

SUSTAINABLE DEVELOPMENT AS THE FOUNDATION FOR THE TRANSFORMATION OF THE HEALTHCARE SYSTEM IN POLAND

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ABSTRACT

Motives: Modern healthcare systems operate under increasingly complex social, economic, and environmental conditions. The dynamics of demographic change, increasing financial pressures, and mounting climate challenges are forcing states to redefine existing models of healthcare service management. In this context, sustainable development is no longer solely an environmental imperative, but is becoming a concept integrating various dimensions of public policy, including healthcare policy. Healthcare systems, which in the past focused primarily on clinical aspects, are now increasingly incorporating components of prevention, environmental responsibility, social integration, and economic sustainability. Shifting the emphasis from reactive to proactive measures is becoming one of the conditions not only for improving the system's efficiency but also for its long-term resilience.

Aim: The aim of this article is to present and analyze the implementation of sustainable development concepts in the Polish healthcare system. The study is based on a literature review, strategic documents, and case studies of national and regional initiatives. A comparative approach is used to assess the degree of integration of sustainable development principles into healthcare policy.

Results: Sustainable development should be considered a fundamental criterion for assessing the effectiveness of the healthcare system. The analysis indicates that the implementation of sustainable development principles in the Polish healthcare system is limited. Efforts focus primarily on economic and organizational aspects, with limited consideration of environmental and social elements. The results confirm the need for a systemic approach combining economic efficiency with social and environmental responsibility, which is a prerequisite for a long-term strategy for the healthcare system in Poland.

Keywords: sustainable development, corporate social responsibility, healthcare system, healthcare management, real estate management.

JEL classification: Q01, Q56, G30, D64, I10

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INTRODUCTION – THE EVOLUTION OF THE CONCEPT OF SUSTAINABLE DEVELOPMENT

Sustainable development is a multidimensional research subject from many disciplines: economics, political science, law, etc. It primarily refers to macro-level systems – states, economies, and international communities, but its practical implementation requires implementation into the management process at the enterprise level. Sustainable development is a doctrine of political economy that assumes a quality of life that is as good as current civilizational development allows (Rutkowska et al., 2011).

This theory emerged as a response to the increasingly evident tensions between the economic growth model and the state of the natural environment. Initially formulated primarily in an ecological context, it evolved toward a systems approach integrating social, economic, and environmental issues. Its origins can be found in the activities of the United Nations, including U'Thant's famous speech in 1969, and in the Club of Rome's report "The Limits to Growth," published three years later (Meadows et al., 1972). These documents first drew international attention to the risks of uncontrolled exploitation of natural

resources, rapid urbanization, and demographic pressures (Ciężela, 2007). However, these are not the only historical moments significantly impacting global sustainable development. Table 1 presents selected stages of sustainable development around the world.

The table shows that the 1970s and 1980s saw intensified debates on creating new socio-economic development frameworks. In institutionalizing sustainability, publishing the report "Our Common Future" in 1987 was a significant moment. It presented a definition according to which sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. This concept was implemented in numerous international strategies in the following decades, including Agenda 21 and Agenda 2030 (Raczyńska, 2021). Their content, in turn, shows a consistent expansion of the understanding of sustainability, which now includes environmental issues and public health, education, social equality and institutional partnerships (Baran, 2022).

Moving away from the global market, it is worth taking a closer look at Poland – the concept of sustainable development appeared in programming documents in the 1990s, and its statutory definition was

Table 1. Selected historical key moments in global sustainable development

Date	An event of global importance
May 26, 1969	U'Thant's Statement (Report) – 23rd Session of the UN General Assembly.
1972	Convening of the global UN Human Environment Conference in Stockholm.
1972	The first report of the Club of Rome (established in 1968), entitled <i>The Limits to Growth</i> .
mid-1970s	The first use of the term sustainable development – probably by Barbara Ward, founder of the International Institute for Environment and Development.
1987	Publication of the Brundtland Report entitled "Our Common Future".
1992	UN Conference on Environment and Development in Rio de Janeiro – Earth Summit: – Rio de Janeiro Declaration – Earth Charter – Global Programme of Action – Agenda 21 – Framework Convention on Climate Change – Convention on Biological Diversity – Forest Policy.
2002	Earth Summit in Johannesburg (Rio +10).
2012	Earth Summit in Rio de Janeiro (Rio +20).

Source: own elaboration based on Kozłowski, 2008.

adopted in 2001 (Act of April 27 2001, Environmental Protection Law, Journal of Laws No. 62, item 627, as amended; Art. 3, item 50). According to the Environmental Protection Law, sustainable development means the integrated pursuit of political, economic, and social activities while maintaining natural balance and the sustainability of fundamental environmental processes. This interpretation has been further developed in sectoral policies, including health care, although this has occurred with an inevitable delay compared to other areas of public life (Trzepacz, 2012).

From a global perspective, sustainable development has evolved from an ecological imperative into a broad paradigm organizing the development activities of states. The belief that prosperity cannot be built at the expense of the environment has become established, and the sustainability of social systems requires a long-term approach based on intergenerational solidarity and equal access to resources. Therefore, including healthcare in sustainability is a natural consequence of this evolution (Adamczyk, 2017).

SUSTAINABLE DEVELOPMENT AND THE HEALTH CARE SYSTEM – A THEORETICAL APPROACH

Applying the concept of sustainable development to healthcare requires a reformulation of existing assumptions, which viewed the system primarily through the prism of clinical and financial efficiency. In a sustainable model, the system's ability to respond to changing social and environmental needs while ensuring the sustainability of resources necessary to provide healthcare services over the long term becomes crucial. This primarily means integrating three equally important components: health effectiveness, economic rationality, and ecological responsibility (Michaluk-Mazurek, 2019).

The health care system, defined by the World Health Organization as a set of institutions, people, and activities aimed at promoting, maintaining, and restoring health, should, in a sustainable approach, fulfil not only therapeutic but also preventive and systemic functions. Therefore, the system's ability

to learn, adapt, and self-regulate becomes crucial. In this context, a sustainable health system should be understood as one that can effectively respond to population needs without excessively burdening financial, human, and environmental resources (Tomczyk, 2020).

This concept is reflected in three fundamental pillars: sustainable prevention, sustainable diagnostic and therapeutic pathways, and sustainable clinical practice. The first emphasizes the importance of preventive measures, limiting the scale of medical interventions, thereby reducing systemic pressure. The second involves improving access to services through early disease detection and optimizing treatment. The third, in turn, addresses minimizing the environmental impact of medical procedures through, among other things, waste reduction, energy efficiency, and the use of renewable materials (Rzasa & Ciski, 2021).

The literature increasingly emphasizes that a sustainable healthcare system should be designed as a resilient institutional structure, capable of adapting to crisis conditions and maintaining long-term functional stability. Therefore, developing such a system requires an interdisciplinary approach, and incorporating sustainability principles into the health system's core functions – service provision, resource generation, financing, and management – is becoming a fundamental condition for its further transformation toward social responsibility and operational sustainability (Liaropoulos & Goranitis, 2015).

PILLARS OF A SUSTAINABLE HEALTH SYSTEM IN LIGHT OF CONTEMPORARY CHALLENGES

Given the concept of sustainable development, which focuses not only on the environment and the economy but also on the design of social systems, the healthcare system should not only fulfil its basic functions related to prevention, diagnosis, and treatment. It should also respond to the population's changing needs while maintaining the ability to

function in conditions of limited resources and growing social expectations (Synowec et al., 2018).

The established healthcare system model is based on interconnected functional pillars, the consistent development of which is a prerequisite for the entire system's sustainability. Ensuring adequate and stable sources of financing, which enable the provision of high-quality services while maintaining accessibility for various social groups, remains crucial. Therefore, the need to allocate resources according to the health needs of society, while simultaneously monitoring their effectiveness, is emphasized. Considering current and future demographic and epidemiological needs, a particularly responsible financial policy is one of the foundations of systemic balance (Kowalska-Bobko et al., 2021).

Another critical area is management. As a complex organizational structure, the healthcare system requires efficient coordination of activities at various decision-making levels. This applies to both intersectoral integration and cooperation between institutions providing healthcare services. Effective management should be based on reliable data, evaluation mechanisms, and the ability to respond to crises such as pandemics, natural disasters, or disruptions in the supply of medicines and medical technologies (Szymczak, 2008). In this regard, it is also necessary to continuously improve the competencies of management staff and promote an institutional culture based on transparency and accountability.

The third, essential pillar is the quality and integration of healthcare services. The system should ensure consistency and continuity of care, regardless of the reference level or place of service provision. This means developing coordinated care structures, integrating patient pathways, and strengthening the role of primary healthcare as the first point of contact with the system (Kowalska-Bobko et al., 2021). In this respect, the use of digital technologies is also becoming significant, enabling better information flow, remote health monitoring, and shortening access times to specialist consultations.

From a practical perspective, these three elements are directly accessible: funding enables the manage-

ment and delivery of high-quality services, and good governance can be utilized within available resources. Applications can be diverse – for example, budgetary pressures can limit availability and performance, and connection to a management system is perceived as a burden on an autonomous system. Maintaining a balance between economic efficiency and liability risk is crucial (Kowalska-Bobko et al., 2021; Rabiej, 2017).

IMPLEMENTING THE PRINCIPLES OF SUSTAINABLE DEVELOPMENT IN HEALTHCARE IN POLAND

Transforming the healthcare system towards sustainable development is a complex process, requiring the clear identification of goals and the consistent implementation of instruments that will enable long-term achievement. In Poland, implementing sustainable development objectives is multifaceted – both within central strategic documents and through actions undertaken at the regional and local levels. Notably, this process aligns with a broader set of international commitments, the reference point of which is the 2030 Agenda adopted by the UN General Assembly.

One of the top priorities of national health policy, stemming directly from sustainability, is counteracting lifestyle diseases. Therefore, developing preventive measures, increasing public health awareness, and promoting health-promoting attitudes are essential to building population immunity. These solutions are systemic, encompassing both early identification of risk factors and creating incentives for citizens to actively participate in taking care of their health actively (Ministry of Development and Technology, 2024). It should be emphasized that actions in this area bring results not only from a health perspective, but also from an economic perspective, leading to reduced treatment and hospitalization costs.

In parallel, instruments are being developed to increase the availability and quality of healthcare services, encompassing infrastructure modernization and implementing solutions based on digital

technologies. E-health is of particular importance in this regard, as it has the potential to significantly improve diagnostic and therapeutic processes through the introduction of electronic patient records, remote monitoring, and teleconsultations. Implementing such tools aligns with the efforts to streamline resources, shorten patient journeys, and improve system efficiency while reducing its environmental footprint (Ministry of Development and Technology, 2024).

However, the sustainable development of healthcare cannot be considered in isolation from the aspects of patient safety and quality of care; hence, the growing role of accreditation standards, clinical risk management systems, and mechanisms enabling ongoing assessment of the level of services provided. Strengthening institutional accountability in this area contributes to increased public trust and improved health outcomes at the population level. Regardless of formal procedures, shaping a quality culture remains equally important among management and medical staff (National Strategy for Regional Development 2030, 2019).

An integral element of a resilient and sustainable system is the development of medical personnel. In this area, efforts are being made to increase the number of healthcare workers, enhance their competencies, and improve working conditions. It should be noted that sustainable development is not only about ensuring an adequate number of doctors and nurses, but also about creating conditions for their long-term functioning within the system. This includes, among other things, actions in occupational health, preventing burnout, and supporting scientific and teaching development, particularly in areas that respond to new demographic and epidemiological needs (Ministry of Entrepreneurship and Technology, 2018).

In the case of sustainability, actions aimed at reducing the negative impact of the healthcare sector on the natural environment are also significant. Although this aspect is sometimes marginalized in national public debates, its importance is growing in light of the climate goals and policies of the European Union. Investments in energy-efficient

technologies, rationalization of medical waste management, and reduction of emissions related to sanitary transport should become an integral element of infrastructure planning in healthcare (Kowalska-Bobko et al., 2021). This approach not only allows for a reduction of operating costs in the long term, but also responds to social expectations regarding the ecological responsibility of public institutions (Schulz et al., 2017).

An appropriate financing model cannot be ignored. This is where flexible budgeting mechanisms are increasingly important, rewarding quality and efficiency, not just the quantity of services. The gradual shift from a purely procedure-based payment model towards outcome-based models allows for significantly better resource utilization. It increases the motivation of healthcare providers to achieve lasting health outcomes (Kowalska-Bobko et al., 2021).

Creating a sustainable development concept in healthcare in Poland is primarily achieved through distributed activities encompassing many areas of the system's operation, from prevention, service quality and e-health, to environmental issues and human resources management. Although progress in this area is noticeable, its scale and intensity remain varied. Therefore, it seems essential to integrate these distributed initiatives into a coherent healthcare policy based on clearly defined goals, metrics, and monitoring mechanisms. Only in this way will it be possible to achieve a proper balance between the effectiveness, accessibility, and sustainability of the healthcare system in the face of changing social and environmental conditions (Paździor & Paździor, 2017).

A sustainable system's essential element is a well-developed human resource base. In the face of growing demand for healthcare services, mainly due to an ageing population, training new staff and retaining specialists in the system by improving working conditions, creating career development opportunities, and implementing age management strategies is necessary. Medical personnel shortages affect doctors, nurses, public health specialists, diagnosticians, technicians, and rehabilitation specialists (Ministry of Entrepreneurship and

Technology, 2018). This is crucial because without proper provision of human potential, even the best-designed system will not be able to perform its functions sustainably.

Addressing the environmental aspect also seems particularly important. Given the growing climate pressures and the medical sector's impact on greenhouse gas emissions and waste generation, system operations require robust implementation of solutions that mitigate the impact of medical activities on the natural environment. Sustainable medical practice assumes, among other things, reduced energy and material consumption, streamlined logistics, the use of biodegradable products, and limiting disposables where this does not impact patient safety. Such actions contribute to environmental protection and, in the long term, can also reduce the system's operating costs (Jaskólska et al., 2023).

The final dimension is the health of the population. In this case, a sustainable system should be limited solely to treating diseases – it should instead undertake actions aimed at maintaining and improving the population's health. This area encompasses various broadly understood health promotion areas, including prevention, health education, and eliminating inequalities in access to services. These activities require medical interventions and close cooperation with the education sector, the workplace, local administration, and social organizations. Public health, which is otherwise defined and understood as a common good, should always be a reference point for designing health and social policies. Coherent and consistent implementation of solutions in these areas is a necessary condition for ensuring the sustainability and resilience of health structures in a changing socio-economic environment (Ministry of Entrepreneurship and Technology, 2018). However, importantly, implementing this model requires not only appropriate regulations and strategies, but above all, broad-based cooperation among all system stakeholders (Działo, 2023).

REAL ESTATE MANAGEMENT IN HEALTHCARE MANAGEMENT

In the context of the sustainable development of the healthcare system, the management of real estate resources is gaining increasing importance, as it has a critical impact on the operational efficiency of medical institutions (Jaskólska et al., 2023). Property management encompasses not only the maintenance and modernization of infrastructure but also the strategic planning of location, function, and energy consumption of facilities (Trembecka, 2021).

Managing real estate assets in the healthcare sector requires a holistic approach – one that integrates functional, environmental, economic, and social aspects. Hospitals and healthcare facilities, as some of the largest consumers of energy and public resources, should be designed and operated in line with principles of energy efficiency, spatial adaptability, and material sustainability (Kowalska, 2010).

In recent years, both local governments and central institutions have intensified their efforts in restructuring healthcare infrastructure – for example, by integrating dispersed facilities into a single medical campus (as in the case of the New Oncology Hospital in Wrocław), or by reorganizing hospital spaces to improve space utilization and reduce maintenance costs (Buchelt & Kowalska-Bobko, 2020).

Importantly, the management of healthcare properties must go beyond technical aspects and also consider the health needs of local communities, as well as demographic and epidemiological development trends. Well-designed and strategically located facilities improve accessibility, shorten patient pathways, and increase the overall efficiency of healthcare delivery (Jaskólska et al., 2023).

Sustainable property management in healthcare includes (Nowak & Kicka, 2011):

- optimization of operating costs (e.g., through the use of renewable energy sources);
- reduction of emissions and carbon footprint;
- spatial adaptation to evolving health needs;
- development of infrastructure in spatially disadvantaged areas.



Fig. 1. Selected infrastructure investments in healthcare in Poland
Source: own elaboration based on Monitoring the implementation of Sustainable Development Goals in Poland, 2024.

Integrated real estate management thus becomes one of the pillars of a sustainable healthcare system, enabling not only improved accessibility and quality of care but also the long-term institutional resilience of the sector (Kruk, 2023).

Fig. 1 presents selected infrastructure investments in the Polish healthcare sector, implemented in accordance with the concept of sustainable development and rational public property management.

REGIONAL INITIATIVES FOR SUSTAINABLE DEVELOPMENT IN HEALTHCARE

Regional variations in the availability and quality of medical services constitute one of the challenges facing healthcare policy in Poland. The gradual incorporation of sustainable development principles into the planning and implementation of healthcare strategies at the voivodeship level is particularly noticeable. Although local government authorities have limited powers compared to central government, individual

Table 2. Initiatives in the central and northern Polish voivodeships in the field of sustainable development policy in health care

Mazowieckie	Warmińsko-Mazurskie	Łódzkie	Wielkopolskie
<ul style="list-style-type: none"> – Health policy program of vaccination against meningococci serogroup B for children up to 3 years of age from the Mazowieckie Voivodeship; – The In Vitro Fertilisation (IVF) Health Policy Program for Residents of the Masovian Voivodeship aims to improve access to medical services for infertility treatment for residents of the Masovian Voivodeship between 2019 and 2025. The Program complements the “Comprehensive Reproductive Healthcare Program in Poland for 2016–2020,” financed by the Ministry of Health. 	<ul style="list-style-type: none"> – “Provincial Program for Counteracting Drug Addiction in the Warmian-Masurian Voivodeship for 2018–2022” and “Provincial Program for Preventing and Solving Alcohol-Related Problems in the Warmian-Masurian Voivodeship for 2016–2020”. Both Programs aim to integrate and strengthen activities in the field of preventing and treating addiction to intoxicants, including drugs and harmful alcohol consumption; – The Northern Centre for Child Psychiatry will be built in Ameryka, near Olsztynek, and is expected to be completed in early 2029. The investment is intended to address the growing need for specialized psychiatric care for children and adolescents in the region. In addition to inpatient treatment, community-based psychological and psychotherapeutic care centres, as well as addiction therapy for children and adolescents, are also planned. 	<ul style="list-style-type: none"> – “Lung Cancer Early Detection Program” – addressed to smokers living in the Lodz Voivodeship aged 55–80; – The “Seasonal Influenza Vaccination Program for Employees of Medical Facilities in the Łódź Voivodeship” aims to reduce the number of seasonal influenza cases in the general population by 2%. As part of this initiative, patients can benefit from a vaccination qualification test and health education; – “Comprehensive reproductive health care program in Poland in 2016–2020” – this task was implemented by Article 48c of the Act on health care services financed from public funds. As part of the task, an agreement was concluded between the Lodz Voivodeship and the Polish Mother’s Memorial Hospital Institute in Lodz regarding co-financing the Program for PLN 1 million. The Program offered 137 procedures, including: specialist consultations, psychological care, basic laboratory tests, specialist tests (including hormonal, genetic, immunological, microbiological, ultrasound, magnetic resonance imaging, computed tomography), and procedures (e.g. laparoscopy, surgical hysteroscopy). 	<ul style="list-style-type: none"> – Construction of the Specialist Mother and Child Hospital in Poznań – with extensive medical care in nine wards.

Source: own elaboration based on Monitoring the implementation of Sustainable Development Goals in Poland, 2024.

regions – those that utilize territorial programming instruments – are taking steps to improve the functioning of regional healthcare systems. Implemented projects are both investment-related and organizational-educational, and their common denominator remains the pursuit of increasing the sustainability of healthcare structures in the context of demographic, environmental, and economic conditions. An analysis of case studies demonstrates the crucial role

of hospital infrastructure development in initiating change. The construction of modern diagnostic and therapeutic centers, integrating previously dispersed human resources and equipment, provides a solid response to the need for service consolidation within the region. For example, such investments are being undertaken in Wrocław, where a new oncology hospital is planned to take over the functions of several existing institutions. Such concentration of services

Table 3. Initiatives in the voivodeships of southern Poland in the field of sustainable development policy in health care

Dolnośląskie	Małopolskie	Opolskie	Podkarpackie	Śląskie
<p>– Construction of the New Oncology Hospital (NSO) in Wrocław, to which the Lower Silesian Oncology Centre, the Lower Silesian Centre for Lung Diseases, and the Lower Silesian Centre for Cell Transplantation with the National Bone Marrow Donor Bank will be relocated. This initiative enables these centres to integrate and achieve synergies from merging healthcare provider structures. The construction of the facility will enable the development and improvement of the healthcare system by increasing access to modern diagnostics and therapies for oncological treatment in line with the assumed epidemiological trends for Lower Silesia;</p> <p>– Outpatient care can be developed by shifting the burden from hospital treatment to outpatient and one-day forms of providing services, and by creating innovative and comprehensive clinical facilities to train medical staff.</p>	<p>– The Małopolska Tele-Angel Project – it aims to improve the quality of life of dependent people by implementing activities for the development of care and neighborhood services at the place of residence and services using modern information and communication technologies (e.g. the Centre for Monitoring Sustainable Development Goals in Poland tele-care, which provides all participants with the ability to provide information about the need to call for help in the event of a threat to life, health or safety, 24/7).</p>	<p>– Activities under the Regional Operational Programme of the Opole Voivodeship (Priority Axis X) concerning issues such as support for social infrastructure to equalize inequalities in access to health services (e.g. by supporting hospitals in terms of infrastructure and equipment) – in 2020, such support was received by 28 hospitals and other health care units;</p> <p>– Programmes to prevent lifestyle diseases in the area of overweight, obesity and diabetes, health prevention towards early detection of breast cancer, colon cancer and the HPV virus;</p> <p>– Medical rehabilitation programs to facilitate return to work and vocational and social rehabilitation are funded by the State Fund for Rehabilitation of Disabled Persons (PFRON), Mental Health Protection. They are related to counteracting the effects of the COVID-19 pandemic.</p>	<p>– Podkarpackie Medical Information System (PSIM) – an IT system used to collect, analyze and share digital resources with healthcare services provided or planned in healthcare facilities throughout the voivodeship;</p> <p>– Project “Improving epidemiological safety in the Podkarpackie Voivodeship in connection with the emergence of the SARS-CoV-2 coronavirus” – its primary goal is to counteract the spread of the COVID-19 disease in the Podkarpackie Voivodeship and to limit the adverse effects of the pandemic by purchasing medical equipment and devices for the diagnosis and treatment of patients in connection with the emergence of the SARS-CoV-2 coronavirus.</p>	<p>– The “Silesia Helps” project (implemented by the Silesian Voivodeship Government by the Regional Social Policy Centre of the Silesian Voivodeship as part of the Regional Operational Programme of the Silesian Voivodeship) aims to protect the health and lives of people at risk of social exclusion and those most at risk of the effects of the COVID-19 epidemic, i.e. residents and employees of 183 24-hour care facilities, Social Welfare Homes (DPS), Care and Treatment Facilities (ZOL) and Facility Service Teams (ZOP) operating in the Silesian Voivodeship.</p>

Source: own elaboration based on Monitoring the implementation of Sustainable Development Goals in Poland, 2024.

in one place significantly enables rationalizing medical and administrative processes. Also, it creates conditions for more efficient use of material and human resources (Monitoring the implementation of the Sustainable Development Goals in Poland, 2024).

In Lower Silesia and other Polish voivodeships, emphasis is placed on developing preventive and educational activities to raise health literacy among residents. Such programs are often implemented in collaboration with research institutions, non-governmental organizations, and local opinion leaders, and their effectiveness depends not only on their substantive scope but also on the ability to build lasting social partnerships and communicate with groups particularly vulnerable to health exclusion. Although such initiatives are rarely explicitly labelled sustainable development, they essentially implement its key assumptions. The Table 2 and 3 presents the implementation of these programs in specific voivodeships.

Analysis of regional initiatives indicates that sustainable development policy in healthcare in Poland is implemented in a territorially differentiated manner, with the nature of activities undertaken by individual voivodeships reflecting both their institutional potential and strategic priorities. In most cases, the presented programs are operational in nature and focus on selected aspects of healthcare – from infrastructure modernization, through prevention, to the use of information and communication technologies in medical services.

To further deepen the analysis, regions were classified according to three criteria: level of implementation, innovativeness of activities, and social initiatives. The group of voivodeships with high levels of innovation and system integration includes, in particular, the Małopolskie and Podkarpackie voivodeships, which have implemented modern ICT solutions (the Tele-Angel and Podkarpackie Medical Information System projects). These initiatives are characterized by high scalability potential and align with the goals of the digital transformation of healthcare. In contrast, Dolnośląskie and Wielkopolskie voivodeships focused on large-scale infrastructure

investments (construction of modern hospitals and specialist centers), which indicates an advanced level of implementation, although not necessarily a high level of technological innovation.

The group of regions with a medium level of advancement includes the Mazowieckie, Łódzkie, and Opolskie voivodeships, where preventive and health programs with broad social impact predominate (e.g., vaccinations, cancer prevention, reproductive health). These initiatives have a measurable impact on improving access to medical services, but their sustainability is limited due to the lack of long-term integration with other sectors. In contrast, the Silesian and Warmian-Masurian voivodeships are implementing projects with significant social impact (e.g., addiction prevention, development of child psychiatry, support for facilities during the pandemic), which align with the social dimension of sustainable development policy.

A comparison of initiatives indicates that none of the analyzed regions conducts activities that comprehensively encompass the three dimensions of sustainable development – social, economic, and environmental. Most often, projects focus on the social dimension, marginalizing environmental and economic aspects (e.g., energy efficiency of medical infrastructure or a low-emission economy in the healthcare sector). This means that the implementation of sustainable development principles in healthcare in Poland is sectoral and fragmented, rather than systemic. Regions with the highest technological innovation (Małopolskie, Podkarpackie) play a key role in the digital transformation of the healthcare system, while voivodeships investing in physical infrastructure (Dolnośląskie, Wielkopolskie) strengthen the development potential of the healthcare sector in material terms. Regions with a socio-preventive profile (Mazowieckie, Łódzkie, Śląskie) focus on equalizing health opportunities for their residents.

Initiatives undertaken at the voivodeship level significantly indicate a growing interest in integrating the principles of sustainable development with health policy. The scope and scale of these activities are quite diverse. However, the change direction seems

clear: the emphasis is primarily on finding solutions that reconcile healthcare goals with institutional sustainability, operational efficiency, and environmental responsibility requirements. However, for this to be fully realized, further strengthening local government institutions' competencies and developing lasting cooperation mechanisms with social partners and the medical sector are required.

CONCLUSIONS

Sustainable development in healthcare is not just a theoretical concept, but also a functional tool enabling the system to better adapt to the complex and dynamic context in which it currently operates. Integrating health with economic and environmental dimensions allows for formulating a coherent approach to designing and implementing healthcare policies. Given society's growing challenges, including demographic changes, increased epidemiological burdens, and fiscal pressures, adopting a sustainability perspective enables the system to maintain stability and develop towards greater resilience and equity. An analysis of solutions undertaken in Poland indicates a growing interest in implementing elements of sustainable development in the healthcare sector. Though often dispersed and uncoordinated, these efforts cover important areas – from prevention and health education, developing modern technologies and management systems, to pro-ecological initiatives and service reorganization. However, the ultimate effectiveness of these solutions depends on integrating them within a unified strategy that considers local needs, institutional capabilities, and legal and financial conditions. It is necessary to develop a strategy that institutionalizes the principles of sustainable development, including their inclusion in the processes of accreditation, financing and evaluation of the effectiveness of healthcare entities.

From a healthcare policy perspective, key issues include the development of regulations and financial instruments that support environmentally friendly and health-promoting practices, strengthening inter-sectoral collaboration, and systematically monitoring

progress using measurable indicators. In the long term, sustainability should be the overarching criterion for assessing the effectiveness of the healthcare system, and further research should focus on developing methods for measuring it and identifying factors that support the sustainable implementation of this concept.

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