Towards a future-proof health system in Belgium

Think tank on the future of healthcare

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Introduction

The overarching goal of health systems is to improve the health of the population. Health is traditionally defined by the World Health Organization (WHO) as a state of complete physical, mental, and social well-being.[1] However, it can also be understood in a more functional sense, as seen in the concept of positive health, which focuses on aspects such as resilience, sense of purpose, meaningfulness, and self-management. Positive health is specifically defined as the ability to adapt and self-manage when faced with the social, physical, and emotional challenges of life. [2] Enhancing health should also be viewed from a longitudinal perspective, encompassing the prevention of premature mortality, the attainment of additional healthy life years, and ultimately, the achievement of healthy longevity. [3]

To enhance health, the European Commission argues that health systems must adhere to three crucial guiding principles[4]:

a) Promoting **high-quality care**, with an emphasis on a preventive approach wherever possible, alongside closer coordination among all stakeholders.
b) Ensuring **universal access** to healthcare, grounded in the principles of fairness and solidarity, thereby addressing and avoiding health inequities.
c) Guaranteeing the **financial sustainability** of the system by ensuring adequate funding, maintaining a sustainable growth rate of expenditures, and enhancing the system's effectiveness and efficiency.

Many health systems strive to adhere to these guiding principles but face numerous challenges in doing so.[5] For Belgium, a recent report by the Federal Knowledge Center (KCE) highlights several key challenges.[6]

First, anticipated demographic changes are expected to place continued pressure on health budgets. According to demographic projections by the Belgian Federal Planning Bureau, between 2022 and 2050, the population aged 65 and older is expected to grow by 39%, while the population aged 80 and older is projected to nearly double. By 2050, individuals aged 65 and above will constitute 25% of the population. Given that multimorbidity and the need for support increase with age, these projections have prompted several observers to warn that the current health system is unprepared for this looming "time bomb".[7]

Another significant challenge affecting our health system is the issue of inappropriate care and the overuse of certain types of healthcare. The KCE highlights inefficiencies in various areas, such as unexplained geographical variations in interventions or costs of care, the overuse of examinations and medical equipment, and inappropriate treatments across multiple care domains. The report concludes that addressing inappropriate care is a critical challenge for improving the performance of Belgium's health system.

In addition, our health system faces issues related to unequal access to care and the underuse of valuable treatments, with many individuals not receiving the care they need, including preventive care. Although Belgium is committed to the objectives of universal health coverage (UHC)—ensuring that everyone has access to high-quality healthcare without facing financial hardship—this ideal is not fully realized in practice. Less affluent citizens, for instance, have reduced access to preventive care, screening programs, certain types of specialist care, and dental care. The KCE specifically notes a higher co-payment rate in Belgium compared to the European average, inappropriate out-of-pocket supplements, and growing waiting times for several types of care.[vi] These disparities highlight ongoing obstacles in achieving equitable healthcare access.

The fragmentation of care represents yet another challenge for our health system. Relatively high hospitalization rates for certain non-communicable diseases can, in part, be attributed to a lack of coordination and continuity of care. In its report, the KCE highlights conditions such as asthma, COPD, diabetes, and care for frail elderly as examples of where these issues are evident. However, the report acknowledges that its analysis covers only a limited number of indicators and conditions, suggesting that the problem could be more widespread.[vi]

A key weakness of the health system is also its underperformance in the area of preventive care. Despite recent efforts to improve preventive measures, performance indicators in this domain often fall short of targets, with suboptimal results. In 2022, the OECD estimated that Belgium allocated just 2.3% of its health expenditure to prevention, compared to an EU27 average of 4.3%.[v] The KCE concludes that preventive care is an area with significant room for improvement and stresses that it should be a high priority on the political agenda.[vi] Mental health, in particular, remains a critical concern, with several alarming indicators. Recent reforms in the mental health sector have yet to yield sufficient visible results. Long waiting times for access to mental health centers, rising use of antidepressants, and an increasing number of psychiatric hospital readmissions within 30 days all point to significant gaps in mental healthcare.

Two additional challenges highlighted by the KCE are the need for greater efforts in data collection and patient participation in health policy. Although these issues are only briefly mentioned, we believe they are critical challenges that require immediate attention. With regard to data collection, the establishment of a European Health Data Space (EHDS) is a key initiative. Its purpose is to serve as a powerful enabler of benefits for patients, public authorities, and researchers—both public and private—by providing a robust, consistent, and harmonized technical and governance framework for health data access and sharing. This initiative aims to break down silos, connect segregated data, and generate new insights and solutions to tackle existing and emerging challenges in healthcare.[8]

Importantly, a highly efficient health data system benefits both the primary use of data—facilitating enhanced data sharing among all actors—and the secondary use of health data. Secondary uses include policymaking, research, innovation, personalized medicine, and regulatory activities, as outlined in the European Health Data Space (EHDS) and by the Belgian Health Data Agency.[9] Additionally, secondary purposes extend to applications such as clinical and public health research, publishing national statistics, education, developing algorithms, and more.

This integrated approach to data collection has the potential to transform healthcare systems by enabling evidence-based decisions and fostering innovation across the continuum of care.[10] Despite significant progress in this area (as detailed further), achieving adequate and rapid data collection remains a persistent challenge for our system.

Finally, patient involvement in health policies remains insufficient, leading to a significant lack of insight into patients' needs, expectations, and behaviors, as well as a limited understanding of the integrated requirements of medical and social services. This shortfall hinders democratic decision-making and reduces accountability. Increasing patient involvement would make health services more responsive and, in turn, contribute to better individual and community health outcomes.[11]

Based on the above, we argue that our current health system is not future-proof and is unable to meet the challenges we face. Instead of continuing with the same approaches, we must adopt new and innovative strategies. This report by the Think Tank on Future Health (TToFH) was facilitated by Astrazeneca Belgium and builds on the 2023 report of the Partnership for Health Systems Sustainability and Resilience (PHSSR)[12]. It demonstrates that it is indeed possible to address these challenges while upholding the three guiding principles. By doing so, we can create a health system designed to enhance the health of all members of the population within the constraints of available resources.

We refer to this as a **Future-Proof Health System**.

Such a system requires a genuine commitment to investing in health. Recent simulations by the Ageing Working Group (AWG) of the European Commission, which account for demographic changes, anticipated new technologies, and potential efficiency gains, indicate that in all future scenarios considered, healthcare expenditure will need to grow faster than the economy.[13] After all, investing in health is synonymous with investing in the economy, a notion reflected in the "health for all" policy principle.[14] The importance of ensuring the sustainable financing of health systems was also emphasized in a recent declaration by European Ministers of Health, recognizing that such investments both protect society and drive economic growth.[15]

Our foundation for a Future Proof Health System is a **health production model**, depicted in Figure 1 and briefly outlined below. Health can be produced at four levels:

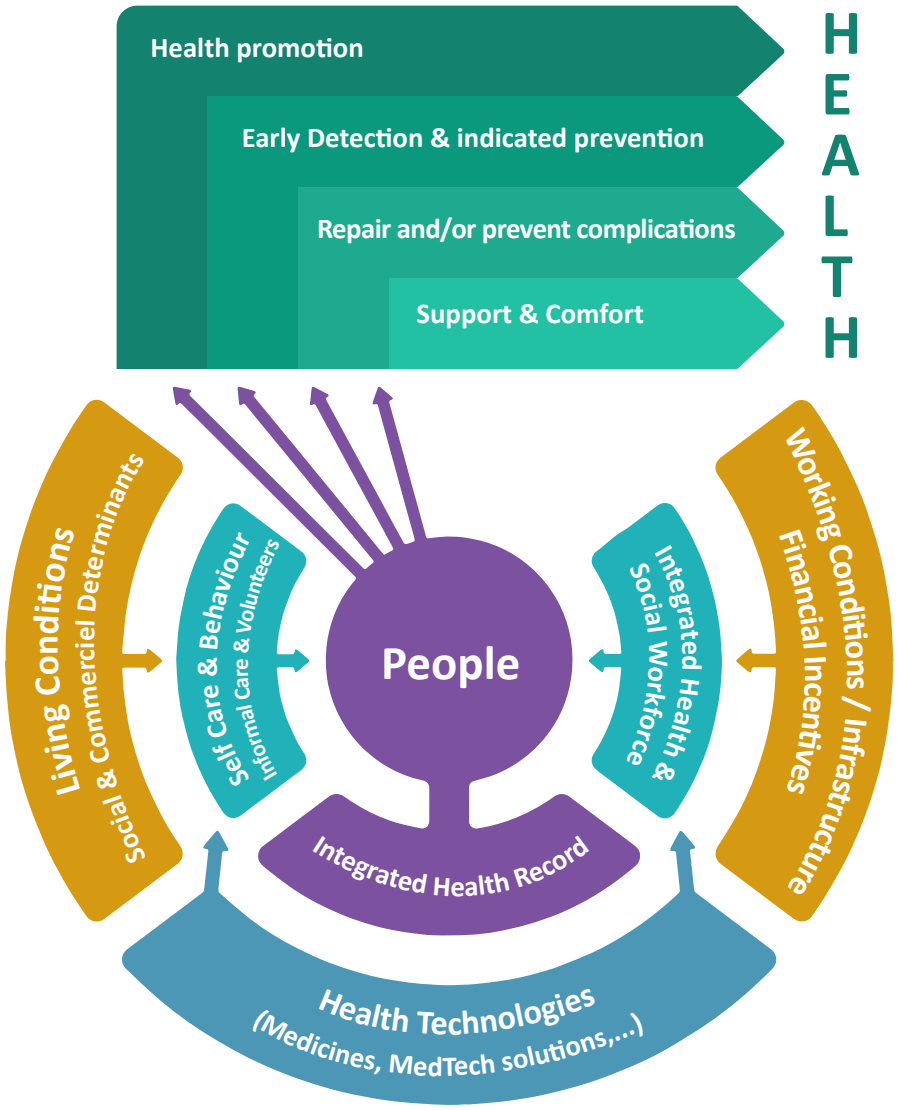
- **Keeping people healthy** through health promotion and disease prevention.
- **Early detection of health issues** and indicated prevention to intervene before clinical symptoms manifest.
- **Repairing health problems** when they occur and/or preventing further complications.
- **Supporting individuals with incurable conditions** while optimizing their quality of life.

At all these levels, individuals should be empowered to take responsibility for their health (self-care), supported by their families, informal caregivers, and volunteers, alongside the professional assistance of the health and social workforce. Achieving this requires the empowerment of the population and enhanced health and digital health literacy. This ensures that health decisions are informed by the expertise of health and social professionals, combined with individuals' values, knowledge, competence, and preferences.[16] A critical prerequisite for producing health is the availability of an integrated health record for every citizen, paired with a strong commitment among health and social professionals to share health and social data effectively.

The model highlights that people's living conditions play a significant role in determining their health. As such, caring for people's health should not focus solely on addressing health problems but should also prioritize tackling the root causes of poor health, including social and commercial determinants of health.

Additionally, the working conditions of the health and social workforce significantly impact their performance and, consequently, the production of health. This includes the infrastructure available to them and the financial incentives provided to deliver high-quality, integrated healthcare. Furthermore, all stakeholders can utilize health technologies, such as medicines and medical technologies (including diagnostics), to support health production across all four levels.

The health production model



In the following sections, we propose ten strategies to achieve a Future Proof Health System. Each strategy is discussed in detail, with concrete recommendations for action outlined to guide implementation. These strategies align with the health production model and are designed to contribute meaningfully to the overarching goal of enhancing healthy longevity.

Boost Health Promotion

Keeping people healthy is critical to addressing many of the current challenges faced by the healthcare system. To create a future-proof health system, a fundamental shift is required—from a focus on acute care to an emphasis on prevention. The Institute of Medicine (IOM) has identified three types of prevention:[17]

- **Universal prevention** targets an entire population (national, local community, school, neighborhood, etc.) with messages and programs aimed at promoting overall health.
- **Selective prevention** focuses on specific segments of the population that are considered at higher risk for certain health conditions. For example, a physical exercise program designed for individuals with sedentary jobs.
- **Indicated prevention** is aimed at preventing the onset of disease in individuals who show early warning signs. An example would be promoting healthy nutrition for people with elevated LDL cholesterol levels.

We consider this classification more appropriate than the commonly used distinction between primary, secondary, and tertiary prevention, as it more effectively describes the target population for each type of prevention. Additionally, Leaf (1999) introduced a fourth type of prevention, care-related prevention, which focuses on avoiding relapse, complications, and the worsening of conditions in individuals already diagnosed with a disease (this will be discussed further in Strategy 3).[18]

Health promotion encompasses the first two types of prevention: universal prevention and selective prevention. The World Health Organisation (WHO) has provided extensive evidence that health promotion is “the best buy” in improving health.[19] It is important to note that health promotion also includes mental health promotion. Additionally, even individuals who already suffer from one or more diseases can benefit from health promotion to prevent the onset of other conditions and to strengthen their overall health.

Various organizations and settings, such as sickness funds, schools, leisure clubs, and municipalities, should be further encouraged to actively participate in health promotion. The health-in-all-policies concept, introduced in Flanders in 2016, aims to achieve health objectives across various life settings, including education, work, leisure, care and welfare, family, and local policy levels. Specific goals have been established within all these domains, with a target for achievement by 2025.[20]

We recommend revising and updating the health-in-all-policies goals across various policy domains, setting 2030 as the next target horizon. These goals should then be translated into concrete actions to ensure their achievement. Regional ministers of health should take the lead in this effort, while engaging and collaborating with their colleagues across the different policy domains.

Within the healthcare system itself, health professionals—such as general practitioners, physiotherapists, dieticians, psychologists, and pharmacists—should actively contribute to health promotion. A notable example of a potentially cost-effective measure is exercise by referral, where a general practitioner prescribes an exercise program to inactive individuals. This program is guided by a coach and is largely funded by the Flemish government.[21]

Additionally, other local health professionals can play a valuable role in directing individuals toward various health promotion initiatives, ensuring broader participation and impact.

We recommend that local health professionals actively endorse health promotion activities within their communities and guide individuals, particularly those most in need, toward these initiatives. Professional associations should take the lead in developing guidelines for good practice and collaborate with the association of cities and municipalities, regional ministers of health, and urban and rural policy stakeholders to ensure effective implementation.

Health promotion should, more broadly, become an integral part of the regular care activities provided by local health professionals. To encourage them to actively take on this role, additional incentives are required (see Strategy 7 for further details).

In addition, health professionals with specialized expertise in health promotion must be more actively involved. These professionals are trained in understanding human behavior, designing health promotion programs, and fostering healthy behaviors. At the local level, these health promoters can collaborate directly with policymakers in communities, schools, employers, leisure clubs, sickness funds, and the general population. They can implement strategies focused on education, awareness, coaching, taking concrete actions, and creating healthy environments for all. Furthermore, they can stimulate and support citizen-led initiatives, such as social activities that not only enhance overall health but also promote mental health by fostering social connectedness.

A recent Flemish report recommends organizing health promotion at the regional level (via LOGOs – loco-regionaal gezondheidsoverleg en -organisatie) with local implementation. This approach would target the various settings of the “health-in-all-policies” framework while focusing on engaging local communities. [22] However, to genuinely achieve a shift toward health promotion, increased investment will be necessary to ensure that more citizens can benefit from such initiatives.

We recommend making extraordinary investments in health promotion at the community level by engaging a significantly greater number of health promoters. Regional ministers of health should take the lead in this effort, working in collaboration with cities and municipalities, and seeking co-financing from the federal level, which stands to gain the most from this investment.

Increase Overall Access to Early Detection

Early detection of diseases—before clinical symptoms significantly impact patients' lives—is vital for reducing downstream negative health consequences and controlling healthcare expenditures. There are numerous conditions where screening, early detection, and timely treatment can lead to significantly improved outcomes, including cancer, type 2 diabetes, hypertension, rheumatoid arthritis, other non-communicable diseases, bacterial pneumonia, other infectious diseases, genetic disorders, and malnutrition.

In the case of cancer, screening programs for breast, colorectal, and cervical cancer are already well-established and organized by regional governments. Screening for skin cancer has also been initiated through Euromelanoma[23], and the EU has recently called for implementation research on targeted screening for lung, gastric, and prostate cancers.[24]

In recent years, screening methods have significantly improved, becoming more risk-adjusted, meaning screening modalities are now tailored to the predicted cancer risk of the individual being screened. Furthermore, the accuracy of screening tools has advanced, driven in large part by the integration of artificial intelligence (AI).[25] Notably, one study indicates that AI can reduce the workload of radiologists by more than 40%.[26]

These advancements—such as more risk-adjusted screening, improved accuracy, and more efficient use of resources—are expected to enhance the benefit-risk ratio and cost-effectiveness of various screening programs. Additionally, these trends create opportunities to expand efforts to reach a greater number of eligible candidates for screening and to improve participation rates, ensuring ambitious prespecified targets are achieved.
(see also Strategy 4)

We recommend actively exploring the future value and cost-effectiveness of cancer screening, both for existing screening programs and those anticipated. This initiative should be led by the regional ministers of health in collaboration with the federal government, relevant cancer associations, and patient organizations.

As mentioned, beyond cancer, many other conditions could benefit from early detection and screening. In the case of rare diseases, EURORDIS has advocated for the expansion and European harmonization of newborn screening (NBS).[27] Significant variations currently exist in the coverage and the number of conditions included in testing across countries.[28] NBS is particularly important for individuals with rare diseases and their families, given that approximately 70% of rare diseases manifest during childhood. For many of these, clinical signs or symptoms may not appear in the first days or months after birth. Early intervention, however, can prevent the onset of symptoms or delay disease progression, thereby improving the quality of life for the newborn, as well as benefiting their families and society at large.[xxvii]

We recommend that Belgium aligns itself with the top-performing countries in Europe regarding the screening and early detection of rare diseases. This initiative should be undertaken jointly by the regional ministers of health, in collaboration with clinical societies and patient associations for rare diseases.

In many other health domains, there is growing potential for detecting diseases or conditions before they clinically manifest. For example, 18 candidate biomarkers were recently identified for the early detection and diagnosis of heart failure. [29] However, several challenges were noted, including limited availability of biomarkers, high costs, and the need for validation across various subpopulations.

The same potential applies to numerous other non-communicable diseases [30] as well as infectious conditions, which could be identified earlier. [31] Sandboxes provide a valuable approach to assess different modalities of early detection, including how candidates for early detection are recruited and informed about the process.

We recommend systematically evaluating the potential effectiveness and cost-effectiveness of candidate biomarkers for early detection and screening across various health conditions, while structurally implementing sandbox applications for these candidates. This initiative should be led jointly by the regional ministers of health, in collaboration with clinical societies and patient associations for the selected diseases. Support and engagement from the federal level will be essential. We propose naming this program REDI (Regional Early Detection Initiative).

Efficiency gains from the above recommendations can be achieved by aligning with other early action initiatives, such as “Acting Early on non-communicable diseases (NCDs)”, a recent program by the London School of Economics developed as a spin-off to the PHSSR.[32] The first wave of this initiative involves eight countries in an early detection program for NCDs. It is crucial for Belgium to participate in the second wave to leverage these advancements.

Stimulate Integrated Care

Integrated care is a key approach to addressing the fragmentation of healthcare, leading to improved care, better patient outcomes, and enhanced patient experiences.[33] Achieving integrated care requires intensive collaboration and data sharing among healthcare professionals and organizations, spanning all levels of care. In the following paragraphs, we discuss the evolution of integrated care at the hospital level, its implementation within local communities, and its necessity across the broader health ecosystem.

The concept of care integration in hospitals has been significantly advanced by the adoption of Value-Based Health Care (VBHC), with Integrated Practice Units (IPUs) serving as a cornerstone of this approach.[34] In an IPU, care is provided by a dedicated team of professionals from various disciplines who are collectively responsible for the full cycle of care for a specific condition. This includes outpatient, inpatient, and rehabilitative care, as well as supporting services. A defining feature of IPUs is their commitment to routinely measuring outcomes, costs, care processes, and patient experiences through a shared digital platform. The team jointly accepts accountability for the results.

An example of a successful clinical practice network is the psoriasis IPU at Ghent University Hospital, where dermatologists and specialized nurses collaborate with psychologists, dieticians, and rheumatologists.[35] They also engage with other specialists based on patients' comorbidities and coordinate with general practitioners, community dieticians, and physiotherapists. Another notable example is the integrated care approach employed by the Belgian HIV centers, which includes prevention, improving the care cascade, providing patient-centered HIV care, and offering state-of-the-art HIV disease management.[36]

Similar integrated care plans can and should be developed for many more, if not all, chronic diseases. The recently established interfederal plan for integrated care offers an ideal framework to facilitate the creation of such plans.[37] Additionally, the various VBHC initiatives outlined in the recent white paper by PwC, commissioned by the Belgian Association of Hospital Managers, provide valuable insights and direction for further implementation.[38]

We recommend developing comprehensive disease management plans for every disease. These plans should encompass measures spanning the entire care continuum—from prevention and early symptom management to treatment completion, including palliative and end-of-life care. They should integrate outpatient, inpatient, rehabilitative, and social care services. The initiative must be facilitated through the interfederal plan for integrated care and should be driven from the ground up by the respective clinical societies, in collaboration with patient organizations and other involved health professionals.

These plans can then be translated into individual trajectories of care at the patient level. While such trajectories already exist for certain conditions, they should be expanded and applied to many more. This process should be led collaboratively by clinicians and patients, with active support from patient associations. Within these trajectories, it is crucial to determine when and how specific aspects of patient care should be concentrated in expertise centers ("centers of excellence").[39] To enable this translation into individual care trajectories, entrepreneurship in action should be encouraged and supported, alongside a focus on process innovation. A notable example of such innovation is Metro Mapping, a service design method used to develop and optimize care pathways. This approach can improve patient experiences, address clinical challenges, promote shared decision-making, create patient value, and foster collaboration.[40] An equally important trend for enabling efficient care integration is the emergence of Hybrid Care Models, which combine in-person care with medical and digital technologies.[41]

We recommend establishing individual care pathways for every patient with a chronic condition, leveraging innovative process techniques like Metro Mapping and exploring the potential of hybrid care. This initiative should be driven bottom-up by clinical societies, in collaboration with hospital associations, patient organizations, and other involved health professionals.

Care integration is equally essential at the local level—close to people's neighborhoods and daily lives. Here too, collaboration and data sharing should become the norm. We propose the establishment of transdisciplinary neighborhood healthcare teams, composed of professionals such as general practitioners, pharmacists, nurses, psychologists, dieticians, physiotherapists, occupational therapists, and osteopaths. These team members should sign a collaboration agreement, based on standard templates, that outlines shared principles of high-quality care, including people-centeredness, responsiveness, addressing life goals of citizens/patients (goal-oriented care) and applying a humanistic and holistic approach.

To address challenges in setting up such interprofessional collaboration, Belgian researchers recently developed a generic toolkit. This toolkit, based on sociocracy and psychological safety principles, provides guidance for care providers in fostering collaboration both within and beyond their practices.[42] These transdisciplinary teams should be connected through each citizen's integrated health record, ensuring the smooth exchange of relevant information and enabling real-time data analysis via dashboards for ongoing care improvement (see also Strategy 6).

We highlight the importance of the BelRAI assessment tools, which consist of electronic forms that allow care providers across various settings to collect standardized and structured data about care users.[43] These tools provide a common language, facilitating better coordination and continuity of care in an increasingly complex and costly landscape of care pathways. A broader rollout of BelRAI is urgently needed to maximize its impact.

The OECD argues that strongly integrated care within communities can significantly improve health system efficiency and health outcomes across all socio-economic levels. Moreover, it can mitigate the negative effects of poor socio-economic status (see also Strategy 4) and help make health systems more people-centered.[44]

We recommend that every citizen/patient has an integrated health record managed at the level of a general practice, embedded within transdisciplinary local healthcare teams. This initiative should be spearheaded by the Federal Minister of Health, in collaboration with regional ministers, associations of general practitioners, other local health and social care professionals, and overarching patient associations.

We would like to emphasize the transdisciplinary nature of care integration. Transdisciplinarity involves transcending disciplinary boundaries, fostering the sharing of knowledge, skills, and decision-making, building bridges, focusing on real-world problems, and including multiple stakeholders such as patients, their families, and their communities.[45] Transdisciplinary teams also extend their reach by making formal arrangements with other health professionals, such as dentists, nearby nursing homes, and community social workers. A strong example of effective integration between health and social services can be seen in Finland.[46] These teams may also explore when and how case managers can be involved in the integrated approach to assist patients with both health and social challenges. Depending on the specific situation, different team members can take on a coordinating role in delivering care to patients.

A fully integrated system also requires formal collaboration between transdisciplinary healthcare teams in the patient's community and medical specialists or specialized centers. In this model, the traditional distinction between 'primary' and 'secondary' care gradually fades away.[47]

Given the high prevalence of multimorbidity, it is essential for clinicians to actively participate in clinical networks that are characterized by strong clinical leadership, adequate resources, and sufficient capacity (see Strategy 8). The existing hospital networks serve as an ideal foundation for establishing these clinical networks, which are in line with the Value-Based Health Care (VBHC) pillar of "care delivery across multiple separate facilities" and have proven to be effective vehicles for improving service quality and patient outcomes across various clinical disciplines.[48] Importantly, full integration can only be achieved when these clinical networks are formally connected to local healthcare teams.

We recommend establishing clinical networks at the level of hospital networks, with a specific focus on outreach and formal connections to transdisciplinary local healthcare teams. This initiative should be driven by hospital associations in collaboration with hospital managers and clinicians within the respective hospital networks.

Full Population Health Management

On a broader level, it is necessary to establish full population health management at both local and supralocal levels.[49] A noteworthy example is Zorgzaam Leuven, which was initiated as part of the integrated care projects launched by the federal authorities in 2017. Zorgzaam Leuven operates on a tailor-made basis, supporting care providers in neighborhood-oriented collaboration through neighborhood teams. This structure also strengthens vertical integration with specialized care. Zorgzaam Leuven's objectives include improving and optimizing prevention, enhancing coordination between health and social care, and focusing on the chronically ill and vulnerable populations within neighborhoods. Its guiding principle is the quintuple aim, which encompasses the following dimensions: better health outcomes, improved patient experience, greater efficiency, well-being of healthcare providers (see Strategy 8) and health equity (see Strategy 4).[50] The OECD estimates that governance structures supporting care integration could reduce annual health expenditures by up to 4% as a proportion of total health expenditure. [xlix]

We recommend assessing the impact of community-based fully integrated care on the five dimensions of the quintuple aim and exploring how this approach can be replicated in other "health and care zones." Regional ministers of health, in collaboration with the Federal Minister of Health, should take the lead in this initiative.

For the successful implementation of integrated care, it is imperative that healthcare organizations are empowered to invest in adequate IT infrastructure to support seamless collaboration and data sharing and explore new payment models that incentivize integrated care delivery. These critical enablers will be addressed in Strategies 6 and 7, respectively.

Address and Mitigate the Impact of Social and Commercial Determinants of Health

There is increasing recognition of the strong connection between the Social Determinants of Health (SDoH) and overall health and well-being. To address the multifaceted needs of patients, providers and policymakers must integrate social care into public health systems, as emphasized in Strategy 3.[51] The first step in doing so is to gain a deeper understanding of the social needs and vulnerabilities of citizens and patients at all levels.[52] Social screening tools should be embedded within integrated health records to facilitate this process.

We recommend systematically applying SDoH screening tools to help health and social professionals identify social needs and vulnerabilities, enabling the development of targeted interventions. This initiative should be jointly led by the federal and regional ministers responsible for combating poverty.

Interventions to address SDoH can be categorized as downstream or upstream.[53] Downstream interventions focus on addressing individual health-related social needs. The principle of proportionate universalism can guide the tailoring of objectives to meet the specific needs of different population groups.[54] This approach requires goal-oriented care for individual patients, integrated into the care pathways mentioned earlier. Additionally, the role of language in clinician-patient interaction should not be overlooked, as effective communication is vital.[55]

Upstream interventions address SDoH at a structural level, such as through investments in social housing. For instance, in Flanders, there is a significant backlog in social housing, with estimates suggesting that the current stock must be doubled.[56] The Flemish governmental agreement already includes a commitment to invest in social housing.

We recommend establishing a growth path for social housing in all regions to meet the necessary targets by 2035. This initiative should be led by the regional ministers responsible for housing.

Mitigating the negative impact of SDoH requires achieving Universal Health Coverage (UHC), as outlined in the Introduction. UHC ensures access to key promotive, preventive, curative, and rehabilitative health interventions for everyone at an affordable cost. UHC encompasses three dimensions: (i) the proportion of the population covered by health insurance; (ii) the extent of services included in the reimbursement scheme; and (iii) the share of healthcare costs covered by pooled funds versus out-of-pocket payments.[57]

In Belgium, stark inequalities exist. For instance, the 20% of the population with the lowest income has an annual mortality rate that is 50% higher than the 20% with the highest income.[58] Additionally, compared to the highest income group, individuals in the lowest income group:

- **are** 2.2 times more likely to be disabled
- **experience** 20% more hospital admissions
- **have** 25% more psychiatric admissions
- **undergo** 18% less screening (see also Strategy 2)
- **receive** 38% less dental care

Transdisciplinary teams, equipped with integrated health records, can help mitigate some of the negative health consequences associated with poor socio-economic status (see also Strategy 3 and Strategy 6).

A critical factor contributing to healthcare inequities is the amount of out-of-pocket payments patients are required to make (the third dimension of UHC). Evidence shows that shifting financial responsibility to patients may lead to underuse of essential medications among those with chronic conditions.[59] While co-payments can discourage unnecessary care, excessively high co-payments can deter necessary care and reduce participation in preventive activities (see Strategy 1).

We recommend developing a revised co-payment system in collaboration with all stakeholders. This system should apply very low co-payments for effective and essential health services and interventions, particularly lifesaving and quality-of-life-enhancing care, including preventive services. This initiative should be led by the Federal Minister of Health and Social Affairs, in partnership with patient associations.

In addition to social determinants, attention must also be given to the commercial determinants of health. This refers to the systems, practices, and pathways through which commercial actors influence health by shaping preferences and choices for low-standard products.[60] To counteract this, public health actors must strengthen their discursive power, challenge misleading narratives with evidence, and build their influence through institutionalized health impact assessments, regulation, and control measures.[61] We highlight an ongoing initiative by the High Health Council concerning levies on unhealthy food and subsidies for healthy food as a promising step forward.

We recommend developing a comprehensive, multifactorial plan to effectively combat the negative health impacts of commercial determinants. This initiative should be spearheaded by the interministerial conference of health ministers.

Improving Health Literacy and Self-Care

Self-care holds immense potential to address many of the current challenges in healthcare by empowering individuals to take control of their own health and improving access to healthcare services. To enable this empowerment, enhancing health literacy is essential, as highlighted in a recent report presented at the European Parliament.[62] Improving health literacy ensures that individuals can confidently search for, understand, and apply specific information to maintain healthy lifestyles, prevent disease, and manage illnesses effectively.

Building health literacy should ideally begin at a young age. For example, the Positive Holistic Health Plan equips primary school children with the skills to take control of their own well-being and health. This program fosters resilience and stimulates entrepreneurship among children.[63]

In light of the growing adoption of hybrid care models (see Strategy 6), it is also essential to improve the digital health literacy of citizens and patients. Digital health literacy encompasses four levels of competence:[64]

- **Functional:** The ability to successfully read and write about health using technological devices.
- **Communicative:** The ability to control, adapt, and collaborate on health communication in online social environments.
- **Critical:** The ability to evaluate the relevance, trustworthiness, and risks of sharing and receiving health-related information through digital platforms (e.g., the Internet).
- **Translational:** The ability to apply health-related information from the digital ecosystem in various contexts.

We recommend including health literacy, digital health literacy, and self-care education in school curricula to cultivate self-care skills from an early age. The regional ministers of education should take the lead in making self-care an extensive and integral part of the curricula.

To ensure the effective integration of self-care and health literacy into individuals' daily lives, it is critical to enable inclusive access. No one should be left behind; everyone must have access to best practices, advice, and products (see Strategies 3 and 4).

Self-care is inherently holistic, as demonstrated in a recent paper on self-management in cancer. The Holistic Supporting from Pain Self-Management model highlights the importance of addressing all dimensions of cancer pain—physical, functional, psychosocial, cultural, and spiritual—to effectively manage pain in cancer patients.[65]

Self-care cannot be achieved in isolation. A patient's direct environment, including family, informal caregivers, and volunteers, plays a crucial role in supporting self-care. The CASMA (Community Assisted Self-Management) concept, developed by VOKA in 2016[66], exemplifies this approach. According to this concept, individuals actively and consciously engage in self-management, supported by their immediate network and a healthcare system that encourages positive action.

In Belgium, there are approximately 39,000 volunteers in healthcare[67], a stark contrast to the 900,000 volunteers in the Netherlands[68]. Expanding the volunteer workforce could significantly extend the healthcare system's capacity. However, working with volunteers requires adequate training, coordination, and management, which is currently handled by patient organizations and NGOs.

We recommend developing a comprehensive plan to promote volunteering in healthcare, making it more attractive and providing a clear legal, social, and financial framework for volunteering. The regional ministers of health, in collaboration with patient organizations, should lead this effort.

It is equally important to address the self-care needs of volunteers and informal caregivers themselves. By prioritizing their own health and well-being, caregivers can maintain the physical and emotional stamina required to provide high-quality care to others. [69]

The role of health and social professionals—particularly those close to the community, such as patient organizations, general practitioners, pharmacists, and social workers—is critical in assisting individuals with self-care. For example, initiatives such as the health house project focus on supporting vulnerable populations, such as homeless individuals, and have successfully reintegrated a large proportion of them into society.[lxiii]

We recommend supporting health and social professionals in their advisory roles for self-care and providing them with training in human behavior and behavior change. This initiative should be led by the faculties of health sciences at various universities and high schools.

We recommend organizing health and digital health literacy sessions at the local level. This initiative should be a joint effort involving sickness funds, local policymakers, and patient associations.

We recommend incorporating the principles of professional-assisted self-care into the curricula for healthcare professionals. The regional ministers of education should take the lead in implementing this initiative.

Self-care also requires an improved information system for patients, enabling them to access clear guidance on managing specific problems independently. This will empower individuals to prepare for shared decision-making with their physicians and caregivers, supported by patient decision aids. An integral part of self-care involves self-monitoring and the frequent, systematic surveying of citizens and patients. This should focus on Patient-Reported Outcome Measures (PROMs) and Patient-Reported Experience Measures (PREMs), which can be more effectively implemented through digital solutions (see also Strategies 2 and 6). As highlighted earlier, achieving this requires enhanced digital health literacy to ensure patients can confidently engage with these tools and processes.

Accelerate the Path Towards a Health Information System (HIS)

The successful implementation of all the proposed strategies hinges on the development of a fully functional and connected Health Information System (HIS). HIS is a technological solution designed to manage the flow of data generated and used by healthcare professionals and administrative staff during the delivery of health services. It is an essential enabler of integrated care.[70] Health interventions and initiatives fundamentally rely on three components: (i) hardware: technologies and infrastructure; (ii) software: the intellectual contribution of healthcare professionals; and (iii) data: the underpinning element of all health interventions. In today's healthcare landscape, the exponential growth of digital solutions and advanced analytics has expanded the traditional capabilities of HIS. It offers the potential to automate administrative tasks and repetitive processes while improving the efficiency and outcomes of health services through decision support tools for clinical management. The ongoing Artificial Intelligence (AI) revolution is expected to further accelerate this transformation.

For healthcare providers and organizations to benchmark effectively at the micro-, meso-, and macro-levels, interoperability between different HIS subsystems is essential to achieve a fully connected system. Integration with social services is equally critical. Significant progress has already been made with the Belgian Integrated Health Record (BIHR).[71] Two core processes underpin the BIHR: (i) registering and transmitting only new data after each patient contact and (ii) integrating this data into the authentic data source, which automatically updates key overviews (e.g., medication records). The ultimate goal is to achieve FAIR health and social data (Findable, Accessible, Interoperable, and Reusable). This would facilitate the creation of dashboards to monitor the performance and outcomes of healthcare interventions. To establish these dashboards, an "observatory" per disease should be formed, comprising specialists, patient representatives, and other experts. These observatories would design plans, define KPIs for the dashboards, and evaluate progress regularly.

A fully integrated health record should enable

1. Seamless exchange of health and social information within a true data-sharing culture, while ensuring robust privacy protection.

2. Real-time data access to measure the quality of care and its outcomes, including Patient-Reported Outcome Measures (PROMs) and Patient-Reported Experience Measures (PREMs), establishing a learning health system.

3. The use of dashboards at every level (practice, regional, national) to monitor and improve care, following a Plan-Do-Check-Act cycle.

We recommend a formal commitment to rapidly advancing a fully connected HIS with integrated health records. This should include setting clear steps, timelines, and milestones, and effectively communicating these plans to all stakeholders. This responsibility falls under the remit of the Federal Minister of Health.

We recommend enhancing the digital literacy of health professionals to ensure they can efficiently adapt to the digital transformation. This initiative should be spearheaded by the faculties of health sciences at universities and high schools.

A fully connected HIS must adhere to the 'Only Once' principle, meaning that any data input should only be performed once. This principle ensures efficiency and minimizes errors in data handling. Additionally, the HIS should establish standards for integrating data from apps, artificial intelligence tools, and other digital health technologies. By enabling such integration, digital solutions can make health education for professionals and patients, self-care tools, structured collection of PROMs and PREMs, and telemedicine more affordable and widely accessible. A fully developed HIS will also allow the systematic use of secondary data, unlocking its potential for innovation, research, and development by academics, industry, and public-private partnerships, as well as population management and policy support (as highlighted in the Introduction).

Secondary use of health data refers to the re-use of data originally collected for a different purpose by researchers, policymakers, innovators, and industry. Leveraging secondary data will also enhance Belgium's position on the international stage by driving innovation and evidence-based policymaking. [72] By accelerating the development of a comprehensive HIS, Belgium can ensure a more connected, efficient, and innovative healthcare system, capable of meeting the challenges of the future.

Financial Incentives to Promote Quality of Care and Cost-Effective Care

Better financial incentives are essential to encourage prevention, quality, and collaboration in healthcare. Achieving this requires a shift from paying for volume to paying for value, specifically transitioning from payment systems predominantly based on fee-for-service toward an increased reliance on episodic payments, payment for quality, and payment for coordination. When fee-for-service dominates, there is a tendency for supplier-induced demand, leading to the overuse of healthcare services. Evidence of such overuse has been observed globally.[73] If overuse can be curtailed, the resulting budget savings could be reinvested in other critical areas, such as integrated care (see Strategy 3), equitable care (see Strategy 4), innovations in healthcare (see Strategy 9) and health promotion (see Strategy 1).

As an alternative to fee-for-service, episodic payments provide a fixed amount for a range of services delivered by a healthcare professional or group of professionals over a defined period.[74] These payments can apply to a one-off episode (e.g., a rehabilitation program) or a recurrent episode (e.g., chronic disease management). For example: a cardiologist may receive a fixed monthly payment to monitor a heart patient remotely using telemonitoring techniques. A general practitioner, on the other hand, may be reimbursed annually for managing a Global Medical Record (GMD) per patient (a system already in use in Belgium).

When episodic payments are allocated to a team of healthcare providers, the term bundled payments is often used. Bundled payments are a key element of Value-Based Healthcare (VBHC)[75] and require healthcare professionals to develop skills in organizing care within the bundle, as well as establishing clear agreements on roles and responsibilities. This model can be applied in both residential and ambulatory settings. Recent reviews have demonstrated that episodic payments, payment for quality, and payment for coordination can all improve integrated care. Among these, shared savings (a type of performance-based pay for quality) appears to be the most promising incentive for promoting cost-effective care integration.[76] However, no single payment mechanism is sufficient on its own. The trend is moving toward blended payment models, which combine various payment forms to enhance health system efficiency.[77] One such example is the cappuccino model, where different layers of payments are integrated to create a balanced approach.[78]

A recent example of a blended payment model applied in our health system is the New Deal for general practitioners.[79] This system consists of three components: (i) a practice fee, (ii) an episodic payment per patient per year, which is significantly larger than the current fee for maintaining a health record and (iii) a reduced fee-for-service component. Despite its potential, enthusiasm for this model has been limited so far. The KCE is currently evaluating its impact. Similar blended payment models need to be developed for other healthcare professionals and disciplines.

To ensure success, it is critical that health professionals are provided with guarantees of a stable and fair income. Simulations at both macro-levels and micro-levels are needed to understand the potential impact of blended payment mechanisms on all stakeholders. As a guiding principle, the optimal payment mix should avoid both overuse and underuse of care.

We recommend that professional disciplines organize brainstorming sessions to identify care types and episodes—both in ambulatory and hospital settings—where episodic payments, bundled payments, and shared savings can be implemented within a blended payment system. This initiative should come bottom-up from the respective disciplines and associations of health professionals and be facilitated by the Minister of Health and Social Affairs.

Together with health professionals, we recommend validating optimal blended payment models, including a shared savings component where possible. A roadmap should be established to transition to the new payment mix. This initiative should be led by the Federal Minister of Health and Social Affairs and implemented by the RIZIV-INAMI through conventions involving multiple health professional disciplines simultaneously.

By adopting these recommendations, the healthcare system can create financial incentives that promote quality, cost-effectiveness, and collaboration, ultimately improving patient outcomes and ensuring long-term sustainability.

Improve the Capacity and Wellbeing of Health and Social Professionals

Several studies have issued warnings regarding the future capacity of health and social professionals. For instance, a report commissioned by ING highlights that the number of doctors is expected to decline in the coming years, as the number of retiring physicians surpasses the number of young doctors entering the profession. Additionally, 4% of nurses leave the job annually, which equates to one-fifth of the nursing workforce leaving by the end of the legislative term.[80]

There is already a dramatic shortage in several professions. For example, within hospitals, students selectively choose specific nursing jobs, leaving other critical vacancies unfilled. Similarly, some medical specializations face challenges in attracting new trainees, as students are hesitant to invest in these problematic disciplines.

We recommend that national and regional authorities invest in a campaign to attract young students to healthcare, with a particular focus on addressing bottleneck professions. This initiative should be led by the federal minister of health.

A recent review highlights the need for greater intersectoral collaboration as a foundation for building a responsive and sustainable healthcare workforce. This collaboration should encompass not only the education sector but also regulatory bodies, professional associations, the health industry, and trade unions.[81]

The planning of required skills should be better aligned with population needs, health system demands, and the expansion of training capacity where necessary. It should also account for the impact of AI on job content. Importantly, hyper-specialization should be avoided to ensure that professionals maintain flexible skills, enabling them to adapt to various tasks and functions within a transdisciplinary context. At the same time, improved care integration and coordination (see Strategy 3) can create opportunities for a certain degree of specialization.

To better align the training of current and future health professionals with the population's needs and capacity requirements, we recommend establishing formal inter-ministerial collaboration on "health and healthcare education programmes". The regional ministers of health should take the lead in this initiative.

The challenge lies not only in ensuring sufficient health professional capacity but also in avoiding rigidity, silos, and overregulation in their daily activities. The ING report cites a study revealing that 77% of doctors and 72% of nurses feel that excessive bureaucratic tasks contribute to burnout symptoms. Currently, one-fifth of the time spent by health professionals is dedicated to administrative tasks—this is unacceptable.[82]

A myriad of factors drive healthcare workers to leave their current roles, including heavy workloads, poor working conditions, a lack of professional development opportunities, and inadequate remuneration. As a result, greater attention must be given to improving the quality of life for health professionals by fostering a better balance between job demands and available resources.

A KCE study found that staff in hospitals with better working environments—characterized by factors such as involvement in hospital policy, strong doctor-nurse relationships, and effective nursing leadership—experience a lower risk of burnout, reduced intentions to leave their jobs, and a more positive perception of the quality of care provided.[83]

One model, among others, that provides a framework for taking concrete steps to improve working conditions is the Job Demands and Resources (JDR) model.[84] This model explains how job demands can be kept within realistic limits—for example, by reducing role conflicts, overregulation, and administrative burdens—while simultaneously enhancing job resources such as autonomy, leadership support, opportunities for self-development, reliance on colleagues, and a sense of purpose in daily activities. An illustrative example is nurse-led care, which not only promotes professional self-development but also fosters patient self-care and has been shown to reduce hospital readmissions.[85]

We recommend that every organization in the health sector adopts a "wellbeing at work" charter and implements tangible measures to manage job demands and strengthen job resources, thereby improving workplace wellbeing. This initiative should be organized in a bottom-up manner, led by professional associations of healthcare providers and institutions.

It is important to note that improving quality of life alone will not suffice to address workforce challenges. This effort must be accompanied by an increase in volunteer engagement and improved self-care practices (see Strategy 5), the attraction of graduates to fill bottleneck roles (see above), and the integration of new technologies (see Strategies 6 and 9).

Adequate Funding for Innovative Health Technologies

A future-proof healthcare system must actively stimulate innovation across all levels of health production, including health promotion, early detection, treatment, prevention of complications, and patient support. Health technologies encompass pharmaceutical innovations, medical technologies (including diagnostic tools), and innovative services. Innovation is a critical driver for improving the quality of care, as highlighted in the guiding principles introduced earlier.

The ongoing technological evolution in healthcare—such as Artificial Intelligence (AI), Virtual Reality (VR), 3D printing, and robotics—is rapidly reshaping medicine.[86] These innovations should be embraced as drivers of change and as essential solutions to address challenges like the healthcare workforce shortage (see Strategy 8) by enhancing healthcare productivity. Health policymakers and competent authorities must remain up to date with this technological transformation and work on scenarios to assess its potential impact on healthcare systems.

We recommend developing horizon scanning scenarios for technological transformation to assess its impact on healthcare productivity and workforce needs. This initiative should be led by the faculties of health sciences across universities and high schools.

While most innovations come at a premium compared to the standard of care, they have the potential to offset costs elsewhere in the system or society while improving health outcomes. Therefore, clear and consistent processes and decision-making criteria are essential to assess the value for money of innovations. A robust process-related concept is "accountability for reasonableness," which provides a framework for strengthening decision-making.[87] This concept comprises four key elements:

- Publicity: decisions and their rationale must be made publicly available, ensuring transparency.
- Relevance: decisions should be guided by evidence that fair-minded individuals would consider relevant.
- Appeal: mechanisms must be in place to challenge and review decisions.
- Enforcement: effective legislative mechanisms are needed to ensure the implementation and regulation of the other three conditions.

We recommend formally introducing and applying the concept of accountability for reasonableness in all commissions advising on the reimbursement of health technologies. This initiative should be driven by the Federal Minister of Health and Social Affairs, in collaboration with the RIZIV/INAMI.

When making decisions about new technologies, the voice of patients must be heard more prominently. According to the European Patients' Forum, "patient organizations can have a high impact in helping HTA agencies and decision-makers to better understand technologies' impact in real-life contexts and quality-of-life aspects," ultimately leading to decisions that better meet patients' needs.[88]

We recommend implementing a more formal and extensive involvement of patient experts, clinical experts, and health economic experts in the assessment process for new health technologies. This initiative should be led by the Federal Minister of Health and Social Affairs in partnership with clinicians, patients, and the health industry.

A fast-track assessment should also be considered for new technologies that are potentially highly cost-effective, similar to the fast-track appraisal process used by NICE in the UK. However, while NICE prioritizes only cost-saving technologies, the focus here should be on technologies expected to provide substantial health benefits at acceptable cost-effectiveness levels.

We recommend establishing a priority and early access procedure for health technologies with very promising clinical benefits that address high unmet needs and demonstrate potential cost-effectiveness. This initiative should be led by the Federal Minister of Health and Social Affairs, in collaboration with clinicians, patients, and the health industry.

Additionally, the societal willingness to pay for health gains must become more transparent and explicit. Based on the concept of value-based pricing, several countries have adopted formal willingness-to-pay thresholds, which represent the maximum amount society is willing to pay to gain quality-adjusted life years (QALYs). In some countries, these thresholds are adjusted based on disease burden, with higher willingness-to-pay thresholds for treatments addressing conditions with greater patient burden. Examples of such implementations can be found in The Netherlands and Scandinavian countries.[89] We also recommend applying a societal perspective in health technology assessments, accounting for impacts on productivity—particularly for health conditions with significant societal costs.

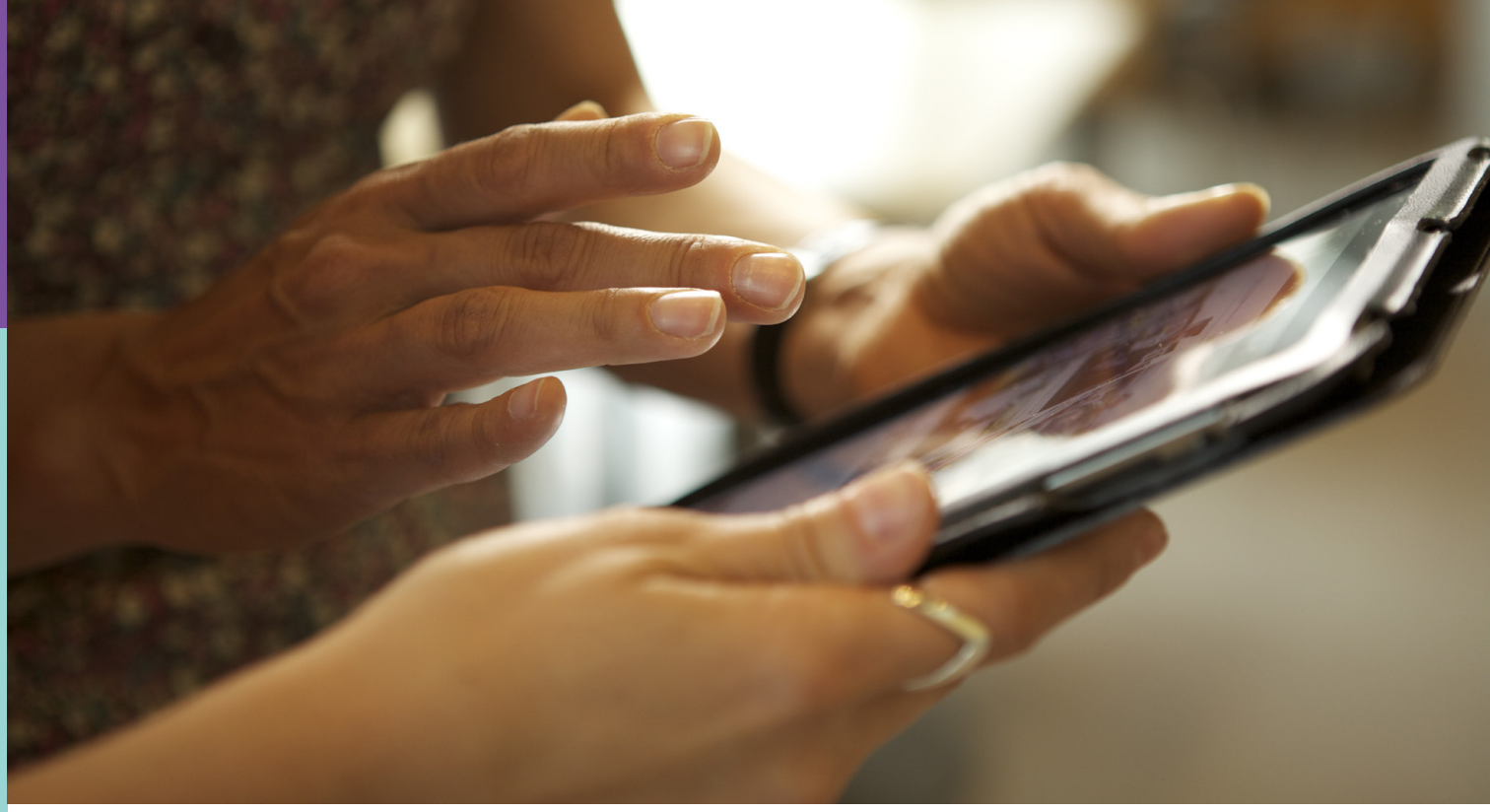
Finally, the estimated budgetary impact of new technologies should be assessed from a broad perspective. Budget impact alone should not dictate reimbursement decisions. Instead, a high (or low) budget impact should lead to a corresponding adjustment in the willingness-to-pay threshold for QALYs, as per pre-specified levels (e.g., as in the UK). This approach is referred to as Value Informed and Affordable (VIA) pricing.[90]

We recommend developing a formal VIA pricing and reimbursement model for all innovative health technologies. This initiative should be led by the Federal Minister of Health, in collaboration with clinicians, patients, and the health industry.

Concrete mechanisms should also be introduced to address uncertainty surrounding evidence for promising new health technologies. For example, a formal algorithm could be developed to guide the acceptance of surrogate endpoints, alongside a clear role for real-world evidence (RWE).

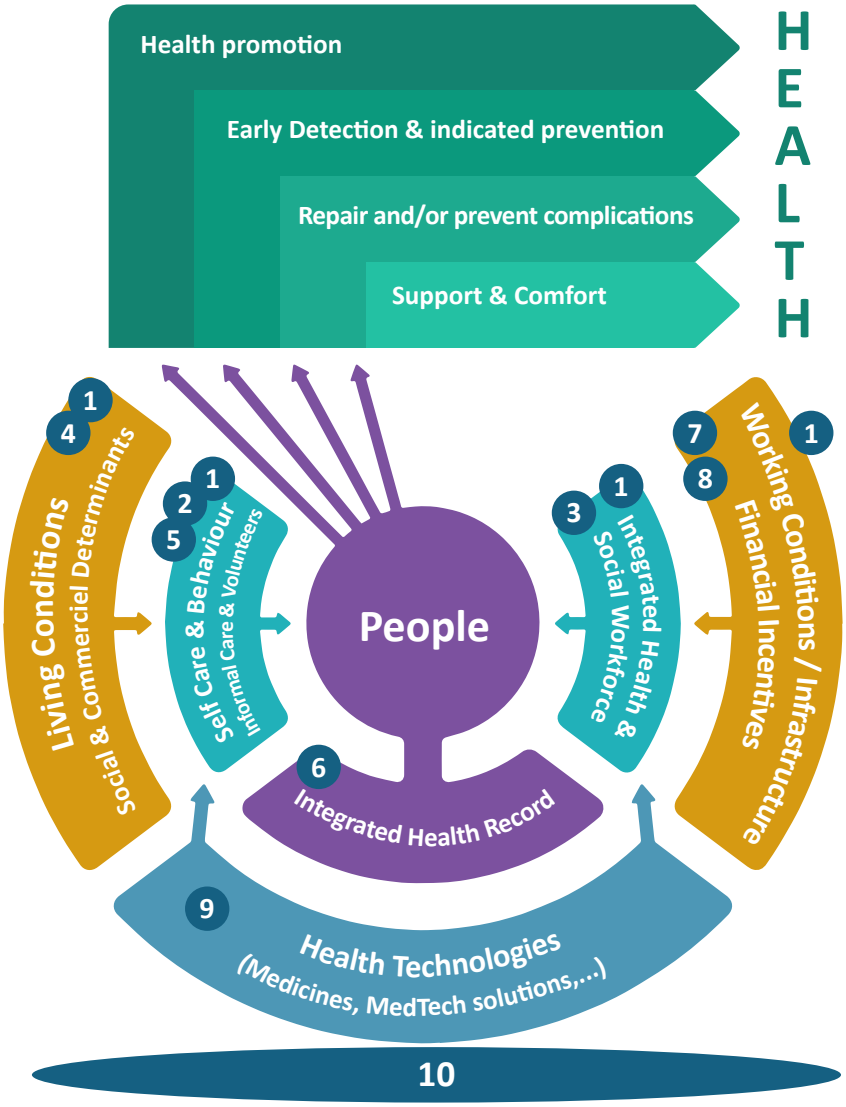
New and potentially valuable technologies with significant remaining uncertainties should be allowed to enter a "sandbox" application. Through this approach, their use within the healthcare system is approved and reimbursed under clear criteria, with their real-world performance closely monitored. This requires that health organizations piloting and implementing such innovations receive innovation budgets to facilitate and guide their introduction, collect data, provide feedback etc.... This could also be complemented by outcomes-based agreements, where final reimbursement depends on the technology's real-world performance.[91] It is important to acknowledge that real-world outcomes may also be influenced by external factors, such as the expertise of healthcare professionals, patient behavior, and other contextual elements.

We recommend the systematic use of sandboxes allowing the introduction to the health system of potentially valuable innovations, creating the organizational and financial circumstances for successful piloting, implementation and assessment of these innovations. The initiative should come from the Federal Minister of Health in collaboration with the regional Ministers of Health.



Governance of Reform

The strategies outlined above, accompanied by concrete recommendations, are designed to support the creation of a future-proof health system. These strategies apply to all components of the health production model, as illustrated in the Figure on next page.. They focus on care, actions, products, and services, with the ultimate objective of producing better health outcomes. While not all aspects of our health system are addressed, the expert group believes that this selection of strategies and recommendations holds significant potential for improving its performance. We acknowledge that several proposed actions will require additional investments. However, others will result in cost savings. A future-proof health system necessitates reinvestment in health: the gains achieved through initiatives such as health promotion, early detection, integrated care, and self-care should be reinvested into enhancing quality of care, fostering innovation, improving workplace wellbeing, and reducing inequalities.



This health system also requires investments in trust, goodwill, and a culture of collaboration as critical enablers to ensure that the proposed strategies and recommendations effectively address the challenges outlined in the introduction. Of course, such a transformation will not happen overnight. Therefore, the key to successfully implementing these strategies lies in adopting a "governance of reform", which includes:

- **Clear ownership:** Relevant actors must take responsibility for each recommendation, starting with initiating the proposed actions. An interministrial observatory should be created to monitor the progress of implementing the recommendations.
- **Budget reallocation:** A deliberate shift in budget priorities is needed, with greater funding directed toward health promotion, health innovations, equity, and care integration. A financial roadmap is required to plan, execute, and monitor this budget shift.
- **Entrepreneurship and innovation:** Private initiatives and entrepreneurship should be encouraged, for example, through sandbox frameworks that allow experimentation and innovation.
- **Patient involvement:** Patients and their representatives must be explicitly involved at all levels of the system. This also requires public funding for patients and patient organizations, as seen in The Netherlands[92], where funding is based on the services provided and a set of quality indicators.[93]
- **Data-driven improvement:** A "Plan-Do-Check-Act" (PDCA) approach should be adopted, with real-time secondary data made available via dashboards at all levels. Patient outcomes should serve as the primary driver of the health system, encompassing not only clinical outcomes but also quality of life, non-clinical outcomes (e.g., job loss, financial hardship, relational issues, mental health, and social isolation), and patient satisfaction.

The successful implementation of these strategies requires a co-creation process. A relevant example is the "Integraal Zorgakkoord" in The Netherlands, where all stakeholders committed to achieving the necessary changes.[94] Stakeholders must move beyond their individual perspectives and collaborate with a shared goal: to establish a high-quality, accessible, and financially sustainable health system—a truly future-proof health system.

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