



HEROES

D6.1 Report on countries' data collection, HWF planning models and tools, planning skills improvement and stakeholders' involvement: Croatia, Hungary, Lithuania, Poland and Slovenia



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ABSTRACT

This report synthesizes evidence from the Joint Action HEROES on strengthening health workforce planning across Europe. It analyses national systems through three interdependent domains — data, forecasting models, and planning skills — using a common AS-IS, TO-BE, TO-DO methodology. Findings reveal persistent fragmentation, limited integration of demand and skills, and governance constraints. The report highlights the need to institutionalize workforce planning as a strategic function, supported by interoperable data systems, advanced modelling, and strengthened capacities, to enable resilient, evidence-informed health systems aligned with population needs.

STATEMENT OF ORIGINALITY

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

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1. EXECUTIVE SUMMARY

This report synthesizes the WP6 Cluster findings (Croatia, Hungary, Lithuania, Poland, and Slovenia) of Joint Action HEROES (HEROES), documenting national actions to ensure sustainable health workforce (HWF) planning. WP6 Cluster countries share key features: predominantly publicly funded systems, universal health coverage, and a central state role in workforce regulation. These countries face a dual demographic crisis — an aging population and an aging workforce — necessitating a shift toward evidence-informed governance. The report uses the four domains of the Sustainability Framework to translate technical outputs into actionable policy. Grounded in the Sustainability Framework, the qualitative structured comparative analysis of data collected from multi-source approach such as National Policy Action Plans, professional registries, and Policy Dialogues highlights a transition from reactive monitoring to proactive, scenario-based forecasting. Key achievements include establishing dedicated human resources for health (HRH) units, enhancing data interoperability, and professionalizing the planning function through targeted capacity building. The project has acted as a catalyst for institutionalizing these reforms within permanent legislative frameworks to ensure health system resilience.

HEROES has successfully catalysed a shift toward proactive planning systems by supporting the modernisation of data infrastructures and professionalizing institutional roles. However, data fragmentation and legal constraints regarding data protection remain persistent challenges. Ensuring the sustainability and continuity of HEROES outcomes requires a permanent commitment to evidence-based decision-making and continued cross-country collaboration.

2. INTRODUCTION

HEROES transformative mandate serves as a catalyst by strengthening governance frameworks, professionalizing planners' capabilities, and fostering European-wide peer learning to facilitate the transition toward coherent, forward-looking, and resilient planning systems to ensure the strategic shift in workforce planning and stability.

Health workers represent the indispensable foundation of resilient health systems, yet the COVID-19 pandemic exposed profound pre-existing vulnerabilities — including chronic shortages, geographical maldistribution, and a “dual demographic crisis” of aging populations and workforces — that stem from a critical gap in national administrative and technical planning capacities. Historically, these systems have relied on fragmented, siloed data and simplistic quantitative indicators like workforce density, which are insufficient to manage the complex balances of the modern health labour market or integrate supply-side education pipelines with actual population health needs. This systemic deficiency results in a persistent and destabilizing misalignment of the labour market, manifesting as regional medical deserts and a structural inability to withstand future health shocks, which leaves essential services vulnerable to staffing collapses and inefficiencies. Reflecting to this gap, HEROES serves as an essential transformative catalyst, providing the international legitimacy and technical expertise needed to transition toward proactive governance by catalysing the modernisation of data infrastructures, professionalizing the planning function through a specialized portfolio of skills, and institutionalizing permanent, multi-stakeholder and multi-sectoral policy dialogues to ensure health workforce stability becomes a sustainable, long-term strategic priority.

This report presents the consolidated outputs and cross-country comparative analysis of the WP6 Cluster within HEROES and provides the core analytical component of the country-level contributions developed throughout the project. The country reports compiled under WP6 provide a structured overview of national actions, governance arrangements and political support mechanisms aimed at ensuring the long-term sustainability of health workforce planning and policy reforms, and highlights. The report additionally presents the achievements of the countries reached through HEROES.

The guiding framework for this deliverable is the Framework for Sustainable Health Workforce Intelligence Systems developed under work package 4 (WP4) and further detailed in Deliverable 1.2 Final Deliverable on HWF planning data, models and skills. The framework takes a systems-based, hierarchical approach to strengthen workforce planning capacity and sustainability and is structured around four interdependent domains: **Data and Models**, **HRH Planners' Capabilities**, **HRH Governance** and **Political and Contextual Support**. The framework emphasises the interaction and integration between these domains, while each domain includes key factors and a defined critical element to support effective, long-term health workforce planning. These domains are also used to structure the country reports and the analysis.

Work Package 6 was implemented in a cluster-based structure bringing together groups of countries based on similarities in health system organization, workforce mobility patterns, labour market pressures, and the maturity of nation health workforce planning capacities. The clustering approach along with the framework's dimension facilitate comparative reflection within a broadly similar policy landscape. WP6 Cluster countries Croatia, Hungary, Lithuania, Poland and Slovenia also share broadly similar challenges such as population ageing, ongoing health workforce shortages in specific professions or regions, outward mobility of health professions, ageing of the health workforce, and evolving institutional arrangements for workforce governance and planning. Albeit differences in governance traditions and degrees of decentralization, these countries also share key structural features: predominantly publicly funded systems with strong regulatory oversight, universal or near-universal health coverage, and a central role for the state in defining workforce training capacity and employment conditions. Many of these systems also operate within multi-level governance frameworks, which adds complexity to data integration and long-term planning, as well as coordination.

By synthesising cross-country comparative analysis of country-level experiences, this report highlights common patterns, shared challenges and context-specific approaches adopted by WP6 countries to strengthen political support and governance for health workforce planning. It demonstrates how the actions of WP6 countries contribute to translating analytical capacity into decision-making, ensuring strategic design and roadmap development, and reinforcing the conditions for sustainable implementation of HEROES outcomes and developing more resilient, data-informed and forward-looking health workforce planning systems.

This report is structured as follows: Section 2 Introduction, Section 3 Methodology, Section 4 Results provides the results of comparative analysis as cross-country insights with national examples and linking these findings to the core areas of data, models, skills, and governance. Section 5 Conclusion and Recommendations include the main policy messages and identify key priorities to support the institutionalization and continuity of HWF planning after HEROES. Finally, Section 6 includes the country reports.

3. METHODOLOGY

This section outlines the methodological approach used to develop the WP6 Final Deliverables Report. The methodology adopts a qualitative structured comparative analysis based on country-based reporting for Croatia, Hungary, Lithuania, Poland and Slovenia. This approach facilitates a systematic examination of national Health Workforce (HWF) planning across diverse contexts through a common analytical framework. By applying standardized sustainability criteria to various national trajectories, the analysis bridges the gap between different health system models — ranging from highly centralized to decentralized — ensuring a coherent comparative perspective.

The core of the analysis is the HEROES Sustainability Framework that conceptualizes the long-term viability of HWF planning through four interrelated dimensions: (1) political and contextual support; (2) HRH governance; (3) HWF planners' capabilities; and (4) HWF data and models. Political and contextual support examines governance arrangements, institutional positioning, and health system characteristics. HRH governance focuses on coordinating bodies, stakeholder engagement, mandates, and planning processes. HWF planners' capabilities assess technical, analytical, and communication competencies within planning institutions. HWF data and models cover data sources, infrastructure, modelling approaches, and forecasting tools. These dimensions form both the basis of the comparative analysis and the structure of the country reports and are closely linked to the core functional tasks of data, models, skills and governance/stakeholder engagement.

Data was gathered using a multi-source qualitative approach to capture the intricacies of each national HWF ecosystem. Primary sources included National Policy Action Plans, internal sustainability milestones, and outputs from HEROES national policy dialogues. These were supplemented by secondary data such as national registries, official statistical reports, and legislative documents.

To ensure technical consistency, all participating countries utilized a standardized reporting template. The development process involved an initial data collection and report drafting by national teams; a rigorous review and validation cycle; and alignment checks to ensure the reports met the criteria established in the framework outlined in D1.2 Final deliverable on HWF planning: data, models and skills.

Structured comparative analysis was conducted domain by domain and comparing countries rather than country descriptions. The data analysis focused on identifying common patterns and shared challenges across the four sustainability domains; organizational clustering to compare different institutional arrangements and governance structures; positioning countries along a maturity gradient, ranging from foundational to high-maturity systems without implying normative ranking. Maturity was assessed based on the presence of key features such as legal mandates, dedicated planning bodies, and operational forecasting models. The comparative logic is aligned with that used in other WP cluster reports to ensure coherence across HEROES deliverables.

This methodology ensures a high degree of qualitative rigor, however, several limitations should be considered when interpreting the findings, including heterogeneity across countries, where differences in health system structures, governance models, and data availability limit the direct comparability of results. Other limitations might include (1) variability in methodological maturity, as countries are at different stages of development in terms of data systems and modelling capacity, (2) reliance on qualitative inputs, with much of the analysis based on descriptive and expert-informed information and limited availability of standardized quantitative indicators, (3) limited evaluation evidence, since in several cases planning tools and models have not undergone formal evaluation, constraining the assessment of their effectiveness, and (4) the project-based timeframe, as HEROES is a time-limited initiative, meaning some actions are still under development and their long-term impact cannot yet be fully assessed.

4. COMPARATIVE ANALYSIS

This section synthesises the most salient findings of the cross-country comparative analysis based on the country reports. The results are synthesised along the four domains corresponding to the dimensions of the sustainability framework developed under WP4. Domain 1: political and health system context, Domain 2: HRH governance, Domain 3: HWF planners' capabilities and Domain 4: HWF data and models. The analysis is conducted in alignment with D1.2 Final deliverable on HWF planning: data, models and skills.

DOMAIN 1: POLITICAL AND HEALTH SYSTEM CONTEXT

Across the cluster, the state — primarily through the Ministry of Health or Interior — plays a dominant role in strategic planning and regulation. Political support for HWF planning has intensified as these countries face a dual demographic crisis: a rapidly aging general population and an aging healthcare workforce approaching mass retirement.

A significant common pattern is the increasing recognition of health workforce shortages as a structural risk to health system performance, particularly in primary care and rural “medical deserts”. While centralization is a shared feature, the execution of policy differs; for instance, Croatia manage workforce distribution through decentralized regional or county-level frameworks which necessitates more complex inter-institutional coordination and data integration at the national level, while in Poland regional perspectives are taken into account in the decision-making process -their opinions, needs, and local context do have an influence on shaping the actions undertaken, at the same time, final decisions are made at the central level. Hungary and Lithuania maintain more centralized control over education quotas and residency placement. Despite these administrative differences, the cluster shows a unified trend toward including HWF sustainability in high-level national development plans and strategic reforms.

The maturity of political support has evolved during the project, moving from reactive, ad-hoc monitoring toward proactive, multi-year strategic frameworks. In countries like Croatia and Slovenia, this shift is evidenced by the drafting of dedicated National HWF Action Plans and strategies intended to provide continuity beyond political cycles. However, a persistent challenge remains the fragmentation of responsibility between health, education, and finance ministries. A critical priority is overcoming “siloeed” administrative approaches between health, education, and finance sectors to ensure training quotas align with actual system needs. Recognizing workforce shortages as a **structural risk**, countries are now integrating HWF sustainability into high-level national strategic reforms.

The impact of HEROES as a political catalyst is evident across all five countries. The project has provided international legitimacy for national reforms, encouraging investments in forecasting capacity and data infrastructure. By institutionalizing policy dialogues, these countries have created a platform for ongoing political commitment, ensuring that HWF planning remains a strategic priority rather than a project-based initiative.

DOMAIN 2: HRH GOVERNANCE

HRH Governance across the WP6 cluster is transitioning toward more structured and accountable institutional arrangements. A major trend is the establishment of dedicated HWF units within Ministries of Health to serve as focal points for policy-making and strategic coordination, as seen in the recent creation of HWF-specific sectors in Slovenia and Croatia. In contrast, countries like Lithuania and Poland utilize distributed or hybrid models where responsibilities for data analysis and policy implementation are split across different departments or specialized agencies. For example, within the Polish Ministry of Health, the Department of Analysis and Strategy is responsible for analysis and statistics, while the Department of Medical Workforce Development is responsible for activities related to medical workforce planning.

This domain highlights a move toward negotiated planning, involving a broad spectrum of stakeholders such as professional chambers, social insurance funds, and universities. The institutionalization of National Policy Dialogues has been critical in bridging “governance gaps” by fostering inter-institutional cooperation and ensuring that professional expertise is integrated into national strategic decision-making. However, managing these diverse interests remains a challenge, particularly in decentralized contexts like Poland, where central decisions are adapted to regional needs.

Regarding system maturity, countries are increasingly focused on embedding governance structures into permanent legislative frameworks to prevent the loss of institutional memory. For example, Lithuania is transferring the technical maintenance of its forecasting model to the stable Institute of Hygiene, while Hungary is exploring formal inter-ministerial coordination mechanisms involving health, finance, and education. These actions aim to create a resilient environment that survives political transitions and ensures consistent technical ownership of planning tools.

A key challenge identified across the cluster is coordination fragmentation. In systems where data analysis and policy decision-making reside in different institutions, technical ownership of the models can become unclear. To mitigate this, WP6 countries are focusing on clarifying institutional mandates and roles, ensuring that those responsible for producing data-driven evidence have a direct and formalized link to the policy board making admission and recruitment decisions.

Future plans include the creation of internal taskforces to maintain institutional memory and the transfer of technical model maintenance to stable public health institutions, as planned in Lithuania. By formalizing these roles and regularizing stakeholder engagement beyond project-based cycles, the participating countries aim to create a resilient environment for evidence-based health workforce management.

Policy sustainability demands embedding “negotiated planning” and National Policy Dialogues into permanent legislative frameworks to safeguard institutional memory against political transitions. Crucially, systems must clarify institutional mandates to mitigate coordination fragmentation. This ensures technical experts have a formalized link to policy-making boards, directly translating data-driven evidence into effective workforce recruitment and admission strategies.

DOMAIN 3: HWF PLANNERS CAPABILITIES

The development of evidence-to-policy translation skills is a core priority for all WP6 countries. There is a collective recognition that technical data alone is insufficient; planners must have the capability to interpret complex forecasting models and communicate their strategic implications to non-technical decision-makers. Across the cluster, training programs have moved away from descriptive statistics toward scenario-based forecasting and the use of sophisticated mathematical projection tools.

Competency levels within the cluster vary based on the technological maturity of the systems. In countries adopting advanced “data lake” architectures, such as Lithuania, planners face the added pressure of acquiring specialized technical skills in data engineering and programming. Meanwhile, in countries like Croatia and Hungary, the focus has been on mastering the underlying logic and assumptions of the Dutch (NIVEL) scenario model to identify supply-demand gaps. A shared challenge is the concentration of expertise at the central level, which Poland and Slovenia have begun to address by extending training to regional planners and expanded group of stakeholders to combat local disparities and “medical deserts”.

The methodology for skills development has shifted toward interactive, small-group workshops, which have proven more effective at building the trust and data literacy necessary for managing sensitive workforce issues. These sessions often bring together diverse stakeholders — including representatives from insurance funds and chambers — to align institutional perspectives and develop a common technical language. This collaborative learning process is seen as vital for maintaining “institutional memory” across decade-long health plans. Thus, HEROES is seen as a catalyst for the professionalization of the planning function, providing structured programs that have already yielded measurable increases in competency. These developments have empowered planners, policymakers and other stakeholders to engage more confidently in strategic debates, as seen in the successful implementation of national policy dialogues and the creation of medical competency matrices.

Despite these gains, staff turnover and competing administrative duties remain significant hurdles to sustained institutional capacity. Future plans across the cluster focus on sustainability by embedding training modules into permanent professional development cycles and formalizing the HWF planning function in national legislation. The ultimate goal is to transition from project-based learning to a professionalized planning function, where capability serves as the critical determinant of impact: it is the difference between a system that merely produces descriptive reports and one that produces systemic change. Advanced capability enables planners to interpret complex forecasting models and translate that evidence into actionable policy, ensuring health systems can proactively manage evolving demographic and epidemiological demands rather than simply reacting to personnel crises.

Professionalizing the planning function is a core priority, shifting focus from descriptive statistics to scenario-based forecasting and “evidence-to-policy translation”. A key requirement is decentralizing expertise by extending training to regional levels to effectively combat “medical deserts” and territorial disparities. To ensure long-term impact, these capabilities must be formally legislated and embedded into permanent professional development cycles, to a resilient, professionalized planning function.

DOMAIN 4: HWF DATA AND MODELS

A fundamental shift is underway from static, descriptive monitoring toward dynamic, scenario-based forecasting. Most WP6 countries rely on centralized national registries of healthcare providers as their evidence base, but HEROES has facilitated the integration of these registries with previously siloed datasets, such as pension fund records, education inflows, and social insurance data. This integration allows for more accurate tracking of retirement patterns, attrition, and the movement of graduates into the workforce.

Technological advancement within the cluster is increasingly clustered around automated, “real-time” data architectures. Lithuania’s migration to a national Data Governance Platform (data lake) and the development of Hungary’s ESZENY and the HRM system and Slovenia’s upgraded Registry reflect a move away from manual, Excel-based tools toward sophisticated platforms that allow for real-time updates. These advancements facilitate the use of Advanced Minimum Data Sets (AMDS), which incorporate qualitative indicators like workforce well-being and task-shifting alongside traditional headcounts.

The adoption of advanced forecasting tools, particularly the adaptation of the NIVEL scenario model, has enabled countries to visualize the long-term impact of various policy options, such as adjusting training quotas or recruitment rates. By simulating different scenarios, planners can provide evidence-based projections that account for changing population needs and epidemiological trends. This marks a major step toward proactive workforce management, although the precision of these models is still limited by gaps in tracking the private sector and international mobility.

Finally, data governance and legal constraints remain cross-cutting challenges. Protecting personal data while linking diverse administrative registries requires complex legislative adjustments, as noted in Poland and Slovenia. Sustainability efforts in this domain focus on institutionalizing data flows and ensuring ongoing investment in the technical maintenance of these forecasting environments, moving toward a “European Health Workforce Dataspace” approach for improved regional interoperability.

A fundamental shift is underway toward dynamic, scenario-based forecasting by integrating national registries with previously siloed datasets. Sustaining these advancements requires navigating complex legislative adjustments for data governance while progressing toward an interoperable European Health Workforce Dataspace.

5. CONCLUSIONS & RECOMMENDATIONS

Conclusions

The work conducted by the WP6 Cluster (Croatia, Hungary, Lithuania, Poland, and Slovenia) marks a fundamental transition from reactive, monitoring-based approaches toward proactive, evidence-informed health workforce (HWF) planning systems. Historically, these countries relied on descriptive statistics and ad-hoc responses to personnel shortages. Through HEROES, they have begun institutionalizing structured forecasting models, such as the NIVEL scenario-based approach, and modernizing their governance frameworks to address long-term sustainability.

Based on the comparative analysis of country reports, the models of the WP6 cluster countries (Croatia, Hungary, Lithuania, Poland, and Slovenia) are defined by their levels of system maturity, technical infrastructure, and governance structures.

Regarding system maturity and experience, Lithuania possesses an established system, having operated a national forecasting and planning model since 2018, whereas Croatia and Hungary are currently adapting the Dutch (NIVEL) scenario-based model through HEROES. Poland and Slovenia are first-time participants in such an international initiative, strategically expanding their existing foundations of planning like the Polish Healthcare Needs, having its model strongly focussing on regional roots and local needs.

Technical platforms also vary significantly; Lithuania is migrating its model from Excel-based tools to a sophisticated “data lake” architecture within a national Data Governance Platform to allow for automated, real-time updates. While Croatia, Hungary, and Slovenia currently rely primarily on Excel-based projection tools, Hungary is simultaneously modernizing specific registries, such as HENYIR and KSZDR, to enhance data quality and support decision-making.

Governance and decision-making models reveal a split between decentralized and centralized approaches; Poland and Croatia manage workforce distribution through regional or county-level frameworks, whereas Hungary, Lithuania, and Slovenia maintain strong central state control over residency placements and education quotas.

Methodological tools also differ by country: Poland utilizes “Healthcare Needs Maps” and develops analytical tools and applications related to medical staff, Croatia and Hungary focus on the NIVEL stock-and-flow methodology to visualize supply-demand gaps, and Slovenia employs a specialized projection tool that can be adapted for specific medical branches, such as paediatrics. The scope of professions covered varies, as Croatia’s initial model targets the six most numerous health professions, while Lithuania’s established system encompasses 58 medical specialties alongside various other regulated health occupations.

Across the cluster, several common features and systemic challenges have also been identified:

- **The Dual Demographic Crisis:** All countries face the simultaneous pressure of an aging general population and an aging health workforce approaching retirement. This is the primary driver for elevating HWF planning to a top-tier political priority.
- **Systemic Data Fragmentation:** While administrative registries are generally robust, data remains siloed between health, education, and social insurance sectors. Legal constraints regarding data protection and a lack of precise records for private sector activity and international mobility persist as major technical barriers for majority of the countries.
- **Shift Toward “Live” Data Architectures:** A significant trend is the migration from manual, Excel-based monitoring to automated, “live” data environments or “data lakes” (e.g., Lithuania’s Data Governance Platform and Slovenia’s upgraded Registry).
- **Strengthened Governance and Skills:** Countries are moving toward establishing dedicated HRH sectors within Ministries of Health to ensure institutional memory. Furthermore, there is a clear focus on “evidence-to-policy translation,” requiring planners to possess not only technical data skills but also the strategic competency to inform policy decisions.

Countries achievements

Croatia	Established new institutional and analytical foundations for HWF planning by integrating the National Register of Healthcare Providers with pension insurance data and introducing a more advanced Excel-based HWF planning model.
Hungary	The combination of strengthened data systems and the introduction of modelling tools supported a significant step towards a more proactive and evidence-informed HWF planning system in Hungary.
Lithuania	Modernised workforce data systems and forecasting infrastructure by migrating the national forecasting model from Excel to an integrated database managed by the State Data Agency, and buildt national capacity for the model updating and use of the national data system.
Poland	Improved HWF analysis and stakeholder engagement through analytical reports on primary healthcare structures and stakeholder workshops on postgraduate medical education and residency allocation.
Slovenia	Improved HWF registry integration and stakeholder coordination by linking the nursing professions registry with the national Register for Health Workers and Providers.

Recommendations

To ensure the long-term sustainability of the progress achieved, the following strategic recommendations are proposed, drawing on the specific findings from the cluster countries and the HEROES sustainability framework, and structured according to the four dimensions of the framework with a timeline for implementation:

Sustainability Domain	Short-Term (1–2 Years)	Medium-Term (3–5 Years)	Long-Term (> 5 Years)
Political & Contextual Support	Adopt National Action Plans: Finalize and adopt dedicated HWF strategies to transition from project-based tasks to national policy.	Institutionalize Policy Dialogues: Move from ad-hoc meetings to permanent, multi-sectoral platforms for ongoing political commitment.	Legislate the Planning Function: Embed HWF planning cycles into national law to ensure strategic continuity beyond 4-year political cycles. Align HWF planning with health system reforms.
HRH Governance	Clarify Mandates: Formally designate a single stable institution (e.g., a Public Health Institute) to take institutional and technical ownership of forecasting models.	Formalize Coordination: Establish inter-ministerial working groups (Health, Finance, Education) to align training quotas with budgetary and clinical needs.	Resilient Governance: Create a management environment where technical ownership and stakeholder engagement survive institutional transitions.
HWF Planners' Capabilities	Institutionalize Knowledge: Conduct “train-the-trainer” sessions to anchor HEROES methodologies (e.g., NIVEL model logic) within core staff, extend analytical training to regional and local authorities.	Embed Professional Cycles: Integrate HWF planning training into permanent professional development modules for both central and regional planners.	Professionalize the Role: Establish HWF planning as a specialized career path defined by a comprehensive portfolio of skills .
HWF Data & Models	Expand data coverage and automate Linkages: Accelerate the integration of professional registries with education and pension fund data, private sector, nursing specialization, for real-time updates.	Migrate to “Data Lakes”: Transition from manual monitoring to automated data architectures that eliminate manual data extraction.	Integrate Qualitative Data: Mature models to include well-being, skill-mix, and AI impacts, aligning with the European Health Data Space.

Closing remarks

HEROES has functioned as a transformative catalyst, providing the international legitimacy and technical expertise necessary to modernize national HWF systems. A key achievement has been the establishment of a shared understanding of data needs and methodological approaches. HEROES has supported convergence in how countries collect, interpret and use HWF data. This provides a stronger foundation for comparability, benchmarking and continuous improvement of data systems. This transition HEROES generated was partly achieved through the introduction of advanced scenario-based forecasting tools, the modernization of data infrastructures and the synchronization of national registries with pension and education databases. Beyond technical tools, HEROES significantly supported the strengthening of institutional capacities by establishing dedicated HRH units within Ministries of Health or professionalizing the workforce through targeted training programs focused on data literacy and the translation of technical evidence into actionable policy.

HEROES catalysed the institutionalization of policy dialogues, creating a new standard for transparent, multi-sectoral collaboration that brought together government, academia, and professional chambers to align educational quotas with real health system needs, thereby ensuring the long-term sustainability of these reforms beyond political cycles. The benefits of this co-operation can only be sustained through continuous investment and cross-country collaboration. Ensuring the continuity of these actions is essential to build resilient health systems capable of meeting the evolving demographic and epidemiological demands of the population.

HEROES has demonstrated a highly effective model of European cooperation, significantly elevating the policy relevance of HWF planning across the countries. By creating structured spaces for policy dialogue, peer learning and cross-country comparison, HEROES has contributed to positioning HWF planning as a strategic governance function, rather than a purely technical exercise. HEROES clearly underlines added value of EU-level action through pooling of expertise, accelerated methodological development and supported more coherent approaches across Member States.

6. COUNTRY REPORTS



COUNTRY REPORT

CROATIA



6.1 COUNTRY REPORT: CROATIA

Introduction

National HWF Planning System before HEROES

The key authorities in the Croatian health system are the Ministry of Health, the Croatian Health Insurance Fund (CHIF), the Croatian Institute of Public Health (CIPH), and the county authorities. The Ministry of Health is the main government body responsible for health system stewardship, health policy development, planning and evaluation, regulatory standards and training of health professionals. The CHIF is the sole insurer in Croatia's mandatory health insurance and offers also complementary health insurance, in particular to those sponsored by the state, but does not act as a true purchaser of care. The CIPH is a subsidiary organisation to the Ministry of Health but acts independently and cooperates closely with the Ministry on health policies and measures.

In 2015 the Government adopted the Strategic Plan for Human Resources in Healthcare for 2015 – 2020. This Strategic plan acknowledges that one of the fundamental problems in the domain of human resources development in the Croatian health system is the lack of a human resources management system. A comprehensive system for monitoring human resources in the health system is needed in order to improve projections of supply and estimates of needs (both in terms of numbers and types of health professionals). The Plan envisaged the development of a system for the organization and active management of human resources in the health sector with the aim of achieving a sufficient and adequate staff structure. Implementation was limited, with no available information on progress achieved. The Strategic plan for the development of human resources determined that the aforementioned stakeholders in the health system have competences or responsibilities for parts of human resource management in health care, but it is not possible to identify any organization or structure that has responsibility for strategic planning and human resource management.

The National Health Development Plan 2021 - 2027 includes strategies to retain the health workforce in the profession by targeting job dissatisfaction through plans to improve working conditions, especially for physicians, and salaries, for healthcare workers employed by public providers, and through plans to reduce administrative burden of physicians. However, the current distribution and use of available labour capacity in health care still lacks a workforce planning programme that would take into account medium and long-term projections.

The allocation and recruitment of healthcare workers for primary and outpatient segment is organised at county level, with no central planning, and it is determined by an outdated provider network definition, which does not account for current population structure, its distribution across Croatia and its healthcare needs, nor for the age structure of practicing physicians. The National Development Plan foresees an establishment of a human resource management framework, which, if brought to the central level, would help address current shortcomings and support authorities to secure adequate workforce.

HEROES: Key Achievements

- **2024 – Within the framework of HEROES, the need to improve the planning process was recognized** by increasing the scope and quality of data, selecting a planning model and acquiring skills for using the model, and defining the responsible bodies for the planning of healthcare workers.
- **2024, May – 2025, July – Excel planning model introduction**, optimization and adjustment of the NIVEL workforce planning model using real data for Croatia not only on the supply of healthcare workers, but also from the domain of demand for healthcare.
- **2023, September – 2025, October – Integration of the NRHCP** – After data mapping and administrative preparations for the linkage of the National Register of Health Care Providers (NRHCP), operated by CIPH, successfully completed integration of the NRHCP with the Pension Fund's services in the part related to the download of data on employed persons in healthcare institutions.
- **2023, March – 2025, December – Institutionalization** – As part of the need to define the responsible bodies for planning healthcare workers, an Independent Sector for the Controlling System and Human Resources in Healthcare was established at the Ministry of Health. Towards the end of 2025, the name Department for Human and Material Resources in Healthcare and Improvement of Human Resources Planning at the Croatian Institute of Public Health was adopted.
- **2025, October – 2026, January – Action Plan for the Development of the Human Resources Planning in Health 2026-2030** – In addition to establishing a stakeholder platform and their participation in policy dialogues, a draft Action Plan for the Development of the Human Resources Planning in Health 2026-2030 was prepared, presented and, with minor amendments, accepted by the Ministry of Health. The presentation of the Action Plan through the 5th Policy Dialogue is expected in February 2026.

HEROES: Lessons learned

Adoption, implementation and upscaling of HWF Planning

Participation in this project has prompted an initiative to improve planning in all four areas listed in the project description (databases, forecasting tools, planning skills development and stakeholder engagement), along with the adoption of an Action Plan. The Action plan was delivered to the Ministry of Health for the adoption. Implementation will follow the adoption completion. Increasing the scope and quality of data, using planning processes and methodologies, and expanding existing knowledge and skills in managing healthcare workers certainly have room for improvement.

Although the need for an additional data source that would increase quality and timeliness has been recognized earlier, it has not been achieved so far. Within the framework of the JA HEROES, it was planned to achieve a connection and exchange of data with the Croatian Institute for Pension Insurance. Measure taken to achieve it consisted in merging, the NRHCP with the Croatian Pension Insurance Institute.

So far, no models were used for Health Workforce (HWF) planning in Croatia. HWF was recognised as priority in several strategic documents and therefore introduction of HWF planning model in Croatia would present significant improvement. A planning model was designed on the basis of existing data, and envisaged the inclusion of additional data in the model. In terms of ensuring the necessary skills and knowledge related to planning and management, the HEROES enabled cooperation with NIVEL, which provided basic knowledge for the application of the Excel planning model in Croatia.

The policy dialogues organized by the CIPH were very important for gaining experience and for future cooperation in the planning process. The policy dialogues are also an integral part of the development of the Action Plan, and in addition to the CIPH, all important stakeholders for human resource planning in the health system participated in them: the Ministry of Health, the Ministry of Science, Education and Youth, CHIF, the Croatian Employment Service, the Croatian Pension Insurance Institute, the Croatian Medical Chamber, the Croatian Chamber of Dental Medicine, the Croatian Chamber of Nurses, the Croatian Chamber of Midwives, the Croatian Chamber of Physiotherapists, the Croatian Chamber of Pharmacists, the Croatian Chamber of Medical Biochemists, the Croatian Chamber of Psychology and the Croatian Chamber of Health Workers. In addition to direct training by NIVEL experts, the WP6 meetings, as well as all other meetings within HEROES and Community of Practice meetings, were a learning opportunity and emphasized the need to acquire additional skills to improve the planning process.

Country level report based on the Sustainable Workforce Intelligence Planning Systems Framework

Domain 1: Political and contextual support

The health system in Croatia is mainly based on a mandatory health insurance system. The only, state owned, mandatory health insurance provider is Croatian Health Insurance Fund (CHIF), which was established in 1993 after establishment of Republic of Croatia in 1991. Healthcare is based on the principles of comprehensiveness, continuity, accessibility and a holistic approach in primary health care, a specialized approach in specialist and hospital healthcare, and on the principles of subsidiarity and functional integration (defined in Health Care Act).

Croatia has 21 counties (including the City of Zagreb), but healthcare governance is mostly centralized. The Ministry of Health is responsible for health policy, planning and evaluation, public health programmes and the regulation of capital investments for publicly owned health care providers. Counties are responsible for the organization and management of primary and secondary care, while national authorities are responsible for tertiary care.¹ University hospital centres and university hospitals are settled in four regional centres (City of Zagreb – Clinical Hospital Centre Zagreb, national hospital, Clinical Hospital Centre Sisters of Mercy and Clinical hospitals Dubrava and Merkur: Clinical Hospital Centre Split, Clinical Hospital Centre Rijeka and Clinical Hospital Centre Osijek).

Funding and regulation are also managed at the national level. Although most health care providers (especially of secondary and tertiary care) remain under public ownership, private providers have grown in number, notably in primary care, dental services and specialized clinics and certain number of private providers have contracts with CHIF.

Ministry of Health is, on national level, responsible for HWF policy, planning, training and standards. Local governments own, operate and are responsible for HWF in public primary and secondary health care facilities, including specialized hospitals, county health centres, public health institutes and emergency care institutes. Croatia does not engage in any central health workforce (HWF) planning system. Mitigating shortages was named as “a driving force” in Croatia and identified as a way to overcome geographical misdistribution and is also the reason for institutionalisation and integration of HWF planning.

1 Health Care Act (Official Gazette No 100/18, 125/19, 147/20, 119/22, 156/22, 33/23, 36/24, 102/25)

Domain 2: Human Resources for Health (HRH) governance

Prior to HEROES, no individual formal planning body for HWF governance had been established in Croatia. In this regard, the HWF governance policy in Croatia has been defined by the Ministry of Health in cooperation with various stakeholders, including the CHIF and CIPH. In 2015 the Government of the Republic of Croatia adopted the Strategic Plan for Human Resources in Healthcare for 2015 – 2020, envisaging the development of a system of organization and active management of human resources in the health sector with the aim of achieving a sufficient and adequate staff structure. However, the implementation thereof has been largely limited despite the adoption of the National Healthcare Development Plan 2021 – 2027, which also addressed the need to develop a robust and systematic method of HRH planning.

The main current instrument of human resources distribution management in the healthcare system, regarding both the primary and secondary level of healthcare, is the Public Health Service Network (Network)². This document is adopted by the Ministry of Health with the necessary consent of CHIF, CIPH, regional health administrations and professional health worker associations (chambers). The Network provides for the maximum number of publicly funded health care providers throughout the entire territory of the Republic of Croatia, with values prescribed at all levels of local and regional self-government. As aforementioned, the values prescribed by the Network pertain both to primary healthcare services and secondary healthcare services, including hospitals. The Network also provides the groundwork for financing health care providers by means of contracting by the CHIF.

The criteria for determining the structure of Public Health Service Network are the population distribution in Croatia (including the total number of persons insured by the CHIF), demographic characteristics of the population, population health indicators, social structure of the population, characteristics of individual areas, availability of health resources, impact of the environment on the health of the population and economic opportunities. However, the parameters provided in the Network do not reflect the actual availability of human resources, i.e. the situation on the labour market regarding healthcare workforce. Moreover, the Ministry of Science and Education maintains the exclusive remit to define enrolment quotas for all educational institutions providing vocational training for various healthcare professions. As such, the current healthcare workforce planning system is burdened by the disparate nature of undergoing processes and lacks efficient integration.

2 Public Health Service Network (Official Gazette No 49/24)

Stakeholder landscape: roles, power, and interests in HWF Planning

Over the course of HEROES, the effort was made to bring together various stakeholders involved in the healthcare workforce planning processes. The list of stakeholders is presented in the table below.

Name of stakeholder	Type of stakeholder	Involvement	DATA		PROCESS		SKILLS	
			I	P	I	P	I	P
Ministry of Health	Ministry	Already involved	H	H	H	H	H	H
Croatian Institute of Public Health	Public Health Institute	Already involved	H	H	H	L	H	L
Croatian Health Insurance Fund	Social Insurance Fund / Company	Not yet involved	H	H	H	H	L	L
Ministry of Science and Education	Ministry	Not yet involved	L	H	L	H	L	H
Croatian Medical Chamber	Health Professional Order	Not yet involved	H	H	H	H	H	H
Croatian Nursing Council	Health Professional Order	Not yet involved	H	H	H	H	H	L
Croatian Dental Chamber	Health Professional Order	Not yet involved	H	H	H	H	H	L
Croatian Chamber of Pharmacists	Health Professional Order	Not yet involved	H	H	H	H	H	L
Croatian Chamber of Midwives	Health Professional Order	Not yet involved	H	H	H	H	H	L
Croatian Council of Physiotherapists	Health Professional Order	Not yet involved	H	H	H	H	L	L
Croatian Chamber of Medical Biochemists	Health Professional Order	Not yet involved	H	H	H	H	L	L
Croatian Chamber of Health Workers	Health Professional Order	Not yet involved	H	H	H	H	L	L
Croatian Employment Service	Governmental Agency	Not yet involved	H	H	L	L	L	L
Croatian Pension Insurance Institute	Governmental Agency	Not yet involved	H	H	L	L	L	L

The list of stakeholders involved includes governmental authorities at the national level (Ministry of Health, Ministry of Science and Education), para-governmental agencies (CHIF, CIPH, Croatian Employment Service, Croatian Pension Insurance Institute), as well professional associations of healthcare workers. Ministry of Health and Croatian Institute of Public Health have been engaged in previous activities related to healthcare workforce management, whereas some stakeholders, such as regional health authorities, may become involved again at a later stage, i.e. after the established of the initial national planning model. This will be necessary as geographical misdistribution of human resources is one of the main factors affecting the provision of health care services in Croatia.

Domain 3: HWF planners' capabilities

Despite the existence of fairly high-quality data, it can be said that they are still insufficiently utilized and analysed. Despite access to data, there is a lack of analytical capacities and knowledge in the use of adequate planning tools and models. In fact, there was a need for a team of experts who would develop the skills necessary to use planning methods and a particular planning model and have knowledge of important elements of the overall planning process.

From plan to training activities, skills and competency gains during HEROES

A two-day interactive workshop was held in May 2025 at the CIPH. The HEROES consortium provided support and two experts from NIVEL provided training course. Partners from Slovenia were also involved in the definition of the content and organization of the course. The first part (1st day) of the course, which was intended for a wider set of stakeholders, was attended by approx. 18 participants. The second part of the workshop, dedicated to the application of the planning model itself, was attended by 8 participants.

The programme of the training included:

- Interactive session of what stakeholders expect from a planning model/cycle
- Presentation why would you need a planning model/structure?
- Pros and cons of a planning model
- Difference between forecasting and planning
- How organized in other countries (which stakeholders are involved, how often do they plan, which professions)
- Policy options
- Presentation about the basic principles of modelling HWF
- Interactive session on goals and requirements of HWF planning in Croatia

Topics covered in the second day:

- Basic explanation of the model and minimal dataset needed
- Design of the model (supply, demand, difference, policy options)
- Create the model together to make the version which is best for Croatia (Practice with the model with real Croatian data and a few scenarios to prepare for situations that might give different results than expected).

The training built knowledge about the necessary data, basic principles and possibilities of the presented model. Simple predictive models were also developed for the Republic of Croatia during the training workshop, which, with future adjustments, will be applicable for planning health workforce needs at the national and regional levels. Skills of the CIPH staff for forecasting model were developed and the stakeholders were introduced to the basics of the HWF forecasting model.

Domain 4: HWF data and models

HWF Data: Sources

As far as data is concerned, the Ministry of Health uses data available from CIPH, i.e. the NRHCP as well as CHIF. The Ministry of Health, if needed, requests also data and information about health workforce from the health institutions themselves, most often from hospitals. Chambers also have certain data on health workers, as well as state public bodies, like National Bureau of Statistics and Ministry of Science and Education.

All health workers and associates are registered at the CIPH, established in 1991. Every health care provider (including those in the private sector) is obliged to submit information on all the health workers it employs, including their name, age, gender, date of birth, profession, entry or departure from service, and any change of position or professional level.

The methodology by which data are collected directly from healthcare institutions and independent private practices has been practically the same for more than thirty years. Data on foreign trained graduates are available from the Croatian Medical Chamber for doctors and the Croatian Nursing Council for nurses (stock). Until now, the data did not provide annual inflows, but only the total number. The same chambers calculate data on outflows using data from the Croatian Pension Insurance Institute.

The Ministry of Science and Education has databases and applications that can be accessed and that offer certain statistical and other information about secondary schools, educational programs. It also has an information system of higher education institutions through which the required data can be obtained. Information on job vacancies can be obtained from the Croatian Employment Service. So far, no data has been obtained or used for the calculation of full-time equivalents, but there is a possibility of getting such data from the Croatian Pension Insurance Institute.

Continuous improvement of data is key for better planning and feeding into decision-making regarding human resources in health care. It will require work with other stakeholders and routine use of databases, especially primary sources of information to ensure an advanced minimum set of data required for planning and application of excel planning models.

Initially, Croatia used only level 2a of the advanced minimum data set (AMDS), including only supply-based approach. Support under HEROES, including training helped expand the data used, including data on population projections, along with data on health services utilization. The workshop on using the Excel planning model was an important learning opportunity for integrating demand side data.

Therefore, HEROES contributed to a shift in the coverage of AMDS towards level 2b, using supply and demand side data. In the near future, with the calculation of full-time equivalents and the availability of outflow and inflow migration data, it will be possible to reach level 3, as far as the quantitative data set is concerned.

Advanced Minimum Data Set: achievements under HEROES

HWF Data: improvements

Level 2a (status before the HEROES)

Quantitative data set	Supply side					Demand side	
	Labour force	Training	Retirement	Outflow migration	Inflow migration	Population	Health consumption
Profession	X	X	X				
Age	X	X	X				
Head count	X	X	X				
FTE	X						
Geographical area	X	X	X				
Specialization	X	X	X				
Country of first qualification							
Gender	X						

Level 2b (status after the Joint Action HEROES)

Quantitative data set	Supply side					Demand side	
	Labour force	Training	Retirement	Outflow migration	Inflow migration	Population	Health consumption
Profession	X	X					
Age	X					X	X
Head count	X	X				X	X
FTE							
Geographical area	X	X				X	X
Specialization	X	X					
Country of first qualification							
Gender	X						

Qualitative data set	
	Care organisation
Teamwork	X
Task shifting and skill-mix	X
Reconfiguring health services including digital	X
	Health Indicators
Mortality and morbidity of HWF	X
Mental health and well-being of HWF	X
HWF equity	X
	Labour market
Financial investment, economical background	X
Performance and productivity	X

Data available and used for planning

Data available but not used for planning

Data not available but needed for planning

Data available but needs improvement*

Data available/included as a result of HEROES

It will also be important to improve the data on outflows, i.e. professionals leaving jobs, going beyond data on retirement. Further work with the health chambers can also secure better data on the annual arrivals, inflows of foreign-trained graduates of health workers (doctors, nurses).

A connection has been made to the Croatian Pension Insurance Institute database, which will ensure better coverage, quality, and additional data. There is also a need to connect to other sources, such as health chambers, the Register of Public Sector Employees, or information systems at the Ministry of Science, Education and Youth, which has data on enrolled and graduated students. In addition, it is necessary to integrate better data on the labour market, i.e. Croatian Employment Service data. Such connections will ensure faster data availability and consolidate data collection efforts.

Also, more attention should be paid to obtaining qualitative data, especially in cooperation with health chambers who collect such data (for example the reasons for leaving the health sector or emigration).

HWF Planning Models: design, application and HEROES contribution to HWF Planning Models

The process of developing HWF planning model for Croatia started with the Workshop on health workforce planning which was held in Zagreb on 14th and 15th May 2025. During the workshop experts from NIVEL presented their HWF planning model which was used as a basis for development of the planning model for Croatia, as described in Domain 3. Team of experts from CIPH started preparation of this model during the workshop with assistance from NIVEL experts and continued work during subsequent months, completing the model in December 2025. The model was the main topic of the 3rd national policy dialogue held on 18th June 2025 when Ministry of Health and other stakeholders recognised that it as a useful tool for obtaining information on current situation and expected trends in health workforce that could be applied in preparation of policy options, decision making and evaluation of effects of different policies on health workforce.

HWF Planning Models: HEROES contribution and future directions

Initially, the Croatian model was applied at the national level to six most numerous health professions: medical doctors, doctors of dental medicine, nurses, midwives, physiotherapists and pharmacists. HEROES prepared the ground to expand it to other health professions and the regional level as well, in line with the interest of the Ministry of Health.

HEROES contributed to the refinement of the planning model. The future capacity of the health workforce is projected by a stock-and-flow forecasting model based on the data on the number of persons working in health care, full-time equivalents and numbers of individuals enrolled in training, graduates total, graduates who start working in health care, inflow from abroad, retired individuals, outflow from health care due to reasons other than retirement. The future demand for the health workforce is projected by applying a population needs-based approach which includes demographic changes (the current number of patients and estimation of the total or relevant population size change over time) and projected epidemiological needs (based on the trends in health care usage and frequency of certain diagnoses).

The gap analysis between supply and demand is defined and calculated by comparing current supply and demand numbers as well as future supply and demand trends and is presented as a numerical value and as a graph.

The model is expected to support all types of policies related to HWF, including training inflow regulation, recruitment and retention rates and policies, working hours, etc. by comparison of effects of different policy options on HWF, thus enabling decision makers to choose more favourable policies. The model can be further adjusted to support multi-occupational planning as well as skill mixes, task shifting, interprofessional training or substitution policies by adjusting inputs and/or interconnecting models for two or more professions. Concerning health costs, the model can be further expanded in the future to include data on costs both as input and output.

As this is the initial HWF model to be applied in Croatia, it hasn't been evaluated so far, however when it starts to be applied, it will be evaluated in order to improve it and adjust it according to decision makers' needs.

From HEROES to Sustainability for HWF Planning

Sustainability and Policy Impact

Croatia is planning to implement a national Action Plan for the improvement of HWF planning that will introduce the targeted policy dialogues for HWF strategies and include all relevant stakeholders in the planning process. This will ensure that relevant stakeholders are involved from early stages and the planning is transparent, continuous and engaging. Also, the plan defines the responsible institutions for planning, and their roles, responsibilities and capacities needed that will ensure the sustainability, especially for competences of the planners. The plan defines the implementation of planning model in HWF planning framework. Sub-national planning and defining the four functional regions for HWF planning is a step forward in achieving fairer distribution and reducing deficiencies in critical areas for HWF.

In addition to regular cooperation with the Ministry of Health, it is planned to maintain contacts with health professionals' chambers regarding their possibilities to secure the use of data they have, for example on annual arrivals, the inflow of health professionals who have been educated abroad, as well as on issues related to certain professions and other forms of cooperation (qualitative data). In parallel with adapting the model to Croatian needs, it will be considered to connect with other data sources, i.e. create a unified resource for simplified data access (data hub).

It is foreseen to further seek involvement of representatives of the Ministry of Health (from the HWF sector) in discussions on developing and optimizing the planning model. In this regard, it would be useful to re-conduct the NIVEL training with participants from CIPH and the Ministry of Health, and build collective understanding and skills of a wider group of stakeholders.

It is also important that the institutionalization of planning takes place beyond political cycles, ensuring that the skills acquired during HEROES are not lost and that the learning process continues. In the context of ongoing health challenges, improving workforce planning methods and forecasting future needs has become a strategic priority.

Participation in HEROES enabled us to gain a more direct and significantly faster insight into proven management models already implemented in other countries, allowing to avoid the long and uncertain processes of acquiring specific expertise on our own. For Croatia, this type of collaboration is of exceptional practical importance, given the limited number of domestic experts with a narrow specialization in this area. Liaising with foreign experts opened the door to acquiring advanced know-how, provided insights from more advanced countries and triggered specific solutions and substantial progress in health workforce planning.

COUNTRY REPORT

HUNGARY



6.2 Country report: HUNGARY

Introduction

National HWF Planning System before HEROES

Prior to the implementation of HEROES, Hungary's health workforce (HWF) planning system was primarily based on monitoring rather than structured planning. While a wide range of administrative datasets were available, these were mainly used for descriptive purposes and short-term decision support. A comprehensive, forward-looking planning framework integrating supply, demand and policy analysis was not yet established.

The institutional framework for HWF governance was fragmented across multiple actors. The Human Resources Monitoring System (hereinafter: HRM), operated by the National Directorate General for Hospitals, served as the central infrastructure for workforce data collection and analysis. Its operation was grounded in the Act on Health (1997: CLIV), which defines the legal framework for data management in the health sector.

However, responsibilities for workforce policy were distributed across several authorities, including ministries responsible for health, interior, education and labour. This distribution limited coordination between data producers, analysts and decision-makers, and constrained the development of a coherent, system-wide planning approach.

From a data perspective, Hungary possessed extensive administrative information systems covering workforce stock, demographic characteristics, education pathways and labour market movements. The HRM system integrates data from healthcare providers, professional registries and education institutions, enabling the monitoring of workforce numbers, specialties, geographic distribution and employment status.

Despite this relatively strong data infrastructure, several limitations affected its use for planning. Data fragmentation, inconsistencies in reporting methodologies and limited interoperability between databases reduced analytical usability. Challenges such as dual practice, incomplete reporting and difficulties in estimating full-time equivalents further constrained the accuracy of workforce assessments.

At the same time, Hungary faced structural workforce challenges, including:

- ageing of the health workforce
- insufficient inflow of new professionals
- high attrition and migration rates
- territorial imbalances across regions

These trends, already identified in the AS-IS analysis, increased the urgency of moving towards a more integrated, evidence-informed and forward-looking planning system.

HEROES: Key Achievements

- **2023–2024: Strengthening of health workforce data systems** – Hungary modernised one of its main health workforce register infrastructure (Human Resources Register: "HENYIR") and achieved regularised data reporting from healthcare providers. Data validation and feedback mechanisms improved data reliability and timeliness.
- **2024–2025: Introduction of scenario-based planning approaches** – Hungary initiated the adaptation of an international scenario-based forecasting model (the „Dutch model”) presented within HEROES. Pilot application focused on a key profession (physicians), enabling the first structured exploration of future workforce supply and demand dynamics.
- **2025: Skills development** – A national training programme targeting staff involved in human resources monitoring and planning was prepared, focusing on data interpretation, modelling logic and evidence for policy feedback. The training was linked to national policy dialogue processes and designed to strengthen the analytical and strategic competencies of the core planning unit from a HWP approach. The training strengthened the capacity to interpret workforce data, understand key drivers of supply and demand, and develop forward-looking scenarios to support strategic decision-making. In addition, it contributed to improving participants' ability to link analytical outputs with policy planning processes, highlighting both the potential and the limitations of existing data for long-term workforce projections.
- **2025-2026: Establishment of national policy dialogue mechanisms** – Hungary organised its first national policy dialogue on 25 September 2025, bringing together national authorities, technical experts and sectoral stakeholders. The session reinforced the importance of data driven planning, aligned national challenges with European cooperation under HEROES, and generated consensus on future priorities. The second policy dialogue – held on 30 March 2026 – focused on establishing a shared, evidence-informed assessment of the nursing workforce situation, while identifying concrete short-, medium-, and long-term policy directions to address challenges related to workforce supply, retention and service delivery.

HEROES: Lessons learned

Adoption, implementation and upscaling of HWF Planning

Hungary's experience during HEROES highlights a transition across two phases: adoption and implementation.

During the adoption phase, the main challenge was shifting from a monitoring-based approach to a planning-oriented mindset. The AS-IS situation demonstrated that even well-developed data systems cannot support strategic decision-making without integration and analytical use.

In the implementation phase, efforts focused on improving data quality, introducing forecasting tools and strengthening institutional capacities. A key lesson was that data and models are not sufficient and their effective use requires strong analytical skills. The ability to interpret complex results and translate them into policy-relevant insights proved critical.

Country level report based on the Sustainable Workforce Intelligence Planning Systems Framework

Domain 1: Political and contextual support

The key governance authorities in the Hungarian health system are the Ministry of Interior, the National Institute of Health Insurance Fund Management (NEAK), the National Center for Public Health and Pharmacy, and the National Directorate General for Hospitals (OKFŐ). The Ministry of the Interior is the main government body responsible for overall health system stewardship, strategic direction, regulation, and governance, reflecting the increasingly centralized nature of the Hungarian health system. NEAK is the single purchaser and administrator of Hungary's statutory health insurance system and is responsible for financing nearly all publicly funded health services, although its purchasing role remains largely administrative rather than strategic. Public health, epidemiological surveillance, screening, and prevention functions are coordinated through the national public health administration, which works closely with the ministry and other central authorities. In addition, OKFŐ plays a central role in the management and oversight of public health care providers, particularly hospitals and specialist care institutions. Hungary's health system is therefore characterized by a high degree of centralization in both governance and service delivery.

The strategic importance of health workforce development is recognized in several national and international policy frameworks; however, a fully institutionalized, comprehensive health workforce planning system remains only partially developed. The Healthy Hungary 2021–2027 Health Sector Strategy and related policy documents acknowledge persistent workforce challenges, including shortages in key professional groups, ageing of the workforce, geographical maldistribution, migration pressures, and retention difficulties, especially in the public sector. Policy responses in recent years have included significant physician wage increases, efforts to improve working conditions, and broader modernisation initiatives, but these measures have not yet been embedded in a coherent medium- and long-term workforce planning framework linking education, labour market intelligence, service needs, and population health trends. Although Hungary has strong professional and academic capacity in the field of health workforce planning — including participation in European Joint Actions and WHO-related workforce initiatives — responsibility for strategic workforce planning remains fragmented across institutions, and no single body is holding full accountability for integrated health workforce forecasting and planning across the health system.

Hungary's health workforce (HWF) planning operates within a complex and multi-level governance environment. Responsibilities for health service provision, education, financing are distributed across several ministries and national institutions. This institutional fragmentation has historically limited the development of a coordinated, whole-of-system approach to health workforce planning and continues to influence the scope and pace of reforms.

The implementation of the Joint Action HEROES provided a structured framework to strengthen coordination across these policy domains and to elevate health workforce sustainability on the national policy agenda. A key milestone was the national policy dialogue organised in September 2025, which brought together representatives of the Ministry of Interior, the National Directorate General for Hospitals, the Health Services Management Training Centre and other relevant stakeholders. The dialogue facilitated a shared understanding of systemic challenges, demographic pressures and long-term sustainability risks, and highlighted the need for more coordinated, cross-sectoral governance and forward-looking planning approaches.

As part of the sustainability roadmap, Hungary identified measures to institutionalise these processes. These include the organisation of regular national policy dialogues on health workforce issues and the development of policy briefs translating analytical and modelling outputs into strategic messages for decision-makers. In addition, the establishment of a formal interministerial coordination mechanism involving the health, interior, finance and education sectors has been envisaged. This aims to ensure that health workforce monitoring (i.e. the systematic collection and analysis of workforce data) and planning (i.e. the forward-looking assessment of workforce supply and demand to support policy decisions) can become integrated and continuous components of national policy-making.

While these mechanisms are still under development, they represent important steps towards creating a more stable and supportive political environment for evidence-informed planning and for improving alignment between health, education and labour market policies.

Domain 2: Human Resources for Health (HRH) governance

Health workforce (HWF) planning in Hungary is embedded in a governance landscape where key functions - such as data collection, analysis, policy decision-making and education planning - are distributed across multiple institutions, including the National Directorate General for Hospitals, the Ministry of Interior, higher education institutions and statistical bodies. However, these functions were not integrated within a coherent planning system, and coordination between actors was largely informal and issue-specific.

In practice, workforce-related decisions were linked to specific regulatory processes rather than embedded in a comprehensive planning cycle. The most structured example was the annual determination of medical residency intake quotas, which relied on data collection and consultation. Beyond such targeted processes, no formal mechanism existed to systematically connect workforce data, analytical outputs and long-term policy objectives. As a result, governance arrangements remained fragmented, and cross-sectoral coordination — particularly between health, education and labour market actors — was not institutionalised.

Stakeholder landscape: roles, power, and interests in HWF Planning

A broad range of stakeholders can be identified in relation to HWF planning in Hungary, including governmental bodies, healthcare providers, educational institutions and professional organisations. However, their involvement in structured planning processes has historically been uneven and often limited to specific issues or consultations. While some actors play a central role in data provision or decision-making, others - despite their relevance - have not been systematically integrated into a coordinated planning framework. The distinction between formal responsibilities and actual involvement in planning processes therefore remains a defining feature of the governance landscape.

The introduction of HEROES marked an important step towards a more structured governance approach, primarily through the establishment of a policy dialogue (PD) process. This created a structured platform bringing together stakeholders from different institutions and sectors to discuss health workforce challenges. In this sense, the PD functioned not only as a discussion forum, but also as an emerging coordination mechanism within a previously fragmented system.

The policy dialogues enabled participants to exchange perspectives on workforce trends, discuss available data and analytical approaches, and reflect on potential policy directions. Importantly, they also provided a space for aligning institutional viewpoints and for gradually building a shared understanding of workforce planning concepts. While the use of analytical tools and models was still at an early stage, their introduction within the PD framework supported the integration of more forward-looking considerations into policy discussions.

Despite these developments, the governance framework for HWF planning in Hungary remains only partially institutionalised. The PD process, while effective, is currently linked to the project context and does not yet constitute a formally embedded governance mechanism with clearly defined mandates, roles and decision-making procedures. Similarly, there is still no dedicated organisational unit responsible for comprehensive HWF planning across the system.

At the same time, the HEROES experience has demonstrated the added value of structured coordination and has created momentum for further institutional development. The interaction between stakeholders during the policy dialogues, combined with increased awareness of planning approaches, has strengthened the basis for more coherent governance arrangements. In particular, it has highlighted the importance of linking technical expertise with policy-level decision-making and of creating regular interfaces between sectors.

Looking ahead, Hungary's sustainability plan outlines several measures aimed at strengthening and formalising HWF governance. A key priority is the establishment of a more structured cross-sectoral coordination mechanism, including the planned creation of an interministerial working group involving the health, finance, interior and education sectors. This is expected to support better alignment between workforce planning, education capacity and labour market dynamics, and to ensure that HWF issues remain consistently on the policy agenda.

In addition, the continuation of regular national policy dialogues is foreseen as a central element of the governance framework, building on the experience gained during HEROES. This would provide a sustained platform for stakeholder engagement, facilitate coordination across institutions and support more structured policy discussions. Plans also include the potential establishment of a dedicated planning function or taskforce, which could further strengthen coordination, continuity and methodological consistency.

Overall, Hungary's HWF governance framework can be characterised as evolving from a fragmented and predominantly reactive system towards a more structured and coordinated approach. While key elements - such as formalised coordination mechanisms and clearly defined institutional roles - are still under development, the progress achieved during HEROES, particularly through the introduction of policy dialogue, represents a significant step towards a more integrated and sustainable governance model.

Domain 3: HWF planners' capabilities

From plan to training activities, skills and competency gains during HEROES

Prior to the implementation of the Joint Action HEROES, health workforce (HWF) planning in Hungary was not institutionalised as a structured, forward-looking function. Planning activities were carried out on an ad hoc basis and were primarily limited to specific policy areas. As a result, there was no clearly defined group of HWF planners; instead, workforce-related analytical tasks were embedded within existing administrative and monitoring functions. This context is essential for understanding that many planning-related competencies have been strengthened - and in some areas newly developed - during HEROES.

The health workforce skillset defined within the project provides a useful framework for interpreting national capabilities. As reflected in the reported skill gaps table, Hungary demonstrates relatively strong capacities in data collection and analytical processing, supported by well-established administrative data systems and institutional experience in monitoring workforce trends. These competencies enable the identification of key challenges such as shortages, ageing and geographical imbalances, and form a solid foundation for further development.

At the same time, the assessment of the health workforce skillset indicates that several competencies are becoming increasingly relevant as Hungary transitions from a monitoring-oriented approach towards more structured workforce planning. In particular, skills related to anticipating future trends, strategic planning and system thinking are identified as areas requiring further strengthening. While elements of these competencies are present, their systematic application within a comprehensive planning framework is still evolving.

Similarly, the assessment highlights the need to further develop integrative workforce planning skills, which involve linking data, policy objectives and system-level drivers into coherent analytical and strategic processes. This includes the ability to translate data into policy-relevant insights and to align workforce planning with broader health system goals.

A further area of development concerns the use of modelling tools and scenario-based approaches, which are explicitly identified in the health workforce skillset as emerging capabilities. Prior to HEROES, such tools were not part of routine practice in Hungary, and forecasting activities were limited in scope. The introduction of a scenario-based planning model therefore represents a significant step in expanding analytical capacities, while also highlighting the need to strengthen competencies related to interpreting model outputs, understanding assumptions and applying results in policy contexts.

In addition, the health workforce skillset points to the growing importance of collaboration, communication and stakeholder involvement. While institutional mechanisms for information exchange existed, the HEROES process emphasised the value of structured policy dialogue and the need to communicate complex analytical results to diverse audiences. These competencies are closely linked to leadership and change management, which support the transition towards a more strategic and forward-looking planning approach.

Within HEROES, Hungary addressed these evolving capability needs through a combination of targeted training and practice-oriented learning processes. A dedicated national training programme was organised specifically for professionals engaged in human resources monitoring and analysis. The training focused on strengthening competencies related to data interpretation, understanding the logic and assumptions of forecasting models, and translating analytical outputs into policy-relevant insights. For many participants, this represented their first structured exposure to comprehensive HWF planning methodologies and to a more strategic, forward-looking approach.

In parallel, the policy dialogue process also supported the development of a shared understanding of planning approaches and methodological concepts. During national policy dialogues, the scenario-based planning model was presented in detail, including its methodological foundations, underlying assumptions and data requirements. This allowed stakeholders to familiarise themselves with the model and to discuss its potential implications for policy and future analytical work.

These discussions also contributed to identifying key development needs, particularly in relation to data availability, model application and the interpretation of results. In this sense, the policy dialogue supported not only knowledge sharing but also the gradual development of a shared understanding of planning concepts and approaches.

The health workforce skillset further informs the direction of future capacity-building efforts. Hungary's sustainability plan includes concrete actions to consolidate and further develop HWF planning capabilities, including the establishment of a small internal expert group (HWF Planning Taskforce) to ensure continuity, peer learning and methodological consistency, as well as the continuation of regular national policy dialogues to maintain stakeholder engagement and support ongoing skills development.

Overall, Hungary's experience reflects a transition from strong monitoring-oriented capacities towards a more comprehensive capability framework that integrates analytical, strategic and communication skills. As reflected in the health workforce skillset, while several key competencies - particularly those related to modelling, scenario analysis and integrative planning - are still being further developed, the progress achieved during HEROES provides a solid foundation for establishing a sustainable, evidence-informed HWF planning function.

Domain 4: HWF data and models

HWF Data: Sources

Hungary has a relatively well-developed administrative data infrastructure for monitoring the health workforce (HWF), primarily centred around the Human Resources Monitoring System (HRM), operated by the National Directorate General for Hospitals. This system integrates data from multiple sources, including healthcare providers, professional registries and education databases, covering workforce stock, demographic characteristics, specialties, geographical distribution and employment status.

In addition to these supply-side data, information on inflows and outflows - such as graduates, recognised foreign qualifications and exits from practice - is also available through administrative registries. Demand-side data are less systematically developed but include demographic indicators, population trends and selected service-related proxies. Overall, Hungary possesses a broad quantitative data base; however, their application in forward-looking workforce planning has remained limited, mainly due to fragmentation, inconsistencies in reporting methodologies and interoperability challenges.

HWF Data: improvements

During the HEROES period, important progress was achieved in improving data quality, completeness and usability. Key national registries - such as the Human Resources Register (HENYIR) and the Governmental Human Resources Decision Support System (KSZDR) - underwent review and further development, including renewed data uploads, improved validation procedures and strengthened reporting requirements. While these activities were not initiated directly within the HEROES framework, they were closely aligned with its objectives and significantly supported its implementation. Regular data reporting by healthcare providers was reinforced, and compliance mechanisms were strengthened, including planned audit processes.

Alongside these developments, greater emphasis was placed on improving data interpretation and understanding analytical limitations. Through training and policy dialogue processes, greater emphasis was placed on understanding data limitations, improving interpretation, and linking quantitative indicators with broader system-level drivers.

Despite these improvements, several challenges remain. Limitations persist in capturing dual practice and accurately measuring workforce mobility. In addition, certain relevant data domains - such as detailed working time patterns, sectoral employment distribution or skill-mix - are not yet fully available or integrated. These gaps constrain the precision of workforce projections and highlight the need for further data development.

Advanced Minimum Data Set: achievements under HEROES

Quantitative data set	Supply side					Demand side	
	Labour force	Training	Retirement***	Outflow migration	Inflow migration	Population	Health consumption****
Profession	X	X	X	X	X		
Age	X		X	X	X	X	
Head count	X	X	X	X	X	X	
FTE	X*		X				
Geographical area	X	X	X	X	X	X	
Specialization	X**	X	X	X	X		
Country of first qualification	X		X	X	X		
Gender	X		X	X	X	X	

*average FTE is estimated based on a sample, using data from the health sector's wage and staffing statistical survey.

**data on specialisation are available in the system; however, there is no information on how the activity is distributed across multiple specialisations in terms of working time.

***retirement data is not available, but the number or ratio of professionals stop practising can be calculated.

****data on health consumption are available in Hungary through multiple administrative sources. However, these data are not yet fully integrated into health workforce planning processes.

Qualitative data set	
	Care organisation
Teamwork	X
Task shifting and skill-mix	X
Reconfiguring health services including digital	X
	Health Indicators
Mortality and morbidity of HWF	X
Mental health and well-being of HWF	X
HWF equity	X
	Labour market
Financial investment, economical background	X
Performance and productivity	X

HWF Data: HEROES contributions and future directions

Hungary's sustainability plan sets out continued efforts to strengthen HWF data systems. While a significant level of integration between key registries has already been achieved, ongoing data integration processes aim to further operationalise the principle of single data entry and electronic data exchange across systems. Planned actions also include expanding data domains (e.g. mobility, training capacity and sectoral employment) and implementing a structured data quality improvement framework. These developments aim to ensure more complete, interoperable and policy-relevant data flows, supporting the transition towards regular, evidence-informed planning cycles.

HWF Planning Models: design, application and HEROES contribution to HWF Planning Models

Building on improved data availability, Hungary initiated the adaptation of a scenario-based health workforce planning model introduced within the HEROES project, based on the Dutch forecasting approach. The model was piloted using national data for physicians at national level, with a baseline year of 2024 and a projection horizon of approximately ten years.

The model applies a stock-and-flow methodology to estimate future workforce supply and demand. On the supply side, it incorporates variables such as the number of practising physicians, training duration, average full-time equivalent (FTE) activity, inflows (graduates and foreign-trained professionals) and outflows (retirement and exit from practice). On the demand side, it uses demographic indicators, including population change and ageing, as well as proxies for unmet demand, such as vacant positions. These variables are combined to estimate available and required workforce capacity and to calculate potential gaps over time.

The model also allows for the development of alternative scenarios reflecting potential policy interventions or changes in key drivers, thereby supporting a more strategic and forward-looking approach to workforce planning. At the same time, its application in the Hungarian context highlighted several methodological and data-related challenges. These include limitations in available data - such as the lack of precise information on actual employment patterns, dual practice or effective workforce participation - as well as the need to refine certain demand-side assumptions.

At its current stage, the model functions primarily as an exploratory and learning tool rather than a fully embedded decision-support system. Its introduction has contributed to building a shared understanding of workforce dynamics and to demonstrating the potential of scenario-based planning. The model was presented in training sessions and policy dialogues, where its methodological logic, data requirements and potential applications were discussed with stakeholders.

At the same time, Hungary has been developing complementary approaches to workforce planning, including an institutional staffing framework linking workforce levels to service delivery and performance. This provides a more operational perspective at provider level, complementing the strategic, long-term focus of the forecasting model.

From HEROES to Sustainability for HWF Planning

Sustainability and Policy Impact

Looking forward, the sustainability plan envisages the continued application and refinement of the scenario-based model, with the aim of integrating it into regular planning processes and extending its scope to additional professions. The model is expected to increasingly support policy development in areas such as training capacity, recruitment, retention and service organisation.

Overall, the combination of strengthened data systems and the introduction of modelling tools during HEROES represented a significant step towards a more proactive and evidence-informed HWF planning system in Hungary. However, further development of both data infrastructure and analytical capacities will be essential to fully embed these tools into routine policy-making and to maximise their impact.

ANNEX 1. STAKEHOLDER LIST

Name of stakeholder	Type of stakeholder	DATA		PROCESS AND TOOLS		SKILLS	
		I	P	I	P	I	P
Magyar Egészségügyi Szakdolgozói Kamara (MESZK) - Hungarian Chamber of Health Professionals	Society	H	M	H	H	M	L
Magyar Rezidens Szövetség - Hungarian Resident Association	Society	M	L	M	M	L	L
Magyar Orvosi Kamara - Hungarian Medical Chamber	Society	H	M	H	H	M	L
Medicina2000 - Poliklinikai és Járóbeteg Szakellátási Szövetség - Medicina2000 - Association of Polyclinic and Outpatient Professional Care	Society	M	L	M	M	M	L
Országos Kórházi Főigazgatóság - National Directorate General for Hospitals, Human Resource Development Directorate	Public Health Institute	H	H	H	H	H	H
NNGYK - National Center for Public Health and Pharmacy	Public Health Institute	H	H	H	H	H	M
Országos Mentőszolgálat - National Ambulance Service	Governmental Agency	M	M	M	H	M	L
Nemzeti Egészségbiztosítási Alapkezelő - National Institute of Health Insurance Fund Management	Governmental Agency	H	H	H	H	H	L
Magyar Ápolási Egyesület - Hungarian Nursing Association	Society	M	L	M	L	L	L
Innovációért és Felsőoktatásért Felelős Államtitkárság - State Secretariat for Innovation and Higher Education	Governmental Agency	M	M	H	H	H	H
Oktatási Hivatal (MEIK) - Educational Authority (HEIC)	Governmental Agency	M	M	H	H	H	H
Egészségügyi Világszervezet Magyarország - World Health Organization Hungary	Other	H	H	H	H	H	H
Egészségügyi Szakmai Kollégium - Health Professional College	Other	M	M	M	H	M	L
Magyar Egészségügyi Menedzsment Társaság (MEMT) - Hungarian Health Management Society	Society	M	L	M	L	M	L
Magyar Orvostanhallgatók Szövetsége - Hungarian Medical Students' International Relations Committee (HUMSIRC)	Other	L	L	L	L	L	L

Name of stakeholder	Type of stakeholder	DATA		PROCESS AND TOOLS		SKILLS	
		I	P	I	P	I	P
Budapesti Orvostanhallgatók Egyesülete - Budapest Medical Students' Association (BMSA)	Other	L	L	L	L	L	L
Magyar Kórházzövetség - National Hospital Association	Society	M	M	M	H	H	L
Magyar Gyógyszerész Kamara-Chamber of Pharmacy	Society	H	M	H	H	L	L
Központi Statisztikai Hivatal - Hungarian Central Statistical Office	Governmental Agency	H	M	L	L	L	L
Semmelweis Egyetem Egészségügyi Menedzserképző Központ (SE-EMK) - Semmelweis University Health Services Management Training Centre	Academia	M	M	M	M	H	H
Belügyminisztérium - Ministry of Interior	Governmental Agency	H	H	H	H	H	H
Pénzügyminisztérium - Ministry of Finance	Governmental Agency	M	M	M	H	H	H
Független Egészségügyi Szakszervezet - Independent Labour Union of Health Professionals	Society	M	L	M	M	L	L

Abbreviations

H	High
M	Medium
L	Low
I	Interest
P	Power

COUNTRY REPORT

LITHUANIA



6.3 COUNTRY REPORT: LITHUANIA

Introduction

National HWF Planning System before HEROES

In Lithuania, centralized responsibility for the formulation and forecasting of HWF policy lies with the Ministry of Health of the Republic of Lithuania (hereinafter referred to as “MoH”). The MoH coordinates the HWF planning process and provides evidence-based proposals regarding the scale of HPs training. National planning encompasses groups of HPs, including nursing, physicians, and other regulated professions, as well as medical residency studies.

The HWF planning system in Lithuania began to be initiated in 2013. During the 2018–2023 period, the MoH implemented major reforms to improve HWF forecasting and planning. Since 2018, a national HWF forecasting and planning model (hereinafter referred to as “Model”) based on supply and demand analysis has been in operation. The MoH participated in SEPEN, and SEPEN experts shared their experience by conducting a workshop in Lithuania aimed at improving the Model. Until 2023, the Model was managed by the Government Strategic Analysis Center (hereinafter referred to as “STRATA”). However, in 2024, the maintenance function of the Model was transferred to the MoH, and data in the Model has not been updated since then. (MoH, 2018; STRATA, 2021). (MoH, 2023).

In terms of the HWF planning process, starting in 2022, an increasing number of new professions were integrated into the HWF planning processes, leading to the establishment of two Expert Councils: one for programs and studies, and another for residency. One board of experts provides insights into the need for HPs and admission to programs. This council consists of 26 members from various doctors’ unions, associations, organizations, universities, and the MoH. The other expert council provides insights into the need for HPs and admission to residency studies, consisting of 14 members from similar representative bodies.

Prior to the meeting of the State Order Committee, these expert councils evaluate the personnel supply forecasts provided by the MoH along with additional documentation. They submit proposals for material improvement and provide data, information, and analyses regarding the current situation, numbers, and needs of the professional qualifications they represent. These expert insights are then submitted to the State Order Committee. The final decision is taken by the Ministry of Education, Science and Sport and approved by the Government.

The Model incorporates regional data and forecasts the need for HPs by profession, FTE, and demand for healthcare services. Development has also begun on the Information System of the Competence Platform of Lithuanian Health Care Specialists (hereinafter referred to as “Competence Platform”), aimed at integrating all data regarding HPs training and professional development. Despite this progress, several challenges remained prior to the HEROES activities such as a lack of integrated data accurately reflecting regional disparities, unclear distribution of responsibilities regarding the Model since 2024, and limited institutional engagement in data provision.

Currently, like many European countries, the Lithuanian Healthcare system is operating in a challenging period characterized by an aging population, an aging HWF, shortages in certain professions, and significant regional imbalances.

Data and Evidence-Based Planning

Data on HWF and HRH in the Lithuanian healthcare system are accessible through several channels. For example, some data are stored in information systems and registers, while others are collected through periodic or ad hoc surveys, targeted data collection exercises, and research.

This diversity of sources and providers poses data quality challenges and complicates HWF planning. Certain data registers and systems do not cover the full range of required data, while collection is further hindered by gaps in system functionality or regulation. In the HWF planning process, the MoH utilizes data from the State Data Agency, the Ministry of Education of the Republic of Lithuania, Science and Sport, the Ministry of Social Security and Labour, the National Health Insurance Fund under the Ministry of Health (hereinafter referred to as “NHIF”), the Board of the State Social Insurance Fund under the Ministry of Social Security and Labour (hereinafter referred to as “SSIF”), and the Institute of Hygiene, Registry of Health Care and Pharmaceutical Professionals’ Practice Licenses, Chamber of Dentists of the Republic of Lithuania.

Current datasets provide information on: the number of employees by region, gender, and age, workplace average FTE, retirement age, education dropout rates during healthcare studies, number of graduates, graduates not entering the profession, graduates starting work in the health system, average duration of studies, vacancies and wages. However, HRH systems still lack precise data on actual healthcare vacancies, wage levels by sector (public vs. private), profession, and gender, the number of graduates leaving the profession within 1 or 5 years, the number or percentage of employees leaving the profession before the average retirement age by gender and sector, and the number of HPs emigrating compared to those trained locally.

HEROES: Key Achievements

- **2024: Established the Competence Platform.** The Competence Platform, funded by the Recovery and Resilience Facility, was originally designed to store only continuing professional development data. Technical and legislative changes initiated by the HEROES team, with the support of the MoH, expanded its scope to include workload data, making it a comprehensive, high-quality data source for HWF planning and governance.
- **2024: Legislative Changes.** Legislation now requires all healthcare institutions to submit employment-related data to the Competence Platform.
- **2025: Agreement with the State Data Agency.** This agreement allows for the transfer of data required for the Model from various systems into a single analytical space within the State Data Governance Platform for analysis, forecasting, and visualization via internal and external dashboards. It is designed as a living system that will be continuously updated and used, ensuring its long-term value for workforce planning and decision-making.
- **2025: Engagement of Experts for the Model.** Experts actively analyze data imported into the State Data Governance Platform and provide insights to the MoH. These experts are tasked with integrating service delivery and skill-mix elements into the Model.
- **January/June 2026: The new project funded under the EU Funds Investment Programme 2021–2027 was officially approved, and the project agreement was signed in June 2026.** The project will ensure the continued development and improvement of the Model beyond the lifetime of HEROES. A total of EUR 2.9 million has been allocated to the project, covering a range of health workforce policy areas, including HWF forecasting and planning; HWF attraction, empowerment, and retention; the development of a national HWF strategy; and other related activities. Of this amount, EUR 389 867,62 has been specifically allocated to HWF forecasting and planning activities. HWF forecasting and planning activities under the project are expected to be launched this autumn.
- **May 2026: Data transfer.** Under the Agreement with the State Data Agency, the data required for the Model were transferred from various information systems.
- **June 2026: Development of the internal dashboard.** Under the Agreement with the State Data Agency, the internal dashboard was developed.
- **July 2026: Development of the external dashboard.** Under the Agreement with the State Data Agency, the external dashboard will be developed.

HEROES: Lessons learned

Adoption, implementation and upscaling of HWF Planning

During the implementation of HEROES, Lithuania gained significant insights into the adoption, implementation, and further scaling of HWF planning systems. A key lesson was that effective HWF planning requires not only technical models but also a shared understanding among stakeholders regarding objectives, assumptions, and limitations. Although decisions on HWF training and planning remain centralized, the June 2025 seminar on data-driven forecasting demonstrated strong interest from institutions and healthcare facilities. This event confirmed that targeted capacity building is a prerequisite for successful data-driven HWF planning at both national and institutional levels. The HEROES experience also revealed that regional and sectoral actors require consistent methodological support and competency development to ensure their active involvement in data provision, scenario analysis, and the interpretation of results. Finally, HEROES reinforced the understanding that HWF forecasting and planning is a strategic, collaborative process where transparency, shared indicators, and capacity development are pivotal factors.

The implementation of the HEROES demonstrated that project-based activities can serve as an effective mechanism for strengthening institutional engagement in HWF planning processes. A clear definition of institutional functional responsibilities, linked to specific project tasks and implementation mechanisms, created synergies among participating institutions and enabled more efficient and timely implementation of actions. The project-based approach reinforced inter-institutional cooperation, clarified roles and responsibilities, and complemented routine administrative processes with a stronger results-oriented focus. This experience confirmed that well-structured project initiatives can constitute an important precondition for further institutionalisation and scaling of HWF planning systems.

Country level report based on the Sustainable Workforce Intelligence Planning Systems Framework

Domain 1: Political and contextual support

Lithuania has a predominantly national, publicly regulated healthcare system with a mixed provision model. The system is organized and governed at the national level, with the MoH responsible for policy-making, strategic HWF planning, regulation, and oversight. Healthcare services are financed mainly through the Compulsory Health Insurance Fund, administered by the NHIF. Service provision is delivered by a mix of public and private providers, with public institutions playing a dominant role, particularly in hospital care and specialized services, while private providers are more prevalent in outpatient and primary care settings.

Since 2018 the MoH has essentially improved HWF forecasting and planning system, initiated a number of changes, that improved the quality of the processes. Nevertheless, Lithuania like other countries, faces similar HWF challenges, including HWF shortages, unequal access to healthcare services and medical deserts. It is increasingly recognized that decisions regarding HRH management must be supported by reliable data. Improvement of data is therefore fostered at both the political and inter-institutional levels.

Contextual factors such as regional disparities in service availability, the uneven distribution of HPs between urban and rural areas, increasing demand for multidisciplinary and community-based care, interfaces between the public and private sectors, mobility of HPs across these sectors, and limited data from the private sector significantly influence HWF planning.

Although, governance is centralized, effective HWF planning requires close coordination with municipalities, higher education institutions, professional bodies, and healthcare providers to ensure that national targets translate into adequate local capacity. As a result, HWF planning in Lithuania increasingly emphasizes improved data integration, long-term forecasting, and stronger alignment between health system reforms, education policy, and labour market measures.

Domain 2: Human Resources for Health (HRH) governance

In Lithuania, HWF planning is not entrusted to a single dedicated national HWF planning institute but is implemented through a distributed governance Model coordinated by the MoH. The MoH serves as the central policy authority responsible for setting strategic directions for HWF planning, coordinating key actors, and embedding HWF planning within broader health system governance and government decision-making processes.

The HWF planning process is formally regulated by a Ministerial Order adopted in 2018, which defines the procedures, roles, and decision-making arrangements for HWF forecasting and planning. Within this framework, the MoH evaluates HWF data, analytical outputs, and forecasts, and prepares proposals for the State Order regulating publicly funded study and residency admissions. These proposals are discussed within formal governance structures, including the State Order Committee and the MoH Policy Board on HWF, ensuring alignment between HWF needs, education capacity, and national health policy objectives. Since 2022, Expert Councils for study programmes and residency training have been established to provide structured stakeholder input into the HWF planning process, complementing the work of the State Order Committee.

Analytical support for HWF planning is provided through the Model, developed in 2019 and updated in 2021 and 2023 by the STRATA. While the Model remains a key evidence base for HWF planning decisions, since 2024 no institution has been formally mandated to maintain, update, or govern the Model, resulting in a governance temporary gap in terms of institutional ownership and technical responsibility. To address this gap, it is foreseen that the technical maintenance and routine updating of the Model will be transferred to the Institute of Hygiene, ensuring continuity of analytical capacity and long-term sustainability of the Model.

HWF planning relies on data supplied by multiple public institutions, including the State Health Care Accreditation Agency under the Ministry of Health (hereinafter referred to as “SHCAA”), the NHIF, the SSIF, the Institute of Hygiene, the State Data Agency, and education sector institutions. During the current transitional period, the integration of all Model-relevant datasets into a centralised national data lake administered by the State Data Agency serves as a unifying mechanism, bringing these institutions into a shared analytical and operational framework. This data integration effectively supports coordinated collaboration and continuity of HWF planning activities during the temporary absence of a single formally designated institution responsible for the Model, while contributing to the further institutionalisation of HWF planning governance.

Name of stakeholder (grouped)	Type of stakeholder	Involvement	DATA		PROCESS		SKILLS	
			I	P	I	P	I	P
Government Strategic Analysis Center	Statistics / Research Institute	Already involved	H	H	H	H	H	L
The Government	Other	Already involved	H	H	H	H	H	L
Ministry of Education, Science and Sport of the Republic of Lithuania	Ministry	Already involved	H	H	H	L	H	L
Ministry of the Economy and Innovation of the Republic of Lithuania	Ministry	Already involved	L	L	L	H	L	L
State Health care Accreditation Service under the Ministry of Health	Other	Already involved	H	H	L	L	L	L
National Health Insurance Fund under the Ministry of Health	Social Insurance Fund / Company	Already involved	H	H	L	L	L	L
The State Social Insurance Fund Board under the Ministry of Social Security and Labour	Social Insurance Fund / Company	Already involved	H	H	L	L	L	L
Lithuanian employment service	Statistics / Research Institute	Already involved	H	H	L	L	L	L

Name of stakeholder (grouped)	Type of stakeholder	Involvement	DATA		PROCESS		SKILLS	
			I	P	I	P	I	P
Institute of Hygiene	Statistics / Research Institute	Already involved	H	H	L	L	L	L
State Data Agency	Statistics / Research Institute	Already involved	H	H	H	H	H	L
Lithuanian University of Health Sciences	Academia	Already involved	H	H	H	H	H	H
Vilnius University	Academia	Already involved	H	H	H	H	H	H
Association of Local Authorities in Lithuania	Local / Regional Authority	Already involved	L	L	L	H	L	L
Association of District Hospitals of Lithuania	Local / Regional Authority	Already involved	L	L	L	H	L	L
Lithuanian Association of Hospital Managers	Society	Already involved	L	L	L	H	L	L
Lithuanian Doctors Union	Society	Already involved	L	L	L	H	L	L
Lithuanian Dental Chamber	Society	Already involved	L	L	L	H	L	L
Lithuanian organization of nursing specialists	Society	Already involved	L	L	L	H	L	L
Association of Young Doctors	Society	Already involved	L	L	L	H	L	L
Trade union of Lithuanian health care workers	Society	Already involved	L	L	L	H	L	L
Lithuanian Public Health Association	Society	Already involved	L	L	L	H	L	L
National Association of Medical Spa and Rehabilitation Centers	Society	Already involved	L	L	L	H	L	L
Lithuanian Pharmacy Association	Society	Already involved	L	L	L	H	L	L
Lithuanian Pharmaceutical Union	Society	Already involved	L	L	L	H	L	L
The Lithuanian University Rectors' Conference	Academia	Already involved	L	L	L	H	L	L
Rectors' Conference of Lithuanian University Colleges	Academia	Already involved	L	L	L	H	L	L
Lithuanian Students' Union	Society	Already involved	L	L	L	H	L	L
Lithuanian Medical Students Association	Society	Already involved	L	L	L	H	L	L
Resident Council of Lithuanian University of Health Sciences	Society	Already involved	L	L	L	H	L	L
Resident Council of Vilnius University	Society	Already involved	L	L	L	H	L	L
Lithuanian University of Health Sciences Students' Representation	Society	Already involved	L	L	L	H	L	L
Vilnius University Students' Representation	Society	Already involved	L	L	L	H	L	L

Stakeholder landscape: roles, power, and interests in HWF Planning

The stakeholder landscape for HWF planning in Lithuania is broad and multi-sectoral, combining central government institutions, data authorities, education providers, and professional organisations. While strategic authority is concentrated at the national level, particularly within the MoH and formal decision-making bodies, stakeholder engagement is ensured through expert councils and consultative mechanisms that integrate professional and educational perspectives into the HWF planning process.

The governance of HWF planning in Lithuania reflects a centralised policy model combined with decentralised data provision and consultative stakeholder engagement. The MoH holds primary responsibility for steering the HWF planning process, integrating HWF considerations into national health policy, and coordinating institutions involved in forecasting, education planning, and service delivery. Its high level of interest and power stems from its regulatory authority and responsibility for health system performance.

Decision-making authority regarding education inflows is shared with the Ministry of Education, Science and Sport and operationalised through the State Order Committee, which has high power due to its role in determining admission volumes. Expert Councils, established to broaden stakeholder participation, have high interest but more limited formal power, as their role is advisory rather than decisional.

Analytical and data-providing institutions play a critical supporting role. STRATA previously held substantial analytical responsibility through Model development and updates, while other public agencies supply essential administrative and statistical data. Their interest in HWF planning is primarily functional, linked to institutional mandates, resulting in moderate power within the system. Municipalities and local health authorities have comparatively low influence, as HWF planning decisions are taken at national level, although their operational context is indirectly reflected through service data and expert consultations.

Overall, the current governance arrangement prioritises national-level coordination and evidence-informed decision-making, while relying on structured stakeholder engagement to incorporate professional expertise and sectoral perspectives into the HWF planning process.

Domain 3: HWF planners' capabilities

In Lithuania, HWF planning is carried out through a set of interconnected institutions and expert structures performing complementary roles within a distributed governance Model. There is no single specialised national body dedicated exclusively to HWF planning. Instead, coordination is led by the MoH, in cooperation with subordinate institutions, data-holding organisations, higher education institutions and other relevant stakeholders. This institutional arrangement shapes a diverse profile of HWF planners' capabilities, combining technical expertise with broader public governance and policy competencies.

Key stakeholders involved in HWF planning include MoH departments responsible for health policy, strategic HWF planning and the State Order for education and residency training, as well as institutions responsible for data collection, management and analysis, including the NHIF and other administrative data providers. In practice, HWF planning functions are often performed alongside other responsibilities, requiring planners to integrate analytical skills with coordination, advisory and policy-oriented functions.

Data-related capabilities constitute a core component of HWF planners' skill sets in Lithuania. HWF planning relies on a wide range of administrative and statistical data sources, including HPs registries, education and training data, demographic projections and health service utilisation indicators. Relevant capabilities therefore include the ability to collect, link and analyse data from multiple sources, critically interpret indicators, and assess data quality and limitations. Equally important is the capacity to present data-driven insights in a clear and structured manner to support evidence-informed decision-making.

During the HEROES, the development of a new Model within the State Data Agency environment, based on a data lake architecture, further underscored the importance of advanced analytical and technical capabilities. Establishing the Model in a new data environment required strong skills in data analytics, data engineering and programming. To address this complexity, specialised analysts with relevant technical expertise were engaged in the Model development process, ensuring robustness, functionality and alignment with national data standards.

Modelling and forecasting capabilities represent another critical dimension of HWF planners' competencies. In the Lithuanian context, HWF planning involves assessing HWF supply and demand in the medium and long term through projections, scenarios and analytical tools informed by both national methodologies and international approaches. Beyond the technical use of models, planners require an understanding of underlying assumptions, methodological choices and the policy implications of different scenarios.

A strategic perspective is essential to ensure that HWF models remain relevant in a context of continuous change. Ongoing health system reforms, evolving policy priorities, demographic trends and labour market dynamics need to be reflected in HWF planning assumptions and scenarios. Strategic thinking therefore plays a key role in designing and updating models so that they can respond to emerging challenges rather than reflect static conditions.

This strategic orientation was reinforced through a collaborative approach to the Model development, involving HPs with diverse competencies from institutions responsible for providing data, alongside MoH experts shaping HWF policy. Such cross-institutional cooperation enabled the integration of technical expertise with policy knowledge and system-level understanding.

In addition to technical and strategic capabilities, soft skills play an important role in the Lithuanian HWF planning context. Effective inter-institutional collaboration, communication with diverse stakeholders and the ability to align different perspectives are essential within a distributed governance setting. Overall, the current situation indicates that HWF planners' capabilities are shaped by a balanced combination of data-related, modelling, technical, strategic and collaborative skills, providing a solid foundation for further development of HWF planning.

To strengthen the competencies required for improving HWF planning processes and further developing the Model, targeted trainings and conferences were organised during the HEROES. These capacity-building activities were closely aligned with the themes and priorities highlighted during the national conference "Health Workforce Planning: European and Lithuanian Context"³, which brought together a broad range of stakeholders involved in HWF planning.

The main capacity-building event was organised on 5 June 2025 by the MoH, the NHIF and the SHCAA. The conference gathered 357 participants from 208 invited institutions, including representatives of the MoH, the NHIF, other governmental bodies, healthcare institutions, municipalities and professional associations, ensuring a broad intersectoral and multi-level perspective. The structure of the event combined high-level policy presentations, international expert contributions and practical institutional-level guidance.

3 [HEROES \(HEalth woRkfOrce to meet healht challEngeS\) projektas - Lietuvos Respublikos sveikatos apsa...](#)

Contributions from the European Commission and international partners provided a European strategic and methodological perspective, while national experts presented the Model, the development of the Competence Platform as a centralised data system, and practical HWF planning tools applicable at healthcare institution level. The programme integrated strategic discussions, methodological approaches to data governance and forecasting, and step-by-step guidance on institutional HWF planning, including needs assessment, gap analysis and action plan development.

Training activities focused on strengthening strategic understanding of HWF challenges in the context of demographic change, HWF ageing, regional disparities and ongoing health system reforms, while reinforcing the role of data-driven HWF planning as a core foundation for informed decision-making. Emphasis was placed on the use of integrated, high-quality data, national registries and analytical tools for HWF forecasting, as well as on linking HWF planning outputs to policy development and implementation processes at national and institutional levels. The format also enabled participant engagement through structured feedback collection and follow-up responses to questions raised during the event.

According to the post-event evaluation survey, 82% of those who completed the questionnaire indicated that the conference contributed to strengthening their HWF planning competencies, while 88% of respondents expressed interest in receiving additional information on HWF planning instruments. These results confirm both the relevance of the topics covered and the clear demand for continued and more in-depth capacity-building activities in the field of HWF planning.

The trainings delivered during HEROES contributed to reinforcing analytical, strategic and applied HWF planning skills among different stakeholder groups, including policy-makers, analysts and healthcare institution representatives. An important contribution to skills development was provided through the sharing of international experience and expert knowledge by specialists and researchers from AGENAS, NIVEL and SU. Participants strengthened their ability to interpret HWF data, understand forecasting instruments, and apply HWF planning approaches at institutional level, including the development of action plans for HWF attraction, retention and skills development. Due to time and resource constraints, the scope of the trainings was focused on priority areas, including data governance, analytical and forecasting capacities, and strategic and policy-oriented HWF planning skills. They nevertheless provided a shared conceptual framework and practical orientation for further capacity development. The strong demand for additional information and tools expressed by participants underscores the importance of continued training beyond the project timeframe. Accordingly, further capacity-building activities are foreseen following the completion of HEROES, supporting sustainability by embedding HWF planning competencies into ongoing institutional practices and intersectoral collaboration.

Domain 4: HWF data and models

HWF Data: Sources

HWF and HRH data of the Lithuanian health system are available through several national information systems and administrative data sources. Almost all HWF and HRH data are provided by public authorities. The main data providers are the SHCAA (Licensing Information System of Health Care Institutions (LICREG) and the Competence Platform), the NHIF (Mandatory Health Insurance Information System SVEIDRA and its subsystems), the SSIF (employment, dismissal and social insurance data), the Institute of Hygiene (non-financial health statistics and data on HPs), the State Data Agency (demographic, social and macroeconomic statistics), and the Ministry of Education, Science and Sport together with the National Agency for Education (data on healthcare students and graduates). Supply-side data include stock, demographics, education, licensing, employment, remuneration, migration and retirement of HPs. Demand-side data are mainly based on population structure, provided healthcare services, health consumption and employment capacity, and are used in national HWF forecasting and planning.

As part of the revision of the AMDS table completed in 2024, Lithuania made some updates and clarifications in the quantitative and qualitative data sets used in the Model during the HEROES years. In line with the AMDS supply structure, the Model of the STRATA uses individual data (registration information, qualification, licensing, and residency), aggregated numbers of obtained qualification from universities, number of currently inactive health professionals returning to practice, data on students, drop-out rates and graduates, as well as stock data for a broad range of health professionals by region, gender and age. Mobility data are included through reporting to the OECD database of health professionals since 2014, covering inflow of foreign born and foreign trained physicians and nurses and monitoring outflow of physicians and nurses. In line with the AMDS demand structure, the Model uses aggregated data on demographic evolution of the population, capacity of hospital facilities, health consumption information and employment data, including the number of filled and vacant positions, with demand data available from a NHIF information system in the form of provided health care services. Beyond quantitative data, qualitative information has been increasingly used following the HEROES work. This allows the alignment with the AMDS qualitative dimensions and integration of data on care organization, data from surveys, expert insights and strategic plans to assess drivers of change related to service reorganization, task distribution, team-based care and digitalisation. Furthermore, qualitative information on HWF morbidity and mortality is used to better understand sustainability pressures, and labour market dimensions. Qualitative data are also used to assess the impact of financial investments, economic context, productivity and employment conditions, although these qualitative elements are still only partially integrated into the formal modelling framework.

In addition, the Competence Platform introduces a legally mandated obligation for all health care institutions to provide employment-related data according to a unified list of positions and departments. This enables the collection of standardised and up-to-date information on professional activities, workloads and organisational structures, addressing long-standing fragmentation and non-unified reporting practices. The unified classification significantly improves comparability and usability of data for both quantitative and qualitative HWF planning.

Advanced Minimum Data Set: achievements under HEROES

During the HEROES, Lithuania implemented several key actions to strengthen HWF data availability, quality and policy relevance. A comprehensive review and mapping of existing HWF data sources was conducted, identifying data gaps, overlaps and quality issues across institutions and clarifying institutional responsibilities for data provision and use.

A major achievement was the initiation of the migration of the Model from an Excel-based environment to the Data Base (Palantir / Contour) system of the State Data Agency (hereinafter referred to as “the Data Base”). This system functions as a national data lake and allows direct, regular and standardised integration of data from national registers. While the previous Model already relied on a broad package of quantitative data, the migration to the Data Base is expected to significantly improve data quality, consistency and transparency, enabling systematic validation, version control and long-term sustainability of the Model. In addition, this transition eliminates the need for fragmented and manual data extraction procedures, strengthening the reliability of the Model outputs for policy use.

Significant progress was also made in the development of the Competence Platform, which integrates data from the SHCAA, NHIF, SSIF and other institutions under the coordination of the MoH. The Competence platform enables unified identification of HPs and collection of data on positions, departments, employment structures expressed in FTE and professional competencies. These data are planned to be fully integrated into the Model, supporting forecast validation, reporting and quality assessment. Their integration will represent a substantial methodological improvement, allowing HWF availability to be assessed beyond headcounts and supporting more realistic and comparable projections across professions and care settings.

In parallel, the scope of data collection within the Competence Platform is being expanded to include information on nurses' specialisations. While previous HWF planning focused mainly on aggregated professional categories, the availability of specialisation level data will allow Lithuania to progressively develop forecasts for nursing specialisations, responding to emerging service delivery needs, skill-mix changes and organisational transformations in healthcare. This marks an important step towards more granular and policy-relevant HWF planning, particularly in areas such as advanced nursing practice and specialised care.

On the demand side, Lithuania approved a national methodology for determining the need for healthcare services financed by the Compulsory Health Insurance Fund. This methodology allows forecasting service needs for a five-year period and represents an important step towards integrating service demand forecasts into HWF planning. During the HEROES, initial actions were launched to strengthen the functional linkage between healthcare services and HPs, creating the analytical basis for integrating service demand forecasts into the Model and improving the internal consistency and realism of HWF projections.

Overall, HEROES supported Lithuania in transitioning from a fragmented and partially static data environment to a more integrated, dynamic and policy-oriented HWF data system.

Building on an already extensive data base, the focus of the new Model shifts from expanding data volume to enhancing data quality, interoperability and analytical usability. The migration to the Data Base system, combined with the progressive integration of FTE data and professional specialisations, lays the groundwork for a more mature and sustainable HWF forecasting framework capable of supporting strategic decision-making in the medium and long term.

Alongside quantitative improvements, qualitative data use has expanded as a result of HEROES bilateral meetings and practise sharing. Qualitative information is now systematically considered in three domains. In care organisation, information on teamwork, task shifting, skill mix, service redesign and digitalisation is collected through surveys, expert councils and strategic HWF planning documents. In health indicators, data on mortality, morbidity, mental health, well-being and equity of the HWF are used to identify drivers of change. In labour market dimensions, qualitative information on financial investment, economic context, productivity and performance is used to support scenario development and policy discussions, although further integration into formal forecasting processes is still needed.

Quantitative data set	Supply side					Demand side	
	Labour force	Training	Retirement	Outflow migration*	Inflow migration	Population	Health consumption
Profession	X	X	X	X	X		
Age	X	X	X	X	X	X	X
Head count	X	X	X	X	X	X	X
FTE	X						X**
Geographical area	X	X	X	X	X	X	X
Specialization	X	X	X	X	X		
Country of first qualification	X	X	X	X	X		
Gender	X						

*The only data available is from OECD an only for physician and nurses.

**Partially.

Qualitative data set	
	Care organisation
Teamwork	X
Task shifting and skill-mix	X
Reconfiguring health services including digital	X
	Health Indicators
Mortality and morbidity of HWF	X
Mental health and well-being of HWF	X
HWF equity	X
	Labour market
Financial investment, economical background	X
Performance and productivity	X

Data available and used for planning
Data available but not used for planning
Data not available but needed for planning
Data available but needs improvement*
Data available/included as a result of HEROES

*Data available and partially are used but needs improvement

Ensuring sustainability of HWF data and models is a key priority for Lithuania after the HEROES ends. One critical task is the transfer of responsibility for maintaining and updating the Model following the government decision that STRATA is no longer performing this function from 2024 onwards. Establishing clear institutional ownership, governance arrangements and dedicated capacities is essential for continuity.

The migration of the Model to the Data Base system will continue, aiming to create a “live” Model environment with automated data updates from national registers. Training activities are planned to strengthen analytical capacity and ensure effective use of the Model in policy-making.

The Competence Platform became operational at the beginning of 2025. Its further development includes broader coverage of verified employment data, improved identification of migrant health professionals, standardised classification of positions and departments, and stronger linkage between health professionals and healthcare services. These improvements support competency-based HWF planning, analysis of skill-mix, task shifting and workload distribution.

Future plans also include the development of centralised and standardised vacancy data. A mechanism for publishing job advertisements accessible to all health professionals and a tool for collecting real-time vacancy information from healthcare institutions are envisaged. These data will strengthen assessment of current gaps between supply and demand and support more responsive HWF planning. Strengthening stakeholder co-ownership and integration of HWF data with broader health system planning remain central sustainability actions.

HWF Planning Models: design, application and HEROES contribution to HWF Planning Models

The HWF planning system has been operating in Lithuania since 2013. It is based on data and the Model that was established in 2019. Until 2023, STRATA was the responsible institution that updated (2021 and 2023) the Model and prepared a forecast of the need for HPs. The MoH initiated establishment (2019) of the Model and the updates that are used in discussions and in decision making. The HWF forecasting and planning system is issued in the order (No. V-1495, 2018-12-21) by the Minister of Health.

The Model operates at the national and regional levels. The Model currently includes these healthcare specialties: 58 medicine specialties (residency), 6 odontology specialties (residency), medicine specialty (integrated studies), odontology specialty (integrated studies), pharmacy specialty (integrated studies), 3 odontology specialties (bachelor), nursing specialty (bachelor), midwifery specialty (bachelor), pharmacotechnician specialty (bachelor), 5 specialties of medical technologies (bachelor), 2 rehabilitation specialties (bachelor), nutrition specialty (bachelor), 3 public health specialties (bachelor), assistant to nurse specialty (vocational studies), paramedic specialty (vocational studies).

The following data is currently available in the information systems: stock by regions, by gender and by age, place of work, average number of FTE, retirement age, education, drop-out rate of students in health care during training, graduated, number of students in health care graduated not entering the occupation, number of graduated students, who start working in the health care system, the average number of years to graduation, job vacancy, remuneration, health worker migration, other.

The Model contains various scenarios, e. g. impact of workload on the need for health professionals, the need for service development, health care institutions network transformation, strategic changes in care delivery policy, retirement, exit from the healthcare sector (without retirement), employability of graduates, return of inactive health professionals to the market.

The Model uses data of actual (provided) health care services. This Mandatory Health Insurance Information System SVEIDRA data is provided by the NHIF. In 2023, the methodology for determining the need for health care services paid for by Compulsory Health Insurance Fund was approved in Lithuania. According to the methodology, the need for health care services will be forecasted for 5 years.

The following data is currently not available in the HRH information systems: accurate HWF vacancy rates, because currently health care institutions selectively provide data to the MoH. One of the most important improvements needed in this forecasting of health professionals is to link provided health care services as accurately as possible with the health professionals who performed them.

The model is regularly used for HWF planning and for determining both state-funded and non-state-funded study positions in the healthcare sector. Additionally, the forecasting results are frequently used to support data-driven decision-making. The Model forecasts the current demand and supply for health occupations, is used for planning of the training inflow, simulates the effects of labour market policies.

Considering the fact that in Lithuania, different institutions for different purposes administer various HRH or other data necessary for the HWF planning system, in 2022 it was decided to integrate this data by creating a new information system. The Competence platform will enable competency-based HWF planning and improve data quality. The Competence Platform was established at the beginning of 2025. It was decided to collect data on the professional activity of health professionals, i.e. data on their assignment to institutions, departments, position and workloads.

Responsibility for the Model will be transferred from one organisation to another. From 2024 onwards, a government-level decision was taken that STRATA will no longer update the Model, and during the HEROES a new responsible organisation was identified.

The current Model (currently in Excel format) is being migrated to the Data Base system. In this new environment, data are being uploaded directly and regularly from national registers, effectively making the Model a “live” system. The Model is being integrated into the national statistical database to ensure stable, secure, and sustainable data management.

The migration of the Model to the Data Base will ensure high data quality, as it enables direct integration of data from various national registers. In parallel, Action 1 (Competence Platform) focuses on dialogue with employers to encourage the provision of complete and high-quality data on the professional activities of HPs, while Action 2 (Healthcare services data) involves engagement with the NHIF to define the necessary sample of healthcare service data.

At the same time, the analytical competencies of the Model maintainers were strengthened through consultations with NIVEL and SU, and the scope of the Competence Platform was broadened by expanding data coverage and integrating verified employment datasets. In addition, Order No. V-1495 of 21 December 2018 has been revised and will be amended by the end of 2026, with all policy improvements developed through HEROES being fully integrated.

From HEROES to Sustainability for HWF Planning

Sustainability and Policy Impact

Lithuania's approach to sustaining and evolving its HWF planning system is anchored in a series of strategic actions developed through collaboration within HEROES. The core milestones: the Competence Platform launch, the Data Base integration, and Policy dialogue – mark key pillars of long-term sustainability. On top of the establishment of the Competence Platform, and transfer of the Model to the Data Base, governance and quality assurance structures will be reinforced through an inter-institutional working group and legal adjustments to clarify institutional roles.

The policy dialogue process significantly enhanced sustainability by engaging stakeholders, employers, data institutions, and decision-makers in shaping system reforms and data responsibilities. These dialogues enabled consensus on strategic priorities, enhanced mutual accountability, and increased stakeholder buy-in for forthcoming changes. Actions such as securing high-quality data linkages (with NHIF), clarifying job profiles, and forecasting based on actual service provision are now embedded in national HWF planning trajectories. This inclusive approach has already improved data ownership, forecasting accuracy, and institutional alignment.

Looking forward, sustainability will be ensured by embedding these processes into legislation, establishing a cross-sectoral governance framework, and reinforcing planners' competencies through ongoing capacity building. Lithuania's commitment to institutionalizing these reforms positions the country for a resilient, evidence-based HWF planning future.

Lithuania – Benefits and Achievements of the HEROES Project

HEROES has provided to Lithuania

1. International collaboration and direct access to high-level expertise from the European Commission, WHO and 19 EU countries in the field of HWF forecasting,
2. Direct expert support for model optimisation, data improvements, continuous technical assistance and bilateral learning. Lithuania has held 4 bilateral sessions and launched training activities with experts from the NIVEL during which gain experience and strengthen the competencies to effectively update the healthcare workforce forecasting model,
3. The opportunity to strengthen the national HWF forecasting team, expand its competencies, and attract new members,
4. International legitimacy that reinforces policy-level arguments on the need for investment in forecasting capacity and data systems (strengthened the national ability to advocate for a sustainable forecasting model).

Sustainability Aspects goals

1. Ensuring the availability and continuous improvement of high-quality data,
2. Ensuring the continuous and reliable functionality of the Model, accompanied by the regular and systematic integration of updated data from the national statistical database into the Model,
3. Continuous professional development and strengthening of the expert team responsible for maintaining and updating the Model, through capacity building, formation of working groups and integration of new members,

Key Achievements / Milestones / Next Steps

1. The Model (in Excel format) is migrated to the Data Base system managed by the State Data Agency, Model migration will ensure high data quality, as the system integrates information directly from various national registers,
2. At the national level in January 2025, initiation of the collection of detailed data related to employment status in the Competence Platform (by workload, by professional qualification, by position and assignment of specialists to departments),
3. Current legislation requires all healthcare institutions to submit employment-related data to the Competence Platform,
4. National specialists strengthened their planning competencies through HEROES training activities and bilateral meetings,
5. The first event and training session was organized on June 5, 2025. The event was successful: 357 participants attended, 7 presentations were delivered, and 82% of survey respondents reported that they increased their competencies in healthcare workforce planning at the healthcare institution level,
6. Ongoing training with the NIVEL experts is building national capacity for the Model updating and use of the national data system,
7. The new project funded under the EU Funds Investment Programme 2021-2027 was officially approved in January 2026, and the project agreement was signed in June 2026. The project will ensure the continuous development and improvement of the Model beyond the HEROES,
8. Under the Agreement with the State Data Agency, the internal dashboard was developed in June 2026,
9. Under the Agreement with the State Data Agency, the external dashboard will be developed in July 2026,
10. Order No. V-1495 of 21 December 2018 has been revised and will be amended by the end of 2026 to fully integrate all policy improvements developed through the HEROES project.

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NOTES AND EXPLANATIONS

Palantir (Contour): A national data integration platform used by the State Data Agency to enable real-time data processing, integration, and analytics across administrative datasets.

SVEIDRA: The national Mandatory Health Insurance Information System administered by the National Health Insurance Fund, used to collect data on healthcare services provided.

LICREG: Licensing Information System of Health Care Institutions, used to manage and monitor licensing data of healthcare providers and HPs.

COUNTRY REPORT

POLAND



6.4 COUNTRY REPORT: POLAND

Introduction

National HWF Planning System before HEROES

Poland did not participate in previous EU initiatives on health workforce planning and HEROES was the first opportunity. Healthcare workforce planning in Poland is primarily conducted at the strategic level and is supported by conclusions and recommendations developed at the national and regional levels. It is crucial to align the healthcare system's human resources with the current and projected healthcare needs of the population, while ensuring sustainable and coordinated spending of public funds.

The Healthcare Needs Map, developed and updated by the Minister of Health in accordance with Article 95a of the Act on Healthcare Services Financed from Public Funds, includes demographic and epidemiological analyses, as well as analyses of the status and utilization of healthcare system resources, including medical personnel. It also identifies systemic challenges and recommends measures at national and regional levels.

The National Transformation Plan and Regional Transformation Plans are based on the Healthcare Needs Map. The National Transformation Plan, prepared by the Minister of Health, outlines long-term directions for healthcare system modernization, including actions related to medical personnel. The Regional Transformation Plans are implementation-oriented and adapt national goals to regional conditions, indicating health needs, planned activities, responsible entities and expected results.

Human resources planning in healthcare in Poland is implemented within a multi-level system, encompassing actors operating at the national and regional levels. This system is mixed, combining elements of central strategic planning with distributed decision-making at the regional level. A key role is played by the Minister of Health, who — in accordance with the Act on Healthcare Services Financed from Public Funds — is responsible for developing and updating the Health Needs Map and preparing the National Transformation Plan. These documents outline strategic directions for action in the healthcare system, including in the area of medical staffing, based on demographic, epidemiological, and resource utilization analyses, including those of medical personnel.

The Ministry of Education and Science is also a key actor, responsible for higher education policy, including decisions regarding the creation and operation of medical training programs. These activities influence the supply of future medical personnel, and one of their goals is to increase the number of graduates of medical programs and other medical professions. However, the link between educational policy and healthcare needs analyses is indirect. At the regional level, voivodes are responsible for developing Regional Transformation Plans, which identify regional health needs and challenges, including those related to medical personnel, and indicate planned actions, responsible entities, and expected results.

From 2020 to 2023, the health care workforce planning process in Poland was based on previously developed strategic tools, particularly the Health Needs Map and the National and Regional Transformation Plans. Pursuant to the Act on Publicly Financed Healthcare Services, the Health Needs Maps constituted a fundamental analytical tool for identifying priority health needs and organizational challenges within the healthcare system. They included demographic and epidemiological analyses, as well as analyses of the status and utilization of system resources, including medical personnel, enabling the assessment of staff availability and regional variations. At the national level, the National Transformation Plan played a key role, developed by the minister responsible for health, taking into account the recommended measures resulting from the Health Needs Map and other strategic documents. The National Transformation Plan outlined long-term directions for modernizing the healthcare system, including actions related to medical staffing, aimed at improving the accessibility and efficiency of healthcare services.

HEROES: Key Achievements

- **2024–2025: Comprehensive analysis of medical staff in primary healthcare in Poland** – In 2024–2025, Poland prepared an analytical report on medical staff working in primary health care (PHC). The study covered the functioning of primary health care (PHC), a detailed analysis of the employment structure of physicians, including by specialization and geographic distribution, as well as that of nurses and midwives. The report included an analysis of the age structure of family medicine specialists based on various sources, education, and generational replacement.
- **2025: A review of the literature and scientific articles on the competencies of nurses and midwives in an international context** – In 2025, work began on a project to review the international literature regarding nurses and midwives. A healthcare management expert was engaged to carry out the work, and their support was crucial for developing the methodological approach and the structure of the analysis. The material was based on a review of available literature, including national and international sources, concerning the scope of competencies and changes in the professional roles of nurses and midwives. The literature review was supplemented by the results of qualitative research in the form of interviews with nurses and midwives, conducted as part of a separate project funded by European funds³. This material allowed for a better reflection on the actual scope of tasks performed and the identification of areas where professional competencies are being expanded or redefined in practice.
- **2025: analysis of specialization place allocation in the context of future staffing needs** – In 2025 a preliminary analysis of the principles for allocating specialization places in Poland was prepared. The analysis revealed a significant disparity between the number of medical graduates and the number of available specialization places, showing that the freedom of young doctors to choose their specialization is not always in line with the projected needs of the system. This study represented a significant step towards a more strategic and data-driven approach to planning specialization education, focused on meeting the long-term health needs of the population.
- **2025–2026: Training courses for regional medical personnel planners** – In 2026, four regional meetings (for regional offices) and one central meeting (for national-level institutions and entities) were organized. The aim of the workshops was to familiarize stakeholders with analyses of the allocation of residency positions, identify trends and directions that could help address health policy challenges (including changes in the medical residency training system). The workshops were very well evaluated. The meetings covered analyses and conclusions regarding the generational replacement of medical specialists and postgraduate education, which were the subject of the presentation.

HEROES: Lessons learned

Adoption, implementation and upscaling of HWF Planning

The implementation of the HEROES project in Poland confirmed that effective medical workforce planning cannot be viewed solely as a national process but requires strong regional roots. Analyses conducted as part of the project revealed significant variation across the country's 16 regions in terms of staffing structure, specialist availability, and the allocation of specialization training slots. While the national level remains crucial for defining the strategic framework, it is the regional level that proves decisive for identifying actual staffing needs and responding to local needs stemming from demographic, organizational, and historical conditions.

One of the most important conclusions of the HEROES project is the importance of systematically informing, engaging, and building the competencies of stakeholders responsible for medical workforce planning, particularly at the regional level. Sharing analyses of health workforce supply and specialization placement helps better understand challenges and supports a shift toward data-driven decision-making. Educating regional decision-makers in this area is essential for reducing persistent disparities between regions and gradually moving them towards more sustainable levels of staff availability.

The HEROES project also highlighted that health workforce planning is closely linked to the analysis of professional competencies and the changes occurring in the roles and responsibilities of individual professional groups. The initiation of work on a competency matrix, particularly for nurses and midwives, allowed for a better understanding of the actual scope of activities performed, the evolution of competencies in recent years, and the potential for further changes in the skill mix. The developed material will aid in the effective implementation of the skill mix in the future, focusing on better utilization of competencies.

Another significant HEROES deliverable was the in-depth analysis of primary healthcare staffing, which confirmed its fundamental role in the healthcare system as the first point of contact for patients. A better understanding of the functioning of primary health care, both in terms of staffing and organization, enables the identification of areas particularly vulnerable to future shortages and simultaneously highlights elements of the system that are functioning effectively. This analysis strengthened the foundations for long-term, sustainable health workforce planning in Poland, based on data, competences, and taking into account regional differences.

Country level report based on the Sustainable Workforce Intelligence Planning Systems Framework

Domain 1: Political and contextual support

The Polish healthcare system is mixed, based on universal health insurance financed by contributions and administered by the National Health Fund (NFZ), consistent with the Bismarck model. This system combines a strong public sector with a developed private sector. Although, financing is largely centralized, its organization remains decentralized, which influences the way medical personnel is planned.

Health workforce planning in Poland is primarily centralized. The Ministry of Health is responsible for key staffing decisions, including setting admission limits for medical studies and determining the number of residency positions. The process is supported by the Health Needs Map and data obtained from professional self-government registries, such as the Supreme Medical Chamber and the Supreme Chamber of Nurses and Midwives. These tools provide an analytical foundation; however, they do not always directly translate into policy decisions. It should also be noted that regional offices are key actors in the system, as they participate in the process of allocating specialization training positions.

A significant contextual factor is the organizational decentralization of the system and the fragmented ownership of healthcare entities, including hospitals run by counties, regions, and universities. This fosters competition for medical personnel and deepens regional disparities, leading to concentration of personnel in large urban areas and shortages in peripheral areas. The managerial autonomy of healthcare entities and the prevalence of civil law contracts further complicate coherent and long-term workforce planning.

Domain 2: Human Resources for Health (HRH) governance

In Poland, there is no separate, specialized institution solely responsible for comprehensive health workforce planning. Tasks related to medical workforce planning are embedded within the structures of the Ministry of Health and are carried out by the relevant substantive departments. This planning focuses primarily on quantitative aspects of workforce supply, such as determining enrolment limits for medical and dental degree programmes and the number of residency positions in individual specialties.

The Ministry of Health plays a key strategic role, supported by analyses based on the Health Needs Map and data from the registers of professional self-governing bodies. . Other important stakeholders include the Ministry of Education and Science, which is responsible for higher education; voivodes (regions governors), who develop Regional Transformation Plans; and local governments, which act as founding bodies for hospitals.

Stakeholder landscape: roles, power, and interests in HWF Planning

The table below shows the key stakeholders in the Polish HWF planning process.

Name of stakeholder	Type of stakeholder	DATA		PROCESS		SKILLS	
		I	P	I	P	I	P
Department of Analysis and Strategy (POLAND JA HEROES TEAM)	MoH	H	H	H	H	H	H
Department of Medical Personnel Development	MoH	H	H	H	H	H	H
Statistics Poland	Statistics / Research Institute	H	H	L	L	L	L
Izba Lekarska	Medical Chambers	H	H	H	H	H	L
Izba Pielęgniarek i Położnych	Chamber of Nurses and Midwives	H	H	H	H	H	L
Izba Diagnostów Laboratoryjnych	Chamber of Laboratory Diagnosticians	H	H	H	H	H	L
Izba Fizjoterapeutów	Chamber of Physiotherapists	H	H	H	H	H	L
Dolnośląski Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L
Kujawsko-Pomorski Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L
Lubelski Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L
Lubuski Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L
Łódzki Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L
Małopolski Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L
Mazowiecki Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L
Opolski Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L
Podkarpacki Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L
Podlaski Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L
Pomorski Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L
Śląski Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L
Świętokrzyski Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L
Warmińsko-Mazurski Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L
Wielkopolski Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L
Zachodniopomorski Urząd Wojewódzki	Local / Regional Authority	H	H	H	L	H	L

With the Ministry of Health playing a key and central role in medical workforce planning in Poland, the process is highly centralized, with core responsibilities concentrated primarily in two organizational units: the Department of Analysis and Strategy and the Department of Medical Staff Development, which perform complementary, but clearly delineated functions.

The Department of Analysis and Strategy is responsible for providing the analytical and evidence base for health workforce planning. Its responsibilities include collecting and processing data, developing statistical analyses, and designing analytical and forecasting models related to both the supply of and demand for medical staff. These activities include, among other things, analyses of workforce structure, forecasts of workforce shortages, and studies on the allocation of specialization training positions, which provide key substantive input for further planning decisions. The Department of Medical Staff Development is responsible, among other, for managing matters related to the practice of medical professions such as: (1) cooperating with professional self-governing bodies of medical professions in the area of granting professional licenses, including initiating and conducting legislative work in cooperation with the relevant substantive organizational units, (2) managing matters related to the implementation of residency training for physicians and dentists, as well as specialization training for nurses and midwives, and (3) managing matters related to establishing admission limits for medical and dental study programs.

Professional associations and professional chambers also play a significant role in the human resources planning system, serving as a key source of administrative data regarding the number, structure, and professional characteristics of medical personnel. This data enables the Department of Analysis and Strategy to develop indicators, analyses, and models with high cognitive value, which can then be effectively used in the planning processes conducted by the Department of Medical Personnel Development.

Another key stakeholder group are the regional offices, responsible for implementing selected elements of medical personnel planning at the regional level, particularly reporting needs for specialization training places. This role makes the regional administration a key link between central decisions and regionally specific staffing needs. In this context, systematic information provision, training, and strengthening the competences of regional offices in interpreting analyses and procedures developed at the central level are particularly important. These activities are essential to ensure the consistency, effectiveness, and data-driven nature of medical staff planning across the country.

Domain 3: HWF planners' capabilities

The experience of the HEROES project in Poland has clearly demonstrated that having data and analyses is not enough for effective healthcare workforce planning. The competencies of those who use the data, interpret it, and make decisions based on it are crucial. This applies to both the central and regional levels, although the scope of needs and challenges at these two levels differ significantly.

At the central level, planning competencies are concentrated primarily within the Ministry of Health, in particular in the Department of Analyses and Strategy and the Department of Medical Workforce Development. The Department of Analyses and Strategy serves as the analytical backbone of the system. It is at this level that reports are produced showing the structure of the workforce in Poland, demographic trends, areas at risk of shortages, and the potential long-term consequences of current decisions. The Department of Medical Workforce Development, in turn, uses these analyses in practice by translating them into actions related to education planning, the organization of specialization training, and other key elements of health workforce policy.

Regional offices constitute a level of governance that is closely familiar with the needs and conditions of their respective regions. Analyses demonstrated that planning competencies at this level are highly diversified. In many cases, decisions are made based on experience, established practices, or current needs, and to a lesser extent on in-depth data analysis or long-term forecasting. This does not stem from a lack of commitment, but rather from limited access to analytical tools and insufficient space for collective reflection on analytical findings.

In 2026, a total of five workshop meetings were organized, including four regional meetings (for regional offices) and one central meeting (for institutions and entities at the national level). The aim of the workshops was to familiarize stakeholders with analyses regarding the allocation of residency positions and to identify trends and directions that could help address health policy challenges, including changes in the medical residency training system. The meetings also included a presentation of analyses and conclusions regarding the generational turnover of medical specialists and postgraduate education. The workshops were very well received by the participants.

The meetings delivered tangible and valuable outcomes, primarily by enabling the establishment of a meaningful dialogue among key system stakeholders. During the workshop, the results of analyses regarding the distribution of residency positions were presented, highlighting areas requiring urgent intervention, such as the acute shortage of specialties (especially in general surgery and internal medicine).

The workshops provided an invaluable opportunity for in-depth discussion of the current challenges related to the allocation of residency positions in Poland. They not only allowed for the identification of problems but also enabled a multifaceted discussion on these issues from the perspective of various stakeholders in the system. A particularly important element was the opportunity to hear from stakeholders-representatives of communities directly involved in the system's operation, which allowed for a better understanding of their experiences, opinions, and expectations, going beyond the institutional perspective.

Additionally, during the workshops, a range of practical information was gathered that had not previously been available through systemic analyses. This information stemmed from the stakeholders' daily practices and their direct knowledge of regional conditions, including specific problems occurring in different parts of the country. The feedback obtained was invaluable and significantly enriched the overall assessment of the situation, constituting an important contribution to further efforts aimed at improving the system of specialty training placement distribution.

Domain 4: HWF data and models

HWF Data: Sources

Data on the medical workforce is obtained from a variety of sources, including the National Health Fund (NFZ), the Central Register of Medical Workers (physicians, dentists, nurses, midwives, pharmacists, physiotherapists, laboratory diagnosticians), professional chambers, the Medical Workers' Education Monitoring System, and the Social Insurance Institution (ZUS). Data from these sources is collected on average once a year, or more frequently depending on needs, and allows for ongoing updates on the supply of medical personnel in the years analysed. It is worth noting that the Department of Analysis and Strategy also uses other data not strictly related to medical personnel, such as prescription data, which allowed for estimating the size of the private market despite the lack of complete data from this sector.

The first step in analysing the professional active medical workforce is to verify data from the Central Register of Medical Workers (as of the last quarter of the year) and the social insurance database and identify the entities insuring individuals (including self-employed individuals). The Central Statistical Office allows assign addresses to employers. This methodology raises the issue of identifying the workplaces of self-employed individuals. Data from the RPWDL (Register of Entities Performing Medical Activity) and the Central Statistical Office allowed to determine whether a given entity insuring a medical employee performs medical activity. Demographic data used for the calculations comes from the Central Statistical Office database (as of December 31st of the given year).

The Department of Analysis and Strategy also uses the Integrated System of Information on Higher Education and Science (POL-on) - a comprehensive national data repository containing official information on Poland's higher education institutions, research organizations, academic staff, students, degrees, research activities, and science funding, which is the main source of information on higher education (medical students and graduates). The data collected in this system is analysed by the central administration, which shapes state policy in the field of science and higher education. This data also allows for the estimation of the supply of medical personnel in future years. The above-described data and analyses regarding the services provided, demographics and epidemiology, together with forecasts, allow for the estimation and forecasting of the demand for medical staff.

Advanced Minimum Data Set: achievements under HEROES

The Polish team developed an analysis based on the Advanced Minimum Data Set (AMDS) concept. It was divided into two key sectors of healthcare personnel: physicians, and nurses and midwives. This division allowed for a more precise understanding of the specific nature of human resources in healthcare, as well as their diversity in terms of competencies and organizational structure.

Below table presents the AMDS across four levels. However, the presented data reflects the situation as of the start of the analytical work (at the beginning of the project).

During the implementation of the HEROES project, steps were taken to supplement and expand the scope of the data. However, it was not possible to obtain information regarding the working hours of medical staff, due to existing legislative restrictions (persisting issue).

Work focused also on consolidating regional-level data. Work under the HEROES project produced an analysis on physicians working in primary health care. This analysis allowed for a closer examination of an issue where there was a problem with specifying the work locations of medical personnel. This made it possible both to identify the scale of the problem and to supplement information regarding the regional distribution of healthcare personnel in Poland.

The first level of analysis (Level 1) focused on determining the current state of the medical workforce, understood as the current personnel resources available within the healthcare system.

LEVEL 1 - doctors

For "professionally active doctors' data available and used for planning include: profession, age, headcount, specialization and gender. For the variable "geographical area," data are available but require improvement (data available but needs improvement). In the case of "training" (individuals in specialist training), available data include: headcount, profession, geographical area and specialization.

Quantitative data set	Supply side					Demand side	
	Labour force	Training	Retirement	Outflow migration	Inflow migration	Population	Health consumption
Profession	X	X					
Age	X						
Head count	X	X					
FTE							
Geographical area	X	X					
Specialization	X	X					
Country of first qualification							
Gender	X						

LEVEL 1- nurses and midwives

In the case of nurses and midwives, for the labour force (actively working staff), the variables available and used for planning include: profession, age, headcount, and gender. The available variables but requiring improvement include: geographical area and specialisation. In the case of training (individuals in training), the available data but not used for planning include: profession, headcount, geographical area, and specialisation.

Quantitative data set	Supply side					Demand side	
	Labour force	Training	Retirement	Outflow migration	Inflow migration	Population	Health consumption
Profession	X	X					
Age	X						
Head count	X	X					
FTE							
Geographical area	X	X					
Specialization	X	X					
Country of first qualification							
Gender	X						

Level 2 refers to a supply-based approach, including monitoring changes, assessing the current situation, and identifying future imbalances.

LEVEL 2a-doctors

For labour force, the variables including profession, age, headcount, and gender are available and used for planning. The variables FTE, geographical area, and specialisation are available but need improvement. For training, data on profession is available but needs improvement, while data on age, headcount, geographical area, and specialisation is not available but needed for planning. For retirement, the variables: profession, age, headcount, and specialisation are available and used for planning, while data on geographical area is available but needs improvement.

Quantitative data set	Supply side					Demand side	
	Labour force	Training	Retirement	Outflow migration	Inflow migration	Population	Health consumption
Profession	X	X	X				
Age	X	X	X				
Head count	X	X	X				
FTE	X						
Geographical area	X	X	X				
Specialization	X	X	X				
Country of first qualification							
Gender	X						

LEVEL 2a-nurses and midwives

For labour force, the variables: profession, age, headcount, and geographical area are available but need improvement. The variables FTE, specialisation and gender are not available but needed for planning. For training the variables: profession, age, head count, geographical area and specialisation are not available but needed for planning. For retirement, the variables: profession, age, headcount, and geographical area are available but need improvement, while data on specialisation is not available but needed for planning.

Quantitative data set	Supply side					Demand side	
	Labour force	Training	Retirement	Outflow migration	Inflow migration	Population	Health consumption
Profession	X	X	X				
Age	X	X	X				
Head count	X	X	X				
FTE	X						
Geographical area	X	X	X				
Specialization	X	X	X				
Country of first qualification							
Gender	X						

LEVEL 2b-doctors

For labour force, the variables: profession, age, headcount, and gender are available and used for planning. The variables: geographical area, and specialisation are available but need improvement. For training, data on profession is available but needs improvement, while headcount, geographical area, and specialisation are not available but needed for planning.

In case of demand side, for population and health consumption, the variables: age, headcount, and geographical area are available and used for planning.

Quantitative data set	Supply side					Demand side	
	Labour force	Training	Retirement	Outflow migration	Inflow migration	Population	Health consumption
Profession	X	X					
Age	X					X	X
Head count	X	X				X	X
FTE							
Geographical area	X	X				X	X
Specialization	X	X					
Country of first qualification							
Gender	X						

LEVEL 2b-nurses and midwives

In case of supply side, for labour force, the variables: profession, age, headcount, and geographical area are available but need improvement. The variables: specialisation and gender are not available but needed for planning. For training, data on profession, head count, geographical area and specialisation are not available but needed for planning.

In case of demand side, for population and health consumption, the variables: age, headcount, and geographical area are available and used for planning.

Quantitative data set	Supply side					Demand side	
	Labour force	Training	Retirement	Outflow migration	Inflow migration	Population	Health consumption
Profession	X	X					
Age	X					X	X
Head count	X	X				X	X
FTE							
Geographical area	X	X				X	X
Specialization	X	X					
Country of first qualification							
Gender	X						

LEVEL 3-doctors

In case of supply side, for labour force, the variables: profession, age, headcount, geographical area and country of first qualification are available but need improvement. The variables: FTE, specialisation and gender are not available but needed for planning.

For training, country of first qualification is available but needs improvement. The variables: profession, age, head count, geographical area, specialization are not available but needed for planning.

For retirement, profession, age, head count, geographical area and country of first qualification are available but need improvement. The variable specialization is not available but needed for planning.

For outflow and inflow data on migration age, head count, geographical area and country of first qualification are available but need improvement. The variable profession is available but not used for planning. The variable specialization is not available but needed for planning.

In case of demand side, for population and health consumption, the variables: age, headcount, and geographical area are available and used for planning.

Quantitative data set	Supply side					Demand side	
	Labour force	Training	Retirement	Outflow migration	Inflow migration	Population	Health consumption
Profession	X	X	X	X	X		
Age	X	X	X	X	X	X	X
Head count	X	X	X	X	X	X	X
FTE	X						
Geographical area	X	X	X	X	X	X	X
Specialization	X	X	X	X	X		
Country of first qualification	X	X	X	X	X		
Gender	X						

LEVEL 3-nurses and midwives

In case of supply side, for labour force, the variables: profession, age, headcount, geographical area and country of first qualification are available but need improvement. The variables: FTE, specialisation and gender are marked not available but needed for planning.

For training, country of first qualification is available but needs improvement. The variables: profession, age, head count, geographical area, specialization are not available but needed for planning.

For retirement, data on profession, age, head count, geographical area and country of first qualification are available but need improvement. The variable specialization is not available but needed for planning.

For outflow and inflow migration data on age, head count, geographical area and country of first qualification are available but need improvement. The variable profession is available but not used for planning. The variable specialization is not available but needed for planning.

In case of demand side, for population and health consumption, the variables: age, headcount, and geographical area are available and used for planning.

Quantitative data set	Supply side					Demand side	
	Labour force	Training	Retirement	Outflow migration	Inflow migration	Population	Health consumption
Profession	X	X	X	X	X		
Age	X	X	X	X	X	X	X
Head count	X	X	X	X	X	X	X
FTE	X						
Geographical area	X	X	X	X	X	X	X
Specialization	X	X	X	X	X		
Country of first qualification	X	X	X	X	X		
Gender	X						

HWF Data: improvements

One of the planned data improvements was the acquisition of working time records for medical personnel (primarily physicians) to improve the quality and accuracy of analyses of the health workforce in Poland. During the work, it became clear that legislative changes would be necessary to enable the acquisition and processing of such data by the Department of Analysis and Strategy of the Ministry of Health. It appeared a complex issue, prolonging significantly the process. Currently, discussions are underway with legislative experts to ensure a smooth implementation of legal changes, taking into account the characteristics of data acquisition, processing, and sharing by selected institutions (including the National Health Fund).

HWF Planning Models: design, application and HEROES contribution to HWF Planning Models

A key element of the HEROES project was an in-depth analysis of primary care staffing, which confirmed its fundamental role in the healthcare system as the first point of contact for patients. One element of the work was to clarify job positions and more precisely determine the supply of primary care physicians, taking into account population density. This included a detailed analysis of the employment structure of medical personnel in primary care, including by specialization and geographic distribution. Preliminary forecasts for the medical workforce in primary healthcare were also developed, feeding into better planning of activities in this area.

As part of HEROES, work began on developing a medical competency matrix, focusing initially on the nursing and midwifery professions. Work began with an analysis of the actual scope of duties and evolving competencies of nurses, including a breakdown by medical staff education. During the work, a problem was identified regarding data on completed specialization training for nurses and midwives. Therefore, discussions with stakeholders were initiated to improve the quality of the data by continuously updating the education status of nurses and midwives in their specializations and courses.

From HEROES to Sustainability for HWF Planning

Sustainability and Policy Impact

Results of HEROES point at their sustainability through planned political initiatives following the completion of the action. Within the framework of policy dialogue, five meetings were organized focusing on the analysis of the allocation of specialization training positions for physicians. Four of these meetings were held at the regional level, allowing for the inclusion of region-specific needs and perspectives, while the fifth meeting took place at the central level, ensuring a broader, system-wide approach.

These meetings provided a platform for the exchange of experiences and in-depth discussions among key stakeholders, including representatives of public administration, institutions responsible for health workforce planning, and healthcare experts. The discussions covered existing mechanisms for allocating specialization training positions, identified key challenges, and explored potential directions for improvement.

The activities carried out were positively evaluated and showed a high level of engagement from participants. As a result, there is strong potential for further development and continuation of such policy dialogues after the project's completion. They could become a sustainable mechanism for strengthening competencies in health workforce planning in Poland and support evidence-based decision-making.

Moreover, the topics addressed during these policy dialogues, including the analysis of the allocation of specialization training positions presented to stakeholders, were also shared in Brussels as part of an international policy dialogue. The presentation was positively received by project and external participants, confirming its relevance and importance in a broader European context.

Continuing collaboration with experts in health workforce planning in Poland, including an expert in healthcare management, is also planned. The goal is to update recommendations, improve analyses, and respond to ongoing changes in the healthcare system.

As part of future plans and sustainability efforts, analytical competencies among those responsible for planning and analysing the medical workforce in Poland will be further developed. The goal is to maintain and strengthen the analytical capacity of the administration, ensuring the effective use of tools and analytical results in the long term while simultaneously enhancing the quality of research. In order to increase the quality and accuracy of the analyses conducted, further development of demand and supply models for medical staff is planned, in particular analyses regarding the allocation of training places for specialist training of doctors in order to improve the management of the distribution of these places and prevent shortages of medical staff in the future.

COUNTRY REPORT SLOVENIA



6.5 COUNTRY REPORT: SLOVENIA

Introduction

National HWF Planning System before HEROES

For a long time, ever since its independence, Slovenia has lacked a comprehensive national or regional HWF planning system. The central responsibility for HWF policy development is within the Ministry of Health (MoH), which is the country's highest organ for governance and leadership of the whole health care system. The MoH is also responsible for the overall strategic planning, including the HWF planning, which is based on an overview of personnel shortages and bottlenecks, like structural impediments to recruitment and placement. Although, the MoH as a state authority is owner of the public health facilities on secondary and tertiary level of care, while the municipalities are owners of the primary care facilities, the overall planning is done on central level. In addition, the MoH also defines the number of private providers to be contracted as concessionaires⁴. The only body that has been established on a national level to coordinate data-driven HRH planning is the Specialisation Planning Committee, chaired by a MoH representative, focused on activities regarding the planning of available specialisation slots for graduated medical and dental doctors, encompassing total of 55 different specialization programs. Still, no national HWF strategy providing strategic and political continuity to planning is in place. Currently, the health system faces a challenging context marked by population ageing, an ageing healthcare workforce and imbalances across professional groups, with shortages of physicians, especially in primary care settings, as well as shortages of registered nurses in hospitals and nursing homes.

From a data and evidence perspective, the main source of HWF and health providers/facilities related data in Slovenia is the Registry of Healthcare Providers and Healthcare Workers. It is a fundamental national database on health facilities and their organizational units, healthcare personnel and other healthcare employees. The legal basis for the Registry is the Healthcare Databases Act⁵ and it is intended for planning and monitoring the public healthcare network and the movement of healthcare personnel, monitoring of the delivery of the healthcare and implementing the health insurance system. The National Institute of Public Health (NIJZ) handles operational management of the Registry, except for the data related to permissions and concessions, which is managed by the MoH. Data set for each worker includes general and demographic data, which are obtained through direct linkage to the Central register of population and are updated on daily basis. Specific data, related to the profession include data such as educational level, type and country of education, licensure status, activity status, current and previous employments and granted consent for additional employment, including the normed FTE data. The Registry provides full scale data for workforce stock and flow, while the demand data are complemented from other established data bases. Still, limited availability of health insurance status, retirement status, legal constraints related to data protection and international mobility remain major challenges.

Although the HWF planning in Slovenia has consistently been of utmost interest to all relevant stakeholders, Slovenia has not been actively involved in the previous European initiatives, like JA HWF (2016) and the subsequent SEPEN initiative.

4 Concessionaires are Health Insurance Institute of Slovenia (ZZZS) contracted private providers

5 Source: <https://pisrs.si/pregledNpb?idPredpisa=PRAV15297&idPredpisaChng=PRAV15297>

HEROES: Key Achievements

During the lifespan of the HEROES (2023 – 2026) Slovenia has achieved the following key milestones in strengthening its health workforce planning system:

- **2024: Established regular monthly meetings with the administrators of the Register** – Regular monthly meetings were established with the administrators of the Register, providing a structured platform for intensive collaboration on register improvements, substantive support, and the exchange of information and perspectives. This ongoing cooperation has proven to be one of the key factors in enabling substantive upgrades of the Register and in fostering a better mutual understanding among the various stakeholders involved.
- **2025: Update and upgrade of the projection modeling tool** – Under the previous EU mechanisms, namely the Structural Reform Support Service (SRSS) Tender, projection models have been developed and piloted to forecast the projections for specialist doctors. Our objective under HEROES was to update the models and to accelerate the actual implementation of the projections (i.e. that the results of the projections will be part of the analytical basis that informs policy and supports decisions related to HWF). We have been gathering the required data from various information systems and data have been adjusted to adhere to required input needs and projections for specialist doctors have been updated.
- **Expanding the dataset and its accuracy within the Register** – Slovenia has already had a well-established and rather comprehensive Register for health workers and providers, but some elements, like data on nursing and supporting staff was underrepresented in terms of quality and accuracy. Within the lifespan of HEROES the dataset was expanded with improved data capture and accuracy for the nursing staff and improved data entry on other supporting staff, like nurse-aids, thus enabling expanded data pool and paving the way for the future projections for staff other than doctors.
- **2025: Close collaboration with the MoH on the substantive part of the National strategy for HWF** – Multiple meetings were held with the MoH, focusing on the substantive development of the National Health Workforce Strategy. These meetings enabled in-depth discussions on strategic priorities, policy objectives, and evidence-based inputs related to HWF planning. Through regular and structured exchanges, key elements of the Strategy were jointly reviewed, refined, and aligned. A key lesson learned from this collaboration is the importance of establishing long-term and continuous cooperation. Communication with the MoH was maintained throughout the JA HEROES project and will continue beyond its formal completion, laying the foundation for sustained collaboration in the future. This long-term partnership strengthens mutual trust, supports continuity in strategic planning, and enhances the integration of evidence into health workforce policy development.
- **2025: Implementation of national training programme for HWF planning** – In 2025, Slovenia successfully implemented a comprehensive and specifically targeted training programme, which represented one of the key milestones of HEROES. The primary objective of this programme was to strengthen the capabilities of HWF planners across all participating institutions. The training programme consisted of two in-person workshops. Recognising the importance of effectively bridging evidence and policy, as well as enhancing understanding of the HWF planning process, the workshops were delivered in smaller, focus groups. These groups brought together key representatives from different stakeholder institutions, enabling in-depth discussion, active participation, and meaningful exchange of perspectives. This targeted approach significantly contributed to capacity building among planners and supported improved alignment between analytical evidence, workforce planning processes, and policy decision-making.

HEROES: Lessons learned

Adoption, implementation and upscaling of HWF Planning

Over the course of HEROES, Slovenia has undergone a gradual but important shift in how HWF planning is understood and approached, moving from fragmented and largely reactive practices towards a more structured, evidence-informed, and collaborative model. In the adoption phase, a key lesson was that introducing the HWF planning requires more than formal policy development; it necessitates building a shared understanding among stakeholders about the value of data, forecasting, and long-term planning. Increased awareness emerged around the importance of integrating analytical evidence into decision-making processes, as well as the urgent need to strengthen institutional capacities to support such approaches. Strengthening HWF planners' capabilities — particularly in data literacy, understanding forecasting models, and interpreting analytical evidence — proved essential for improving the quality and usability of workforce planning outputs.

During the implementation phase, it became evident that technical tools alone are not sufficient to ensure effective HWF planning. A critical factor was the development of human and institutional capacities within stakeholders, particularly in data literacy realm, the interpretation of analytical outputs, and the ability to translate evidence into policy-relevant insights. The experience also highlighted the importance of working methods that we adapted during this specific timeframe: smaller, focused, and interactive formats proved more effective than large-scale meetings in fostering meaningful engagement, mutual learning, and trust among stakeholders. Continuous and structured collaboration between institutions further reinforced the understanding that HWF planning is a shared responsibility requiring coordination and collaboration across variety of sectors.

In the upscaling phase, the main lesson relates to the conditions needed for sustainability and further development. There is now a clearer recognition that effective HWF planning depends on stable governance structures, ongoing stakeholder engagement, and the institutionalization of regular dialogue between different national databases and policy-makers. The process has also demonstrated the need for more inclusive and transparent policy discussions, allowing a broader range of actors to contribute to shaping HWF policies. Overall, the experience in Slovenia shows that sustainable progress in HWF planning is driven not only by policy changes, but by strengthened capacities, improved collaboration, and a shift towards a more strategic and forward-looking mind-set. These lessons will inform future activities and support the sustainability of results beyond the HEROES life span.

Country level report based on the Sustainable Workforce Intelligence Planning Systems Framework

Domain 1: Political and contextual support

Slovenia's healthcare system operates under statutory, employment-based social health insurance which offers universal health coverage, with more than 99% of country's permanent residents being covered through it⁶. Complementary voluntary health insurance was historically a key feature of the health system used by most of the population who were liable for co-payments. However, this was abolished in 2024, along with co-payments, and replaced by a fixed compulsory contribution, which is paid in addition to social health insurance contributions. Supplementary voluntary health insurance remains available to cover additional specialist care or access to private providers. Overall, the health system is relatively centralized, with the Health Insurance Institute serving as the single purchaser. Healthcare provision is predominantly public, although it is complemented by private publicly contracted providers, also named concessionaires or completely private providers, whose services are paid via supplementary voluntary health insurance or out of pocket. Primary healthcare delivery is driven by municipal, multidisciplinary, community-based primary healthcare centres. These facilities typically employ teams that include general practitioners (GPs), nurses and other allied health professionals. GPs coordinate access to secondary and tertiary care, acting as gatekeepers. Some private providers, operating under contracts with the Health Insurance Institute, deliver care within the public system. Secondary care is largely the domain of state-owned hospitals, although some private providers also deliver inpatient services, and certain secondary-level outpatient services are delivered within primary healthcare centres and independent clinics. Primary, secondary and tertiary health care services and emergency and dental care are planned through annual negotiations between providers and the Health Insurance Institute.

The MoH is responsible for strategic planning, primarily through a national health care plan requiring parliamentary approval. The health care plan is a fundamental strategic document, which defines the overarching goals and sets out the guidelines for the development of the healthcare system, usually for the period of 10 years. The purpose of the resolution is to present a long-term vision of sustainable, accessible and high-quality healthcare for all residents, regardless of social status, age, place of residence or other social or demographic characteristics. The previous plan, covering the period 2016–2025⁷, has defined the goals and activities to be undertaken. The new plan for the period 2026–2036⁸, is also setting the overarching goals of the healthcare system, one of the key areas of action is HWF. Infrastructure planning for secondary and tertiary care facilities, distribution of large-scale medical equipment and capital investment in hospitals are based on health needs assessment and overseen by the MoH. Municipalities are responsible for capital investment planning in primary care, as the primary care facilities are established by local authorities.

In terms of HWF planning, the pool of domestically trained HWF is related to the annual quotas of students entering the graduation programs. These quotas are set by the Ministry of Higher Education, Science and Innovation, which asks the MoH for non-obligatory opinion for planned quotas for entering graduate programs (medical – including dentistry and pharmacy and nursing schools). However, these quotas are not based on estimated HWF demand. In addition, Slovenia has been historically relying to certain extent on attracting HWF, mainly graduated doctors, to biggest extent from former Yugoslavian countries. The MoH has central role in the process of medical doctors' specialization planning through the Specialisation Planning Committee, though individual healthcare providers can request for certain specialization slots for them.

6 Source: Polin K, Poldrugovac M, Albrecht T. Slovenia: Health System Summary, 2024. Copenhagen: European Observatory on Health Systems and Policies, WHO Regional Office for Europe; 2024. Licence: CC BY-NC-SA 3.0 IGO.

7 Source: <https://pisrs.si/pregledPredpisa?id=RESO102>

8 Source: <https://pisrs.si/pregledPredpisa?id=PLAN29>

Similarly to other European countries, the Slovenian healthcare system faces structural pressures that affect HWF planning dynamics. On the one hand, the population ageing, combined with the increasing prevalence of chronic conditions and multimorbidity, generates growing and evolving demand for healthcare services, particularly in primary care, long-term care and community-based settings. At the same time, the HWF itself is ageing, with a significant proportion of professionals approaching retirement age. These trends are compounded by persistent imbalances in HWF distribution, with critical shortages in primary and outpatient specialist care, affecting family medicine specialists, paediatricians, gynaecologists in rural areas and larger urban centres, and in hospitals among nursing professionals. There is also an imbalance in the attractiveness of certain medical doctors' specialization programs of critical importance for the functioning of the health care system, with programs such as family medicine and emergency medicine not attracting new residents. Financial constraints, particularly within the public sector, further limit the capacity to respond to these challenges.

Despite the relatively centralized healthcare system, its' optimal functioning requires involvement of broad range of stakeholders in the process of HWF planning. In addition to the MoH as the leading national authority for HWF planning, NIJZ has significant role in the planning architecture by taking operative care for the Register and providing professional, methodological and analytical services to the MoH. Professional chambers and orders, in the first place: the Medical chamber and Nurses and Midwives Association, play a legally recognized role by providing data from their professional registers, contributing their perspective on the workforce needs and granting renewing and revoking licences to practice. Educational institutions - universities and vocational schools influence the supply side of the workforce, which is also in close correlation to the Ministries of Education and Higher Education, Science and Innovation, but also to the Ministry of Finance, which all influence on the overall training capacities. The Health Insurance Institute, as the country's main health services purchaser has straight linkage to providers' annual working plans, thus influencing the needs for HWF. Within this context, the HWF planning system in Slovenia runs as a negotiated evidence-informed process embedded in a centralised and mixed healthcare system in which contextual factors can shape both the methods used and the feasibility of implementation.

Domain 2: Human Resources for Health (HRH) governance

The directorate for Healthcare within the MoH, more specifically the Sector for HWF, established in 2024, is responsible for HWF-related policy making and planning, by taking an integrated approach that unites key stakeholders, such as NIJZ, the Health Insurance Institute, universities, healthcare providers and professional chambers and orders. The Sector is planning and announcing specializations for doctors and other health professions and issue authorizations to healthcare providers to carry out specializations, secondary education, and internships.

The below table shows the key stakeholders in the Slovenian HWF planning process, grouped into categories. The full list of stakeholders is presented in Annex 2 of this report.

Name of stakeholder (grouped)	Involvement	DATA		PROCESS		SKILLS	
		I	P	I	P	I	P
Ministry of Health	Already involved	H	H	H	H	H	H
Health professional orders	Already involved	H	H	H	H	H	H
Ministry of Higher Education, Science and Innovation	Already involved	L	H	L	H	L	H
The Health Insurance Institute	Already Involved	H	H	H	H	L	L
Academia/Universities	Not yet involved	L	L	L	L	L	L
Employment Service of Slovenia	Not yet involved	H	H	L	L	L	L
National Institute of Public Health	Already Involved	H	H	H	H	H	H

Stakeholder landscape: roles, power, and interests in HWF Planning

The stakeholder landscape involved in health workforce planning in Slovenia is broad and institutional in nature, encompassing national-level public authorities, professional regulatory bodies, technical agencies, and organisations linked to education, labour market regulation and data production and analyses. The core responsibilities are concentrated within public authorities and legally recognised bodies, while other actors exert indirect or contextual influence on planning outcomes.

The MoH through the Directorate of Healthcare and the Sector for HRH holds primary responsibility for the overall coordination of the HWF planning process. They express high interest in various types of data, including data on HWF, and granular and exact data is a constant demand. Although, the ministry does not own the data per se, they make significant efforts towards full digitalisation and inter-connectiveness of various databases within the health and other sectors, thus enabling greater accessibility to more granular and exact data. The Ministry is also highly interested in adopting the right HWF planning processes and tools to ensure the long-term sustainability of the healthcare system. Given their position as governmental body, they can foster changes in this area. The establishment of the Sector for HRH during the lifespan of the HEROES was a significant step towards enabling continuity, institutional memory and sustainability of the HWF planning process including improvement of HWF planning skills of the staff within.

Health professional orders and chambers denote another crucial stakeholder within the matrix shown above. Their involvement is regulated by law and their interest and power are high in relation to data collection, since they manage professional registries for their members and at the same time, they are vocal in advocating for profession-specific workforce needs. Although, their direct influence on planning processes and tools is more limited, their position as highest professional associations can force changes using public relations, media and discussions with other stakeholders.

The Ministry for Higher Education plays a crucial role at the crossing point between education policies and HWF planning by strong power over the enrolment quotas thus paving the future stock of workforce. Still, given their scope of primary concern, the interest for specific and accurate HWF data is rather low with rather low or no specific interest in HWF processes and tools. On the other hand, given their position as governmental body, they can provide granular and accurate data for students studying in health-related sciences and can force changes based on legislative changes. The Health Insurance Institute of Slovenia, due to their primary role as health services buyer/payer, is highly interested in accurate and granular data on HWF, as well as in HWF processes, tools and planning skills. They co-own the Registry and can demand legislative changes and also can force changes in the field.

The educational institutions / Universities, although directly involved in the process of creation of future HWF, possess data on enrolled students with limited interest in general HWF data, but otherwise do not have power to force changes in this field. Similarly, they express limited interest in planning processes as the number of admitted students is predetermined based on planned quotas and their capacities to provide trainings aligned to standards. The Employment Service of Slovenia collects and analyses data for all available vacancies, including health related openings, as well as data for active job seekers and they are in position to force legislative changes. Yet, they express limited interest in HWF processes, tools or planning skills. This differentiated allocation of roles explains the observed distribution of interest and power among stakeholder groups and underpins the negotiated yet government-led nature of the Slovenian HWF planning system.

Domain 3: HWF planners' capabilities

A fundamental requirement for HWF planners is computer and technological literacy. Planners must possess these skills at a level that enables them to understand and work with the algorithms and formulas used in forecasting and planning models. This includes the ability to interpret model outputs, assess assumptions, and recognize limitations of quantitative tools used in workforce planning.

In addition to technical skills, it is crucial that planners have a broader understanding of the overall HWF planning process. This encompasses knowledge of the structure and functioning of the healthcare system, interdependencies between different levels of care, policy objectives, and demographic and epidemiological trends. Such comprehensive understanding allows planners to contextualize model results, support evidence-based decision-making, and contribute effectively to the development of sustainable health workforce policies.

It is of utmost importance to further strengthen the link between evidence and policy. HWF planning should be firmly grounded in robust data, analytical models, and systematic forecasting, while policy decisions must consistently reflect the evidence generated through these processes. Strengthening this link requires HWF planners who are not only technically competent, but also capable of translating analytical results into clear, policy-relevant insights that support informed decision-making at the national level.

Furthermore, broader knowledge of public administration, as well as in-depth understanding of the healthcare sector, plays a significant role in effective HWF planning. HWF planners must be well informed about healthcare financing policies and systems, ongoing trends, and sectoral reforms, in order to comprehend their implications for health workforce needs from the demand side.

In addition, HWF planners should be familiar with professional roles, organizational specificities, and institutional delivery models across different levels of healthcare. This knowledge enables them to correctly interpret workforce requirements, understand skill mix dynamics, and assess the impact of organizational and policy changes on workforce demand. Such comprehensive sectoral and institutional understanding represents a pivotal capability for effective and sustainable HWF planning.

From plan to training activities, skills and competency gains during HEROES

During the HEROES, Slovenia successfully implemented a comprehensive and specifically targeted training programme. The primary objective of the HEROES training activities was to strengthen the core capabilities of HWF planners across all involved institutions.

The HEROES training activities consisted of two in-person sessions in the form of workshops. Given the importance of effectively bridging evidence and policy, as well as enhancing understanding of the HWF planning process, the workshops were delivered in smaller groups. These groups included key representatives from different stakeholder institutions, such as MoH, professional chambers, service providers, enabling focused discussion, active participation, and a deeper exchange of perspectives.

This targeted approach supported capacity building among planners and contributed to improved alignment between analytical evidence, planning processes, and policy decision-making.

In May 2025, a workshop entitled “*HRH Forecasting Tool and Expert Support in the Development of the National Strategy for Healthcare Workforce Management and Development*” was organized. The workshop was attended by representatives of the MoH, the National Institute of Public Health, and the World Health Organization (WHO).

The session focused on the presentation of a health workforce planning and forecasting tool, including an overview of the data required for effective workforce planning. In addition, the workshop addressed the key competencies and knowledge that planners and decision-makers must possess in order to successfully plan and manage the health workforce. Particular emphasis was placed on understanding planning methodologies, data interpretation, and the use of evidence to support strategic decision-making in health workforce policy.

In December 2025, a second workshop focusing on healthcare specializations was held. The workshop provided an overview of different types of medical specializations and the mechanisms used to plan the annual number of specialization training positions at the national level.

In addition, the introduction of specialization education programmes in nursing in Slovenia was presented, marking an important development in the diversification and strengthening of the health workforce. The workshop brought together key representatives of the health insurance fund, educational institutions, professional chambers and associations, and the MoH.

Through structured discussions and knowledge exchange, participants deepened their understanding of specialization planning and its role within broader health workforce planning processes. The workshop further contributed to improved coordination among stakeholders and strengthened institutional capacities for evidence-informed planning and decision-making in healthcare.

The key outcomes of the two workshops were a clearer and more in-depth understanding of HWF planning as a comprehensive process, as well as improved insight into the planning of specializations across different professional groups within the healthcare system. The workshops were designed to strengthen collaboration among key stakeholders, fostering mutual understanding and coordinated approaches to workforce planning.

This stakeholder collaboration was deliberately empowered through interactive formats and focused group work and will be maintained beyond the conclusion of the HEROES, contributing to sustained capacity building and more coherent, evidence-informed health workforce planning at the national level.

Domain 4: HWF data and models

HWF Data: Sources

In Slovenia, a national register of healthcare workers and providers (HWF Register) is available, with partly automated integration to other registries and databases and ongoing efforts to improve integration. The HWF Register covers all healthcare professions, and includes data on work activity for each professional. Individual supply data are: age, gender, area of practice, profession, activity status, specialisation, licensing and continuous professional development (CPD). Other supply data suppliers are: Ministry of Education, Science and Sport, Medical Chamber of Slovenia that runs the Register of physicians, and Nurses and Midwives Association that runs the nursing professions register.

Data on utilization of services in primary care, outpatient and inpatient hospital care is also available through databases that are managed by the National Institute of Public Health. Other demand data suppliers are the Statistical Office of Slovenia, Eurostat and National Insurance Fund. Mobility data sources for inflows are the HWF Register and the Register of physicians, while for outflows only aggregated data is available at OECD health workforce migration data.

Advanced Minimum Data Set: achievements under HEROES

With regards to quantitative part of the advanced minimum data set, the majority of data is available, for both, medical doctors and nurses. A particular challenge for all health professions is access to exact data on retirements due to legal issues and lack of frameworks and mechanisms.

On the other hand, data that relates to qualitative part of advanced minimum data set is scarce. Some relevant information exists, but cannot always be used for strategic planning, because samples only cover a fraction of the health system or relevant segmentation variables are not included in dataset. Therefore, the majority of qualitative data is not fit for purpose. One of the important priorities for future improvement is to collect performance and productivity data.

Doctors

Quantitative data set	Supply side					Demand side	
	Labour force	Training	Retirement	Outflow migration	Inflow migration	Population	Health consumption
Profession	X	X	X				
Age	X		X			X	X
Head count	X	X	X			X	X
FTE							
Geographical area	X	X	X			X	X
Specialization	X	X	X				
Country of first qualification							
Gender	X						

Nurses

Quantitative data set	Supply side					Demand side	
	Labour force	Training	Retirement	Outflow migration	Inflow migration	Population	Health consumption
Profession	X	X	X				
Age	X	X	X				
Head count	X	X	X				
FTE	X						
Geographical area	X	X	X				
Specialization							
Country of first qualification							
Gender	X						

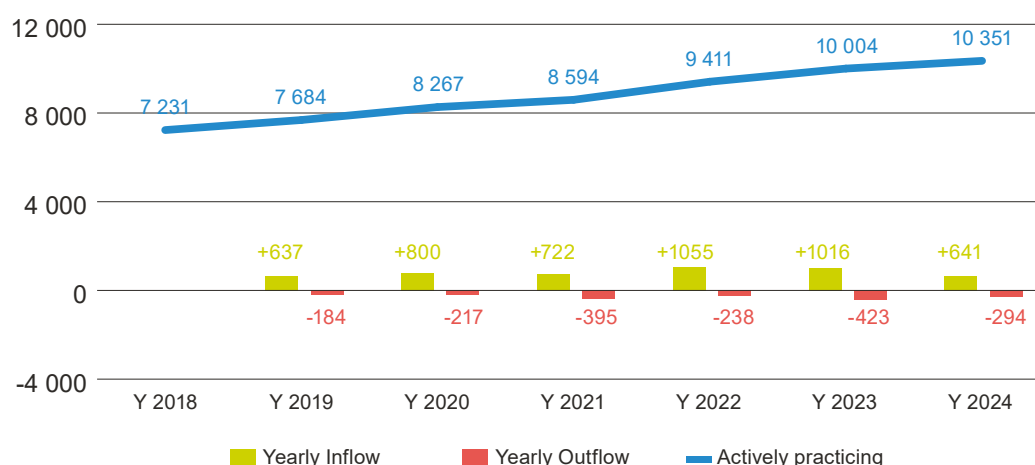
Qualitative data set	Doctors	Nurses
	Care organisation	Care organisation
Teamwork	X	X
Task shifting and skill-mix	X	X
Reconfiguring health services including digital	X	X
	Health Indicators	Health Indicators
Mortality and morbidity of HWF	X	X
Mental health and well-being of HWF	X	X
HWF equity	X	X
	Labour market	Labour market
Financial investment, economical background	X	X
Performance and productivity	X	X

HWF Data: improvements

Slovenia has already had a well-established and rather comprehensive Register for health workers and providers (HWF Register), but some elements, like data on nursing and supporting workers was underrepresented in terms of quality and accuracy. Within the lifespan of HEROES, a link between nursing professions registry and HWF Register was established. The dataset was expanded with improved data capture and accuracy for the nursing staff and improved data entry on other supporting workers, like nurse-aids, thus enabling expanded data pool and paving the way for the future projections for workers other than doctors.

Another HEROES improvement relates to the number of health workers that stop practicing their profession in the health system. While the number of active professionals is known at any given time (because the HWF Registry contains information on work activity), it has never been fully clear if the increase in stock is driven by higher inflow or diminished outflow. And because the dynamics behind the changes in active stock were not known, it was challenging to fully understand the context and to design adequate measures that would effectively align the stock with desired situation (with target numbers).

On the initiative and with support of Ministry of Health, NIPH has developed and piloted a method to estimate yearly inflow and outflow for all health professions. NIPH has also analyzed the socio demographic characteristics of those joining and leaving the stock of actively practicing professionals within the health system.



Example: Inflow and outflow of Registered Nurses 2018-2024

HWF Planning Models: design, application and HEROES contribution to HWF Planning Models

In 2018, Slovenia has started to develop a projection tool to support regulation of the supply of medical specialists through training quotas. And additionally, together with other tools (e.g. geospatial analysis), the tool was also intended to support the planning of the health network. However, in 2022 the progress was interrupted (among reasons being COVID-19 pandemic), and it was not till the beginning of HEROES when conditions to proceed developing the tool were satisfied.

The tool itself was conceptually and technically developed by the National Institute of Public Health in partnership with the Ministry of Health, the National Insurance Fund and with support of an external partner consulting institute. It accounts for specifics of Slovenia's data landscape. Because of considerable granularity of data in Slovenia, there is a variety of potential uses to project the demand in different health sectors, medical branches etc. at national level. So far, it has been used for medical branches that are typical for particular speciality, for example for Paediatrics.

Future supply is estimated by taking into account the current age structure of health workers, expected retirements, and specialists in training. Projection of change of demand takes into account current utilization patterns and expected change in country's demographics (population projections). The gap between supply and demand for certain years in the future is calculated by assuming current equilibrium, accounting for estimated supply shortage / surplus due to inflow / outflow, and accounting for estimated change in demand.

As part of the HEROES actions, NIJZ Slovenia has again started to work on projections and updated them with latest data.

From HEROES to Sustainability for HWF Planning

Sustainability and Policy Impact

During the lifespan of HEROES, Slovenia has initiated several actions on various fields, whose full implementation reaches beyond the timeline of the HEROES. The aim is to convert these actions into structural and permanent developments. The main actions for sustainability of the HEROES results in Slovenia, in addition to already achieved progress in data and models are embedded in the areas of political support and HRH governance. The data and models actions are set as part of the overall digitalization project underway in Slovenia with aim of the improved linkage of data on supply and demand side, that will support modelling and usage of projection tools for planning of most of the professions. The main focus of the held policy dialogues was to achieve the full support of the creation of the National strategy for HRH development. Its' adoption and implementation are expected to further strengthen and ensure coordinated planning and monitoring activities by establishing a national level inter sectoral unit for monitoring of the HWF planning activities. This, together with the already established Sector for HRH within the MoH and the envisaged coordinated cross-ministerial board is expected to provide coordinated actions for promotion and facilitation of HWF production on one side but will also provide institutional memory and continuation of the already initiated processes. As a result, Slovenia will gain a coordinated HWF planning system based on reliable, accurate and readily available data with involvement of the vast array of stakeholders on all levels, thus continuing the benefits gained during HEROES.

Furthermore, it is important to acknowledge the significant progress Slovenia has achieved during the implementation of HEROES. Participation in a large-scale EU initiative addressing a critical issue for the future sustainability of health and care systems has acted as a catalyst for strengthening national-level activities in HWF planning. The experience has reinforced the understanding that meaningful progress requires not only technical solutions, but also sustained collaboration, shared learning, and the active engagement of experts from diverse institutional and professional backgrounds. The momentum generated through the joint efforts of all partners should therefore be maintained and further developed in the coming years.

Looking ahead, HWF planning will remain a key policy priority, and the HEROES experience has demonstrated the added value of European cooperation in addressing complex workforce challenges. Slovenia is closely following developments related to the European Health Data Space as an important opportunity to further strengthen data-driven planning and cross-country collaboration. At the same time, emerging trends such as new models of care and the increasing use of AI are expected to have an impact on future approaches to HWF planning. These developments may open additional avenues for cooperation among EU Member States and contribute to more resilient, responsive, and sustainable health and care systems.

Ultimately, the experience of this joint action clearly demonstrates that strong and continuous European collaboration is essential for advancing HWF planning and ensuring the long-term resilience of health systems across the EU.

ANNEX 2. STAKEHOLDER LIST

	Name of stakeholder	Type of stakeholder	Involvement	DATA		PROCESS		SKILLS	
				I	P	I	P	I	P
1	Ministry of Health	Ministry	Already involved	H	H	H	H	H	H
2	Ministry of Health - Healthcare Directorate	Ministry	Already involved	H	H	H	H	H	H
3	Medical Chamber of Slovenia	Health Professional Order	Already involved	H	H	H	H	H	H
4	Nurses and midwives association of Slovenia	Health Professional Order	Already involved	H	H	H	H	H	H
5	Ministry of Higher Education, Science and Innovation	Ministry	Already involved	L	H	L	H	L	H
6	The Health Insurance Institute of Slovenia	Social Insurance Fund / Company	Already involved	H	H	H	H	L	L
7	Faculty of Medicine (UL)	Academia	Not yet involved	L	L	L	L	L	L
8	Faculty of Medicine (UM)	Academia	Not yet involved	L	L	L	L	L	L
9	Faculty of healthcare Angela Boškin	Academia	Not yet involved	L	L	L	L	L	L
10	Faculty of health sciences Izola	Academia	Not yet involved	L	L	L	L	L	L
11	Faculty of health sciences Ljubljana	Academia	Not yet involved	L	L	L	L	L	L
12	Faculty of health sciences Maribor	Academia	Not yet involved	L	L	L	L	L	L
13	Faculty of health sciences Novo mesto	Academia	Not yet involved	L	L	L	L	L	L
14	Employment Service of Slovenia	Governmental Agency	Not yet involved	H	H	L	L	L	L
15	National institute of Public Health	Public Health Institute	Already involved	H	H	H	H	H	H
16	Association of Health Institutes of Slovenia	Health Professional Order	Already involved	H	L	H	L	H	L

Abbreviations

H	High
L	Low
I	Interest
P	Power



HEROES

D6.1 Report on countries' data collection, HWF planning models and tools, planning skills improvement and stakeholders' involvement: Croatia, Hungary, Lithuania, Poland and Slovenia



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