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Partnership for Health System Sustainability and Resilience

Founded by the World Economic Forum, London School of Economics and AstraZeneca

Sustainability and Resilience in the Polish Health System

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Contents

List of Abbreviations

Abbreviation	Alternative abbreviation	Meaning in Polish	Meaning in English
ABM	-	Agencja Badań Medycznych	Medical Research Agency
AOS	-	Ambulatoryjna Opieka Specjalistyczna,	Specialised outpatient health care
AOTMiT	-	Agencja Oceny Technologii Medycznych i Taryfikacji	Agency for Health Technology Assessment and Tariffs System
ARM	-	Agencja Rezerw Materiałowych,	Agency for Material Reserves
CeZ	-	Centrum e-Zdrowia,	E-Health Center
CMJ	-	Centrum Monitorowania Jakości w ochronie zdrowia	Centre for Monitoring Quality in Health Care
CoM	-	Rada Ministrów	Council of Ministers
CSIOZ	-	Centrum Systemów Informacyjnych Ochrony Zdrowia	Centre for Health Information Systems
DiLO card	-	Karta diagnostyki i leczenia onkologicznego	Oncology Diagnostic and Treatment Card
DRG	-	Diagnosis-related group	-
FFS	-	Fee-for-service	-
GIS	-	Główny Inspektor Sanitarny	Chief Sanitary Inspector (see: Sanepid)
GUS	-	Główny Urząd Statystyczny	Statistics Poland
HNM	MPZ	Mapy Potrzeb Zdrowotnych	Health Need Maps
HTA	-	Health technology assessment	-
KOC	-	Koordynowana opieka nad kobietą w ciąży	Coordinated care for pregnant women
KOS	-	Koordynowana Opieka Specjalistyczna	Coordinated specialist care
KWRiST	-	Komisja Wspólna Rządu i Samorządu Terytorialnego,	Joint Commission of the Government and territorial Self-Government
IOWISZ	-	Instrument Oceny Wniosków Inwestycyjnych w Sektorze Zdrowia	Evaluation Instrument of Investment Motions in Health Care
JoL	-	Dziennik Ustaw	Journals of Laws
MoH	-	Minister of Health	-
MSWiA	-	Minister Spraw Wewnętrznych i Administracji	Minister of the Internal Affairs and Administration

NHF	NFZ	Narodowy Fundusz Zdrowia,	National Health Fund
NGO	-	Nongovernmental organisation	-
NIK	-	Najwyższa Izba Kontroli,	Supreme Audit Office
NIL	-	Naczelna Izba Lekarska,	Supreme Medical Chamber
NIPiP	-	Naczelna Izba Pielęgniarek i Położnych	Supreme Chamber of Nurses and Midwives
NIPH-NIH	-	Narodowy Instytut Zdrowia Publicznego – Państwowy Zakład Higieny	National Institute of Public Health – National Institute of Hygiene
P4P	-	Payment for performance	-
PES	-	Państwowy Egzamin Specjalizacyjny	State specialisation exam
PIF	-	Państwowa Inspekcja Farmaceutyczna,	State Pharmaceutical Inspection
PIOŚ	-	Państwowa Inspekcja Ochrony Środowiska	State Inspection for Environmental Protection
PLN	-	Polski złoty (nowy)	Polish unit of currency
PM	-	Prezes Rady Ministrów	Prime Minister
POZ	-	Podstawowa Opieka Zdrowotna,	Primary health care
PRM	-	Państwowe Ratownictwo Medyczne	State Emergency Medical Services
RCB	-	Rządowe Centrum Bezpieczeństwa	Government Security Centre
RZZK	-	Rządowy Zespół Zarządzania Kryzysowego	Governmental Crisis Management Team
Sanepid	-	State Sanitary Inspection system	Państwowa Inspekcja Sanitarna
SOR	-	Szpitalny oddział ratunkowy	Hospital emergency ward
SPZOZ	-	Samodzielny publiczny zakład opieki zdrowotnej	Independent Public Health Care Unit
SWD PRM	-	System Wspomagania Dowodzenia Państwowego Ratownictwa Medycznego	Support System for the State Emergency Medical Services
URPL	URPLWMiPB	Urząd Rejestracji Produktów Leczniczych, Wyrobów Medycznych i Produktów Biobójczych	Office for Registration of Medicinal Products, Medical Devices and Biocidal Products

1. Introduction

Despite not being severely hit by the COVID-19 pandemic in its early stages, Poland's death toll has reached over 34,000 as of January 2021. It is already clear that the disease was a severe shock to the Polish health system. It has exposed or sharpened a variety of underlying issues. Lessons from this shock will be essential in understanding structural problems and in developing corrective measures for the future.

As part of the Partnership for Global Health Resilience and Sustainability (PHSSR) this report uses COVID-19 as a critical event to evaluate the sustainability and resilience of the health system in Poland according to five key domains:

- Governance
- Health System Financing
- Workforce
- Medicines and Technology
- Service Delivery

Sustainability concerns the health system's ability to provide key functions such as provision of services, financial protection, resource generation and responsiveness to population needs in an ongoing way. Resilience refers to a health system's ability to identify, prevent, mitigate and rebound from shocks while minimising negative impacts on population health, health services and the wider economy (see Table 1 for full definitions).

Table 1: Definitions of health system sustainability and governance underpinning the analysis(1)

Term	Definition
Health system sustainability	A health system's ability to continually deliver the key health system functions of providing services, generating resources, financing, and stewardship, incorporating principles of fair financing, equity in access, and efficiency of care, in pursuit of its goals of improving population health, and responsiveness to the needs of the populations it serves, and to learn and improve in doing so.
Heath system resilience	A health system's ability to absorb, adapt to, learn, and recover in the wake of crises born of short-term shocks and accumulated stresses, in order to minimise their negative impact on population health and disruption caused to health services.

The report additionally includes two case studies relating to the issues of skill-mix and digitalisation in healthcare. The examples were selected due to intensive changes introduced in the area of both empowering and developing competencies for medical staff and digitalisation in the Polish healthcare system.

The subject of skill-mix is relatively new in the Polish healthcare system. However, since 2015, the professional roles of nurses and physiotherapists have been strengthened by granting them new competences. The pandemic has underlined the importance of skill-mix and the need for group work. Similarly, with the topic of digitalisation, moves towards the creation of e-platforms for patients and providers, e-prescribing etc. are not new, but have grown exponentially during the pandemic.

The report is based on the review and analysis of essential sources: scientific sources, grey literature (expert reports, including by auditing institutions and professional chambers), legal acts and policy documents as well as conference summaries; it is supplemented by reliable press sources for context. The report has also been

developed with the assistance of informants (key experts and stakeholders) on the basis of a focus group interview (see: Appendix).

The report overview contains preliminary diagnosis and recommendations to contribute to the ongoing public discussion on the future of the Polish health system. These include urgent recommendations as well as suggestions of structural systemic reforms to address root causes of deficits in the sustainability and resilience of the Polish health system.

2. Executive Summary

Key findings and recommendations

The following recommendations were produced on the basis of the analysis undertaken. These recommendations are preliminary and indicative of the most problematic areas. Each of the domains requires further research to build on the findings of this report and develop the most appropriate responses.

Table 1: Recommendations across the five domains

Domain		Strengths and opportunities	Weaknesses and threats	Impacted areas	Recommendations
Health System Governance	1a	Existing structures of public health institutions (on paper).	Underappreciation and neglect of public health institutions.	Sustainability and resilience	Improvement of the public health system (reform of the State Sanitary Inspection).
	1b	*Relatively quick pandemic response.*	Current underappreciation of healthcare issues other than COVID-19.	Resilience at the cost of sustainability	Institutional reorganisation that reactivates capacity to tackle health issues other than COVID-19.
	1c	Some existing standards concerning legislation impact assessment.	Lack of institutionalised health impact assessment and underdevelopment of other assessment methods.	Sustainability	Institutionalisation of HIA in all policies for decision-making.
	1d	Robust structure of expert institutions for assessment and evaluation (compartmentalised).	"Policy based evidence" – primacy of politics (political will) over evidence-based policy-making.	Sustainability and resilience	Deliberative authority in evidence informed as well as inclusive policy-making.
	1e	Existing institutions of intersectoral coordination and stakeholders' involvement (on paper). Introduction of mechanisms for more coordinated, rational and responsive resource allocation. Attempts at coalition building in strategic planning.	Scattered, fragmented and ad hoc implementation of coordination and consultation institutions. Lack of deliberative know-how for coalition building and consensus strategic planning. Decision-makers irresponsive to feedback. 'Autopoietic' legislative process. Ad hoc conflict resolution. Structural misalignment between healthcare system and policymaking (end-of-pipe-deadlocks)	Sustainability	[1e-1] Integration of various councils on central and voivodship level. [1e-2] Greater feedback from 'frontline' workers (e.g. action learning and learning healthcare systems methods). [1e-3] Introduction of deliberative governance methods + minipublics. [1e-4] Consistent public communication and education strategy.

	1f	Existing system for quality control and patients' safety (on paper)	"Blame-game" and shifting responsibility to others for adverse events.	Sustainability and resilience	No-fault system for quality control and patients' safety [see also: 1e-2].
	1g	Decentralisation, competition, partnership model of public services	Uncoordinated complexity. "Silo-policymaking" and compartmentalisation – lack of common strategic vision. Structural egoism – susceptibility to conflicts and suboptimal resource allocation based on hard bargaining (hypertrophy of lean management) – damaging emergency redundancies of the system.	Sustainability (short and mid-term) at the cost of resilience and long-term sustainability	[1g-1] Consolidation of ownership of healthcare providers: hospitals at voivodship level and open basic care (primary and ambulatory) at county level. [1g-2] Deliberative negotiation between providers and payer and enhancement of mediation in conflict resolution.
Domain		**Strengths and opportunities**	**Weaknesses and threats**	**Impacted areas**	**Recommendations**
Health System Financing	2a	Political consensus on increasing the spending on health system	*Serious underfunding of health system.*	Sustainability and resilience	*Increase of the overall allocation of funding to health, especially long-term care.* *Increase taxes on unhealthy products and behaviours.* *Co-payment mechanisms.*
	2b	Structures that enable centralised redistribution of financial resources (NHF central level) combined with deconcentrated allocation (NHF Branches). Newly established medical Fund for coordinated infrastructural investments	*Detrimental system of financial incentives, e.g. opportunistic behaviours of healthcare providers due to overpricing of some services (highly specialised small local providers as a waste).* *Structural egoism – actors of the system compete for limited resources in a way that limits effective allocation of resources.*	Sustainability and resilience	*Financial instruments to promote quality and innovations (especially complex care and discouraging unnecessary hospital stays).* *Tax deduction on health expenses.*
	2c	Ongoing processes of increasing pay for medical personnel	*Brain-drain of medical personnel contributing to human resource shortages* (see: Workforce).	Sustainability and resilience	*Financial incentives for medical professionals for entering into and staying in the workforce in Poland*
Domain		**Strengths and opportunities**	**Weaknesses and threats**	**Impacted areas**	**Recommendations**

Workforce	3a	A strive to increase the number of doctors, nurses and other medical workers by increasing places in medical faculties. Decision makers appreciate the necessity for skill-mix reforms. Stakeholders are generally open to skill mix. *Some types of skill-mix initiatives.*	Inability to identify the real number of medical workers (and deficits in this area). The level of staff shortages varies greatly in individual voivodships, as well as between the city and the countryside, where access to doctors is clearly difficult. Medical staff shortages. allocation problems - unequal access to medical services: • *Brain-drain of medical personnel;* • *Lean management (cost saving / austerity) practices (paradigm of employing minimum staff) – see: governance.* Multiple jobs and combining work in several healthcare entities. Wage increases forced by strikes. Relatively low wages and overburden with work for entry level medical professionals, especially nurses. Migration. *Administrative functions are overburdening the medical personnel.* *Blame-game and high liability risk – lack of security of practicing medical professions.* *Underappreciation of the voice of the medical pers*onnel by decision-makers.	Sustainability and resilience (see also: governance)	Motivational policy of allocating medical staff. Further action and strategic planning to increase the medical and para-medical staff, especially in neglected areas, e.g. specialisation in infectious diseases. Introduction of medical-related roles (e.g. medical assistants / secretaries, coordinators / organisers and health promoters) into the system. *Good skill mix.* *Modular training of medical professionals.* *Financial incentives and flexible employment of students for medical professionals to improve qualifications. Hospital caregiver role for student nurses (combining practical training and education).* Reforming remuneration policy and promotion. *Financial incentives for medical professionals for entering into and staying in the workforce in Poland.* *National strategy for rebuilding medical human resources – an integrated plan for all medical professions.* *"Planned beds", i.e. planned medical personnel for the event of emergency –*

					abolition of lean management ("minimum staff" paradigm). *Reform of the voivodship commissions for adjudication on [adverse] medical events.* System's administration improvement – dedicated public health personnel tasked with paperwork and data collection. See: governance
	3b	Well educated and trained medical professionals. *Medical personnel dedication and good training.* *Medical personnel ability to improvise when authorities do not act.*	*Flaws of the professional education system: fragmentation of specialisations and training of doctors for foreign markets.* *Exhaustion of the medical personnel.* *Erratic behaviour of the medical staff, induced by panic at the beginning.* *Prevalent vaccination hesitancy among medical personnel.* *Lack of psychological support for the medical personnel.*	Resilience	*Better emergency training and skill-mix.* *Education in polarising issues (such as vaccination) – promotion of the public health perspective and training in evidence-based emotional persuasion.* *Systematic psychological support.* *Respite leave for medical personnel engaged in straining activities.* *Assistant personnel for medical professionals is necessary to decrease the workload.*
	3c	A large, properly unused number of public health specialists in the labour market.	Insufficient involvement of specialists, experts in Public Health in health promotion and sanitary and epidemiological supervision	Sustainability and resilience	Planning staffing needs in professions health protection. Standardisation of education in the field of Public Health (desired paths – health governance, health promotion, crisis management, sanitary and epidemiological supervision.

	3d	Relatively easy possibility of recruiting medical workers from outside the EU (Ukraine, Belarus) with a simultaneous systemic process of facilitating the administrative process of legalising stay in Poland, obtaining a work permit, assistance in learning Polish and simplifying the process of nostrification of the diploma.	After the recognition and obtaining the right to practice a profession in Poland – i.e. a country in the European Union – these people may go to other EU countries that offer better employment conditions. *Medical professionals from outside the EU are not qualified for the Polish standards.*	Sustainability and resilience	Amendment to the Act on the Profession of Physician and Dentist in the field of simpler but standardised recognition of qualifications for employees from outside the EU
	3e	Reduction of the number of work permits granted abroad.	Lack of reliable information about the emigration of medical personnel	Sustainability	Defining the migration policy (emigration and immigration) in relation to medical workers and monitoring the scale of migration.
	3f	Increase in wages and benefits in the situation of epidemic threats.	New wage demands	Sustainability and resilience	Long-term payroll strategy
Domain		**Strengths and opportunities**	**Weaknesses and threats**	**Impacted areas**	**Recommendations**
Medicines and technology	4a	The development of new forms of remote care and e-health tools facilitating access to health services and medicines – largely introduced before the pandemic	Poor public reception and use of the e-patient account. Low e-competences, primarily among senior medical staff. *Deficiencies in telemedicine standards.* *Most e-health tools only digitise an administrative process that used to be analogue. The e-tools do not incorporate qualitative support for the healthcare professionals, e.g. by alerting them about potential risks of drug-to-drug interactions, drug overuse, etc.* *Wasteful telemedicine practices – e-consultation required for screening whether e-consultation or in-person visit is required*	Sustainability and resilience	Continued training in digital competences. *Further development of e-health (improving control over chronic patients).* *Expand the functionalities of existing e-health tools so as to include solutions that have a direct impact on quality of care of patients.* *Functional integration via e-tools ("Registration triage").*

	4b	Pre-existing institutional and regulatory standards and crisis management mechanisms	No national strategy for innovative risk management. Little modern institutional facilities and outdated standards of data collection and processing in Sanepid.	Resilience	Modernisation of facilities and standards for monitoring and controlling the epidemic situation (incl. above all stronger IT support).
	4c	Ongoing implementation of HB HTA	Poor preparation of hospitals, as well as regional and central authorities in the organisation of HB HTA in Poland.	Sustainability and resilience	Basing HB HTA on large hospitals with greater capacity for productive use of financial suport.
	4d	*Material Reserves Agency was improved in the summer due to earlier failures*	*Protective equipment deficits.* *Lack of stockpiling practices (see: governance and lean management practices).* *Lack of authorities' response to the export from Poland at the beginning of the pandemic.*	*Resilience*	Assuring diversified and reliable supply chains from reliable partners and an effective early-stage risk mitigation plan are recommended. See 1g
Domain	**Strengths and opportunities**		**Weaknesses and threats**	**Impacted areas**	**Recommendations**
Service delivery	5a	Implementation of new coordinated care programmes dedicated to, for example, psychiatric, oncological or cardiological patients.	*Neglect of the vulnerable (the elderly, chronic patients, patients in psychiatric wards, people under social care and home care).* *Crisis in psychological health in Poland (particularly for children).*	Resilience	*Improvement of psychological health services (especially for children).* *Consolidation of social aid and long-term care with healthcare system.* *Health Centres 75+ (geriatric wards network at local level)* Coordinated population care dedicated to a selected group of patients, e.g. the elderly.
	5b	Focus on COVID-19 patients.	Current underappreciation of healthcare issues other than COVID-19 (neglect of prevention, screening, non-urgent yet important treatments, sharp drop in referrals to specialists, etc.).	Sustainability	Institutional reorganisation that reactivates capacity to tackle health issues other than COVID-19.
	5c	*Relatively high number of hospital beds*	*Over-hospitalisation.* *Temporary healthcare units with multiple beds are a waste of resources.*	Resilience	*Existing hospitals should be supported instead of new*

					temporary units created. *Fast-tracking multiple diagnostic and therapeutic activities.* *Better coordination of healthcare from the POZ level.* *Operationalised and evidence-based quality standards.*
	5d	*Some healthcare providers responded to the information on the pandemic early enough to preserve their key operations (despite negative patients' reaction).* *Quick lockdown was essential for enabling healthcare providers to prepare*	*Lack of coordination between POZ, ambulatory care and hospital care, fragmentation of the system.* *Most healthcare providers did not responded to the pandemic quickly enough to preserve key operations.*	Resilience	*Integration of POZ with AOS as part of Basic Healthcare at the poviat level with well-developed crisis management standards*

Note: Specifically informants' observations are marked in italics.

3. Domain 1: Health System Governance

3.1 Sustainability

A critical assessment of the overall system of governance in relation to sustainability requires a sufficiently complete description of the institutional setup to be evaluated. This will allow for the comparison between governance *on paper* and governance *in action*.

3.1.1 Governance structure and strategic direction

The Polish health system's structure of governance is strongly reliant on governmental structures inherited from the country's very traditional model of democracy, i.e. a mixture of: dominant competitive elitism with bureaucratic public management; and pluralistic/incremental involvement of interest groups. The key actors involved in the governance of the health system are numerous and their areas of responsibility are complex (see: table 1). The most relevant of them in the context of the ongoing pandemic (for other important actors see fig. 2 and Appendix tab. A1.) are:

- **Council of Ministers** – as executive power and the top institution of crisis management (see: fig. 1) with:
    - **Prime Minister**, **Minister of Heath (MoH)** and **Minister of Internal Affairs and Administration** (as minister primarily responsible for crisis management);
    - as well as **Voivodes** and **Starostas** – i.e. regional and county governors acting on behalf of the central government in the emergency management system. Note that Starostas perform a double role in Poland: they are primarily head executive officers of the county self-government while at the same time being tasked with supervising the county branch of the joint central administration. Voivodes, on the other hand, are central government delegates existing in parallel to the entirely separate Voivodship self-governments with Marshalls at the helm (see: fig 1 and 2).

- **National Health Fund (**NHF**)** is the public agency under MoH that is a single-payer institution of the healthcare system with regional (voivodship) branches that contract healthcare services with providers (private or public, including providers owned by the MoH).

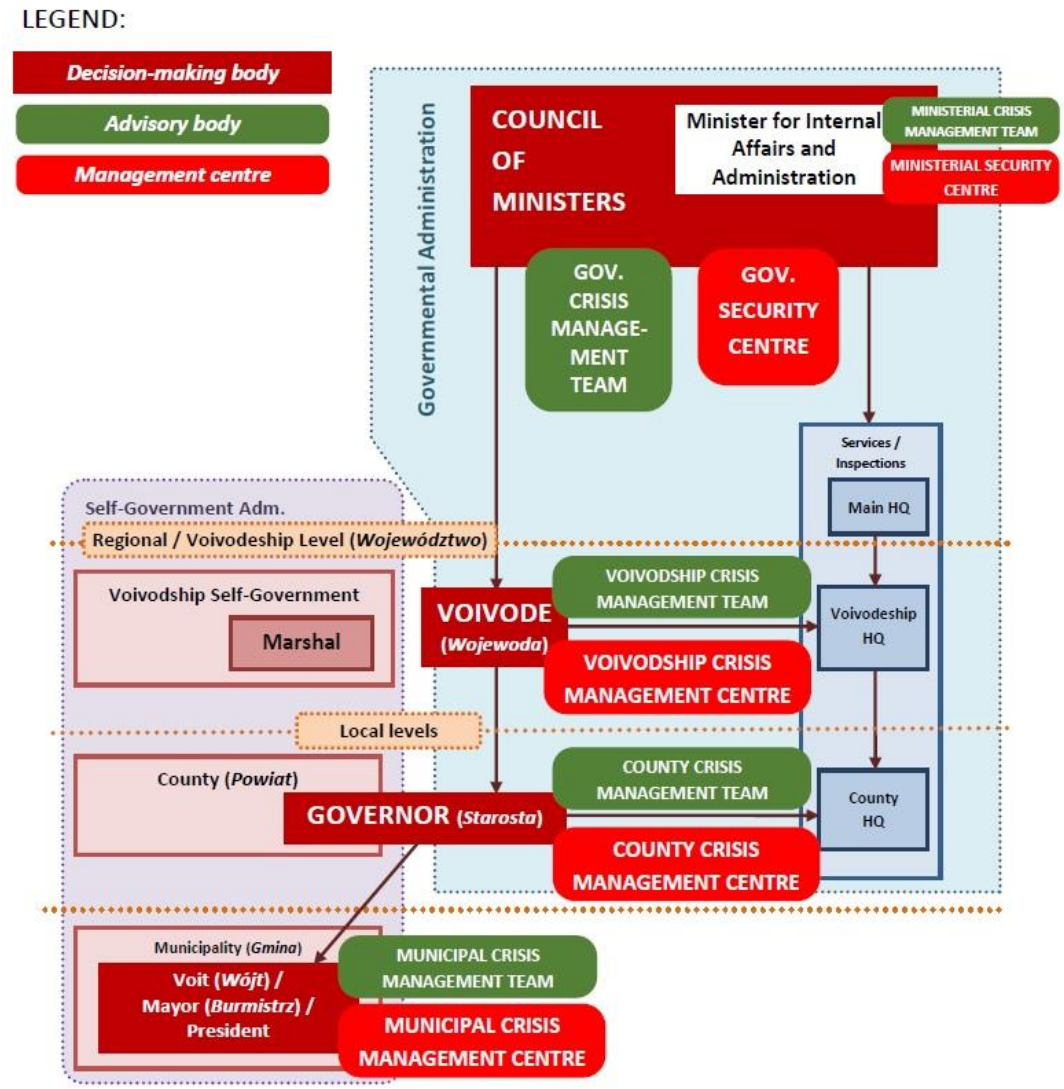
- **State Sanitary Inspectorate (Sanepid)** is a sub-system of central government's sanitary-epidemiological (thus abbreviated as "san-epid") inspectorates under supervision of the MoH. It is responsible for **monitoring** (epidemiological data collection), performing the role of **sanitary police** (supervising standards and imposing penalties) as well as being involved in public health education and training (for the general population and professionals). Sanepid is headed by the **Chief Sanitary Inspector (GIS)** whose administrative apparatus is the Chief Sanitary Inspectorate. GIS is appointed by the Prime Minister upon the advice of the MoH. Sanepid's structure is diffuse and complex (see: fig. 1) and includes voivodship- and county-level state sanitary inspectors as well as border state sanitary inspectors – all with their respective sanitary-epidemiological stations (note that this sub-system is supplemented by Military Sanitary Inspectorate).

Institutions represented in the team for monitoring and forecasting the course of the COVID-19 epidemic in Poland include:

- National Institute of Public Health – National Institute of Hygiene (NIPH-NIH) as a key **research** institution (epidemiological analysis and prognosis), also involved in and thus a **key expert-advisory institution**;

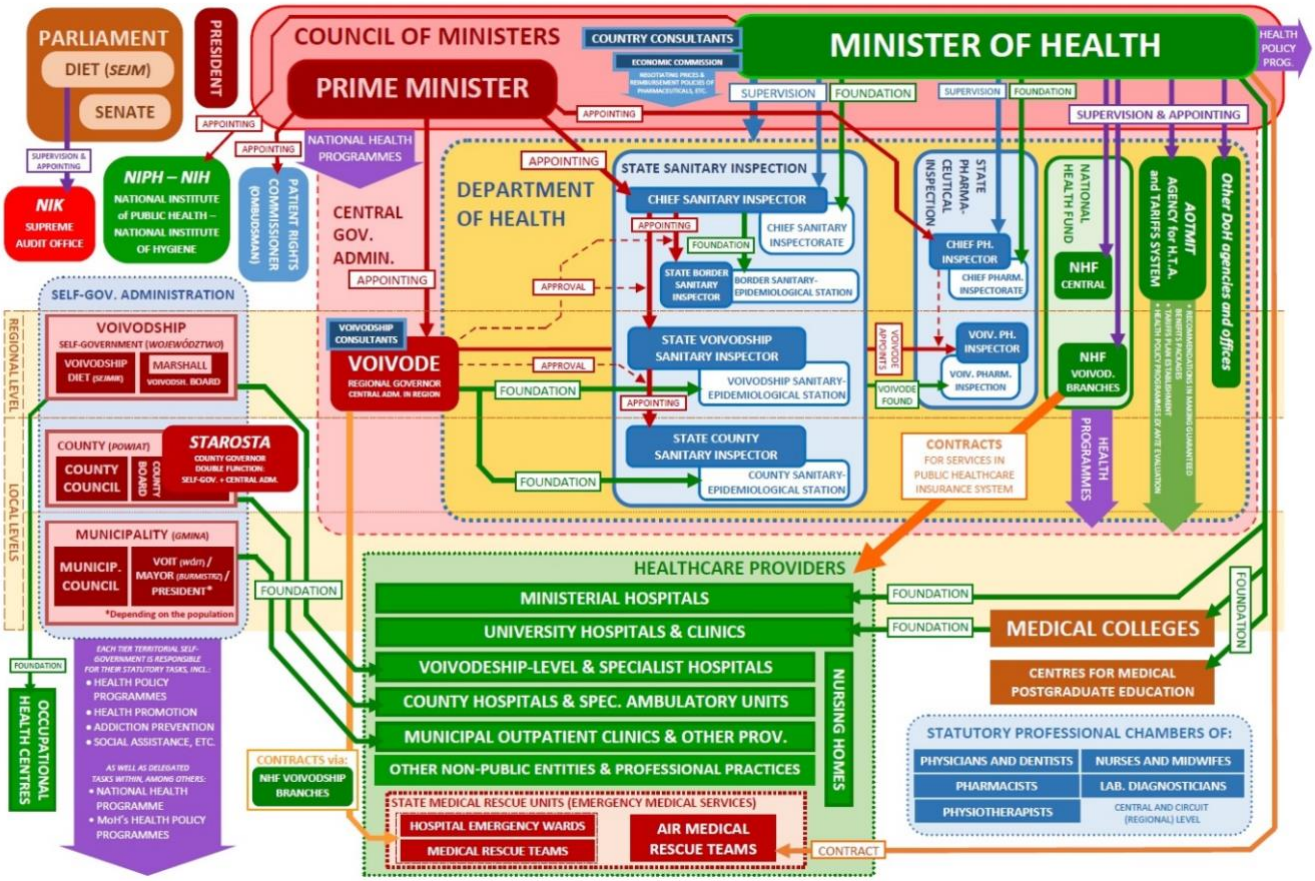
- Chief Sanitary Inspector (GIS) – head of the Sanepid;
- Statistics Poland, GUS – institution responsible for population statistical data collection and processing;
- Agency for Health Technology Assessment and Tariffs System (AOTMiT) – responsible for health technology assessment and pricing of services and pharmaceuticals as well as prospective assessment of health programmes;
- E-Health Center (CeZ) – responsible for monitoring, analysing (research), planning and maintaining tele-information systems for health;
- MoH;
- Department of Strategic Analysis of the Minister of Health;
- NHF;
- Minister of Internal Affairs and Administration.

Figure 1: Crisis Management System in Poland



Based on: JoL, 2007 No. 89, item 590.

Figure 2: Health in Public Administration in Poland



Based on: *JoL, 1985 No. 12, item 49; JoL, 1990 No. 16, item 95; JoL, 1990 No. 32, item 191; JoL, 1997 No. 141, item 943; JoL, 1998 No. 91, item 576; JoL, 1998 No. 91, item 578; JoL, 2004 No. 201, item 2135; JoL, 2006 No. 191, item 1410; JoL, 2007 No. 89, item 590; JoL, 2008 No. 234, item 1570; JoL, 2011 No. 112, item 654 ; JoL, 2015 Item 1916; JoL, Ordinance by the MoH, 2020 Item 64.*

Developed by: Zabdyr-Jamróz 2018, https://jagiellonian.academia.edu/MichałZabdyrJamróz.

Within this system, the parliament is responsible for **raising revenue and setting contributions**; NHF central is responsible for financial **resource redistribution**, while NHF Regional Branches are responsible for financial **resource allocation** and paying providers. Providers owned by territorial self-government and other "founding entities" (owners) such as medical colleges or private investors (see: fig. 2) are responsible for supervising **capital expenditure and asset management**. **Medical personnel wages** are established by providers' management but are indirectly influenced by contracts between NHF and providers (via bulk sums that are received in contracts for the provision of particular healthcare services) as well as in accordance with AOTMiT pricing of services. The pricing for the provision of healthcare services, to which healthcare providers are entitled, is also determined by MoH executive regulations and NHF ordinances following collective bargaining. Resource redistribution is centralised, however certain financial decisions are decentralised via territorial self-governmental, and private ownership of providers and devolution of the payer function to regions (NHF Branches) [Sowada et al, 2019; JoL, 2004 No. 201, item 2135]. On paper, allocation of funds between voivodship branches of the NHF takes into account the size of population and its risk profile. However, an important though not explicitly acknowledged factor in allocation is the actual distribution of physical and human resources between regions [Sowada et al, 2019].

Chains of command and the demarcation of competences are somewhat clear on paper (see: fig. 2), however, in practice they do not prevent lack of good governance including politicisation of public administration (since 2015 rules for political neutrality of the civil service have been weakened [JoL, 2008 No. 227, item 1505]). This leads to the underutilisation of pre-existing structures, deficits of practical know-how, as well as end-of-pipe deadlocks i.e. obstruction of implementation of reforms (often due to private primary healthcare providers refusing to accept contract conditions imposed by the NHF). Accountability is primarily political and dependant on the political will of the parliamentary majority.

When it comes to **essential data collection on COVID-19** it is collected from healthcare providers by the Sanepid (State Sanitary Inspection) – firstly: County Sanitary-Epidemiological Stations then to Voivodship Stations and then to the Chief Inspectorate (see: fig. 2). This data is aggregated in two pathways [Golinowska, Zabdyr-Jamróz, 2020]:

- Epidemiological pathway – to the National Institute of Public Health (NIPH-NIH), which is faster but more prone to errors and serious discrepancies.

- Statistical pathway – to the Statistics Poland (GUS) – being more reliable and verified but prolonged, preventing Poland from participating in Eurostat's *EuroMOMO* report – a European mortality monitoring activity, aiming to detect and measure excess deaths related to seasonal influenza, pandemics and other public health threats [Golinowska, Zabdyr-Jamróz, 2020].

The primary problem with the Sanepid and NIPH-NIH is the underfunding and understaffing of those institutions[1]. Informants also observe that in face of inherent complexities of the system there are notable deficiencies in coordination between sectors, institutions and stakeholders in Poland, including a lack of participation of stakeholders in policymaking. Deficits in data collection (e.g. non-compliance to international standards) have led to a lack of data-informed decision-making. Stakeholders' representatives perceive decision-making (most notably systemic reforms) as predominantly top-down and autocratic (NHF imposes decisions without stakeholders' consent or consultation) leading to a lack of responsiveness and end-of-pipe deadlocks[2].

Basic institutionalised structures for **coordination, feedback collection, consultation and coalition-building** exist (see: fig. 2) but are often significantly underutilised, possibly due to lack of organisational experience (e.g. in the Public Health Council). *Ad hoc*, selective and unsystematised (personal contact) coordination and consultation are predominant, especially in situations of failures of information systems [Słowik, 2020]. General decision-making processes and their motivations are perceived by stakeholders as not sufficiently transparent[3].

Certain mechanisms for stakeholder consultation have been utilised in pursuit of general goals and principles of health policy. In 2018 MoH organised a "national debate on health" entitled "Together for Health". A series of conferences were conducted, involving renowned experts and key stakeholders, and a concluding summary document was developed afterwards by experts [MoH, 2019]. The document presented directions for multiple possible changes (some of which are elaborated on here). It was not followed-up by any official governmental declaration, but it appears that the summary might have had some impact on the 2019 governing party (*Law and Justice*, PiS) manifesto entitled *Polish Model of Welfare State* [PiS, 2019]. It is unclear to what extent this series of conferences impacted it directly. However, some provisions (e.g. e-health, Value Based Healthcare, children health education) are clearly present in both documents.

[1] *Consultation with informants.*
[2] *Consultation with informants.*
[3] *Consultation with informants.*

Clear goals and priorities exist, e.g.:

- National Strategic Framework. Policy Paper for Health 2014-2020 [MoH, 2015]
- Health Needs Maps [JoL. 2915, Item 458];
- National Health Programme 2016-2020 [JoL. 2016, Item 1492] and project of National Health Programme 2021-2025 [CoM, 2020];
- National Mental Health Protection Programme 2017-2022 [JoL. 2017 poz. 458];
- State Medicines Policy 2018-2022 [MoH, 2018];
- National Oncological Strategy (2020-2030) [MoH, 2020];
- National Health Fund Strategy 2019-2023 [NHF, 2019]; etc.

These strategic documents contain **long-term indicators and measurable target**. However they are not specific enough nor are they followed due to insufficient resources available and lack of incentives associated with accountability for key performance indicators[4], as well as discontinuity of projects [Bojanowska, 2021]. A chronic problem since the 1999 reforms is the lack of coalition-building between stakeholders and political parties resulting in discontinuity of strategies (e.g. the 2015 National Strategic Framework was not developed with partisan consensus) and/or end-of pipe deadlocks (healthcare provider strikes). Earlier editions of strategic documents are often not based on most the reliable, up-to-date information. For example, according to the Supreme Audit Office 2017 evaluation, health needs maps were prepared with incomplete data [NIK, 2018]. However, there have been attempts at the improvement of strategy formulation process (e.g. after the failure of the previous National Mental Health Protection Programme, subsequent iterations have been developed with greater stakeholder involvement, with an emphasis on coalition-building and collecting feedback from pilot programmes)[5] [Szarkowska, 2020].

Strategic direction is a constant problem for Polish health policymaking. There is a degree of consistency in certain health reforms (introduction of agency for HTA, e-health) [PiS, 2019], however many initiatives lack continuity even within the same political coalition. For example, the National Health Strategy, which included replacing NHF with National Health Service, was not followed-up after the earlier the MoH of this party [Zabdyr-Jamróz, Kowalska-Bobko, 2017]). Health policy planning is often delinked from political process ensuring a degree of evidence-based expertise is taken into account. However, such expertise is often ignored or neglected when it comes to proper organisation and funding. For example, in 2017 the Supreme Audit Office negatively evaluated the implementation of the National Mental Health Protection Programme 2011-2015, going so far as to describe it as a fiasco [NIK, 2017]. Certain measures to ameliorate the situation have been implemented in that area, including a greater degree of stakeholder involvement[6].

3.1.2 Inclusivity, transparency and accountability of decision-making

In HTA, needs assessment and decision-making in resource allocation are **not fully transparent and not effectively inclusive** as perceived by stakeholders[7]. This is a continued characteristic of the Polish health system resulting from systemic rules and practices established since 1999. Over recent years Polish health system has undergone gradual, incremental improvements towards evidence-based medicine (EBM), transparency and overall good governance. These should be considered significant achievements especially

[4] *Consultation with informants.*
[5] *Consultation with informants.*
[6] *Consultation with informants.*
[7] *Consultation with informants.*

in comparison to other countries in the region (most notably: institutionalisation of HTA in the development of guaranteed benefits baskets [Löblovà, 2018].

Despite this progress, various structural challenges persist due to systemic arrangements and the entrenched practices of actors of the system. Processes of **decision-making are characterised by the following phenomena**:

- Coordination is either insufficient or *ad hoc* leading to 'silo policymaking' and myopic or narrow policy motivation[8] (tunnel-vision). This issue is somewhat recognised by the Ministry of Health, particularly in the search for health impact assessment tools [Włodarczyk, 2017].

- **Sequenced compartmentalisation** is a predominant mode of processing complex issues, resulting in inconsistent decision-making. It comprises of systemic rules to deconstruct wider policy problems into smaller aspects (or inputs), to compartmentalise processing of those aspects in dedicated institutions and to sequence those processing stages in a specific order. For instance, pharmaceutical reimbursement decisions are sequenced in a following way: AOTMiT (Agency for Health Technology Assessment and Tariffs System) provides expertise; this is followed by Economic Commission bargaining with producers; and this is followed by MoH's final political decision [Zabdyr-Jamróz, 2020].

- **Misalignment between policymaking practices** (top-down decision-making) **and organisation of healthcare system** (contracting of services requiring consensus between principal stakeholders) results in end-of-pipe deadlocks (e.g. "strikes" of providers refusing to accept contracts under new imposed conditions and reforms) [Kowalska-Bobko et al, 2015].

- **Structural egoism** – i.e. rules of the system forcing actors to behave egoistically (negotiator's dilemma and strategic control of information)[9] [Zabdyr-Jamróz, 2019] – e.g. between NHF and providers. As informants observe, the results are disjointed actions of actors where particularistic motivations dominate over policy objectives. Tis causes a breakdown of cooperation between actors and egoistic behaviours. This leads to opportunistic behaviours of healthcare providers that strive to exploit overpricing of certain services, eventually leading to unfair competition practices and wasteful resources allocation[10]. In the context of serious system underfunding (as it was stressed by informants) this also leads to excessive austerity practices and lean management, bringing with them the overburdening of personnel and lack of emergency redundancies due to practices of employing only the minimum necessary staff[11]. These issues lead to tensions and a likelihood of protests by medical personnel even in the midst of the pandemic [Szpyrka, Ptok, 2020; Raducha, 2020].

The perception of stakeholders is that professional bodies and 'frontline' staff feedback are regularly ignored in law-making processes[12]. Stakeholder voices are often taken into consideration only after various publicly visible direct-action protests such as hunger strikes [Bogucka-Czapska, 2019]. In consultation bodies there is a notable overrepresentation of governmental institutions and the most prolific, high-profile members of medical professions [JoL, 1985 No. 12, item 49; JoL, 1990 No. 16, item 95; JoL, 1990 No. 32, item 191; JoL, 1997 No. 141, item 943; JoL, 1998 No. 91, item 576; JoL, 1998 No. 91, item 578; JoL, 2004 No. 201, item 2135; JoL, 2006 No. 191, item 1410; JoL, 2007 No. 89, item 590; JoL, 2008 No. 234, item 1570; JoL, 2011 No. 112, item 654 ; JoL, 2015 Item 1916; JoL, Ordinance by the MoH, 2020 Item 64]. This also concerns regulation of the professional market, since established professionals control the supply of human resources, invoking suspicions of conflict of interest. An outdated and myopic approach to health disciplines is a significant

[8] *Consultation with informants.*
[9] *This phenomenon was referenced by one of the informants (Marek Balicki, Member of the National Development Council).*
[10] *Consultation with informants. Jakub Kraszewski. HR Director at the University Clinical Center in Gdańsk.*
[11] *Consultation with informants. Zofia Małas, Director of the Supreme Chamber of Nureses and Midfwifes.*
[12] *Consultation with informants.*

problem e.g. dominance of the medical profession over public health and the persistence of a conservative model of health promotion among decision makers (this is exemplified by the Ministers of Health standing against anti-smoking measures in 2010[13] or dismissing the role of environmental health in 2017[14]). Usually, physicians are appointed as Ministers of Health which may reinforce this neglect of new public health. A notable problem for decades was a lack of political will to increase public spending on health via parliament. The decision to increase spending on health was forced by a young physicians' (residents') strike [Bogucka-Czapska, 2019]. However, the implementation of the new law is questionable in practice.

There is relatively low transparency of decision-making, especially in areas not regulated by law, with neglect or tokenistic treatment of mandated social consultations and impact assessment of regulations. Decisions are based on unclear sources of knowledge and evidence, despite established protocols for data collection. The legislative process is lacking in procedural consistency and transparency and it is insulated from feedback from outside the political system. In 2015 it was evaluated as 'autopoietic' – that is, unresponsive to input from stakeholders [Dudzińska, 2015]. Decision-makers fail to take into account the voice of the frontline staff. As one of our informants observed: "no expert can convey information like [frontline staff are] able to"[15].

Thus, the Polish health system lacks systematic 'action learning' and feedback from lower tier personnel – resulting in frustration and recurring strikes. Also, there is insufficient exchange of information resulting from structural egoism and fear of political accountability for mistakes. Political responsibility, mostly dependant on the will of parliamentary majority, is dominant. Furthermore, since 2015 (with the changes to the Act on Civil Service [JoL, No. 227, item 1505]) there has been a process of weakening of the ethical screen between politicians and civil service.

All this results in a lack of mechanisms for responsiveness and for holding decision-makers accountable. Political or penal and civil law accountability mechanisms do not encourage systemic prevention of mistakes or adverse events (including medical errors). Informants representing stakeholders observe the lack of personal and group accountability for key performance indicators. This results in a lack of security of practicing medical professions (due to high liability risk) as well as lower safety for patients. This appears to be the outcome of the liberal bioethics model [Dickerson, 1999] where conflicts are resolved in courts primarily to provide compensation for damages (a "blame-game") instead of incentivising systemic measures to prevent future adverse events. For example, voivodship commissions for adjudication on [adverse] medical events do not prevent court adjudication and thus do not fulfil their intended roles of instituting accountability without high adjudication costs[16].

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[13] In 2010 the MoH in office at the time, Ewa Kopacz (a physician by profession) participated in a TV ad where she opposed anti-smoking regulations, while smoking on camera and declaring that "I like smoking". Dzień Dobry TVN, Kopacz przeciw zakazowi palenia [Kopacz against the smoking ban], https://www.youtube.com/watch?v=7beuVGI-4R8;
Anna Kaczmarek, Burza w internecie po wyznaniu Ewy Kopacz przed kamerami: "Lubię palić..." [Uproar on the Internet after Ewa Kopacz's confession in front of the cameras: "I like smoking ..."], Rynek Zdrowia 28 stycznia 2010, https://www.rynekzdrowia.pl/Polityka-zdrowotna/Burza-w-internecie-po-wyznaniu-Ewy-Kopacz-przed-kamerami-quot-Lubie-palic-quot,15099,14.html
[14] In 2007 the MoH at the time Konstanty Radziwiłł (also a physician by profession) stated that the issue of smog is "slightly theoretical". Problem smogu w Polsce. Minister zdrowia Konstanty Radziwiłł: to zagrożenie troszkę bardziej teoretyczne. I dodaje: znaczna część Polaków ciągle pali papierosy [The problem of smog in Poland. Health Minister Konstanty Radziwiłł: this threat is a bit more theoretical. And he adds: a significant number of Poles still smoke cigarettes], Wirtualna Polska, 03-01-2017 https://wiadomosci.wp.pl/problem-smogu-w-polsce-minister-zdrowia-konstanty-radziwill-to-zagrozenie-troszke-bardziej-teoretyczne-i-dodaje-znaczna-czesc-polakow-ciagle-pali-papierosy-6076229964542593a
[15] Consultation with informants (Andrzej Matyja, the Director of the Supreme Medical Chamber).
[16] Consultation with informants.

3.2 Resilience

3.2.1 Preparedness: how well prepared is the health system for crises?

Due to pre-existing public health monitoring and control institutions (e.g. Sanepid, i.e. State Sanitary Inspection system) the initial response – though without any specific contingency **pandemic plan** – was successful [Kowalska-Bobko et al, 2020; Zabdyr-Jamróz, Kowalska-Bobko, 2020; Golinowska, Zabdyr-Jamróz, 2020]. However, after the first wave passed, the time before autumn wave was not properly taken advantage of for preparation. There was a **political will** within the government (with a wider **political consensus**) to **follow scientific consensus**. However, in the summer, **political leadership instrumentalised expertise** to demobilise health system resources and public vigilance for the presidential elections on June 28 and July 12. On that occasion, the Prime Minister (as the government was interested in large turnout) even declared that the virus "is in retreat" and that "it is good that we fear it less" [Morawiecki, 2020]. Informants observe that the premature assumption of success in the summer have led to the dismantling of many emergency solutions and system adaptations that had to be reinstated later on[17].

Capital of **trust** and public compliance (vital for helping to contain the pandemic) was eroded [Golinowska, Zabdyr-Jamróz, 2020]. **The system was not sufficiently prepared** for a second wave of infections in terms of having sufficient **contingencies and redundancies** of the system in place. Shortages of some pharmaceuticals and medical products (e.g. flu vaccines) became much sharper than in previous seasons.

Established epidemiological surveillance and early warning systems [Sowada et al, 2019, JoL, 1985 No. 12, item 49; JoL, 1990 No. 16, item 95; JoL, 1990 No. 32, item 191; JoL, 1997 No. 141, item 943; JoL, 1998 No. 91, item 576; JoL, 1998 No. 91, item 578; JoL, 2004 No. 201, item 2135; JoL, 2006 No. 191, item 1410; JoL, 2007 No. 89, item 590; JoL, 2008 No. 234, item 1570; JoL, 2011 No. 112, item 654 ; JoL, 2015 Item 1916; JoL, Ordinance by the MoH, 2020 Item 64] ensured **vigilance** at the very start of the pandemic. However, underfunding and understaffing of these systems, together with missing communication links that enable effective pooling of data led to their breakdown. Without proper political will and coordination mechanisms for decision making, public communications did not follow principles of good leadership. Multiple informants observed deficiencies in consistent, trustworthy public communication and delivery of consistent, rational standards or recommendations. Chaotic and primarily top-down decision-making tendencies amplified resource deficits[18]. There were large discrepancies in the number of COVID-19 cases reported between county-tier State Sanitary Inspectorate Stations in the region and the Voivodship Stations' data. This led the government to a policy of informing the public only based on data collected on the central level [Jędrysiak, 2020].

3.2.2 Response: how well does the health system respond to crises?

Decision-making during the crisis lacked in quality and responsiveness, most notably **stakeholder involvement** and **transparency**. At the start **timeliness** appeared satisfactory (not so later-on). The **use of evidence and expert insight** remained unclear due to lack of transparency and consistency in decision-making. Notable was a dominance of politicians and administrators over experts in early pandemic responses.

As was observed by informants, some healthcare providers responded to information on the pandemic early enough to preserve their key operations (despite negative reactions from patients). Quick country-wide lockdown were essential for enabling healthcare providers to prepare and to avoid preventable deaths due to exceeding the system's capacity. Politicians were overrepresented in public communications relating to the pandemic, relative to experts[19].

[17] *Consultation with informants.*
[18] *Consultation with informants.*
[19] *Consultation with informants.*

Due to **lack of emergency redundancies**, and severe pre-existing shortages of medical personnel, the health system is in a dire condition. At the beginning the Material Reserves Agency failed to fulfil its strategic role, although this was improved later on[20]. Systemic capacity for emergency COVID-19 medical care has been further diminished by mismanagement at the level of local healthcare providers. Purchases of assets and their allocation are not transparent. The decision of transforming certain hospitals into COVID-19 **hospitals was not accompanied by an attentive analysis to the functioning of these hospitals** and an impact evaluation of the reduction of their usual operations. This might have an impact on the long-term sustainability of those providers as well as for the entire system (e.g. professional training was suspended in those hospitals, interrupting the plan of rebuilding human resources in the system)[21]. Testing as a way of controlling the pandemic was insufficiently prepared for. As of early November 2020, 29.9% tests yielded positive results, indicating that the country had lost control over spread of the infection. Due to the State Sanitary Inspectorate's lack of capacity– especially personnel shortages and underfunding – contact tracing was ineffective [Bąk, 2020].

Pre-existing societal research infrastructure kicked-in and mobilised to assist leadership in research on the pandemic (e.g. special grants from the National Research Centre). However, research and development accomplishments were not utilised to their full potential, leading to claims of wasting potential and effort [Klinger et al, 2020]. The crisis management system is notably focused on natural disaster management (floods) and national security (military and secret service) [JoL, 1985 No. 12, item 49; JoL, 1990 No. 16, item 95; JoL, 1990 No. 32, item 191; JoL, 1997 No. 141, item 943; JoL, 1998 No. 91, item 576; JoL, 1998 No. 91, item 578; JoL, 2004 No. 201, item 2135; JoL, 2006 No. 191, item 1410; JoL, 2007 No. 89, item 590; JoL, 2008 No. 234, item 1570; JoL, 2011 No. 112, item 654 ; JoL, 2015 Item 1916; JoL, Ordinance by the MoH, 2020 Item 64]. Unlike other countries of the region Poland did not declare a state of emergency, but instead a state of 'epidemic emergency' (on March 14). This allowed the government not to postpone the presidential elections, not to be obliged to compensate economic losses for pandemic restrictions and did not impose additional coordination duties on the central government [Sagan et al, 2020]. The diversity in response at the voivodship levels revealed that Health (or Social Policy and Health) Departments have performed better in handling the pandemic than Crisis Management Centres[22].

Communication and coordination between key sectors have improved since the beginning of the crisis. The establishment of the government's *Team for monitoring and forecasting the course of the COVID-19 epidemic in Poland* [JoL, 1985 No. 12, item 49; JoL, 1990 No. 16, item 95; JoL, 1990 No. 32, item 191; JoL, 1997 No. 141, item 943; JoL, 1998 No. 91, item 576; JoL, 1998 No. 91, item 578; JoL, 2004 No. 201, item 2135; JoL, 2006 No. 191, item 1410; JoL, 2007 No. 89, item 590; JoL, 2008 No. 234, item 1570; JoL, 2011 No. 112, item 654 ; JoL, 2015 Item 1916; JoL, Ordinance by the MoH, 2020 Item 64] in September 2020 improved the pool of governmental stakeholders involved in pandemic decision-making, however this was relatively late in the pandemic. Also, as a coordinating body it did not utilise institutional assets, for example as possessed by primary healthcare. It did not involve more systematic inclusion of all departments and all sectors in decision-making. Feedback from the 'front-line' of the pandemic is still not systematically presented in decision-making.

Guidelines and protocols are developed for a variety of sectors and activities. Each department developed its teams responsible for establishing proper guidelines. No bioethical guidelines were developed for emergency rationing in the time available. In October 2020, rationing issues led to the situation described by bioethicists as a 'wild triage'[23]. When it comes to potential legal challenges to such triage decisions physicians were mostly interested in reducing risk of penalties and financial liability for medical errors to

[20] *Consultation with informants.*
[21] *Consultation with informants.*
[22] *Consultation with informants.*
[23] *Consultation with informants.*

facilitate autonomous decisions[24] (a reform to this effect with the "Covid Act" was postponed in November by an error in the legislative process). Procedures were not developed to implement a system for sharing knowledge on medical errors and to procedurally prevent their occurrence, however the liability was alleviated for adverse events during the combating of the pandemic.

The quality of public communication during the pandemic has been mixed with a strong dose of mistrust and public disappointment due to sudden policy changes that impact economic functioning of the state and does not allow time to prepare (e.g. the sudden decision on lockdown of cemeteries for All Saints Day). Certain discursive practices described as "medical populism" [Lasco, 2020] have been employed by the government's representatives in a discourse against physicians, blaming them for insufficient efforts [Dziennik, 2020]. This stands in contrast with informants' appraisal of high dedication of Polish medical personnel[25].

3.2.3 Learning and adapting

Basic structures provided by the State Sanitary Inspection, National Institute of Public Health and other institutions enabled a basic level of data collection and response. However, processes of decision-making are not transparent in terms of motivating knowledge, as well as **stakeholders' adaptation and systemic learning**. The government seems to be utilising data provided by the public and the media instead of its own data collection [Słowik, 2020b]. Despite early problems, the Material Reserves Agency improved its operations when it comes to essential medical reserves[26].

Overall, the central structures did not properly utilise the time between the first and second wave to prepare better – **to adapt and learn**. Successes (including a notable drop in deaths due to all causes) during the first wave clearly led to complacency, exacerbated by the postponed presidential election campaign and political conflicts within the ruling coalition.

The important law "the COVID Act" [JoL, 2020, Item 2112, 2113] – designed to institute various necessary legal changes – was enacted only in late October 2020 and was postponed in promulgation due to apparent errors in the legislative process. The act was postponed because amendments to the act introduced by the Senate broadened the eligibility of medical personnel for COVID-19 bonus wages. Since the act was already signed by the president, the government decided not to promulgate the law [Mikulski, 2020].

3.3 Summary and recommendations

[1a] Poland had a robust structure of public health institutions – unfortunately largely on paper. The pandemic revealed persistent neglect of these institutions over recent decades and chronic lack of resources (underfunding and understaffing), including underappreciation of public health as a profession and as an aspect of health protection.

[1a Recommendations] These issues suggest that Poland requires greater support for public health profession to enhance public health workforce and good skill-mix within the system. This calls for a modernisation, financial assistance and workface strategy. Also a fundamental reform of the State Sanitary Inspectorate (Sanepid) becomes a clear necessity.

[1b] Poland's relatively quick response to the pandemic (most notably lockdown) was essential in enabling healthcare providers to prepare and in limiting COVID-19 casualties in the early months of the pandemic. Existing traditions and latent capacities of public health – largely inherited from the socialist system period (pre-1989) – greatly assisted in this rapid response (Sanepid). A threat for the future heath of the population

[24] *Consultation with informants.*
[25] *Consultation with informants.*
[26] *Consultation with informants.*

is the underappreciation of healthcare issues other than COVID-19 (neglect of prevention, screening, non-urgent yet important treatments, sharp drop in referrals to specialists, etc.). This is an instance of sacrificing sustainability of the system in an attempt to improve resilience.

[1b Recommendations] Urgent institutional reorganisation to reactivate capacity to tackle health issues other than COVID-19 – to better balance resilience and sustainability.

[1c] While Poland has existing standards concerning legislation impact assessment, there is a glaring lack of health impact assessment and in many instances regulatory impact assessment is treated in a tokenistic manner.

[1c Recommendations] An institutionalisation of HIA methods – as a tool for "health in all policies" – is a growing necessity to improve sustainability.

[1d] The Polish system has robust pre-existing structure of institutions for expert evidence-based assessment (HTA) and evaluation: NIPH-NIH, AOTMiT etc. These institutions are compartmentalised (i.e. insulated from political or vested interest influence). However – due the very same compartmentalisation – these institutions' expertise is often instrumentalised in service of practices known as "policy-based evidence", resulting from the systemic condition of primacy of politics over evidence-based policy-making. This leads to mistrust of stakeholders and the general population.

[1d Recommendations] Hence, a highly recommended response is the adoption of the deliberative authority approach to create mechanisms of policy-making that are evidence-informed as well as inclusive and transparent.

[1e] Poland has pre-existing institutions of intersectoral coordination and stakeholder involvement, at least on paper. Part of this is the inter-departmental consultations and social consultations of governmental bills. Also, the National Health Programme is established via regulatory act by the entirety of the Council of Ministers with the involvement of intersectoral Public Health Council. Moreover, Poland continues to introduce and develop mechanisms for more coordinated, rational and responsive resource allocation, including health needs maps and IOWISZ (capital investments – see: domain 4). All this is assisted by multiple attempts at coalition building in strategic planning. However, these mechanisms remain underdeveloped and scattered. Coordination is implemented ad hoc by multiplying consultative bodies that in themselves remain siloed (separate councils for emergency planning, health needs maps, and NHF planning). Stakeholders' perception is that decision-makers remain unresponsive to feedback. The legislative process at the parliamentary stage is often 'autopoietic', i.e. closed to feedback. It is apparent the system and its participants lack know-how in deliberative governance and coalition building. This is particularly problematic when it comes to consensus building in strategic planning. Substantive changes have to be forced via direct protests since conventional petitions are often ignored until strikes draw public attention. Problematic is also a structural misalignment between the healthcare system and policymaking leading to obstruction in implementation of reforms due to conflicts – strikes, protest, etc.

[1e Recommendations]

[1e-1] An integration of various councils at central and voivodship level (between self-governments and deconcentrated government institutions), e.g. Voivodship Health Councils as consolidation of: NHF Voivodship Councils, Councils for Voivodship Crisis Management Plans, Health Needs Maps Council, etc.

[1e-2] The aforementioned challenges call for a systematisation of feedback from 'frontline' workers. As one of our informants observed: "[Even] The general should listen to the reports of the soldiers from the frontline.

[…] No expert can convey information like [frontline staff are] able to"[27]. This can be addressed by introducing mechanisms for 'learning health systems' (LHS) [McLachlan et al, 2018] and action research [Reason, Bradbury-Huang, 2013]. Learning health systems embed the knowledge generation in daily practices. Similarly, action research connects research with simultaneous actions while considering those involved (practitioners and beneficiaries) as an essential source of information. However, the data collection process should not be arranged in a way that overburdens practitioners and citizens with additional tasks that conflict with their proper roles. Systematically collected information (unless specifically required by law) should be publicly available (to academic institutions, media etc.) to allow external expert scrutiny and evaluation.

[1e-3] These – and other – problems can also be addressed by the introduction of deliberative governance methods and deliberative democracy techniques (e.g. planning cells). Deliberative governance is a systematic engagement of a variety of stakeholders in the decision-making process – providing not only independent expert advice (e.g. through monitoring) but also other valuable feedback including inputs concerning the public opinion (hopes and fears), practitioners' and citizens' experiences as well as their existential self-interests including via deliberative governance [Hendriks, 2009] and a pragmatic model of bureaucratic responsiveness [Liao, 2018]. Deliberative democracy techniques (minipublics) are a consultation method that involves representative group of lay-citizens (no self-selection) and enables them to learn about the policy proposal before evaluating it (e.g. citizens' juries [Crosby, 1986], planning cells [Dienel, Renn, 1995]). This could enable an introduction of **[1e-4]** mechanisms for consistent public communication and education strategies.

[1f] Over recent decades Poland has made significant progress in the area of quality-control, patient rights and safety. However, mechanisms of quality control and enforcement of patient rights are based on a "blame-game", leading to a shifting of responsibility and an antagonistic approach to tackling adverse events. This is ineffective primarily in ensuring structural/procedural improvements and prevention of adverse events.

[1f Recommendations] A solution to this might be the introduction of no-fault system for quality control and patients' safety (e.g. by reforms of the Voivodship commissions for adjudicating adverse events) [also see: 1e-2, action learning].

[1g] The Polish healthcare system since 1999 has been characterised by a significant degree of decentralisation. It is arranged on the basis of 'internal competition' and a public–private partnership model of public services provision. This – due to notable complexity – has led not only to a lack of coordination but also to structural egoism (system arranged as a zero-sum game) – resulting in susceptibility to conflicts and suboptimal resource allocation based on hard bargaining: excessively lean management (see – Domain 4: Workforce), leading to poor working conditions (multiple jobs), strategic control of information, suboptimal resource allocation (dependant on actors' power) and susceptibility to conflicts. This is a significant problem for the resilience of the system as well as its long-term sustainability – these being sacrificed for short- and mid-term sustainability realised via management strategies prioritising narrowly viewed cost containment. It, above all, reduces the emergency redundancies of the system (insufficient staff and resources). In general, because of its structural features, the Polish system by design lacks holistic and long-term vision, with "silo-policymaking" and compartmentalisation.

[1g Recommendations] To some extent this can be addressed by:

[1g-1] the consolidation of ownership of healthcare providers: hospitals at voivodship level and open basic care (primary and ambulatory) at county level.

[1g-2] Structural egoism can be ameliorated by the introduction of deliberative negotiation between providers and payer, as well as mediation in conflict resolution.

[27] *Consultation with informants, Andrzej Matyja, the Director of the Supreme Medical Chamber.*

4. Domain 2: Health System Financing

4.1 Data on key trends in health system financing

Table 1. Trends in population, 2010-2019 (selected years)

	2010	2015	2019
Total population (million)	38.04	37.99	37.97
Population ages 65 and above as % of total population	13.5	15.6	18.1

Source: WB (2020).

Table 2. Macroeconomic indicators, 2010-2019 (selected years)

	2010	2015	2019
General government gross debt as % of GDP	53.5	51.3	45.7
Labour force participation rate (% of total population ages 15+) (national estimate)	55.3	56.2	56.2

Sources: Eurostat (2020), WB (2020).
Notes: PLN = Polish zloty.

Table 3. Trends in health system financing, 2010-2019 (selected years)

	2010	2015	2019
Current health expenditure per capita in US $ 1000s (PPP) (current prices)	1 422.8	1 819.3	2 229.6
Current health expenditure as % of GDP	6.4	6.3	6.3
Public expenditure on health as % of GDP	4.6	4.4	4.6
Public expenditure on health as % current expenditure on health	71.7	70.0	71.9
Private expenditure on health as % current expenditure on health	28.3	30.0	28.1
OOP payments as % of current expenditure of health	23.7	23.0	n/a

Sources: OECD (2020).

Table 4. Distribution of NHF expenditure into individual sectors of the health care system in 1000s PLN, 2010-2019 (selected years)

	2010	2015	2019
Primary health care	7 266 721	8 811 269	12 462 538
Outpatient specialist care	4 240 247	5 656 079	5 212 517
Inpatient curative care	27 063 628	33 372 792	47 673 924
Prevention	140 045	174 102	199 007

Sources: NFZ (2011, 2016, 2020).

Inflation indicator for medical services

2010 – 3.7%

2015 – 2.3%

2019 – 5.6%

4.1.1 Sufficiency, stability and flexibility

The level of healthcare sector financing from public sources in Poland among the lowest in Europe. In 2017, Poland spent 6.7% of its gross domestic product on health, which is the seventh lowest result among OECD countries. This result would have been even lower but for a relatively high share of private expenses in total healthcare costs (12th highest among OECD countries).

Polish public healthcare expenditure as a share of GDP is dependent on the economic cycle. Since the transformation to a market economy took place healthcare expenditure seems to have an inverted relationship with economic conditions. In 2001 and 2008 we have seen a considerable rise of healthcare costs (as % of GDP) stemming from public expenditures. This is a result of relatively stable public healthcare costs in nominal terms, even during an economic downturn. In effect healthcare expenses in Poland should be considered a valuable countercyclical economic instrument [Bukowski, Pogorzelczyk, 2019].

Although the level and the structure of healthcare financing have undergone substantial changes, the share of GDP devoted to health has remained on a steady but slow growth path. Based on OECD data, the 1990–2017 period was characterised by an almost 14-fold increase in health care expenditure in constant prices. As GDP also grew considerably, but not as steeply, the percentage of GDP devoted to health increased by only 2.4 percentage points in the same period. Over 2/3 of this rise was due to the growth of private healthcare expenditure [Bukowski, Pogorzelczyk, 2019].

An amendment to the provisions of the Act on healthcare services financed from public funds has been adopted (as a result of strikes of residents in 2017 – see: domain 1: governance) setting a minimum amount of public expenditure on financing health care in the upcoming years. According to current regulations, public expenditure on healthcare is to be increased every year, to reach at least 6% of GDP in 2024. Next, the amendment included the possibility of special supplement payments to doctors who specialise in primary care and make a commitment to work in Poland for a certain period after completion of their training, and settled minimum wages for specialists who meet specific criteria. Moreover, in 2017 changes to the Act introduced a new legal institution in the form of a basic hospital assurance system for healthcare services, which became the main form of securing access to healthcare services in the field of hospital treatment and outpatient specialist care at hospital outpatient clinics. In the scope of services covered, a new form of settling the costs of benefits provided was accepted, in the form of a lump sum for a given settlement period [EC, 2019].

Funds come mostly from universal health insurance contributions collected by the NHF. Moreover, government budgets (state, regional or local authorities) contribute for specified purposes, such as health insurance contributions for specific groups of the population (e.g. unemployed receiving social security benefits, persons receiving social pensions, farmers, war veterans, etc.), capital expenditure in public health care institutions, highly specialised tertiary care procedures (such as organ transplants, heart surgery, treatments abroad) and very expensive drugs (in total around 10%).

The functioning of the health insurance system in Poland is managed by the National Health Fund. This is mainly due to the catalogue of tasks assigned to it. It took over the role of regional sickness funds, which previously managed the revenues from insurance premiums and concluded contracts with service providers. The Fund established by the Act on healthcare services financed from public funds, as a state legal person is independent and decoupled from the State Treasury. The basis of the Fund's operations is the annual financial

plan. By July 1 of each year, the President of the Fund is obliged to develop and submit a draft financial plan for the purpose of submission for opinion to the Fund Council and to parliamentary committees responsible for public finance and health matters.

The President of the National Health Fund must also prepare a financial statement for a given year. It is subject to examination by a statutory auditor and approval by the Minister of Finance – after consulting the Minister of Health, and then submitted, together with the opinion of the minister competent for health matters, to the Sejm of the Republic of Poland (the lower house of the Polish parliament) by August 31 of the following year.

In recent years, Poland has dealt with several hospital debt relief campaigns and the allocation of significant funds for this purpose. Nevertheless, the financial results of public hospitals are poor and have remained at a similar level for several years. The total debt of independent public healthcare establishments (SPZOZ), of which hospitals comprise the largest share, oscillates around PLN 10 billion. In Q3 2016, the debt of independent public health care units amounted to PLN 11.2 billion [Wasilewski, 2017].

In July 2016, the act on medical activity was amended. In the event of a negative financial result in an independent public health care institution (SPZOZ), it is to cover the net loss on its own. If this is not enough, then the creating entity, mainly reginal and local self-governments will be obliged to cover the remaining debt, but not more than the amount resulting from the sum of the net loss and depreciation costs. If the hospital is unable to cover the net loss, it can be liquidated.

In November 2020, the Act on the Medical Fund entered into force [JoL, 2020, Item 1875]. The Medical Fund is a new state special purpose fund whose purpose is to support activities aimed at improving health and quality of life in Poland. Within the Medical Fund, four sub-funds have been distinguished to finance the purchase of equipment and the development of health care infrastructure, as well as access to critical and modern services and innovative therapies.

The purpose of establishing the Fund is to provide additional sources of financing:

1. prevention, early detection, diagnosis and treatment of lifestyle diseases, including cancer and rare diseases;
2. healthcare infrastructure influencing the quality, availability and safety of healthcare services provided;
3. access to high-quality healthcare services;
4. development of the health care system by concentrating activities around the patient and their needs, with particular emphasis on improving the quality of life of patients and their families;
5. healthcare services provided to people up to the age of 18;
6. healthcare services provided to recipients outside the country.

The MoH is the administrator of the Fund. The revenues of the Fund are:

1. revenues from fees charged by the voivode or the Minister of Health, for issuing an opinion on the advisability of an investment in the creation of a new medical entity in the voivodeship, new organisational units or cells of a medical entity, or other investment related to the performance of medical provision (IOWISZ system – see: Domain 4: Medicines and technology);
2. payments from the state budget provided by the MoH, in the amount specified annually in the budget act for a given financial year, not lower than PLN 4.0 billion;
3. interest on accumulated funds;
4. voluntary payments, donations and bequests;
5. receipts from other sources.

There are four sub-funds within the Medical Fund:

1. strategic infrastructure sub-fund (construction, reconstruction, modernisation or retrofitting of strategic infrastructure of healthcare entities),
2. sub-fund for the modernisation of healthcare facilities (modernisation, reconstruction or retrofitting of healthcare facilities; improvement of the quality and availability of healthcare services and the safety of healthcare services provision through investments in infrastructure),
3. prevention development sub-fund (strengthening the role of POZ employees in increasing enrolment for tests under prevention programmes; support for local government units in co-financing health policy programmes involving prevention activities and health promotion, in defined priority areas),
4. therapeutic and innovation sub-fund for financing of unmet medical needs such as: medical rehabilitation services for people up to the age 18 who have been diagnosed with severe and irreversible disability or an incurable life-threatening disease; certain services provided outside the country; financing new drug technologies with high clinical value or a high level of innovation).

Financial resources for the health sector

As is indicated by EU's and OECD's healthcare financing indicators, Poland spends very little on healthcare when compared to countries with comparable economies. As of 2018 Poland was spending only 6.3% of its GDP on health and the government/compulsory scheme was only 4.5% of GDP. Poland is also among the lowest countries in terms of absolute expenditures on health (only 2,056.4 USD, PPP, current prices). However, it should be noted that despite the limited resources devoted to health, Poland's health system is relatively cost-effective and provides relatively good health outcomes. Still outcomes are not satisfactory for Poland's aspirations and are considered an area for development.

The low level of healthcare funding – with rising expectations of quality – has led to a variety of structural dysfunctions aggravated by multiple dysfunctions of governance, including fragmentation and structural egoism (see – domain 1: governance). It has thus led to ineffective resource allocation and an extreme focus on lean management – resulting in excessive cost savings[28] achieved to a great extent at the cost of medical personnel (low wages, staff shortages – see: domain 3: workforce). When it comes to individual healthcare expenses in Poland, 30% are estimated to be out-of-pocket and expenses on private insurance. This is considered a problem from the standpoint of combating health inequalities, adding weight to calls for greater public support.

There is a consensus among politicians, stakeholders and experts that the expenses on health should be greater part of the county's GDP [Bartman, 2020]. This consensus was largely generated by a series of protest of nurses (2016) and young doctors (2017) (see – domain 1: governance). Eventually the latter's strikes of 2017 have led to the so-called "6% Act" of 2018 that aims at increasing the public health expenditure as a share of GDP from the current 4.5% to 6% initially by the end of 2024 [JoL, No. 201, item 2135]. The calculation of this goal is problematic, however, as it does not include health expenditures by local territorial self-governments, among others. The reform also has led to temporary shortages of staff, as it has resulted in a spiral of wage increase demands by other personnel and hospital ward closures due to financial difficulties.

[28] *Consultation with stakeholders.*

Table 5. Expenses for healthcare in selected EU countries in 2018

Country	Current expenditure on health as a share of GDP (in %)	Government/compulsory schemes as a share of GDP (in %)	Current expenditure on health in USD (PPP per capita, current prices)	Government/compulsory scheme in USD (PPP per capita, current prices)
Austria	10.3	7.7	5,395.1	4,032.6
Belgium	10.4	8.0	4,943.5	3,819.9
Czech Republic	7.5	6.2	3,057.6	2,525.2
Denmark	10.5	8.8	5,268.8	4,472.2
Estonia	6.4	4.9	2,231.4	1,678.9
Finland	9.1	6.6	4,228.2	3,184.5
France	11.2	9.3	4,964.7	4,141.2
Germany	11.2	9.5	5,984.4	5,056.1
Greece	7.8	4.7	2,238.2	1,348.8
Hungary	6.6	4.6	2,046.8	1,438.8
Ireland	7.1	5.3	4,915.5	3,648.9
Italy	8.8	6.5	3,427.8	2,544.6
Latvia	5.9	3.4	1,748.5	1,003.7
Luxembourg	5.4	4.5	5,070.2	4,256.5
Netherlands	9.9	8.2	5,288.4	4,342.7
Poland	**6.3**	**4.5**	**2,056.4**	**1,475.9**
Portugal	9.1	6.0	2,861.4	1,901.8
Slovak Republic	6.7	5.4	2,290.3	1,833.9
Slovenia	7.9	5.8	2,859.4	2,085.4
Spain	8.9	6.2	3,322.6	2,341.4
Sweden	11.0	9.3	5,447.1	4,660.4
United Kingdom	9.8	7.5	4,069.6	3,138.5

Source: OECD, 2018.

Financing during COVID-19

To address the COVID-19 pandemic, additional funds have been injected into the health care system from both public and private sources. As a part of the crisis-response package, the government has announced that it will allocate an additional PLN 7.5 billion to the healthcare sector to finance current activities (healthcare services and medical products) as well as investment (e.g. in infrastructure or digitalisation). Since May, the Ministry of Health has been publishing information on all purchased products and non-medical services related to COVID-19. By September 21st, the value of purchases amounted to over PLN 1.3 billion. The Ministry of Health confirmed that some of these products (e.g. masks) were purchased at inflated prices and did not meet the required standards.

Central government is responsible for financing healthcare services to counteract COVID-19 and is the main source of funds. Funds are transferred (based on a monthly report) to the National Health Fund (NHF), which in turn uses them to pay for health services. The payments are made based on reports and bills submitted by providers to the NHF outside the usual contracts for providing healthcare services. Only providers included in the list of providers dedicated to performing services related to COVID-19, are entitled to receive these dedicated funds. By end-June, the NHF had paid nearly PLN 1.3 billion to providers.

In order to pay for services related to COVID-19, the NHF has established a catalogue of services it finances and their prices. According to the catalogue, providers are paid both for assuring readiness to provide services and for the actual provision of services. Over time, the catalogue has been updated to reflect the emerging needs of the population and the changes in the organisation of care for COVID-19 patients (e.g. implementing three-stage hospital security system, involving GPs in managing cases). Originally, it included six items such as hospitalisation, hospitalisation in an intensive care unit (ICU), isolation in a designated facility, transport, readiness to provide hospitalisation, and readiness to provide transport. This list has been gradually extended to 38 items currently (as of the end of October 2020), with some items split into more detailed procedures and with additional procedures added. The added services are related to:

- performing diagnostic tests for SARS-CoV-2 among patients and medical staff of hospitals (including hospitals which are not specifically dedicated to COVID-19 patients) and readiness to provide tests;
- taking biological samples for testing and readiness to take samples;
- teleconsultations with a physician or nurse;
- physician consultations provided at SARS-CoV-2-infected patients' homes;
- emergency dental services (and readiness to provide them) for patients with SARS-CoV-2 infection or suspected infection;
- pre-triage of people with suspected SARS-CoV-2 infection;
- dialysis for patients with SARS-CoV-2 infection or suspected infection.

At the same time, the prices of services in the catalogue have been adjusted to reflect providers' costs. For example, the payment for RT-PCR molecular tests has been reduced from PLN 450 (c. EUR 100) to PLN 280 PLN (c. EUR 60) following the recommendation of the national health technology assessment (HTA) agency (the Agency for Health Technology Assessment and Tariff System). This however raised criticism from the National Council of Laboratory Diagnosticians.

Additional funds for healthcare services have been released by the NHF to cover extra costs without reducing regular payments to hospitals due to cancellations of services not related to COVID-19. The NHF has also devoted additional resources to certain outpatient specialist services, tele-consultations, and helplines for patients. Since July, the NHF has been paying all contracted providers additional 3% of their bill, which is

intended to cover the cost of an elevated sanitary regime, i.e. organisation and provision of services in safe conditions, including purchasing PPE. These resources come from the state budget.

Provincial self-governments (voivodeships), which are the owners of some health care providers, support their facilities by providing funds, mostly to purchase medical equipment or personal protection equipment (see also Section 2.1). Public funds are also used to finance research and development activities related to COVID-19. The National Centre for Research and Development supported by EU funds has devoted PLN 300 million (about EUR 66 million) for this purpose [Kowalska-Bobko et al., 2020b].

4.1.2 Coverage and fair financing

The Constitution of the Republic of Poland guarantees the right of all citizens to equal access to healthcare financed from public sources. According to the 2004 Act on Healthcare Services Financed from Public Sources, entitlement to health services covered by the NHF is based on the insurance status. Additionally, certain uninsured population groups are also given the right to publicly financed health care.

Insurance in the NHF is obligatory for the vast majority of the (resident) population and it is not possible to opt out. Article 66 of the 2004 Act specifies which population groups are subject to the statutory health insurance mandate. These are, among others, employees, old age and disability pensioners, the unemployed, the self-employed and farmers. Spouses and children up to age 18 (or 26 if they are in full-time education) of the insured persons, as well as their parents and grandparents (if they live in the same household), can be covered as co-insured family members with no additional contribution paid to the insurance fund. However, they must be registered as such in order to be covered. The right to healthcare services for most insured groups is preserved for 30 days after the insurance ceases (though this period can be longer for certain population groups; for example, 4 months for students).

Insurance contributions for certain population groups are financed from the state budget. This applies, for example, to individual farmers with small farms (smaller than 6 hectares); the unemployed who do not receive unemployment benefits; refugees covered by an individual integration programme; children, pupils and students who are not insured as co-insured family members; child care providers or parents on unpaid child care leave.

Table 6. Population with compulsory and voluntary insurance – as at the end of 2019

Obligatorily insured			Voluntarily insured			Total number of insured persons (voluntary and obligatory)
Total	Paid health insurance contributions	Co-insured family members	**Total**	Paid health insurance contributions	Co-insured family members	
34 028 309	26 205 269	7 823 040	**25 339**	18 187	7 152	**34 053 648**

Source: NFZ. Report on the activities of the National Health Fund for 2019. https://www.nfz.gov.pl/gfx/nfz/userfiles/_public/bip/uchwaly_rady/sprawozdanie_z_dzialalnosci_nfz_za_2019_rok.pdf

Primary care, outpatient specialist care and hospital care within the publicly financed health system are provided free of charge. Inpatient stays in sanatoria (not for all) and LTC institutions are subject to fees to cover the cost of room and board. Cost-sharing is widely applied to outpatient pharmaceuticals (pharmaceuticals received as a part of inpatient care are free of charge), including co-payment and co-insurance, as well as indirect cost-sharing (reference pricing). Cost-sharing is also applied to medical devices. Certain population groups (e.g. war veterans, children or older people) are exempted from some cost-sharing obligations.

4.1.3 Paying providers

Public health services are financed by the NHF and from the budgets of the state and territorial self-governments.

Primary care services are paid for via annual capitation. GPs receive a capitation payment for each patient on their list (up to 2500 per doctor). This payment is adjusted for patient age (currently, six age groups are distinguished), with higher capitation rates for children and older people. Additionally, a higher rate is applied for patients in social assistance homes (DPS). The capitation fee is also expected to cover the cost of diagnostics; thus, primary care physicians sometimes limit the number of diagnostic services in order to limit the costs (NIK, 2017a), and to secure care during nights and holidays and, partly, for transporting patients. Other payment methods within primary care include FFS payments (payment per consultation); for example, for consultations with patients not registered on the list, for cardiovascular disease prevention services, for patients with a Diagnostic and Oncological Treatment Card (DiLO) and monthly lump sum payment for securing care during nights and holidays and for transporting patients.

The new Act on Primary Health Care adopted in 2017 introduced elements of P4P financing. Starting in October 2020, the above financing methods will be supplemented by: a special budget (lump sum) for providing coordinated care; a special activity-based budget for providing preventive care; special budgets for diagnostic care and specialist ambulatory care; and elements of incentive pay depending on treatment outcomes and quality of provided care.

Primary care nurses and midwives also receive capitation payments for each patient (up to 2500 patients per nurse, with higher rates for children, older people and people in DPS, and up to 6600 patients per midwife). In addition, nurses also receive fee-for-service (FFS) payments (payment per consultation) for patients not on their lists and for tuberculosis prevention services. Midwives receive FFS (payment per consultation or visit) for patients not on their lists, patronage visits, collecting sample for cytology test, managing antenatal care, antenatal visits and postoperative visits. School nurses and hygienists receive capitation payments for pupils on their list (up to 1100 pupils). An additional capitation payment is received for providing group fluoride prophylaxis.

Outpatient specialist consultations are paid on a per visit basis, with the level of payment depending on the services provided during the visit. Since 2011, this has started resembling case-based payment: all services have been bundled into economically homogeneous groups. The combination of services provided during the visit determines the classification of visit into one of the predefined groups, and thus also the payment for the visit. The number of visit types has increased over years in order to more closely reflect the cost of provided care.

Hospital accreditation is encouraged by financial incentives (within the contracts with the NHF), at present, only 220 hospitals and 239 primary care clinics have received accreditation (data 15 January 2021 – the number of these entities is constantly growing) [CMJ, 2021].

4.2 Summary and Recommendations:

[2a] There is a political consensus in Poland that increasing the spending on health system is necessary and the serious underfunding of the system is well recognised as a problem. This impacts sustainability as well as resilience.

[2a Recommendations] The proposed solution to this is an overall increase in the allocation of funding to health (especially dedicated to long-term care), although this should be addressed with caution about the cost of labour and in the context of the general repressiveness of Polish health contributions. An increase in healthcare financing from taxes on unhealthy products and behaviours is also proposed as well as the introduction of co-payment mechanisms.

[2b] A structural advantage of the Polish healthcare system is the arrangement that enables centralised redistribution of financial resources (NHF central level) as well as deconcentrated allocation (NHF branches). The newly established fund for coordinated infrastructural investments as well as IOWISZ (Evaluation Instrument of Investment Motions in Health Care) provides a further framework for improvement in resource allocation. However, the Polish system suffers from a detrimental system of financial incentives, e.g. opportunistic behaviours of healthcare providers due to overpricing of some services This includes the prevailing structural egoism meaning that actors of the system compete for limited resources in a way that limits effective allocation of resources (see: 1g). This impacts long-term sustainability but above all it seriously damages resilience by reducing emergency redundancies of the system.

[2b Recommendations] Solutions proposed by informants include financial instruments to promote quality and innovations (especially complex care and discouraging unnecessary hospital stays) as well as tax deductions on health expenses.

[2c] Poland undergoes processes of increasing pay for medical personnel. This is due to the consensus opinion that low wages for the medical personnel drive brain-drain leading to human resource shortages (see: Workforce) – impacting sustainability and resilience.

[2c Recommendations] Further solutions proposed are financial incentives for medical professionals for early entrance into the workforce (e.g. during education), and staying in the workforce in Poland. This strategy is strongly connected to the issue of sill-mix discussed below.

5. Domain 3: Workforce

5.1 Key data on the health workforce in Poland

Human resources in the Polish healthcare system are one of the main topics of expert debates, research and health policymaking, and striving for the proper utilisation of medical staff is a priority. This concerns the issues of education, salary and working conditions, appropriate allocation, motivation, competences (skill mix), teamwork, new professions, migration, and adequate support in crises. Emergency conditions of the pandemic have enforced ad hoc measures. This makes mistakes more probable as the usual standards for protecting health and life – of the personnel, of patients and of the general public – are much more difficult to follow. COVID-19 has shown how countries around the world, including the most economically developed, are failing to cope with this problem, in part due to decision-makers' under-estimation of risks and lax standards of crisis preparedness.

It is difficult to realistically estimate the scale of the medical staff deficit for Poland. On the one hand, this is partly due to the problem with indicating the exact numbers of employed physicians or nurses. On the other, there are no formal structures for planning and forecasting human resources in the system [Domagała, Klich, 2018].

Information on the number of physicians, dentists, nurses and midwives in the healthcare system is collected by various entities authorised to do so under separate regulations, including provisions on official statistics. The data shown in tables 1 and 2 show a significant difference between the personnel working in healthcare facilities (according to the primary place of employment) and the medical personnel authorised to practice. However, we cannot limit ourselves to one or the other number, because in reality the former is underestimated (limited only to the primary place of employment), while the latter may be overestimated (takes into account all those who have obtained the right to practice and do not necessarily work in their profession). The officially registered number of "practicing physicians and doctors" is not equal to the actual number of "practicing doctors/dentists" [Baliński, Krajewski, 2018].

Table 1. Personnel working in healthcare facilities by primary place of employment (per 1,000 inhabitants)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Physicians	2.08	2.14	2.15	2.17	2.23	2.25	2.34	2.3	2.28	2.32
Dentists	0.32	0,34	0.32	0.32	0.34	0.33	0.35	0.35	0.34	0.35
Nurses	4.84	5.03	5.19	4.91	4.88	4.84	4.8	4.78	4.76	4.77
Midwifes	0.58	0.59	0.62	0.58	0.57	0.57	0.58	0.58	0.58	0.58

Based on: CEZ (2010-2020)[29].

Table 2. Qualified medical personnel (per 1,000 inhabitants)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Physicians	2.08	2.14	2.15	2.17	2.23	2.25	2.34	2.3	2.28	2.32
Dentists	0.32	0,34	0.32	0.32	0.34	0.33	0.35	0.35	0.34	0.35
Nurses	4.84	5.03	5.19	4.91	4.88	4.84	4.8	4.78	4.76	4.77

[29] *This is the data used by OECD. Practising doctors per 1 000 population, 2000 and 2017 (or nearest year) [in:] OECD Health Statistics 2019 https://doi.org/10.1787/888934017253.*

Midwifes	0.58	0.59	0.62	0.58	0.57	0.57	0.58	0.58	0.58	0.58

Based on: CEZ (2010-2020).

Table 3. Working in long-term inpatient health care facilities (per 1,000 inhabitants)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Physicians	1929	2469	2407	2547	2744	2889	3032	3323	3326	3316
Nurses	8898	9758	9766	10479	10935	11456	11642	12380	12567	12679
Psychologists	581	654	692	805	821	851	893	927	931	976
Pedagogues	31	28	27	54	38	33	34	38	29	29
Rehabilitants	495	398	385	386	332	331	296	283	235	220
Caregivers	1699	2276	2482	2959	3603	4048	4455	5181	5714	6041
Social workers	249	279	254	310	277	260	236	267	241	217
Assistive personnel	2809	3096	2799	2827	2636	2731	2659	2859	2828	2910
Volunteers	1122	1164	34	1503	1536	2051	2092	1790	1990	1789

Based on: CEZ (2010-2020).

According to the General Medical Chamber (NIL) Report, in December 2017 there were 3.54 practicing physicians per 1,000 population of Poland [Baliński, Krajewski, 2018]. However, according to the latest Maps of Health Needs 2020, the number of physicians working in healthcare entities exceeds 168,000, i.e. 4.4 per 1000 inhabitants – above the OECD average [HNM, 2020]. The total number of medical staff per 1000 population, which is given in the Maps, is: doctors – 3.41, dentists – 0.9, nurses – 6.2, midwives 0.8, physiotherapists – 1.7. Table 3 presents data on long-term care workers, including not only doctors and nurses, but also physiotherapists and caregivers.

The Ministry of Health has not developed a reliable procedure for determining the number of necessary specialists. For example, it did not establish the planned Monitoring System for the Education of Medical Employees, which was supposed to collect, among others, information on the demand for training places in specific fields of medicine and pharmacy, as well as support the management of the medical staff education system [NIK, 2016]. This is especially important in the context of the aging society and the growing needs related to it. The General Chamber of Nurses and Midwives has repeatedly alerted that about an additional 100,000 nurses are needed in Poland, and in a few years this shortage may increase by another 60,000 [Janik, 2020].

However, public authorities, together with representatives of medical professionals, are making efforts to develop strategies for medical professions with particularly acute shortages. To this end, in December 2017, the government published a strategic document setting out short-, medium- and long-term goals for the development of nursing and obstetrics in Poland, and then, at the end of 2019, the document “State Long-Term Policy for Nursing and Midwifery in Poland works initiated in 2018)” [MoH, 2019b].

Although in most fields of medicine the number of working specialists is increasing every year, according to the opinion of national consultants, there are still many areas of shortages of specialists (GUS, 2019). There are concerns about these shortages increasing in the future. Since 2012 [JoL, No. 2012 item 1489], the Minister of Health has been issuing regulations specifying priority areas of medicine, i.e. those where there are deficits of specialists and which will be better remunerated. In the last one, on 30 June 2020 [JoL, No. 2020 item 1156],

infectious diseases were indicated for the first time, shortages of infectious disease specialists and anaesthesiologists having been highlighted by the COVID-19 pandemic. There are voivodships where no one has applied for specialisation in infectious diseases for years, which in turn is due to the lack of a remuneration strategy. Currently, 124 physicians are undergoing training to specialise in infectious diseases (there are 266 places available). The lack of interest in specialisation in the field of infectious diseases results from the fact that it does not meet the expectations of modern medicine in terms of its image and functionality. According to experts, today we need a much wider scope of this specialisation – infection medicine or clinical infection science should replace the classic specialisation of infectious diseases. Doctors of this specialty should be prepared to treat various infectious conditions, from diabetic foot, through syphilis, tuberculosis, to COVID-19. The health problems in the field of infectious diseases are now much wider than typical infectious diseases, and present new challenges. For example, new viral diseases, such as those caused by metapneumoviruses, flaviruses or multi-resistant bacterial and fungal infections, require the involvement of modern molecular diagnostics and immunology [Lisowska K., 2020]. Among anaesthesiologists and intensive care specialists, deficiencies are indicated at the level of 21% [Janik, 2020], although this field of medicine has been indicated as a priority (and is thus better paid) since 2012. Experts point out that interest in a given specialisation depends on the possibility of earning extra money in a private office, the current market situation and morbidity. Doctors choose the fields of medicine in which they will find employment after completing specialisation training. They avoid economically unattractive areas.

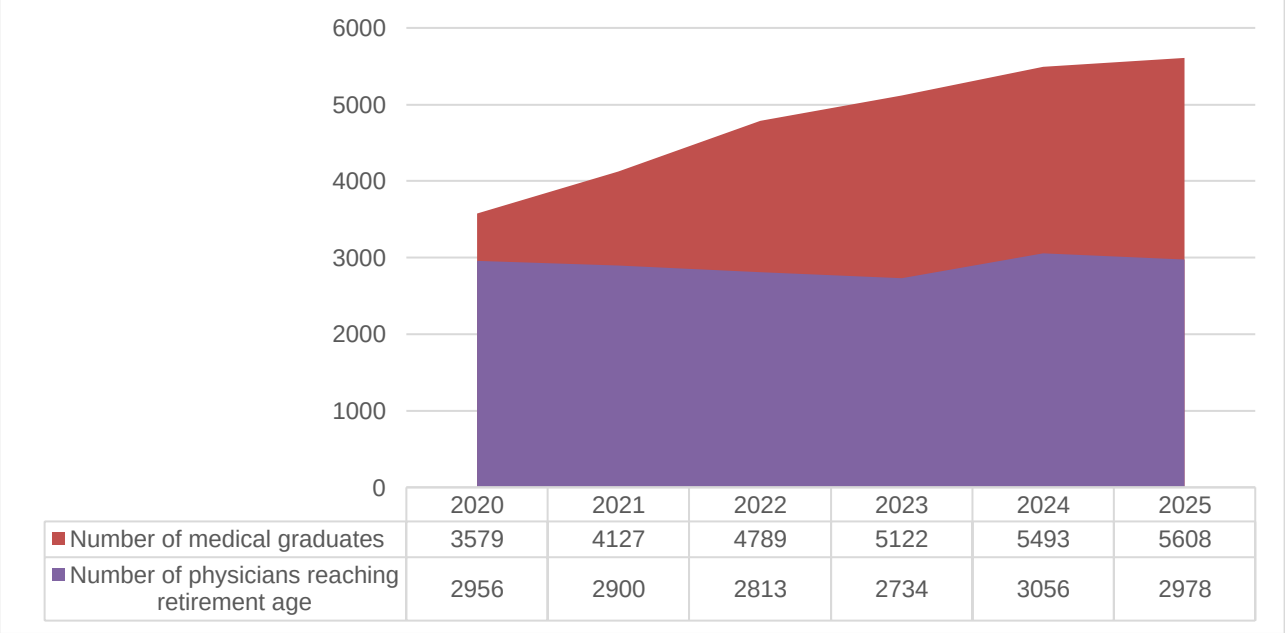
However, attention should be paid not only to the inability to identify the real number of medical workers (and deficits in this area). First of all, the level of staff shortages varies greatly in individual voivodeships, as well as between the city and the countryside, where access to doctors is clearly difficult [NIK, 2019]. The largest number of professionally active physicians is found in the following voivodships: Łódzkie, Mazowieckie, Śląskie, Zachodniopomorskie, Lubelskie, Kujawsko-Pomorskie, Podlaskie and Małopolskie. The lowest rates are observed in Wielkopolskie, Opolskie, Warmińsko-Mazurskie and Lubuskie. The greatest staff shortages are reported by hospitals and facilities in small counties (*powiaty*), located near larger cities, where much more attractive salaries are offered. In August 2019, the president of the NHF introduced certain measures aimed at attracting young physicians to POZ: physicians who have passed the State Medical Exam have been permitted to practice in POZ units without having completed or even commenced their specialisation and physicians undertaking employment in rural areas have been granted a monthly lump sum of PLN 5,000[30] in addition to their regular pay [NHF, 2019; Badora-Musiał et al, 2020].

Secondly, the average age of a physician or a nurse is over 50 years[31] (physicians: 50.2 [Baliński, Krajewski, 2018]; nurses: 51 [NIPIP, 2017]), which can lead to generational gaps, i.e. the lack of replacement of retirees by new professionals. In agreement with the Minister of Higher Education, the Minister of Health determines the number of admissions to medical studies separately for each academic year and for each university. In 2012/2013, restrictions on the number of admissions for medical professions other that doctors were abolished. These numbers depend on the teaching capacity of universities, such as teaching staff, available infrastructure, etc. Medical training of doctors took place at medical universities, but due to the shortage of doctors, it was decided to create medical faculties at non-medical universities, especially in those provinces where there are no medical colleges: Olsztyn (from 2008), Rzeszów, Kielce, Zielona Góra (from 2015) and Opole (from 2017). These initiatives were supported by voivodship self-governments and voivodeship medical chambers. In 2018, doctors were educated at 17 public universities, 12 of which are medical colleges. There are also three private universities providing medical training for doctors – one in Krakow (since 2016), one in Warsaw (since 2017) and one in Katowice (since 2018). The significant increase in the admission limits for medical studies in recent years, and thus the greater number of graduates, allows for a more optimistic view of the replacement rate than a few years ago (Fig.1) [NIL, 2015; Baliński, Krajewski, 2018]. However, according to forecasts, in the

[30] *It is around 1100 euros. Status as of January 2021.*
[31] *According to Health Needs Maps 2020 – a little under 50.*

next few years demand for medical staff in inpatient care in 2030 will increase by an additional 9,500 doctors and 17,200 nurses [Golinowska et al, 2013].

Fig. 1. Number of medical graduates vs. Number of physicians reaching retirement age



	2020	2021	2022	2023	2024	2025
Number of medical graduates	3579	4127	4789	5122	5493	5608
Number of physicians reaching retirement age	2956	2900	2813	2734	3056	2978

Source: HNM, 2020.

Thirdly, for many years the importance of a systemic reconciliation of the role of medical professionals as a whole has been underestimated, allowing for the deregulation of salaries in individual professional groups without taking a holistic view. This led, among others to the current situation – multiple jobs and combining work in several healthcare entities (the average number of workplaces is: for a doctor – 1.91, for a dentist – 1.3, for a nurse – 1.62, for a midwife – 1.71). The analysis of the shaping of wage policy in our country shows that actions in this area are mainly of an ad hoc nature and are generally a response to a wave of strikes and protests [Dubas-Jakóbczyk, Domagała, 2018]. Average gross wages of medical workers in 2018 are as follows: for physicians – 9,910.12 PLN (ca 2,200 Euro)[32] (198.1%) of the average monthly gross earnings for the whole population); nurses – 5,327.64 (106.5%), midwives – 5,380.41 (107.5%), emergency medical rescue specialists– 4,987.78 (99.7%), dentists – 5,497.13 (109.9%) [GUS, 2020b]. The 2017 Act on the method of determining the lowest basic salary of medical employees employed in healthcare entities may be considered a systemic legal framework aimed at gradually eliminating the disproportions in the level of basic salaries of medical workers employed in healthcare entities [JoL, No. 2017 item 1473], however, there is a transitional period until the end of 2021, thus the target level of increase in wages is actually in progress. The measures taken are to raise the level of remuneration. This in turn is supposed to increase employee satisfaction and halt migration. At the same time, the improvement of remuneration is to attract nurses and midwives to the profession [OSR, 2018].

[32] *It is around 2,200 euros (January 2021).*

Table 4. Average monthly gross earnings in 2018

Average monthly total gross remuneration	5003.78 PLN	100%
Physicians	9910.12 PLN	198.1%
Dentists	5497.13 PLN	109.9%
Nurses	5327.64 PLN	106.5%
Midwives	5380.41 PLN	107.5%
Medical rescue specialists	4987.78 PLN	99.7%
Laboratory diagnostics	5528.71 PLN	110.5%

Source: GUS (2020b), Structure of wages and salaries by occupations in October 2018, Warsaw 2020, https://stat.gov.pl/download/gfx/portalinformacyjny/pl/defaultaktualnosci/5474/4/9/1/struktura_wynagrodzen_wedlug_zawodow_w_pazdzierniku_2018.pdf

Despite the constant increase in salaries (including due to the introduction of regulations), and despite medical personnel (with the exception of paramedics) earning more than the national average, the remuneration of specialist doctors in relation to the average gross remuneration is the lowest in the OECD countries with the coefficient of 1.4. For comparison – the index in the countries that are in the top of the ranking is 5 on average. It is also worth noting that Polish specialist doctors earn less than GPs in other OECD countries – by as much as 40% [OECD, 2019]. However, these data refer only to full-time doctors. The earnings of Polish specialists running their own businesses are not included.

5.2 Migration mechanism of health professionals in Poland

Poland also lacks mechanisms for estimating the scale of emigration of medical personnel, which prevents the Minister of Health from effectively dealing with this phenomenon. Currently, one of the few, albeit indirect, sources of information on the number of outgoing doctors and nurses may be the register of certificates on the right to practice a profession in other EU countries under EU Directive 2005/36 / EC (Table 5). However, this register only includes people who want to apply for a job in the European Union (but not, for example, in the USA, Saudi Arabia or Australia) [NIK, 2016]. Research shows that the highest percentage of people declaring readiness and willingness to migrate occurs in the group of students, slightly lower in the group of residents, and the lowest in the group of specialists. Declarations related to the willingness to migrate are correlated with age – younger doctors, younger nurses more often declare that they are considering emigration. Staff with longer professional experience declare a willingness to emigrate less frequently. The most common declared reasons for migration are economic reasons, the need to work several jobs, but also excessive workload and barriers in the career path [Domagała et al, 2018].

On the other hand, over the last 10 years, the tendency to employ foreign doctors or nurses in Poland has remained at a low level. Only 1.8% of employed doctors are of other nationalities, while the average for OECD countries is 17.3%. In the case of nurses, these rates are even lower. Annually, up to several dozen permits to practice a profession are granted to foreigners. As of 31 December 2019, 1,098 foreign physicians (i.e. with the citizenship of another country) with the 2nd degree specialisation or the title of specialist had the right to practice. Most were from Ukraine, Germany, Belarus, the Czech Republic, Lithuania, Russia, Syria and Sweden. However, when it comes to nurses and midwives, there were only 243 nurses and 15 midwives who did not have Polish citizenship. Most of them have Ukrainian citizenship (149 nurses, 8 midwives), then Lithuanian (29 nurses, 1 midwife) [Janik, 2020]. In order to increase numbers of medical staff, regulations were introduced at the end of 2020, simplifying the recruitment of medical staff from countries outside the European Union (the obligation to recognise diplomas has been lifted). In addition, the rules for returning to work after a period of inactivity (longer than 5 years) were simplified. Mechanisms were also introduced related to the payment of salaries to medical personnel, who had previously been covered by special allowances [JoL 2020,

item 2401]. In addition, the Ministry of Education and Science encourages doctors and nurses to return to Poland as part of the "Medyk NAWA" project, as part of the academic freedom package. Medics who return to Poland will receive annual scholarships – PLN 7,500 a month for a doctor and PLN 5,000 a month for a nurse and midwife [NAWA, 2020].

Table 5. A numerical breakdown by the number of issued work permits

Certificates	2015	2016	2017	2018	2019
for physicians	934	1054	861	745	691
for dentist	195	196	153	143	126
confirming the equivalence of specialisation	272	245	242	213	168
for nurses and midwives	1527	987	620	488	413

Based on: NIL, Zestawienie liczbowe wg liczby wydanych zaświadczeń, województwa miejsca zameldowania i okresu wydania zaświadczenia, https://nil.org.pl/uploaded_files/1583227918_zestawienie-nr-05.pdf; NIPiP, Liczba zaświadczeń wydanych na potrzeby uznawania kwalifikacji zawodowych, https://nipip.pl/liczba-zaswiadczen-wydanych-na-potrzeby-uznawania-kwalifikacji-zawodowych/.

Research shows that the lowest level of satisfaction of physicians in Poland concerned remuneration, work-life balance and the possibility of maintaining non-professional activity. The highest satisfaction concerned relationships with the immediate superior, other physicians and nurses. Most of the respondents (56.6%) stated that they were satisfied with their work, but only 8.2% rated the level of satisfaction as high. Older doctors with longer work experience rated their job satisfaction higher. Women in the study group showed lower job satisfaction compared to men. Resident physicians had lower satisfaction compared to those with specialisation [Domagała et al, 2018].

In order to counteract negative trends of the shortage of physicians, changes were introduced to increase access to medical services. It was necessary to rationalise employment as well as to grant new medical and medical-related qualifications to new groups of professionals, which resulted in the trend towards skill mix. Nurses and midwives gained the right to write prescriptions and ordering services. Paramedics gained the right to perform medical rescue activities and health services. Physiotherapists acquire the right to conduct an independent physiotherapeutic visit. A new profession has also emerged – the medical coordinator[33] [Kowalska-Bobko et al, 2020a].

5.3 Healthcare workforce during COVID-19 – resilience context

The COVID-19 pandemic has painfully demonstrated the shortcomings and deficiencies in health care, ineffective and ineffective organisational solutions of the system, as well as poor financing of the sector.

One of the recommended methods of limiting the transmission of the SARS-CoV-2 coronavirus was to limit the work of medical professionals: physicians, nurses, paramedics to only one medical entity, in order to limit the potential of transmitting the diseases to other workplaces [JoL, 2020 Item 775]. However, this policy was quickly abandoned as a general mandate and was left to the decision of the management of the individual healthcare entities [amendments of 20 July 2020]. In order to compensate for the loss of income due to this limitation, the Minister of Health ordered the National Health Fund to provide medical personnel with monthly cash benefits, financed from the state budget. These benefits are limited to 10,000 PLN per month and will be charged in the amount of 80% of the remuneration received at the workplace in which the employee stopped working after the introduction of the restriction, or at least 50% of the remuneration received in the place where

[33] *Skill mix is developed as part of a dedicated case.*

they decided to work after the restriction was introduced. Compensation will cover the costs of the social security contributions paid by the employer.

To prevent a shortage of medical personnel, physicians who do not specialise in infectious diseases or who are not anaesthesiologists may be transferred or delegated (for up to 3 months) to infectious disease departments or other facilities where assistance is needed. In addition, physicians undergoing specialist training may be delegated to fight the epidemic or to perform assigned tasks, according to their current skills and experience. Some hospitals have topped-up their workers' salaries with a supplement to compensate for their exposure to coronavirus-infected patients.

By the decision of the Minister of Health, doctors and dentists who have passed only the test part of the PES (State Specialization Examination) after 13 March 2020 will receive a diploma confirming that they obtained the title of specialist, without the need to pass the oral exam [JoL, No. 2020 item 1493].

Further, a new platform was created by a private company to allow retired physicians, who are at greater health risk due to COVID-19, to return to work remotely and provide teleconsultations. Final-year students of medicine, pharmacy, medical analytics, nursing and emergency care may perform support roles (if they are willing to do so), e.g. conducting epidemiological interviews. They can also perform support roles in hospitals and nursing homes. There are also attempts to boost the number of nurses. For example, a simplified procedure is in place to allow non-practising nurses or midwives (who have had a break of at least a 5-year) to return to work [Kowalska-Bobko et al, 2020b].

Soldiers of the Territorial Defence Forces have been involved in the fight against the pandemic. In the Mazovian voivodeship, they are responsible for initial patient triage, for taking swabs within drive-through testing points, and for verifying (in cooperation with the police) whether people follow isolation and quarantine requirements. To that end, soldiers have received extensive training and further courses on Qualified First Aid and collection of biological material are already underway. It is planned that soldiers will provide further support to doctors and nurses by being stationed in temporary hospitals under construction so that the medical personnel can focus on the neediest patients [Szczepaniak, 2020].

Recent studies have highlighted the problem of staff decline after the pandemic. 29% of surveyed physicians declared that they intend to limit further professional activity, and 15% want to leave the Polish market. In the case of nurses, as many as approximately 10% may be willing to abandon the profession. Additionally, most physicians have seriously considered consulting a psychologist [Ochnik, 2020]. In the field of psychological assistance to medical personnel and other employees who work during an epidemic, the General Medical Chamber has taken the initiative to create a database of mental health specialists who are willing to offer their services to doctors, nurses, paramedics and other medics free of charge, both via the Internet and by phone. Moreover, the oldest Polish insurance company - PZU Życie (Państwowy Zakład Ubezpieczeń) - launched a hotline offering psychological support for medical workers.

In March 2020, a small study was conducted which targeted students and graduates of medical studies. Among the respondents, 41.8% were currently working in a health care institution, and only 21.7% of them participated in training in the field of preparation for crisis situations and disasters in the current workplace. Respondents rated the readiness of their jobs for the COVID-19 pandemic at four points. A significant proportion of respondents stated that if they had to deal with a public health crisis, they would not be able to manage the situation properly and would not be able to predict its development. Healthcare organisation managers should have the knowledge and skills needed to manage crises. It would be advisable for them to be formally educated in public health or healthcare administration [Misztal-Okońska et al, 2020].

A chance to relieve medical workers from increasing administrative and organisational tasks seems to be the introduction of medical-related roles (e.g. medical assistants / secretaries, coordinators / organisers and health promoters) into the system. One of the groups of specialists that could provide effective support in this area

are public health specialists who, thanks to their interdisciplinary knowledge and targeted preparation for work in the health system, prove themselves very well, for example, as coordinators of the oncology package [Golinowska et al, 2018]. The pandemic has shown that many professions need to be equipped with additional competences, e.g. medical caregivers, who play an increasingly important role in the system. Extending the competences of already existing professions does not exclude the creation of new ones – both processes should run in parallel [Grzela, 2020].

Due to the deepening deficit of doctors and nurses, the discussion about medical staff has so far focused mainly on representatives of these professions. The pandemic period has revealed problems of other groups of medical professions, in particular laboratory diagnosticians and paramedics, have been overlooked so far. Moreover, the pandemic highlighted the problems of workers' sanitary inspection and people working in long-term care and social welfare homes. Laboratory diagnostics is still one of the most underrated groups of medical professions. 16.340 people practice this profession in Poland. For years, the laboratory diagnostic community has been paying attention to the failure of decision-makers to perceive their role in the system. The pandemic situation clearly showed the importance of this group for the system and highlighted the fact that it is impossible to fight the pandemic without laboratory diagnosticians [Bociąga-Jasik et al, 2020].

According to the promises of the Minister of Health, by mid-December medical workers including doctors, nurses, paramedics and laboratory diagnosticians who fight COVID-19, were to receive additional payments, depending on where they work, of up to 200% of their salary. The maximum amount of the allowance may not exceed PLN 15,000. The money is to come from the state budget, but the hospitals will get it from the National Health Fund. Hospital directors were to send the fund personal lists of employees who were entitled to double wages by 10 December [NHF, 2020b]. However, there are problems with the interpretation of the minister's decision, because the guidelines are ambiguous, and hospital directors have significant responsibility. They are concerned that the National Health Fund may question the legitimacy of awarding additional remuneration to individual employees and order the money to be returned to the hospital [Kadzikiewicz, 2020]. As a result, by December 10, only 12 thousand employees (including 6.6 thousand nurses and 2.6 thousand doctors) were reported to the National Health Fund, to whom the 100% allowance is to be paid [Lisowska B., 2020]

5.4 Summary and recommendations

[3a] Due to ongoing medical personnel deficits Poland strives to increase the number of doctors, nurses and other medical workers by increasing places in medical faculties. This strategy is supplemented by a variety of skill-mix initiatives. The necessity for skill-mix reforms is acknowledged by decision-makers as well as by the stakeholders.

This challenge, however, entails several additional problems that problematise an adequate response. Firstly, due to issues in data collection, Polish decision-makers are unable to identify the real number of medical workers and the actual deficits in this area. The level of staff shortages varies greatly in individual voivodeships, as well as between the city and the countryside, where access to doctors is clearly much more difficult resulting in unequal access to medical services. Staff shortages are blamed on the brain-drain of medical personnel. Relatively low wages and overburden with work (including administrative work) for entry level medical professionals – especially nurses – is considered a root cause. Staff shortages are connected to a variety of problems with governance, including: the inefficiencies in allocation of resources [see: 1e]; excessive adoption of lean management (resulting from the conjunction of austerity and structural egoism) [see: 1g] leading to the paradigm of employing minimum staff.

In the context of the pandemic a serious problem occurred due to the austerity practices, namely personnel working multiple jobs in several healthcare entities. Furthermore, wage increases are often achieved only via direct protests (including hunger strikes). Another problem is the lack of security of practicing medical professions due to the so-called "blame-game" and high liability risk. Professionals often indicate

dissatisfaction due to underappreciation of the voice of the medical personnel by decision-makers. This is a serious challenge to sustainability and resilience of the Polish healthcare system.

[3a Recommendations] Recommendations include:

- introducing a motivational policy of allocating medical staff;
- further action and strategic planning to increase the medical and para-medical staff, especially in neglected areas, e.g. specialisation in infectious diseases;
- introduction of medical-related roles (e.g. medical assistants / secretaries, coordinators / organisers and health promoters) into the system.
- introduction of a good skill mix with quality modular training of medical professionals.

Other recommendations include:

- financial incentives and flexible employment of students for medical professionals to improve qualifications;
- introducing a hospital caregiver role for student nurses (combining practical training and education);
- reforming remuneration policy and promotion;
- introduction of financial incentives for medical professionals for entering into and staying in the workforce in Poland;
- a national strategy for rebuilding medical human resources – an integrated plan for all medical professions; introduction of “Planned beds” model, i.e. planned medical personnel for the event of emergency – abolition of lean management (“minimum staff” paradigm).
- addressing the issue of the “blame game”, it is recommended to reform of the voivodship commissions for adjudication on [adverse] medical events.
- also, other administration improvement are recommended, including introducing dedicated public health personnel tasked with paperwork and data collection [See: governance]

[3b] Among successes of the Polish medical personnel, informants include:

- dedication and good training;
- ability to improvise when authorities do not act (flaws in this respect concern deficiencies in professional education system);
- fragmentation of specialisations and training of doctors for foreign markets.

The most serious problem for resilience in the pandemic is the exhaustion of the medical personnel and its erratic behaviour induced by panic at the beginning. Lack of psychological support for the medical personnel became an urgent matter. Somewhat problematic is also the issue of reported vaccination hesitancy among medical personnel.

[3b Recommendations] Recommendations include:

- better emergency training and skill-mix;
- training in handling polarising issues and training in evidence-based emotional persuasion (such as vaccination hesitancy) as well as in promotion of the public health perspective;
- systematic psychological support; respite leave for medical personnel engaged in straining activities;

- assistant personnel for medical professionals are necessary to decrease the workload.

[3c] Poland has a large resource of public health specialists in the labour market. However, public health as a profession and aspect of health is underappreciated in practice resulting in lacks in sustainability and resilience of the system.

[3c Recommendations] This situation requires planning in the area of staffing needs in professions health protection as well as standardisation of education in the field of public health (desired paths – health governance, health promotion, crisis management, sanitary and epidemiological supervision).

[3d] Recruiting medical workers from outside the EU (Ukraine, Belarus) is relatively straightforward, with a simultaneous process for legalising workers' stays in Poland, obtaining a work permit, assistance in learning Polish and certification of qualifications. After obtaining the right to practice a profession in Poland – i.e. a country in the European Union – these people may go to other EU countries that offer better employment conditions. However, qualifications of medical professionals from outside the EU are not recognised in Poland.

[3d Recommendations] Amendment to the Act on the Profession of Physicians and Dentists to introduce simpler but standardised recognition of qualifications for employees from outside the EU.

[3e] Reduction of the number of works permits granted to professionals abroad. Lack of reliable information about the emigration of medical personnel.

[3e Recommendations] Defining migration policy (emigration and immigration) in relation to medical workers and monitoring the scale of migration.

[3f] Increase in wages and benefits in the situation of epidemic threats. New wage demands Sustainability and resilience

[3f Recommendations] Introduction of a long-term payroll strategy.

6. Domain 4: Medicines and technology

6.1 Adoption of health technologies and Health Technology Assessment in Poland

Role of Agency of Health Technology Assessment and Tariff System

The Agency for Health Technology Assessment and Tariff System (AOTMiT) was established in 2005 as an advisory body to the Minister of Health. Its role has grown gradually and in 2015 the Agency became responsible for setting tariffs for health care services. Before the Agency was created, there was no public entity in the Polish health care system whose main activity was the assessment of medical technologies financed from public sources. However, some activities related to HTA were undertaken by the NHF and by the Centre for Monitoring Quality in Health Care (CMJ), which was established in 1994.

The Agency's main area of activity is appraisal of medicines, although healthcare services and public health policy programmes financed from public sources are also appraised. In 2018, the Agency carried out 235 appraisals commissioned by the Ministry of Health (207 in 2017, 227 in 2016 and 219 in 2015). For medicines, the procedure is initiated by the Marketing Authorisation Holder (MAH) who submits a standard application for the inclusion of the medicine in the list of publicly reimbursed medicines. In case of innovative products (without any equivalents on the reimbursement list), in case of a new clinical indication for a product that is already included in the reimbursement list, or if the MAH is asking for a higher price for a product that is already reimbursed, the MAH must additionally submit an HTA report.

The full report consists of decision problem analysis, clinical analysis, economic analysis and analysis of impact on the health care system (including a budget impact assessment). The report should be prepared following the HTA guidelines which have been issued and periodically updated by the HTA state agency in 2007, 2009 and 2016. The report is critically assessed by the AOTMiT staff and, independently, by the Transparency Council. The president of the Agency submits their final recommendation to the Minister of Health, together with the results of these assessments. The recommendations are made public, but they are partly redacted in order to protect trade secrets or personal data. The extent of information withheld used to be high, but transparency of the process has improved since 2014 following changes in the interpretation of the existing legislation. Before the Minister of Health announces the final decision on the reimbursement, the applicant negotiates it with the Economic Commission, which convenes regularly at the Ministry of Health in Warsaw.

The AOTMiT has developed collaborations with its counterparts in other countries, including Health Technology Assessment International (HTAi), International Network of Agencies for Health Technology Assessment (INAHTA), Medicine Evaluation Committee (MEDEV), International Society for Pharmacoeconomics and Outcomes Research (ISPOR), and the European Network for Health Technology Assessment (EUnetHTA). Collaboration mainly covers methodological issues.

Reimbursement of medicines, foodstuffs for special nutritional use and medical devices in Poland is based on positive lists. Reimbursement decisions are taken by the Minister of Health and are based on recommendations of the Economic Commission and the president of AOTMiT and a number of criteria, including efficacy, safety, budget impact, etc [Sowada et al, 2019].

The State Drug Policy adopted in 2018 envisages extending the catalogue of substances available to patients under public funding in accordance with the current medical knowledge and within the limits of the available budget [MoH, 2018]. In recent years, the number of new drugs available for reimbursement in Poland has increased significantly. In 2019 alone, 37 products (new substances or new indications) were introduced to reimbursement under drug programmes. In 2017-2019, 66 new active substances were registered in the Polish reimbursement system, including 28 reimbursed products in oncological indications [Czech et al, 2020a].

Access to new drugs is limited by the financial plan of the National Health Fund, which is established annually by the President of the Fund. The plan is approved by the minister responsible for health in consultation with the minister responsible for public finance [JoL, No. 201, item 2135].

In 2011, the Reimbursement Act was adopted, which assumes that the total budget for reimbursement amounts to a maximum of 17% of the amount of public funds allocated to financing services guaranteed in the NHF financial plan [JoL, No. 122 item 696]. The Act provides for reimbursement and determination of the government sale price based on the amount of the threshold of the cost of obtaining an additional year of life, which is adjusted for its quality. The threshold was set at three times the Gross Domestic Product per capita [JoL, No. 122 item 696]. As GDP grows, the effectiveness threshold for drug evaluation also increases. In 2019, on the basis of the applicable regulations and the announcement of the President of the Central Statistical Office of 30 October 2020 on the estimated value of gross domestic product per capita in 2016-2018, the threshold value was set at PLN 155 514 [AOTMiT, 2020].

The application for reimbursement and determination of the official selling price of a drug or drug technology of high clinical value is considered within 180 days. On the other hand, the application for reimbursement and determination of the official selling price of a drug technology with a high level of innovation is considered within 60 days. In the event that the application does not have all the necessary data to consider the application, the deadline is suspended until the data is supplemented or the deadline for completing the application expires [JoL, No. 122 item 696].

From the moment of registering modern drug technologies in the European Union to making them available to patients treated in Poland, 24 to 36 months pass, which results from the multi-stage reimbursement process, the referentiality of the Polish pharmaceutical market for many countries and the limited budget of the Polish payer [Czech et al, 2020a]. According to the analysis carried out by the authors of the report "Development of drug therapies in the treatment of cancer patients" in 2017-2019, an average of 3.5 years passed from the central registration of new active substances by EMA until their reimbursement in Poland. In 2019, the process was accelerated and took an average of 989 days from the European registration [Czech et al, 2020b].

Hospital Based Health Technology Assessment (HB HTA)

The National Health Fund in the consortium with the National Institute of Cardiology of Stefan Cardinal Wyszyński, the National Research Institute and the Lazarski University in Warsaw, are implementing the project "Implementation of the Hospital-Based HTA (HB-HTA) – Hospital Assessment of Innovative Medical Technologies". The project is financed by the National Centre for Research and Development as part of the Strategic Research and Development Programme "Social and economic development of Poland in the conditions of globalising markets" GOSPOSTRATEG.

The goals of the project are:

- Implementation of the HB-HTA methodology, including the establishment of pilot HB-HTA units and the supporting HB-HB-HTA networks;
- Increasing the possibilities of managing the healthcare system in Poland;
- Knowledge of the current status of health technology implementation in Europe;
- Organisational basis for hospital HTA units/HB-HTA networks in Poland;
- Model of HB-HTA hospital units and HB-HTA network in Poland;
- Piloting of the HB-HTA system in Poland [HB HTA PL, 2019].

Other institutions supporting innovation

Medical Fund

In 2020, the Act on the Medical Fund was published, which provides for the financing of a drug technology with high clinical value or a high level of innovation from the funds collected by the Medical Fund. In accordance with the Act, in a given calendar year, the financing of the above-mentioned tasks, funds from the Fund may be allocated in the amount of no more than 5% of the total budget for reimbursement specified in the annual financial plan of the National Health Fund. The funds are intended for financing tasks of tertiary hospitals, oncology hospitals or pulmonary hospitals, paediatric hospitals and nationwide hospitals with contracts for the provision of healthcare services, up to the amount of the annual limit granted to them. The annual limit is 3% of the Fund's total liabilities towards the service provider [JoL, 2020, Item 1875].

IOWISZ

In 2016 a special system for assessing investments in the health sector named IOWISZ – or Evaluation Instrument of Investment Motions in Health Care (Instrument Oceny Wniosków Inwestycyjnych w Sektorze Zdrowia). It concerns the investments in healthcare providers that require public financing (including from the EU funds). Before that no direct mechanisms for regulating and coordinating capital investments in healthcare providers existed (e.g. two hospitals in the same area could receive funding for MRI scanners). This was associated with inefficiencies concerning allocation of resources. IOWISZ, together with Health Needs Maps, is designed to ameliorate this issue by tailoring investments to actual health needs of the population. The instrument requires that an investment proposal must receive positive evaluation from the President of NHF or Directors of NHF Regional Branches and only then decision can be made by the MoH or the Voivode. Evaluation is performed via IOWISZ form and takes into respective health needs maps (Country or Voivodship maps), regional health policy priorities as well as current (evidence-based) medical standards [Dubas-Jakóbczyk et al., 2018].

6.2 Digital health

The first steps towards digitalisation are being made in the Polish health care system. Electronic sick leave and e-prescription, i.e. electronic documents that replace traditional paper exemptions and prescriptions [CEZ, n/a]. The Internet Patient Account has been launched, through which, each patient can get access to electronic documents issued by a doctor [CEZ, n/a]. The next step towards digitalisation in health was the introduction of publicly financed tele-medical advice. The President of the Agency for Health Technology Assessment and Tariffication issued an announcement on two tariffs of guaranteed services in the field of outpatient specialist care: cardiological and geriatric medical council with the use of telemedicine equipment, thus opening the possibility of financing telemedicine services from public funds [Czarnuch et al, 2015]. Over time, this solution was introduced in primary healthcare and outpatient specialist care facilities as a response to difficult access to healthcare. Teleconsultations are implemented in the simplest form by means of a telephone call, during which the doctor can issue an e-referral and an e-prescription. At the beginning of 2021, e-referral and Electronic Medical Records (EDM), which is an important element of the digitalisation of healthcare, have been introduced. The EDM contains e-prescriptions, e-referrals and documents produced on the basis of individual medical data processed in the IT systems of the Entities Performing Medicinal Activities [CEZ, n/a]. Electronic Medical Records are obligatory in principle, but:

a. There are several exceptions, including lack of IT solutions on the side of the healthcare entity.
b. There is a closed, rather short list of documents that fall within the scope of the statutory definition of Electronic medical records.
c. There is no procedure for digitising records that have been processed in paper form in the past.

E-prescription is a big step forward in the digitalisation process in Poland and is a crucial element of other broader digitalisation programmes: P1 (Electronic Platform for Collection, Analysis and Sharing of digital resources on Medical Occurrences) and P2 (a platform for providing online services and resources of digital medical registers). Both programmes are flagship projects of the Ministry of Health and Centre for eHealth. As part of the Project P1, subsystems and applications are being launched. They allow for the improvement of processes related to the planning and implementation of health services, monitoring and reporting on their implementation, and publishing information in the area of health.

Apart from e-prescription, one of the applications implemented in P1 is the Patient Online Account (Internetowe Konto Pacjenta, IKP). The account is a voluntary application for patients and is still in the development phase regarding collection and analysis of patient data. The account makes it possible to receive an e-prescription via SMS or e-mail, buy prescription medications, provide a family or a doctor with information about the health condition and history of prescribed medications, apply for the European Health Insurance Card, collect e-prescriptions without visiting the doctor (in the case of chronic diseases and after teleconsultation) [CEZ, n/a; Think Tank, 2020]**.** Currently, some facilities at the post-secondary and outpatient level keep electronic records, but these systems are not integrated with other facilities.

Organisational standards of tele-advice within primary healthcare have been developed, which regulate the conditions and manner of providing such advice. The regulation of the minister of health was published in the Journal of Laws of the Republic of Poland on August 14, 2020 (item 1395). The Ministry of Health, together with a national consultant in the field of family medicine, also developed guidelines for tele-advice in primary care during the SARS-CoV-2 epidemic. According to the document, tele-advice in POZ is a tool that increases the safety of patients and staff, limiting direct contact to clinically justified situations. The guidelines also say that tele-advice cannot be the only form of advice given in primary care[34]. The principles of accounting for tele-advice in primary health care and outpatient specialist care are regulated by the Regulations of the President of the National Health Fund.

It should be mentioned that in Poland there are no systemic activities aimed at improving skills in the context of digitalisation of health services. Lack of education, age or place of residence can lead to many problems related to the lack of access and misunderstanding of modern information technologies. In a survey including a group of 1,233 people; 75% of respondents used the Internet for purposes related with health, and only 7% did not perceive such a need. The Internet was most frequently used for seeking an outpatient department, hospital or consultation room, and opinions about physicians and health care facilities – 83% and 73% of respondents, respectively. According to Eurostat, in 2018 in Poland, the percentage of people aged 16–74 using the Internet for purposes related with health was 48%. An upward tendency may be observed starting from 2005 when this percentage was only 7% [Mirosławska et al, 2020].

6.3 Research and development

In 2000, the document "Poland 2025 – Long-term Strategy for Sustainable Development" was created. One of the goals set out in the Strategy relates to meeting new challenges that appeared at the threshold of the 21st century, including scientific and technological progress. The strategy assumes that achievements in this area are one of the most important factors determining the pace of economic growth. According to the document, the goal should be innovative activity that shapes a competitive advantage. The strategy assumes taking actions that will allow for permanent and balanced development [CoM, 2000].

[34] *Guidelines of the national consultant in the field of family medicine on teleportation in primary care during the SARS-CoV-2 virus epidemic of August 14, 2020.*

In 2019, the Medical Research Agency (Agencja Badań Medycznych) was established [JoL 2019, item 447], whose tasks include:

1. co-financing of research and development works in the health care system, in the field of medical sciences and health sciences, as well as interdisciplinary projects selected through a competition, with particular emphasis on clinical, observational and epidemiological studies;
2. issuing opinions and expert opinions in the field of medical sciences and health sciences for public administration bodies or other entities as a result of the implementation of concluded contracts;
3. initiating and developing international cooperation in the field of medical sciences and health sciences on the basis of the programmes referred to in art. 15 sec. 1 point 1 of the Act[35];
4. initiating and carrying out own research and development works;
5. co-financing projects, including interdisciplinary projects, in line with the programme, selected in a competition;
6. organisation and funding of scientific research or ad hoc development work in the field of medical sciences and health sciences, with particular emphasis on clinical, observational and epidemiological research, including interdisciplinary projects;
7. disseminating the effects of completed tasks;
8. supporting enterprises in introducing and developing innovative activities in the field of medical sciences and health sciences as well as interdisciplinary projects;
9. initiating activities for the development of the clinical trials market in the Republic of Poland, including cooperation with partners in establishing the rules for financing healthcare services provided to patients participating in clinical trials [JoL 2019, item 98].

An example of the activities of the Medical Research Agency are competitions to support non-commercial clinical trials which financed projects in areas such as: cardiology, oncology, paediatrics, neurology or hematology [ABM, 2019]; creation and development of Clinical Research Support Centers [ABM, 2020]. These activities are aimed at increasing Poland's participation in research on new drugs.

The National Centre for Research and Development plays an important role in developing national research and innovation capacities in the field of developing new drugs, devices and other medical technologies, whose mission is to support scientific institutions and enterprises in developing the ability to create and use solutions based on research results scientific. This is to develop the economy for the benefit of society. Projects financed by the National Centre for Research and Development are also aimed at developing the healthcare system. One of the projects is the above-mentioned project "Implementation of the Hospital-Based HTA (HB-HTA) – Hospital Assessment of Innovative Medical Technologies".

6.4 Security of supply during COVID-19

The Material Reserves Agency was established as a result of the Act of 30 May 1996 on state reserves and mandatory fuel reserves (Journal of Laws of 1996, No. 90, item 404). Its tasks include creating economic reserves, including drugs and medical materials as well as sanitary articles in situations of threat to state security and during periods of heightened state defence readiness [JoL 1996 Nr 90 item 404]. As part of strategic reserves, medical reserves are created, which include drugs, raw materials, vaccines, disinfectants, dressings, protective clothing, disposable medical devices, medical equipment and accommodation equipment [ARM, 2020]. However, data from the onset of the coronavirus pandemic indicate that the reserve system was

[35] *Developing and managing programmes on the basis of which projects, including interdisciplinary projects, will be co-financed.*

not prepared to deal with this scale of threat [Guz, 2020]. The Agency has issued more than 4,500 ventilators to hospitals since the start of the pandemic. According to the president of the Agency, there is a lot of equipment, so Poland is prepared for future waves of disease [TVN24, 2020]. By law, the Agency cannot provide information on the exact number of ventilators it has in reserve, on the basis that secrecy is needed to guarantee state security and that resources are properly protected.

So far, there has been little interest in influenza vaccines in Poland, despite the fact that they are recommended and reimbursed for certain groups e.g. older people. According to the information provided by the Ministry of Health, over the last ten flu seasons, the flu vaccination status in the entire population remained at a low level, ranging from 3.26-4.12% (in the 65+ age group it was approx. 15 %). Experts tried to encourage vaccinations, and the reimbursement list included additional flu vaccines. Free vaccinations are available to people over 75 years of age, while partial reimbursement (50%) is available for people over 65 years of age, adults (from 18 to 65 years of age) certified by a doctor to be at increased risk of complications from influenza, and children aged 3-5 years. At the beginning of September 2020, the first shipment of flu vaccines reached pharmacies. However, as interest in them increased during the COVID-19 pandemic, and stocks were quickly sold out. According to the nationwide UCE RESEARCH study, at the beginning of October 2020, 98% of pharmacies had no flu vaccines [Puls Farmacji, 2020]. Last year, over 1.5 million Poles were vaccinated, and the Ministry of Health announced that over 2.5 million doses of flu vaccines should be available on the market this season.

6.5 Summary and recommendations

The coronavirus pandemic limited access to medical services as we knew it before, so proposals based on digital solutions were quickly adopted. Remote advice, e-prescription, support for numerous mobile applications or artificial intelligence algorithms, the use of devices, including wearables and robots, are just some of the numerous examples. The necessity to use digital health solutions during a pandemic encouraged the acceptance of some risks and shortcomings that were previously considered important barriers, but in fact they turned out to be smaller and much less painful than previously anticipated. Acceptance of digital health as a sustainable and highly beneficial element of the health system has become a fact. Digital health has proven useful, and neither patients nor medical professionals want to give up what has worked. There are still many challenges ahead, but the fundamental breakthrough in the implementation of digital health has already been made. Now is the time for practical activities, step by step, implementing the digital transformation of the health area.

[4a] The development of new forms of remote care and e-health tools – largely introduced just before the pandemic – greatly facilitated the access to health services and medicines. However, there were deficiencies in telemedicine standards. Initially some of these solutions – most notably e-patient accounts – were received poorly by the public. Low e-competences, primarily among senior medical staff, led to ineffectiveness of these measures. The problem noted by our informants were wasteful telemedicine practices: e-consultation required for screening whether an e-consultation or in-person visit is required

[4a Recommendations]

Further enhancement of e-tools require ensuring opportunities for sustainable development of digital competences. This includes primarily training activities for various age and professional groups, both in basic and advanced skills (incl. online educational content, courses and training). Better competences should enable further development of e-health and better functional integration of the system via e-tools (improving control over chronic patients). To eliminate inefficiencies, our informants recommended the introduction of “registration triage” – screening to determine whether an e-consultation or in-person visit is required should be made at registration stage

[4b] Poland had pre-existing institutional and regulatory standards and crisis management mechanisms. However, its system lacked a national strategy for innovative risk management. It also had little modern facilities and outdated standards of data collection and processing in Sanepid.

[4b Recommendations] This issue became sharply visible in the area of resilience, suggesting a need for modernisation of facilities and mechanisms for monitoring and controlling the epidemic situation. This includes the introduction of IT support and digitisation of many functions related to the collection and processing of health information, observation of contacts among infected people or control of compliance with sanitary regimes.

[4c] Poland undergoes the implementation of tools for hospital-based health technology assessment (HB HTA) to improve sustainability and resilience. However, the pandemic exposed poor preparation of hospitals, as well as regional and central authorities in the organisation of HB HTA in Poland.

[4c Recommendations] Remedy to this should be basing HB HTA on large hospitals with the possibility of obtaining substantive financial support from the central authorities: AOTMiT and NHF.

[4d] The COVID-19 shock and early failures led to notable improvement of the Material Reserves Agency in the summer. This was due to significant shortages of protective equipment.

Small healthcare providers were particularly vulnerable to these resource deficits. In the opinion of informants these shortages were primarily caused by drawbacks of poor governance including: the inefficiencies in allocation of resources [see: 1e]; and excessive lean management (conjunction of austerity and structural egoism) [see: 1g] leading to the paradigm of just-in-time deliveries (lack of redundancies and stockpiling for crisis situations). Our informants also noted the lack of sufficiently quick response of Polish authorities to the export of pharmaceuticals and equipment at the beginning of the pandemic

[4d Recommendations] Thus, aside from recommendations concerning improvement of strategic governance for health system's resilience [1g], assuring diversified and reliable supply chains from reliable partners and an effective early-stage risk mitigation plan are recommended.

7. Domain 5. Service delivery

7.1 Efficiency measures

In 2019, the average length of stay in hospital wards, nationwide, was 5.3 days. This is shorter by 0.4 days compared 2010. The average duration of a patient's stay in cardiology wards in 2019 was 4.1 days, in the internal medicine ward – 6.5 days, and in the emergency ward – 0.5 [CEZ, 2020].

Table 1. Selected information on hospital beds

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of beds per 10 thousand. population	47.4	48.0	48.0	47.8	47.9	47.7	47.6	47.2	46.4	42.6
Use of beds in%	68.1	67.0	67.4	67.1	67.3	66.5	66.2	65.8	66.1	69.1
Average stay of a patient in days, including:	5.7	5.6	5.5	5.4	5.5	5.4	5.3	5.3	5.3	5.3
Internal medicine ward	6.5	6.5	6.3	6.3	6.3	6.3	6.4	6.5	6.6	6.5
Cardiology ward	4.7	4.5	4.1	4.1	4.2	4.0	4.1	4.2	4.2	4.1
Hospital emergency ward	0.5	0.5	0.6	0.5	0.6	0.6	0.5	0.6	0.3	0.5

Source: https://www.cez.gov.pl/projekty/statystyka/biuletyn-statystyczny/

The most common reason for admitting a patient to hospital is the appearance of symptoms of acute heart failure requiring immediate medical intervention. According to the data of the National Health Fund in 2009-2018, approximately 80% of admissions to hospital due to heart failure were emergencies. After an episode of exacerbation of heart failure, there are high rates of mortality and re-hospitalisations, especially in the period from 60 to 90 days after leaving the hospital (18% and 25%, respectively) [HNM, n/a].

Table 2. Number of hospitalisations due to heart failure

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total number of hospitalisations	230796	215198	212124	213505	208908	213983	213560	218236	262117	278897
Including one-day stay	15363	11445	10595	11375	11320	11231	11819	12694	13505	14547
Internal medicine ward	151008	142774	138308	135080	129357	131229	127504	126315	152939	160592
Cardiology ward	54434	53270	55956	58929	59839	61783	64107	66993	8100	88602
Hospital emergency ward	13054	8375	7830	9387	9665	10198	10746	12163	12805	13785
Scheduled mode	68952	61378	40685	40088	37064	37231	36088	38293	46773	50929

Source: https://basiw.mz.gov.pl/index.html#/visualization?id=3358

Length of hospital stay after a heart attack:

2009 – 5.9 days (OECD average 7.2) https://www.oecd-ilibrary.org/docserver/health_glance-2011-en.pdf?expires=1607433015&id=id&accname=guest&checksum=F9A7CF89F3E73680834B47EBC8BCA12B

2017 – 6.4 days (OECD average 6.6) https://www.oecd-ilibrary.org/docserver/4dd50c09-en.pdf?expires=1607432439&id=id&accname=guest&checksum=2087EB0F197C84F6AF934F50283AD7B6

7.2 Quality

There are several mechanisms ensuring clinical quality and patient safety in Poland, with a range of institutions primarily involved in establishing quality standards. **Parliament** enacts legislation concerning general rules and principle, and the **Minister of Health (MoH) issues executive regulations** concerning quality standards and guaranteed benefits baskets. MoH is also involved in accreditation of healthcare providers (with advice from Accreditation Council and following evaluation by the Centre for Monitoring Quality in Health Care – CMJ, see below). **AOTMiT,** (Agency for H.T.A. and Tariffs System) advises MoH in establishing executive regulations concerning standards within guaranteed benefits baskets. Following higher level regulations, the President of the **NHF (National Health Fund**) issues ordinances (internal regulations) specifying standards for the purpose of establishing contracts with healthcare providers. Other relevant institutions are:

- **Centre for Monitoring Quality in Health Care** (**CMJ,** Centrum Monitorowania Jakości w Ochronie Zdrowia);
- **Office for Registration of Medicinal Products, Medical Devices and Biocidal Products** (**URPLWMiPB,** Urząd Rejestracji Produktów Leczniczych, Wyrobów Medycznych i Produktów Biobójczych);
- **State Sanitary Inspection system (Sanepid)** – controlling sanitary standards in health care providers;
- **Professional Chambers** – professional training standards;
- **Ombudsman for Patients' Rights.**

Other relevant institutions involved in quality monitoring and control include: NIK (Supreme Audit Office) and Human Rights Ombudsman (separate from the one dedicated for patients). Among these the MoH, the NHF, CMJ, Sanepid, Professional Chambers and Ombudsman for Patients' Rights are involved in monitoring quality of healthcare by various measures.

Box 1. Key legal regulations on quality

Most relevant legislation concerning quality are the following acts:

- 2004 Act on Health Care Services Financed from Public Sources (Dz.U. 2004 nr 210 poz. 2135 – with amendments);
- 2011 Act on Therapeutic Activity (Dz.U. 2011 nr 112 poz. 654 – with amendments);
- 2008 Act on Accreditation in Health Care (Dz.U. 2009 nr 52 poz. 418 – with amendments)
- 2011 Act on the Office for Registration of Medicinal Products (Dz.U. z 2011 r. nr 82, poz. 451– with amendments).

These are followed by **executive regulations** issued by the Minister of Heath – above all so-called guaranteed benefits baskets for each services kinds and ranges.

- Primary healthcare
- Ambulatory specialist care
- Highly specialised care
- Hospital care
- Health programmes' benefits
- Dental treatment
- Rehabilitative treatment
- Psychiatrically care and addiction treatment
- Nursing and care benefits
- Palliative and hospice care
- Medical rescue
- Orthopaedic items and aids
- Spa treatment

Key legal regulations on quality (box 1.) include standards for service provision that limit the acceptable offers within the contracting of services between providers and the national Health Fund. These standards are established for MoH approval by the Agency for H.T.A. and Tariffs System (AOTMiT) – ensuring evidence-based processes (see: Domain 1. Governance, and Appendix, tab A1. Key actors in the governance of the health system). Existing standards must be met by healthcare providers when it comes to their premises (minimum space requirements); medical equipment; and medical personnel (number and qualifications of personnel). These standards are further specified in the National Health Fund President's ordinances. Together these regulations determine the minimum standards for providing healthcare financed from public resources. In this area, monitoring of standards is performed via civil law by contract sanctions, as well as regulations on adverse events (via civil liability). There are very few clinical standards and financial incentives implemented into binding regulations. The quality standards that are put in place usually refer to organisational standards.

The institution specifically dedicated to ensuring quality across the system is the Centre for Monitoring Quality in Health Care (CMJ), which was established to "initiate and support activities aimed at improving the quality of health care services. This includes organisation of training courses; developing of accreditation standards; conducting accreditation assessments of health care facilities; monitoring of quality indicators (medical and quality of life indicators as well as subjective indicators collected in patient satisfaction surveys); and evaluation of quality of highly specialist benefits financed from the state budget" [Sowada et al, 2019].

Accreditation of providers is granted for 3 years by the MoH after an evaluation by the CMJ's Accreditation Council (minimum 75% points required). It is voluntary and concerns hospitals (since 1998) or POZ providers (since 2016). It creates various financial incentives for hospitals, e.g. 10% costs reduction of insurance against adverse events; points[36] bonus in contracting services (extra points in contracts with the NHF), and greater budgets within contracts (from 1% up to 2%). So far PMC providers are not granted such incentives. Accredited units are listed on the website of the Polish Accreditation Centre (Polskie Centrum Akredytacji, PCA). Typically, about 20% of hospitals are granted accreditation and only 1% of POZ units [Sowada et al, 2019].

7.3 The role of primary care

Primary care is a separate sector and is the entry point to the Polish health care system. Primary health care includes preventive, diagnostic, treatment, rehabilitation, and nursing services in the scope of general medicine, GP, and paediatrics, provided within the framework of outpatient health care. Services guaranteed by primary healthcare include:

- services of primary care physicians;
- services of nurse practitioners;
- services of primary care midwives;
- services of school nurses or hygienists provided in education and care facilities;
- out-of-hours and holiday health care;
- sanitary transport.

In 2019, over 170 million medical consultations were carried out in primary health care in Poland [GUS 2020a]. On average, each patient reported to a GP approx. 4 times a year [NHF, 2016]. According to a 1999 reform, primary health care is an important rung of the healthcare system taking into account the prioritisation of activities that promote health and prevent disease, continuity of care and comprehensive analysis of all the patient's health problems. In justified cases, the GP was to be supported by specialist doctors operating as part of outpatient specialist care.

The focus on coordination of care and preventive measures of the primary care physician have also been emphasised in the Act on Health Services Financed from Public Funds [JoL 2004 No. 201, item 2135], as well as the act on Primary Healthcare [JoL 2017, item 2 217]. An important role in the prevention of diseases is to be played by the POZ doctor. It is the first link in the health care system and is most often in contact with the patient, and therefore a series of tasks related to early detection of diseases and their prevention were imposed on it.

On December 1, 2017, the Act on primary health care (POZ) came into force. The objectives of the reform are to provide comprehensive and high quality POZ centred on the patient; increase the role of prevention and health education; improve treatment through better organisation of POZ (including improved coordination of care between the POZ physician, nurse and midwife), better coordination of care at various levels of care and ensuring continuity of care. There are POZ teams consisting of a doctor, a nurse and a midwife. The coordinator is the team doctor, who refers the patient to specialists and collaborates with them during the patient's stay at the hospital. This is meant to improve access to diagnostic tests and specialist care, including outpatient specialist care. Financing of POZ continues to be based on capitation rates. It is supplemented by: (1) an entrusted budget for providing coordinated care; (2) an activity-based budget for providing preventive

[36] *As calculation units for contracting services, not percentage points.*

care; and (3) incentive pay depending on treatment outcomes and quality of provided care. The Act on primary health care distinguishes integrated care, which the POZ doctor provides to patients with selected chronic diseases. The patient chooses either integrated care or the care of a specialist physician on the current basis. Implementation of the reform has been piloted in cooperation with the National Health Fund and the World Bank under the Operational Progamme Knowledge Education Development 2014-2020 [Badora-Musiał, Kowalska-Bobko, 2017].

The functioning POZ is based on the right to free choice of doctor, nurse and midwife from those contracted with the National Health Fund. This selection is confirmed by a document called a declaration of choice. Primary care physicians should be available to their patients 10 hours daily (from 8 a.m. to 6 p.m.) from Monday to Friday, excluding official holidays. After 6 p.m. on workdays, as well as on Saturdays, Sundays and on holidays 24-hour-care is provided by health units which have concluded contracts for this kind of services. They comprise outpatient care and home visits in case a patient's condition is serious. A referral is not needed in such cases. The physician on duty can provide advice at the clinic, by telephone or at the patient's home. Primary care providers serve as "gate keepers" and are obligated to see their patients before providing referral to the specialist or hospital if they deem it necessary.

No referral is required to following specialists:

- gynecologists and obstetricians;
- dentists;
- venereologists;
- oncologists;
- psychiatrists;

No referral is needed for specific patient groups including the following:

- patients with tuberculosis;
- HIV-positive patients;
- war invalids and persecuted persons, combatants, anti-communist opposition activists and people repressed for political reasons;
- civilian blind victims of war;
- addicted to alcohol, narcotics and psychoactive substances – in case of addiction treatment (also people who are in a relationship with an addict);
- soldiers or workers requiring treatment of injuries or illnesses incurred while performing duties outside the country;
- veterans injured in the treatment of injuries or illnesses incurred while performing duties outside the country;
- children under 18 suffering from congenital diseases diagnosed during prenatal tests.

The Executive Regulation of the Minister of Health of 24 September 2013 on the scope of tasks of doctors, nurses and midwives working in POZ (JoL, 2013, No 2013, item 1248) sets out activities in the area of health promotion and prophylaxis that are to be performed within POZ within the statutory health care system but with no indication on who, i.e. type of provider, is to provide the particular services. This Regulation explicitly lists a number of health promotion and prophylactic services that are to be provided within POZ; these include: indication and diagnosis of health risk, health education, provision of mentoring in healthy lifestyle, education in hygienic nursing of new-borns, education in prevention of gynaecological diseases.

As part of primary care, preventive programmes are implemented:

- prevention of cardiovascular diseases,
- prophylaxis of tuberculosis,
- prevention of cervical cancer,
- prevention of tobacco-related diseases (including COPD).

The pilot implementation of a model of coordinated care at the POZ level aims at the gradual creation of a patient-oriented system in which instead of focusing on the provision of medical services, more emphasis is placed on the use of preventive tools. Such a system will be better adapted to the current situation in the healthcare environment and demographic processes.

Providing health services in POZ PLUS includes:

- performing health balances for adults and conducting extensive educational activities in the field of preventive health;
- care management /coordination.

The institutions participating in the pilot programme are to play a major role in education, prevention and prevention. The pilot programme also includes a disease management programme in the most often diagnosed chronic diseases at the POZ level[37]. The list of diseases has been drawn up on the basis of epidemiological data on major health problems in Poland and consultations with healthcare professionals and patient organisations [World Bank, 2017]. These 11 diseases cover about 30% patients treated in primary health care and outpatient specialist clinics and practices; the number of specialists in a health care system is not sufficient and there are long waiting lists to the specialists for the first visit [Akademia NFZ, 2019]. It is expected that many patients currently treated at the specialist care remain with their family doctor for treatment [World Bank, 2017]. POZ PLUS pilot started on July 1, 2018. It was initially planned that the POZ PLUS model would be piloted until December 31, 2019 but this deadline was later extended until September 30, 2021. The next stage is to implement this model throughout the country in the period up to 2023.

From January 1, 2015, a new organisational solution was introduced, aimed at improving the diagnosis and treatment of cancer – the so-called "oncology package", which also had an impact on functioning of primary care. Patients suspected of having cancer receive the Diagnostic and Oncological Treatment Card (DiLO card), a so-called "green card", which entitles them to faster diagnostics and access to treatment. Primary care physicians are allowed to prescribe more tests, in order to make cancer diagnosis at the level of primary care more accurate.

7.4 Coordination of care and new care models

Integrated/co-ordinated healthcare is a relatively new form of organising providers and services in Poland. Numerous programmes of coordinated care have been implemented since 2015, including for cancer patients, pregnant women, and children, improving integration of primary and secondary care (see table 1). These programmes have also introduced financial mechanisms (through pay-for-performance elements and within the hospital network) to ensure that the emergence of such care is incentivised. The Primary Healthcare Act implemented in 2017 ultimately aims to increase coordination of primary health care services. The Act announces the introduction of multidisciplinary teams of POZ, in order to coordinate care pathways, including

[37] *These are: 1. type II diabetes, 2. spontaneous hypertension, 3. chronic coronary heart disease, 4. chronic heart failure, 5. persistent atrial fibrillation, 6. bronchial asthma, 7. COPD, 8. hypothyroidism, 9. parenchymal or nodular, 10. osteoarthritis of the peripheral joints, 11. spinal pain syndromes.*

non-hospital treatment and rehabilitation. This model is currently being piloted and from the end of 2020 elements of P4P will be introduced into POZ.

Table 1. Selected coordinated care programmes and pilots

Title	Programme or pilot (date introduced)	Description
Fast-track pathway for cancer patients	Programme (1 January 2015)	Patients with a suspicion of cancer receive the Diagnostic and Oncological Treatment Card (DiLO card, also called the "oncology green card") from their POZ physician, which gives them faster access to diagnostics and treatment. After issuing the DiLO card, the POZ physician may order additional diagnostic tests to make a more accurate diagnosis.
Coordinated care for pregnant women at the 1st level of perinatal care (complex pregnancies)	Programme (1 July 2016)	Comprehensive system of medical care for women during pregnancy, childbirth and postpartum and for their newborn children until they are 6 weeks old. Complex care is provided by a team composed of a gynecologist, a midwife, and hospital doctors.
Coordinated care for pregnant women at the 2nd or 3rd level of perinatal care (KOC II/III)	Programme (1 January 2017)	Comprehensive system of medical care for women and their newborn children with developmental defects or severe diseases diagnosed during pregnancy. Care is provided in specialist centres for pathological pregnancies. Particular emphasis is put on providing psychological support to the patient.
Coordinated care for children (DOK)	Programme (1 January 2017)	Programme for children up to 3 years of age who have been diagnosed with severe and irreversible impairment or an incurable life-threatening illness that has developed during the prenatal period or during birth. This service is also available for prematurely born children (less than 33 weeks of gestation) and children with very low birth weight (VLBW). Provision of care is coordinated across different health care providers
Coordinated specialist care for people after a myocardial infarction (KOS-infarction)	Programme (1 October 2017)	Patients with myocardial infarction receive complex care, comprising interventional cardiology services, comprehensive rehabilitation and education, electrotherapy, and specialist cardiac care including consultations with a cardiologist. The first cardiac consultation should take place no later than 6 weeks following the patient's discharge from the hospital. The number of consultations and their frequency depend on the clinical condition of the patient. Hospitals providing KOS-infarction should look after the patient for 12 months; this comprises hospitalisation, rehabilitation and specialist visits after hospital discharge.

Coordinated psychiatric care	Pilot	The liquidation of hospital beds. Introduction of the community psychiatric care model. New financial mechanisms and Mental Health Centers.
Coordinated care for patients with multiple sclerosis (KOSM)	Pilot	The aim is to investigate the possibility of improving the effects of treatment of patients with diagnosed multiple sclerosis (MS), including: reducing the incidence of projections and the appearance of new demyelination changes, and reversing existing changes in the nervous system by changing the organisation of services and providing comprehensive care to patients with MS according to ICD-10 diagnoses, with a moderate degree of disability (EDSS on a scale of 4.0-6.5 points).
Coordinated care for patients with kidney diseases	Pilot May 2019	The proposal assumes that the pilot programme of coordinated care for nephrological patients will include volunteer dialysis stations that treat more than 50 patients and have a nephrological outpatient clinic in their structure. These will be places where patients will receive comprehensive assistance from the medical team.

Source: Own elaboration

7.5 Focus on prevention and chronic diseases

Until 2015 there was no comprehensive regulation of public health services in Poland, describing their scope, organisation, structure and financing. The key laws and degrees regulating public health services were concerned with specific public health issues (e.g. alcohol and drug control, hygiene and infectious disease control and prevention) or the establishment of public health institutions.

The Act on Public Health entered into force on 3 December 2015. The Act aims to increase the recognition of the importance of public health and to contribute to a systematic and multi-disciplinary approach to the shaping of public policy in this field. The law gives the Minister of Health the right to establish a Government Plenipotentiary for Public Health who will be responsible for managing public health services and for the coordination of activities under other legislation that will stay in place. The law also established a Public Health Council as a consultative and advisory body to the Minister of Health, tasked with ensuring that a “health in all polices” approach and intersectoral cooperation are applied. It changed the strategic focus of the National Health Programme from disease prevention to fighting risk factors and allocated separate funding for the implementation of this programme. The national health policy is set out in the form of National Health Programmes, passed as resolutions by the Council of Ministers. The first National Health Programme was developed in 1990 as a response to the WHO Health for All 2000 strategy. It was the first attempt to coordinate efforts of different units of government administration, NGOs and local communities in order to protect, maintain and improve the health of the population. The fourth edition of the National Health Programme (for the period 2007-2015) had eight strategic objectives and 15 operational targets. The National Health Programme for 2016-2020 was adopted in September 2016. According to the data collected since 2016, a very large number of entities performed tasks in the field of public health specified in the Public Health Act and the NHP (over 3,200 entities report annually over 35,000 implemented or undertaken public health tasks). Most local government units reported the implementation of at least one task. In addition, sanitary and epidemiological stations are active.

The new programme for 2021-2025 is currently being consulted on. The strategic goal is to increase the number of healthy life years and to reduce health inequalities.

There are also 5 operational goals:

1. Prevention of overweight and obesity;
2. Addiction prevention
3. Promotion of mental health;
4. Environmental health and infectious diseases;
5. Healthy and active aging.

A catalogue of tasks in the field of suicidal behavior prevention was proposed, referring not only to the prevention of suicides, but also to mental crises in all age groups. It is based on cooperation between the government administration, units of territorial self-government and other entities, and aims to strengthen intersectoral action for health. The strategic goals of the programme are to extend life expectancy, improve health-related quality of life, and reduce health inequalities.

The programme has six operational objectives:

1. improving diet, nutrition and physical activity;
2. preventing and reducing problems associated with the use of psychoactive substances, addiction and other risky behaviours;
3. preventing mental health problems and improving the mental health and well-being of the population;
4. reducing the health risks arising from physical, chemical and biological hazards in the environment, the workplace, and areas of residence, recreation and learning;
5. promoting healthy and active ageing;
6. contributing to improved population health.

In the National Health Fund's Annual Financial Plan for 2021, the costs of preventive health programmes financed from the Fund's own resources are planned at the level of almost PLN 270 million [MoH, 2021]. The Ministry of Health has a Public Health Department for planning and managing public health activities. The Public Health Department is responsible for the implementation of the National Health Programme. The Public Health Council, established by the 2015 Law on Public Health, is a consultative and advisory body to the Minister of Health. Its tasks include:

1. evaluating drafts of the National Health Programme and monitoring its implementation;
2. presenting proposals to the Minister of Health for new activities to achieve the operational objectives of the National Health Programme;
3. performing other consultative and advisory services in the area of public health at the request of the Minister of Health.

The Chief Sanitary Inspector is responsible for planning, managing and monitoring the activities of the State Sanitary Inspectorate system. The Inspectorate was established to protect the population from infectious and occupational diseases through monitoring in various areas: environmental hygiene, occupational health in the workplace, radiation hygiene, healthy food and nutrition, hygiene of rest and recreation, as well as hygiene in schools and other educational institutions, colleges and leisure centers. Every voivodeship in Poland has its own voivodeship sanitary inspector, subordinated to the Chief Sanitary Inspector, and a voivodeship sanitary-

epidemiological station and laboratories. The voivodeship sanitary inspectorates oversee the border sanitary inspectorates and the powiat (small county) sanitary inspectorates. In 2015, the Sanitary Inspection 13.3% of their total budget devoted to health protection [Topór-Mądry et al, 2018].

The National Institute for Public Health-National Institute of Hygiene (NIPH-NIH) is a research institute. It received its current mandate in 2008 (having been created in 1918, although under a different name and with other responsibilities). Its mission is to protect the health of the population through research and training. This includes the monitoring of biological, chemical and physical risk factors in food, water and air, as well as the control of diseases and infections. The Institute has the analytical capacity for undertaking modelling and forecasts.

Other national level actors with responsibilities in certain areas of public health include specialised research institutes (the Nofer Institute of Occupational Medicine, the Institute of Occupational Medicine and Environmental Health, the Institute of Agricultural Medicine, and the National Food and Nutrition Institute) and state agencies (the Agency for Health Technology Assessment and the Tariff System, the e-Health Centre, the National Bureau for Drug Prevention, the State Agency for the Prevention of Alcohol-Related Problems, and the National AIDS Centre).

Local and regional public health programmes are financed by regional and local authorities, which can independently decide how to spend their budgets, according to local needs. Local and regional public health programmes are usually carried out by health care providers owned by local and regional authorities. One exception is the alcohol and illicit drug control programmes led by municipalities and counties. In 2015, alcohol control measures accounted for the largest part (73.1%) of health care expenditure of municipalities (gminas) and the second largest part (24.4%) of health care expenditure of cities with county status. The most popular subjects of health programmes are vaccinations.

Prevention programmes

Preventive health programs are the subject of activities of many institutions: central and local government administration, health insurance, sanitary and epidemiological institutions, educational institutions and non-governmental organisations. The directions of activities in the health care sector are set out in national programs [JoL. 2016, Item 1492; CoM, 2020].

The key role of prevention for the Polish health care system has been recognsed in the strategic document "Policy paper for health protection for 2014-2020". The first operational goal of the document indicates "the development of preventive health care, diagnostics and remedial medicine focused on the main epidemiological problems in Poland". The paper identifies the following long-term goals up to 2030: "development and implementation of activities strengthening the development of pro-health attitudes, increasing access to health programs (preventive, rehabilitation) in order to reduce morbidity and mortality, in particular due to lifestyle-related diseases" [MoH, 2015].

As part of the most popular preventive programs implemented by the National Health Fund, insured persons can take advantage of free tests on the most dangerous diseases such as breast cancer, cervical cancer, colorectal cancer, cardiovascular diseases, tobacco-related diseases (including COPD), and tuberculosis. The programs are aimed at people in the age groups most exposed to selected diseases.

However, there is still little interest in participating in patient screening. Problems related to the role and importance of preventive healthcare in the health care system, including, inter alia, a low percentage of people covered by preventive screening tests, limited access to healthcare providers providing such services and unreliable data in the patient's health records indicate the need to build a coherent and efficient preventive healthcare system [Paszkiewicz, Piotrowski, 2017]. The data from the Central Statistical Office show that Poles

do not have sufficient knowledge about health promotion or preventive programs [GUS, 2018], hence more and more attention is paid to the education itself in this topic.

In February 2019, the National Health Fund launched a website dedicated to healthy eating (https://diety.nfz.gov.pl). In addition, activities related to proper nutrition are supported by videos on exercises for children (easy and difficult level) and adults (easy and medium level), and even for pregnant women. By the end of 2019, almost a quarter of a million people had set up individual user accounts.

Disease prevention and health promotion has also been pursued through a cyclical campaign entitled "Wednesdays with prophylaxis". Although the epidemiological situation meant campaign switched to a digital format after a break of several weeks, its goal has not changed - Wednesday will remain a day devoted to health education. The issues of "Wednesday with prophylaxis" are related to the most important national or international pro-health initiatives (e.g. World Diabetes Day) and key topics for the National Health Fund (obesity and diabetes, current and new preventive programmes, NHF reports and educational campaigns). The campaign is to encourage patients to act, popularise pro-health attitudes, teach responsibility for their own health, strengthen cooperation with patient organisations, and build a positive image of the National Health Fund among patients. So far, every Wednesday in the provincial branches of the National Health Fund, patients could use, among others free of charge: blood glucose tests, blood pressure tests, medical and dietary consultations. Due to the limitations related to the COVID-19 pandemic, the activity related to health promotion was moved to the internet [NHF Warszawa, 2020].

By order of the President of the National Health Fund of October 29, 2019, the team for the development of new prevention programmes was established. The appointed team is to revise the existing preventive programmes, reconstruct them so as to increase the number of people tested, and develop and implement new preventive programmes.

The government has also begun introducing fiscal policy as a tool to promote healthy consumer choices. This includes a so-called sugar tax (levied on beverages with the addition of sweeteners and caffeine or taurine), which was introduced in January 2021 by an amendment to the Public Health Act, revenues from which will mainly go to the NHF budget. In addition to the sugar fee, the government introduced an amendment to the Act on Upbringing in Sobriety and Counteracting Alcoholism, bringing in an alcohol fee (applied to alcoholic beverages with a volume of less than 300 ml).

7.6 Maintaining services in a crisis

In Poland disruptions to healthcare as a result of COVID-19 pandemic have been significant. Multiple non-urgent services, including diagnostics were put on hold – if not by healthcare providers, by patients themselves refraining from receiving scheduled services due to fear of infection. As a result of an NHF recommendation a gradual reduction in hospital admissions – especially for elective surgeries – was implemented since March 2020 [Kowalska-Bobko et al, [Kowalska-Bobko et al., 2020b]. Life-saving services continued to be provided. Expert groups were established to provide home-based palliative care during the pandemic. E-health/telemedicine solutions have been established and strengthened – based on pre-existing or piloted solutions – in order to ensure continuity of services.

Electronic prescriptions and remote consultations with GPs became particularly essential (mainly by phone[38]). In the second quarter of 2020, over 11 million less consultations were provided compared to the same period in 2019. It is impossible to determine how many of the services provided in POZ took place in the tele-advice mode, because the reporting obligation was introduced from September 1, 2020 [My Pacjenci, 2020]. Remote consultations were established as a primary mode of providing emergency mental health services and psychological counselling. Compulsory preventive vaccinations have been postponed until April and later resumed. Mammography tests has been resumed in August. The functioning of the single-infection hospitals became a contentious issue in the summer of 2020. These entities – converted pre-existing specialist hospitals - became significantly underutilised due to relative low number of active COVID-19 cases [Dyrda, 2020].

A rapid increase in COVID-19 infections from September 2020 led to the increasingly difficult situation in the healthcare system. Various difficulties in acquiring access by patients were reported, including:

- a lack of hospitals beds for COVID-19 patients as well as those suffering from other diseases;
- deficiencies of medical equipment, especially ventilators, and insufficient number of staffed intensive care stations;
- reports of queues for ambulances outside hospitals and deaths of patients in ambulances;
- information that when medical staff are tested COVID-positive, the others are not sent to quarantine and tests are only performed when they have symptoms [RPO, 2020].

From January to September 2020, the Ombudsman for Patients received 80 thousand telephone contacts from patients. In the field of primary health care and AOS, the most common reported problems were the inability to reach the clinic and register, visit the clinic on the day of reporting (in POZ, as a rule, the visit should take place on the day of reporting), or the clinician refusal to visit the patient's home or offering only tele-advice. Many complaints concerned the quality of the tele-advice [RPP, 2020].

Hospital capacity (ICU and ventilator capacity in particular) was also increased over summer 2020, however issues emerged in the quality of purchases. Also, pre-existing medical staff shortages aggravated the lack of access due to inability to fully staff intensive care stations. Investigation of irregularities in purchases aimed at ensuring the continuity and capacity of services are also scheduled by the NIK [Pieniążek-Osińska, 2020]. To increase COVID-19 treatment capacity, the National Stadium in Warsaw was transformed into a treatment centre. However – due to limited infrastructure – its services were limited to patients with COVID-19 related pneumonia, but who did not have acute symptoms. This led to the serious underutilisation of the centre since patents with such conditions prefer to stay at home [Reszka, 2020]. To incentivise medical professionals to participate in combating COVID-19, the recent "COVID Act" (Dz.U. 2020 poz. 2112 – with an amendment) included provisions:

- guaranteeing wage bonuses to personnel in contact with infected patients;
- and providing indemnity for liability for any COVID-related triage or other rationing decisions that might result in adverse events.

According to experts, the Polish health care system has never been patient-centred, and the pandemic has made this even more visible. A degree of informational chaos resulting from the pandemic has had a negative impact on the doctor-patient relationship. There is a crisis of trust on an unprecedented scale, because there is a lack of direct contact with doctors who can better explain treatment methods and recommendations [MedExpress TV, 2020]. Simple activities typical of visits to the GP, such as extending prescriptions, were relatively easy to adapt to the remote mode. However, there have been problems with specialist advice, the

[38] *Only 0.3% of patients used tele advice in the form of video calls [https://www.nfz.gov.pl/aktualnosci/aktualnosci-centrali/teleporady-zbior-zasad-i-dobrych-praktyk-dla-lekarzy-poz,7788.html].*

adequacy of which depends on the possibility of conducting a physical examination. Meanwhile, some institutions have refrained from offering in-person appointments, even if a physical examination was necessary. During the epidemic, diagnostic services have also been limited, something which has been especially noticeable in oncology and cardiology [Rokicińska, 2020].

7.7 Summary and recommendations

[5a] In recent years Poland has experienced the implementation of new coordinated care programmes dedicated to, for example, psychiatric, oncological or cardiological patients. However, the resilience of the Polish system has proven lacking in the neglect of the vulnerable during the pandemic (the elderly, chronic patients, patients in psychiatric wards, people under social care and home care). This is also sharply visible when it comes to the crisis in psychological health in Poland (particularly for children).

[5a Recommendations] Improvements in these areas are necessary, most notably in psychological health services (especially for children). The system requires coordinated population care dedicated to a selected group of patients, e.g. the elderly – including consolidation of social aid and long-term care with the healthcare system, for example through the establishment of geriatric wards network at local level.

[5b] The Polish healthcare system has oriented itself on care for COVID-19 patients. This has led to the underappreciation of healthcare issues other than COVID-19 (neglect of prevention, screening, non-urgent yet important treatments, sharp drop in referrals to specialists, etc.) In this case, striving towards resilience leads to the neglect of sustainability of the system.

[5b Recommendations] This calls for an urgent institutional reorganisation that reactivates capacity to tackle health issues other than COVID-19.

[5c] Poland enjoys a relatively high number of hospital beds. This however indicates a serious problem with over-hospitalisation and is not necessarily indicative of a greater resilience. Informants emphasise that the introduction of temporary healthcare units with multiple beds during COVID-19 has been a waste of resources, because the new hospital beds could not be staffed due to personnel shortages.

[5c Recommendations] What was recommended instead is greater support directed to the existing hospitals. Other recommendations include: fast-tracking of multiple diagnostic and therapeutic activities (to avoid hospital stays incl. “diagnostic hospitalisations”, “one-day treatment”); better coordination of healthcare at the POZ level; and the introduction of operationalised and evidence-based quality standards.

[5d] As was observed by the informants, some healthcare providers responded to the information on the pandemic early enough to preserve their key operations (despite negative patients’ reaction). Most providers, however, did not. The quick lockdown imposed by the authorities was essential for enabling healthcare providers to prepare. However, the problem that occurred was the fragmentation of the system – e.g. lack of coordination between the primary healthcare (POZ), ambulatory care (AOS) and hospital care.

[5d Recommendations] Recommendation to improve resilience is the integration of POZ with AOS as part of Basic Healthcare at the poviat (county) level with well-developed crisis management standards.

8. Case Study 1: skill-mix in Poland

8.1 Context

According to the 2000 World Health Organization Report, proper design and implementation of crossing competencies (skill mix) is of a great importance for the organisation, management and effectiveness of the health systems. Shortages of medical professionals, mainly physicians and rising labour costs in health care are one of the most burdensome factors. Thus, both decision-makers (macro level) and managers of medical entities (micro level) try to identify opportunities and create most effective teams based on available resources [WHO, 2000].

The current crisis of medical personnel is caused by many factors. The most important of them are: problems with effective human resource management and the lack of a rational human resources policy, maladjustment of the employment structure to the profile and scope of services provided, planning deficits in the education system, and – in many countries – underfunding of healthcare.

Well prepared and implemented intersection of competences contributes to the improvement of the quality of patient care, patient satisfaction and better clinical results. Most often, in epidemiologically stable situations, skill mix is forced by the rising costs of highly qualified personnel (doctors, nurses). Their assessment, on the other hand, consists in the optimal adjustment of the competences of sector employees to the systemic needs and patients' expectations. However, it should also be noted that achieving the optimal mix of skills in healthcare is very difficult due to many factors, such as: hierarchical employee system or high professional separateness of physicians and nurses. In the process of mixing competences, the roles performed so far are changed. While professionals (e.g. physicians) extend existing roles, other staff (e.g. nurses) are required to assume some aspects of the previous role. When competences are crossed, new roles often appear: new professions (e.g. physician assistant, health care coordinator) that are designed to fit the scope of current practice, e.g. new roles of nurses, paramedics, radiologists, public health graduates. It should be emphasised that only a partnership approach to the development of this type of competence will allow this new trend to have a positive impact on the healthcare system [Kowalska-Bobko et al, 2020].

In Poland, the intersection of competences is a new topic, subject to preliminary scientific analyses and practical research. This case discusses only the types of overlapping of competences that have been regulated in connection with the granting of new professional powers to individual groups of medical professionals: they mainly concern the doctor-nurse-paramedic-physiotherapist relationship in the context of sustainability and resilience of health care system.

With regard to the sustainability of the system, the most important areas of analysis relate to:

a. regulatory and management practices in the field of granting new professional qualifications for medical professionals (e.g. since 2015 new qualification for nurses, rescuers, physiotherapists, etc.);
b. regulatory and management practices for the creation and support of new medical professions (e.g. from 2015 – health care coordinator, medical secretary, medical carer, etc.);
c. regulatory and management practice with regard to the creation of new rules of special patient pathways, e.g. coordinated care programmes (e.g. POZ plus, oncology package and other coordinated care programmes);
d. regulatory and management practices concerning recognition of the right to medical practice for foreigners (non-EU nationals);
e. specialised training, further education courses and changes in the curriculum of dedicated studies;
f. appropriate payment policy, new competences – additional payment.

With regard to the resilience of the system the most important areas of analysis relate to:

a. readiness to create new rules for skill-mix teamwork (fast-track training, acquisition and validation of new competences);

b. readiness to build teams on the basis of different competence or capacities in crisis emergencies;

c. readiness to implement changes in the skill mix and to introduce new professions;

d. readiness to mitigate potential conflicts of competence (prevention of conflicts and ability to constructively solve them)

e. willingness to accept staff from outside and build task forces based on their competences.

8.2 Goal

The chosen skill-mix case relates to a relatively new issue in the Polish healthcare system. The healthcare system, in reaction to the problem of human resources shortages, strives to handle this issue by assigning new competences to selected groups of medical professionals – e.g. nurses, physiotherapists – who are skilled in professional patient care in areas previously occupied by physicians. The change in the organisation of patient care also encourages the development of new professions supporting the process of providing services e.g. coordinator of patient care. This case-study will therefore directly concern two important domains analysed in relation to sustainability and resilience of health care system: human resources and service delivery processes.

It is also important to consider whether the time of the COVID-19 pandemic crisis helps to strengthen or weaken the skill mix.

8.2.1 Skill mix in the context of health system sustainability

The result of queues of people waiting for benefits, staff shortages and high labour costs of the most qualified medical professionals is the acceleration of regulatory activities related to granting new powers to nurses and midwives, paramedics and physiotherapists [Sagan et al, 2016].

Physiotherapists received additional professional qualifications (freedom to conduct rehabilitation) in January 2019 in connection with the amendment to the regulation on guaranteed benefits in the field of therapeutic rehabilitation. The most important change in the context of the physiotherapist's decision-making independence related to the intersection of new competences with the physician concerns the abolition of the physician's obligation to indicate a musculoskeletal dysfunction, neurological deficit or other reason for referral to rehabilitation, and the number of physiotherapeutic procedures ordered along with the determination of the body area, possible side (right, left) and the number of individual treatments in the cycle. In practice, this means that the physiotherapist has the right to plan the physiotherapy process to the best of his knowledge, taking into account the medical diagnosis. The new professional qualifications of a physiotherapist significantly affect the physicians' competences in the field of therapeutic rehabilitation, well-established in the system. In the case of physicians and physiotherapists, there is an overlap of competences, and the increasingly important role and professional qualifications of physiotherapists are widely recognised.

New professional qualifications of nurses and midwives [JoL 2014, item 1136], paramedics [JoL 2016 item 587] and physiotherapists intersect with the powers exercised so far mainly by physicians. These include:

- the right of nurses and midwives to write prescriptions and medical orders,
- the right to perform medical rescue interventions and health services,
- the right to conduct an independent physiotherapeutic visit.

The amendment to the Act on Nursing and Midwife Professions of 22 July 2014 defined new powers for this professional group. From 1 January 2016, it gives nurses and midwives the opportunity to independently provide services in a specific scope, including diagnostic and therapeutic measures as well as recommending certain drugs and medical devices, including prescribing them. By way of an executive regulation, the Minister of Health defined a list of medications that may be ordered by nurses and midwives and a form of prescription, thus validating their new professional qualifications.

In the case of paramedics, the competences intersect not only with the competences of medical emergency medical specialists, but also nurses, because the paramedic can perform medical activities (their scope was significantly expanded in 2016) in any medical entity, not only in the hospital emergency ward (SOR).

In 2007, the profession of a medical caregiver (Pl. *opiekun medyczny*) was introduced to the healthcare system in Poland, as an auxiliary profession for nurses. Unfortunately, the current legal regulations do not define in detail in an unambiguous and comprehensive manner the mutual relations between the members of the care and therapeutic team, including in particular the principles of cooperation between the medical caregiver and the nurse. In the years 2009-2018, professional qualifications in the profession of a medical caregiver were obtained by 49,341 people[39]. As of 31 December 2017, 5,181 caregivers were employed in long-term inpatient healthcare facilities. Despite the education of medical caregivers since 2007, this profession is still not used to a satisfactory degree in the Polish healthcare system [MoH, 2019b].

Table 1. Healthcare assistants/nursing assistants/medical caregivers in Poland

No. of nurses	Nurses per 1,000 inhabitants	No. of assistants/caregivers	Training time for assistants / caregivers		Supervision
199 188	Nurses	Caregivers	Professional title – medical caregiver. 43,299 people obtained qualifications (around 4,500 working in the country)	1 year of training (880 hrs)	No statutory supervision of nurses. Work done independently.
	5,24	0,6			

Sources: MoH (2019b), access: 03.06.2020.

Introducing new coordinated comprehensive patient care programmes (oncology package, POZ PLUS pilot, "Coordinated care for a pregnant woman" – KOC, "Coordinated specialist care for a patient after myocardial infarction" – KOS-infarction, "Comprehensive specialist outpatient care for the patient with diabetes" – KAOS-diabetes, "Comprehensive treatment of chronic wounds" – KLRP) enforces real coordination of activities. This creates the necessity to fulfil a completely new professional role – a medical coordinator. In practice, care coordination is related to active supervision over the implementation of medical recommendations on scheduled dates, as well as reminding the patient about their upcoming appointments (e.g. by e-mail or SMS). It may also include registration for commissioned medical interventions many months in advance – both in the coordinating facility itself and in cooperating facilities (e.g. for specialist consultations).

An amendment to the act on the professions of doctors and dentists was introduced to recognise the right to practice as a doctor and dentist for employees from outside the EU. This enables hospital directors to hire specialists from countries outside of the European Union – countries whose diplomas have not yet been recognised. This means that foreign doctors or dentists with specialist qualifications obtained abroad, who

[39] *Data from the Central Examination Commission in Warsaw.*

receive a certificate confirming the planned employment in an entity performing medical activities based in Poland, may apply to the relevant professional chamber with a request for the right to practice in a time and place of employment in a given entity. Therefore, the competent chamber may authorise the right to practice to doctors from outside the EU. At the same time, it defines the doctors' programme and the number of hours of practical training the professionals will be required to undergo. However, the doctors must validate their diplomas within 5 years of taking up employment under these conditions. This is a significant simplification for doctors who wish to take up employment in Poland.

Any introduction of new competencies involves the introduction of new content into programmes of professional studies and/or the organisation of further obligatory education courses. E.g. the right to prescribe was obtained in 2015 by nurses who have completed a special course dedicated to prescribing pharmaceuticals.

The system lacks remuneration strategies for healthcare professionals. Changes in this area are undertaken relatively slowly and usually as a result of pressures such as strikes or protests. For example, a separately contracted nurse's visit was introduced 4 years after the nurses were given formal rights to independent medical ordination and after it appeared that less than 5% of nurses prescribed medicines.

8.2.2 Skill-mix in the context of health system resilience

Usually, research or practical activities regarding the skill-mix relate to a stable situation in terms of public health, and solutions are mainly adopted in the context of the risk of chronic diseases. However, the state of an epidemic or pandemic – threat of an infectious diseases – and the actions taken in a crisis situation justify the building of new competence teams even more. This is due not only to the threatening situation in which we find ourselves due to COVID-19 or the lack of medical and nursing staff, but also to psychological factors of such work (constant threat to health and life, exhaustion, stress, burnout, the need to decide about life and death with limited resources, etc.).

The literature on the subject shows that during a pandemic, health care institutions will have to face many difficulties in functioning. These include, first of all:

1. the need to admit a disproportionately large number of patients compared to the capabilities of the health care system;
2. shortage of personnel, pharmaceuticals, vaccines or medical equipment;
3. absenteeism among medical workers (due to infections and exhaustion);
4. high number of fatalities;
5. logistic problems related to the transport of patients or the depletion of stocks, e.g. pharmaceuticals;
6. financial problems of individual healthcare units [Religioni et al. 2012].

The three most important areas of activity that require building teams of supporting specialists are: crisis management, logistics and providing medical services. In a crisis situation, all hospital employees must be involved in the emergency activities. All this requires that the best qualified personnel are on-site and updating the competence list of all personnel so that they can be used optimally as the situation develops.

In reference to the above information, it should be noted that the skill-mix approach was strengthened in Poland during the COVID-19 pandemic. The lack of confidence in the idea of sharing of competences – which was prevalent in stable times – gave way to the need to build teams working together to guarantee professional patient care and mutual professional support during the health crisis. The arguments about who is better prepared for patients' healthcare – rescuers or nurses – have ended. Students of medicine, nursing or even public health professionals were called to help. The voivodes mobilised other medical workers, e.g.

physiotherapists to combat COVID-19. Pharmacists are increasingly emphasising the need for a systemic introduction of a pharmaceutical visit. Each medical employee taking care of a COVID-19 patient receives additional high funding (additional full salary).

8.3 Examples of skill mix in Poland

The table below presents the examples of actions taken for the skill mix in Poland already discussed above.

Table 2. Crossing competences in Poland. Examples of solutions

POLAND			
What: Skill Mix Innovation	**How: Process**	**Who**	**Scale**
Patient assessment and communication. **Coordination of health and social services.**	Introduction to a new profession. Enlarging and strengthening the role.	Environmental nurse	Country
Prescribing pharmaceuticals by nurses and midwives. The right to medical self-ordering.	Introducing a new role. Enlarging, strengthening the role, as well as replacing the role so far assigned to doctors.	Nurses and midwives with a master's degree or completed specialisation	Country
Prescribing pharmaceuticals by nurses and midwives. Supervised process.	Introducing a new role. Enlarging, strengthening the role.	Nurses and midwives with a bachelor's degree	Country
Oncological diagnosis. DiLO chart.	Introducing a new role. Enlarging, strengthening the role.	Family doctor, specialist doctor	Country
Waiting time management in the oncology package (max. 7 weeks).	Introducing a new role.	Medical Coordinator	Individual healthcare entities (large hospitals)
Increasing medical activities for paramedics. Working in wards, supporting the nursing staff.	Introducing new tasks and a new role. Enlarging, strengthening the role and replacing the nurse's role.	Paramedic	Country
Independent physiotherapeutic visit. **The right to decision-making independence of a physiotherapist.**	Introducing new tasks and a new role. Enlarging and strengthening the role. Replacing the role of the doctor.	Physiotherapist	Country

Source: Kowalska-Bobko et al, 2020.

8.4 Summary and recommendations

Strengths and opportunities	Weaknesses and threats	Impacted areas	Recommendations
1. Regulatory top-down competencies for medical professions such as lifeguards, nurses, physiotherapists, etc. 2. Shortening the waiting time for services 3. Cheaper qualified system worker.	a. Delays in financing new entitlements. b. Difficulties in organising work in particular practices based on new competences due to employees' hesitation. c. Reluctance of medical workers to share competences (competence conflicts).	Sustainability and resilience	Necessary long-term payment strategy of medical staff and medical support staff Implementing skill mix with respect to the rights and competences of all groups. Rather gently, with emphasis on the cooperation component rather than competition.
1. New professions supporting medical personnel, e.g. health care coordinator. 2. Professionalisation of non-medical patient care. 3. Shortening the waiting time for services. 4. Development of professionally managed patient-coordinated care programmes	a. Lack of standardised training paths for medical coordinators, medical secretaries, etc. b. Insufficient salaries for coordinators, medical carers.	Sustainability	Necessary professionalisation of education in new supporting professions. New standardised courses of study. Further development of coordinated care programmes towards coordinated population care.
1. Stabilisation of labour migration of medical professionals from Poland.	a. Delays in facilitating procedures for recognition of the right to perform the medical profession.	Sustainability and resilience	Facilitate the certification of diplomas of non-EU workers, mainly from Ukraine and include them in the skill mix system.
1. New temporary payment policy for medical professionals during COVID-19. 2. Significant increase in salaries for medical personnel directly involved in the fight against the pandemic.	a. Lack of a comprehensive, long-term salary strategy for medical professionals and medical supporters.	Resilience	Necessary long-term payment strategy of medical staff and medical support staff

1. Implementation of further education pathways, training and introduction of new content to study programmes.	a. Difficulties in organising rapid training in times of epidemiological danger. b. Lack of standardised training programmes for new professions.	Sustainability and resilience	Necessary professionalisation of education in new supporting professions. New standardised courses of study.

9. Case Study 2: Digital health

9.1 Context

Digitalisation of healthcare in Poland which covers e-prescriptions, e-referrals, and sharing electronic medical records (EMR) on the P1 platform is supposed to be fully completed and implemented from 1 January 2021. The success of that implementation will be closely connected to the level of digital skills of both healthcare providers and healthcare service users as well as the COVID-19 pandemic. This pandemic has highlighted the need for both patients and providers to acquire and develop digital competencies quickly securing access to the health care services and medicines during the pandemic.

Starting from 1 January 2019, medical records should be kept electronically by healthcare institutions and doctors. Since January 2020, with the exceptions indicated in the legislation, only prescriptions issued in electronic form (e-prescriptions) are allowed. Providers and Pharmacies are connected to the P1 System/Platform (e-Health) allowing for issuing e-Prescriptions to patients. Patients have the possibility of activating the Patient Internet Account, which shows the documents issued electronically (prescriptions, exemptions, referrals). Sharing all data concerning patients and their treatment, including issuing and using e-referrals, is to become common from 1 January 2021 (but is not applicable if the healthcare entity lacks IT solutions).

It should be emphasised that for data stored and shared by the Patient Account, IKP require special protection as data regarded by Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data.

With regard to the sustainability of the system, the most important areas of analysis relate to:

a. proper implementation and development of digital solutions securing access to high quality healthcare;
b. education and digital literacy for both providers and consumers;
c. securing access to the Internet and the accounts and platforms dedicated to patients and providers provided there;
d. transparency and ease of use of digital solutions;
e. data protection.

With regard to the resilience of the system, the most important areas of analysis relate to (except the above):

a. adaptation of digital solutions to times of crisis through training, rapid development of necessary applications, easy availability;
b. securing high quality care.

9.2 Goal

9.2.1 Sustainability context

Centrum e-Health (formerly Centre for Health Information Systems) was established in 2000 as a unit of the Ministry of Health. The mission of the Centrum is to: support IT systems which will enable to optimise financial allocations, modelling and monitoring IT systems in healthcare, including those connected with healthcare services.

Many new telehealth technologies are already available in Poland. This is the result of cooperation between the public and private sectors. One of the most notable examples is a cardio-tele-rehabilitation. KOS-infarction (KOS; pol. Kompleksowa Opieka po Zawale Mięśnia Sercowego, comprehensive care after a heart attack) is an unlimited provision of post-infarction care, which includes one-year treatment support for patients after a cardiac event. Under the KOS-infarction, the beneficiary may receive various types of rehabilitation either directly or through subcontractors: daily, stationary and hybrid. In turn, as part of hybrid rehabilitation, patients can independently exercise in home conditions using a cardiac tele-rehabilitation system [Bukowski, Pogorzelczyk, 2019].

In Poland, e-health solutions are also supported at regional levels within specific health programmes. Their funding is often based on EU funds or other foreign funds. An example of such projects is the development of nationwide network of auditory tele-rehabilitation centres. The project enabled the creation of a modern telemedical system of a network of auditory tele-rehabilitation centres equipped with modern rehabilitation equipment. The aim of the project was to improve the quality of life of people with hearing and speech impairments in Poland. Other recent example concerns EU-funded eCareMed platform in the Silesia region that will provide many new functionalities and allow design and implementation of innovative organisational, decision-making and diagnostic processes based on modern ICT solutions [Bukowski, Pogorzelczyk, 2019].

The development of IT solutions in healthcare, like a number of other areas of Polish public policy, is not based on a coherent strategy. In addition, there is a lack of continuity in work on strategic documents in the area of e-health, mainly due to political reasons. The assumptions of the e-Health Development Strategy in Poland for 2018-2022 were adopted jointly by the Ministry of Health and the Ministry of Digitisation at the end of 2017. However, as a result of personnel changes in both ministries, the strategy did not come into force. [Żakowiecki, Helak, 2020].

The computerisation of healthcare is becoming a reality in Poland. Under Article 56 paragraph 2 of the Act of 28 April 2011 on Information System in Healthcare e-prescriptions are available throughout in Poland, starting from 1 January 2020. Before the implementation of the Law there where many pilot programmes in selected voivodships implemented. For instance, in Siedlce and Skierniewice, in May 2018, a pilot programme concerning the implementation of e-prescriptions to be delivered to healthcare service users electronically – by e-mail, SMS, or as a printout – was introduced. The first e-prescription was issued in Siedlce on 25 May 2018 [CSIOZ, 2018]. Thus, the pilot e-prescriptions programme was started which was carried out to 12 September 20187. Over 23,000 e-prescriptions used by 5,250 patients were issued within the programme. 10 205 e-prescriptions were filled, which amounts to 44% of total e-prescriptions issued [Kowalska, 2018]. In most cases patients will continue to use printouts of e-prescriptions or use a code received from the service provider if only because of the fact that making it possible to receiving them on mobile devices (e.g. smartphones) requires the activation of an ePUAP trusted profile (i.e. Electronic Platform for Public Administration Services), and access to one's Internet Patient Account (IKP).

P1 is an electronic platform of various public services in the field of health care, which enables collecting, analysing and making available digital resources on medical events in the scope compliant with the Act of 28 April 2011 on information systems in health care. The P1 system will contain information on medical events of all Polish citizens regardless of the payer, and citizens of the European Union and other countries who will benefit from health services in Poland. The Platform will launch subsystems and applications that will allow streamlining of processes related to planning and execution of health services, monitoring and reporting on their execution and publishing health information. Functional subsystems will include database, application and integration solutions.

9.2.2 Resilience context

The pandemic is accelerating the digitalisation of the Polish healthcare system. Most medical consultations currently take place by phone or online. In addition, commercial insurers contract teleconsultation services

with medical facilities in large quantities. Due to increased demand, the offer of IT tools for remote visits intended for medical facilities and private doctors' offices has also increased significantly. It is expected that this offer will be expanded even further.

Currently, 2 million electronic prescriptions are issued daily, and 75 percent of all prescriptions in pharmacies are e-prescriptions. Whereas patients' internet accounts, operating since May 2018, have already been created by 5.7 million users (ezdrowie.gov.pl).

Since the second half of July 2020, the results of publicly-funded coronavirus tests have been available on the Patient's Internet Account (IKP). Now a new service has appeared: information about the fact that the patient has been quarantined or isolated at home and for what period. The patient can also download a document with an electronic signature, confirming quarantine or home isolation, and then send it e.g. by e-mail to the employer [Pacjent, 2020c].

The situation related to the COVID-19 epidemic accelerated the availability and uptake of tele- and video-advice and changed the organisation of personal visits to primary care (in basic healthcare, 80% of advice moved to the virtual sphere). From July 6, the interviewers on behalf of the National Health Fund can call those who have taken the advice of their GP. Asking a few questions they will check if the advice actually took place and in what form it was carried out – checking the availability of GPs' advice during the Covid-19 epidemic [NHF, 2020a].

The Ministry of Health has launched the Domestic Medical Care (DOM) project throughout Poland [MoH, 2020b], a system for remote monitoring of patients with COVID-19, which allows anyone who has a positive coronavirus test result to receive a pulse oximeter. This device tests the saturation level, i.e. the saturation of arterial blood with oxygen, and transmits the data to the monitoring centre. This way, if the parameters deteriorate, an ambulance will quickly be called to the patient.

Patient test results are collected through the PulsoCare system. The system is made available to patients as a website (https://pulsocare.mz.gov.pl) or as a mobile application. The free mobile application is available through the Android (Google Play) and iOS (Appstore) platforms. All patients with access to the Internet can use it. In PulsoCare, patients enter the results of their pulse oximeter measurements and answer questions about their health in the survey. The mobile application connects to the pulse oximeter via Bluetooth and reads the patient's saturation level and heart rate data itself. The data can also be manually entered into the system after reading it from the pulse oximeter screen.

Medical services are nowadays provided not only by medical entities. What is interesting is the activity of insurance companies, which have a growing offer of medical services and cooperate with a dispersed network of medical facilities. In this case, a set of electronic services for patients can give them a competitive advantage in terms of customer service quality. The basic electronic services include remote booking of GP consultations and access to medical data and documents from the patient's portal or a mobile application. What is important overall is that an IT tool should be comprehensive and keep pace with changes in central systems. It should ensure ongoing access to patients' medical histories and enable electronic prescriptions, electronic referrals, and electronic sick notes. What is also important is an ability to retrieve medical records, such as prescription histories, from other medical facilities.

The progressive digitalisation of healthcare requires some changes in the systems used by medical entities, but does not force their replacement. The market offer includes ready-made tools to integrate multiple facilities and to communicate with central solutions. The different companies have a number of proven solutions for both service providers and software companies. Their tools use the HL7 and IHE international integration standards, which are widely accepted in Poland, and enable, among other things, a simple connection to the P1 system and the Social Security Institution's system. Thanks to the ready-made connectors to the electronic prescription system, the electronic referral system, the primary healthcare provider selection declarations

(awareness is low that patients already have the possibility to submit declarations via the Patient Internet Account), and the electronic sick note system, a comprehensive tool can be created from almost every system used by clinics. Thanks to such “integration suites,” it is much easier and cheaper to standardise medical software used in clinic chains and to adapt it to new regulations.

9.2.3 Regulations on digital solutions in health care system in Poland

Table 1: Regulations on digital solutions in health care system in Poland

What	When	Effect
The obligation to keep medical records in electronic form (Article 13a of the Act on the system of information in health care).	01.01.2019	This obligation includes the following types of medical records: - information about the diagnosis of the disease, health problem or injury, the results of the tests carried out, the reason for refusing admission to the hospital, health services provided and possible recommendations - in case of refusal to admit to the hospital. - information for the doctor referring the service provider to a specialist clinic or hospital treatment about the diagnosis.
The obligation to keep medical records in electronic form (Article 13a of the Act on the system of information in health care).	01.07.2021	The data contained in the electronic medical records specified in the regulations issued on the basis of Article 13a, will be exchanged via SIM.
IKP The Internet Patient Account **Act of 28 April 2011 on the information system in health care**	May 2018	The Patient's Internet Account (IKP) includes: - medical records, for example, e-prescriptions and e-referrals, and soon also test results or hospital discharge; - information about: ▪ the amount of the refund; ▪ purchased drugs and other medical products; ▪ services used under the National Health Fund - for example, a surgery or examination; ▪ the prescribed dose of drugs; ▪ planned benefits reimbursed by the National Health Fund, such as a visit to your specialist doctor or the planned date of rehabilitation. - declarations of choosing a doctor, nurse or midwife of the public health service (POZ). Thanks to IKP, it allows for: ▪ receipt of an e-prescription by SMS or e-mail ▪ buying prescription drugs in various pharmacies without losing the refund ▪ providing family members or a doctor with information about the health condition and history of prescribed medications ▪ access to medical data of children up to 18 years of age

		▪ receiving another e-prescription without visiting a doctor (in the case of a chronic disease and after consultation, e.g. by phone, with a doctor)
E-sick leave note/e-dispensation **(Medical certificate of incapacity for work)**	01.12.2018	Sick leave notes are issued digitally by doctors and uploaded to the Electronic Services Platform (PUE ZUS), which allow for an easy access to the employee's data as well as prevent possible frauds.
E-visit	May 2020	The e-Health Centre has launched a platform that allows entities performing medical activities to provide patients with e-medical and nursing visits. E-visit may take place via the Internet (e.g. video call, chat) or by telephone. Thanks to the e-visit, patients can: ▪ receive consultations for any disturbing symptoms or malaise ▪ discuss test results, e.g. blood sugar or blood pressure ▪ ask for an e-prescription for repeat medications ▪ ask about the dosage of medications ▪ receive medical advice ▪ receive an e-waiver. Registration for an e-visit is available 24 hours a day, 7 days a week.
E-prescription **Act of 28 April 2011 on the information system in health care** **Act of March 1, 2018 amending certain acts in connection with the introduction of e-prescription (Journal of Laws, item 697)**	08.01.2020	Prescriptions are issued only in electronic form.
E-referrals **the Act of 6 December 2018 amending certain acts in connection with e-delivery and waiting lists for health care provision.** **Act of 19 July 2019 amending certain acts in connection with the implementation of e-health solutions (Journal of Laws, item 1590)**	08.01.2021	Referrals listed in art. 59aa sec. 2 of the Act on health care services financed from public funds will be issued only in electronic form.

Source: own elaboration

9.3 Key Findings

The major goal of the introduced changes is the general digitalisation of medical information and – consequently – enabling its electronic circulation to make it easier and faster. However, acknowledging the validity of such an objective does not prevent one from asking the question, is Polish society ready for such changes? Despite the fact that the obligation of implementing the functionalities related to the full operability of the P1 platform has been postponed numerous times, problems may arise both on the side of healthcare providers – unprepared for the changes – and on the side of users, particularly the elderly, who use digital solutions less frequently than the general public and, therefore, may be threatened with digital exclusion.

The introduced solutions should be flexible enough to make them possible to use by both fluent computer and Internet users and by those who either do not have such skills or cannot access a computer or the Internet. At the same time, those solutions should be designed in such a way that the functioning of healthcare service users in the area related to providing them health and life comfort is easier and improved, not only by implementing digital solutions, but also by improving the traditional ones.

In order to meet the expectations of patients who need help in logging in to their Internet Patient Account, the Act on eHealth solutions has established that the medical personnel, who will be granted the appropriate privileges, can confirm the trusted profiles necessary to activate the IKP. Thanks to this, during a visit to the clinic, the patient can log in to their Internet Patient Account and learn how to manage their data. Patients' associations draw attention to the need to raise public awareness of the security of health data. They point to the need for educational campaigns concerning the protection of privacy, confidentiality and security of this data. This is recalled by the My Patients Foundation, which seeks to involve patients in healthcare decisions and provides expert support to patient organisations. In its opinion, it is necessary to teach patients to consciously administer their medical data and give access to it to trusted persons, such as medical personnel or medical entities [CEZ, 2019].

9.4 Summary and Recommendations

Strengths and opportunities	Weaknesses and threats	Impacted areas	Recommendations
The development of new forms of remote care and e-health tools facilitating access to health services and medicines – largely introduced before the pandemic	Poor public reception and use of the e-patient account. Low e-competences primarily among senior medical staff. *Most e-health tools only digitise an administrative process that used to be analogue. The e-tools do not incorporate qualitative support for the healthcare professionals, e.g. by alerting them about potential risks of drug-*	Sustainability and resilience	Ensuring opportunities for sustainable development digital competences. Training activities in the field of digital competences in various age and professional groups, both in the development of basic and advanced skills and providing online educational content, courses and training *Expand the functionalities of existing e-health tools so as to*

	to-drug interactions, drug overuse, etc.		*include solutions that have a direct impact on quality of care of patients.*
Pre-existing regulatory standards and crisis management mechanisms (e-prescription, e-referral, teleconsultations)	No national strategy for innovative e- health system.	Resilience	The necessity to create a modern institutional and hardware base. Extensive social campaigns are needed to increase users of e-platforms dedicated to health.
The development of the tele-consultations in outpatient care.	Tele consultation is becoming the dominant type of care in Covid 19 times in outpatient care. This creates a serious space for neglect in the treatment of patients with chronic diseases.	Resilience	Necessary adoption of rational standards of practice in the treatment of patients in times of pandemics. Identification of competence deficits of medical and management personnel in times of pandemic and preparation of recommendations for change.
Introduction of e-health/telemedicine right before the pandemic was essential	*Deficiencies in telemedicine standards.* *Wasteful telemedicine practices – e-consultation required for screening whether e-consultation or in-person visit is required*	*Sustainability and resilience*	*Further development of e-health (improving control over chronic conditions).* *Functional integration via e-tools.* *“Registration triage” – Screening whether e-consultation or in-person visit is required should be made at registration stage*

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11. List of legal acts

(Date order)	Date enacted (Position in the Journal of Laws)
Act on State Sanitary Inspection *Ustawa z dnia 14 marca 1985 r. o Państwowej Inspekcji Sanitarnej*	14 March 1985 No. 12, item 49 with amendments
Act on Municipal Self-Government *Ustawa z dnia 8 marca 1990 r. o samorządzie gminnym*	8 March 1990 No. 16, item 95 with amendments
Act on Territorial Self-Government *Ustawa z dnia 10 maja 1990 r. Przepisy wprowadzające ustawę o samorządzie terytorialnym i ustawę o pracownikach samorządowych*	10 May 1990 No. 32, item 191 with amendments
Act of on state reserves and mandatory fuel stocks. *Ustawa z dnia 30 maja 1996 r. o rezerwach państwowych oraz zapasach obowiązkowych paliw*	30 May 1996 Nr 90 item 404
Act on divisions of governmental administration *Ustawa z dnia 4 września 1997 r. o działach administracji rządowej*	4 September 1997 No. 141, item 943 with amendments
Act on Voivodship Self-Government *Ustawa z dnia 5 czerwca 1998 r. o samorządzie województwa*	5 June 1998 No. 91, item 576 with amendments
Act on County Self-Government *Ustawa z dnia 5 czerwca 1998 r. o samorządzie powiatowym*	5 June 1998 No. 91, item 578 with amendments
Act on Health Care Services Financed from Public Sources *Ustawa z dnia 27 sierpnia 2004 r. o świadczeniach opieki zdrowotnej finansowanych ze środków publicznych*	27 August 2004 No. 201, item 2135 with amendments
Act on State Emergency Medical Services *Ustawa z dnia 8 września 2006 r. o Państwowym Ratownictwie Medycznym*	8 September 2006 No. 191, item 1410 with amendments
Act on Crisis Management *Ustawa z dnia 26 kwietnia 2007 r. o zarządzaniu kryzysowym*	26 April 2007 No. 89, item 590 with amendments
Act on Civil Service *Ustawa z dnia 21 listopada 2008 r. o służbie cywilnej*	21 November 2008 No. 227, item 1505 with amendments

Act on preventing and combating infection and infectious diseases *Ustawa z dnia 5 grudnia 2008 r. o zapobieganiu oraz zwalczaniu zakażeń i chorób zakaźnych u ludzi*	5 December 2008 No. 234, item 1570 with amendments
Act on Therapeutic Activity *Ustawa z dnia 15 kwietnia 2011 r. o działalności leczniczej*	15 April 2011 No. 112, item 654 with amendments
Act on the reimbursement of drugs, foodstuffs for particular nutritional uses and medical devices *Ustawa z dnia 12 maja 2011 r. o refundacji leków, środków spożywczych specjalnego przeznaczenia żywieniowego oraz wyrobów medycznych*	12 May 2011 No. 122 item 696
Act amending the act on the nurses and midwives professions and certain other acts *Ustawa z dnia 22 lipca 2014 r. o zmianie ustawy o zawodach pielęgniarki i położnej oraz niektórych innych ustaw*	22 July 2014 2014 item 1136
Act on Public Health *Ustawa z dnia 11 września 2015 r. o zdrowiu publicznym*	11 September 2015 Item 1916 with amendments
Act on the method of determining the lowest basic salary of certain employees employed in healthcare entities *Ustawa z dnia 8 czerwca 2017 r. o sposobie ustalania najniższego wynagrodzenia zasadniczego niektórych pracowników zatrudnionych w podmiotach leczniczych*	8 June 2017 No. 2017 item 1473 with amendments
Act on Primary Health Care Ustawa z dnia 27 października 2017 r. o podstawowej opiece zdrowotnej	27 October 2017 Item 2 217
Act on the Medical Research Agency *Ustawa z dnia 21 lutego 2019 r. o Agencji Badań Medycznych*	21 February 2019 Item 447
Act amending certain acts to ensure the functioning of health protection in connection with the COVID-19 epidemic and after it ceases *Ustawa z dnia 14 sierpnia 2020 r. o zmianie niektórych ustaw w celu zapewnienia funkcjonowania ochrony zdrowia w związku z epidemią COVID-19 oraz po jej ustaniu*	14 August 2020 No. 2020 item 1493
Act on the Medical Fund	7 October 2020

Ustawa z dnia 7 października 2020 r. o Funduszu Medycznym	Item 1875
Act amending certain acts in connection with counteracting crises related to the occurrence of COVID-19 *Ustawa z dnia 28 października 2020 r. o zmianie niektórych ustaw w związku z przeciwdziałaniem sytuacjom kryzysowym związanym z wystąpieniem COVID-19*	28 October 2020 Item 2112, 2113

Other regulations:

Regulation of the Minister of Health on the definition of priority areas of medicine *Rozporządzenie Ministra Zdrowia z dnia 20 grudnia 2012 r. w sprawie określenia priorytetowych dziedzin medycyny*	20 December 2012 No. 2012 item 1489
Resolution of the Council of Ministers: Proceedings Regulation of the Council of Ministers *Uchwała Nr 190 Rady Ministrów z dnia 29 października 2013 r. Regulamin pracy Rady Ministrów*	29 October 2013 M.P. 2013. Item 979
Regulation of the Minister of Health on the content of health need maps *Rozporządzenie Ministra Zdrowia z dnia 26 marca 2015 r. w sprawie zakresu treści map potrzeb zdrowotnych*	26 March 2015 JoL. 2915, Item 458
Regulation of the Minister of Health on medical rescue activities and health services other than medical rescue activities that may be provided by a paramedic *Rozporządzenie Ministra Zdrowia z dnia 20 kwietnia 2016 r. w sprawie medycznych czynności ratunkowych i świadczeń zdrowotnych innych niż medyczne czynności ratunkowe, które mogą być udzielane przez ratownika medycznego*	20 April 2016 JoL 2016 item 587
Regulation of the Council of Ministers on the National Health Programme for 2016-2020 *Rozporządzenie Rady Ministrów z dnia 4 sierpnia 2016 r. w sprawie Narodowego Programu Zdrowia na lata 2016–2020*	4 August 2016 JoL. 2016, Item 1492
Regulation of the Council of Ministers on the National Mental Health Programme for 2017-2022	8 February 2017 JoL. 2017 poz. 458

Rozporządzenie Rady Ministrów z dnia 8 lutego 2017 r. w sprawie Narodowego Programu Ochrony Zdrowia Psychicznego na lata 2017-2022	
Regulation of the Minister of Health on standards for restrictions on the provision of health care services to patients other than suspected or infected with SARS-CoV-2 virus by medical professionals who have direct contact with patients suspected or infected with this virus *Rozporządzenie Ministra Zdrowia z dnia 28 kwietnia 2020 r. w sprawie standardów w zakresie ograniczeń przy udzielaniu świadczeń opieki zdrowotnej pacjentom innym niż z podejrzeniem lub zakażeniem wirusem SARS-CoV-2 przez osoby wykonujące zawód medyczny mające bezpośredni kontakt z pacjentami z podejrzeniem lub zakażeniem tym wirusem*	28 April 2020 Item 775 with amendments
Regulation of the Minister of Health on the definition of priority areas of medicine *Rozporządzenie Ministra Zdrowia z dnia 30 czerwca 2020 r. w sprawie określenia priorytetowych dziedzin medycyny*	30 June 2020 No. 2020 item 1156
Ordinance by the MoH on granting the statute of the Medical Research Agency Zarządzenie Ministra Zdrowia z dnia 26 listopada 2019 r. w sprawie nadania statutu Agencji Badań Medycznych	26 November 2019 Item 98
Ordinance by the MoH on the establishment of Team for monitoring and forecasting the course of the COVID-19 epidemic in Poland *Zarządzenie Ministra Zdrowia z dnia 2 września 2020 r. w sprawie powołania Zespołu do spraw monitorowania i prognozowania przebiegu epidemii COVID-19 w Rzeczypospolitej Polskiej*	2 September 2020 Item 64

12. Appendix

12.1 Tab. A1. Key actors in the governance of the health system with their selected relevant areas of responsibility

Key actors:	Roles:	Position:
CoM – Council of Ministers	▪ Crisis management ▪ Confirms National Crisis Management Plan ▪ MIA; Minister of Internal Affairs and Administration – takes over the decision-making in urgent matters of crisis management	Gov. / coordination
RZZK – Governmental Crisis Management Team	▪ Advising CoM on crisis management ▪ Preparation of National Crisis Management Plan Includes: ▪ PM (as chairperson) ▪ MoD; Minister of Defence ▪ Minister of Administration ▪ Minister of Foreign Affairs ▪ Minister Coordinator for Special Services ▪ Other relevant ministers ▪ Director of RCB (as secretary) ▪ Invited representatives of relevant governmental institutions	Gov. / coordination / Advisory body for CoM
KWRiST – Joint Commission of the Government and territorial Self Government	Advisory body to the CoM and the Minister of Internal Affairs and Administration;	Gov. / coordination, multi-level coalition-building
Team for monitoring and forecasting the course of the COVID-19 epidemic in Poland	Est. on 3 September 2020 Includes reps. of: ▪ Dpt. Of Strategic Analysis of the Minister of Health ▪ NIPH-NIH ▪ GIS (Chief Sanitary Inspector) – head of Sanepid ▪ GUS ▪ AOTMiT ▪ CeZ (+ MoH + NHF + Minister of Internal Affairs and Administration)	Gov. / inter-institution coordination body
PM – Prime Minister		Gov.
GUS – **Statistics Poland**	Responsible for population statistical data collection and processing. Advising on regional health needs maps; **Coding statistical data on COVID-19**	Gov. Agency under PM

Patient Rights Commissioner	Ombudsman for patients' rights	Gov. Commissioner under PM
RCB – Government Security Centre	Crisis management centre for the country; threat assessment; response development; coordination of information flow. **COVID-19 Reports**	Gov. / coordination
MIAA – Minister of Internal Affairs and Administration	**Advising the PM on COVID-19** ▪ decision-making in urgent matters of crisis management ▪ Confirming Voivodship Crisis Management Plans (with Voivode)	Gov.
ARM – Agency for Material Reserves	– tasked with stockpiling strategic reserves, including medical reserves: drugs, sera and vaccines, disinfectants, first aid equipment, protective clothing, disposable medical devices, medical equipment, accommodation equipment.	Gov. under the Minister of Energy
MoH – Minister of Health:	▪ Health policy programmes; ▪ Executive regulations; ▪ Establishing guaranteed benefits baskets (via executive reg.); ▪ Approving National Health Needs Maps; ▪ Stocks of vaccines and other immunological medical products; ▪ Declares the state of epidemic and the state of epidemic threat (on the advice of GIS) **Advising the PM on COVID-19**	Gov.
CeZ – E-Health Center	Monitoring, analysing (research), planning and maintaining tele-information systems for health	Gov. Agency under MoH
Country consultants	Advising on regional health needs maps in RHNC (Regional Health Needs Council), and various other roles	Gov. Council under MoH
Economic Commission	Negotiation of pharmaceutical prices and reimbursements schemes with pharmaceutical companies	Gov. Council under MoH
PHC – Public Health Council	▪ Advising MoH on National Health Programme; ▪ recommending new interventions; and on other public health issues. PHC composed of Country consultants, And representatives of: ▪ the President	Gov. / inter-sectoral and inter-departmental coordination body under MoH

	▪ all departmental ministers ▪ KWRiST ▪ **NHF** ▪ **NIPH-NIH** (inc. former National Nutrition Institute) ▪ Sanepid (also Military Sanitary Inspection) ▪ Professional Chambers (for Nurses and Midwifes, Physicians, Pharmacists, Lab. Diagnosticians) ▪ employers' organisations ▪ NGOs	
Medical Fund	Financing: strategic infrastructure development, modernization of healthcare providers, development of prevention, etc.	Gov. / dedicated fund
Each of the departmental Ministers	Preparation of departmental crisis management plan	Gov.
Crisis Management Team	See: above	As above
Crisis Management Centre	See: above	As above
NHF – National Health Fund (in Polish abr. as NFZ)	▪ Ordinances on contracting services; ▪ Redistribution of prepayment (healthcare contributions + tax subsidies); ▪ **Advising the PM on COVID-19** Resources assigned to Regions in accordance to Health Needs Maps: - population count, - populations risk profile; - and (*de facto* dominating factor) pre-existing assets distributions (human and material resources).	Gov. Agency under MoH / Payer: centralised redistribution mechanism
Regional Branches of the **NHF**	▪ Contracting publicly funded healthcare; ▪ Negotiating prices for services (within standards established by AOTMiT) ▪ Health programmes; ▪ Advising on regional health needs maps in RHNC; ▪ Deconcentrated payer function Prospective methods of payments to providers (particularly essential to long-term governance): - DRG – diagnosis-related group, - FFS – fee-for-service, - lump sum payments (hospital network programme) But new methods emerge: - P4P – pay-for-performance (in KOS programme for heart disease care; and in reformed POZ)	Payer: deconcentrated allocation mechanism

	Fund-holding (*budżet globalny*) for mental health protection	
URPL – Office for Registration of Medicinal Products, Medical Devices and Biocidal Products	Keeping Official Register of Authorised Medicinal Products; Granting marketing authorisations for medicinal products; Keeping the Central Register of Clinical Trials;	Gov. Agency under MoH
AOTMIT – Agency for Health Technology Assessment and Tariffs System	HTA and pricing; ▪ Cost-effectiveness reports on treatment and pharmaceuticals reimbursement schemes; ▪ Projects of guaranteed benefits baskets; ▪ Assessment of territorial self-government's health policy programmes; ▪ Pricing services in accordance to their real costs	Gov. Agency under MoH
Transparency Council	Advising to the AOTMIT Director – via representatives of MoH; NHF; URPL; Patient Rights Commissioner	As above
NIPH-NIH – National Institute Of Public Health – National Institute Of Hygiene (in Polish abr. as NIZP-PZH)	Key public health research institution (epidemiological analysis and prognosis), also involved in and thus a key expert-advisory institution. Developing projects of Regional Health Needs Maps and National Health Needs Map; **Aggregation of data on COVID-19**	Gov. Agency under CoM / research and expert-advisory
Sanepid – State Sanitary Inspection	▪ Control and supervision of sanitary conditions in various domains; ▪ Collection of epidemiological data concerning certain diseases – particularly contagious; ▪ Advises the MoH (GIS) and Voivode (Voivodship Inspector) on declaring the state of epidemics and the state of epidemic threat; ▪ Enforces epidemic restrictions **Collection of data on COVID-19** **Chief Sanitary Inspector as primary gov's advisor on COVID-19**	Gov. Service under MoH / monitoring / education and training / sanitary police
PIF – State Pharmaceutical Inspection	Control and supervision of production, distribution of pharmaceuticals	Gov. Service under MoH
NIK – Supreme Audit Office	Auditing operations of public institutions and publically funded processes	State Arm's-Length Body under the Parliament
Voivodes	Regional governors representing central government; ▪ Approving Regional Health Needs Maps;	Gov. Delegate for Regions /

	▪ Crisis Management in the region: monitoring, planning, response; ▪ Confirming Voivodship Crisis Management Plans (with MIAA); ▪ Confirmation of the County Crisis Management Plans; ▪ Declaring the state of epidemic or epidemic threat in the region (at recommendation of the State Voivodship Sanitary Inspector)	Deconcentrated central gov. adm.
Dept. of Health (or Social Policy and Health)	▪ Responsible for managing statutory obligation concerning health (and social) issues at this level of public administration.	As above
Crisis Management Dept.	▪ Preparation of Voivodship Crisis Management Plans	Voivode's office
Voivodship Crisis Management Team	Advising on Voivodship Crisis Management Plans [focused on natural disasters and military threats] Includes: ▪ Reps of services and HQs for the region ▪ Reps of state water management ▪ Rep. of Regional Military HQ ▪ Rep of the voivodship self-gov. ▪ And others	Advisory to Voivode
Voivodship Crisis Management Centre	Advising on Voivodship Crisis Management Plans; 24/7 emergency coordinating and communication	Coordination, communication
Voivodship consultants	Advising on resource allocation, regional medical personnel training; Advising on regional health needs maps in RHNC;	Advisors
RHNC – Regional Health Needs Council	Advising on regional health needs maps	Advisory body for Voivode
Medical Colleges	Research and training public health professionals. Advising on regional health needs maps in RHNC	Some owned and established by MoH / research and expert-advisory role
Association of Polish Counties	Representation of county level self-governments	Territorial self-governments
Convention of Polish Counties	Advising on regional health needs maps in RHNC, And other roles	As above
Territorial self-governments	**Health policy programmes;** **Ownership of healthcare providers;**	As above

	And many other roles and duties (see: fig. 2.), most notably (within crisis and emergency management, see: fig. 1.)…	
Voivodship/Regional self-government	…advising on regional health needs maps in RHNC	As above
County (powiat)		Ter. self-gov.
Starosta (county governor)	…crisis management in the county; planning, coordinating, monitoring; ▪ Preparation of the County Crisis Management Plans ▪ Confirmation of the Municipal Crisis Management Plans	Head of the Territorial self-gov. + chief of the joint central adm. In the county
County Crisis Management Team	See: above – analogous to higher tiers	Advisory to Starosta (county governor)
County Crisis Management Centre	See: above – analogous to higher tiers	Under Starosta
Municipality		Ter. self-gov.
Voight/Mayor/President	…crisis management in the county; planning, coordinating, monitoring; ▪ Preparation of the Municipal Crisis Management Plans	Head of the Territorial self-gov.
Municipality Crisis Management Team	See: above – analogous to higher tiers	Facultative
Municipality Crisis Management Centre	See: above – analogous to higher tiers	Facultative
Healthcare Providers	Advising on regional health needs maps in RHNC (via representative organisations)	Providers: private, public, religious
Professional Chambers (for Nurses and Midwifes, Physicians, Pharmacists, Lab. Diagnosticians)	Advising in PHC, And many others…	Professional self-governments

Based on: *Sowada et al, 2019; JoL, 1985 No. 12, item 49; JoL, 1990 No. 16, item 95; JoL, 1990 No. 32, item 191; JoL, 1997 No. 141, item 943; JoL, 1998 No. 91, item 576; JoL, 1998 No. 91, item 578; JoL, 2004 No. 201, item 2135; JoL, 2006 No. 191, item 1410; JoL, 2007 No. 89, item 590; JoL, 2008 No. 234, item 1570; JoL, 2011 No. 112, item 654 ; JoL, 2015 Item 1916; JoL, Ordinance by the MoH, 2020 Item 64. 2*