



Ministerstwo  
Zdrowia

# Mapping of Health Needs in Healthcare

Summary of the implementation of "Map of Health Needs – Database of System and Implementation Analyses"



Warsaw 2023

This publication was developed as part of "Map of Health Needs – Database of System and Implementation Analyses", a project co-financed by the European Union from the European Social Fund under the Operational Programme Knowledge Education Development.



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# 1. Introduction

## 1.1 Objective

This publication is an executive summary of the most significant achievements of "Map of Health Needs – Database of System and Implementation Analyses" ("Project") and to assess its impact on the healthcare system. The document is a report that captures the knowledge and experience we gradually gathered throughout the Project's implementation.

It showcases key Project elements in figures. It also contains a description of the Project's objectives, timetable, outputs and indicators, as well as a summary of the dissemination process. In addition, it notes the Project's strong links to such strategic documents as "Healthy Future" and the National and Provincial Transformation Plans, for which the Maps were the diagnostic basis. The authors also evaluated the effects of the Project by examining the impact of the Maps on the healthcare system. Finally, the report includes feedback from healthcare experts on the Project.

## 1.2 Project in figures

The table below includes a collection of key Project data.

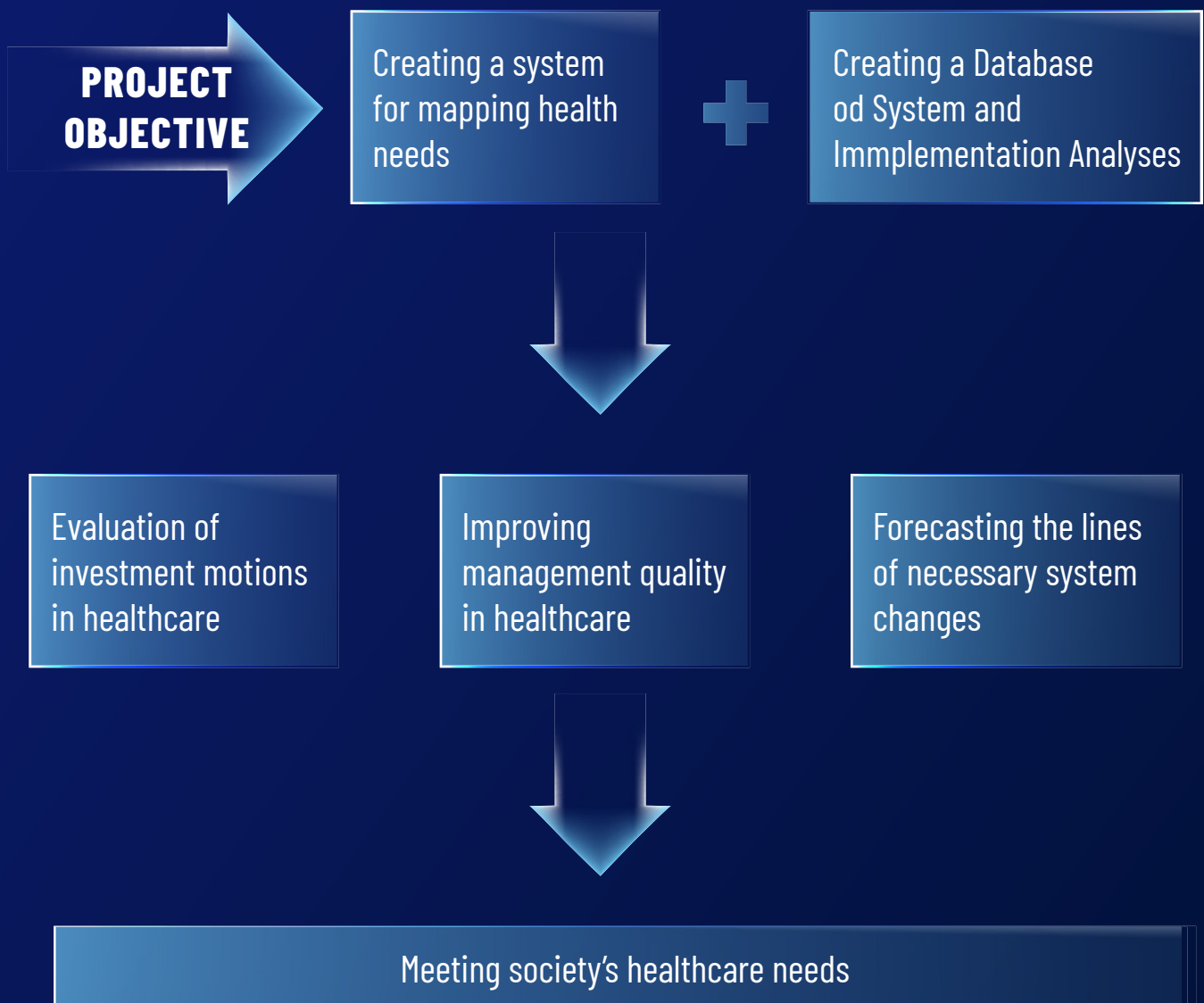
Number of experts who have supported the Project with their knowledge and expertise	
<b>81</b>	
Names and number of documents developed as part of the Project:	
Cardiology Maps	<b>17</b>
Oncology Maps	<b>17</b>
Hospital Maps	<b>17</b>
Maps for 30 Disease Groups	<b>481</b>
New Form of the Map of Health Needs	<b>1</b>
National Transformation Plan	<b>1</b>
Provincial Transformation Plans	<b>16</b>
Scientific articles published in professional journals and developed as part of the Project	
<b>40</b>	
BASiW Applications	
<b>20</b>	
National dissemination conferences	
<b>16</b>	
International conference presentations	
<b>5</b>	
Project duration in years	
<b>8</b>	

## 2. Background information on the Project

### 2.1 Project objective

The Project aimed to address the actual health needs of the population by improving the quality of healthcare management and forecasting the course of necessary system changes.

This was achieved by creating the Map of Health Needs – Database of System and Implementation Analyses, which enabled the practical use of information from the Maps.



## What are the Maps?

Maps of Health Needs are documents that identify the health needs of the population across the country and its regions. We collected and analysed demographic and epidemiological data, as well as data on the implementation of guaranteed services and staff and equipment use. Based on these, we have made a forecast of future needs in the area of healthcare services.

Maps as documents are a tool to support management decisions regarding, among other things, the implementation of investment projects (such as the construction and modernisation of health care facilities or the purchase of equipment), the creation of plans for the purchase of services and the conclusion of contracts with the National Health Fund, or changes in the list of guaranteed benefits.

The first editions of Maps were published as extensive, multi-page documents. Since 2019, further updates of the analyses have been published exclusively on the publicly accessible BASiW digital platform (<https://basiw.mz.gov.pl/>), with conclusions and recommendations released in the form of a report.

## What is the Database of System and Implementation Analyses (BASiW)?

To put the Map information into practical use, we launched the BASiW online platform. It enables healthcare system stakeholders involved in governance to produce up-to-date summaries, charts, tables and maps to support decision-making.



Figure 1. BASiW applications

Source: <https://basiw.mz.gov.pl/en/maps-of-health-needs/map-of-health-needs-for-the-period-2022-2026/analyses/>.

## 2.2 Maps in healthcare

### **The first attempts at mapping healthcare needs took place as early as 2001.**

The legislation establishing the healthcare funds, which came into force in 1999, obliged local government bodies to prepare annual plans for securing outpatient healthcare<sup>1</sup>. However, in the course of the system changes (establishment of the National Health Fund), these plans were abandoned.

The return to the concept of mapping followed the establishment of the Department of Analyses and Strategies at the Ministry of Health and was reinforced by negotiations with the European Commission on the 2014–2020 financial perspective<sup>2</sup>.

**In accordance with the Regulation of the European Parliament and of the Council (EU)**,<sup>3</sup> the disbursement of structural funds required compliance with an ex ante conditionality, i.e. ensuring that certain input conditions are in place for the effective implementation of co-financed programmes. Annex XI of the above Regulation required the preparation of "a national or regional strategic policy framework for health within the limits of Article 168 TFEU [<sup>4</sup>], economic sustainability" (Condition 9.3.<sup>5</sup>

**The obligation to create Maps of Health Needs in Poland was introduced by the Act of 22 July 2014** amending the Act on health care services financed from public funds and certain other acts (Dz.U. / Journal of Laws/ of 2014, item 1138). It included a separate section devoted to the Maps – Section IVa: "Health needs assessment".

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<sup>1</sup> Article 55a of the Act of 6 February 1997 on universal health insurance (Dz.U. / Journal of Laws/ of 1997, No. 28, items 152 and 153) appeared only in the amendment of 18 July 1998 (Act amending the Act on universal health insurance and certain other acts; Dz.U. / Journal of Laws/ of 1998, No. 117, item 756).

<sup>2</sup> Więckowska 2018

<sup>3</sup> Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013 laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund and repealing Council Regulation (EC) No 1083/2006, OJ L 347, 20.12.2013

<sup>4</sup> Treaty on the Functioning of the European Union (OJ 2004.90.864/2) Article 168. Health protection.

<sup>5</sup> In practice, it was stated that all countries must produce maps of health needs of at least a strategic nature. This has resulted in a number of very generic documents e.g. (Ministerstvo Zdravotnictva Slovenskij Republiky, 2013).



The concept was that regional Maps of Health Needs would be drawn up by the provincial governors, with the participation of the Provincial Health Needs Councils, in 5-year cycles. Due to the need for consistency in methodology and unification of data sources, map projects for all provinces would be created by the National Institute of Public Health – National Institute of Hygiene – National Research Institute (NIZP PZH – PIB), and only then be submitted to the provincial governors<sup>6</sup>. After receiving the provincial Maps of Health Needs, the NIZP PZH – PIB would design a nationwide map and submit all documents to the Minister of Health for approval. The approved Maps would then be published in the Public Information Bulletin of the office serving the Minister of Health and the offices serving the provincial governors. The Act also set out a seven-year transition period. The entity responsible for preparing the first two editions of the Maps during this period was the Minister of Health.

The concept adopted for mapping health needs is a refinement of a general data mining process called CRISP-DM (Cross-Industry Standard Process for Data Mining)<sup>7</sup>. The starting point is the knowledge of the medical community (30 expert teams worked together to prepare the first version of the Maps) and its experience of how the healthcare sector operates. Based on this, quantitative analyses are prepared in the form of Maps of Health Needs (compilations of available data with their analysis and forecasts created on their basis). Maps of Health Needs are used to formulate conclusions that allow recommendations to be made for further development of the healthcare system. Considering the financial possibilities and the political context, decision-makers (both at central and regional levels) and the payer decide which recommendations to implement and to what extent. Their effects should be assessed through the experience of the medical community and supported by quantitative analyses as part of the next edition of the Maps of Health Needs<sup>8</sup>.

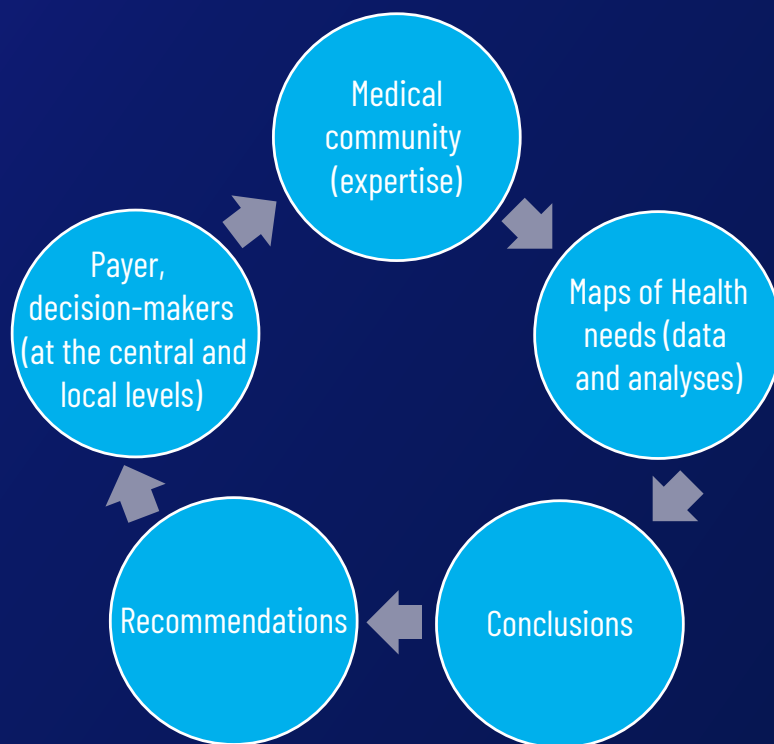
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<sup>6</sup> Więckowska 2017

<sup>7</sup> Chapman, et al. 2000

<sup>8</sup> Więckowska 2018

Figure 2. The concept of a data-driven health policy model.



Source: B. Więckowska *Healthcare needs maps – evidence informed healthcare policy*, 2017.

Lessons learned from the development of the Maps of Health Needs during the transition period, particularly the Maps' volume (often exceeding 1,500 pages) and format (written reports), led to the need to redefine the process and the way the documents are presented. The Maps of Health Needs were redefined in line with the Act. Currently, they comprise two parts. Since 1 January 2022, the analytical scope of the mapping, i.e. demographic and epidemiological analyses, analyses of the state and use of healthcare resources, including medical staff, is available on the project website in the form of an advanced analytical tool (Article 95a(1)(1) of the Act<sup>9</sup>). This tool, and formally the first part of the Maps, is the Database of System and Implementation Analyses. The second part of the Maps, published as a notice of the Minister of Health, contains challenges for the healthcare system, as well as recommended lines of action across Poland and its provinces (Article 95a(1)(2) of the Act<sup>10</sup>).

<sup>9</sup> Act of 20 May 2021 on health care services financed from public funds and certain other acts (Dz.U. / Journal of Laws/ of 2021, item 1292)

<sup>10</sup> Act of 27 August 2004 on health care services financed from public funds (Dz.U. / Journal of Laws/ of 2021, item 1285, as amended)

What are the benefits of mapping health needs?

1. Improved management of public funds in healthcare.
2. Distribution of resources according to current and forecast patient needs.
3. Supporting management decision-making and evidence-based policymaking
4. Obtaining reliable insights from the data.

## 2.3 Project schedule

<b>NOV 2015</b>	Project launch
<b>DEC 2015</b>	Publication of cardiology and oncology maps
<b>APR 2016</b>	Publication of hospital maps (1st edition)
<b>DEC 2016</b>	Publication of maps for 30 disease groups (1st edition, module A)
<b>DEC 2017</b>	Publication of maps for 30 disease groups (1st edition, module B)
<b>MAY 2018</b>	Publication of hospital maps (2nd edition)
<b>SEP 2018</b>	BASiW platform launch
<b>OCT 2020</b>	Presenting Project results at the 16th World Congress on Public Health 2020 (WCPH 2020) in Rome.
<b>AUG 2021</b>	Publication of a new form of the Map of Health Needs for 2022–2026
<b>OCT–NOV 2021</b>	12 national dissemination conferences
<b>DEC 2021</b>	Panel discussion and workshop at the 6th European Congress of Local Governments in Mikołajki
<b>JUL 2022</b>	Publication of the 40th scientific paper in a professional journal
<b>NOV 2022</b>	Presenting Project outputs at the 15th European Public Health Conference 2022 (EPHC 2022) in Berlin.
<b>SEP 2023</b>	Organising a Networking Break at the 26th European Health Forum Gastein (EHFG 2023)

<b>NOV 2023</b>	Presenting Project outputs at the 16th European Public Health Conference 2023 (EPHC 2023) in Dublin.
<b>DEC 2023</b>	Project end

## 2.4 Selected Project outputs

Over the eight years of the Project, we developed 122 outputs. Of these, we selected five, and their detailed descriptions are presented below.

<b>Output</b>	New Form of the Map of Health Needs
<b>Description</b>	<p>On 30 August 2021, we published the first Map of Health Needs developed in accordance with the new rules after the amendment of the Act on health care services financed from public funds (Notice of the Minister of Health of 27 August 2021 on the Map of Health Needs).</p> <p>The published document includes:</p> <ul style="list-style-type: none"> <li>• demographic and epidemiological analyses, analyses of the state and use of resources, including medical personnel;</li> <li>• challenges of the health care system and recommended lines of action for the country and individual provinces.</li> </ul> <p>The map offers improved quality thanks to the formulation of recommended lines of action serving as the basis for decision-making across the healthcare sector. In the case of hospital treatment, we pointed out the need to optimise bed occupancy in wards, in line with demographic forecasts. The data also confirmed the legitimacy of shifting the burden of financing from hospitals onto outpatient forms of health care services. When it comes to primary healthcare, we emphasise the need to strengthen the role of nighttime and holiday healthcare to increase the number of patients reporting to this form of service and to relieve the ED of cases that do not require life-saving treatment.</p> <p>Compared to previous editions, the analytical part was transferred to an online platform – the Database of System and Implementation Analyses.</p> <p>The published document helped with investment planning and optimal spending of public funds in healthcare. The analyses and recommended lines of action were used by public institutions to prepare strategic documents at the operational level, such as the National Recovery and Resilience Plan, National and Provincial Transformation Plans, and cohesion policy. We had already used the maps while preparing "Healthy Future", a major directional strategy document for the health sector.</p>

## Output

New version of the BASiW platform (the so-called BASiW 3.0)

## Description

We have merged [basiw.mz.gov.pl](http://basiw.mz.gov.pl) and [mpz.mz.gov.pl](http://mpz.mz.gov.pl) websites and introduced a brand-new design that is even more intuitive and user-friendly. The new portal is accessible via both of the old domain addresses. It combines all content from the previously available websites. We have also added some new information, including on strategic documents in the healthcare sector.

Furthermore, we have refreshed the website's layout and adapted it for mobile browsing.

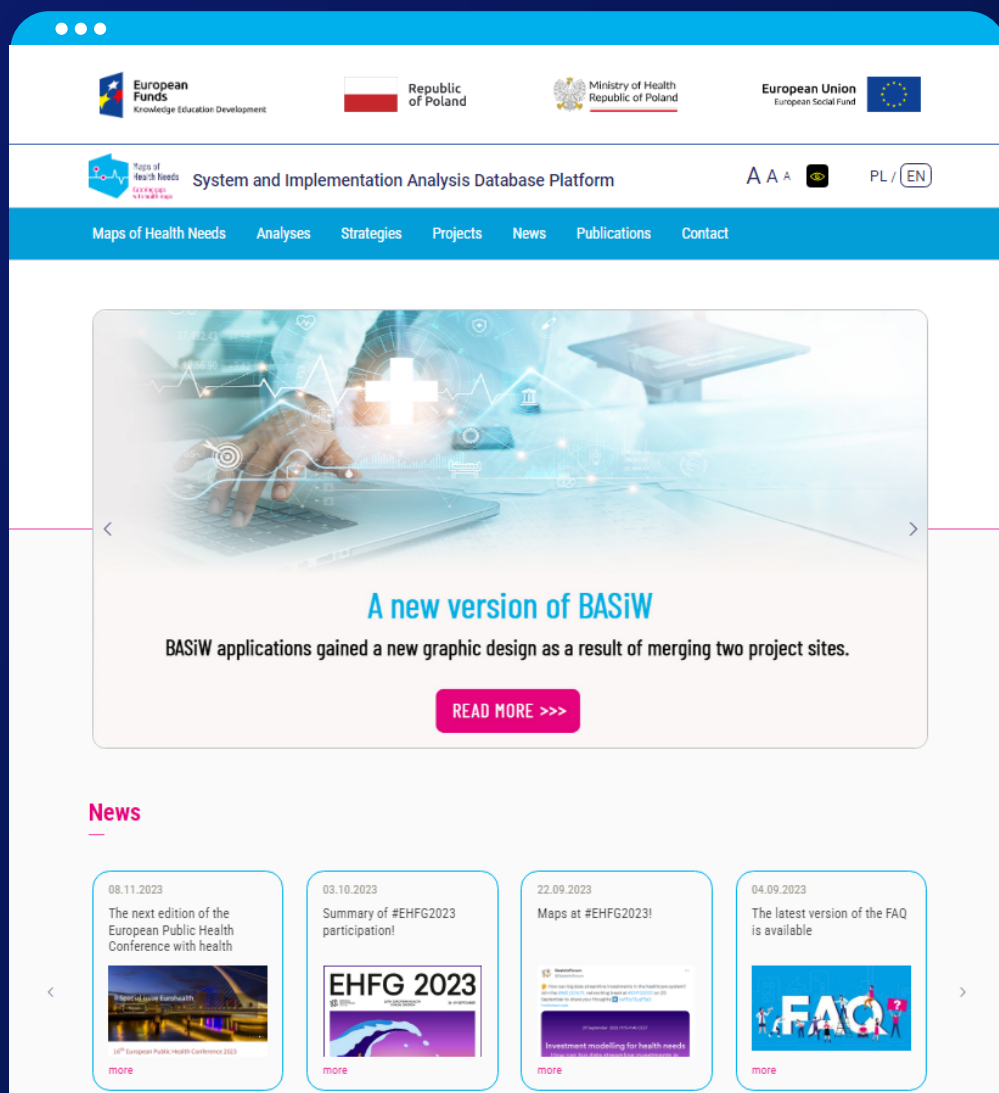


Figure 3. Updated Project website.  
Source: <https://basiw.mz.gov.pl/en/>

## Description

The report aimed to analyse the supply and demand for cardiology specialists. The supply of doctors is closely linked to the amount and time of their work. The propensity to be professionally active can also vary by generation, age and gender. When analysing the demand side, one must pay attention to meeting the needs of patients with cardiac problems, which are variable over time due to demographic and epidemiological changes, among other things.

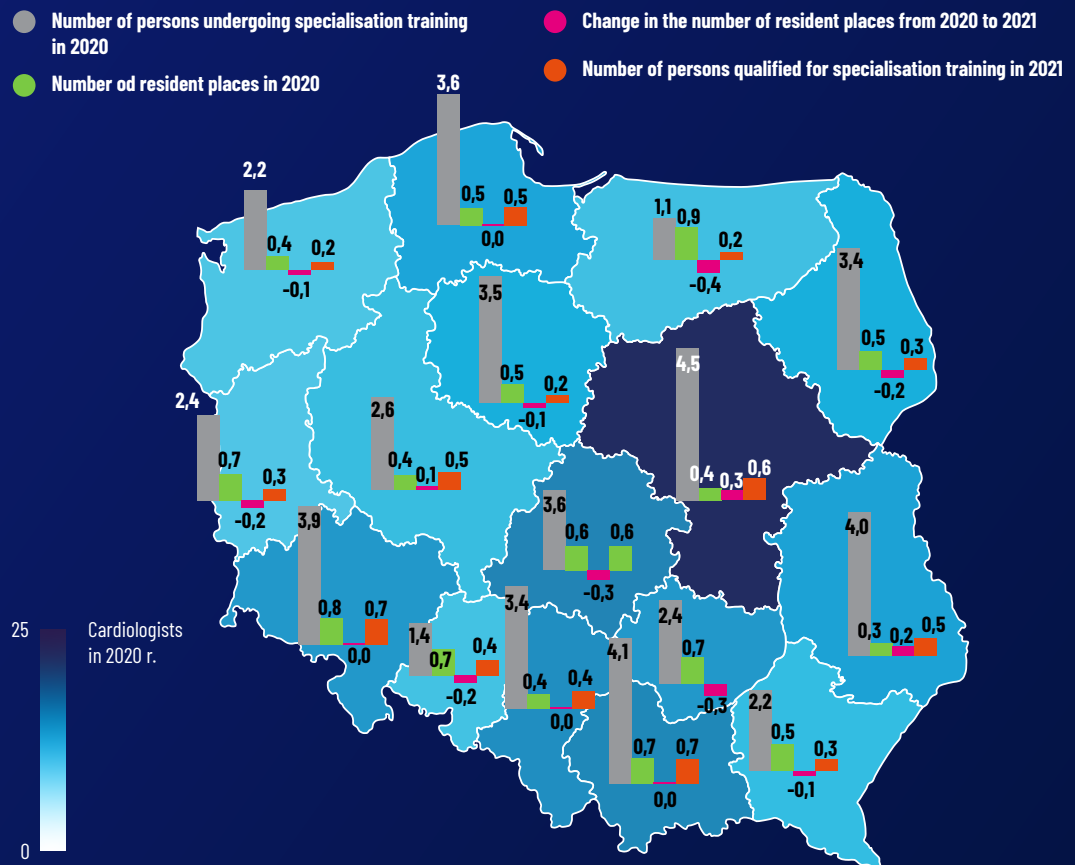


Figure 4. Number of cardiologists, number of people in specialised cardiology training, number of cardiology residency places by province (all indicators were given per 100,000 population).

Source: Report on the need for cardiology specialists.

### Report conclusions and recommendations:

1. In terms of the demand and supply of cardiologists, the analysis indicates a balanced situation, and the forecast shows that there is no risk of a shortage in the future. In every province analysed, the number of cardiologists entering the labour market exceeds the number of those who are set to reach retirement age in the next six years. The generational replacement is balanced with some surplus cardiologists for the coming years.

<b>Output</b>	Report on the need for cardiology specialists
<b>Description</b>	<p><b>Report conclusions and recommendations:</b></p> <ol style="list-style-type: none"> <li>An analysis of the number of working cardiologists per 100,000 population in individual provinces, starting from 2020, shows a significant increase in the number of specialists and saturation of specific areas with the desired number of specialists, e.g. the Łódzkie and Mazowieckie Provinces, with generational replacement secured as well.</li> <li>The systematic increase in enrolment quotas for medical faculties directly affects the number of new specialists entering the labour market.</li> <li>Notably, provinces must introduce incentives for doctors or residents to stay after their training is complete.</li> </ol>

<b>Output</b>	40 publications on models and Maps of Health Needs in 30 Disease. Groups available in PDF versions												
<b>Description</b>	<p>Maps are the starting point for scientific articles published in international professional journals. This makes it possible to reach one of the target groups, i.e. medical practitioners, with information about the Maps and their capabilities. The largest number of publications based on them were published on mental disorders, eye and eye area diseases and metabolic diseases.</p> <p>All publications are available on the Project website in the "Publications" tab, with PDF download options and links directing to the websites of the relevant scientific journals in which the articles were published.</p> <p>Table 1. List of scientific publications.</p> <table border="1"> <thead> <tr> <th>Title</th> <th>Year of publication</th> <th>Journal name</th> </tr> </thead> <tbody> <tr> <td><a href="#"><u>Incidence and disease prevalence for hematologic neoplasms in Poland (2009–2015) as determined on the analysis of the National Health Fund data used in the project 'Maps of healthcare needs – database of systemic and implementation analyses'</u></a></td> <td>2017</td> <td>Hematology/ Hematology in Clinical Practice</td> </tr> <tr> <td><a href="#"><u>Pediatric diabetes care: inpatient care in the Maps of Health Needs of Poland in 2014</u></a></td> <td>2018</td> <td>Clinical Diabetology</td> </tr> <tr> <td><a href="#"><u>Accessibility to personal insulin pumps among children with diabetes mellitus in Poland in 2014</u></a></td> <td>2018</td> <td>Clinical Diabetology</td> </tr> </tbody> </table>	Title	Year of publication	Journal name	<a href="#"><u>Incidence and disease prevalence for hematologic neoplasms in Poland (2009–2015) as determined on the analysis of the National Health Fund data used in the project 'Maps of healthcare needs – database of systemic and implementation analyses'</u></a>	2017	Hematology/ Hematology in Clinical Practice	<a href="#"><u>Pediatric diabetes care: inpatient care in the Maps of Health Needs of Poland in 2014</u></a>	2018	Clinical Diabetology	<a href="#"><u>Accessibility to personal insulin pumps among children with diabetes mellitus in Poland in 2014</u></a>	2018	Clinical Diabetology
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**Output**

40 publications on models and Maps of Health Needs in 30 Disease. Groups available in PDF versions

**Description**

<b>Title</b>	<b>Year of publication</b>	<b>Journal name</b>
<u>Medical care of patients with disorders of aromatic amino acid metabolism: a report based on the Polish National Health Fund data records</u>	2018	Pediatric Endocrinology Diabetes and Metabolism
<u>Incidence and Characteristics of Cataract Surgery in Poland, during 2010–2015</u>	2018	International Journal of Environmental Research and Public Health
<u>Acute non-variceal upper gastrointestinal bleeding: epidemiology, etiology and treatment outcomes in Poland in 2014</u>	2018	Gastroenterologia Kliniczna
<u>An analysis of psychiatric services provided to adults in 2010–2014 based on the National Health Fund data</u>	2019	Psychiatria Polska
<u>Incidence and Characteristics of Endophthalmitis after Cataract Surgery in Poland, during 2010–2015</u>	2019	International Journal of Environmental Research and Public Health
<u>The analysis of maps of healthcare needs for paranasal sinus diseases in Poland</u>	2019	Nowa Audiofonologia
<u>Hearing loss treatment with cochlear or brainstem implants in 2014 – diagnostic, needs, availability in various regions of Poland</u>	2019	Nowa Audiofonologia
<u>Differences in acute ischaemic stroke care in Poland: analysis of claims database of National Health Fund in 2017</u>	2020	Neurologia i Neurochirurgia Polska/Polish Journal of Neurology and Neurosurgery



**Output**

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**Description**

<b>Title</b>	<b>Year of publication</b>	<b>Journal name</b>
<u>Analysis of Hospital Management of Chronic Respiratory Diseases in Light of the "Maps of Health Needs" Project in Poland</u>	2020	Advances in Respiratory Medicine
<u>Analysis of the Incidence of Acute Respiratory Diseases in the Paediatric Population in Poland in the Light of the "Health Needs Map"</u>	2020	Advances in Respiratory Medicine
<u>Analysis of psychiatric services provided to children and youth in 2010–2016 based on the National Health Fund data</u>	2020	Psychiatria Polska
<u>Organisational units providing psychiatric services for adults – an analysis based on National Health Fund data for 2010–2016</u>	2020	Psychiatria Polska
<u>Epidemiology of diabetes in Poland in 2014–2017</u>	2020	Clinical Diabetology
<u>Treatment of classic phenylketonuria in Poland in the years 2009–2015 based on the database of the Polish National Health Fund</u>	2020	Pediatric Endocrinology Diabetes and Metabolism
<u>First nation wide study of diabetic retinopathy in Poland in the years 2013–2017</u>	2020	Acta Diabetologica
<u>Homogeneous Group approach to Elixhauser comorbidity for hospital death using administrative data</u>	2020	Archives of Medical Science

**Output**

40 publications on models and Maps of Health Needs in 30 Disease. Groups available in PDF versions

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<b>Title</b>	<b>Year of publication</b>	<b>Journal name</b>
<a href="#"><u>Gender-Related Differences in Prodromal Multiple Sclerosis Characteristics: A 7-Year Observation Study</u></a>	2021	Journal of Clinical Medicine
<a href="#"><u>The incidence of pneumonia in the paediatric population in Poland in light of the maps of health needs</u></a>	2021	Journal of Public Health
<a href="#"><u>Predictors of Rehospitalization and Mortality in Diabetes-Related Hospital Admissions</u></a>	2021	Journal of Clinical Medicine
<a href="#"><u>Incidence of non-hereditary amyloidosis in Poland</u></a>	2021	Annales Academiae Medicae Silesiensis
<a href="#"><u>The incidence rate of hospitalized lysosomal storage diseases in Poland in 2013-2015 based on data from the National Health Fund</u></a>	2021	Pediatric Endocrinology Diabetes and Metabolism
<a href="#"><u>Incidence And Characteristics of Retinoblastoma In Poland: The First Nationwide Study 2010-2017</u></a>	2021	International Journal of Environmental Research and Public Health
<a href="#"><u>The Association Between Diabetes Mellitus and Keratoplasty in Poland in the Years 2013-2017</u></a>	2021	International Journal of Environmental Research and Public Health
<a href="#"><u>Inpatient care for patients with skin conditions in Poland – hospitalization and patient characteristics</u></a>	2021	Dermatology Review/Przegląd Dermatologiczny

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<b>Title</b>	<b>Year of publication</b>	<b>Journal name</b>
<a href="#"><u>Review of recent treatment trends of laryngeal cancer in Poland: a population-based study</u></a>	2021	BMJ Open
<a href="#"><u>Burden of hospitalizations in newly diagnosed heart failure patients in Poland: real world population based study in years 2013-2019</u></a>	2022	ESC Heart Failure
<a href="#"><u>Development of Home Mechanical Ventilation in Poland in 2009-2019 Based on the Data of the National Health Fund</u></a>	2022	Journal of Clinical Medicine
<a href="#"><u>Analysis of psychiatric services for patients diagnosed with schizophrenia, reported to the National Health Fund in the years 2009-2018</u></a>	2022	Psychiatria Polska
<a href="#"><u>Practice of prescribing antipsychotics in schizophrenia during 2013-2018 based on data from the National Health Fund</u></a>	2022	Psychiatria Polska
<a href="#"><u>Mortality in people with mental disorders in Poland: A nationwide, register-based cohort study</u></a>	2022	European Psychiatry
<a href="#"><u>Evaluation of Mental Health Services Delivered Before and After the Introduction of Pilot Mental Health Centres in Poland Using Monitoring Indicators</u></a>	2022	Psychiatria Polska

**Output**

40 publications on models and Maps of Health Needs in 30 Disease. Groups available in PDF versions

**Description**

<b>Title</b>	<b>Year of publication</b>	<b>Journal name</b>
<u>Analysis of births and deliveries in Poland in the years 2009–2019 based on reporting data from various sources</u>	2022	Pomeranian Journal of Life Sciences
<u>The Rate of Hospitalization of Pregnant Women with Multiple Sclerosis in Poland</u>	2022	Journal of Clinical Medicine
<u>Seasonally Dependent Change of the Number of Fractures after 50 Years of Age in Poland—Analysis of Combined Health Care and Climate Datasets</u>	2022	International Journal of Environmental Research and Public Health
<u>Incidence and survival of ocular melanoma in National Cancer Registry of Poland in 2010–2017</u>	2022	Advances in Clinical and Experimental Medicine
<u>Nationwide data on epidemiology of inflammatory bowel disease in Poland between 2009 and 2020</u>	2022	Polish Archives of Internal Medicine
<u>Biologic treatment of inflammatory bowel disease in Poland, 2012–2020: nationwide data</u>	2022	Polish Archives of Internal Medicine

Źródło: Opracowanie własne MZ.

<b>Output</b>	10 sponsored articles in professional journals																																			
<b>Description</b>	<p>To spread awareness of the Project to potential stakeholders, we published 10 sponsored articles in professional journals.</p> <p>Table 2. List of sponsored articles.</p> <table border="1"> <thead> <tr> <th>Title</th> <th>Year of publication</th> <th>Journal name</th> </tr> </thead> <tbody> <tr> <td><a href="#">Maps of Health Needs. Interview with Marek Balicki</a></td> <td>2020</td> <td>Menedżer Zdrowia</td> </tr> <tr> <td><a href="#">Prof. dr hab. n. med. Edward Franek discusses the results of the work of the diabetes team at the Health Ministry's Department of Analyses and Strategies</a></td> <td>2020</td> <td>Puls Medycyny</td> </tr> <tr> <td><a href="#">Prof. Karaszewski: We have analysed the stroke care system</a></td> <td>2020</td> <td>Rynek Zdrowia</td> </tr> <tr> <td><a href="#">A new map to the healthcare system</a></td> <td>2020</td> <td>Kurier Medyczny</td> </tr> <tr> <td><a href="#">Ministry of Health revises the healthcare policy</a></td> <td>2021</td> <td>Dziennik Gazeta Prawna</td> </tr> <tr> <td><a href="#">Healthcare changes bring a new map of health needs</a></td> <td>2021</td> <td>Rzeczpospolita</td> </tr> <tr> <td><a href="#">Healthcare changes and the new map of health needs – capacities, aspirations and actors' willingness to cooperate</a></td> <td>2021</td> <td>Menedżer Zdrowia</td> </tr> <tr> <td><a href="#">Healthcare services suitable for our needs</a></td> <td>2022</td> <td>Gazeta Wyborcza</td> </tr> <tr> <td><a href="#">Regional-level maps of health needs</a></td> <td>2022</td> <td>Puls Medycyny</td> </tr> <tr> <td><a href="#">Maps of health needs get a new format</a></td> <td>2022</td> <td>Rynek Zdrowia</td> </tr> </tbody> </table>			Title	Year of publication	Journal name	<a href="#">Maps of Health Needs. Interview with Marek Balicki</a>	2020	Menedżer Zdrowia	<a href="#">Prof. dr hab. n. med. Edward Franek discusses the results of the work of the diabetes team at the Health Ministry's Department of Analyses and Strategies</a>	2020	Puls Medycyny	<a href="#">Prof. Karaszewski: We have analysed the stroke care system</a>	2020	Rynek Zdrowia	<a href="#">A new map to the healthcare system</a>	2020	Kurier Medyczny	<a href="#">Ministry of Health revises the healthcare policy</a>	2021	Dziennik Gazeta Prawna	<a href="#">Healthcare changes bring a new map of health needs</a>	2021	Rzeczpospolita	<a href="#">Healthcare changes and the new map of health needs – capacities, aspirations and actors' willingness to cooperate</a>	2021	Menedżer Zdrowia	<a href="#">Healthcare services suitable for our needs</a>	2022	Gazeta Wyborcza	<a href="#">Regional-level maps of health needs</a>	2022	Puls Medycyny	<a href="#">Maps of health needs get a new format</a>	2022	Rynek Zdrowia
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Source: MZ study

## 2.5 Achieving Project indicators

The table below summarises result (R) and output (O) indicators and the degree to which they have been met.

Table 3. Result and output indicators.

Indicator type	Description	Target value	Value reached
R	Number of publications on the application of descriptive empirical models to healthcare management and control in Poland at the outpatient specialist care/primary healthcare/hospital treatment level	31	40
R	Number of Maps of Health Needs 30 for disease groups developed and made available to the public according to the scope defined in the Regulation	17	34
R	Number of newly developed IT analytical tools to support the management and control of the healthcare system in Poland	1	1
R	Number of analytical multi-disease models developed	1	28
R	Number of analytical healthcare workforce models developed (demand and supply side)	2	2
R	17 Maps of Health Needs according to the scope defined in the Regulation (so-called statutory/ward maps, supplemented by substantive content developed for Maps for 30 disease groups, including 16 province-specific maps and 1 national-level map)	17	34
R	Number of implemented analytical healthcare models necessary for proper mapping of healthcare needs	528	528
R	Number of Provincial Transformation Plans implemented	16	16
R	Analytical model for hardware resources (CT scanners)	1	1

Indicator type	Description	Target value	Value reached
0	Number of Maps of Health Needs developed for the 16 provinces + 1 national-level map	17	51
0	Number of analytical sectoral prevalence models developed for major disease groups (30 disease groups x 16 provinces – 480 models)	480	992
0	Database of System and Implementation Analyses	1	1
0	Number of model dissemination events organised	19	19
0	Number of meetings organised for Marshal Offices on the use of Maps of Health Needs to develop investment plans	2	4
0	Number of publications on models and Maps of Health Needs for 30 disease groups in the hospital treatment/outpatient specialist care/primary healthcare modules	31	40
0	Number of analytical prevalence prediction models developed	1	1
0	Number of analytical multi-sectoral models for medical resource and infrastructure planning developed	1	1
0	Number of medical labour market data analysis models developed	1	1
0	National Transformation Plan	1	1

Indicator type	Description	Target value	Value reached
0	Provincial Transformation Plans	16	16
0	New Form of the Map of Health Needs (for Poland and its provinces)	1	1

Źródło: Opracowanie własne MZ.

## 2.6 Maps at industry events

This section presents the most interesting events where we showcased the effects of the Project.

### 15th European Public Health Conference in Berlin

The conference was held on 9–12 November 2022 in Berlin, and its main theme was as follows: "Strengthening health systems: improving population health and being prepared for the unexpected". It was attended by some 2,500 people from more than 80 countries. The discussions mainly focused on exploring ways in which the public healthcare community can unite around improving population health and maintaining quality healthcare.

During the 4-day event, universities and research centres from around the world presented the results of their research, which addressed issues such as the COVID-19 pandemic and vaccination, inequalities in access to healthcare services, the needs of migrants, and data collection and processing options.

We presented 2 dissemination posters at the conference:

- 1) Map of Health Needs – basis for the national strategic frameworks,
- 2) Transformation of the long-term care system in Poland in the light of the maps of health needs.

During a brief presentation, we discussed how Maps of Health Needs data have been used to develop national public policies and strategic frameworks to address the anticipated challenges of an ageing population.



15th European Public Health Conference  
9 - 12 November 2022  
Hub27, Berlin ExpoCenter City, Berlin, Germany

## Strengthening health systems: improving population health and being prepared for the unexpected

**EPH** EUROPEAN PUBLIC HEALTH CONFERENCE

# Berlin 2022 Announcement



Abstract submission 1 February to 1 May 2022  
Registration opens 1 April 2022

[www.ephconference.eu](http://www.ephconference.eu)  
@EPHconference #EPH2022

Willkommen in Berlin!

Figure 5. Conference invitation.


Source: <https://eupha.org/repository/conference/2022/A4%20Announcement%20Berlin%202022%20final.pdf>.

### Maps of Health Needs – basis for the national strategic frameworks

Reliable data is nowadays a key factor in strategic planning, also in the healthcare system. The tool developed in Poland, called Maps of Health Needs, serves as a base for national strategic frameworks.

#### What are the Maps of Health Needs?

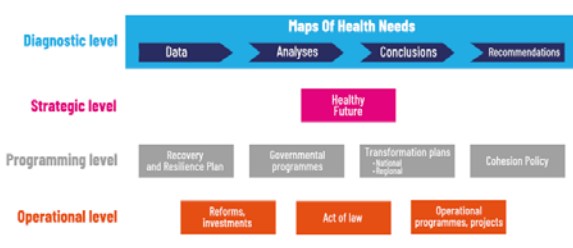
- evidence-based tool to support decision making processes and planning
- picture of the current situation in the system and forecast of the changes
- wide presentation of the system: starting with the background of demography and epidemiology, later moving to the out- and in-patient care, concluding with resources



#### What kind of strategies have been developed?

- „Healthy Future”, the umbrella-like framework for the period 2021-2027
- Recovery and Resilience Plan
- Transformation plans

#### Maps in the strategic framework



**Maps available at:**  
[basiv.mz.gov.pl/en/](https://basiv.mz.gov.pl/en/)

**What else can you find on our website?**

- Online platform with interactive health data applications.
- Documents available for download.
- Scientific articles and other materials to explore.

**Got any questions?**  
Reach us anytime:  
[mpz@mz.gov.pl](mailto:mpz@mz.gov.pl)

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The project „Maps of Health Needs - Database of Systemic and Implementation Analysis” is co-financed by the European Union from the European Social Fund under the Operational Programme Knowledge Education Development.

European Funds Knowledge Education Development | Republic of Poland | Ministry of Health | European Union

Figure 6. Poster Map of Health Needs – basis for the national strategic frameworks.

Source: Project archive.

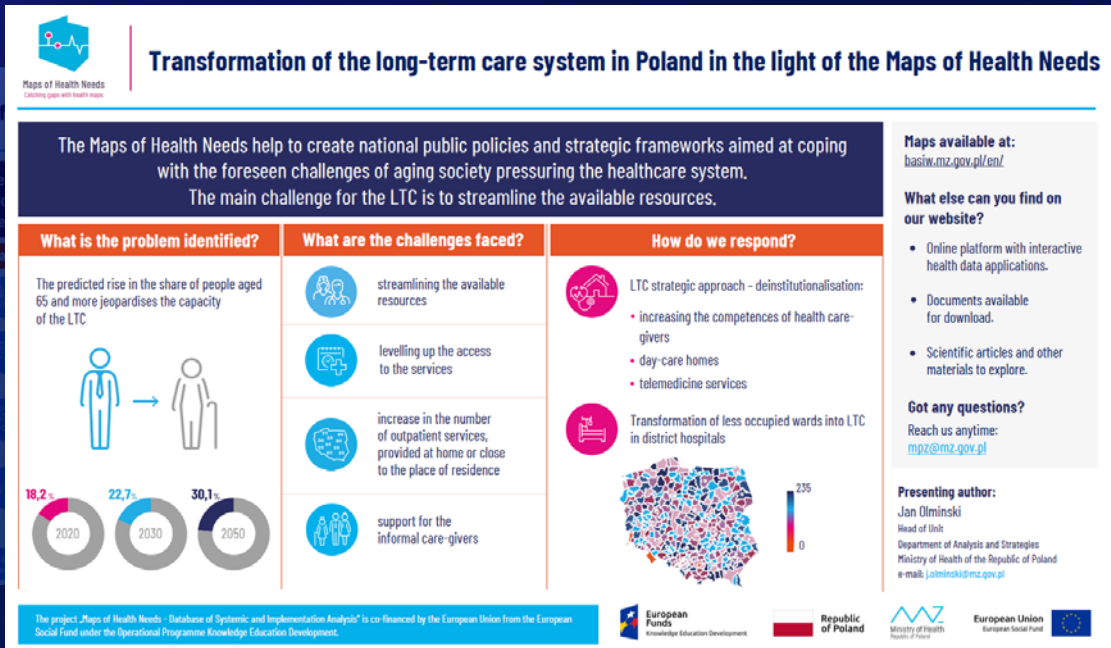


Figure 7. Poster Transformation of the long-term care system in Poland in the light of the Maps of Health Needs. Source: Project archive.



Figure 8. Presenting the Ministry of Health's posters. Source: Project archive.

## 7th European Congress of Local Governments in Mikołajki

The theme of the seventh edition of the Congress, held in Mikołajki on 11–12 April 2022, was "Building a Community of the Future".

On the first day of the event, we presented the challenges facing the healthcare system as diagnosed by the Maps of Health Needs. One of the key challenges is to invert the healthcare services pyramid. We also pointed to the issue of an ageing population and the need to improve the availability and organisation of outpatient specialist care. One critical challenge facing the healthcare system is having enough medical staff.

These issues were discussed in a debate attended by:

1. Agata Śmiglewska – Director of the Department of Analyses and Strategies at the Ministry of Health
2. Czesław Ducki – Medical Director, Mazowiecki Szpital Bródnowski w Warszawie Sp. z o.o.,
3. Krystyna Futyma – Director of the Clinical Hospital of the Ministry of the Interior and Administration with the Warmia-Mazury Oncology Centre in Olsztyn,
4. Mariusz Gujski – Dean of the Faculty of Health Sciences, Medical University of Warsaw,
5. Tomasz Latos – MP, Chairman of the Health Committee, Sejm of the Republic of Poland,
6. Joanna Józefiak – PPresident, Association for Polish-German Cooperation in Medicine, Germany.

We also held a workshop demonstrating the practical use of the applications available on the Database of System and Implementation Analyses platform. Our presentation showed how analytical tools support management decision-making regarding such issues as investment projects, e.g. the construction and modernisation of healthcare facilities and the purchase of equipment, as well as plans for purchasing healthcare services and concluding contracts with the National Health Fund. The platform allows healthcare system stakeholders involved in governance to produce up-to-date personalised statistics essential for decision-making.

The event was organised by the Foundation Institute for Eastern Studies.



Figure 9. Panel: "Challenges facing the healthcare system in the coming years according to the Maps of Health Needs".  
Source: Project archive.

### 3. Project's impact on the healthcare system

Maps provide a starting point for the development of strategic healthcare sector documents such as:

1. Healthy Future. Strategy framework for the development of the health system for 2021–2027, with an outlook to 2030,
2. National Transformation Plan,
3. Provincial Transformation Plans.

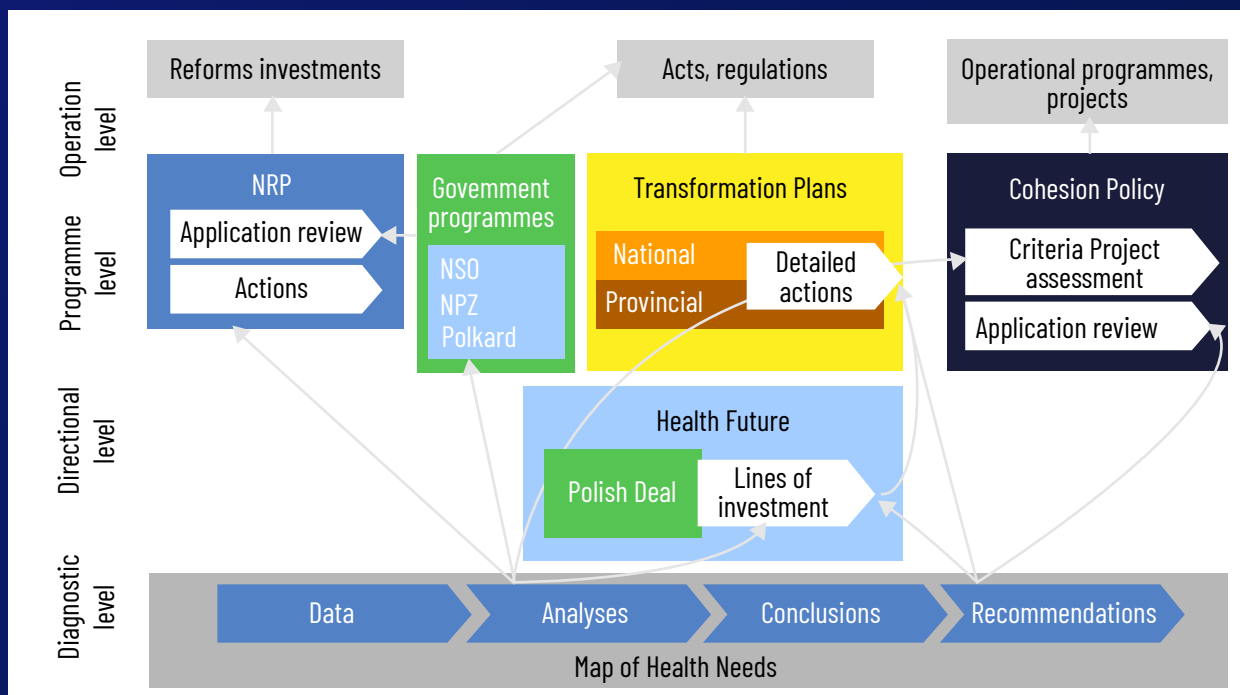


Figure 10. Relationships between strategy documents in the health sector  
Source: MZ study.

We also used the Maps of Health Needs data in working on the following milestones of the National Recovery and Resilience Plan:

1. D1L, i.e. "Comprehensive Review of the Feasibility of Establishing Extended Care Centres and Geriatric Wards in District Hospitals in Poland"; and
2. D2L, i.e. "Scope of support for changes in the organisational structure of district hospitals in the field of long-term care or geriatric care at the local level within the territory of the Republic of Poland".

### **3.1 Healthy Future. Strategy framework for the development of the health system for 2021–2027, with an outlook to 2030,<sup>11</sup>**

"Healthy Future" is a key strategic document for the healthcare sector. Its diagnostic basis is the analyses contained in the Maps of Health Needs. It is a follow-up to the "Policy Paper for Health Care 2014–2020" required by the European Commission as a condition for the disbursement of European funds.

**The strategy aims to increase the population's life expectancy and improve its health.**

Contemporary epidemiological analyses are paying increasing attention not only to life expectancy but also to quality of life. This requires the provision of adequate medical care resulting in an improvement in citizens' health and satisfaction with medical services. Improving service availability and quality, developing prevention, making the medical profession more attractive and expanding home and community care are just some of the solutions outlined in the document prepared by the Minister of Health.

"Healthy Future" is also a comprehensive strategy for the reform and development of elderly and mental health care. Increasing the number of staff and developing various forms of day and home care, as well as innovative forms of care, will make it possible to improve the quality of life and health of both the elderly and their carers. There are also plans to support informal carers and coordinate community care.

Plans for the area of psychiatric care include investments in human resources and improvements in the quality of education in psychiatry and other mental health specialisations. Changes in the way mental health services are provided, as well as infrastructural investments, are also planned, among other things.

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<sup>11</sup> Legal basis:

Act of 6 December 2006 on the principles of development policy Dz.U. /Journal of Laws/ of 2021, item 1057. Adopted by Resolution No. 196/2021 of the Council of Ministers of 27 December 2021 on the establishment of a public policy entitled "Healthy Future. Strategy framework for the development of the health system for 2021–2027, with an outlook to 2030" (RM-06111-193-21).

## 3.2 National Transformation Plan 2022–2026<sup>12</sup>

The National Transformation Plan is the first implementing document for the Maps of Health Needs at the national level.

**The NTP aims to strengthen healthcare resources and processes and improve the efficiency of public spending on healthcare services and investments in the health sector at both national and regional levels, taking into account the population's health needs.**

The NTP diagnoses the most pressing health needs and the challenges of organising the health system at a supra-regional level. It identifies the actions planned at the national level to implement the recommendations of the Maps of Health Needs. Additionally, it specifies the entity responsible for implementing the relevant action, the time frame allocated for its execution and the estimated costs and evaluation criteria.

At the forefront of the challenges of organising the healthcare system is the need to relieve the burden on hospitals and strengthen the role of outpatient and primary care, i.e. inverting the healthcare services pyramid. No less important is the adaptation of hospitals to the needs of patients requiring long-term care and the implementation of coordinated care through cooperation between primary healthcare, as well as outpatient specialist care and hospital treatment.

Monitoring is another key aspect in terms of the effectiveness of the planned activities. Information on NTP's implementation, indicating the degree to which the individual indicators were fulfilled in a given year, must be published annually by 30 April of the year following that to which the information relates.

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<sup>12</sup> Legal basis:

Article 95b of the Act of 27 August 2004 on health care services financed from public funds (Dz.U. /Journal of Laws/ of 2021, item 1285, as amended). Announced by the Notice of the Minister of Health of 15 October 2021 on the National Transformation Plan (Official Journal of the Minister of Health, item 80).

### 3.3 Provincial Transformation Plans 2022-2026<sup>13</sup>

The PTPs are implementing documents that take into account the National Transformation Plan, recommended lines of action from the Map of Health Needs and other strategy documents on health care.

These are:

1. health needs and challenges of the healthcare system at the regional level,
2. actions that are planned to be taken at the regional level, including:
  - the planned year(s) of their implementation,
  - responsible parties,
  - estimated cost,
  - expected results,
  - indicators.

Health needs, challenges and actions are shown for each part of the Map of Health Needs. Additionally, the PTPs for some provinces include other areas relevant to regional healthcare, such as spa treatment or dentistry.

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<sup>13</sup> Legal basis:

Article 95c(1) of the Act of 27 August 2004 on health care services financed from public funds (Dz.U. /Journal of Laws/ of 2021, item 1285, as amended)



The PTPs for 2022–2026 are available in the Public Information Bulletins of the respective provinces:



Both the Map of Health Needs and the Transformation Plans help drive investment in the health sector. As part of the Evaluation Instrument of Investment Motions in Health Care (EIIM), the compatibility of each investment project with the Maps of Health Needs and the national and provincial transformation plans is verified. This makes it possible to spend public funds efficiently and to reasonably plan the development of medical services in a way that is compatible with local needs.

### **3.4 Comprehensive Review of the Feasibility of Establishing Extended Care Centres and Geriatric Wards in District Hospitals in Poland – milestone D1L**

As part of reform D1.2. "Development of long-term care by modernisation of medical entities' infrastructure at district level " of the National Recovery and Resilience Plan, we have prepared milestone D1L, i.e. "Comprehensive Review of the Feasibility of Establishing Extended Care Centres and Geriatric Wards in District Hospitals in Poland".

**The purpose of the review was to conduct a detailed analysis of the possibility of converting some of the capacity of district hospitals into long-term care centres or geriatric wards.**

In-depth analyses of demographics, epidemiology and available resources based on data from the Maps of Health Needs 2022–2026 led to the following conclusions:

1. We estimated the maximum number of beds in county hospitals that could be converted to long-term or geriatric care settings to be 16,712 beds, i.e. 26.93% of all beds in county hospitals. Virtually all of these (89%) were unused capacity;
2. The highest number of such beds (more than 2,300) was recorded in the Śląskie Province; the lowest (less than 500) in the Opolskie, Lubuskie and Świętokrzyskie Provinces;

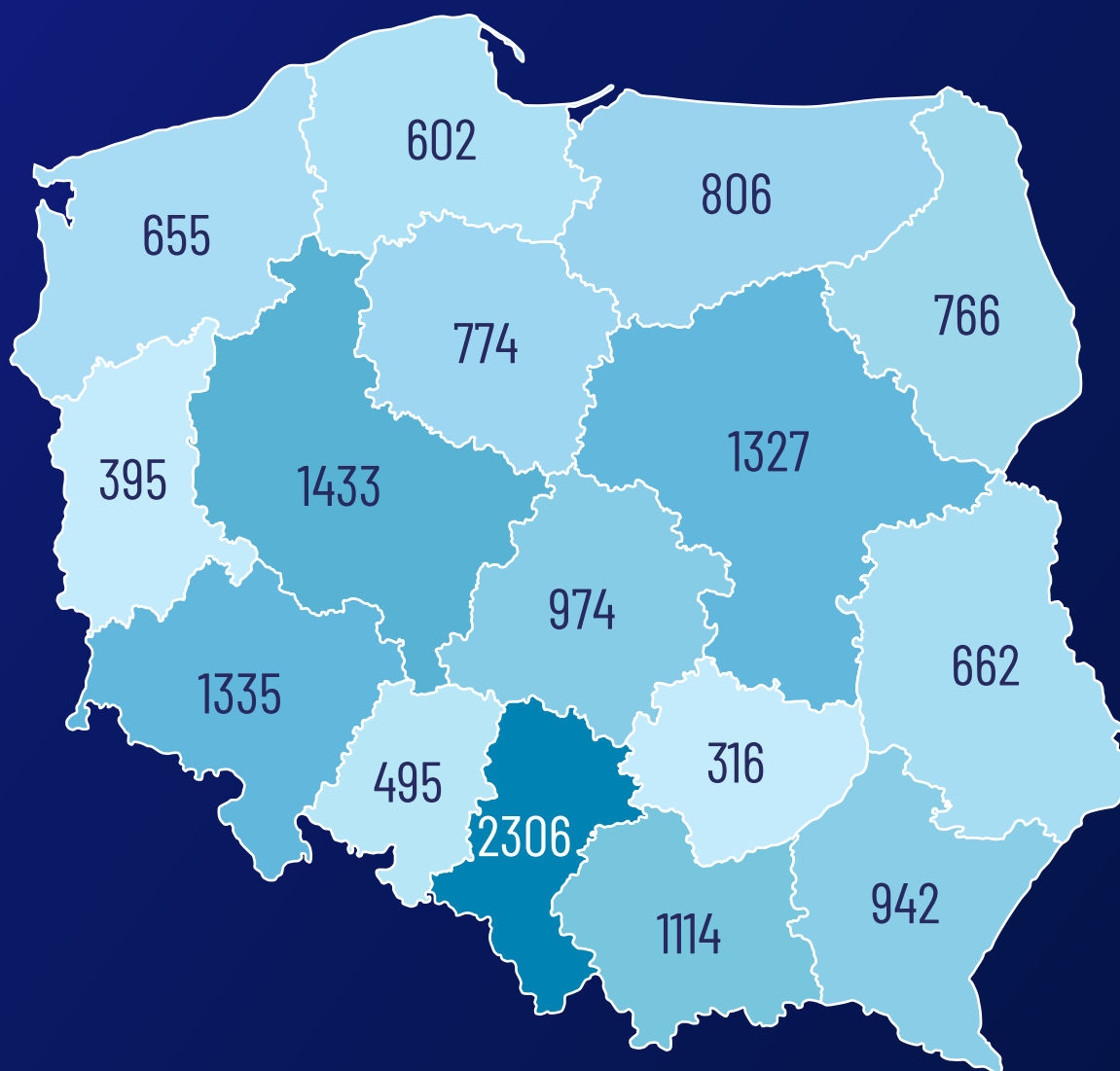


Figure 11. Number of potential beds to be converted due to unused potential in selected wards of district hospitals in Poland by province.  
 Source: MZ study based on NHF and Registry of Healthcare Providers data; data as of 27 June 2022 (milestone D1L).

3. The highest conversion potential in relation to the baseline number of beds exists in the Kujawsko-Pomorskie, Dolnośląskie, Zachodniopomorskie and Lubuskie Provinces (31–36%). In turn, Małopolskie and Świętokrzyskie Provinces are characterised by the lowest potential in this regard.
4. The highest nominal number of beds available for conversion originates from internal medicine wards, general surgery wards and obstetrics-gynaecology wards.

### 3.5 Scope of support for changes in the organisational structure of district hospitals in the field of long-term care or geriatric care at the local level within the territory of the Republic of Poland – milestone D2L<sup>14</sup>

The results of the review of the feasibility of setting up long-term and geriatric care wards/centres in Polish district hospitals were the starting point for the development of milestone D2L.

It consists of two elements: legislative and executive. The first one was a legislative amendment that authorised the Minister of Health to develop documents setting out how to increase access to healthcare services. The amendment included a provision for the preparation of the second element: the implementing document entitled "Scope of support for changes in the organisational structure of district hospitals in the field of long-term or geriatric care at the local level on the territory of the Republic of Poland".

The measures identified in the document relate to geriatric care services and nursing and long-term care services and aim to:

- 1. improve healthcare service quality** and accessibility
- 2. eliminate inequalities** in access to these services,
- 3. enhance the working conditions of personnel** providing these services.

The results include, among other things, additional beds, improved quality and accessibility of these healthcare services, increased staff competencies and qualifications, as well as better premises and equipment for the staff providing these services in the district hospitals.

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<sup>14</sup> Legal basis:

1. Article 95ba of the Act of 27 August 2004 on health care services financed from public funds (Dz.U. /Journal of Laws/ of 2022, item 2561, as amended), Article 95ba of the Act of 27 August 2004 on health care services financed from public funds (Dz.U. /Journal of Laws/ of 2022, item 2561, as amended),
2. Article 24 of the Act of 16 November 2022 amending the Act on the professions of physician and dentist and certain other acts (Dz.U. /Journal of Laws/ of 2022, item 2770).

## 4. Expert feedback on the Project



*"Managing the healthcare system requires making decisions about the allocation of limited resources. It is therefore crucial to provide decision-makers with tools to help assess the current and forecast future health status of the population. The Maps of Health Needs provide a standardised and publicly available source of such information. This ensures that all stakeholders interested in the effectiveness of the Polish healthcare system, from the central level down to the hospital level, receive comprehensive and reliable information. Consequently, the Maps of Health Needs provide an opportunity to avoid subjectivity in assessing the state of the healthcare system and to engage in informed dialogue to improve its current effectiveness and prepare it for new challenges that will arise in the future."*

**prof. dr hab. Bogumił Kamiński**



*"The Maps of Health Needs was the first attempt in many years to analyse the healthcare system holistically, based on data only available to selected system institutions before the Maps' publication. This created a competitive disadvantage, especially in the contracting process (healthcare service providers could not compare themselves to others and verify their market position) and in the investment process (potential investors could not transparently identify blank spots and document the legitimacy of public funding for a given investment). The lack of public disclosure also created the possibility of data falsification and poor quality. This was not about upcoding, which occurs in most healthcare systems, but about a lack of diligence and reliability in reporting because of the idea that 'the data could be used against us without our knowledge'.*

*Besides great hopes, the publication of the Maps of Health Needs was often accompanied by criticism ('the data is false', 'this is not what treatment looks like'). Over time, due to the regular publication of the data and a kind of 'audit' by other actors, competitors or even patients (the data is accessible by anyone to the same extent), the quality of the data collected has improved and confidence in its informative value has increased – we have transitioned from challenging the data quality to asking: 'Why does the system contain such data?' 'Why do service providers act in such a way?'. We are beginning to try to understand the system using the common space that is the Maps of Health Needs. This is a crucial step because the next one is asking 'what if...' and modelling the system before implementing changes and healthcare reforms – in other words, trying to theoretically (based on a data model) prove the validity of the implemented change (analysing the problem's scale, expected effects of changes, sensitivity analysis) and monitoring its effect after implementation. This way of managing the healthcare system is referred to as Evidence-Based Management – it implements the vision we had in 2014 when we prepared the concept of mapping health needs in the Polish healthcare system."*

**dr hab. prof. SGH Barbara Więckowska**



*"Building a modern, efficient, sustainable and patient-friendly healthcare system requires not only access to human, technological, financial and organisational resources but also extensive data and analytical resources. The latter may well be the tipping point for effective health sector planning and organisation. A watershed moment in the Polish system was the initiation of work on the Maps of Health Needs, which became the foundation for designing changes to improve the quality and efficiency of Polish healthcare. Today, system stakeholders deciding on the lines of further development of healthcare services, whether at the macro, meso or individual healthcare entity levels, have access to a modern tool that supports analysis processes and provides arguments to increase the effectiveness of investments aimed at increasing health value, in particular reducing inequalities in access to healthcare. The responsibility for a sustainable future of the health sector, and thus strengthening the social and economic potential of the country, places the onus on decision-makers to continuously develop the health needs mapping system and promote its widespread use in management practice at all levels and in research and education."*

**dr n. ekon. Małgorzata Gałązka-Sobotka**