, no sick leave	17%	19	0	58%
No reduction of working hours, sick leave	25%	0	25	48%
No reduction of working hours, no sick leave	9%	0	0	39%

In a survey, 66% of respondents stated that they had to reduce their working hours due to illness. Accordingly, when estimating the costs resulting from reduced productivity, the possibility that some patients might switch to part-time employment was taken into account.

The analysis was conducted separately for four groups of patients:

- Patients who did not reduce their working hours and who were either on sick leave or not (full-time employment—40 hours per week—was assumed).
- Patients who reduced their working hours:

- o the average number of hours was 15 per week for patients using sick leave,
- o the average number of hours was 19 per week for patients who did not use sick leave.

In this analysis, indirect costs were estimated based on the following data:

- patient-reported loss of productivity at work,
- value of gross domestic product (GDP) per working patient,
- correction factor (CF = 0.65),
- the percentage of breast cancer patients who remain employed, as determined by a survey (74%),
- the percentage of patients who reduced their working hours, and the average number of hours by which their working hours were reduced.

$$KP_{Presenteeism} = GDP_{employed_1h} \cdot CF \cdot L_{employed} \cdot \sum_{i=1}^4 O_i \cdot W_i \cdot (D_{p2024} - L_{leave(i)}) \cdot UP_i$$

$KP_{Presenteeism}$ – the total cost of presenteeism

$GDP_{employed_1h}$ – GDP per employed patient per hour in 2024

CF – correction factor

UP_i – lost productivity for a given patient group

$L_{employed}$ – the number of employed patients currently undergoing treatment

D_{p2024} – number of working days in 2024, taking into account vacation time

W_i – daily working time (in hours) for a given group of patients

W_i – daily working time (in hours) for a given group of patients

O_i – the percentage of patients in a given patient group

$L_{leave(i)}$ – the average number of days spent on sick leave per year in a given group

Table 21. Number of hours of lost productivity resulting from reduced work productivity among breast cancer patients in 2024

Population	Population size	UP	Number of hours lost due to reduced productivity in a year
Patients who reduced their working hours and used sick leave	24,802	66%	15,690,273
Patients who reduced their working hours and did not use sick leave	8910	58%	4,881,715

Population	Population size	UP	Number of hours lost due to reduced productivity in a year
Patients who did not reduce their working hours and used sick leave	12,762	48%	9,955,761
Patients who did not reduce their working hours and did not use sick leave	4,816	39%	3,425,900

In 2024, the greatest losses in work efficiency among breast cancer patients were recorded in the group of women who both reduced their working hours and were on sick leave, as these losses exceeded 15.7 million hours. A significant decline in productivity was also observed among patients who did not reduce their working hours but were on sick leave, resulting in 10.0 million lost hours. The group that was least affected in this regard—one that neither reduced working hours nor used sick leave—recorded 3.4 million hours of lost productivity. The total number of lost hours amounted to 34.0 million, which, in economic terms, corresponds to nearly PLN 2.90 billion, underscoring the significant impact of presenteeism among breast cancer patients on the Polish economy.

Table 22. Total costs of presenteeism related to breast cancer in 2024

Number of hours lost due to reduced productivity in a year	$GDP_{employed_1h}$	Total costs of presenteeism
33,953,649	PLN 85.54	PLN 2,904,323,037

Informal care

The caregivers of breast cancer patients also face economic consequences resulting from the need to care for their close relatives. One of these are work-related absences due to caregiver's allowance. According to the survey results, the average duration of a caregiver's allowance was 13 days, and 11% of caregivers reported having taken such leave.

$$KP_{Informal_care(leave)} = L_{caregivers} \cdot L_{days_of_leave} \cdot K_{day} \cdot O_{leave}$$

$KP_{Informal_care(leave)}$ – the cost of absence associated with caregiver's allowance

$L_{caregivers}$ – number of caregivers

$L_{days_of_leave}$ – average duration of caregiver's allowance (in days)

K_{day} – GDP loss per day of sick leave due to breast cancer

O_{leave} – percentage of caregivers who used allowance

Table 23. Cost of informal care (sick leave) in 2024

$L_{caregivers}$	O_{leave}	$L_{days_of_leave}$	K_{day}	Cost
231,422	11%	13	PLN 684.30	PLN 213,159,576

The second component of the costs of informal care is the reduction in working hours by some caregivers. According to the survey results, 16% of respondents reduced their working hours by an average of 3 hours per day.

$$KP_{Informal_care(work_reduction)} = L_{caregivers} \cdot L_{h_reduced} \cdot K_h \cdot O_{reduced} \cdot D_{p2024}$$

$KP_{Informal_Care(work_reduction)}$ – cost resulting from the reduction in caregivers' working hours

$L_{h_reduced}$ – the average number of working hours per day reduced by a caregiver due to a relative's illness

K_h – GDP loss per hour of sick leave

$O_{reduced}$ – percentage of caregivers who reduced their working hours

D_{p2024} – number of working days in 2024, taking into account vacation time

Table 24. Cost of informal care related to breast cancer in 2024

$O_{reduced}$	$L_{h_reduced}$	D_{p2024}	K_h	Cost
16%	3.0	228	PLN 85.54	PLN 2,203,227,789

The total cost of informal care related to breast cancer in 2024—including both caregivers' absences in the form of sick leave and reduced working hours—amounted to PLN 2.4 billion.

Table 25. Total cost of informal care related to breast cancer in 2024

Sick leave	Reduction in working hours	Total
PLN 213,159,576	PLN 2,203,227,789	PLN 2,416,387,365

Costs of unpaid work

This analysis takes into account the value of unpaid activities performed by breast cancer patients. These include so-called non-market productivity, which encompasses, among other things, housework, caring for family members, and other unpaid activities that support the functioning of the household.

The survey results indicate that 70% of patients experienced a significant reduction in the scope of their household duties, and within this group, the average loss of time was 2 hours per day.

The monetary value of lost unpaid activities was calculated using the average hourly wage for domestic help in 2025 (PLN 35.50) [74].

Based on a population of 231,422 patients, the annual productivity losses resulting from a reduced ability to perform unpaid activities were estimated at approximately PLN 2.8 billion.

$$KP_{Unpaid} = L_{patients} \cdot O_{patients} \cdot L_h \cdot W_h \cdot CF \cdot L_{days}$$

KP_{Unpaid} – the cost of work performed without pay

$L_{patients}$ – numbers of patients

$O_{patients}$ – the percentage of patients whose ability to perform daily household tasks has been limited

L_h – lost hours of household chores daily

W_h – average hourly wage for domestic help

CF – correction factor

L_{days} – number of days in a year

Table 26. Estimated productivity losses due to reduced unpaid activities among breast cancer patients in Poland in 2024

$L_{patients}$	$O_{patients}$	L_h	CF	W_h	KP_{Unpaid}
231,422	70%	2	0.65	PLN 35.50	PLN 2,851,930,014

Total social costs

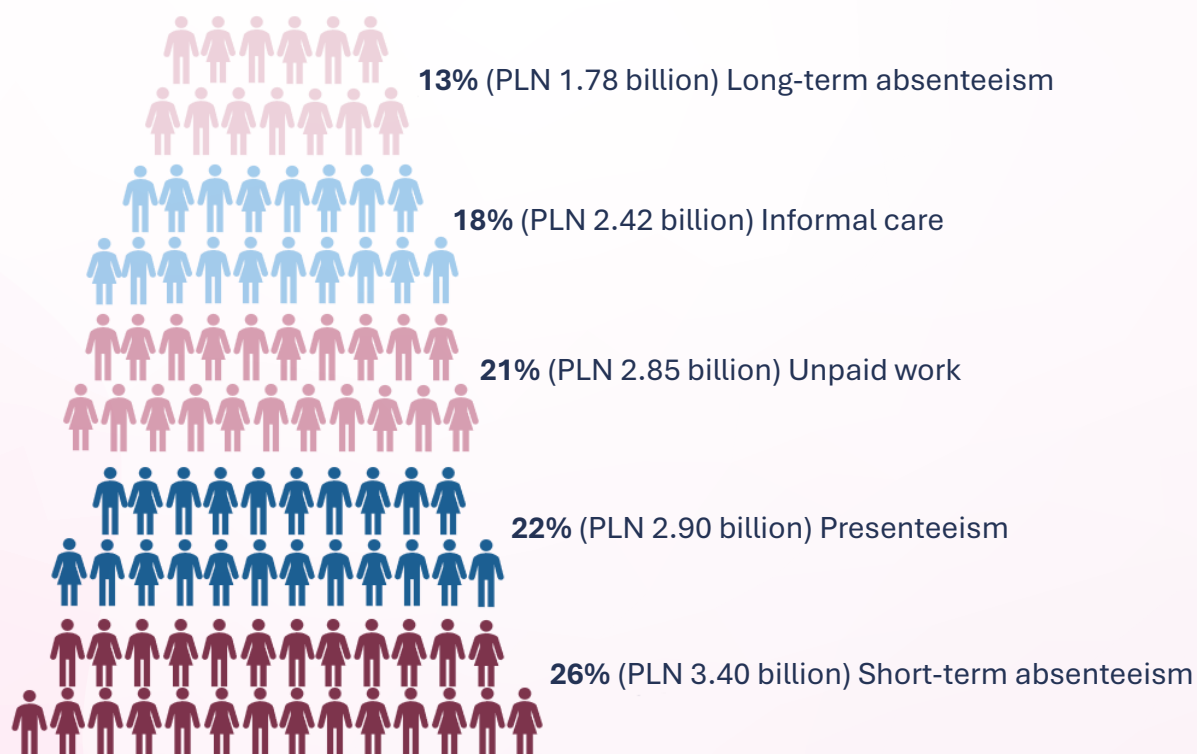
The total indirect costs of breast cancer, estimated from a societal perspective in Poland in 2024, amounted to over PLN 13 billion.

Table 27. Social costs of breast cancer in Poland in 2024

Cost category	Value
Short-term absenteeism	PLN 3,403,464,176
Long-term absenteeism	PLN 1,780,190,588
Presenteeism	PLN 2,904,323,037
Unpaid work	PLN 2,851,930,014
Informal care	PLN 2,416,387,365
Total	PLN 13,356,295,180

In 2024, the largest share of the social costs of breast cancer was accounted for by expenses related to short-term absenteeism from work, which made up 26% of total costs, and costs related to presenteeism—22%. It is worth noting that a significant portion of indirect costs—approximately 18%—is attributable to the loss of productivity among caregivers providing informal care, which further underscores the broad social impact of the disease.

Summary of the social costs of breast cancer in Poland in 2024

**Figure 27. Summary of the social costs of breast cancer in Poland in 2024**

The perspective of patients and their caregivers

Decreased household income

The decline in household income among breast cancer patients and their caregivers is driven by both lost earnings resulting from reduced working hours and lost income due to the need to take sick leave.

Lost income due to sick leave

Number of days of sick leave reported to ZUS with the ICD-10 code: C50 in 2024 was 1,452,329. Assuming a revenue loss rate of 20% and an average daily wage of PLN 446.17 (estimated based on the average monthly wage in Poland in 2024 [75]), the total cost of patients’ lost income resulting from sick leave amounted to nearly PLN 130 million.

An analysis of caregivers’ situations showed that 11% of them used sick leave, with an average duration of 13 days. The total number of days of absence in this group reached 311,499. Using the same revenue loss rate (20%) and average daily wage, the cost of lost revenue for caregivers was estimated at PLN 27.8 million.

Table 28. Lost earnings of breast cancer patients and their caregivers due to sick leave in 2024

Parameters	Patients	Caregivers
The working-age population	-	231,422
Percentage of people who used sick leave	-	11%
Average number of sick leave days	-	13
Total number of sick leave days	1,452,329	311,499
Average salary per day	PLN 446.17	
Percentage of lost earnings	20%	
Costs associated with sick leave	PLN 129,596,820	PLN 27,796,220
Total	PLN 157,393,040	

Lost revenue due to reduced working hours

Both some working patients and their caregivers are forced to reduce their working hours due to a breast cancer diagnosis and treatment, which leads to a decrease in their income.

In accordance with previously established assumptions (from a societal perspective), it was assumed that the reduction in working time applies to a population of 69,591 patients undergoing active treatment (as part of a drug program or chemotherapy).

Based on the survey data, it was estimated that 74% of patients are employed, and 66% of them work reduced hours, averaging 18 hours less per week (3.7 hours per day). Based on 228 working days per year, the total number of hours reduced among the patient population was 28,284,080 hours. Based on the average monthly salary in Poland in 2024, which was PLN 8,477.21 [75]—equivalent to an hourly rate of PLN 55.77—the estimated cost of lost income for patients amounted to PLN 1.58 billion.

Among caregivers, 16% reduced their work hours, cutting their workweek by an average of 15 hours (about 3.0 hours per day). The total number of reduced hours was 25,757,336. Using the same hourly rate, the cost of lost income for caregivers was estimated at PLN 1.44 billion. Data analysis indicates that the main factor contributing to the financial burden on households in cases of breast cancer is the need to reduce working hours due to the illness.

Table 29. Lost earnings of breast cancer patients and their caregivers due to reduced working hours in 2024

Parameters	Patients	Caregivers
The working-age population	51,497	231,422
Percentage with reduced working hours	66%	16%
Number of reduced working hours per day	3.7	3.0
Number of working days in a year	228	
Number of reduced hours per year	28,284,080	25,757,336
Average hourly wage	PLN 55.77	
Costs associated with the reduction in working hours	PLN 1,577,434,769	PLN 1,436,515,429
Total	PLN 3,013,950,197	

Decreased total household income

The total value of household income reduction for breast cancer patients and their caregivers—including both lost earnings due to the need to reduce working hours and time spent on sick leave—amounted to PLN 3.17 billion in 2024.

Table 30. Decreased household income among breast cancer patients in 2024

Costs associated with sick leave	Costs associated with the reduction in working hours	Decreased total household Income
PLN 157,393,040	PLN 3,013,950,197	PLN 3,171,343,237

The value of lost earnings among patients and their caregivers due to breast cancer in Poland in 2024



Figure 28. Indirect costs incurred by patients and their caregivers due to breast cancer in Poland in 2024

Cost Summary

When analyzing the costs associated with breast cancer treatment in Poland—taking into account the direct costs incurred by the NFZ, the direct costs borne by patients, and the indirect costs from a societal perspective—it is clear that indirect costs dominate, accounting for as much as 73% of total expenditures. This may indicate a significant social burden associated with the disease, resulting, among other things, from lost productivity and the need to care for patients, while financial expenses for direct treatment remain limited.

The cost of breast cancer in Poland in 2024

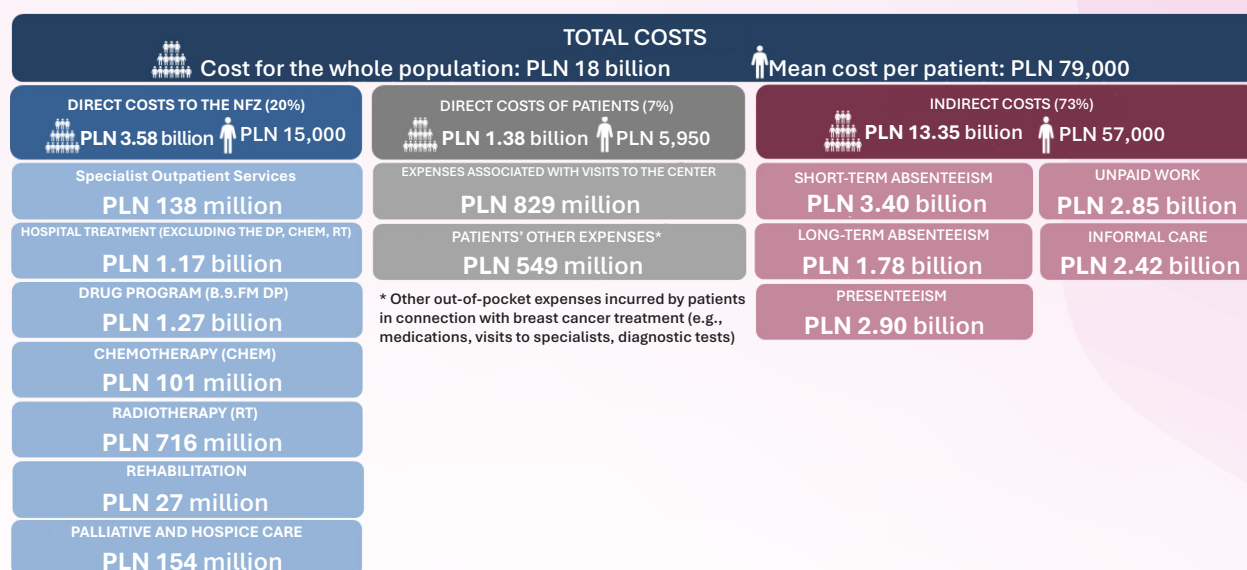


Figure 29. Summary of direct and indirect costs of breast cancer in Poland in 2024

The total cost of breast cancer treatment in Poland in 2024 amounted to PLN 18 billion. With a population of 231,422 during that period, the average total cost per patient was PLN 79,000.

Social Security Transfers

In accordance with international recommendations in the field of health economics, social transfers such as disability pensions, social benefits, and rehabilitation benefits paid by the Social Insurance Institution (ZUS) are not considered part of the economic burden from a societal perspective. This is because they constitute cash transfers rather than actual consumption of resources; therefore, they should not be included in the calculation of direct or indirect costs in studies on the burden of disease.

As the World Health Organization points out, transfer payments represent a cost to the government and a benefit to the patient, but do not involve the use or creation of resources [70, 71]. The ISPOR guidelines take a similar position, stating that cash transfers should not be included as costs in economic analyses conducted from a societal perspective [72]. Recent methodological reviews confirm that such transfers are typically overlooked in estimates of disease costs, with the exception of analyses conducted exclusively from the payer's perspective [73].

For the sake of transparency and to illustrate the scale of financial flows related to breast cancer, we present below the ZUS's expenditures on disability pensions and rehabilitation

benefits in 2024. These data were not included in the core cost calculations presented in this analysis of the disease burden.

Table 31. The value of benefits paid by ZUS in Poland in 2024

Cost category	Value
Disability pensions	PLN 170,404,400
Social security benefits	PLN 4,279,000
Sick leave	209,371,700
Rehabilitation benefits	PLN 90,560,000
Total	PLN 474,615,100

In 2024, the Social Insurance Institution paid out benefits related to breast cancer totaling PLN 475 million. Sickness benefits accounted for the largest share of this amount (44%), while social disability benefits accounted for about 1% of all payments.

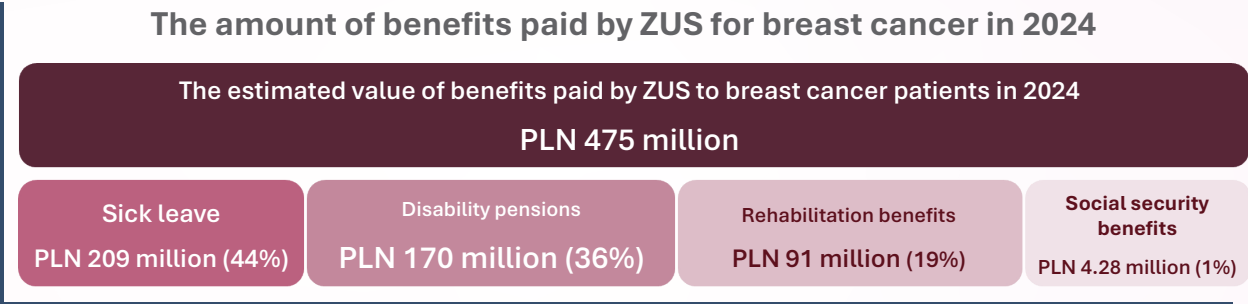


Figure 30. The estimated value of benefits paid by ZUS for breast cancer in Poland in 2024

A MODEL FOR THE CARE OF BREAST CANCER PATIENTS

Based on the information presented in this report, a model for the care of breast cancer patients was developed.

The Current Situation Regarding Breast Cancer Treatment in Poland

Breast cancer remains the most common cancer among women in Poland, posing a serious challenge to the healthcare system. Despite advances in diagnosis and therapy, treatment outcomes and patients' quality of life vary depending on where they live, the availability of specialists, and how the treatment process is organized.

As the data in this report show, we are currently facing a number of significant challenges regarding the care of breast cancer patients in Poland:

- **A steady increase in the number of new cases.** In recent years, there has been a steady increase in the number of new cases, particularly among women over the age of 65, where breast cancer accounts for nearly one-fifth of all cancer cases. Although survival rates are gradually improving, the number of deaths remains high, and there are significant differences in treatment outcomes across provinces.
- **Organizational issues.**
 - o **Workforce challenges.** Poland continues to face a shortage of specialists in clinical oncology, surgical oncology, and radiotherapy, as well as a dramatic shortage of oncology nurses. The average age of nursing staff is steadily increasing, which risks further widening of the generation gap and limiting the ability to provide comprehensive care to patients.
 - o **Diagnostic standards.** The increase in the number of patients and limited staffing resources are leading to increasingly frequent problems with completing diagnostic procedures in a timely manner. In many regions, there has been an increase in the time between the issuance of a DiLO card and the start of treatment. Access to molecular testing (e.g., HER2 and BRCA1/2) is uneven, which hinders the implementation of personalized therapies.
 - o **Treatment Coordination.** Although the National Cancer Network was intended to introduce uniform organizational standards, in practice, the model of comprehensive care dedicated to breast cancer patients—based on specialized

Breast Cancer Units—has still not been fully implemented. The lack of consistent diagnostic and treatment pathways results in unequal access to treatment across different regions of the country, and the lack of uniform quality indicators makes it difficult to assess the effectiveness of individual centers.

- o **The strain on hospitals.** The growing number of breast cancer patients is also putting a strain on hospitals, especially in large cities, where wait times for surgery and systemic treatment are steadily increasing. The number of centers implementing the B.9.FM drug program is not increasing in proportion to population needs, which leads to overcrowded wards and the need to transfer some patients to other provinces. As a result, many women are forced to seek treatment away from home, which entails additional costs, stress, and disruption to their daily lives.
- o **Clinical innovations.** A significant portion of treatment still relies on intravenous medications administered in a hospital setting, despite the availability of subcutaneous and oral formulations that could be used on an outpatient basis or at home. Wider use of such therapies would improve the patient experience, shorten appointment times, and significantly ease the burden on the healthcare system.
- **Social issues.** The disease often leads to temporary or permanent loss of the ability to work. As a result, the economic situation of entire families is deteriorating. Significant regional disparities in access to care persist—patients from smaller towns are less likely to receive prompt treatment, rehabilitation, or psychological support. The common thread running through most of these problems is the lack of transparency in the system—patients often do not know what services they are entitled to, where they can obtain them, and what standards should be met.

The Developed Model

In response to the identified systemic shortcomings, a model of integrated care for breast cancer patients was developed, based on three pillars: comprehensiveness, coordination, and personalization, supplemented by the principle of transparency in organizational and therapeutic processes. This model aims to ensure that patients receive continuous care, have easy access to a full range of services, and receive individualized support tailored to their needs and life circumstances.

Comprehensive Care and Coordination

The continued development of *Breast Cancer Units*—that is, specialized breast cancer treatment centers—remains the cornerstone of comprehensive care for patients. The BCU model is based on close collaboration among a multidisciplinary team consisting of surgeons, oncologists, radiation oncologists, geneticists, psychologists, and physical therapists. Implementing this model in a larger number of facilities enables coordinated management of the treatment process, including diagnosis, surgical and pharmacological therapy, radiotherapy, rehabilitation, and psychological support.

Coordination within the BCU yields tangible benefits: patients have access to a full range of treatments in one location, which shortens wait times for procedures, reduces the risk of delays, and improves communication among specialists. Integrated care minimizes the need for multiple visits to different facilities, reducing stress for the patient and their family and enabling them to actively participate in the occupational and social life. Another key element of coordination is the implementation of modern tools to support care, such as teleconsultations, e-meetings, and dedicated medical apps, which allow for real-time monitoring of symptoms and provide reminders to take medication, thereby improving adherence and reducing the risk of complications.

Decentralization of Care

Given the growing number of cancer patients and limited staffing resources, it is becoming essential to bring some procedures closer to the patient. Decentralization of care makes it possible to provide treatment at local hospitals, through outpatient specialty care, or in primary care, with the option of home support from nurses and patient education on how to self-administer treatment and monitor side effects.

The introduction of subcutaneous and oral forms of medication reduces the need for hospitalization, shortening the time spent in medical facilities from several dozen minutes to just a few minutes [82]. As a result, patients can return more quickly to their family lives and their professional and social activities, and medical staff can make better use of their resources. Decentralization also helps relieve the burden on large referral centers, such as the BCU, allowing them to focus on cases requiring advanced medical intervention. From the perspective of the healthcare system, reducing the number of hospitalizations and shifting procedures to an outpatient setting results in cost savings and shorter wait times for treatment.

Personalized Treatment

Personalized treatment involves tailoring therapy to the patient's needs, both in terms of medication selection and the method of administration. Improved access to multigene tests enables a personalized approach that helps avoid unnecessary chemotherapy when it is not required, while ensuring treatment is provided when it is truly needed. This minimizes the risk of disease recurrence and significantly increases the effectiveness of treatment.

Expanding access to various dosage forms, including subcutaneous administration, shortens the patient's stay at the facility, reduces the risk of complications, and alleviates treatment-related stress, thereby improving quality of life. Patients can remain more active in their professional and social lives and better manage their daily activities despite their chronic illness. Education and the ability to self-administer therapy strengthen a sense of autonomy and improve adherence. This personalized approach also includes scheduling appointments, psychological consultations, and rehabilitation, ensuring that each patient receives treatment tailored to their lifestyle, needs, and capabilities, which significantly impacts the effectiveness of treatment and patient satisfaction.

A model for the care of breast cancer patients



Further development of *Breast Cancer Units* as specialized breast cancer treatment centers. The BCU model, which is based on interdisciplinary collaboration among specialists such as surgeons, oncologists, radiation oncologists, geneticists, psychologists, and physical therapists, should be implemented in more facilities. This approach allows for comprehensive care for patients and can improve treatment outcomes.



Decentralizing breast cancer treatment would allow patients to receive care closer to home—at local hospitals, in outpatient specialist care, or through primary care—with the option of home care and support from nurses in administering medications, education on self-administering treatment, and monitoring side effects.



Personalized therapy tailors treatment to the patient's needs, increasing its effectiveness and comfort. Multigene testing and various forms of drug administration minimize the risk of complications and disease recurrence while improving treatment effectiveness.

Figure 31. A model for the care of breast cancer patients

Expected Benefits of Implementing the Model

The implementation of the proposed model of comprehensive care for breast cancer patients would bring significant benefits to both patients and the Polish healthcare system. Decentralizing care through the BCU and its partner centers will allow patients to remain closer to home, which will significantly improve their comfort during treatment.

The availability of outpatient therapy and home-based treatment will make it possible to maintain professional and social activity while reducing the burden of commuting. Reducing the frequency of hospital visits will have a positive impact on the quality of life of patients and their families, and will also relieve the burden on specialized facilities, allowing them to focus on cases requiring highly specialized care.

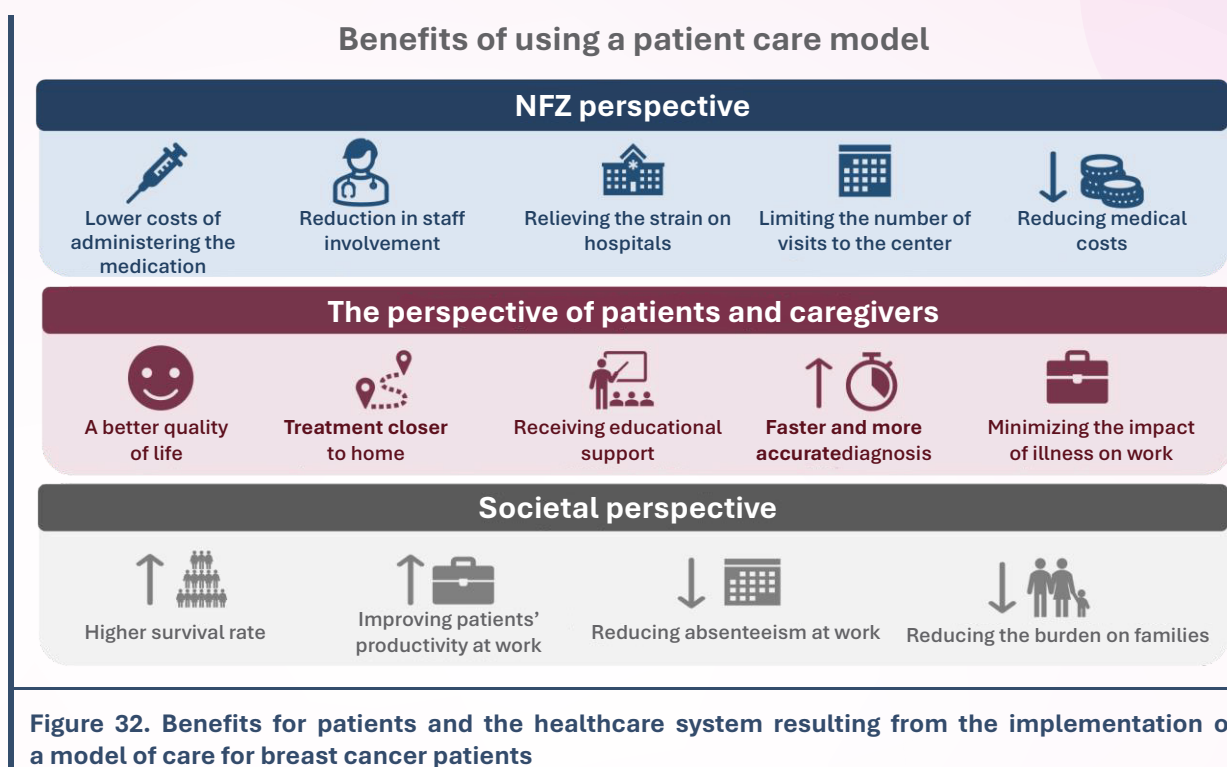
The use of modern drug delivery methods, including subcutaneous or oral medications, shortens the duration of treatment from several dozen minutes to just a few minutes [82], which reduces the need for hospitalization and the burden on medical staff—a factor that is particularly important given the current shortage of oncology personnel. Reducing the burden on hospitals also allows for faster delivery of care to patients requiring inpatient treatment, while reducing system-wide costs.

Home-based treatment, provided by a qualified nurse or monitored remotely using medical apps, is particularly beneficial for patients who live in remote areas or have limited mobility. Teleconsultations and e-meetings enable remote consultations with specialists, speeding up treatment decisions and educating a larger number of patients at the same time. Dedicated medical apps help patients take their medications, monitor their symptoms, and detect abnormalities early, thereby minimizing the risk of costly hospitalizations.

However, higher survival rates—which result from comprehensive and coordinated care—also generate long-term systemic costs associated with the need for maintenance therapy, monitoring patients' health, and managing the long-term effects of treatment. Nevertheless, these expenses are offset by a reduction in the number of hospitalizations due to complications, more efficient use of medical resources, and a reduction in costs resulting from disease relapses. From a societal perspective, the benefits resulting from patients' longer and higher-quality lives—including their professional and social activities—outweigh the increased financial costs.

The systemic benefits primarily include the optimization of the use of medical and financial resources. An integrated diagnostic and treatment pathway reduces wait times for tests and treatment, and coordination among centers leads to more effective collaboration among medical staff. Reducing unnecessary hospitalizations and the ability to provide some treatment on an outpatient or at-home basis also leads to lower treatment costs for patients, while improving the quality of care provided.

The implementation of a comprehensive care model for patients with breast cancer helps improve clinical outcomes and quality of life, enabling them to remain active in social and professional life. At the same time, the system is becoming more efficient both organizationally and economically, and Poland is closing the gap with European standards in modern oncology.



COMMENTS FROM REPRESENTATIVES OF THE MEDICAL COMMUNITY (IN ALPHABETICAL ORDER)

Bogumiła Czartoryska-Arłukowicz, M.D., Ph.D.

Content Coordinator, Breast Cancer Unit

The Maria Skłodowska-Curie Cancer Center in Białystok

The authors of the report were able to compile and publish a large collection of very interesting data. Clinicians have a great need for access to this type of information and analysis. Thanks to them, it is possible, among other things, to assess which facilities perform too few surgical procedures to justify their continued operation. Decentralizing patient care in drug programs is very important, but it's not that simple. Based on our experience at the Breast Cancer Unit at the Białystok Cancer Center, we know how difficult it is to convince a patient to undergo treatment at another center affiliated with us.

We hold consultations, develop treatment plans, and our coordinators schedule appointments with specific doctors for specific dates, but despite all this, a great many patients still want to receive treatment at our center. However, the situation in this regard is gradually improving, as cooperation among the centers has been progressing since the launch of the national network—we meet, strive to share our experiences, and optimize the patient journey. We put a lot of effort into involving the centers that collaborate with us, improving communication, providing training, and sharing experiences; above all, we strive to teach how to care for patients at each stage of their care. This approach has been working increasingly better, and it is becoming increasingly common for patients to agree to pre- and post-operative care outside our center, while the surgical procedure itself takes place at our hospital following a further multidisciplinary meeting.

The key to success is convincing patients that they will receive the same treatment at another facility as they would receive from us. Our coordinators are in contact with coordinators at the centers we partner with, who are able to efficiently schedule appointments for patients without unnecessary delays, so that treatment can begin within the target timeframe of 14 days.

A huge problem is follow-up. For some time now, there has been a formal option allowing a patient who has been cancer-free for more than 5 years to undergo a preventive mammogram without having to see an oncologist. Unfortunately, the NFZ's IT systems do not allow these patients to be admitted because they have a C50 diagnosis and are still

listed in the system as being under treatment. That is why even patients who completed their treatment 20 years ago return to the cancer center once a year to get a referral for a mammogram and then a second time to have the results interpreted. This is nonsense resulting from incompatible IT systems; these tools—even if they exist—are in no way compatible with one another.

The report contains very interesting information on social costs, particularly regarding the work performed by patients and caregivers. At our center, we've noticed that an increasing number of patients want to work while undergoing treatment, even during chemotherapy. This is facilitated by the increasingly widespread availability of remote work options. It is clear that work is becoming a value, and women do not want to give it up.

A separate burden on oncologists—one that is completely unnecessary yet very time-consuming—is the need to fill out the paperwork required for rehabilitation benefits, disability pensions, or disability certificates. The certificates are issued for one year, so the patient comes in every year and the doctor has to fill out the same forms. Changes are needed in this area to relieve doctors of such non-medical, unnecessary, bureaucratic tasks.

**Aleksandra Grela-Wojewoda, M.D., Ph.D., Professor at the Institute
Deputy Director of the Clinical Oncology Department
Maria Skłodowska-Curie National Research Institute of Oncology, Kraków Branch**

The report is a valuable and substantively coherent document that provides a solid foundation for further analysis and expert discussion.

The treatment of patients with breast cancer should be concentrated primarily in specialized centers such as Breast Cancer Units, where a comprehensive diagnostic and therapeutic pathway begins. At the same time, it makes sense to gradually decentralize certain stages of treatment, provided that high-quality care is ensured at local facilities.

A key element in organizing the therapeutic process is a multidisciplinary meeting. It is at this stage that a treatment plan should be clearly defined—as precisely as possible—so that the patient is fully aware of the next steps in their treatment. It is unacceptable for a situation to arise in which transferring a patient to a facility closer to their place of residence results in uncertainty regarding further treatment.

Effective decentralization of systemic treatment requires a thorough understanding of the capabilities of individual centers. This is particularly important in the context of pharmacotherapy, which is largely provided through drug programs. It is therefore essential to stay informed about which treatments are available at a given facility and what its organizational and clinical capabilities are.

Coordination and communication play a key role in the smooth functioning of the system, particularly through care coordinators. This allows doctors to focus on the treatment process while reducing the logistical burden. The efficient flow of information between the lead center and the collaborating units is essential for ensuring the continuity and quality of treatment.

It is also important to take into account the fact that some patients have multiple conditions, including concurrent cancers. In such cases, the treatment process is particularly complex, and the responsibility of the supervising centers is to effectively integrate the various treatment pathways and ensure their proper coordination.

In summary, effective treatment of breast cancer requires close interdisciplinary collaboration. Communication among specialists in various fields—including surgical oncology, radiotherapy, clinical oncology, as well as rehabilitation, psychology, and other supporting specialties—is of key importance. Only such an integrated approach makes it possible to provide patients with optimal, personalized care.

Beata Jagielska, Ph.D.

Maria Skłodowska-Curie National Research Institute of Oncology

Coordination has become the primary model of care for cancer patients. The number of coordinators is gradually increasing—and we expect this trend to continue. The use of information technology also helps improve care. From the perspective of the National Research Institute of Oncology, it is worth noting the large number of patients who are referred to our institution. We have about a thousand patients from outside the Mazowieckie province enrolled in various drug programs. For breast cancer patients, we recorded approximately 80,000 AOS visits last year.

When it comes to the time it takes for patients to undergo a full diagnostic workup, it's safe to say that, even though there is still much to be done, the glass is half full. If we take

into account the National Cancer Network's guidelines, every patient should have a DiLO record created for them and follow the pathway outlined in that record—this would make it much easier for us to monitor their progress. However, we already know that in the first half of 2025, 71 percent of breast cancer patients undergoing treatment had completed their initial diagnostic workup within 28 days.

The report rightly points to the growing strain on medical facilities and on physicians themselves, whose numbers remain insufficient. Although we have seen a noticeable increase in the number of applicants in recent oncology residency recruitment rounds, this still does not solve the problem given the rising number of cancer patients.

An analysis of data on the drug program for breast cancer treatment shows a steady increase in the number of patients enrolled in drug programs and receiving immunotherapy, both as adjuvant and palliative treatment. The number of medications is also increasing, and as a result, the number of people receiving treatment through these programs will also increase. That is why, among other things, the development of IT tools is essential, because without their support—given the current shortage of physicians and the heavy caseload on the remaining staff—we will find it difficult to cope with the administrative burden.

In the field of molecular tests, we have some very positive news: from 2017 to 2023, the number of centers conducting such tests increased by 85 percent. This is good news because it will increase access to genetic and molecular testing. The principles underlying the national cancer network promote a pro-social approach and a commitment to patients' lives and quality of life. It all depends on how it will be implemented. In 2024, the National Research Institute of Oncology launched a small-scale pilot program in collaboration with one of the municipal hospitals—allowing patients, following a consultation, to choose where they want to be treated: at the National Research Institute of Oncology or at a municipal hospital. Some patients chose to transfer to a municipal hospital for treatment, with the assurance, of course, that at any time—if they changed their mind or their condition required it—they could continue treatment at the highly specialized center. This allows us to offer patients the opportunity to undergo procedures and receive treatment more quickly, at a location closest to their home. The key word is collaboration between centers, mutual understanding, and coordination, as well as the realization that SOLO 1, when working closely with a higher-level center, can perform certain procedures while maintaining the appropriate quality standards.

Krzysztof Koper, Ph.D., Prof. of the Nicolaus Copernicus University
Coordinator of the Clinical Oncology Department
Prof. F. Łukaszczyk Cancer Center
in Bydgoszcz

We recognize the growing problem of an increasing number of patients treated at tertiary care centers who remain in a cycle of repeated treatment lasting several months and, in some cases, several years. These therapies involve numerous follow-up visits, which in turn place an excessive strain on referral centers and gradually reduce their organizational capacity. At the same time, many patients strongly emphasize their right to choose where they receive treatment. In this situation, it is essential to design a healthcare model in such a way that decentralization—that is, receiving treatment closer to home—is an attractive and trustworthy option for patients.

The effort to centralize care and provide patients with comprehensive care through the creation of centers of excellence represents the right direction for systemic change. However, as the number of patients and available treatments increases, new challenges arise—primarily of an organizational nature—related to the implementation of drug programs and the management of long-term treatment for individual patients. Consequently, the parallel implementation of decentralization mechanisms—which involve transferring some patients to smaller facilities—is becoming a necessity, although it remains a difficult process to carry out.

Referring a patient to a smaller facility for continued treatment can be quite a challenge. Patients often cite their right to choose a facility and express a desire to remain at the center where they began treatment. It is therefore crucial to assure the patient that the entire diagnostic and therapeutic process has been planned at the referring center, and that the individual stages of treatment are being carried out in accordance with the established protocol and remain under its constant coordination.

Systemic treatment, especially in the case of repeated and long-term therapy, should be provided as much as possible at centers located closer to the patient's place of residence. Faced with an influx of new patients and the introduction of new therapies, we must address the issue of qualifying an increasingly large group of patients for additional adjuvant treatment under drug programs. Expanding the scope of treatment creates growing organizational needs. Decentralization is therefore an essential component of the system, enabling it to meet growing challenges.

We should also consider how to effectively promote the concept of decentralization so that patients perceive it as a beneficial solution. Patients should be confident that the proposed treatment measures are fully justified, carried out in accordance with current standards and at an equivalent level of quality, and that the entire process remains under the supervision of a higher-level center. A patient's decision is influenced by many factors—financial circumstances, logistical considerations, and access to organizational support and care. The acceptance of proposed solutions often depends on these factors.

Another important issue is the role of primary care physicians in the care of cancer patients. We often hear patients say that, after a diagnosis of cancer, their primary care physician refers them directly to an oncologist for every problem—regardless of its nature. This applies both to issues related to cancer treatment and to entirely separate matters, including formal ones. This requires systemic measures to strengthen the competencies and sense of responsibility of primary care physicians in the care of cancer patients. This problem will become more severe as the number of patients, the range of available treatments, and the complexity of the treatment process increase.

Prof. Maciej Krzakowski, M.D., Ph.D.

National Consultant in Clinical Oncology

I would like to congratulate the authors—EconMed—because this is an excellent report that focuses on the social and economic consequences. We can only hope that the arguments presented in it will reach decision-makers. A persistent problem with our system is that when making decisions, we focus only on the expense—for example, the cost of a genetic test—and fail to see the benefits it can bring, such as improved outcomes in cancer treatment and reduced costs associated with treating complications caused by unnecessary or inappropriate treatment. In breast cancer, thanks to molecular diagnostics, we can use targeted therapy instead of chemotherapy for some patients, as chemotherapy causes side effects and offers little benefit to patients.

The report addresses, among other things, the issue of centralization versus decentralization of medical care. When dealing with a common form of cancer, such as breast cancer, it is clear that a single center of expertise cannot provide adequate treatment for all patients.

A consortium system is needed. At that point, a specialized central facility establishes treatment guidelines and monitors the results. It is affiliated with partner facilities that provide treatment in accordance with a predetermined protocol. The situation is different for rare cancers, where we're talking about centers of excellence that are the only ones in the entire province capable of addressing this problem and treating all patients. The system therefore requires a certain degree of flexibility. It is clear that, for example, we are unable to treat all lung cancer patients from the Mazovia Province at the National Research Institute of Oncology, so this consortium system is essential.

The second thing I would focus more attention on is screening. In Poland, it's a disaster: the reporting rate is in the low thirties—less than half of what it should be to achieve the expected results. The role of primary care and occupational medicine in actively referring patients—especially younger women who are eligible for screening—should be strengthened. Currently, the age threshold is 45—these are young, working women.

**Barbara Radecka, M.D., Ph.D., Professor at the University of Opole
Head of the Oncology Department with Day Treatment Unit at the
Prof. Tadeusz Koszarowski Opole Cancer Center in Opole**

The report managed to gather a great deal of truly valuable information. At my center, we assessed the average duration of treatment per patient and changes over the years. We took into account various types of cancer and different treatment regimens—administered intravenously or subcutaneously, once a week, every two weeks, or every three weeks. We have excluded treatments based on prescription medications. Curative treatment lasts an average of 6 months, while palliative treatment lasts about 2.5 years. During this period, the patient typically receives more than one line of treatment—sometimes even more than three—transitions seamlessly to each subsequent line, and remains under continuous treatment. Of course, there are patients who are treated for 4–6 months, but there are also those who are treated for 8 or even 10 years. The burden on a slightly growing number of healthcare providers and a slowly increasing number of clinical oncologists is enormous. This is a situation that needs to be brought to the public's attention. With the number of clinical oncologists remaining virtually unchanged and the caseload in drug programs doubling over a five-year period, it would be truly difficult to expect the quality of care to improve. When discussing the growing caseload, it is

important to consider not only the increasing number of patients but also the lengthening duration of treatment for each patient.

Modern chemotherapy treatment can be administered without the involvement of an oncologist—provided there are no side effects—without hospitalization and without the need to fill out extensive paperwork. Unfortunately, in our day-to-day practice, we devote a great deal of time and energy to things that do nothing to improve the quality of care—such as repetitive administrative tasks.

The processes of centralization and decentralization should be carried out in parallel, because each serves a different purpose. Of course, we need centers of excellence, and we also need facilities with a lower level of specialization.

At many centers, we specialize in a specific area of treatment—for example, breast cancer centers of excellence—but at the same time, we treat many patients with bile duct cancer, bladder cancer, and other types of cancer. If, in the face of widespread staff shortages, we focus our organizational and financial resources on a particular type of cancer, we must be careful that this does not interfere with access to diagnosis and treatment for other types of cancer. Therefore, we must ensure that all patients are cared for through organizational and systemic measures.

The decentralization of care—that is, referring a patient to another facility closer to their home—is closely tied to financial considerations: people who can afford to commute to a larger, more distant hospital are less likely to agree to be referred to a smaller facility.

A very large group of breast cancer patients who undergo radical treatment (and thus with the intention of a cure!) receive 10 years of hormone therapy and are then monitored for at least 5 years. Such patients remain under the continuous care of the cancer center for at least 15 years. Cooperation with primary care providers is needed to monitor patients after they have completed treatment. Currently, all cancer centers, regardless of their referral level or size, care for countless groups of patients who have completed treatment. In fact, the whole world is struggling with this problem.

When looking for ways to reduce the burden on cancer treatment centers, it is worth paying attention to the reporting of treatment data in drug programs. Because the various systems are not integrated, much of the data has to be entered multiple times. We operate in a maze of complex solutions related to reporting and settling benefits. All of this takes up the time of clinical oncologists (who are in short supply and are highly qualified specialists!!!) and takes away time that should be devoted to patient care.

I would also like to address patient awareness—when it comes to breast cancer, the level of awareness is relatively high. The results of the survey presented in the report are a pleasant surprise: when asked about the stage of their disease, only 10 percent of the patients were unable to answer. Since 9 out of 10 patients know their disease stage—out of the four levels—we can conclude that awareness isn't bad.

COMMENTS FROM REPRESENTATIVES OF PATIENT ORGANIZATIONS (IN ALPHABETICAL ORDER)

Joanna Frątczak-Kazana

Deputy Director of the Alivia Cancer Foundation

Analyses of indirect costs and patients' quality of life are not about a specific technology, but about adherence to diagnostic and therapeutic guidelines, key recommendations, and the principles of drug programs. Decisions are needed regarding how to monitor compliance with these recommendations by the Ministry of Health—or, in reality, by the NFZ. The National Research Institute of Oncology has developed guidelines for the treatment of breast cancer based on the NCCN, and these guidelines served as the basis for key recommendations issued by the AOTMiT. But no one monitors them or checks whether and how they are being followed.

Monitoring should verify how hospitals are implementing the drug program, whether a given technology is being used at all, and whether patients are receiving optimal treatment. The assessment process will be partially streamlined by e-DiLO, provided it is finally implemented. This will help standardize at least some of the processes, so we'll know what diagnostic tests have been performed and what treatment the patient should be prescribed. Consideration of the quality of life of the patient and her family should take place at the AOTMiT level when a new medical technology is being evaluated to determine whether it should be used and reimbursed. Decisions made by the Ministry of Health should also be based on these factors. HTA should begin and end with the patient.

Clinicians themselves primarily assess the clinical value of treatment, rather than the patient's quality of life. Unfortunately, no one takes patients' quality of life seriously. This problem is not limited to the Polish system; in most countries, the main factor in reimbursement decisions is the cost of treatment, rather than the patient's quality of life or indirect costs.

The report also addresses another important aspect of the healthcare system: equal access regardless of socioeconomic status or place of residence. In accordance with the objectives of the National Cancer Strategy, patients should be treated as close to their place of residence as possible. To this end, as many facilities as possible throughout the country should provide the most advanced technologies available. Appropriate measures

must be taken to make this possible, linking SOLO III hospitals with lower-level centers so that they can collaborate and coordinate their activities. The idea is to ensure that patients do not have to travel to facilities far from their homes to receive their medication.

I hope that a joint assessment of new medical technologies at the European level will improve the consideration of indirect costs and patients' quality of life. The point is to ensure that patients are taken into account from the very beginning of the entire HTA process, so that their needs and experiences are prioritized.

To accurately assess the indirect costs of the disease and the patient's quality of life, it is essential to evaluate the quality of diagnosis and treatment—understood as compliance with standards—and to systematically monitor that quality. The assessment should focus not only on clinical quality but also on patient satisfaction, as these factors have the greatest impact on patients' social and occupational functioning.

Dorota Korycińska

President of the National Oncology Federation

The studies described in the report, as well as other research, indicate that the excess costs are caused by poor organization of the system, not by patients.

We have a huge problem with prehospital diagnosis, which, according to many studies, can take months, is disjointed, carried out in stages, and unnecessarily prolonged. After months of delays, many patients are left with only palliative care. And this means incurring costs—both those related to direct treatment and indirect costs associated with impaired health. Many doctors do not pay enough attention to what happened to the patient before entering the office or to what happens to the patient between visits. Prolonged patient pathways are undoubtedly a major factor contributing to unnecessary increases in healthcare and social care costs.

The biggest problem is that the early stages of the disease are marked by chaos and fear. Many people feel that the path ahead of them is absolutely insurmountable and that they won't be able to handle it. That is why patients need support—for example, in handling various matters at government offices, writing applications for social assistance, guiding them in their dealings with the ZUS, arranging transportation to the hospital, organizing childcare, ensuring they have meals when they lack the strength, and in many other everyday situations.

A study of 2,830 patients, conducted as part of the implementation of the European Code of Cancer Care, clearly showed that patients do not feel that anyone is interested in how they are coping with their illness. They are, to a large extent, left to cope on their own. Hospitals do not assess patients' quality of life, nor do they ask about the burden on their families, their financial situation, or any difficulties they may have with work or getting to appointments.

These factors should be taken into account when considering the rise in medical costs—or rather, the costs associated with illness. The current healthcare financing model focuses on direct costs, which account for just over 20 percent. To optimize healthcare spending, it is essential, first and foremost, to reduce indirect costs, which account for a significantly larger portion of the total.

The disregard for indirect costs in health care is linked to the siloed approach of the government administration. The Ministry of Health does not seem to be concerned about the issue of rising expenditures on sick leave, benefits, and disability pensions. The costs of a patient's absence from work are reflected in the ZUS or at the employer's end, but since they do not burden the NFZ budget (the costs are borne by a different, separate ministry)—the Ministry of Health does not calculate them. The same applies to the issue of rehabilitation, which is also handled by another ministry, namely the Ministry of Family, Labor, and Social Policy (ZUS and PFRON).

We do not take a holistic view of the system or the financial consequences of illness, ineffective treatment, delayed diagnosis, having to leave one's job, or the burden placed on families to care for patients. Decision-makers shaping the healthcare system show no interest in this issue; for them, patients are only visible when they are in the hospital and generate treatment costs, including those for drug therapies.

It would be worthwhile to assess how Polish institutions are implementing the EU requirements for oncology facilities with regard to issues concerning the well-being of cancer patients. In my opinion, we do not meet these standards because our system focuses on the costs of treatment itself, particularly hospitalization, medications, and procedures. We do not monitor what happens outside the hospital, either before or after treatment; we do not ask how the patient got to the appointment or how they paid for it; and the value of properly conducted rehabilitation is not appreciated. All of these systemic shortcomings lead to a decline in the patient's mental well-being and quality of life, as well as excessively high indirect costs. We all bear these costs; among other things, they contribute to rising healthcare expenditures. With health insurance premiums at a

dramatically low level and political decisions that are not necessarily constructive, this has a negative impact on the budget of both the Ministry of Health and the state as a whole.

The report focuses on breast cancer patients; I view it as an example illustrating how patients cope with their illness and navigate their professional, social, and family lives, as well as various aspects of their health.

Elżbieta Kozik**President of the PARS Oncology Movement Association**

The efficiency of care, patients' quality of life, and unnecessary costs in our system stem, among other things, from communication problems. The doctor isn't listening, and the patient doesn't understand. Of the 1,004 breast cancer patients surveyed, 84 percent of the women said they did not understand the information they received from their doctor, and 54 percent were unaware that a multidisciplinary team existed. I believe we should focus on the most important elements, which are: information, communication, and the presence of coordinators. We're seeing improvement year after year, but there's still a lot of work to be done.

The implementation of new digital tools, such as the IKP, helps improve communication. A few years ago, we made efforts to include data from diagnostic tests in the system, but to this day, that data has not been incorporated into it. Their availability could reduce the need to repeat tests, thereby contributing to real savings.

The lack of communication and information sharing therefore leads to rising costs, both between hospitals and between doctors and coordinators. A survey of breast cancer patients revealed that 90 percent of them lacked awareness and knowledge regarding the diagnosis and treatment process. Almost all women feel they lack basic information. 82 percent report that they are unable to participate in decisions regarding their treatment plan and the method of medication administration.

e-DiLO will streamline some of the evaluation processes; its implementation is a priority. This will ensure that they are at least partially standardized, and we will know what diagnostic tests were performed and whether—based on their results—the patient should be enrolled in the program.

Anna Kupiecka

President of the OnkoCafe – Razem Lepiej Foundation

Year after year, there is a growing interest among experts in the topic of indirect costs. The broader context of the evaluation of medical therapies and technologies is being taken more and more seriously. It is currently being analyzed by the AOTMiT and taken into account in decisions made by the Ministry of Health. Ever since we began discussing oral and subcutaneous therapies and indirect costs—and thanks in part to the challenges posed by the pandemic—many of these therapies have become available to patients.

For every type of cancer, we already have oral, subcutaneous, and other types of treatments. This raises the question of why no analyses have been conducted so far. Why don't we quantify the benefits of new therapies so that we can require their implementation on economic grounds? Why does the system's design allow hospital management to decide, at its discretion, that "it's not worth it," with the result that doctors at that facility cannot offer patients the full range of treatments, including different forms of medication? Perhaps this should be addressed through guidelines or regulations that would require healthcare facilities to pursue a broader concept of optimization.

Poor organization and information flow negatively impact patients' quality of life and healthcare costs—patients lack a clear course of action. If breast cancer patients don't know when they will have their test or when they will receive the results, they won't know how to arrange childcare or how to plan their work schedule. Illness makes life difficult for everyone, but it doesn't have to mean chaos, unnecessary expenses, or a waste of time—we can organize, sort out, and plan various aspects.

From the system's perspective, there is a need to standardize procedures—covering the entire diagnostic and treatment pathway—in order to optimize and shorten it as much as possible, thereby achieving optimal clinical efficacy and cost-effectiveness.

Krystyna Wechmann

President of the Federation of "Amazonki" Associations

The report quite rightly draws attention to the quality of life of women with breast cancer. We've been talking about direct and indirect costs for some time now, but the medical community isn't really interested in this issue. We all know that when the manufacturer

sought reimbursement for the subcutaneous therapy, they had to demonstrate the benefits of using it. Owing to these arguments, the reimbursement was approved. And yet, the mindset of many hospital administrators is not to administer this subcutaneous therapy. A hospital manager is primarily concerned with the financial situation of his or her facility, and, guided by this concern, may require doctors to use treatments that are cheaper or more cost-effective for the hospital, even though they are less effective, place a greater burden on patients, and reduce their quality of life.

If I could, I would send patient representatives to every hospital to meet with the manager, so they could describe what their lives are like, the burden of treatment on them and their families, and discuss all of these costs. We need to present the analyses and figures contained in the report and focus specifically on the lives of the patients.

Cancer treatment is not an expense, but an investment. I'm afraid we won't be able to convince the NFZ by talking about indirect costs. The only effective approach may be to reach out to hospital managers and physicians and bring to their attention all the problems that patients face on a daily basis. However, to convince the hospital manager, we need to demonstrate the benefits his facility will gain—and to do that, we need arguments backed by analyses and calculations.

Under the law on the choice of treatment location, many patients are reluctant to seek treatment at smaller facilities for fear of having less access to modern therapies, longer wait times for appointments, and lower-quality care. Decentralization must therefore also involve education and ensuring that patients have the same opportunities and access to the same treatments and the same quality of care at every center belonging to the National Cancer Network.

We must call for respect for the time and dignity of the patient—a working woman, a mother, a grandmother. The patients want to be able to use this shift in decision-makers' thinking to improve their quality of life. Cost and time—these are the two most important factors. Costs matter to physicians and policymakers, but for patients, time is of the essence.

ASSESSMENT OF THE SOCIOECONOMIC IMPACT OF INNOVATIVE THERAPIES

In the debate on healthcare financing, the dominant perspective remains **direct medical costs** and, to a lesser extent, **the social costs of illness**, associated primarily with short-term and long-term absenteeism and presenteeism, and less frequently with a reduction in unpaid work and the burden on caregivers in the context of informal care. Although such measures accurately reflect the scale of the disease burden, they focus primarily on **costs and lost resources** borne by society. However, they do not fully capture the value that effective, modern treatment can generate—a value that goes beyond simply limiting losses.

Therefore, the need to assess **the socioeconomic impact of innovative therapies (Social Impact)**. This approach allows us to view health care not merely as an area of spending, but as **an investment in human capital and economic potential**. Improvements in patients' health not only lead to a better quality of life and longer life expectancy, but also to an increased ability to work, reduced productivity losses, greater occupational activity, and maintaining functional independence.

Social Impact analysis allows us to capture these broader effects—including increased productivity in paid and unpaid work, reduced burden on caregivers, reduced social transfers, and the impact on economic activity in other sectors. From this perspective, the social costs of the disease remain an important element of the analysis, but they serve more as a point of reference than as the main focus of the assessment. It is crucial, in fact, to assess the extent to which innovative therapies generate **added value for the economy and society**, going beyond traditional cost metrics.

In summary, **Social Impact** is a measure of the broadly defined socioeconomic benefits resulting from the use of modern medical therapies. In accordance with the methodology presented in analyses such as the report “*The Value of Investing in Innovative Medicines*” prepared by WifOR [83], *Social Impact* consists of two main components:

1. **Health Footprint:** This is an estimated measure of the health benefits resulting from a specific treatment, expressed as a **QALY (Quality-Adjusted Life Years)**. QALY combines life expectancy with patients' quality of life, serving as a standard measure used to assess the cost-effectiveness of a drug. This indicator allows for a comprehensive assessment of the impact of treatment on patients' health and, in a broader context, on their ability **to actively participate in professional and social life**.

2. **Socioeconomic Footprint:** A measure of the benefits that translate into increased productivity in society, resulting from improvements in patient health. In this case, health gains are converted into economic benefits by estimating their impact on productivity, both in paid work (e.g., occupational activity) and unpaid work (e.g., household chores). The goal is to show how improved patient health leads to increased productivity in the economy, which in turn contributes to the country's overall economic development.

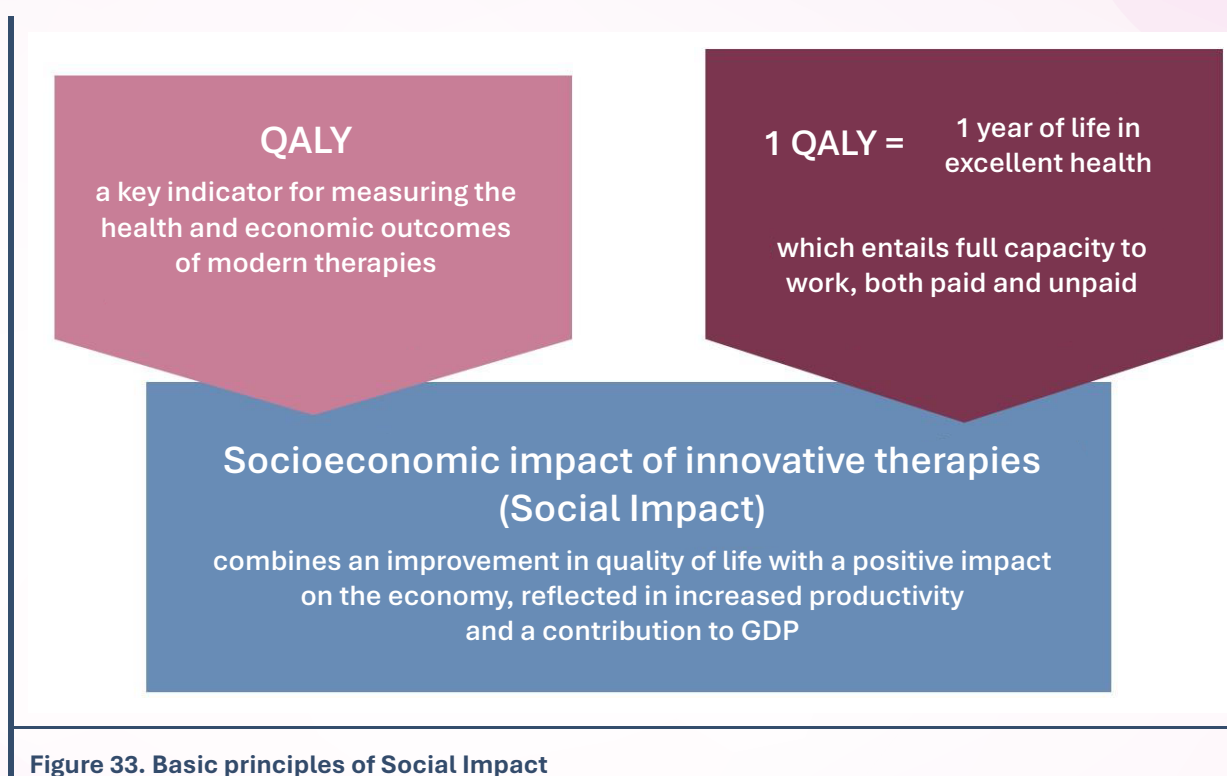


Figure 33. Basic principles of Social Impact

Social Impact provides a comprehensive picture of the benefits of treatment, extending beyond patients' health outcomes alone to include the positive impact on the economy and society resulting from improved health and increased productivity.

Assessment of the **health footprint** involves several key stages that allow for an assessment of the impact of modern therapies on improving patients' health and productivity, both socially and economically. This process involves the following steps [83]:

1. **Patients Reached (PR)**

The first step is to accurately estimate the number of patients who will undergo a given treatment within a specified time frame. To this end, both forecasts and historical data are used, taking into account the specific characteristics of the

country, the drug, and the therapeutic indications, as well as epidemiological data on the prevalence of diseases in the population. Accurately determining the number of patients is the foundation for further estimates.

2. Calculating QALYs

Health gains are calculated based on the difference in QALYs between the intervention and the current standard of care, which makes it possible to capture the actual health gain resulting from the introduction of a new technology. QALY is a measure that takes into account both the length of life and the quality of life of patients. The QALY estimate is based on the documented efficacy of the therapy and the results of clinical trials, ensuring an objective assessment of health benefits.

Health benefits are assessed on an annual basis, without discounting. It is assumed that health gains (QALYs) are uniform within each year of the analysis, which simplifies the calculations and allows for comparisons of health gains across different time periods.

3. Division into age groups

Due to differences in productivity potential, the estimates are divided into three age groups: under 20, 20–59, and over 60. Among people over the age of 60, the focus is primarily on the health benefits associated with unpaid work, such as caring for family members, whereas people of working age (20–59) have a greater impact on the benefits associated with paid work.

In WifOR publications, gross value added (GVA) has been used as a measure of productivity and the monetary impact of health outcomes on the economy (in Polish public statistics the WDB acronym is used). In national accounts, this is a measure of the value created in the economy, defined as the difference between total output and intermediate consumption—that is, the value of inputs used in the production process. The sum of gross value added in the various sectors of the economy, plus taxes on products and minus subsidies on products, equals gross domestic product (GDP) [84].

The number of productive years (derived from QALY) was multiplied by GVA per economically active person, which made it possible to estimate the direct effects on paid work. Next, using the *input-output* multipliers, intermediate and induced effects were taken into account, illustrating the impact of increased economic activity on other sectors of the economy. In the case of unpaid work, GVA was adjusted accordingly (the

adjustment took into account both the ratio of time spent on unpaid work to paid work and the relative economic value of that work compared to the average productivity of paid work in the economy) to estimate its hypothetical economic value.

The approach presented in WifOR's publications provides a valuable and solid foundation for assessing the impact of therapies on society and the economy.

Social Impact results in patients with HER2-positive breast cancer in other European countries

According to the WifOR analysis [85], the treatment of patients with HER2-positive breast cancer using Roche drugs (trastuzumab SC, pertuzumab, trastuzumab emtansine, and the combination of pertuzumab and trastuzumab) between 2024 and 2032 is associated with a significant health benefit. It is estimated that the cumulative gain in health outcomes during this period for 10 countries (Brazil, China, France, Spain, Japan, Canada, Germany, the United States, the United Kingdom, and Italy) amounts to approximately 138,000 QALYs (uncertainty interval: 117,000–168,000 QALYs). This benefit, when converted into socioeconomic footprint in accordance with the adopted methodology (linking health outcomes to productivity and contributions to GDP), translates into a Social Impact of approximately USD 9 billion in the countries analyzed (range: USD 7–12 billion). This means that improving the survival and quality of life of patients with breast cancer generates a measurable macroeconomic effect in the form of an increased contribution to the economy.

Data for Poland (QALY, Social Impact) provided by the drug manufacturer, as well as data for selected European countries from the WifOR publication [85], are summarized in the table below. It should be noted that the estimates for Poland cover the period 2024–2030, while those for other European countries cover the years 2024–2032; given that the projection horizon for Poland is two years shorter, this may result in slightly lower figures for Poland.

Table 32. Social Impact results for Poland (2024–2030) and selected European countries (2024–2032): trastuzumab SC, pertuzumab, trastuzumab emtansine, and the combination of pertuzumab and trastuzumab in the treatment of HER2-positive breast cancer

Country	Health Footprint	Socioeconomic Footprint
Poland	3,172 QALYs	USD 194.10 million
Germany	5,538 QALYs	USD 373.18 million
France	5,316 QALYs	USD 438.13 million
United Kingdom	4,387 QALYs	USD 626.30 million
Spain	4,077 QALYs	USD 254.09 million
Italy	5,472 QALYs	USD 327.50 million

For the Polish context, the use of the analyzed anti-HER2 drugs in the treatment of breast cancer was estimated to result in an increase in health benefits of approximately **3,200 QALYs** and a Social Impact of over **USD 194 million**. Gaining approximately 3,200 QALYs means that, thanks to treatment with trastuzumab SC, pertuzumab, trastuzumab emtansine, and the combination of pertuzumab and trastuzumab for HER2-positive breast cancer, patients gain a total of approximately 3,200 years of life in full health. It is a synthetic measure of health benefits that takes into account both increased life expectancy and improved quality of life. In contrast, the estimated Social Impact for Poland, amounting to over USD 194 million, reflects the socioeconomic value resulting from improvements in patients' health. This translates into additional productivity generated by patients' improved quality of life and longer periods of activity—both in paid work and in unpaid activities—as well as the resulting increase in value added in the economy. From a macroeconomic perspective, this means that improvements in patients' health translate into greater economic activity and an additional contribution to the economy.

When interpreting the results for Poland in comparison with other countries, it is important to keep in mind that the QALY level obtained is influenced, among other factors, by the size of a given country's population and the number of patients diagnosed with breast cancer. It should be noted that all of the European countries analyzed have larger populations than Poland, ranging from about 35% larger in the case of Spain to more than twice as large in the case of Germany [86, 87]. Furthermore, the incidence of breast cancer in Poland is 49.7 per 100,000 people, while in all of the European countries analyzed, it is higher, ranging from 62.5 per 100,000 in Spain to 102.6 per 100,000 in France [88]. However, the projected number of patients who will receive treatment with anti-HER2 drugs is of the greatest importance, as it is this figure that most strongly determines the total value of the health outcomes achieved and remains a parameter that is largely specific to individual

countries. It should also be emphasized that differences among countries in terms of the organization of health care, the structure of the patient population, cost levels, the employment status of patients and caregivers, and the analytical assumptions used may further influence the magnitude of the observed health and socioeconomic effects.

The size of the population using the analyzed anti-HER2 drugs for the treatment of breast cancer in Poland (*Patients Reached*)

It should be noted that, according to estimates, the projected number of patients treated with anti-HER2 therapies in Poland will be 11,000–13,000 per year between 2024 and 2030 (Chart 39). These values were estimated based on actual data regarding the number of patients treated with trastuzumab SC, pertuzumab, trastuzumab emtansine, and a combination of pertuzumab and trastuzumab from 2020 to 2024 [89], and were then extrapolated to subsequent years, taking into account the observed trends in population growth and projections for the use of individual technologies under the B.9 drug program [89]. This population size indicates that the effects of modern anti-HER2 therapies may have not only clinical but also systemic and socioeconomic implications.

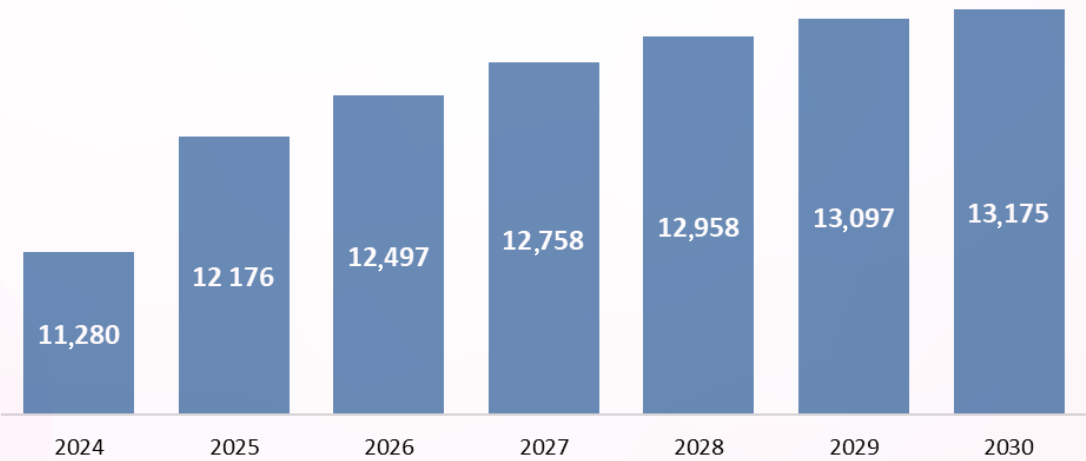


Chart 39. Forecast of the number of patients treated with trastuzumab SC, pertuzumab, trastuzumab emtansine, and a combination of pertuzumab and trastuzumab from 2024 to 2030

In this context, it is worth noting that the findings of the WifOR publication [85] indicate that innovative therapies such as trastuzumab SC, pertuzumab, trastuzumab emtansine, and the combination of pertuzumab and trastuzumab—funded under B.9 program—create additional societal value that goes beyond traditionally assessed clinical outcomes and

budgetary implications. This means that their impact should be considered not only in terms of health, but also in light of broader socioeconomic benefits, including the reduction of productivity losses. These findings highlight the long-term economic value of investing in innovative medicines and the importance of modern therapies for the economy and patients' social well-being.

In summary, it is worthwhile to develop Social Impact analyses, as this approach goes beyond the traditional framework of disease costs and social costs, which focuses primarily on losses and burdens. It makes it possible to capture not only the health effects of the therapy, but also their impact on paid and unpaid productivity, as well as on the functioning of the economy as a whole. As a result, Social Impact more fully reflects the value of innovative therapies—which goes beyond the payer's perspective—and promotes the view that health care spending is not only a cost but also an investment in human capital and economic potential. Incorporating this type of analysis can serve as a significant complement to the evaluation of innovative drugs, enriching standard pharmacoeconomic indicators with a broader socioeconomic perspective.

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