

Partnership for Health System Sustainability and Resilience

BELGIUM

Sustainability and Resilience in the Belgian Health System

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Abbreviations



AVIQ	Agency for Quality Life
APR-DRG	All Patients Refined Diagnosis Related Groups
ALOS	Average length of stay
AMR	Anti-microbial resistance
KCE	Belgian Health Care Knowledge Centre
CRM	Commission for the Reimbursement of Medicinal Products
DFLE	Disability-Free Life Expectancy
EHR	Electronic health records
EDC	Endocrine disrupting chemical
EU	European Union
FAMHP	Federal Agency for Medicines and Health Products
FANC	Federal Agency for Nuclear Control
FPS	Federal Public Service
MoH	Ministry of Health (Federal Public Service Health, Food Chain Safety and Environment)
FFS	Fee-for-service
GP	General practitioner
GMR	Global Medical Record
GDP	Gross Domestic Product
HTA	Health technology assessment
HTSC	Hospital & Transport Surge Capacity
HEP	Hospital Emergency Plan
ICU	Intensive Care Unit
IMC	Inter-ministerial conference
NCCN	National Crisis Centre
NCU	National Currency Unit
NECP	National Energy and Climate Plan
NEHAP	National Environment and Health Action Plan

NFP	National Focal Point
NIHDI	National Institute for Health and Disability Insurance
SSSE	National Institute for the Social Security of the Self-employed
NSSO	National Social Security Office
NGO	Non-governmental organisation
OECD	Organization for Economic Co-operation and Development
OOP	Out-of-pocket
P4P	Pay for Performance
PPE	Personal protective equipment
PAQS	Plateforme pour l'Amélioration continue de la Qualité des soins et de la Sécurité des patients
PCZ	Primary care zones
RAG	Risk Assessment Group
RMG	Risk Management Group
FASFC	The Federal Agency for the Safety of the Food Chain
VGC	The Flemish Community Commission (Vlaamse Gemeenschapscommissie)
COCOF	The French Community Commission
GGC-COCOM	The Joint Community Commission
VHI	Voluntary Health Insurance
WHO	World Health Organisation

Executive summary



Introduction

Pre-pandemic, many healthcare systems around the world were already struggling to control spending and meet the increasing demand for healthcare caused by ageing populations, a rise in chronic diseases, workforce shortages and other issues. The COVID-19 pandemic further worsened these problems and presented unique challenges for health systems. In Belgium, the virus outbreak occurred in the middle of a political crisis. Officially, the pandemic led to an estimated 33,000 deaths. The high COVID-19 related mortality during the first wave in Belgium even attracted international attention, although biases and differences in labelling COVID-19 deaths led to distorted comparisons. The response to the COVID-19 pandemic has emphasised key strengths and weaknesses of the Belgian health system and highlighted the critical importance of identifying potential solutions to improve the system's sustainability and resilience.

A health system's goal is to improve population health and to respond to the needs of the population it serves. **Sustainability**¹ concerns a health system's ability to improve population health, by continually delivering the key functions of providing services, generating resources, financing and stewardship, incorporating principles of financial fairness, equity in access, responsiveness and efficiency of care, and to do so in an environmentally sustainable manner.

Resilience refers to a health system's ability to prepare for, absorb, adapt to, learn, transform and recover from 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.

As part of the Partnership for Health System Sustainability and Resilience (PHSSR), this report aims to evaluate the sustainability and resilience of the health system in Belgium in seven key domains:

Governance: the wide range of steering and rule-making related functions carried out by governments and decision makers as they seek to achieve national health policy objectives

Financing: how health systems generate, pool and allocate financial resources and pay for health services

Workforce: how health systems plan for, train, recruit, reward, and deploy their workforce, and shape the conditions in which health professionals work

Medicines and technology: how health systems make use of medicines and (information) technologies in the delivery of health services

Service delivery: how health services are organised and delivered, including ambulatory and hospital care, and public health

Population health and social determinants: how health systems address the social determinants of health and meet the needs and demand of the population

Environmental sustainability: how health systems prevent and minimize their carbon footprint and the impacts of pollution on the population's health

A review of the available literature, including governmental reports, peer-reviewed articles, national statistics, and news articles, was performed and 23 interviews/written exchanges as well as a policy dialogue with different health system stakeholders were conducted. This report also includes two case-studies, which offer a more nuanced and detailed understanding of specific issues relevant to the Belgian health system's sustainability and resilience, namely one on financing digital care and one on the quality of life of health professionals.

¹ These definitions of "sustainability" and "resilience" were developed by the London School of Economics as part of the Partnership for Health System Sustainability and Resilience.

Findings: key themes for sustainability and resilience

The response to the COVID-19 pandemic has emphasised key strengths and underlying issues for the health system in Belgium. Table 1 summarises the key findings for the seven domains. All key findings presented under resilience are related to the COVID-19 pandemic period.

Table 1: Sustainability and resilience – summary of findings by key domains

DOMAIN 1 GOVERNANCE		
Strengths	<p>Sustainability</p> <ul style="list-style-type: none"> ↑ Clear objectives of universality and solidarity exist ↑ Several federal institutions support health system governance (e.g. Federal Public Service Health, Food Chain Safety and Environment, Federal Public Service for Social Security) ↑ Population is on average satisfied with the health system overall ↑ New initiative for setting more evidence-based healthcare goals has been launched 	<p>Resilience</p> <ul style="list-style-type: none"> ↑ The National Institute for Health and Disability Insurance (NIHDI) and the Federal Agency for Medicines and Health Products (FAMHP) showed a dynamic response to ensure continuity of care (e.g. new nomenclature, authorisations) ↑ A surge capacity plan was quite rapidly prepared and an intergovernmental structure “the Hospital & Transport Surge Capacity committee” was created
Weaknesses	<p>Sustainability</p> <ul style="list-style-type: none"> ↓ Health competences are scattered within federal government and between federal and federated governments and the role of local/ decentralised authorities is unclear ↓ Complex and rigid structures at the federal level slow down progress and blur accountability ↓ There is a lack of clear and harmonised long-term vision (e.g. until 2040) for several diseases (except for a cancer plan) ↓ A cross-sectoral approach to health (‘health in all policies’ principle) is not widely implemented ↓ Funding to support and professionalise patient organisations is deemed insufficient ↓ Co-governance between hospital directors and clinicians is insufficient 	<p>Resilience</p> <ul style="list-style-type: none"> ↓ Level of coordination and cooperation between different government levels is low ↓ Political and structural fragmentation and absence of unity of command can contribute to slow decision-making and poor policy implementation

Table 1 (continued): Sustainability and resilience – summary of findings by key domains

DOMAIN 2 FINANCING		
<p>Strengths</p>	<p>Sustainability</p> <ul style="list-style-type: none"> ↑ Universal health coverage: in general, good financial accessibility and affordability of care ↑ Diversified revenue sources for the social security system ↑ Since 2014 (6th State Reform), public financing of the compulsory health insurance has become more progressive in function of income ↑ Innovative financing system of personal budgets for disabled individuals in Flanders ↑ Starting to move towards multi-year budgets 	<p>Resilience</p> <ul style="list-style-type: none"> ↑ Quick allocation of new payments for supporting healthcare providers in their (tele-)activities to manage COVID-19
<p>Weaknesses</p>	<p>Sustainability</p> <ul style="list-style-type: none"> ↓ The current fee-for-service payment of providers is a barrier to integrated care provision and can lead to supplier-induced demand ↓ Lack of transparency in fees charged by clinicians ↓ Rigidity in nomenclature (list of services for which fees can be charged) makes adaptations difficult ↓ Lack of connection between expenditure and healthcare outcomes – few incentives for outcome-based and goal-oriented practices, poor accountability and mainly focused on budgetary control ↓ Despite improvements in appropriate care evaluation and audit, lack of expertise and competencies persists, also in terms of data intelligence ↓ Despite universal health coverage, out of pocket payments are too high for many patients ↓ Lack of flexibility in budget allocation of NIHDI, hence creating silos ↓ Underinvestment in prevention, partly due to prevention being the responsibility of the federated level, while its benefits apply at the federal level 	<p>Resilience</p> <ul style="list-style-type: none"> ↓ Lack of good projections related to the risk of exposure to epidemics/pandemics ↓ Underinvestment in mental health care, before and during the COVID-19 pandemic

Table 1 (continued): Sustainability and resilience – summary of findings by key domains

DOMAIN 3 WORKFORCE		
Strengths	<p>Sustainability</p> <ul style="list-style-type: none"> ↑ High quality of education and training of the workforce ↑ Planned increase in the quotas of physicians ↑ Incentives to attract students to become general practitioners (GPs) and nurses (in Flanders) ↑ Quite good autonomy of physicians in deciding how to treat their patients 	<p>Resilience</p> <ul style="list-style-type: none"> ↑ Mobilisation of workers from other sectors to support healthcare professionals during the pandemic ↑ More flexibility in the allocation of medical tasks and competences across healthcare professionals during the pandemic (i.e. law of 04/11/20)
Weaknesses	<p>Sustainability</p> <ul style="list-style-type: none"> ↓ Stressful working conditions, especially for nurses and long-term care workers, leading to high rates of burnout ↓ Overburden of administrative tasks partly linked to accreditations systems ↓ Shortage of GPs, long-term care workers, and high patient to active nurse ratio in hospitals ↓ Ageing healthcare workforce, especially GPs ↓ Still too much rigidity in description of professional competences and work schedules ↓ Corporatism of some healthcare workers, leading to even more rigidity, hyperspecialisation, and less flexibility 	<p>Resilience</p> <ul style="list-style-type: none"> ↓ Shortage of nurses with expertise in intensive care or infection prevention and control ↓ Lack of information and training on infection prevention and control of care workers in nursing homes ↓ Experiences during the pandemic exacerbated pre-existing concerns for the physical and mental health of the workforce

Table 1 (continued): Sustainability and resilience – summary of findings by key domains

DOMAIN 4 MEDICINES AND TECHNOLOGY		
<p>Strengths</p>	<p>Sustainability</p> <ul style="list-style-type: none"> ↑ Rapid approval of clinical trials ↑ World-class medical and biopharmaceutical ecosystem ↑ Good quality of academic research in health ↑ Specific procedures foreseen to give early access to potentially very innovative treatments ↑ Long-term (but still ongoing) investment in digitalisation of the health system ↑ Good patient access to innovative medicines and advanced healthcare technologies, once they are on the market and reimbursed ↑ First step towards the creation of a health data agency and the Belgian Integrated Health Record to support the linkage of health data from different sources 	<p>Resilience</p> <ul style="list-style-type: none"> ↑ Strong support for remote patient monitoring solutions during the pandemic which enabled patient care continuity and – if organized in a hybrid way (with in-person contacts as the norm) – may have longer-term impact in reinforcing patient-centered care
<p>Weaknesses</p>	<p>Sustainability</p> <ul style="list-style-type: none"> ↓ Lack of pooling all healthcare data and of wide accessibility of these data under well-defined governance rules ↓ Weak interoperability of Electronic Health Records across different levels of care – lack of a good backbone ↓ Market access and reimbursement procedures for new medicines or health technologies are perceived as lengthy, rigid, opaque, and unpredictable ↓ Insufficient assessments on the value of a new treatment for society overall, often too focused on the budget dimension ↓ FAMHP and NIHDI are understaffed and undertrained in the domain of medicines and technologies. This represents an obstacle for adoption of new medicines and health technologies and might impact the quality of the assessment. ↓ Insufficient training of patients and health workers on the use of digital health and new technologies 	<p>Resilience</p> <ul style="list-style-type: none"> ↓ Insufficient pre-existing stockpiles of personal protective equipment ↓ Slow and complex access to accurate health data for research on pandemic approach ↓ High dependency on the global economy for medical supplies

Table 1 (continued): Sustainability and resilience – summary of findings by key domains

DOMAIN 5 SERVICE DELIVERY		
<p>Strengths</p>	<p>Sustainability</p> <ul style="list-style-type: none"> ↑ Freedom for patients to choose healthcare facilities and individual providers ↑ In general, good quality of care and healthcare infrastructures ↑ Several initiatives at the federal and regional level to ensure the quality of care in healthcare facilities ↑ Proximity of and rapid access to care with quite short waiting times for a consultation or operation (excluding some disciplines) ↑ Launch of mental health care reform process ↑ Accelerated development of integrated primary care in Flanders and Brussels (starting) ↑ Loco-regional hospital networks to facilitate collaboration and building expertise (ongoing) 	<p>Resilience</p> <ul style="list-style-type: none"> ↑ Rather large hospital bed capacity ↑ Rapid increase in intensive care unit (ICU) bed capacity in the first wave and measures of geographic redistribution prevented the saturation of hospitals
<p>Weaknesses</p>	<p>Sustainability</p> <ul style="list-style-type: none"> ↓ Overconsumption and unnecessary treatments and examinations ↓ Large variations in quality and services provided by medical practices ↓ Perceived lack of authentic connections between patients and healthcare providers – risk for dehumanisation of healthcare ↓ Main focus is on treating symptoms with a lack of attention to patients' life goals and holistic approaches ↓ Weak transparency on the quality of care and lack of real-time monitoring of quality indicators ↓ Inefficient allocation of resources across secondary and tertiary care ('hospital-centrism') and duplication of expertise across hospitals 	<p>Resilience</p> <ul style="list-style-type: none"> ↓ Poor coordination between some nursing homes and hospitals during the first wave of the pandemic ↓ Cancellation of or delay in essential healthcare (consultations, examinations, procedures...); stopping of screening programmes for breast, cervical and colon cancer during the first wave of the pandemic ↓ General physicians inadequately involved in prevention and treatment of patients to keep them out of hospital

Table 1 (continued): Sustainability and resilience – summary of findings by key domains

DOMAIN 5 SERVICE DELIVERY (continued)		
Weaknesses	<p>Sustainability (continued)</p> <ul style="list-style-type: none"> ↓ Limited implementation of a system’s approach per disease to only a few specific diseases (e.g. diabetes) ↓ Difficulties for patients to find their way in the health system ↓ Healthcare inequalities, expressed as differences in unmet medical needs between high- and low-income groups, are larger than the EU-27 average 	
DOMAIN 6 POPULATION HEALTH AND SOCIAL DETERMINANTS		
Strengths	<p>Sustainability</p> <ul style="list-style-type: none"> ↑ Some strategies to address social determinants of health ↑ Different organisations involved in health promotion ↑ Increased involvement of patient organisations in health literacy ↑ Compulsory physical activity in schools 	Resilience
Weaknesses	<p>Sustainability</p> <ul style="list-style-type: none"> ↓ Insufficient investment in prevention and health promotion compared to many other countries ↓ There is no real leadership across organisations involved in health promotion ↓ Levels of health literacy are low ↓ Levels of physical activity and healthy nutrition are low ↓ Scattering of actors involved in prevention and health promotion ↓ Lack of awareness and training on community health in the curriculum of doctors ↓ Poor situation of mental health and access to mental health services 	<p>Resilience</p> <ul style="list-style-type: none"> ↓ Patient involvement and patients’ rights to information and decision to care decreased during the COVID-19 pandemic ↓ Physical activity was insufficiently promoted and even discouraged ↓ Increased prevalence of anxiety, likely reinforced by media communication ↓ No real leadership across organisations involved in health promotion

Table 1 (continued): Sustainability and resilience – summary of findings by key domains

DOMAIN 7 ENVIRONMENTAL SUSTAINABILITY		
Strengths	Sustainability <ul style="list-style-type: none"> ↑ Commitment to a climate resilient health system, a sustainable low carbon health system and a Net Zero commitment by 2050 ↑ Healthcare facilities in Flanders agreed to 13 climate commitments ↑ A range of surveillance systems of environmental risk factors exist 	Resilience <ul style="list-style-type: none"> ↑ Emergency response during floods in 2021 to restart primary health care and ensure continuity of treatments for chronic patients based on solidarity
Weaknesses	Sustainability <ul style="list-style-type: none"> ↓ Fragmentation of energy and environmental competences between the federal and federated entities and lack of an independent co-ordinating body hamper the development of a shared long-term climate vision and implementation of coherent policies ↓ Lack of concrete actions to reach COP26 commitments ↓ Short-term thinking in the use of single use medical and non-medical items in hospitals ↓ Lack of knowledge by health authorities and health system actors on environmental sustainability ↓ Lack of evaluation of the efficiency of the health system's current investments in environmental sustainability 	Resilience <ul style="list-style-type: none"> ↓ Some confusion on the management of waste from COVID-19 patients

In summary, Belgium's health system has several strengths, including clear objectives of universality and solidarity, and is supported by several federal institutions. The Belgian population reports being generally satisfied with the health system and the quality of care provided. Belgium offers universal health coverage to its population and the revenue sources for the social security system are diversified, with an increasingly progressive financing of the compulsory health insurance. The education and training provided to the healthcare workforce is of good quality, so is academic research in health and the medical and biopharmaceutical ecosystem. Patients have good access to innovative medicines and advanced health technologies once they are on the market and are reimbursed. Care is quite easily accessible in Belgium due to its proximity, relatively short waiting times (although this appears to be changing), and freedom to choose any healthcare provider. Belgium has recently committed to the COP26 health programme, including a climate resilient health system, and a sustainable low carbon health system.

The health system developed innovative responses to the COVID-19 pandemic, by mobilising workers outside of the healthcare sector, implementing greater task shifting ('skill mix'), quickly allocating new payments to support healthcare providers, supporting remote patient monitoring solutions, and rapidly increasing ICU bed capacity.

However, the Belgian health system also has important weaknesses which were highlighted by the COVID-19 pandemic. The very complex political structure and the scattering of health competences between federal and federated governments lead to suboptimal levels of coordination and cooperation between different government levels, slowing down decision-making and policy implementation, especially during crises. This political fragmentation also contributes to difficulties for patients to navigate the health system and the historical underinvestments in prevention. Currently, the focus of health policy makers is more on healthcare governance, organisation and financing, and too little on public health. Moreover, complex and rigid governance structures exist, such as for the reimbursement of new medicines or health technologies.

The payment system for healthcare professionals, which is to a large extent fee-for-service, represents a barrier for the implementation of an integrated health care system approach and potentially drives unnecessary use of treatments and examinations. Resources are not efficiently allocated across different levels of care and expertise is still duplicated across hospitals. The lack of flexibility in the health insurance budget allocation and nomenclature leads to 'silo-thinking' and therefore also prevents further integration of care. Shortages of healthcare workforce (especially GPs and nurses at the bedside) as well as concerns about the wellbeing of the healthcare workforce have been exacerbated during the recent crisis. Health workers are often overburdened with administrative tasks and task-shifting possibilities remain sparse. Moreover, patient care faces the risk of becoming less human and too much focussed on data and reporting. Currently no system to pool and link all healthcare data exists and the interoperability of Electronic Health Records across different lines of care remains weak. The COVID-19 crisis has highlighted the high dependency of Belgium on the global economy for medical supplies. Belgium lacks a strong prevention and health promotion culture, which is partly linked to insufficient investments and training in community health and holistic approaches in the curriculum of healthcare professionals. During the pandemic, the importance of a healthy lifestyle was insufficiently promoted. Finally, the country also lacks a federal-level strategy and incentives to reduce the environmental impact of the health system in terms of waste, emissions and resource consumption.

To address some of these challenges, several reforms aimed at improving the health system's sustainability are already ongoing, such as formulating outcome-focused healthcare goals and multi-year budgets, incentives to strengthen primary care and increase the number of GPs, accelerated investment in the digitalisation of the health system, reforms of the financing of hospitals and the creation of loco-regional hospital networks and primary health care zones to facilitate collaboration and expertise building.

Recommendations

Based on the findings of the report, the stakeholder interviews and policy dialogue, recommendations for increasing the sustainability and resilience of the Belgian health system were formulated for each domain. We make 70 recommendations across the seven domains which are shown in the Table 2. A prioritisation exercise of these recommendations for implementation should take place in close consultation with the different health system stakeholders.

Table 2: Recommendations across the seven domains

DOMAIN 1 GOVERNANCE

Sustainability

- 1A Simplify and harmonise the overall structures, and seek more synergies between Sciensano, the Health Care Knowledge Centre (KCE), and the Superior Health Council at the federal level
- 1B Define long-term healthcare plans which are based on demographic and epidemiological trends, focus on a broad array of diseases, multimorbidity and associated health and care needs
- 1C Increase the transparency and people-centredness of the health policy making processes by inviting all stakeholders to contribute at the central and regional level as well as at the healthcare provider level (e.g. hospitals)
- 1D Professionalise patient organisations by supporting them in a structural way and funding them better
- 1E Strengthen the 'One health' and 'Health in All Policies' approaches, with mechanisms in place for non-health authorities (e.g. employment, education) to share what they are concretely doing for health
- 1F Build more capacity at local levels (e.g. municipalities or primary care zones) to implement health policy measures

Resilience

- 1G Adapt health emergency preparedness plans to a wide variety of situations and define the type of expertise required in decision-making, the role of all care providers, priority populations/services and critical resources required (ongoing)
- 1H Clarify the allocation of health competences and develop clear and efficient schemes for coordination, cooperation, and lines of command between federated entities, between the federal and federated levels and across sectors in crisis management policies
- 1I Evaluate more systematically the impact of crisis measures on all dimensions of health, including physical, mental, and social

DOMAIN 2 FINANCING

Sustainability

- 2A Further increase the share of progressive receipts (income tax) compared to the share of proportional (social security) and regressive (VAT) receipts in the financing of the compulsory health insurance
- 2B Increase cost-effective investments in primary and community care and monitor the results of these investments
- 2C Increase the share of health resources/budgets devoted to prevention and early detection, in order to match the level of Scandinavian countries (e.g. 0.36% of GDP in Sweden vs 0.17% in Belgium)

- 2D Reform the healthcare payment system (from mainly FFS to a larger weight for episode based payments, i.e. per patient per episode of care) to provide appropriate incentives for quality, efficiency and responsiveness of care (ongoing)
- 2E Clarify and monitor the trajectory of the reform of clinician fees (the 'nomenclature') and the supplements on these fees, and evaluate the consequences of this ongoing reform
- 2F Revise how budgets are allocated between different government levels by accounting for new policies, demographic and epidemiological trends, and social determinants of health, and increase flexibility and transversal thinking in budget pots (ongoing)
- 2G Awaiting further reforms, promote and develop co-financing projects between federal and federated entities, especially for prevention initiatives (e.g. fall prevention)
- 2H Increase the involvement and alignment of government, sickness funds (health funds) and patient organisations in informing patients about their rights, the use of healthcare facilities and their personal assistance budgets
- 2I Centralise patients' access to different benefits (i.e. sickness, unemployment and disability), automatize access to some benefits (preferential reimbursement, maximum co-payments) and improve and harmonise benefits (e.g. reimbursement of transport costs, access to psychologists) across different diseases
- 2J Review decision-making processes on the financing of hospital infrastructures, with more focus on improving quality of care and integration of care, and with more flexibility in investment decisions

Resilience

- 2K Perform prognoses of needed budgets based on the risk of exposure to health shocks, work out different scenarios and adapt budget planning accordingly, thereby ensuring sufficient financial reserves

DOMAIN 3 WORKFORCE

Sustainability

- 3A Protect better the physical and mental wellbeing of health and social care workers, by systematically and regularly collecting and monitoring data on their wellbeing, improving working environments to reduce stress and sustain engagement, and increasing access to psychological support services
- 3B Continue the efforts made to increase the number of medical students who specialise as GPs by making the GP profession more attractive (e.g. by lowering the administrative burden), and value better the GPs' central role in the network of healthcare professionals
- 3C Revalue/upgrade the nursing profession by lowering the administrative burden, recruiting more administrative support staff, investing in training and research for the nursing profession, and increasing the ratio of nurses per hospital bed

- 3D Promote greater task-shifting and task differentiation ('skill mix') and increase autonomy through greater flexibility in description of competences and work schedules, and by including collaboration between different healthcare professions throughout their training
- 3E Invest more in new healthcare professions (e.g. patient case manager, physician assistant, oral hygienist), who can take over tasks from other healthcare providers
- 3F Promote the greater use of cost-effective and sustainable technology to support healthcare workers and allow them to focus more on patients

Resilience

- 3G Invest in continuous practical training, including prevention and control of infections, of workers in nursing homes and create mobile care teams that can be deployed quickly when help is requested from nursing homes
- 3H Increase the number of community health workers and build on the community work that has been developed during the COVID-19 pandemic
- 3I Invest in more internal medicine specialists, as well as in ICU expertise for healthcare workers usually not working in ICUs
- 3J Develop a real-time data portal to match the demand for healthcare staff with staff availabilities

DOMAIN 4 MEDICINES AND TECHNOLOGY

Sustainability

- 4A Develop an ambitious system for country wide data integration and better regulate the interoperability of Electronic Health Records (EHRs) across healthcare providers (including nursing homes) and government systems (ongoing) and invest in IT support specialists and data scientists
- 4B Automate and harmonize the extraction of data from medical records and hospital systems (e.g. number of available ICU beds) for quality improvement and research purposes
- 4C Invest in digital skills for patients and healthcare workers to increase the use of cost-effective eHealth services and ensure that the digitalisation of health system remains inclusive by keeping a physical/in-person support option
- 4D Maintain the high-quality research and medical and biopharmaceutical ecosystem to encourage valuable innovation in healthcare
- 4E Improve the pricing and reimbursement process of new medicines and health technologies (transparent processes and criteria) and adopt a value-based approach
- 4F Monitor better the appropriate use of innovative medicines and health technologies and their effect on patient outcomes in the real world using dashboards

Resilience

- 4G Develop or increase the stock of essential medicines and medical supplies, based on a list of those that should always be available (according to a risk-based approach)
- 4H Develop a resilience plan in the face of a large-scale blackout or hacking of hospitals' IT system, invest in hospital cyber-security and raise awareness of cyber-security among healthcare providers

DOMAIN 5 SERVICE DELIVERY

Sustainability

- 5A Strengthen the care coordinating role of primary care by expanding current incentives and further encouraging the choice of a unique reference GP to whom other professionals should systematically feed back
- 5B Strengthen healthcare provision in nursing homes, by increasing the number of nurses per bed, by upgrading the role of the coordinating GP and by creating stronger formal and automated links with other healthcare providers
- 5C Increase investment in integrated care networks and better connect each hospital network with a cluster of primary care providers (clusters can overlap) to facilitate the management of chronic conditions and improve continuity of care
- 5D Make it mandatory for hospitals to measure, monitor and publish indicators on quality of care and medical consumption, and create a central registry where patients can report their health outcomes after treatments
- 5E Limit overconsumption of treatments and examinations by continuously educating healthcare professionals about best practices, training them in expertise centres, and increasing regulation and peer-review
- 5F Push for more specialisation of hospitals within and across networks and for tertiary care to provide complex care through appropriate incentives and a stronger referral system
- 5G Train healthcare professionals to discuss life goals and to have a holistic and humanistic approach to patients instead of focusing only on reducing symptoms
- 5H Leverage the created possibilities for telemedicine, and install financial incentives to support its quality, while respecting the need for in-person care

Resilience

- 5I Establish clear (but with a degree of flexibility) roles for different clinicians and other care workers during health crises
- 5J Provide GPs with guidelines on the prevention and early treatment of infectious diseases
- 5K Ensure that all essential care and screening continues during a crisis by developing preparation plans with the actors and informing health professionals and the general public
- 5L Have clinical pharmacologists and infectious disease specialists in each hospital with a mandate to also support primary care facilities

DOMAIN 6 POPULATION HEALTH AND SOCIAL DETERMINANTS

Sustainability

- 6A Strengthen the public health component in the continuous education of healthcare workers and increase their exposure to community health and prevention
- 6B Develop a comprehensive plan that acts on a societal level to reduce exposure to risk factors and unhealthy lifestyles, and increases health literacy throughout the life course
- 6C Implement stricter measures in all schools (not only primary schools) to ban the consumption of sugar-sweetened beverages and food
- 6D Invest in data collection for cohort studies and data linkage across data sources, including exome and genome sequencing data and environmental data, to better understand risk factors for health
- 6E Increase the uptake of secondary prevention programmes, such as improved and broadened (i.e. more types of) cancer screenings (by implementing the latest scientific insights and recommendations)
- 6F Routinely perform health impact assessments of policies outside of health and measure their effect on socioeconomic inequalities
- 6G Increase collaboration between hospitals, health funds and patient organisations and improve referral of patients to disease-specific patient organisations to better guide them in taking care of their health
- 6H Make the 'health in all policies' concept more concrete and invest in physical, social and mental health promotion in schools, at the workplace and in the community

Resilience

- 6I Encourage physical activity even during an infectious disease outbreak, for instance by keeping fitness centres open, while respecting rules for ventilation and disinfection of air
- 6J Create vigilance rather than anxiety among the population during health crises, by collaborating with healthcare professionals and the media
- 6K Provide extra support for mental health promotion during crisis times

DOMAIN 7 ENVIRONMENTAL SUSTAINABILITY

Sustainability

- 7A Establish a long-term climate-resilience action plan across the country for healthcare infrastructure, with targets and indicators to be monitored
- 7B Create incentives for healthcare facilities to sort and recycle their waste, reduce single-use items and increase re-usable ones, reduce the use of chemicals, reintroduce sterilisation and invest in low carbon buildings
- 7C Explore options to extend medications' shelf-life, choose the most sustainable storage conditions, adjust package sizes, optimise stock management, and raise awareness of medication waste

- 7D Invest in alternatives to incineration of hazardous healthcare waste, such as the use of disinfection treatment, to increase the circularity of waste-resources
- 7E Optimise health care effectiveness/efficiency and rational use of healthcare to reduce energy consumption of the health system
- 7F Raise awareness among the healthcare workforce about risks related to healthcare waste, train them on best practices to reduce waste and resource consumption, and facilitate exchanges of best practices across healthcare facilities
- 7G Raise public awareness on environmental risk factors for health, through information campaigns
- 7H Develop a methodology that takes into account the environmental and societal impacts of a health intervention or technology in addition to its health effect and cost when assessing its value

Resilience

- 7I Update hospital emergency plans to better respond to severe and more prolonged climate or environment related crises

Introduction



Pre-pandemic, many healthcare systems around the world were already struggling to contain spending and meet the increasing demand for healthcare caused by ageing populations and a rise in chronic diseases. The COVID-19 pandemic further worsened these problems and presented unique challenges for health systems. In Belgium, the virus outbreak occurred in the middle of a political crisis and led to an officially estimated 33,000 deaths (up to end November 2022). The high COVID-19 related mortality during the first wave in Belgium attracted attention internationally, although biases and differences in labelling COVID-19 have distorted comparisons. Understanding the strengths and weaknesses of the Belgian health system and identifying potential solutions to improve the systems' sustainability and resilience is critical. These concepts are defined in Table 3.

Table 3: Definitions of health system sustainability and governance underpinning the analysis

Health system sustainability	A health system's ability to improve population health, by continually delivering the key functions of providing services, generating resources, financing and stewardship, incorporating principles of financial fairness, equity in access, responsiveness and efficiency of care, and to do so in an environmentally sustainable manner.
Health system resilience	A health system's ability to prepare for, absorb, adapt to, learn, transform and recover from 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.

As part of the Partnership for Health System Resilience and Sustainability (PHSSR), this report aims to evaluate the sustainability and resilience of the health system in Belgium according to seven key domains:

Governance: the wide range of steering and rule-making related functions carried out by governments and decision makers as they seek to achieve national health policy objectives

Financing: how health systems generate, pool and allocate financial resources and pay for health services

Workforce: how health systems plan for, train, recruit, reward, and deploy their workforce, and shape the conditions in which health professionals work

Medicines and technology: how health systems make use of medicines and (information) technologies in the delivery of health services

Delivery: how health services are organised and delivered, including ambulatory and hospital care, and public health

Population health and social determinants: how health systems address the social determinants of health and meet the needs and demand of the population

Environmental sustainability: how health systems prevent and minimize their carbon footprint and the impacts of pollution on the population's health

The report draws on a review of recent data, health policy and available evaluations in each of the domains. Interviews with or written feedback from 24 stakeholders (see Acknowledgements) relevant to the domains and one policy dialogue were held to add to the analysis and emerging recommendations.

The report includes a non-exhaustive set of focused recommendations (70 in total) which aim to be suitable for implementation. It does not address more fundamental shifts in policy beyond the health system that may be required to address important and enduring issues such as persistent health inequalities. Further work and mechanisms to ensure learning from the pandemic are paramount. Nonetheless the recommendations contribute to the debate of what actions are necessary to ensure the sustainability of the health care system and its resilience to future shocks. A prioritisation exercise of these recommendations for implementation should take place in close consultation with the different health system stakeholders.

1. DOMAIN 1

Governance



1.1 Sustainability

1.1.1 Governance structure and leadership

The governance of Belgium's health system is divided between the Federal State and the Federated entities. At the Federated level, Belgium is divided into three regions based on territory: Wallonia, Brussels and Flanders, and three communities based on language: Flemish, French (which calls itself the Federation Wallonia-Brussels) and German-speaking. Each region and each community have a parliament and a government, except for Flanders which has a single government and parliament for both the region and the community. As a result, Belgium has nine ministers or deputy ministers in charge of health policy and regulation of the health care system.[1]

The Federal State is responsible for the regulation of compulsory health insurance, hospital budgets, the overall organisation of the health system, health products and activities, healthcare professions and practices, and patients' rights. The Federated entities are the main responsible authorities in the areas of elderly and disabled care, mental health care, primary and home care and rehabilitation policies, health promotion and disease prevention, and hospital licensing. Inter-ministerial conferences (IMCs) are frequently organised to facilitate communication and cooperation between the Federal government, the Federated entities and the various advisory and consultative bodies, such as the IMC on Public Health.[1] Some stakeholders, however, perceive the IMC on Public Health as a vehicle for the federal level to push its agenda towards the federated entities.

At the federal level, the federal parliament is the legislative body, and the federal government is the executive body, which includes one Minister of Social Affairs and Public Health. This minister is supported by several actors:

The Federal Public Service (FPS) Health, Food Chain Safety and Environment (or Ministry of Health: MoH) is responsible for the general organisation and planning of the health system.

The FPS Social Security coordinates Federal social security policy.

The National Social Security Office (NSSO) is the central institution in the social security system for private sector employees and most civil servants.

The National Institute for the Social Security of the Self-employed (SSSE) is the central institution in the social security system for the self-employed.

The National Institute for Health and Disability Insurance (NIHDI-INAMI-RIZIV) is responsible for the general organisation and financial management of compulsory health insurance.

The Federal Agency for Medicines and Health Products (FAMHP) ensures the quality, safety and effectiveness of pharmaceuticals and health products for humans and animals.

The Supervising Authority for Sickness Funds and National Associations of Sickness Funds controls the sickness funds (now called health funds), which are private, non-profit organisations operating the compulsory health and disability insurance for their members.

The Federal Agency for Nuclear Control (FANC) ensures the protection of the population and the environment against the dangers of ionising radiation.

The Federal Agency for the Safety of the Food Chain (FASFC) assesses food safety throughout the food chain.

In addition, various advisory and consultative bodies advise the Federal state and Federated entities, including:

Sciensano: a federal research institute for animal and human health, which conducts studies on communicable and non-communicable diseases, food, medicines and consumer safety, public health and surveillance.

The Belgian Health Care Knowledge Centre (KCE): a federal research institute that performs research in the analysis of clinical practice and the development of guidelines for good clinical practice, health technology assessment and health services research.

The Superior Health Council: ensures the link between government policy and the scientific public health community, by providing independent advice and recommendations to the Minister of Social Affairs and Public Health, on the Minister's specific request or on its own initiative.

Thus, several institutions in Belgium have the role of formulating scientific public health recommendations, which resulted in the Belgian Court of Audit (Rekenhof) advising improved coordination between the different scientific bodies (e.g. Superior Health Council, KCE, Sciensano, FAMHP, FPS).[2].

Federated health responsibilities are implemented by the Flemish Ministry of Public Health, Family and Social Welfare and the Flemish Agency for Care and Health in Flanders. In the French-speaking part of the Walloon region, the Walloon Minister of Health and Welfare relies on the Agency for Quality Life (AVIQ) to implement the Federated health competences. The French community is responsible for birth and childhood matters and the licensing and financing of university hospitals. In the German-speaking community, the Department of Health and Senior Citizens is responsible for public health and health promotion and the Agency for Autonomous Life (Dienststelle für selbstbestimmtes Leben) is responsible for topics related to people in a dependency situation. In Brussels, due to its bilingual status, three specific commissions are in charge of the Federated competences: The Flemish Community Commission (Vlaamse Gemeenschapscommissie; VGC), the French Community Commission (Commission communautaire française; COCOF), and the Joint Community Commission (Gemeenschappelijke Gemeenschapscommissie; GGC; Commission communautaire commune; COCOM). Of these, the GGC-COCOM exercises the most important part of the competences.

The Communities are responsible for public health, including the prevention of substance abuse, vaccination, screening campaigns, nutrition plans, initiatives regarding oral health in schools and tobacco cessation programmes. However, the Federal government still makes several decisions related to public health, such as the level of taxes on tobacco and alcohol. The IMC Public Health coordinates prevention policies between the Federal and Federated levels. In the Flemish Community, the agency for Care and Health (Zorg en Gezondheid) regulates and supports public health initiatives. In the French Community and Walloon region, AVIQ is in charge of major policies related to well-being and health, support for older people, disability and family allowance and has developed a Walloon Plan for Prevention and for Health Promotion (2018–2030). In the Brussels-Capital region, Iriscare is responsible for providing assistance to older people and people with disabilities, homes for older people and nursing homes, reception centres, home-based care, wheelchairs, and primary care. In the German-speaking community, the Council for Health Promotion (Beirat für Gesundheitsförderung) is responsible for health promotion and prevention. In addition, each community has its own institution in charge of preventive medicine for families and young children.

The strategic direction of the health system is bound to the political cycle, which changes in principle every five years. Thus, a shift in leadership can lead to discontinuation of health policy direction, hence possibly affecting sustainability. The Federal level does not yet have a target-setting process fully in place, yet Flanders has been setting health targets for a long time, and follows their achievement on regular times, showing variable success. Several Federal actors have already

developed targets in different health and healthcare domains, including antibiotics, medical imaging and drug prescriptions. However, for many years, the target initiatives were lacking leadership, a clear thematic approach, and visibility.[1, 3] The 2020 government agreement had as one of its objectives the reduction, by 2030, of at least 25% of health inequalities between the most advantaged and the least advantaged individuals in terms of healthy life expectancy. The aim is to reduce the avoidable mortality by 15%, and to rank again in the European "top 10" regarding the number of healthy life years, while guaranteeing very good accessibility and coverage. A recent report by the NIHDI recommended setting up health care goals, formulated for a 10-year period, regularly updated and involving citizens and parliaments. An advisory commission, the Commission for the Evaluation of Health Care Goals, with significant scientific input will help to move towards more integrated care and transversal mechanisms.[4] Nevertheless, no disease-specific plans exist, except for cancer, which prevents the implementation of systems-based approach and integrated care. Interestingly, and more broadly oriented, the Federal Planning Bureau developed several years ago 83 indicators, which provide information on Belgium's progress towards the Sustainable Development Goals.

To promote collaboration across multiple sectors and improve public health outcomes, the Ministry of Health launched the "One Health" approach in 2018. This approach is implemented through different actions and research programmes. For instance, the Belgian One Health Network, created in July 2019, brings together actors working in One Health in Belgium, yet it lacks real impact.[5] The Belgian National Environmental Health Action Plan (NEHAP) brings together Belgian ministers in charge for health and the environment and offers a framework for actions at the intersection of the environment and health at all institutional levels. The implementation of cross-sectoral policies in health is limited in Belgium, potentially related to the three-level structure of the government. For example, very few concrete cross-sectoral collaborations exist for health-enhancing physical activity policies and most collaborations are informal and hence dependent on interpersonal relations.[6] Figure 1 shows an overview of the most important bodies/organisations at the Federal and Federated levels.

Figure 1: Main administrations and agencies in charge of health-related matters (situation in 2020)

Federal Level	Federated Level			
Belgium	VGC, COCOF, GGC-COCOM (Brussels)	Flemish-speaking community	French-speaking community and Walloon Region (French-speaking part)	German-speaking community
Federal parliament	Parliaments of the: <ul style="list-style-type: none"> • COCOF • GGC-COCOM Assembly of the VGC	Flemish parliament	Parliaments of the: <ul style="list-style-type: none"> • French Community • Walloon region 	Parliament of the German-speaking Community
Federal government: Minister of Social Affairs and Public Health	Executive College of the: <ul style="list-style-type: none"> • VGC: one president in charge of well-being, health, and other matters^a • COCOF: one minister-president in charge of health promotion and other matters^a and one member in charge of health and social welfare • GGC-COCOM: two members in charge of health and social welfare^b 	Flemish government: one minister of well-being, public health, family and social welfare	Governments of the: <ul style="list-style-type: none"> • French-speaking Community: one minister of health (childhood) and other matters^a and one minister of university hospitals and other matters^a • Walloon region: one minister of health and social welfare 	Government of the German-speaking Community One minister of health, social affairs and family
Main departments and agencies: <ul style="list-style-type: none"> • FPS Public Health, Food Chain Safety and Environment (MoH) • National Institute for Health and Disability Insurance (NIHDI) • National Office for Social Security (NOSS) and National Institute for the Social Security of the Self-employed (SSSE) • Supervising authority for sickness funds and national associations of sickness funds • The Federal Agency for Nuclear Control (FANC) • FPS Social Security • Federal Agency for Medicines and Health Products (FAMHP) • Federal Agency for the Safety of the Food Chain (FASFC) 	Main departments and agencies: <ul style="list-style-type: none"> • Administration of the VGC, Directorate-general of well-being, health, and family • Administration of the COCOF: Directorate-general of health and social matters and Phare (for disabled people) • Administration of the GGC-COCOM, Directorate-general of health and personal assistance and IrisCare 	Main departments and agencies: <ul style="list-style-type: none"> • Directorate well-being, public health, family and social welfare • Flemish Agency for Care and Health • Agencies for Early Childhood and Birth and for disabled people (Opgroeien and VAPH) 	Main departments and agencies: <ul style="list-style-type: none"> • Ministry of the French-speaking Community, office of early childhood and birth (ONE) and directorate of university hospitals. • Agency for Quality life (AVIQ) 	Main departments and agencies: <ul style="list-style-type: none"> • Ministry of health, social affairs and family of the German-speaking community, department of health and senior citizens • Agency for early childhood and birth (Kaleido) • Agency for autonomous life
<div style="background-color: #6a3d9a; color: white; padding: 5px; display: inline-block; border-radius: 10px;">SCIENTIFIC ADVICE</div> Scientific bodies: e.g. Sciensano Belgian Health Care Knowledge Centre Superior Health Council				

Notes: a Non-health-related;
 b in Brussels, the two members of the joint college of the GGC-COCOM in charge of health-related matters (one French-speaking and one Dutch-speaking) are also the people in charge of health-related matters in the colleges of the COCOF and the VGC, respectively. A total of three persons are therefore in charge of health-related matters in Brussels in 2020.

Source: Adapted from [1].

1.1.2 Multi-level governance

Although Belgium is a federal state, the level of decentralisation in health system financing is low. The share of subnational government health spending is less than 15% of total public health spending, less than 10% of subnational government spending and less than 0.5% of GDP. The two main constitutional reforms of 1980 and 2014 (the latter being the 6th State Reform) have devolved health-related responsibilities from the federal level to the Communities and Regions and with the latter reform more than €5 billion were transferred from the Federal State to the Federated entities (nearly 15% of public expenditure on health).

Local authorities, including municipalities and provinces, act under the supervision of the regions. Municipalities organise social support for low-income groups and in some cases the management of public hospitals or healthcare settings. Provinces have more extensive responsibilities covering health screening and coordination of mental health services.[1] Overall, the role of local authorities is rather limited.

The division of health-related competences between the Federal State and Federated entities in Belgium increases the complexity and fragmentation of the governance system, and leads to duplicated efforts and inefficiencies, possibly affecting sustainability. In the past year, a working group of political advisors has been evaluating the 6th State Reform and examined if transferring health competences from the Federal level to the Federated entities has proven more efficient. Results have not yet been made public.

The scattering of health competences within administrations at the Federal level (i.e. MoH and NIHDI) and between Federal and Federated levels also contributes to underinvestment in prevention. Indeed, the benefits of the Federated entities' investments in public health are felt at the federal level, which is in charge of acute care. Budgetary questions can represent sources of tension between the Federal and Federated entities and slow down the decision-making process.

1.1.3 Inclusivity, integrity and trust

Inclusivity

The representation of consultation committees in the Belgian healthcare sector tends to be based on well-defined criteria and processes. Currently, the committee for the reimbursement of medicines, advising the minister of health, incorporates several stakeholders: representatives of the medical community (providers), sickness funds, universities, pharmacists, drug industry, the ministry of social affairs, of public health and of economic affairs and NIHDI.[7]

However, a few of the interviewed stakeholders mentioned that the NIHDI insurance committee lacks representation from all stakeholders in the health system, with an over-representation of specialists and an under-representation of academics and public health professionals. Members of this committee and of underlying committees were also reported to be too focused on protecting their own interests, which can be a threat for the sustainability of the health system.

Although patients and citizens are consulted for general policy questions, they are not directly and explicitly involved in decisions on reimbursement of a new product or service. The KCE is involved in the PREFER initiative, a public-private collaborative research project supporting the development of guidelines for industry, regulatory authorities, and health technology assessment bodies on how and when to include patient preferences on the benefits and risks of medical products. For prostate and testicular cancer, new guidelines recommend actively involving patients in the choice of treatment.[1]

Integrity and transparency

Different initiatives exist in Belgium to assess the integrity and transparency of decision-making in the health system. The Medical Evaluation and Inspection Department of the NIHDI is responsible

for combating overuse, misuse and fraud in the health sector. Since 2015, the [betransparent.be](https://www.betransparent.be) platform, a self-regulation initiative, promotes transparent relations between the industry and healthcare professionals and organisations. In addition, since the Sunshine Act in 2017, Belgian and international pharmaceutical and medical device companies are obliged to annually disclose on the platform the premiums and benefits they directly or indirectly granted to healthcare professionals, organisations or patient associations.

Since 2016, the lack of transparency with hospital invoices that exists in Belgium has been addressed by disclosing details of the medical interventions and the associated expected full costs to patients before they are admitted. However, for most patients, information on treatment costs in hospitals are still complicated to understand.

The KCE's Belgian Health System Performance Assessment reports provide a transparent view of the situation of the Belgian health system to the general public.[8] Since April 2019, data from this report has been made easily accessible and downloadable through the 'healthybelgium.be' website.

Trust

Since 1997, the general public's satisfaction and trust in the health system has been assessed every 4 to 5 years via the Belgian Health Interview Survey, which includes questions on patient experiences such as waiting times, time spent during consultation, medical explanation and shared decision-making. In 2018, more than 95% of patients were satisfied with the time spent with their doctor, the doctor's explanation, the opportunity to ask questions and raise concerns regarding recommended treatments and shared decision-making on care and treatments to be received. Satisfaction with the quality of healthcare is higher in Belgium than the average for all OECD countries. Other initiatives to evaluate public satisfaction are the Flemish Indicators for Patients and Professionals Initiative (VIP2) and the "Attentes et Satisfaction des Patients et de leur Entourage" (ASPE) project in some hospitals in Wallonia and Brussels. Although Belgium has not yet systematically established patient-reported outcome measures (PROMs), it is participating in the OECD-PaRIS initiative, which started in 2021. Federal organisations such as Sciensano, Statbel, MoH, and NIDHI are responsible for data collection on health statistics.

1.2 Resilience

1.2.1 Preparedness

In case of international health and sanitary crises, Belgium has a monitoring and risk management system which consists of three federal actors: a National Focal Point (NFP), a Risk Assessment Group (RAG), and a Risk Management Group (RMG). The RAG and RMG are supervised by the IMC Public Health. The NFP is responsible for risk analysis and risk management of communicable diseases, biological, chemical and nuclear health crises with international effects and collaborates with the WHO and the EU. The RAG, composed of medical scientists and other experts, analyses the risk for the population using epidemiological and scientific data and advises the RMG. The RMG, composed of representatives from the ministries of Health, decides on the notification and on the control measures proposed by the RAG and receives instructions from the IMC Public Health, to which it provides its recommendations. If a crisis necessitates coordination between different sectors and administrations, a crisis cell is established by the National Crisis Centre (NCCN) of the FPS of Internal Affairs.

In case of crisis, different authorities in Belgium develop multi-disciplinary contingency plans to manage the crisis at the national level. This type of contingency plan was used during the COVID-19 pandemic. At the hospital level, the Hospital Emergency Plan (HEP) describes the procedure to deal with an acute increase in the demand for hospital services without putting at risk care for existing patients. Since October 2016, the content, procedures and different roles within the HEP were

harmonised across Federated entities. At the start of the COVID-19 pandemic, most hospitals had prepared a HEP but were at different stages of licensing. Although the HEPs were not fully tailored to a crisis of such magnitude and duration, HEPs enabled hospitals to quickly respond to the pandemic outbreak.

In Belgium, the epidemiological surveillance and early warning systems oblige doctors or heads of clinical laboratories to report all infectious diseases subject to a notification to Care and Health in Flanders, COCOM in Brussels-Capital region, AVIQ in Wallonia and to the ministry of health in the German-speaking community. The list of diseases that need to be notified varies by region. The FASFC is responsible for the surveillance of foodborne disease outbreaks. Sciensano is responsible for identifying emerging or re-emerging pathogens, their prevention and treatment, and the development of tools for data collection.

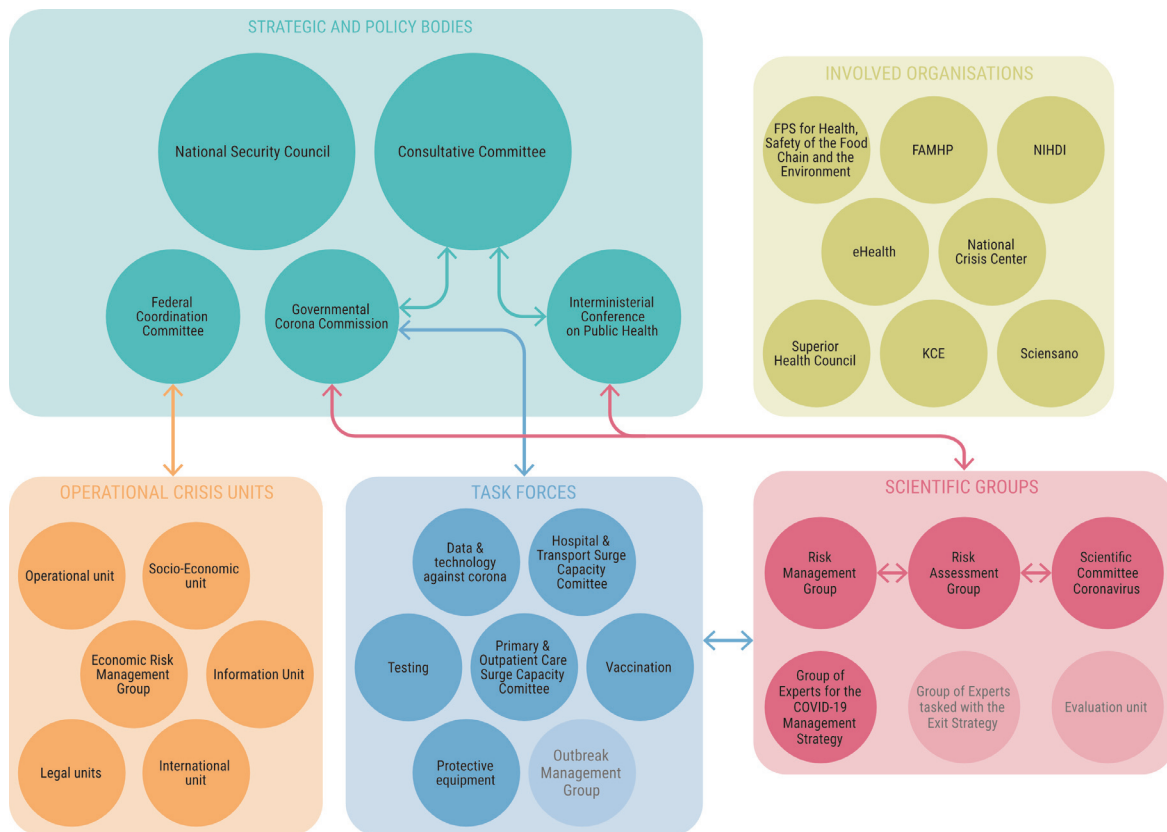
1.2.2 Response

The pandemic started in Belgium while the country was experiencing a political crisis with 14 months of political gridlock, as an agreement to form a stable government was not reached following the elections of May 2019. However, in March 2020, political parties agreed to form a temporary government (6 months), which allowed the government to provide a unified response to the pandemic.[9]

In Belgium, the pandemic was treated as a national security problem. On March 12th, 2020, the federal phase of the crisis management was declared; from that point on, the pandemic was managed by the Federal state. At the start of the pandemic, the decision-making power was in the hands of the National Security Council (a federal body composed of the Prime Minister, Deputy Prime Ministers, and Ministers-President of the Regions and Communities) and the National Crisis Centre. Additional governance structures were established, including a "Scientific Committee Coronavirus" in January 2020 and a "Group of Experts for the COVID-19 Management Strategy" (GEMS) in December 2020. The "Scientific Committee Coronavirus" informed health authorities about the latest scientific developments related to coronavirus and advised the RAG. The GEMS replaced the "Evaluation Unit" (Celevel) and the "Group of Experts tasked with the Exit Strategy" (GEES) and provided advice on the crisis management measures. A Governmental Corona Commission was created in October 2020 and played a pivotal role until April 2022. This Commission coordinated health policy communication between the federal and federated governments, maintained relations with experts and social partners, formulated proposals to reform various consultation structures and monitored the social and economic impact of measures taken. Various operational crisis units and task forces (e.g. the Hospital & Transport Surge Capacity – HTSC – Committee), primary & outpatient care surge capacity committee, testing & contact tracing inter-federal committee) on specific topics were also created. The role of Public Health agencies was to assess the situation and advise decision-making.[10] Figure 2 (on the next page) represents an overview of the involved bodies and units during the COVID-19 pandemic.

However, the country's difficulties in forming an effective Federal government and the scattering of jurisdictional responsibilities for crisis management meant that decisive actions were onerous to make. In the period after the summer of 2020, decisions to implement specific measures (i.e. closure of primary and secondary schools, bars, restaurants, and non-essential shops and prohibiting non-essential travel) were taken after long and fierce negotiations between Flemish and French-speaking politicians.[12] Flemish politicians were in favour of an approach of remaining relatively open to support economic activities and to account for other aspects of public health, while French-speaking politicians were in favour of the French approach of managing the virus through a strict lockdown. Afterwards, studies suggested that the latter turned out not to be as effective against the pandemic as initially believed.[13]

Figure 2: Consultative bodies and crisis units during the COVID-19 pandemic



Source: [11].

While the Federal state remained responsible for overall crisis management during the pandemic, the Federated entities had responsibilities at the operational level. For example, the Communities prohibited visits in retirement homes, and all levels of government and some municipalities were simultaneously involved in the procurement and distribution of personal protective equipment to the healthcare sector. On the one hand, this led to increased collaboration and coordination between Federal and Federated governments. Information on reliable suppliers, stock levels, order and deliveries were shared and a solidarity stock was created and available to all Federated entities to respond to urgent needs in their regions.[14] The collaboration between the Superior Health Council, KCE, Sciensano and the FAMHP was also successful.[2] On the other hand, there was a lack of clarity regarding the division of responsibilities between the nine health ministers, which are each responsible for some aspect of public health.[15] Several inconsistent situations regarding public health policy competences and coordination were reported. Having both Federal and Federated governments making emergency measures caused burdensome coordination across government levels and Regions (e.g. data collection to feed the monitoring system, duplication of policy notes) and led to confusion among the population (for instance about vaccination strategy, contact tracing and quarantine measures).[2, 16] Several stakeholders also reported the weak capacity of local authorities to implement and coordinate preventive measures.

At the regional level, a cross-border task force to coordinate actions against the coronavirus SARS-CoV-2 was also created between Belgium regions, Dutch regions, the Rhineland-Palatinate in Germany, the central government and the Grand-Est region in France.[14]

Testing capacities were scaled up more rapidly in Belgium than in many other EU countries. At the start of the pandemic, only patients admitted to the hospital for COVID-19 and health workers could be tested. From mid-March to May 2020 the number of applied tests increased rapidly by mobilising greater laboratory capacity and the implementation of a national platform in 2020.[17] Furthermore, the COVID-19 surveillance system in nursing homes was set up very quickly (14 days after the first COVID-19 death).[18]

The track-and-trace system that was introduced in the summer of 2020 took a while to be up and running and local authorities complained about difficulties in implementing successful policies.[19] The creation of an effective contact tracing system was indeed challenging and the mobile application (“Coronalert”) was only launched in September 2020. At the end of 2020, more than 2 million people (about 20% of the population) had downloaded this application.

Belgium communicated daily with its population about the health emergency and the lockdown conditions. Scientific experts and spokespeople of the Belgium government’s crisis centre were the ones holding the briefings rather than politicians. According to some authors, these briefings were a good opportunity to counter misunderstandings and misinformation.[9] However, such briefings were also criticized for not putting the numbers in context (e.g. reporting on cases without specifying the test strategy).[20] Regarding the exit strategy after the first lockdown, there was a lack of effective decisions and transparent communication due to the weak position of the minority government and the complicated political structure in Belgium.[15]

From October 2020, the website mijngezondheid.be was used to communicate information (taking a test, vaccination, traveling guidelines) about COVID-19 and almost 5 million visitors registered on the website during a seven-month period.[11] Nevertheless, several stakeholders judged the communication between the government and the public during the COVID-19 pandemic to be poor. The communication approach was not always inclusive, and linguistic and cultural diversity was not always taken into account.[2] Contradictory interventions from multiple stakeholders and unclear information led to confusion within the population, and the public perception that politicians and scientists had very different opinions.

The new federal government in place since October 2020 preferred to take a stricter approach in dealing with the pandemic. The gradual tightening of preventive measures was implemented by regional and local authorities, hence leading to divergent rules (e.g. curfew hours) in different parts of the country. The new government established new advisory bodies, and integrated a modest number of other disciplines, such as representatives from clinical psychology, economics, and sociology.

1.2.3 Learning and adapting

The mechanisms in place to assess, audit and learn from the pandemic response are not clear. The KCE assessed the health system’s response to the pandemic in specific areas, including hospital and transport surge capacity, the management of long COVID, and nursing staffing on Belgian intensive care units. During the second wave of the pandemic, the Belgian health system has adapted to lessons from the first wave by continuing non-essential care as much as possible, improving data collection and setting-up a distribution plan to avoid relying too much on hospital surge capacity. As a result, during the second wave non-essential surgical care was reduced by about 66% and essential surgical care by 20%, while during the first wave the corresponding reductions were 94% and 57%.[11] In addition, more decentralisation of health responsibilities occurred during the second wave compared to the first wave. However, most stakeholders reported a lack of structural wins and lessons learned from the pandemic.

In addition, during the COVID-19 pandemic, the selection of committee members for the Hospital & Transport Surge Capacity (HTSC) committee was not transparent and was largely based on judgment, because it was first an ad-hoc committee. Field experts such as physicians and nurses, and experts in geriatric care, psychological support and rehabilitation appeared to be underrepresented in this committee.[21]

1.3 Recommendations

1.3.1 Sustainability

RECOMMENDATION 1A

Simplify and harmonise the overall structures, and seek more synergies between Sciensano, the Health Care Knowledge Centre (KCE), and the Superior Health Council at the federal level

RECOMMENDATION 1B

Define long-term healthcare plans which are based on demographic and epidemiological trends, focus on a broad array of diseases, multimorbidity and associated health and care needs

RECOMMENDATION 1C

Increase the transparency and people-centredness of the health policy making processes by inviting all stakeholders to contribute at the central and regional level as well as at the healthcare provider level (e.g. hospitals)

RECOMMENDATION 1D

Professionalise patient organisations by supporting them in a structural way and funding them better

RECOMMENDATION 1E

Strengthen the 'One health' and 'Health in All Policies' approaches, with mechanisms in place for non-health authorities (e.g. employment, education) to share what they are concretely doing for health

RECOMMENDATION 1F

Build more capacity at local levels (e.g. municipalities or primary care zones) to implement health policy measures

1.3.2. Resilience

RECOMMENDATION 1G

Adapt health emergency preparedness plans to a wide variety of situations and define the type of expertise required in decision-making, the role of all care providers, priority populations/services and critical resources required (ongoing)

RECOMMENDATION 1H

Clarify the allocation of health competences and develop clear and efficient schemes for coordination, cooperation, and lines of command between federated entities, between the federal and federated levels and across sectors in crisis management policies

RECOMMENDATION 1I

Evaluate more systematically the impact of crisis measures on all dimensions of health, including physical, mental, and social

2. DOMAIN 2
Financing

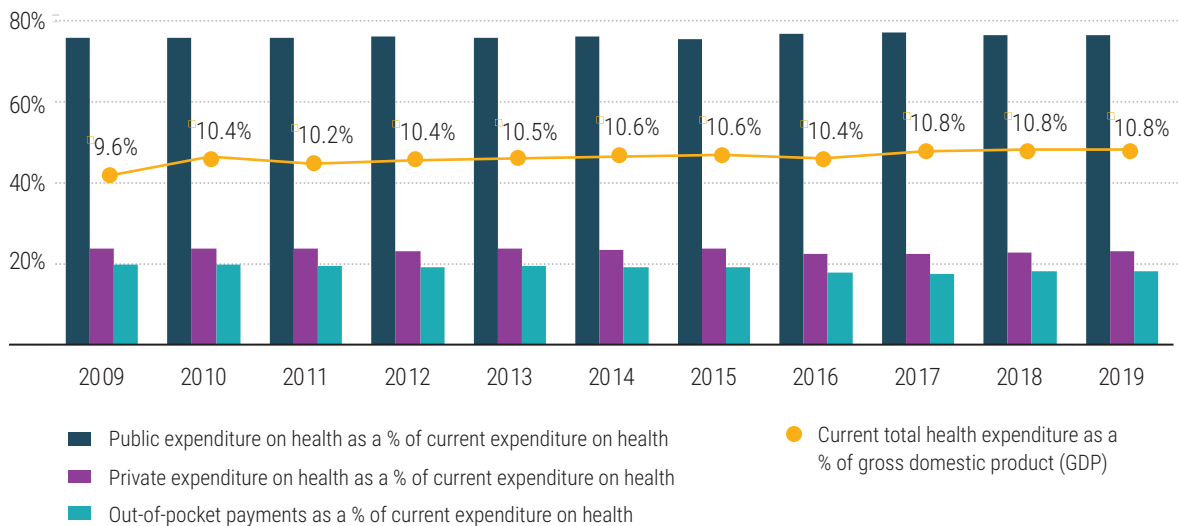


2.1 Sustainability

2.1.1 Funding

Figure 3 shows the key trends in the Belgian health system's financing, with a focus on total health expenditure and public and private expenditure. The composition of the population is also reported in Figure 4 as this is of relevance in a system which is financed by social contributions.

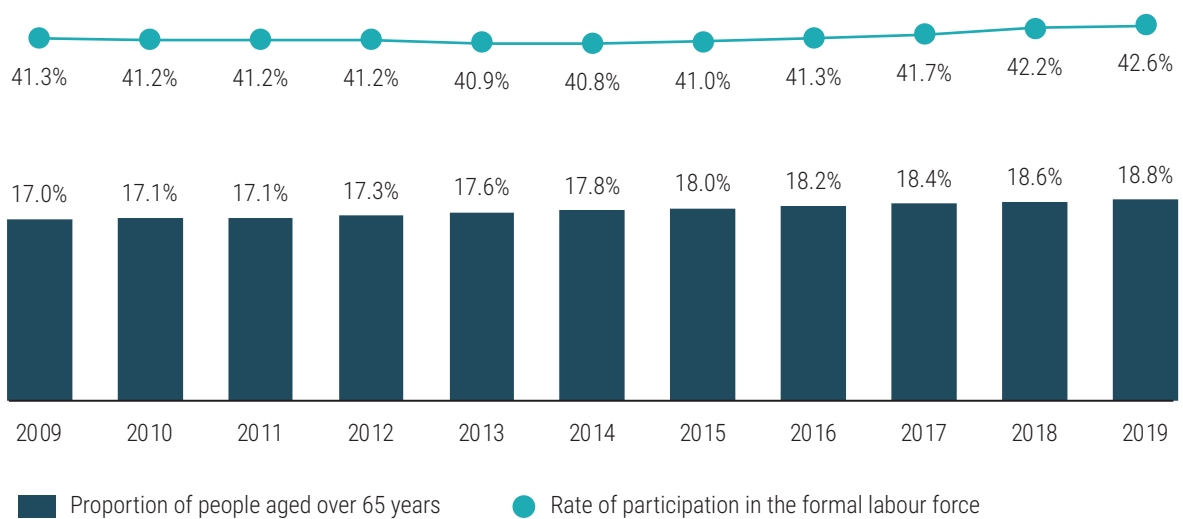
Figure 3: Key trends in health system financing



Bars should be read using the left axis.

Source: OECD Statistics.

Figure 4: Key demographic trends relevant for health system financing



Source: OECD Statistics.

In Belgium, the majority of current health expenditure is publicly funded (76.8% in 2019), with most coming from the compulsory health insurance. 23.2% of current expenditure on health is privately funded, with out-of-pocket (OOP) payments representing around 17% and voluntary health insurance (VHI) around 5% of current health expenditure. The share of OOP expenditure is close to the EU-15 average (17%) but significantly higher than in certain neighbouring countries such as France (9%), Luxembourg (10%), the Netherlands (11%) or Germany (13%). This might increase inequity in health since higher OOP can lead to lower use of necessary care among patients with low socio-economic status, which in turn can lead to more complications later in life hence affecting the sustainability of the health system.

In 2019, public health expenditure in Belgium was €37.2 billion, or 7.9% of GDP, with 6.4% of the GDP being related to acute care compared to 1.4% of the GDP for long-term care. In 2040, public health expenditure as a share of GDP is predicted to increase to 10%, mainly due to an increase of 64% in long-term care expenditure.[22] It remains unclear how the future increase in health expenditure will be financed.

Compulsory health insurance is executed by six private not-for-profit national associations of sickness funds and one public sickness fund. All Belgian residents have to be affiliated to a sickness fund of their choice. These sickness funds, which recently changed their names into 'health funds', oversee healthcare reimbursement and are members of the National Institute for Health and Disability Insurance (NIHDI). The NIHDI gives a prospective budget to the sickness funds to finance their members' healthcare costs, including inpatient care, outpatient care, and medical goods, adjusted for the socio-economic and demographic characteristics of their members. Federated entities mainly finance long-term care and preventative care. Since 1995, sickness funds are more financially accountable for the health expenditure of their members. There is some competition between sickness funds with the aim of providing high quality services to their members, and by doing so attract new members.

The public financing of the compulsory health insurance consists of a mixture of social security contributions, alternative financing (value added tax, excises on tobacco and packaging and withholding tax on capital income), government subsidies (from the federal/federated governments), and various small taxes and diverse incomes (e.g. a levy on car insurance and hospital insurance, a levy on turnover of pharmaceutical products, etc.). VHI is used to cover services that are partially or not covered by the compulsory health insurance, such as extra-billings for a single room in hospitals, or medicines or other treatments for which insufficient evidence is available to justify a reimbursement by the compulsory insurance. VHI are provided by non-profit sickness funds and private for-profit insurance companies. Household OOP payments include non-reimbursed services, official co-payments and extra-billings. In 2017, around 22% of patients' OOP payments were related to official co-payments. Official co-payments vary by service and patients with preferential reimbursement status pay lower co-payments. In addition, protection mechanisms exist depending on household income, including a system of maximum co-payments and a threshold of healthcare expenses per year.[23]

There are two main schemes for the compulsory health insurance: (i) the general scheme, which covers the majority of employees, unemployed, retired people, widows, orphans, students, and residents, as well as (ii) the scheme for the self-employed. In both schemes, social contributions are proportional to income level and are independent of health risk. In the general scheme, both employee and employers pay a contribution to the National Social Security Office. Self-employed individuals pay their social contributions to the social insurance fund they are affiliated with, which forwards contributions to the National Institute for the Social Security of the Self-employed.

Table 4 shows the budget share (%) of financing sources of the public health insurance in 2007–2017 and Figure 5 provides a schematic overview of sources of funding and payment flows.

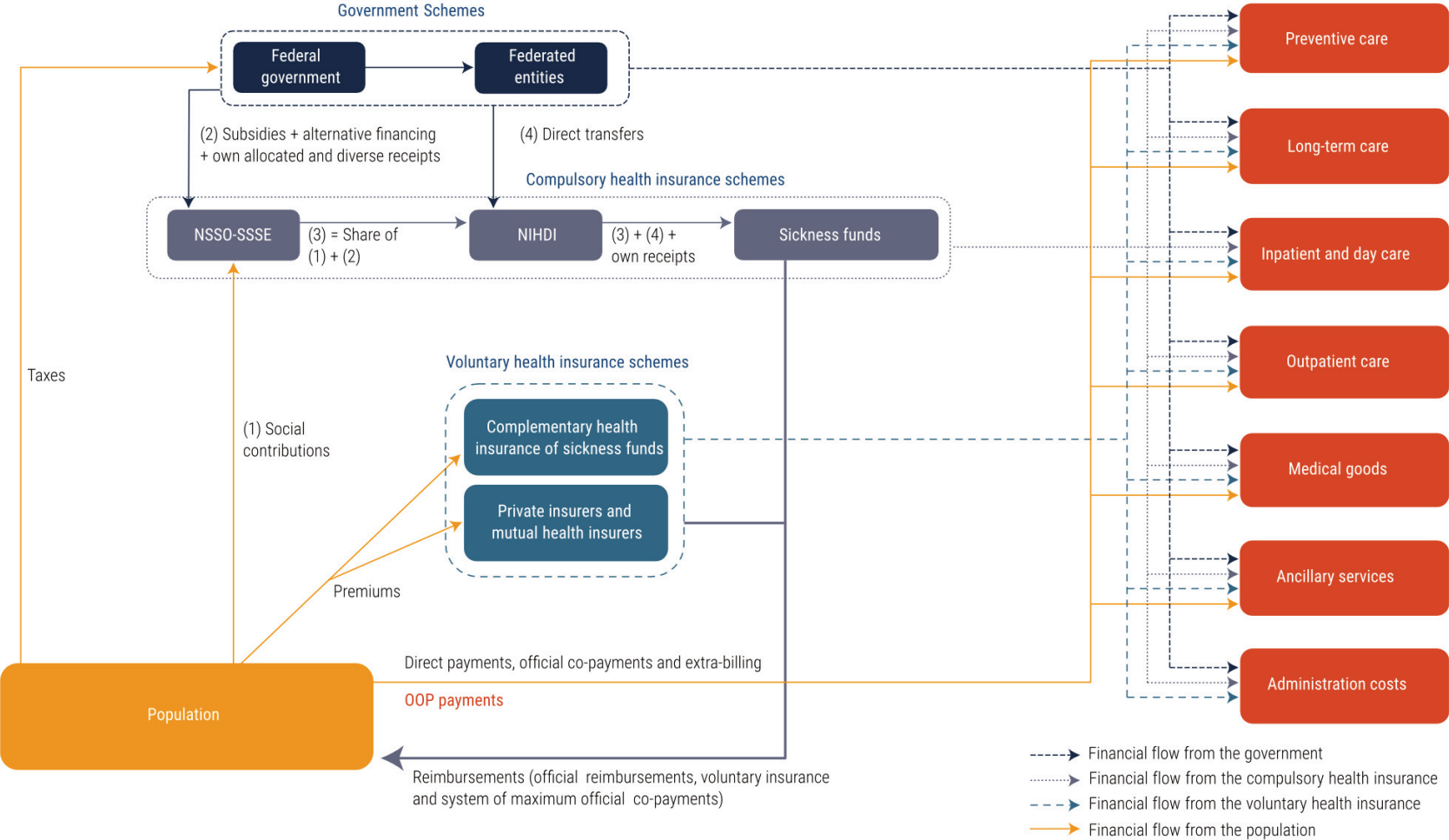
Table 4: Budget share (%) of financing sources of the public health insurance in 2007–2017

	2007	2011	2015	2017
Social contributions	61.5	58.3	57.8	53.7
Employees	18.0	15.3	15.4	14.6
Employers	35.4	30.0	33.2	30.0
Self-employed	3.6	4.3	4.6	4.3
Pensioners	3.2	3.1	3.4	3.7
Special social contribution	1.4	1.2	1.2	1.1
Alternative financing	22.8	31.6	15.5	20.8
Value added tax	18.2	27.7	11.6	17.8
Excises (tobacco and packaging)	3.6	3.0	2.9	0.0
Withholding tax on dividends and interest payments	0.7	0.5	0.7	3.0
Other	0.3	0.3	0.4	0.0
Government subsidies	9.6	9.5	21.2	19.9
Federal government	9.6	9.5	9.5	6.3
Regional governments	0.0	0.5	11.7	13.6
Other receipts	6.0	5.1	5.5	5.6

Other receipts include: a levy on car insurance and hospital insurance, a levy on turnover pharmaceutical products.

Source: [8].

Figure 5: Sources of funding and payment flows



Notes: NSSO: National Social Security Office; SSSE: Social Security for Self-employed; NIHDI: National Institute for Health and Disability Insurance; OOP: out-of-pocket.

Source: [1]

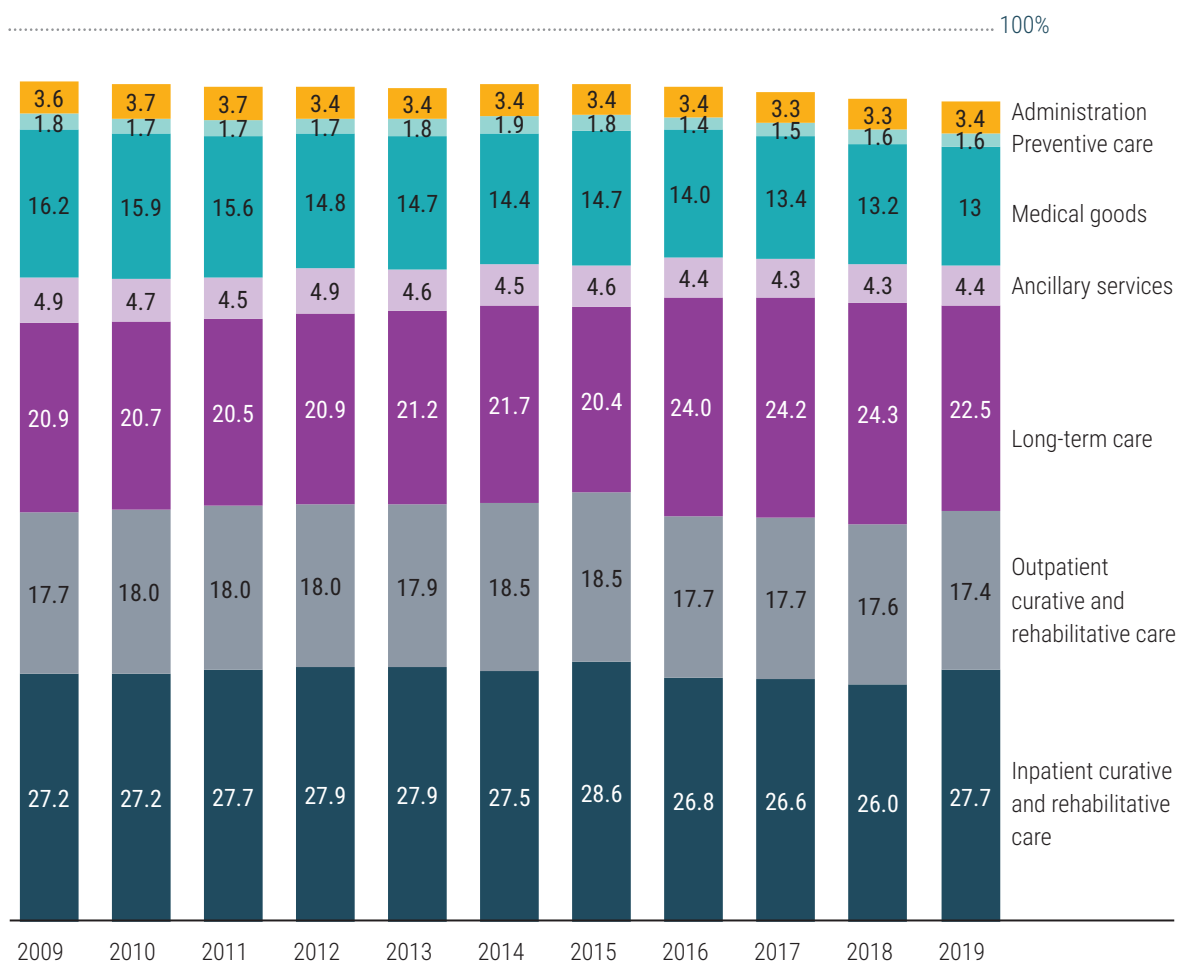
One of the processes in place to diagnose and monitor the fiscal sustainability of the health sector is the assessment of the performance of the Belgian health system including the projections of several indicators.[24] The Study Committee on Ageing (that is established within the High Council of Finance and supported by the Federal Planning Bureau) also makes long-term projections of social spending, including acute and long-term care, up to 2070. Sciensano in cooperation with the NIHDI is conducting a national burden of disease study in order to provide Belgian policy-makers with coherent and comparable estimates of the burden of diseases, injuries and risk factors.[25] The consequential economic and social costs of disease and the broader economic benefits of health to society have not been estimated yet.

Since the 6th State Reform, the financing of the compulsory health insurance became more progressive. The ratio of progressive receipts on total receipts increased from 7.3% in 2007 to 14.1% in 2017. However, the share of proportional receipts (52.6% in 2017) and regressive receipts (26.7%) were still higher than the share of progressive receipts for the financing of the public healthcare system. The share of proportional receipts has however decreased over time from 61.5% in 2007 to 52.5% in 2017 due to the decrease in the share of financing from social contributions. The heavy reliance on social security contributions for health system financing is an important challenge for Belgium, as the workforce participation rate of people aged 55–64 years is low and the proportion of non-working people is growing. In addition, in the last 15 years, the number of workers on long-term sick leave has increased and is currently around 500,000 people! This costs the Belgian social security system (NIHDI) around €5 billion a year.[26] In October 2021, the federal government approved new measures to bring people on long-term sick leave back to work and reduce related costs. Starting in January 2023, companies with a number of employees on long-term sick leave above a certain threshold will face financial sanctions. In addition, the sick pay of employees on long-term sick leave will be cut by 2.5% if they repeatedly refuse to cooperate with procedures (e.g. filling in a questionnaire) helping them return to the workplace.[27] In case of deficits in sickness funds (now “health funds”), the federal government provides a “financial equilibrium contribution” to offset any deficits. Since March 2017, the “financial equilibrium contribution” depends on a set of macro-level accountability factors.

2.1.2. Coverage and resource allocation

Between 2009 and 2019, Belgium’s expenditure on health remained relatively stable across different types of services (Figure 6), with a small increase in spending on long-term care and a small decrease in spending on medical goods. Belgium spent 14% of current healthcare spending on primary health care services (9% on general care and 3% on dental care) and this has also remained relatively constant over the last five years. In addition, the majority of stakeholders noted that Belgium underinvests in prevention. Indeed, Belgium underperforms compared to other European countries in terms of the share of GDP that is spent on prevention. For instance, in Sweden and Finland, 0.36% of the GDP is spent on prevention, compared to 0.17% in Belgium.[28]

Figure 6: Expenditure on health (as % of current health expenditure) according to function in 2009–2019



Note: The division of health expenditure according to the functions defined in the System of Health Accounts is not straightforward and some expenditure on preventive care and long-term care is, for example, included in other functions such as inpatient and outpatient care.

Source: OECD Statistics

The most significant gaps in health insurance coverage are for asylum seekers or undocumented migrants, who are often not covered by health insurance. However, they can benefit from healthcare through other provisions. Although irregular migrants cannot be affiliated with a sickness fund, they can receive care via Urgent Medical Aid. In theory, homeless people have the same rights as the rest of the Belgian population but often access healthcare through hospital emergency departments or non-government organisations due to a lack of a regular address and a reluctance to seek healthcare. A reform is underway to integrate all prisoners into the compulsory health insurance system, rather than having their healthcare covered by the Ministry of Justice.

The percentage of uninsured persons in Belgium is about 1% and was higher in the Brussels region (1.9%) than in Flanders (0.5%) or Wallonia (0.7%) in 2017. Men are slightly less covered than women (98.7% vs 99.3%). The share of OOP payments is higher for dental care, mental care and pharmacy compared with other services. In mental health hospitals, OOP accounted for 31% of current expenditure in 2017 compared to 12% in general hospitals. The rates of catastrophic health OOP payments, which are OOP payments that exceed 40% of the household's capacity-to-pay, were 4.7%,

3.9%, 5.3% and 3.8% in 2012, 2014, 2016 and 2018, respectively. In 2018, the majority of OOP payments are related to medicines (27%), outpatient care (25%) and therapeutic medical products (14%), and the share of OOP payments by type of healthcare has remained relatively stable over time. Catastrophic health OOP payments are unevenly distributed in the population, with a concentration in the 20% of households with the lowest total household expenditure.[29]

Several stakeholders mentioned that, in general, patients have little awareness of the real costs of medicine and health care services. Patient associations reported that it indeed remains difficult for patients to be fully informed about and have access to the different financial benefits they are eligible to, such as sickness or disability benefits, as these are managed by different entities. This poses again a threat to the sustainability of the health system. Patients' eligibility to certain benefits, such as reimbursement of transport costs from home to hospital or consultations with psychologists, varies by disease type.

2.1.3 Paying providers

Most health care services are paid for on a fee-for-service (FFS) basis. The services covered by compulsory health insurance are described in the nationally established fee schedule ("nomenclature") which includes more than 8,000 services.[30] The same national negotiated fee is imposed for services from hospitals or office-based specialists to avoid competition. Approximately every two years, following a negotiation process, the government sets the fees for GPs, specialists and other healthcare providers. However, non-contracted and partly contracted healthcare providers can set their fees freely. Most healthcare professionals, including physicians, dentists, pharmacists, and physiotherapists, are self-employed and paid by FFS. Less than 1% of physicians with a clinical practice are salaried. There exist wide variations in the salaries of physicians by specialty, mainly due to the higher valuation of technical acts compared to consultation acts. Community health centres ('medical houses') with needs adjusted capitation-based remuneration are slowly increasing, from 53 centres in 2003 to 160 centres in 2016.[17] Nurses working in hospitals are salaried, while those providing home care are self-employed or salaried. Home nursing is financed using different payment methods, including lump sum payments and FFS. While FFS generates incentives to provide as many refundable services as possible, and fast acting, little incentives exist to provide high quality care that addresses the needs of patients with chronic diseases.[31] In addition, stakeholders have reported too much rigidity in the nomenclature and a lack of transparency in fees and fee supplements charged by physicians.

In Belgium, physicians can bill fee supplements to patients staying in single rooms. As a large part of the population has a hospitalisation insurance which partly or fully covers fee supplements billed in single rooms, many patients choose a single room, leading to higher fee supplements. Consequently, insurance fees for an insurance policy covering single rooms are likely to become too expensive for many people. Since 2015, the volume of fee supplements has increased and accounted for 18% of official billed fees in 2017, or €563 million. The proportion of fee supplements to the total official billed fees is highest in Brussels and lowest in Flanders. There are also large variations between hospitals in the proportion of stays with fee supplements.[8]

Since 2018, general hospitals can participate in a pay-for-performance (P4P) programme, which grants them a specific budget based on the quality of care they provide. The quality of care is assessed by the authorities using indicators on hospitals' structure, processes and results (i.e. accreditation process, incident notifications, patient experience measurement, clinical processes and outcomes). Since 2019, a lump sum payment, determined prospectively, is paid for hospital stays requiring a standard process of low-complexity care. This payment has been defined for 57 groups of care and is currently only applied to medical providers but will be extended to other resources in the coming years. A few hospitals have also started to implement value-based healthcare models in daily clinical care through the use of digital care pathways.[32] In primary care, some community health centres, such as the community health centre Botermark, have

implemented a community-oriented primary care model.[33] Bundled payment has also been implemented for a group of services for several chronic conditions (e.g. AIDS, haemophilia, chronic fatigue, spina bifida) involving multiple providers, but with poor attention to quality indicators.[34]

Several stakeholders have reported inefficiencies in the functioning of the NIHDI, including a lack of flexibility in budget allocation hence creating silos and an excessive focus on controlling the budget and facilitating negotiations between healthcare providers and sickness funds, instead of optimising health outcomes.

Table 5: Main payment mechanisms of health care providers

Type of care	Payment mechanisms
GPs and medical specialists	Mainly fee-for-service (if working in hospitals, the money is collected by the hospital and then partly transferred to the clinician).
	Rarely salaried (e.g. in university hospitals).
	In community health centres (wijkgezondheidscentra/maisons medicales) with a capitation payment system, GPs are salaried.
Other ambulatory care providers	Mainly fee-for-service.
	In community health centres (wijkgezondheidscentra/ maisons medicales) with a capitation system, healthcare providers are salaried.
Hospitals (acute, specialised and psychiatric)	Fee-for-service for medical and medico-technical services, except for low-complexity care; the collected money is partly transferred to the clinicians.
	Nurses in hospitals are salaried and financed by the hospital budget.
	For clinical biology and medical imaging: mixed financing, including fee-for-service and flat rate per admission and per diem.
	Pay-for-performance programme (only in general hospitals, on a voluntary basis).
Hospital outpatient	Mainly fee-for-service.
Dentists	Mainly fee-for-service.
Pharmacies	Depending on how the pharmacy is organised, pharmacists are either salaried or self-employed. They can also be the owner of the pharmacy.
	For the delivery of reimbursed pharmaceuticals, the community pharmacy is paid per product.
	For certain services (pharmaceutical care) fee-for-service is applied.
Public health services (vaccination, screening)	Depending on how the public health service is organised, people are either salaried or self-employed.
	Depending on the preventive programme, the services are mainly paid by FFS but can also receive budgets.
Social care (social workers)	Mainly salaried.

Source: based on [1].

2.2 Resilience

2.2.1 Preparedness

Belgium does not seem to undertake projections related to the risk of exposure to epidemics/ pandemics or have financial risk-management plans in place to build up reserves or ensure additional public funds can be easily released for use during crises. Yet, during the pandemic, public funds were made available as required. However, with better preparedness and planning of decisions, the size of funds could become more adequate.

One example of excessive focus on efficiency gains and cost-containment pre-COVID-19 ,which might have undermined the system's resilience during the pandemic, were the cuts in healthcare spending between September 2015 and October 2019.[35]

2.2.2 Response

The health system budget evolved substantially in response to the COVID-19 pandemic. A short-term cash advance of €2 billion was given to general and psychiatric hospitals to support hospitals in paying active staff members and invoices from suppliers and service providers on time. To cover spending on tests, personal protective equipment (PPE), triage centre and COVID-19 care provided by nurses, an amount of €1.24 billion was allocated. Resources were also reserved to purchase equipment in hospitals and the long-term care sector at the levels of Communities and Regions.[17]

The initial budgetary target for public spending on health was increased by 7.5% in 2021, from about €28 billion in 2020 to €30 billion in 2021. €400 million were allocated to increase the remuneration of nurses, especially in hospitals. €200 million were allocated to improve access to mental health centres and €500 million to increase the attractiveness of healthcare professions (e.g. better working conditions and well-being). As in 2020, Belgium budgeted an additional €1.22 billion for COVID-19 health responses in 2021.

As the COVID-19 pandemic severely affected long-term care facilities in Belgium, the Flemish government decided to allocate an extra €557 million each year to the long-term care sector, in addition to the €525 million already provided. From this amount, €412 million will be to increase wages for the social and healthcare workforce and €165 million will be used to improve recruitment, digitalisation and infrastructure. Flemish care workers also received each a one-off payment of €300 in March 2021.[17]

To incentivise provision of needed services during the pandemic, new FFS payments were created, especially for extra services for COVID-19 patients, such as triage, consultations, contact tracing and diagnostic tests.[10] New measures were also taken to ensure coverage for vulnerable groups, by providing free access to health services for undocumented migrants for a limited period and allowing self-employed individuals to request a deferral of paying health insurance contributions for one year.

2.2.3 Learning and adapting

One major recent policy initiative which is intended to improve the resilience of the health system through changes to its financing is the current reform of the payment of physicians and hospitals, including fee supplements and the NIHDI nomenclature, initiated by the previous Health Minister pre-pandemic, and led and accelerated by the current one. The financing of consultation acts compared to technical acts is being re-evaluated in order to reduce differences in remunerations among physicians. A recent report by the NIHDI published recommendations on moving from annual to pluriannual NIHDI budgets with health care goals, a long-term temporal dimension, a global dimension centered on the population and the patient, as well as a more transversal

approach, going across primary, secondary and tertiary care (intersectoral and multi-disciplinary) and health care stakeholders (experts, researchers, patients, insurance funds, carers, etc), thereby aiming at breaking traditional silos.[4]

2.3 Recommendations

2.3.1 Sustainability

RECOMMENDATION 2A

Further increase the share of progressive receipts (income tax) compared to the share of proportional (social security) and regressive (VAT) receipts in the financing of the compulsory health insurance

RECOMMENDATION 2B

Increase cost-effective investments in primary and community care and monitor the results of these investments

RECOMMENDATION 2C

Increase the share of health resources/budgets devoted to prevention and early detection, in order to match the level of Scandinavian countries, (e.g. 0.36% of GDP in Sweden vs 0.17% in Belgium)

RECOMMENDATION 2D

Reform the healthcare payment system (from mainly FFS to a larger weight for episode based payments, i.e. per patient per episode of care) to provide appropriate incentives for quality, efficiency and responsiveness of care (ongoing)

RECOMMENDATION 2E

Clarify and monitor the trajectory of the reform of the clinician fees (the 'nomenclature') and the supplements on these fees, and evaluate the consequences of this ongoing reform

RECOMMENDATION 2F

Revise how budgets are allocated between different government levels by accounting for new policies, demographic and epidemiological trends, and social determinants of health, and increase flexibility and transversal thinking in budget pots (ongoing)

RECOMMENDATION 2G

Awaiting further reforms, promote and develop co-financing projects between federal and federated entities, especially for prevention initiatives (e.g. fall prevention)

RECOMMENDATION 2H

Increase the involvement and alignment of government, sickness funds (health funds) and patient organisations in informing patients about their rights, the use of healthcare facilities and their personal assistance budgets

RECOMMENDATION 2I

Centralise patients' access to different benefits (i.e. sickness, unemployment and disability), automatize access to some benefits (preferential reimbursement, maximum co-payments) and improve and harmonise benefits (e.g. reimbursement of transport costs, access to psychologists) across different diseases

RECOMMENDATION 2J

Review decision-making processes on the financing of hospital infrastructures, with more focus on improving quality of care and integration of care, and with more flexibility in investment decisions

2.3.2 Resilience

RECOMMENDATION 2K

Perform prognoses of needed budgets based on the risk of exposure to health shocks, work out different scenarios and adapt budget planning accordingly, thereby ensuring sufficient financial reserves

3. DOMAIN 3
Workforce



3.1 Sustainability

3.1.1 Key data on health workforce

Tables 6 and 7 provide an overview of the key data on the Belgian healthcare workforce and its evolution.

Table 6: key data about the Belgian healthcare workforce

Workforce category	Number per 1,000 population	EU-13 (2018) ^a
Practising nurses (2018)	11.07	8.69 ^c
Practising physicians (2019)	3.16	3.83 ^d
Practising midwives (2018)	0.72	0.40 ^c
Practising dentists (2019)	0.76	0.69 ^e
Practising pharmacists (2019)	1.27	0.85 ^f
Practising physiotherapists (2019)	2.04	1.98
Practising caring personnel ^b (2018)	6.29	8.30 ^g
Percentage trained abroad	%	%
Nurses (2020)	4.11	5.16 ^h
Physicians (2020)	12.70	15.49 ⁱ
Average gross remuneration (2019)	Annual income (€)	Income multiple of average wage
Self-employed general practitioners	117,110	2.49
Self-employed specialists	266,243	5.67
Salaried hospital nurses	69,537	1.48
Average annual wage	46,948	

a EU-13 countries included: Austria, Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, United Kingdom.

b Practising care personnel includes health care assistants in institutions and home-based personal care workers.

c Missing data for Ireland, Portugal and Spain.

d Missing data for Portugal and Spain.

e Missing data for Ireland, Portugal, Spain, Greece.

f Missing data for Greece.

g Missing data for France and Sweden.

h Missing data for Austria, Greece, Ireland, Portugal, Spain.

i Missing data for Greece, Portugal, Spain.

Source: OECD Statistics

Table 7: Evolution of practicing physicians and nurses

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Practicing physicians per 1,000 population	2.92	2.92	2.92	2.93	2.96	2.98	3.02	3.07	3.08	3.13	3.16
Practicing nurses per 1,000 population	9.42	9.59	9.81	10.02	10.3	10.58	10.83	10.96	11.22	11.07	–

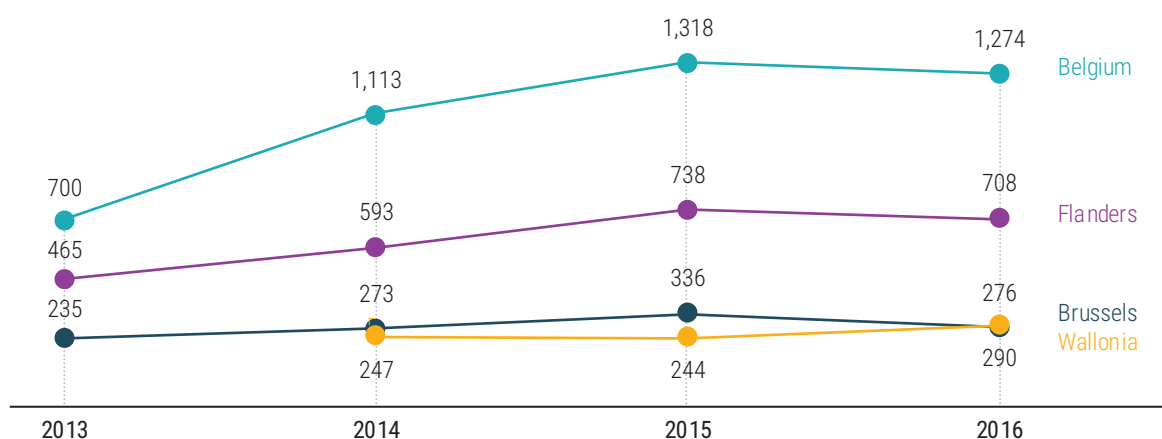
Source: OECD Statistics

The number of practicing physicians in Belgium was 36,343 in 2019 and the number of practicing nurses was 126,496 in 2020. The ratio of nurses to doctors was 3.5 in 2019, which was higher than the OECD average of 2.6. The density of practicing physicians has remained fairly stable between 2009 and 2019 and is lower than the EU average (3.8 per 1,000 in 2018). However, not all countries use the same definition and method to calculate practising physicians. The density of practising nurses within the healthcare sector has increased between 2009 and 2019 and is slightly higher than the EU average (8.7 per 1,000 in 2018). However, the patient to nurse ratio is still amongst the highest in Europe, with a large gap between the (potentially) available nursing workforce and bedside staffing levels in acute hospitals.[36]

The percentage of physicians licensed to practice who are foreign-trained (i.e. with a foreign diploma) increased over time from 4% in 2000 to 12.7% in 2020, which was lower than the average in 10 EU countries (15.5%). In 2015, half came from France (18%), the Netherlands (16%) and Romania (17%). The share of foreign-trained nurses (% of those licensed to practice) increased over time from 0.5% in 2000 to 4.11% in 2020, which was slightly lower than the average in 8 EU countries (5.2%). In 2015, 13% of practising nurses in the French community have foreign nationality (6.6% from France), while only 2% of nurses in the Flemish community are foreign-trained, a rather remarkable difference.

In 2019, the doctor's to average remuneration ratio was 2.5 for self-employed GPs, 2.5 for salaried specialists and 5.6 for self-employed specialists (this figure is an overestimation as practice costs are included). Between 2010 and 2019, remuneration in real terms grew by 1.3% for self-employed GPs and fell by 0.5% for self-employed specialists. The number of nursing vacancies in hospitals increased from around 700 in 2013 to 1,274 in 2016, as shown in Figure 7.

Figure 7: Number of nursing vacancies in hospitals per region in 2013–2016



Source: [37].

The majority of stakeholders mentioned that the education and training of the healthcare workforce in Belgium was of high quality. Physicians also have high autonomy in deciding how to treat their patients.

3.1.2. Critical assessment of the sustainability of the healthcare workforce

The Planning Commission of Medical Supply is responsible for evaluating the needs of the medical workforce and provides non-binding advice on human resource planning to the Minister of Social Affairs and Public Health. The Planning Unit for the Supply of Health Care Professions uses modelling to predict the healthcare workforce's staffing and needs.[1] The workforce planning model is a stock-and-flow model, which takes into account the demand based on the population's medical needs and the evolution of the Belgian population, and the supply of professionals and their demographic and sociologic (e.g. working part time) characteristics.[38] Based on advice from the Planning Commission of Medical Supply, projection scenarios and stakeholder consultations, a system of quotas for physicians and dentists in Belgium has been established, including a stratification by community (sub-quotas). Federated entities manage sub-quotas by creating their own planning commissions.

Belgium's healthcare workforce is getting older and the country has one of the highest proportion of physicians aged 55 years and above (44% in 2018 vs 33% in EU-15). In response to concerns about shortages of doctors, the number of medical graduates has more than doubled between 2009 (around 850) and 2019 (around 2,000). However, local and regional shortages of GPs persist, especially in the south of the country and regions with lower population density. In 2018, 52% of GPs were aged 55 years and above. The ageing of GPs is especially worrying as not enough new graduates choose to become GPs.[8] To increase the attractiveness of the GP profession, a range of incentives were implemented throughout the country, including interest-free loans, an installation fee and extra budget for administrative help and medical secretaries. Despite these efforts, the progression remains slow and the share of medical graduates becoming GPs two years after the diploma (as a % of all medical specialties) increased from 25% in 2010 to 31% in 2016, which is lower than the 40% target set by the Planning Commission. Between 2021 and 2026, the absolute number of GPs is expected to increase by 3%. However, based on the assumption that more women than men will become GPs and that on average their share of active time is lower overall, the number of full-time equivalent GPs is expected to decrease slightly during this period. More generally, the new generation of physicians value their quality of life more and are willing to work less hours than older generations. In June 2022, the Federal Minister of Health proposed a "new deal" for GPs to find a solution for shortages of GPs.[39]

There is a lot of variation in the density of practising nurses in Belgium (range: 6.5–14.7 per 1,000 inhabitants) depending on the province. The shortage of nurses is larger in the province of Luxembourg than in other provinces, because the neighbouring Grand Duchy of Luxembourg offers more attractive wages. Belgium has one of the highest number of hospital patients assigned to one nurse in Europe, with an average of 9.4 patients assigned to one nurse in general hospital units in 2019.[36] In general, the security of patients is not ensured above 8 patients per nurse. One of the frequently cited reasons for the low retention rate of nurses is the stressful nature of the work.

Several stakeholders pointed indeed out that currently nurses are overburdened by administrative tasks, often imposed by the accreditation systems, preventing them from focusing on actual nursing tasks and spending time with their patients. In addition, part-time work is much more frequent in the healthcare sector compared to other sectors (47% vs 22%) in Belgium and is more problematic in small services or highly specialised services. While the density of nursing graduates in Belgium is above the EU-13 average (50 vs 42 per 100,000 population in 2015), a substantial proportion of foreign students in the French Community usually leave Belgium after the end of their studies.[8] In addition, many nurses work 5 to 10 years, after which they tend to change careers. One of the stakeholders mentioned that the increasing proportion of foreign-trained nurses over time in Belgium comes with some challenges, as the language barrier of some nursing staff in Flemish hospitals leads to misunderstandings and possible medical errors.

A review of task shifting ('skill mix') in primary care in EU countries found limited task shifting for nurse practitioners in Belgium.[40] Since the enactment of a new Belgian law in 2016, task-shifting has been made easier, as professions are described in terms of competences, rather than a list of interventions that can be undertaken, as was previously the case under the Belgian 1967 Royal Decree on health professions.[40] However, the corporatism of healthcare workers in Belgium prevents more flexibility. Indeed, by defending their own profession, some healthcare workers are tempted to block the possibility for others to perform similar tasks as themselves.

3.2 Resilience

3.2.1 Preparedness

Prior to the pandemic, Belgium had developed "medical care reserves", which enabled the deployment of a pool of inactive workers to help support the COVID-19 response with fewer administrative barriers.[41] However, during the COVID-19 pandemic, a lack of nurses with ICU expertise caused difficulties in increasing ICU bed capacity.[17]

Nursing homes were already in a precarious situation in terms of human resources before the pandemic, and this became a major problem during the pandemic. Staff absenteeism rate was high due to fear of becoming infected or due to sick leave. Staff knowledge and skills on hygiene and infection prevention and control were inadequate with a lack of continuous training, and confusion existed around roles of workers during this type of crisis.[42] In addition, despite their essential role and the risks involved, technical staff (e.g. cleaning, cooking, logistics) were not included in health recommendations, protocols or information sessions. As staff in nursing homes were faced with extreme working conditions and increased psychological issues, healthcare workers from hospitals with a lower volume of work in non-COVID units provided support and the NGO "Doctors Without Borders" provided 135 nursing homes with training on fighting the epidemic.

3.2.2. Response

Belgium established several strategies to scale up workforce capacity during the pandemic, including: mobilisation of health workers to other geographic areas or health facilities with greater need, reassignment of healthcare workers from the armed forces, mobilisation of inactive or retired health professionals, relaxed rules or visa extensions for foreign-trained health professionals, financial compensation and child care for healthcare professionals when schools were closed.[43]

During the pandemic, a fast-track training for physicians usually working in units related to intensive care was organised by 15 of the 62 hospitals that participated in a survey reported by the KCE, yet only 9 of them relied on these physicians to work in ICU.[21] Similarly, a fast-track training for physicians working in general units was organised in 14 hospitals, with only 9 using them in ICUs. These types of training were much more common in Flanders than in Wallonia or Brussels.

Nurses who had expertise in intensive care, such as in emergency departments, recovery rooms or operating theatres, were asked to work under the supervision of ICU nurses. Further strategies to increase the number of nurses with ICU expertise included cancelling holidays, providing ICU training, recruiting temporary nurses, increasing the number of patients per nurse, mobilising nursing teachers or nurses working in other sectors and transferring nursing tasks to available physicians.[21] Only 10 hospitals in Belgium deployed students. Small hospitals (<200 beds) were more likely than larger hospitals to rely on nurses from general units, students and former nurses.

The wellbeing of staff and staff absenteeism were major concerns for hospitals during the pandemic. According to the 'Power to Care' national survey by Sciensano and KULeuven, mental health conditions among care workers increased during the COVID-19 pandemic (December 2020, March 2021, July 2021) compared to before the pandemic, with a larger impact on staff who worked with COVID-19 patients.[44] Healthcare professionals mentioned that symptoms of chronic stress

(i.e. fatigue, being under pressure, not being able to relax enough, sleep deprivation, concentration difficulties), physical problems (i.e. muscle and joint pain, headache, stomach problems), and acute stress (i.e. hypervigilance, anxiety) were strongly to very strongly present during all survey waves. High symptom levels were still reported 20 months into the COVID pandemic (September 2021). The proportion of staff wanting to leave the profession increased gradually, from 10% pre-COVID to 22% in December 2020, 19% in March 2021, 22% in June 2021 and 28% in September 2021. Another study reported that the prevalence of risk of burnout was around 36% for nurses before the pandemic and increased to 70% amongst 4,500 French-speaking nurses in April 2020.[45]

Recently, the medical recruitment firm Express Medical reported that four out of ten nurses and caregivers are considering leaving their profession.[46] 27% of the 1,153 sampled workers mentioned the health crisis as the reason and 52% mentioned a lack of appreciation. However, half of these healthcare workers said that they felt more valued in their work in April 2022 compared to 2019. It's clearly important to monitor this closely and to take urgent measures for improving wellbeing at work in the health sector.

No data is currently available on the number of doctors, nurses and care workers who contracted COVID-19 at work or died of COVID-19. This lack of data can be considered a strong sign of poor resilience. Sciensano reported that around 600 healthcare staff were hospitalised due to COVID-19 (until June 2020) and that the seroprevalence among hospital healthcare workers was slightly higher than that of the general Belgian population between April and December 2020.[47, 48] Furthermore, data on absenteeism showed that a high number of nursing homes suffered from staff shortages due to COVID-19 infections among staff members.[18].

3.2.3 Learning and adapting

An example of workforce adaptation (e.g. in skill mix) that has emerged from the response to COVID-19 in Belgium is the training of volunteers (often with a healthcare background) from the public to administer vaccines and the involvement of personnel outside the health workforce in nonmedical tasks such as check-ins, taking vitals, paperwork and monitoring recovery after vaccination. Medical students were also recruited to administer vaccines. When providing specialist outpatient care, non-nursing professionals performed nursing tasks if supervised by a coordinating nurse.[10] In addition, during the pandemic, a new law was passed on November 4th, 2020, allowing a more flexible allocation of medical tasks and competences across healthcare professionals, such as performing COVID-19 tests. However, this law was only applied until July 1st, 2021 and thus this adaption was not retained post-crisis.[49] This can be considered as a missed opportunity for the sake of both sustainability and resilience.

In June 2020, as part of the "White Coats Fund", €320 million were allocated to enable more salaried nurses, healthcare assistants and supporting staff at home or in hospitals to be hired, €35 million to strengthen training and €48 million to improve the employment of independent nursing staff.[50] A budget of €600 million was also allocated to the improvement of working conditions (mostly salary) for nurses.

Since the pandemic, Flemish hospitals and residential care centres are often forced to reduce the range of care provided due to staff shortages. These shortages are more prevalent in urban areas and peripheral rural areas. More than 80% of general hospitals surveyed by an overarching Flemish care organisation reported in 2022 that they have already or will in the near future phase out certain activities, and that they are closing beds, especially in the services of geriatrics, rehabilitation, intensive care, surgery and the diagnostic and treatment centers.[51] More than 50% of hospitals are forced to rely on more expensive interim staff to fill the positions of nurses and other care providers. Three quarters of hospitals also rely on project nurses, who are recruited through an interim office but for a much longer period of time and are more expensive than regular interim nurses. Half of the 184 residential care centres surveyed indicated that they do not succeed in meeting their personnel standards. One in two centres rely on interim staff, almost one in three on project employees and one in five have to work with employees on a self-employed basis.

3.3 Recommendations

3.3.1 Sustainability

RECOMMENDATION 3A

Protect better the physical and mental wellbeing of health and social care workers, by systematically and regularly collecting and monitoring data on their wellbeing, improving working environments to reduce stress and sustain engagement, and increasing access to psychological support services

RECOMMENDATION 3B

Continue the efforts made to increase the number of medical students who specialise as GPs by making the GP profession more attractive (e.g. for by lowering the administrative burden), and value better the GPs' central role in the network of healthcare professionals

RECOMMENDATION 3C

Revalue/upgrade the nursing profession by lowering the administrative burden, recruiting more administrative support staff, investing in training and research on the nursing profession, and increasing the ratio of nurses per hospital bed

RECOMMENDATION 3D

Promote greater task-shifting, and task differentiation ('skill mix') and increase autonomy through greater flexibility in description of competences and work schedules, and by including collaboration between different healthcare professions throughout their training

RECOMMENDATION 3E

Invest more in new healthcare professions (e.g. patient case manager, physician assistant, oral hygienist), who can take over tasks from other healthcare providers

RECOMMENDATION 3F

Promote the greater use of cost-effective and sustainable technology to support healthcare workers and allow them to focus more on patients

3.3.2 Resilience

RECOMMENDATION 3G

Invest in continuous practical training, including prevention and control of infections, of workers in nursing homes and create mobile care teams that can be deployed quickly when help is requested from nursing homes

RECOMMENDATION 3H

Increase the number of community health workers and build on the community work that has been developed during the COVID-19 pandemic

RECOMMENDATION 3I

Invest in more internal medicine specialists, as well as in ICU expertise for healthcare workers usually not working in ICUs

RECOMMENDATION 3J

Develop a real-time data portal to match the demand for healthcare staff with staff availabilities

4. DOMAIN 4
**Medicines
and
technology**



4.1 Sustainability

4.1.1 Adoption of health technologies

New health technologies authorised nationally or at the European level must go through a centralised process of health technology assessment (HTA) in several stages to be reimbursed by the social health insurance. The reimbursement procedure for new medicines is performed by the Commission for the Reimbursement of Medicinal Products (CRM) within the NIHDI.[52] This Commission includes healthcare providers, insurers, academics, ministry representatives and industry organisations (the latter two have no voting rights). The reimbursement application must be submitted at the same time as the pricing application, which falls under the responsibility of the Minister of Economic Affairs.

The CRM formulates a recommendation on reimbursement to the Minister of Social Affairs and Public Health within 150 days. Recommendations for reimbursement are based on five evaluation criteria: the added therapeutic value, the price and the proposed reimbursement basis, the importance of the medicine in medical practice in terms of therapeutic and social needs, the budgetary impact for the health insurance, and the ratio between the costs for the insurance and therapeutic value. When an added therapeutic value is claimed, a cost-effectiveness evaluation is required.[1] The recommendation will inform the Minister's final decision, which needs to be taken before day 180. If a decision is not received by a pharmaceutical company within 180 days, the application for reimbursement is automatically accepted. Managed entry agreements can be concluded at the applicant's request, in case of clinical or economic uncertainty, for some legally defined pharmaceuticals and under other specific circumstances. Several health system stakeholders reported that market access and reimbursement procedures for new medicines or health technologies are long, rigid, opaque, and unpredictable. The approach taken by NIHDI to evaluate new medicines and health technologies is perceived by many as too budget focused with a lack of emphasis on the economic value of a new treatment for society overall. Currently, a reform of the CRM is ongoing with a specific focus on managed entry agreements.[53]

Regarding medical technologies other than medicines, beMedtech, the Belgian association of Medtech producers, listed priorities for policy making that go in the same direction as those for medicines: simplification of the reimbursement system; faster reimbursement for innovative products; a transversal approach (not thinking in terms of budget silos), a value-based procurement of Medtech, and improved dialogue between authorities and the sector.

The Belgian Health Care Knowledge Centre (KCE) also performs HTAs, based on their own selection, which are made public. However, the KCE is not involved in policy decisions nor their implementation, including the reimbursement decision of health technologies.[1] Belgium does not have an official threshold value for the incremental cost-effectiveness ratio, yet a threshold based on gross domestic product per capita is often used and formally cited in some dossiers (€40,000 per Quality Adjusted Life Year gained). Several arguments can be made for making thresholds more formal, and modulated in function of the burden of disease and financial impact of the technology/medicine preventing or treating the disease.[54]

The Federal Agency for Medicines and Health Products (FAMHP) ensures – from development to use – the quality, safety and efficacy of medicines for human and veterinary use, of health products, including medical devices and accessories, and of raw materials for the preparation and production of medicines. Based on recommendation from the FAMHP, the Minister for Social Affairs and Public Health is responsible for market authorisation, which is initially valid for 5 years and if renewed is valid indefinitely. Manufacturers must undertake a conformity assessment of medical devices and aids before placing them on the market. For devices considered higher risk, a notified body needs to perform the conformity assessment and a certificate is needed.

Publication in the official national journal of the SPF Justice (le moniteur Belge) is required for final market access of a medicine, which can add a delay of two to three months on top of the pricing and reimbursement period. A few stakeholders mentioned that FAMHP and NIHDI are understaffed in this domain, representing an obstacle for the fast adoption of new medicines and health technologies.

In Belgium, the time between market authorisation and the first (reimbursed) use of medicine is one to two years. One study reported that in 2010–2014, for a sample of 24 cancer medicines that obtained marketing authorisation, the expected time between EU-wide marketing authorisation and first (reimbursed) use of a medicine in Belgium was 14.8 months.[55] The EFPIA W.A.I.T indicator 2021 survey published in April 2022) shows that time to availability – i.e. the days between marketing authorisation and the date of availability to patients – in Belgium amounts to 534 days. With this score, Belgium ranks 23rd in the 39 countries included.[56] The difference in the median time to availability for all medicines compared to orphan drugs is small in Belgium (2015–2018).[57]

In 2016, a convention stated that the use of biosimilars should be considered in the same way as the original biologicals medicine because of equivalent efficacy.[58] Since April 2019, accredited physicians prescribing outpatient biosimilars receive a premium and hospitals can only invoice originator biologicals for which a biosimilar exists at 85% of their price. The share of biosimilars out of the consumption of biologicals in Belgium increased from 0% in 2008 to 5.71% in 2017.[8] In 2019, market shares for most biosimilars in Belgium remained low, namely below 20%.[59]

Physicians are encouraged to prescribe a certain quota of low-cost pharmaceuticals in the ambulatory setting, which was between 38% and 91% depending on the specialty in 2018.[60] Since 2015, the definition of low-cost medicine changed and only applies to the three cheapest versions of a drug. Since April 2019, the low-cost prescription also applies to outpatient pharmaceuticals delivered by the hospitals in outpatient care. The inspections service of the NIHDI checks that physicians reach the minimal quotas.[61] The proportion of low-cost Defined Daily Doses prescribed in the ambulatory setting increased from 49.1% in 2015 to 53.8% in 2017.[1] The aim of stimulating biosimilars is twofold: to make budgets available for other healthcare needs and to encourage new innovations.

The share of generic medicines in Belgium in 2020 was 38.8% in public pharmacies and 18% in hospitals. Although the share of generics (volume) in the total pharmaceutical market in Belgium has increased over time from around 23.5% in 2010 to 35.1% in 2020, it is lagging behind compared to other EU countries.[62]

Belgium has different price reduction systems in place for old pharmaceuticals. The patent cliff reduces the ex-factory price of a drug by 44.75% when a less expensive pharmaceutical (generic or copy) enters the market. For molecules which are 100% reimbursed the price decrease is 51.52%. A mandatory price reduction also applies when an active ingredient has been reimbursed for 12 years and lost patent protection. The price decrease is minimum 19.75% and maximum 33.97% depending on the total annual turnover of the molecule. This is called old drugs cliff or volume cliff. For biological products, an additional price reduction of 20% applies when the active ingredient has been reimbursed during 12 years and lost patent protection. This price decrease is independent of the availability of a biosimilar. However, if a biosimilar becomes reimbursed before this period, the price decrease has to be done before the 12 years of reimbursement (the biocliff).[1]

4.1.2 Digital health

In 2008, Belgium initiated the establishment of an eHealth platform to allow the electronic exchange of secured data between different health actors. Belgium has had two consecutive eHealth Plans (2013–2018 and 2019–2021), the objectives of which were to develop data exchanges between healthcare providers, increase patient involvement and knowledge about eHealth and simplify administrative procedures. Since 2016, Belgium has invested €80 million annually in an accelerator

program to have electronic health records (EHR) for every hospital bed in the country by 2022. At the beginning of 2019, EHR were implemented in only 15% of general hospitals and 75% used electronic prescriptions. In May 2019, 26% of licensed physicians and 40% of dentists used electronic prescriptions. Since January 2020, it is compulsory to offer digital prescriptions.

GPs, nurses and physiotherapists receive an extra lump sum when they are using an approved software to manage their patients' medical records for some specific conditions. Since the launch of MyCareNet, a digital platform linking patients, healthcare providers and sickness funds, the proportion of GPs using electronic Global Medical Records (GMR) has increased from 16% in the first semester of 2016 to 58% in the third trimester of 2018.[8] The percentage of persons who have a GMR with a GP was 67.5% in 2016, with higher coverage among older individuals and individuals living in Flanders (76.4%) compared to those in Wallonia (57.1%) or Brussels (49.3%).

Despite the initiation back in 2008, there is currently no centralised system for pooling the health data collected and stored by individual healthcare players in Belgium. Data from EHR are mainly unstructured and vary between regions and healthcare providers. There is weak interoperability of EHR across primary, secondary and tertiary care settings. Thus, access of data for research, for instance for assessing rational use, is slow and complex and lacks overarching coordination and well-defined governance rules, hence compromising sustainability.

Since 2014, patients can use their electronic identity card (eID) when attending pharmacies, hospitals or other healthcare providers. Thanks to each patient's unique national identity number, healthcare providers have access to patients' health insurance data via MyCareNet. Since 2018, patients can access medical and administrative personal information and all health-related information on an online portal called "Masanté" or "mijngezondheid". Patients' consent is required for healthcare providers to access patients' personal health information.

As part of the 2019–2021 eHealth plan, an annual survey called the eHealthMonitor was established to measure the general population and health care provider's awareness regarding the use of eHealth applications. Findings from this survey showed that before the COVID-19 crisis, eHealth was not yet fully integrated in the Belgian healthcare system and that healthcare providers and citizens lacked knowledge about the possibilities of e-Health. Healthcare providers tended to be dissatisfied with the digital exchange of medical data and continue to exchange through writing or by telephone. Little use of so called national (Myhealth) or regional (e.g. "My Health Viewer" and "Vitalink" for Flanders, "Réseau Santé Wallon" for Wallonia, and "Réseau Santé Bruxellois" for Brussels) online health portals was made by citizens. Through these health portals patients can gain insight into various personal health data, as well as more general information on health.

Until March 14th, 2020, video consultations were not reimbursed by the compulsory health insurance. During the COVID-19 pandemic, NIHDI started temporary reimbursement of teleconsultations to replace face-to-face consultations. Reimbursement of teleconsultations was done in several different ways: (i) new reimbursement codes with a corresponding reimbursement, typically without out-of-pocket payments from the patient, (ii) existing reimbursement codes using the usual reimbursement rules, (iii) existing reimbursement codes using the usual reimbursement rules with the declaration of a special code for care at a distance. The KCE reported that there was no evidence of negative effects of video consultations on the health of patients with chronic somatic disease and concluded in favour of video consultations.[63] The effects on health care providers were also assessed and indicated that there were not many advantages of video consultations compared to face-to-face consultations.

"mHealthBelgium" is the platform for mobile applications that are CE-marked as a medical device and is an initiative of the Federal Government with the involvement of multiple stakeholders. beMedTech and Agoria (trade association representing companies active in the technology sector) are responsible for the full implementation and execution, in cooperation with 3 national authorities: the FAMHP, the eHealth Platform and NIHDI. This platform centralises relevant and necessary

information for patients, healthcare professionals and healthcare institutions, and is constructed around a validation pyramid with 3 levels. The FAMHP is responsible for level M1, which includes the CE certification of a mobile app as medical device, voluntary notification of the mobile app at the FAMHP, and the GDPR compliance of the application and the mother company. The eHealth Platform, which is the federal eHealth organisation building the infrastructure for information exchange in healthcare, is responsible for level M2. To reach level M2, applications must perform a risk assessment on compliance with security authentication rules and be tested on basic services of the Federal eHealth Platform, if connected to other health systems. The NIHDI is responsible for level M3, which is reserved for applications financed by the NIHDI. This financing is based on proven clinical and health economic benefit, and is also available for promising technology needing temporary financing to collect data. However, the M3 level is currently underachieved. The NIHDI is currently actively working on improving processes to obtain level M3.

Inequalities in the use of digital health exist in Belgium, with higher use in Flanders (42%) than in Brussels-Capital (30%) or Wallonia (21%). The use of digital tools for health was higher among younger individuals and individuals with higher levels of education than those with lower levels.[64, 65] However, the use of health portals was highest for individuals with a low education level and lowest for individuals aged below 25 years.[65] No current measures are in place to prevent the “digital divide” from widening health inequalities.

NIHDI launched the Virtual Integrated Drug Information System (VIDIS) project in 2019–2021, which aims to organise and stimulate the sharing of data and information between all parties involved in the drug process: the patient and his family, outpatient care providers among themselves (doctors, pharmacists, etc.) and outpatient and hospital care providers. As the VIDIS project is still being implemented, it has not yet been evaluated.

4.1.3 Research and development

Belgium has very good domestic research and innovation capacity for developing new drugs, devices and other medical technologies, as the bio-pharmaceutical industry is one of the leading sectors in the Belgian economy. In 2020, more than 125 companies and around 40,464 people worked in the bio-pharmaceutical sector.[66] Belgium is a leading exporter of biopharmaceutical products (€56 billion in 2020) for the European market and worldwide. The Belgian chemicals and pharma sector is the largest investor in R&D in the European Union, with an R&D intensity of 17.7% (the ratio between R&D expenditure and added value).[67]

Belgium also invests heavily in the development of innovative medicines. In 2015, the acting Minister of Social Affairs and Public Health and the pharmaceutical industry signed an agreement called ‘The Pact of the Future’, which commits to: improved accessibility to innovative medicines for patients; growth and innovation in pharmaceutical R&D; increased transparency in interaction between industry and healthcare providers; and clear and sustainable budgetary agreements.[68] Belgium stimulates research and development through fiscal measures and fast regulation of clinical trials. Belgium has the fastest approval periods for Phase 1 studies in Europe, namely 15 days for monocentric trials and 28 days for all other trials. Since 2020, the two approval circuits required for clinical trials to start – approval of the Minister via FAMHP and approval of an Ethics Committee, were merged into one single decision. In 2019, Belgium approved 526 clinical trials applications, 80% of which were initiated by the private sector.[69] Furthermore, the presence of leading universities, research centres and academic hospitals in close proximity creates a favourable climate for innovation. However, as previously mentioned, the speed of adopting (i.e. reimbursement) new health innovations remains slow.

The KCE also has a programme (‘KCE Trials’) of publicly funded, non-commercial, practice-oriented clinical trials focused on current standards of care. These trials address questions that are generally not studied by the industry, despite their high social importance.

4.2 Resilience

4.2.1 Security of supply

At the start of the pandemic, there was a shortage of face masks and testing material, because millions of masks had reached their expiry data and the stock had only been partly replenished.[17] Admittedly, it was not clear to which extent face masks would be beneficial. There was a lack of personal protective equipment (PPE) during several weeks in nursing homes, including FFP2 face masks and lab coats.[42] Between March 2020 and June 2021, a strategic stockpile was built and its content was determined based on the advice from the consultative bodies of each healthcare profession.[11] Belgium remains dependent on the global market for medical supplies, possibly affecting resilience negatively.

However, Belgium participated in EU Joint Procurement Agreement for medical countermeasures, including PPE, COVID-19 vaccines and treatments. On January 11th, 2021, Belgium became a new host country for RescEU medical supplies, and now hosts the common European stockpiles of lifesaving medical equipment.[70]

In response to the shortage of reagents and disposables at the beginning of April 2020, a federal testing platform was developed to increase testing capacity. Furthermore, an important number of clinical microbiology laboratories were certified between March and May 2020, which significantly increased the number of tests performed.[71]

Currently, the Belgian healthcare sector is not sufficiently prepared for the risks of cyber-attacks and hospitals do not all have cyber defence mechanisms in place. For instance, on May 13th, 2022, the Belgian healthcare company Vivalia was the victim of a huge ransomware attack, involving 400 gigabytes of patient information and paralyzing computer systems for several months. This cyber-attack severely disrupted the functioning of seven hospitals and six nursing homes in the province of Luxembourg.

4.2.2 Treatment and vaccination roll-out

Belgium's pharmaceutical and medical industry played a leading role in the development of COVID-19 vaccines and treatments.[69] During the pandemic, the FAMHP developed a fast-track procedure to stimulate clinical research on COVID-19. This procedure allowed the FAMHP to obtain approval within a maximum of four working days for clinical trials of drugs for treating or preventing COVID-19.[69] In addition, at the start of the COVID-19 pandemic, a "clock-stop" measure was implemented to suspend the binding deadlines of the reimbursement procedure until April 1st, 2021 specifically for COVID-related treatments.

The vaccination campaign started rather slowly in Belgium in late December 2020 but accelerated quickly from April 2021. The federated entities were responsible for the practical organisation of vaccination. Vaccination centres were established throughout the country and a system of vaccination priorities was implemented. Age and underlying medical conditions were considered when identifying priority patients. The federal task force identified priority patients using a database, which was set up and updated by general practitioners. To vaccinate a maximum number of people as fast as possible, Belgium squeezed six doses of Pfizer vaccine out of each vial officially containing five and stretched the time between doses for each of the two-shot vaccines to their medically prescribed maximum.[72] The proportion of the population that received two doses by August 2021 was much higher in Belgium than the EU average (70% vs 55%). In contrast to several other countries the level of SARS-CoV-2 antibodies of a person was not taken into account in the recommendations about the need for vaccination. Vaccination rates varied regionally, with higher rates in Flanders (78%) than Brussels (50%). Starting in March 2022, pharmacists were also able to administer vaccines.

4.2.3 Digital technologies

During the COVID-19 pandemic, new regulations were introduced to promote the use of telemedicine, as well as new conditions for the reimbursement of teleconsultations. Physicians could perform teleconsultations without prior contact with the patient, and reimbursement was set at €20 per COVID-19 teleconsultation.[17] The NIHDI also started a pilot project in which healthcare providers could follow up COVID-19 patients via telemonitoring. The target population was patients with a positive COVID-19 test and mild symptoms and/or risk factors, who presented to the emergency department or to their GP. Hospitalized patients with COVID-19 could also be followed-up via telemonitoring upon discharge from the hospital.

To avoid the shortage of regular 112 or emergency services resources and limited availability of staff, a digital platform was developed at the initiative of the Belgian professional association of ambulance services (Belgambu) and the PFS Public Health. This platform's aim was to efficiently answer to requests for support from the emergency centre 112 by providing additional support from the ambulance services.[11] The platform was not activated in the end, as outages were limited and the shortage of regular 112 resources was primarily met by deploying the resources of the Red Cross. Nonetheless, the platform could still be useful in the future to organise non-urgent patient transport, and perhaps for future crises. As part of an EU funded project, an artificial intelligence software to help identify COVID-19 infections through computerised tomography scans was piloted in selected Belgian hospitals starting in May 2020.[73] On September 30th, 2020, Belgium launched their contact tracing application "Corona-alert" to help stop the spread of coronavirus. Belgium also used digital health tools during the rollout of the vaccine, such as the QVAX app to sign up for a vaccination waiting list.

During the pandemic, Belgium lacked real-time data to nationally monitor hospital capacity (e.g. beds, equipment, staff), and patient characteristics and outcomes.[21] Sciensano provided real-time data on Belgium's COVID-19 epidemiological situation, including vaccination, cases, hospitalisations, deaths, and tests. An openly accessible interactive dashboard was created with most figures updated weekly. This dashboard was useful in providing insights into the dynamics of the epidemic, anticipating different scenarios, and elaborating possible measures to curb the spread of this virus. However, there were some pitfalls regarding epidemiological surveillance in nursing homes. As Flanders and Wallonia have their own data collection systems, nursing homes had to subsequently report their results into the federal system managed by Sciensano, which impacted the efficacy and efficiency of the surveillance system. Nursing homes in Brussels and the German-speaking community entered their data directly into the central system.[71] Furthermore, as the information that was required from nursing homes was not always clear to the managers, they did not systematically report it. Some nursing homes also complained about a lack of transparency and sharing of epidemiological surveillance data, which prevented them from understanding their situation and to make adequate operational decisions. Furthermore, one of the stakeholders mentioned that the death certification system varies by region and is not automated, which means it takes up to two years for the data quality checks to be performed and for data on causes of death to be made public.

4.2.4 Learning and adapting

Starting on August 1st, 2022, a new temporary regulation for teleconsultations was established which replaced the temporary regulation implemented during the pandemic.[74] Each year, up to four telephone consultations and four video consultations per patient per physician can be reimbursed. Only consultations with a physician with whom the patient had previous in-person contact or consultations that were referred by another physician will be reimbursed. Currently, a scientific group is elaborating a new permanent regulation regarding the organisation and financing of teleconsultations.[74]

The government is also planning to establish a Health Data Agency to ensure healthcare data are available for the management of healthcare services, health research, product creation and political support. This initiative is aligned with the European Health Data Space project. Furthermore, a working group is working on a Belgian Integrated Health Record (BIHR): electronic file with longitudinal follow up and with "integration at all levels" which should empower patients and caregivers to better manage health data and improve the quality, efficiency and continuity of care.

Furthermore, Belgium's Recovery and Resilience Plan allocated around €40 million out of €100 million investments in the health sector to eHealth services and health data. The 4th version of the eHealth Plan for 2022–2024 is currently being drafted.

4.3 Recommendations

4.3.1 Sustainability

RECOMMENDATION 4A

Develop an ambitious system for country wide data integration and better regulate the interoperability of Electronic Health Records (EHRs) across healthcare providers (including nursing homes) and government systems (ongoing) and invest in IT support specialists and data scientists

RECOMMENDATION 4B

Automate and harmonize the extraction of data from medical records and hospital systems (e.g. number of available ICU beds) for quality improvement and research purposes

RECOMMENDATION 4C

Invest in digital skills for patients and healthcare workers to increase the use of cost-effective eHealth services and ensure that the digitalisation of health system remains inclusive by keeping a physical/in-person support option

RECOMMENDATION 4D

Maintain the high-quality research and medical and biopharmaceutical ecosystem to encourage valuable innovation in healthcare

RECOMMENDATION 4E

Improve the pricing and reimbursement process of new medicines and health technologies (transparent processes and criteria) and adopt a value-based approach

RECOMMENDATION 4F

Monitor better the appropriate use of innovative medicines and health technologies and their effect on patient outcomes in the real world using dashboards

4.3.2 Resilience

RECOMMENDATION 4G

Develop or increase the stock of essential medicines and medical supplies, based on a list of those that should always be available (according to a risk-based approach)

RECOMMENDATION 4H

Develop a resilience plan in the face of a large-scale blackout or hacking of hospitals' IT system, invest in hospital cyber-security and raise awareness of cyber-security among healthcare providers

5. DOMAIN 5
**Service
delivery**



5.1 Sustainability

5.1.1 Measures of hospital services efficiency

Between 2000 and 2020, the average length of stay (ALOS) for all causes decreased from 7.7 days to 6.1 days.[75] For some conditions, the decrease was even more pronounced. For instance, the ALOS for acute myocardial infarction decreased from 9.5 days to 5.8 days. The decreasing trend in ALOS over time, pointing to increased efficiency, can be explained by several factors, including financial incentives to shorten stay duration, medico-technical progress, the development of home care services and the expansion of day hospital. However, decreasing ALOS may also lead to increased readmissions. Belgium's health statistics do not systematically report readmission rates at hospitals across the country and over time. One study used data from the Minimum Basic Data Set in 2008 and reported that the rate of readmissions was 1.5% within 1 month after discharge and 2.1% within 3 months after discharge.[76]

The number of hospital admissions for all causes has remained stable over time from 16,301 to 16,719 admissions per 100,000 population between 2000 and 2019. It is generally recognized that better integrated primary care and coordination between primary and secondary care can lead to a decrease in admissions for chronic conditions. However, Belgium still has room for improvement in this area. For instance, potentially avoidable hospital admissions for asthma and chronic obstructive pulmonary disease were higher in Belgium than the European Union (EU) average in 2019, suggesting that the management of these conditions could be improved.[17]

In summary, hospitals work more efficiently than before, but the number of hospital admissions is not showing a decreasing trend.

5.1.2 Quality

Healthcare services in Belgium must comply with programme criteria and licensing criteria that ensure quality of care. Licensing criteria include organisational norms related to staff requirements and responsibilities, architectural criteria, functional standards, minimum activity and facility standards and expected staff numbers. Healthcare facilities can apply voluntarily for accreditation (e.g. JCI), for an external evaluation or other quality labels (e.g. Baby-Friendly for hospitals). However, the rigidity of norms and requirements related to accreditations systems also represents a high burden of administrative tasks for healthcare professionals.

Several initiatives for quality improvements of health facilities exist both at the federal and defederated levels. For instance, a system of All Patients Refined Diagnosis Related Groups (APR-DRG) was implemented in 2002 to address non-medical differences in medical practices between hospitals. Hospitals can, if they wish to, download individual reports on the Ministry of Health Portahealth web portal to obtain feedback on their minimal Hospital Data Set and their position compared to other hospitals. The most commonly used feedback was on financial resources (77% of hospitals), on market share by Major Diagnostic Category (MDC) (72%) and on nursing data (62%). Slightly less used feedback was on emergency departments (47%), unwarranted overlapping hospital stays (42%) and on staffing data (42%).[77]

Hospitals can also receive feedback from external organisations or private companies or be part of a network of hospitals that exchange data with each other. The Ministry of Health also publishes national quality plans for hospitals every four years. Furthermore, the law of 22 April 2019 on the quality of healthcare practice was expanded and contains an obligation for health care providers to maintain a dynamic portfolio showcasing their commitment to continuing education.[78]

As mentioned before, since 2018, all general hospitals can voluntarily participate in a Pay for Performance (P4P) programme. This programme grants an additional budget to general hospitals with a good score on a set of five hospital-wide indicators (accreditation process, incidents

notification, patient experience measurement, clinical processes, and outcomes) and seven pathology-related indicators. Every year the P4P programme is evaluated and more quality indicators are added, modified or removed for the next year.[79]

Federated entities also have their own initiatives to ensure the quality of care in healthcare facilities. In Flanders, unannounced inspections are performed and the Flemish Indicators Project for Patients and Professionals (VIP2) measures the quality of care in general hospitals. Hospitals can choose which indicators they want to measure and if they want results to be published on a website (www.zorgkwaliteit.be). However, quality indicators are not regularly updated and participation in this initiative remains voluntary. Legislative frameworks to improve the quality of care have also been in place for a long time, such as the Flemish Decree of 17 October 2003 on the quality of health and welfare services and the Flemish Ministerial Decree of 10 December 2001 on quality of care in homes for older people, nursing homes, day care centres, short-stay centres, service flats and housing complexes with services for older people.[80] In the German-speaking community, announced inspections of hospitals take place in collaboration with the Flemish inspection organisation. In Brussels and Wallonia, the Plateforme pour l'Amélioration continue de la Qualité des soins et de la Sécurité des patients (PAQS) established quality indicators and each hospital receives their results compared with the average. However, a systematic method of collecting the data is not yet in place and quality indicators are not publicly available. The Walloon region also commits to quality care in accommodation and facilities for older people, including the introduction of a Quality-Food-Nutrition plan.

The majority of the interviewed stakeholders agreed that overall, the quality of care provided and of the healthcare infrastructure are relatively good in Belgium. However, despite several initiatives in place at the Federal and Regional level to ensure the quality of care in healthcare facilities, most stakeholders reported that currently, transparency on the quality of care is weak and real-time monitoring of quality indicators is lacking. The overconsumption of examinations and treatments, especially the overuse of imaging devices and technical care acts, was highlighted and represents a threat for the sustainability of the health system. There are also large variations in survival rates from cancer by hospital in Belgium, and statistics on health outcomes remain of poor quality, especially in Wallonia and Brussels.

A few stakeholders also highlighted the disappearance of authentic connections between patients and healthcare providers, partly linked to shortening consultation times and the incentives of the payment system.

5.1.3 The role of primary care

In Belgium, patients are free to choose their healthcare provider and consult multiple providers for a particular problem. Patients can also directly access specialist care or go to the emergency department of a hospital without a referral. Previous measures were taken to promote the use of primary care as a patient's first contact point with the health system, including the introduction of the Global Medical Record (GMR) in 2001 and increased reimbursement. This is important for sustainability because primary care is widely recognised as a key component of all high-performing health systems and is an essential foundation for universal health coverage.[81] Opting-in for GMR implies that a single GP manages a patient's medical information and patients have lower co-payments. Between 2003 and 2016, the proportion of insured individuals who opted-in for GMR increased from 32.1% to 67.5%, showing the positive effects of the provided incentives.[8] When a patient has a referral from the GP, his co-payments for the first specialist visit and to the emergency department are also lower (respectively about €5 to €17 less), which stimulates patients to first visit the GP. In addition, since 2015, patients with preferential reimbursement status or chronic diseases are not required to pay upfront for the part of the GP fee that is normally reimbursed by the health insurance. Under these conditions, the GP charges the patient's sickness fund directly and can only charge patients for the official co-payments.[1] Since January 1st, 2022, this has been possible for

all types of patients and conditions. The first evaluation of these measures is still awaiting publication.[39]

The number of community health centres with a capitation-based remuneration system is increasing, from 53 in 2003 to 160 in 2016, covering 3.4% of the population (predominance in Brussels and Liege). Community health centres are managed by interprofessional primary care teams including a GP, nurse, physiotherapist, social worker and other disciplines, with a focus on health promotion and prevention. Patients registered in these community health centres have to consult at this centre but do not have to pay user fees for their consultations.[1]

A range of initiatives have been taken to improve the quality of primary care including (i) an accreditation system based on continuing education activities, peer-review sessions, e-learning and a minimum activity level of consultations, (ii) feedback reports for GPs, (iii) care pathways for some chronic patients, and (iv) the development of guidelines and of a national evidence-based practice plan.[1]

As the Federated entities are responsible for the organisation of primary care, regions have implemented different reforms to support primary care providers. In Flanders, a reform that will create 60 primary care zones (PCZ) with reinforced integrated care is ongoing. Each PCZ covers on average 100,000 inhabitants and is coordinated by a Care Board. This reform also includes the development of a Flemish Institute for Primary care, more capacity in primary care and financial incentives for GPs, coordination of care and case management for patients with complex care needs, the development of integrated interprofessional platforms and the promotion of health literacy and active patient and citizen participation.[82] However, currently many GPs are at full capacity and are becoming difficult to access.

In addition, PCZ are increasingly shifting from a disease-oriented approach towards a “goal-oriented” approach, which is focused on the life-goals of the patient.[83] In Brussels, the “Brusano” platform brings together initiatives and services to support and guide primary care and social care professionals.[78]

5.1.4 Coordination of care and new care models

Although Belgium has no gatekeeping system and the implementation of an integrated care approach per disease is limited to only a few diseases (i.e. diabetes, kidney disease), some national initiatives aim to improve the continuity of care between and within different healthcare settings. The NIHDI launched various care models to optimise care for patients with diabetes, such as care trajectories and conventions for their care in specialised centres.[84] For example, in the diabetes care models, patients can receive better reimbursement (i.e. less co-payment) for visits to their GP and diabetologist, reimbursement for their blood glucose self-monitoring equipment, and for visits with nurses specialised in diabetes management, dieticians or podologists. It is not clear on which basis these diseases were selected and there is currently no integrated non-communicable disease strategy.

Yet, in 2018, integrated care pilot projects for the management of chronic diseases were started. These projects incentivised healthcare providers to establish new patient-centred care pathways across different care settings. As several integrated initiatives are still in the pilot phase, few evaluations of outcomes are currently available. In addition, the first evaluations of these processes were not positive due to the lack of financial incentives to bring different care providers together.

At the hospital level, stakeholders reported dilution and duplication of expertise across hospitals and an inefficient allocation of resources across secondary and tertiary care, with university hospitals (tertiary care) providing too much secondary care. However, the recent creation of loco-regional hospital networks should address some of these weaknesses.

5.1.5 Distribution of and access to service provision

One of the strengths of the Belgian health system underlined by several stakeholders is the freedom to choose any healthcare provider and to directly access specialist care. However, the easy access to emergency care without a strong triage system was highlighted as a weakness by a few stakeholders. The majority of stakeholders agreed on fast access to care in Belgium and relatively short waiting times for a consultation or operation compared to neighbouring countries. As a small country, the proximity of care was also mentioned as a key strength with regards to accessibility of care.

Some localities in Belgium are defined as priority zones, as they have a shortage of GPs. Flanders had 227 priority zones in 2019 (out of 300 municipalities), Brussels had 33 of 145 zones in 2017 and Wallonia 150 of 253 zones in 2019. To increase the attractiveness of the GP profession, financial compensation is given to GPs working in priority zones and financing was provided to GP circles (i.e. associations of GPs who practice their professional activities within a certain area). to organise out-of-hours services, improve collaboration in a geographical area and create integrated services for home care.

The geographic distribution of hospitals and the number of beds at the regional level are aligned with the distribution of the population. The overall density of curative beds was 5 beds per 1,000 inhabitants in Flanders, 4.8 in Wallonia and 5.9 in Brussels in 2018.[1] Since 2020, every hospital must belong to one of the 25 loco-regional hospital networks, and must concentrate their expertise in certain fields and cooperate within their loco-regional and supra-regional networks. The aim of this reform is to improve care coordination by providing both decentralised accessible services and specialised services. Although most stakeholders judged this reform to be positive, a few stakeholders mentioned it lacked clarity and that the division of hospitals across loco-regional networks was not optimal.

There exist significant disparities in access to care between socioeconomic groups. Individuals with higher incomes and higher educational attainment have higher use of specialist care, dental care and breast cancer screening. Individuals with low educational attainment and low income tend to have higher use of emergency care. When looking at trends over time, there were increasing inequalities in regular use of dental care and specialist care. Higher income groups have a higher use of GP care, day-care treatment and antibiotics.[29] In 2019, 4% of people in the lowest income quintile had unmet medical needs mainly due to costs, compared with 0.2% in the highest income quintile. The difference in unmet needs between income quintiles was even larger for dental care. These gaps were above the EU-27 averages.[17]

5.1.6 Focus on prevention and chronic diseases

In Belgium, spending on prevention represents only 1.6% of health spending, which is lower than the EU average of 2.9%. However, spending on prevention is likely to be underestimated as it only included spending for organised prevention programmes.[17]. Yet, the majority of stakeholders agreed that Belgium has a weak prevention and health promotion culture. The main focus of the care provided is on treating symptoms, with a lack of attention to patients' life goals.

Although cancer screening has increased over time, participation rates in organised screening programs remain low, especially in Wallonia and Brussels and among more disadvantaged social groups.[8]

In 2016, the Federal State and Federated entities agreed on a specific set of prevention policies related to: nutrition, tobacco, alcohol and illegal drugs, psychotropic drugs, gambling addiction, sexual health, oral health, suicide prevention, vaccinations, infection diseases (tuberculosis, hepatitis C), new-born screening, cervical cancer screening, breast cancer screening and colorectal cancer screening. Health in all policies and health equity were two key cross-cutting themes of these prevention policies.

The organisation of mental health care is currently fragmented and organised in an opaque manner, as responsibilities are divided between the federal and federated entities. The waiting times for mental health care are long in Belgium and are getting longer over time. Hospitalisation rates in psychiatric wards and the use of antidepressants are also increasing over time.[8] Since March 2019, visits to clinical psychologists working in primary care are reimbursed for adults with common mental health disorders who are referred by a GP or psychiatrists. As a result of the COVID-19 pandemic and the lockdowns, the prevalence of anxiety and depression has increased sharply across all age groups, especially in those aged 18–29 years old. However, there is insufficient capacity in mental health care to help all patients.

5.2 Resilience

5.2.1 Maintaining services in a crisis

The containment measures to reduce the spread of COVID-19 and the fear of being infected in medical settings led to a decrease in the number of doctors' visits, examinations, and surgeries and disrupted cancer screening programmes and diagnoses in Belgium. The volume of primary care consultations during the first wave were reduced by 50%.[10] In fact, in March 2020, all non-essential consultations, examinations and procedures were cancelled, and screening programmes for breast, cervical and colon cancer were stopped. The number of new cancer diagnoses declined sharply between March and May 2020. Compared to the same period in the previous year, the number of admissions for surgery, paediatrics, internal medicine and geriatrics decreased by 66%, 57%, 38% and 36%, respectively, in most hospitals during the lockdown. Neonatology services also experienced a large decrease. Compared to 2019, ICU services experienced a moderate decrease in admissions. Using billing data, it was observed that expenditure decreased by 19% in March and 16% in April for stroke admissions, and by 9% and 34% for heart attacks, which shows that essential care was also reduced.[21]

At the start of the pandemic, each hospital was required to increase capacity, including beds and mechanical ventilators. Hospitals activated their emergency plans earlier than required and measures of geographic redistribution prevented the saturation of hospitals.[35] To keep ICU beds and operating and recovery rooms available, elective procedures were cancelled. The target was to keep 60% of ICU beds available for COVID-19 patients. As the health system was not running at full capacity before the crisis, Belgium was able to rapidly increase its ICU bed capacity from 16.5 ICU beds per 100,000 population prior to the pandemic to 24 beds in early April 2020.[43] In some hospitals, however, the increase in ICU beds was difficult to put in place because of a lack of nurses with ICU expertise. Depending on the pandemic waves, the number of ICU beds and COVID-19 beds evolved according to the number of COVID-19 patients hospitalised. Furthermore, patients with major burns were transferred from general hospitals to army hospitals to relieve pressure from general hospitals.[10]

Furthermore, at the start of the pandemic, some hospitals rejected older patients from nursing homes and ambulances refused to take them to hospitals, even though there were hospital beds available and the health care system was not at full capacity.[85] This resulted in half of all COVID-19 deaths in Belgium occurring in retirement or nursing homes during the first wave. Since March 12th, 2020, nursing homes were not allowed to receive visitors for at least 40 days and many elderly died isolated from their families.[18]

5.2.2 Co-ordination of care during a crisis

At the beginning of the pandemic, GPs played a central role, as they were the first contact point for suspected cases, referring them to COVID-19 outpatient centres and issuing certifications. However, as the number of cases increased, the role of GPs was downscaled in late September 2020. Triage

and testing centres and transitional care centres were created to absorb demand shocks from the pandemic and maintain sufficient capacity in the hospitals. The triage and testing centres aimed to prevent emergency departments from being unnecessarily used and to prevent a large number of infected patients from contacting a GP for a consultation. In close cooperation with the emergency services, GPs examined patients in a triage centre and determined if a referral to the emergency department was necessary or if the patient could recover at home. Transitional care centres represented an intermediate step between hospital stays and returning home. Six centres were operational in Flanders and one centre was active in Wallonia between March and June 2020. In November 2020, eight new centres were opened in Flanders and three in Wallonia. These centres were in charge of either patients who were previously hospitalised or patients who were examined in a triage and testing centre or an emergency department and for whom a hospital admission was not necessary, but who could not safely isolate at home or still needed specific care. The patients were able to recover in a transitional care centre for a maximum of three weeks, under the care of GPs, nurses and healthcare assistants. This initiative was financed by the NIHDI and Federated entities provided the necessary additional support through partnerships with municipalities' social services or the "Social Work" departments of health insurance funds.[11]

Primary Care Zones (PCZs) coordinated the early diagnoses of cases by GPs, timely referral to hospital, support of chronically ill patients, contact-tracing, provision of mental healthcare, as well as outreach to and support with quarantine for vulnerable groups and organised one or two vaccination centres within their zone. The pandemic also strengthened the interprofessional cooperation between hospitals and PCZs.[83]

Nevertheless, Belgian GPs were not involved in nor well informed about possible treatments to prevent worsening of COVID-19 symptoms once a patient tested positive.

5.2.3 Learning and adapting

Novel care delivery methods were deployed during the pandemic, including the establishment of teleconsultations in primary care, home visits by GPs to perform tests and monitor COVID-19 patients and telemonitoring to follow-up COVID-19 patients at home.[10] The KCE recently evaluated the use of telemonitoring for COVID-19 patients and reported that even though there is no clear evidence that remote patient monitoring reduces hospital strains, it is perceived as a meaningful intervention by healthcare professionals and appreciated by patients.[86] The report concluded that the current remote patient monitoring should continue and that randomised trials and an evaluation framework are necessary.

During the first wave, hospitals also learned about the optimal approach to treat COVID-19 patients and managed to reduce in-hospital mortality rates.[87]

Since 2021, Brussels and Wallonia are holding consultation meetings ("Assises de premier ligne" in Wallonia) to further develop "proximity care" or primary care. Furthermore, in June 2022, care pathways for patients with long COVID have been approved, including either "monodisciplinary" care or a "multidisciplinary" care pathway, which brings together several types of care that the patient needs: physiotherapy, occupational therapy, diet advice, speech therapy and/or psychotherapy.[88] In this case, the GP, in collaboration with the relevant primary care providers and the patient themselves, establishes a personalised treatment plan and tailor-made objectives for the patient. From this team of care providers, a care coordinator is appointed and covered by the NIHDI, which is novel.

5.3 Recommendations

5.3.1 Sustainability

RECOMMENDATION 5A

Strengthen the care coordinating role of primary care by expanding current incentives and further encouraging the choice of a unique reference GP to whom other professionals should systematically feed back

RECOMMENDATION 5B

Strengthen healthcare provision in nursing homes, by increasing the amount of nurses per bed, by upgrading the role of the coordinating GP and with stronger formal and automated links with other healthcare providers

RECOMMENDATION 5C

Increase investment in integrated care networks and better connect each hospital network with a cluster of primary care providers (clusters can overlap) to facilitate the management of chronic conditions and the continuity of care

RECOMMENDATION 5D

Make it mandatory for hospitals to measure, monitor and publish indicators on quality of care and medical consumption, and create a central registry where patients can report their health outcomes after treatments

RECOMMENDATION 5E

Limit overconsumption of treatments and examinations by continuously educating healthcare professionals about best practices, training them in expertise centres, and increasing regulation and peer-review

RECOMMENDATION 5F

Push for more specialisation of hospitals within and across networks and for tertiary care to provide complex care through appropriate incentives and a stronger referral system

RECOMMENDATION 5G

Train healthcare professionals to discuss life goals and a holistic and humanistic approach with patients instead of focusing only on reducing symptoms

RECOMMENDATION 5H

Leverage on the created possibilities for telemedicine, and install financial incentives to support its quality, while respecting the need for in-person care

5.3.2 Resilience

RECOMMENDATION 5I

Establish clear (but with a degree of flexibility) roles for different clinicians and other care workers during health crises

RECOMMENDATION 5J

Provide GPs with guidelines on how to prevent and early treat infectious diseases

RECOMMENDATION 5K

Ensure that all essential care and screening continues during a crisis by developing preparation plans with the actors and informing health professionals and the general public

RECOMMENDATION 5L

Have clinical pharmacologists and infectious disease specialists in each hospital with a mandate to also support primary care facilities

6. DOMAIN 6

**Population
health and
social
determinants**



6.1 Sustainability

6.1.1 Indicators of population health

The Belgian population enjoys relatively high levels of health with a high life expectancy and low amenable mortality, i.e. low number of deaths under 75 years old that could potentially be avoided, given effective and timely healthcare.

Life expectancy: In 2020, the life expectancy at birth in Belgium was 80.8 years, with a higher life expectancy in women (83.1 years) than men (78.5 years). Life expectancy at birth decreased by one year due to COVID-19 (2019: 81.8 years). Flanders has a higher life expectancy than Brussels (79.6 years) and Wallonia (79.0 years). Higher socioeconomic groups in Belgium tend to have a higher life expectancy. Belgium has a slightly lower life expectancy at birth than the EU-15 average for both men and women.

Disability-Free Life Expectancy: In 2018, the Disability-Free Life Expectancy at 65 years (DFLE65) was 12.5 years in men and 12.4 years in women. The DFLE65 increased by 2.7 years for men and 1.4 years for women between 2004 and 2018. The DFLE65 was higher in Flanders for men compared to Brussels and Wallonia, and higher in Brussels and Flanders for women compared to Wallonia. Belgium's DFLE is similar to the EU-15 average for men and higher than the EU-15 average for women.

Infant mortality: In 2018, the infant mortality rate was 3.7 per 1,000 live births, which was similar to the EU-15 average. Infant mortality rates and trends were similar across the three regions.

Cancer: In 2019, 71,651 new diagnoses of cancer (excluding non-melanoma skin cancer) were made, including 38,572 (54%) new cases in men and 33,079 (46%) new cases in women. Age-adjusted incidence rates increased over time in women only and were highest in Wallonia. The incidence of cancer in Belgium is higher than the EU-15 average (640 vs 577 per 100,000 in 2020).

Mental health: Since the COVID-19 crisis, the mental health of the Belgian population has deteriorated. The prevalence of anxiety problems increased from 11% in 2018 to 16–24% during the pandemic and from 9.5% to 14–22% for depression. The prevalence of anxiety disorders is higher in women than men and the prevalence of anxiety and depressive disorders is three times higher in young people than in people aged 65 years or above.[89] There is also an increase in people on disability allowance for mental health-related problems, which is now the first cause of disability before osteo-articular problems.[90]

Diabetes: In 2020, 6.6% of the Belgian population was diagnosed with diabetes. However, 5% of Belgians were not aware of their diabetes, thus the estimated true prevalence of diabetes is estimated to be around 10%. The prevalence of diabetes is higher in Wallonia and Brussels compared to Flanders.

Obesity: In 2018, based on self-reported data almost 50% of the adult population was overweight and 16% was obese. Using objective data, the prevalence of overweight and obesity in the adult population were 55% and 21%, respectively. Wallonia has higher prevalence of overweight and obesity than the other regions.

Smoking: In 2018, 15% of the population were daily smokers, which was lower than the EU-15 average. The proportion was higher in men (18%) than in women (12%), and in Wallonia (18%) than in Brussels (16%) and Flanders (13%). The prevalence of regular e-cigarette smoking was 4.1% in 2018.

Alcohol: The average consumption of pure alcohol is 12 litres per capita (aged 15+ years) per year, which is higher than the average European consumption.

Physical activity: In 2018, only 30% of the adult population (men: 36% vs women: 25%) met the WHO recommendations of at least 150 minutes of moderate intensity aerobic physical activity per week.

Nutritional habits: The daily recommended amount of fruit and vegetables (at least 5 portions) were consumed by only 12.7% of the population aged 6 years and above. 20.4% of the population drank sugary drinks on a daily basis.

Causes of death: The top ten causes of death in Belgium are: tumours, circulatory system diseases, respiratory system diseases, other causes and ill-defined, mental and neurological disease, external causes, digestive system diseases, endocrine diseases and infectious and parasitic diseases. Between 2000 and 2018, the age-adjusted mortality rate of cardiovascular disease decreased by 50% in men and by 49% in women, while mortality rates due to tumours decreased by 30% in men and barely decreased in women. Since 2000, mortality due to respiratory diseases have decreased in both genders but this decreasing trend has slowed down and stagnated in the last decade. The mortality rates from mental and neurological diseases have increased by around 31–33% since 2000.

6.1.2. Strategies to address social determinants of health

Social inequalities in unhealthy lifestyles are large. Some of the most significant trends in health disparities were that individuals with a lower educational level had a higher prevalence of tobacco use, obesity, lower physical activity levels, worse nutritional habits and lower levels of health literacy. In 2018, among adults with no more than secondary education, 22% smoked daily and 22% were obese, compared to 10% and 12% for adults with tertiary education, respectively.[17] Daily smoking, and the prevalence of overweight and obesity were lower in Flanders than Wallonia and Brussels, and physical activity levels were more likely to meet the WHO recommendations in Flanders.

The country has explicit strategies in place to address the social determinants of health, including anti-tobacco measures, anti-alcohol measures and dietary measures for overweight children. With respect to anti-tobacco measures, initiatives include a ban on smoking in public places, restaurants and bars, schools, workplaces and in vehicles with minors, and an age limit on the sale of tobacco products (2019). Since January 1st, 2020, all tobacco products are sold in neutral and identical packaging and since May 2020, sales of menthol cigarettes have been forbidden in Belgium. In 2016, the Health minister initiated an anti-tobacco plan which included an ambitious objective to decrease the number of smokers by 10%, increase taxes on tobacco products to limit demand, make treatments more accessible, limit the supply of tobacco products, protect against passive smoking and elaborate a legal framework for electronic cigarettes.[91] With respect to alcohol, initiatives include a national campaign against drink-driving, restrictions on the advertisement of alcohol products and age limits on the sale of alcohol. The alcohol plan forbids the sale of spirits to individuals below 18 years old.[92] However, one stakeholder mentioned that Belgium is still struggling to impose higher taxes on alcohol due to powerful lobbying groups.

In 2016, Belgium imposed a tax on sugar-sweetened beverages, but not on food products. However, the Belgian sugar tax is only 11.9 cents per litre for soft drinks with added sugar or sweetener and 6.8 cents per litre for flavoured water, which is too little to change people's consumption behaviour. According to the WHO, only a tax on sugary drink that increases prices by at least 20% can reduce consumption. Since July 2020, nutritionist consultations for overweight or obese children are partly reimbursed and a budget of €5 million has been allocated for this project. With a prescription from a GP or a paediatrician, children between 6 and 17 years old can benefit from 10 nutritionist consultations over a period of two years. In April 2019, the nutri-score on food packages was also implemented in Belgium.[93]

In 2015, a Belgian Health-Enhancing Physical Activity programme was established in Flanders and brought together the health, education and sports sectors, as well as the environment, urban planning and transportation sectors.[94] Flanders also launched the project Physical Activity on

Referral, funded by the Flemish Ministry of Health and coordinated by the Flanders Institute for Healthy Living, with the aim of increasing the physical activity of inactive individuals in primary care. Physicians refer patients to a physical activity coach, who helps them develop a personal plan. Regular media campaigns directed at professionals and the general public were also organised as part of this project.

6.1.3 Health literacy

In 2014, the HEALIT4EU project reported that the concept of health literacy was not commonly used in Belgium, national policies did not include health literacy and concrete plans to improve health literacy in the future were lacking. Since then, several health literacy policies have been initiated at the political and institutional level in Belgium. In 2014, the Royal Academy of Medicine published recommendations on health literacy. The NIHDI published a White Paper on ways to improve access to healthcare which included the creation of new professions in the ambulatory sector to improve the health literacy of the patient and empower patients in the health system. A paragraph on increasing health literacy was included in the federal coalition agreement of 9 October 2014 and in the management agreement FPS Health, Food chain safety and Environment 2016–2018.[95] The Flemish Strategic Advisory Board Well-being Health and Family advised to improve the health literacy of vulnerable groups in order to improve their health outcomes. In addition, the French speaking government of Brussels developed a strategic plan for health promotion 2018–2022.[95]

Despite a lack of real public investment in health literacy in Belgium, many actors are engaged in different health literacy projects. Organisations such as the expertise centre of MEMORI (Thomas More University College), the brussels-based non-profit organisation Culture & Santé, The Flemish Institute for healthy living ('Gezondleven'), the MSD HealthNest initiative, patient internet portals, The Dr Daniël De Coninck Fund, health insurance funds, Belgian patient representative platforms, and the journal Test-Aankoop/Test-Achats all contribute to health literacy (education, training and intervention) among healthcare professionals, patients and the general population.[95] Culture & Santé has expertise in communication in health promotion, lifelong learning and social cohesion adapted to multicultural and/or poorly educated audiences. For instance, they offer trainings and information sessions for intermediaries on improvement of health literacy in migrants.

6.1.4. Public health programmes

Several health policies are integrated into Belgian schools, as these competences are shared between the Health and Education Ministers of Federated governments. Thanks to the School Health Services and Promotion teams organised by the Centre Psycho-Médico-Social et le Service de Promotion de la Santé à l'École in Wallonia and Brussels and by the Centrum voor leerlingenbegeleiding in Flanders, children have the possibility to receive recommended vaccines at no charge and to be updated on a recommended vaccination schedule. Vaccination is not mandatory and parental consent is required. In Brussels, the provision of school meals varies substantially by municipality.[96] In Anderlecht for example, school meals are cheaper for low-income households, while in other municipalities in Brussels, soup is provided freely to all children. Recently, the Wallonia-Brussels Federation opened a call for projects aimed at offering free meals, of nutritional quality and incorporating sustainability criteria, in nursery schools and for the first two primary years during 2022–2023 and 2023–2024.[97]

There are also well-Baby clinics led by the Office de la Naissance et de l'Enfance and the Kind en Genzin, which organise home visits to all new-borns at home and offer free preventive consultations with vaccinations in their consultation offices. Individuals attending family support consultations tend to be from socio-economically disadvantaged and multicultural backgrounds. The support offered is free, personalised and global (psychological, medical, and social). Interpreters are engaged if needed.

Despite an improved understanding of mental health problems among the Belgian population, there is still a strong stigmatisation of mental health problems in society, at work and at school.[98] This has an effect on the accessibility and use of mental health care and on treatment decisions.

Sexual education programmes are supported by law in Belgium and their implementation is the responsibility of the federated entities. In Flanders, sexual education is compulsory for all students and is typically integrated into different school subjects.[99] Since 2012, schools of the Wallonia-Brussels Federation have had mandatory sexual health education starting in primary school. Despite these programmes, less than 20% of students in the French-speaking schools in Brussels received at least one educational intervention on relational, emotional and sexual life in 2018 and the percentage is said to be even lower in Wallonia.[100] Potential reasons include low budgets for sexual health activities in schools and for the training of facilitators, as well as resistance from some political groups to talk about sexuality at school. In Belgium, physical education is included in the competences of the Minister for Education and mandatory physical education is included in the school curriculum in primary and secondary school. Students have a minimum of two physical education lessons of 50 minutes each per week and schools are allowed to increase their hours of physical education.[101]

Regarding anti-microbial resistance (AMR), Belgium has led several initiatives to combat AMR in the last decades including: the Belgian Antibiotic Policy Coordination Commission in 1999, AMCRA7, the Centre of Expertise on Antimicrobial Resistance and Antimicrobial Consumption in Animals in Belgium in 2011, the MDRO Task Force and OST8 in 2013 and the Antibiotic Convention in Veterinary Medicine in 2016 and 2021.[102] Currently, Belgium has a national One Health action plan for 2020–2024, bringing together different stakeholders in human health, animal health and environmental health. However, only 35% of long-term care facilities in Belgium have written guidelines for appropriate antimicrobial use and 6.4% have regular training on appropriate antimicrobial prescribing, which are both below the EU average (2016/2017).[103] In addition, the national action plan on AMR does not refer specifically to long term care and the process for auditing the quality of care provided in long-term care facilities does not currently include indicators relative to AMR.[104]

6.2 Resilience

The rather poor results regarding healthy behaviour among the Belgian population did not help in mitigating the negative consequences of the pandemic. Indeed, recent studies reported that: contracting severe COVID-19 was associated with obesity and diabetes,[105] vitamin D deficiency increased the risks of SARS-Cov-2 infection and COVID-19 related mortality,[106] and that physical exercise improved both physical and mental health during the pandemic. Consequently, it is essential, especially in times of a pandemic, to stimulate healthy behaviours, through healthy nutrition and physical activity, in order to make the population more resilient.[107] Furthermore, as anxiety is an additional risk factor for contracting severe COVID-19,[108], it is important to avoid cultivating anxiety among the population, via the media for instance.

6.3 Recommendations

6.3.1 Sustainability

RECOMMENDATION 6A

Strengthen the public health component in the continuous education of healthcare workers and increase their exposure to community health and prevention

RECOMMENDATION 6B

Develop a comprehensive plan that acts on a societal level to reduce exposure to risk factors and unhealthy lifestyles and increases health literacy throughout the life course

RECOMMENDATION 6C

Implement stricter measures in all schools (not only primary schools) to ban the consumption of sugar-sweetened beverages and food

RECOMMENDATION 6D

Invest in data collection for cohort studies and data linkage across data sources, including exome and genome sequencing data and environmental data, to better understand risk factors for health

RECOMMENDATION 6E

Increase the uptake of secondary prevention programmes, such as improved and broadened (i.e. more types of) cancer screenings (by implementing the latest scientific insights and recommendations)

RECOMMENDATION 6F

Routinely perform health impact assessments of policies outside of health and measure their effect on socioeconomic inequalities

RECOMMENDATION 6G

Increase collaboration between hospitals, health funds and patient organisations and improve referral of patients to disease-specific patient organisations to better guide them in taking care of their health

RECOMMENDATION 6H

Make the 'health in all policies' concept more concrete and invest in physical, social and mental health promotion in schools, at the workplace, the community.

6.3.2 Resilience

RECOMMENDATION 6I

Encourage physical activity even during infectious disease outbreak, for instance by keeping fitness centres open, while respecting rules for ventilation and disinfection of air

RECOMMENDATION 6J

Create vigilance rather than anxiety among the population by collaborating with healthcare professionals and the media

RECOMMENDATION 6K

Provide extra support for mental health promotion during crisis times

7. DOMAIN 7

Environmental sustainability



This Chapter is not split into sustainability and resilience since the topics discussed are mostly related to sustainability.

7.1 Environmental impact of the health system

Belgium does not routinely collect data on or assess the environmental costs and benefits of health system activities in Belgium. However, during the COP26 in Glasgow, Belgium committed to a climate resilient health system, a sustainable low carbon health system and a net zero commitment by 2050.[109] Based on the international NGO Health Care Without Harm's report on the climate footprint of health care, Belgium's health care footprint was 5.5% of national emissions, which is higher than the world's average of 4.4%.[110] In Flanders, about 10% of CO₂ emissions come from the healthcare sector and 5% of the industrial residual waste is produced by the healthcare sector. 84% of waste generated in the healthcare sector is residual waste, meaning that the waste streams are incinerated and can no longer be used in the circular economy.[111]

Waste policy is a regional matter, consequently each federated entity has its own waste policy. Although the European Union's definition of waste is adopted in the different regions, it is slightly modified or implemented differently in each region in Belgium.[112] In Wallonia, the decree on the management (collection and treatment) of hospital waste defined three main categories of healthcare waste:

A: waste from the hotel industry, administrative waste.

B1: waste not included under A or B2 and from patient care, laboratories, and medical-technical services.

B2: waste contaminated with blood, cytostatics, anatomical remains, etc.

The classification of healthcare waste in the Brussels region is the same as in Wallonia. In Flanders, the decree on the management of hospital waste, known as VLAREA, classifies hospital waste in two main groups: non-hazardous waste and hazardous waste. There also exists a smaller medical waste group: radioactive medical waste. In 2021, the Public Waste Agency of Flanders together with representatives of the care sector, government, municipalities and intermunicipal companies, environmental companies and waste processors, published a new manual on medical waste.

In Wallonia, class B2 hospital waste is currently treated exclusively by incineration. However, more ecological and economical solutions exist, such as the use of disinfection treatment, which transforms class B2 waste into class A waste. Class A waste is then managed in the same way as household waste. Initiatives are already in place in Wallonia to identify opportunities for reusing and recycling certain type of B2 waste. For instance, the DECHOSPI pilot project, carried out in five hospitals in the province of Hainaut, encourages and supports hospital structures that wish to improve their waste prevention and management performance.[113] In addition, on April 1st, 2021, a company in Mons obtained an environmental permit authorising it to operate a class B2 waste disinfection facility.

Following the pandemic, the Superior Health Council published a report on the environmental and sustainability aspects of the COVID-19 pandemic, which included a section on solid hospital waste. This report highlighted that there was some confusion on the management of waste from COVID-19 patients. Initially, hospital waste from COVID-19 patients was considered as hazardous medical waste in Flanders or as B2 in Wallonia and Brussels (medical waste with risk), which requires the use of specific designated single use polypropylene containers (30 or 50 litre) or cardboard boxes with a yellow plastic bag. However, due to the limited availability of these containers, the initial guidelines were reviewed, and part of the waste was considered either as non-hazardous medical waste in Flanders or medical waste without risk in Wallonia and Brussels, provided the waste was kept at the hospital site for 72 hours. Keeping waste compactors for 72 hours also raised its own logistical issues.[114]

Generally, the Belgian health system lacks awareness about environmental sustainability and the efficiency of current investments in environmental sustainability is not systematically being evaluated. However, in the last few years, several hospitals have initiated programmes and activities to become more environmentally sustainable. The Saint-Pierre Ottignies hospital in Wallonia launched the “Hospital in transition” project, which aims to reduce its impact on the environment while maintaining quality of care. This includes the installation of an ultra-efficient biological wastewater treatment plant in May 2019. Wastewaters from hospitals are particularly loaded with micropollutants, such as antibiotics and anti-inflammatories. This wastewater treatment plant will clean the wastewater by at least 80% before it continues its journey to a conventional wastewater treatment plant. The Saint-Pierre Ottignies hospital also limits the use of single-use plastic in the restaurant for hospital personnel and takes into account sustainability criteria for procurement across all sectors of the hospital.[115] This year, 6 hospitals in the Brussels Region are participating in the project “Greening the Brussels Healthcare Sector”, which is a collaboration between the Circular Healthcare and Climate-smart Healthcare programmes of Health Care Without Harm Europe.[116] The aims of this project are twofold: build knowledge and capacity amongst healthcare workers on topics such as climate change, circular economy, and sustainable food, and support the hospitals in developing sustainability action plans. In addition, there exists a French-speaking network of psychotherapists in transition who help people suffering from eco-anxiety and an association of caregivers committed to reducing the footprint of the healthcare system and increasing its adaptability.[117]

For Flanders to meet the climate commitment agreed to at the Climate Summit in Paris, healthcare facilities also agreed to 13 climate commitments in 2017, including 7% energy reduction and a 40% CO₂ reduction by 2030. Since 2020, it is mandatory for each facility to appoint a climate manager who will develop a climate vision plan, including topics such as energy management or a mobility and purchasing policy. Healthcare facilities can also choose to have an energy scan performed at the expense of the Flemish government. This scan offers an energy performance diagnosis and concrete suggestions for energy-saving measures, such as insulating pipes, better adjusting installation, installing solar panels or floor insulation. In return, facilities accept to implement energy-saving measures with a payback period of less than 5 years. If measures have a longer payback period, facilities can apply for a subsidy. In March 2021, more than 75% of healthcare facilities had an energy scan performed.[118] In addition, the Flemish government in collaboration with Zorneticuro and EY developed a “sustatool” called “SustaCare” to enable healthcare facilities to monitor their strategy and activities related to sustainability in healthcare facilities.[119] Flanders also recently launched a “Green Deal Sustainable Care”, which is focused around four main themes: climate and infrastructure, healthy living and working environment, waste water and medicines, and waste and circularity of materials (purchasing policy/chain management).[111] This project examined the main challenges associated with these four themes and potential solutions, and brought together different cabinets from the Flemish government, the Flemish Knowledge Center for Water and the working group on hospital environmental coordinators (VMx).

7.2 Strategy to improve respiratory health

The EU’s binding climate and energy legislation required member states to adopt national energy and climate plans to cover the 2021–2030 period.[120] Although each region in Belgium has its own targets and regulations, they are all based on the WHO guidelines. In Flanders, the Flanders Environment Agency oversees the air policy plan and establishes objectives regarding both emissions and air quality. In Wallonia, the Walloon Air and Climate Agency (AwAC) defines the air assessment strategies, and the Scientific Institute of Public Services (ISSeP) manages the measurement networks for all the pollutants of ambient air. Wallonia committed to meeting the reduction targets laid down in the National Emission reduction Commitments Directive by 2030 and aims to respect the WHO guidelines for the protection of health as part of an integrated air/energy policy. Brussels Environment is the administration in charge of environment and energy, including air

quality in Brussels. In accordance with the long-term (2021–2030) European obligations regarding energy and climate change, Brussels adopted a 2030 energy and climate change plan. Since January 2018, a low emission zone (LEZ) was established within the Brussels region and the number of cyclists has substantially increased in recent years.

Although air quality has considerably improved in Belgium in recent decades, the majority of the Belgian population is still exposed to air pollution levels that are too high.[121] The average annual concentration of NO₂ in the Brussels region was not compliant in three stations in 2016 and in one station in 2017. Based on the output of the ATMO street model, all Flemish air quality zones exceeded the NO₂ annual threshold in 2017.

The European Commission's assessment of Belgium's final National Energy and Climate Plan (NECP) in 2020, concluded that the NECP still lacked coherence and highlights the need for better national integration between the different federated entities and the federal government.[122] Under EU effort-sharing legislation, Belgium has set itself a target of 15% reduction of greenhouse gas (GHG) emissions for non-emissions trading system (ETS) sectors by 2020 (compared with 2005) and 35% by 2030. In 2019, Belgium was on track to achieving the target.[123] However, each federated entity has their own specific targets that altogether can limit Belgium's potential to achieve the desired targets. The GHG emissions reduction targets were of 14.7% for 2020 and of 37% by 2030 (compared with 2005 levels) in Wallonia, of 15.7% by 2020 and 35% by 2030 in Flanders, and of 8.8% by 2020 and 40% by 2030 in Brussels.[124]

Regarding soil quality in Belgium, each Region has an inventory of polluted or contaminated soils and has specific programmes in place for the management of contaminated land.[125, 126] According to a recent report by the Pesticide Action Network Europe, among all countries included, Belgium was the one that most frequently produced contaminated fruits and vegetables.[127] The most toxic pesticides were found in 34% of Belgium's samples. In 2021, very high levels of the poisonous chemical PFOS (750 nanograms per millimetre vs the norm: 6.8 nanograms) were found in the soil and water around the 3M plant just west of Antwerp.[128]

7.3 Country-specific environmental risks to health

Environmental competences which include climate change are shared between the federal state and federated entities in Belgium. Consequently, the three regions have their own specific adaptation plans or climate-energy and environment-health related plans. The National Climate Commission is the national body coordinating Belgian climate policy at the national level and is in charge of the NECP (2021–2030). Furthermore, the National Environment and Health Action Plan (NEHAP), which is monitored by the Joint-Interministerial Conference on Environment and Health together with the Cell Environment-Health, consists of a multi-level and multi-sectoral framework for planning and implementing environmental health actions in Belgium.[129]

The main environmental risks to health in Belgium include GHG emissions, pesticides, endocrine disrupting chemicals (EDCs), outdoor and indoor air pollution, non-ionising and ionising radiations and environmental noise. Climate change will have an effect on health through increases in temperatures and heatwaves, urban heat island phenomena, vector borne diseases (tick borne diseases and mosquito-borne diseases), water and food-borne diseases, pollen and spores, allergies and respiratory diseases, which indirectly affects mental health.[129] The use of pesticides in general, and of glyphosate in particular is a concern of the Belgian Superior Health Council. One measure that was implemented in Wallonia to reduce the use of pesticides was the introduction of a tax on livestock effluents, fertilisers and pesticides for the agricultural sector in 2015. In 2022, Belgium published its first-ever draft national action plan on EDCs for 2022–2026, which established a general framework to reduce exposure to EDCs in Belgium.[130] The main pillars for action are: raising awareness and prevention strategies, legislative action at national and EU levels to reduce EDC exposure and research and work on identification of EDCs, including biomonitoring. Sciensano

examines the interactions between people, animals and the environment in order to assess, prevent and control the various threats to public health. This includes assessing the effects on health of the presence of various types of contaminants like pesticides, mycotoxins or heavy metals in cereals grown in Belgium, the use of genetically modified organisms or pathogens such as bacteria, viruses, waste water treatment plant sludge, monitoring outdoor and indoor air pollution, electromagnetic field and non-ionising radiations and ionising radiations, and Lyme disease.[131]

There exists a range of mitigation plans to limit environmental risks to health. For example, different plans at the regional/local levels include actions to further develop green and blue spaces in the public and private domain. Reporting systems for tick bites and separate surveillance systems for tick-borne diseases and mosquito-borne diseases are in place. Programs to eradicate exotic mosquitos are implemented at the regional level. There are also surveillance systems to monitor bathing water, bacterial pathogens, dead fish and birds, cyanobacteria blooms and outdoor aeroallergens (pollen and fungal spores).[129]

The information flow from surveillance and meteorological organisations to the healthcare sector is fragmented due to responsibilities being distributed over different authorities, such as Sciensano, and regional and federal health authorities. Many healthcare facilities reported not receiving alerts from a governmental organisation, especially for forecasted storms, rainfall, flooding and concerning vector-borne diseases. Furthermore, in most hospitals, the HEP covers emergency power, back up of water and medical gases and ICT infrastructure. However, the HEP lacks measures related to fuel supply, an electricity disconnection plan, non-return valves in sewers, or to anchoring of storage tanks (preventing them from floating out of the ground), which are important in case of more severe or prolonged climate hazards.[129]

7.4 Recommendations

7.4.1 Sustainability

RECOMMENDATION 7A

Establish a long-term climate-resilience action plan across the country for healthcare infrastructure, with targets and indicators to be monitored

RECOMMENDATION 7B

Create incentives for healthcare facilities to sort and recycle their waste, reduce single-use items, and increase re-usable ones, reduce the use of chemicals, reintroduce sterilisation and invest in low carbon buildings

RECOMMENDATION 7C

Explore options to extend medications' shelf-life, choose the most sustainable storage conditions, adjust package sizes, optimise stock management, and raise awareness of medication waste

RECOMMENDATION 7D

Invest in alternatives to incineration of hazardous healthcare waste, such as the use of disinfection treatment, to increase the circularity of waste-resources

RECOMMENDATION 7E

Optimise health care effectiveness/efficiency and rational use of health care to reduce energy consumption of the health system

RECOMMENDATION 7F

Raise awareness among healthcare workforce about risks related to healthcare waste and train them on best practices to reduce waste and resource consumption and facilitate exchanges of best practices across healthcare facilities

RECOMMENDATION 7G

Raise public awareness on environmental risk factors for health, through information campaigns

RECOMMENDATION 7H

Develop a methodology that takes into account environmental and societal impacts of a health intervention or technology in addition to its health effect and cost when evaluating its value

7.4.2. Resilience

RECOMMENDATION 7I

Update hospital emergency plans to better respond to severe and more prolonged climate or environment related crises

8. CASE STUDY 1

**Telemonitoring
patients with
cardiac implanted
electronic devices**



Telemonitoring patients with cardiac implanted electronic devices in Belgium: the need for a new financing model

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Context

Heart failure and cardiac rhythm abnormalities represent a major public health problem. The prevalence of heart failure is estimated at 1% to 2% of the US and European population.[132] Based on primary care data of ~50 practices in Belgium, prevalence of heart failure was 1.2% in men and 1.3% in women in 2015.[133] The prevalence of arrhythmias is 1% in patients younger than 55 years old, and nearly 5% in patients aged between 65 and 73 years.[134] Treatment for heart failure and arrhythmias include the implantation of a cardiac implanted electronic device (CIED). In Belgium, 15 235 patients were newly implanted with a CIED in 2019; 76.9% of which were pacemakers, 14.5% were implantable cardioverter-defibrillators (ICD), and 8.5% were loop recorders.[135] The prevalence of cardiac implants in Belgium was 0.8% in 2019, or 89,048 patients.[135] This number is expected to rise due to the ageing population. CIEDs pose a significant burden on the healthcare system, as current guidelines recommend that older patients with pacemakers should be evaluated every 3–12 months and patients with ICDs every 3–6 months.[136]

Telemonitoring can reduce this burden. Telemonitoring or remote monitoring is increasingly used to follow-up patients with CIEDs. Telemonitoring refers to the process of using telecommunication and information technology to monitor the health status of a patient from a distance. With telemonitoring, physicians can evaluate multiple parameters regarding the technical function of the device (e.g. battery and lead function), cardiovascular physiology and the risk profile of the patient (e.g. atrial and ventricular rhythm problems, and the degree of compensation of congestive heart failure). Previous research indicated that telemonitoring could reduce healthcare utilisation and the costs related to CIED patients, mainly by a reduction in the number of hospitalisations and in-person visits.[137, 138] For instance, a study indicated that telemonitoring could reduce healthcare utilisation by €914 per patient/year in pacemaker patients, and €338 per patient/year in ICD patients.[138]

Today, telemonitoring of CIEDs is considered to be a best practice by experts and is recommended by expert consensus.[139, 140] However, the current healthcare financing system hampers the effective use of telemonitoring in two ways. Firstly, the standard financing system in Belgium is a fee-for-service system, which does not allow for the possible reduction of in-person visits that telemonitoring could offer. Secondly, no reimbursement and/or remuneration exists for telemonitoring in Belgium, which gives no incentive to hospitals and physicians to apply telemonitoring.

Goal

This case study explores a potential financing model for telemonitoring CIED patients, which aims to (1) provide an incentive for physicians to reduce the number of in-person visits, and (2) is cost-effective from a healthcare perspective. Furthermore, this financing model and the insights of its development contribute to improving patient care, and the sustainability and resilience of the healthcare system.

Relevant Domains

Domain 2 – Financing

Domain 4 – Medicines & technology

Domain 5 – Service delivery

The Case: Financing model

Organisation and role of healthcare professionals

The telemonitoring process in Belgium consists of the following steps:

1. CIEDs relay remotely programmed transmissions and recorded serious events to a home gateway continuously or daily.
2. The gateway automatically sends data to the web server of the CIED vendor.
3. Allied professionals (nurse-specialists, or technicians) check the transmissions daily by accessing them through the vendor's web-portals.
4. Serious events are categorized based on their risk, and a specific alert is created for them on the vendor's web-portals. A red alert often means a high-risk event that needs immediate attention by the allied professional.
5. The allied professionals filter the data and when they encounter a serious event, they contact the patient to check what happened as well as the responsible physician, who decides if the patient needs an in-person visit, therapy modification, or other actions.

Exploring a new financing model

The Belgian healthcare system is primarily financed with a fee-for-service system. The alternative for telemonitoring is standard care, which includes in-person visits and televisits. Both in-person visits (€41.66 per visit) and televisits (€20 per televisit) provided by cardiologists are reimbursed in Belgium.

A fee-for-service system for telemonitoring might at first sight be easy to implement in the current financing system, however, some problems can be envisaged. Firstly, there is a risk of overconsumption. Therefore, it seems reasonable to expect that a maximum will be put into place to limit the service, thus encouraging physicians to keep the number of services at a minimum. Secondly, administration costs might increase, because of the increased numbers of bills and the complex billing requirements that might be put into place to determine when a telemedicine encounter vs. physical encounter should be used. Thirdly, the reimbursable service needs to be clearly defined, but this is unclear for telemonitoring as several services are performed by both the allied professional and the physician.

An episodic payment could prevent many problems of fee-for-service systems. With an episodic payment system, providers receive a fixed amount of money per patient per pre-determined episode of care. During that episode they are responsible for the resource use related to the telemonitoring activity as such but also related to complications, post-acute care and readmissions. One of the major risks of episodic payments, however, is underconsumption. Providers might for instance check the alerts once every week instead of daily. This would seriously harm the quality of telemonitoring. Therefore, episodic payments are only efficient when they are paired with quality indicators. The latter could then be linked to financial incentives. If providers keep avoidable costs related to complications and post-acute care and readmissions below a target level, they receive a part of the shared savings. discussed

Episodic payments are currently applied in Belgium for certain care pathways, such as the diabetes type 2 care pathway.[141] General practitioners (GP) and endocrinologists receive an episodic payment of €96 per patient/year. The episodic payment includes payment for the GP to coordinate the treatment and follow-up of the individual patients, and to educate the patient; and payment for the endocrinologist to coach the GP by, for instance, keeping the GP's knowledge up to date.[141]

An episodic payment system for telemonitoring is still not efficient without changes to the overall payment system. Telemonitoring paid via an episodic payment system would still have to compete with in-person visits paid via a fee-for-service system. Thus, physicians would receive an episodic

payment for telemonitoring, while they would receive a fee-for-service payment for in-person visits. This would not stimulate physicians to provide telemonitoring, but it would rather encourage them to do in-person visits. In order to deal with this challenge, in-person visits would also have to be paid within the episodic payment system. Only then the financing system could be sustainable and would stimulate physicians to efficiently provide telemonitoring.

Analysis

Telemonitoring CIED patients is not the only telemonitoring application used in Belgium. Telemonitoring already exists in many medical disciplines and therapeutic areas. For instance, real-time glucose monitoring is increasingly used for diabetes management. Telemonitoring with feedback from health professionals on glucose levels can help diabetes patients to sustain and implement the advice of health professionals.[142, 143] Besides cardiology and endocrinology, telemonitoring is also possible in pneumology,[144] gastro-enterology,[145] neurology,[146] and other medical fields. Our proposal for a new financing model might also facilitate the development of healthcare financing models for these other telemonitoring applications.

Other countries that currently reimburse telemonitoring are France, the Netherlands, and Germany.[135] France temporarily compensates physicians with an episodic payment for the telemonitoring itself, and with a fee-for-service system for the in-person visits.[135] The Netherlands has an overall episodic payment system for the financing specialized care. Telemonitoring is therefore part of the overall episodic payment system. Germany compensates telemonitoring (defined as tele-medical control of device) with a fee-for-service system.[135]

Most healthcare systems are still financed with the traditional fee-for-service systems. However, financing telemedicine with an episodic payment system would be detrimental for telemonitoring if the in-person visits would still be financed with a fee-for-service system. Indeed, in such a situation, physicians might not be motivated to reduce the number of in-person visits. Therefore, this case study shows that a fee-for-service system is not the best payment system for the adoption of technological innovation, such as telemedicine. Changing towards an episodic payment system would stimulate the adoption of technological innovation, and stimulate the resilience and sustainability of healthcare systems.

Key findings/Recommendations

The number of CIEDs is expected to rise due to the ageing population. CIEDs pose a significant burden on the healthcare system, as CIED patients should be evaluated regularly.[136] Telemonitoring could reduce this burden, by reducing the number of in-person visits, hospitalisations, and emergency admissions. Telemonitoring is considered best practice by experts. However, telemonitoring is not yet reimbursed in Belgium, which hampers its adoption. Therefore, a sustainable financing model for telemonitoring CIEDs is recommended to provide the best quality of care. Moreover, fee-for-service systems pose considerable challenges for telemonitoring. These challenges can be reduced with an episodic payment system for telemonitoring. Lastly, it seems that fee-for-service as a general financing system for the healthcare system does not encourage the adoption of telemonitoring. Therefore, episodic payment systems for telemonitoring purposes have the potential to improve the resilience and sustainability of healthcare systems.

Limitations

The findings in this case study have to be seen in light of some limitations. There is a lack of literature regarding the impact of telemonitoring CIEDs on patient outcomes. Many studies indicated no or a weak impact on quality of life (QOL). However, it is possible that the typical instruments measuring QOL (e.g. SF-36, EQ-5D) are not sufficient for measuring patient outcomes of telemonitoring. There is also lack of evidence about the impact of the financing model suggested in

this case study on costs and healthcare utilisation. Lastly, nurse-specialists play an important role in telemonitoring. However, Belgium currently has a major shortage of nurses. Without sufficient nurse-specialists, the quality of care of telemonitoring could be seriously hampered.

8. CASE STUDY 2

Shortage of nursing staff



The shortage in nursing staff in Belgium from a well-being perspective

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Context

The COVID-19 pandemic was tremendously taxing for the healthcare system and workforce in many countries worldwide, as was the case in Belgium. The rapid spread of the novel virus compelled hospitals to reorganize their services, provide proper protective equipment, and increase the capacity of emergency departments and intensive care units. In addition, healthcare personnel from all sorts of departments and backgrounds were expected to stand at the frontline and provide care to COVID patients. As such, they were not only directly exposed to the virus, but also confronted with all the losses it caused. In this context, the well-being of healthcare personnel deteriorated.

Crises, like the COVID-19 pandemic, make the weaknesses of any system abundantly clear. A prominent weakness of the Belgian health system is personnel shortage, especially in nurses, and low well-being of the healthcare workforce.[147] As a result, the remaining employees are forced to work longer and harder, diminishing their well-being. Poor well-being often results in high workforce turnover which further compounds the issue. Indeed, a recent study by the Federal Knowledge Centre for Health Care (KCE) shows that many intensive care nurses are on the verge of burnout and are considering leaving their current job, or even the nursing profession.[148] Personnel shortage, poor well-being and turnover thus form a vicious cycle characterizing the Belgian healthcare workforce.

If this issue is not addressed, the shortage of healthcare personnel will eventually result in impaired quality of healthcare services.[149] Therefore, it is of paramount importance to develop policy strategies focusing on increasing the well-being of healthcare personnel and promoting entering the profession. Recently, the Belgian federal government has taken a number of measures to tackle the shortage of staff in the healthcare sector. With these measures, the government wants to address the acute need for healthcare personnel and alleviate the pressure posed on the entire healthcare system. In the short term, the measures aim to boost ongoing training efforts and better support for care personnel with time-saving technological tools.[150]

Goal

The case study aims to examine the shortage of healthcare personnel in Belgium and their poor well-being, and to assess the measures taken to tackle these issues.

Relevant Domains

Domain 1 – Health system governance

Domain 3 – Workforce

Domain 5 – Service delivery

The Case

Shortages in healthcare personnel, especially nurses, are not a recent problem in Belgium. 20 years ago, Strodeur et al. (2002) stated the importance of addressing this issue. However, the situation has not improved over the past decades. The COVID-19 pandemic further highlighted the disastrous consequences of this issue, as hospitals were no longer able to provide non-essential care to patients.[151] In a report at the beginning of the pandemic, the EU council issued a warning for the structural shortage of health workers in Belgium, as it undermines the resilience of the health system.[152]

The shortage in healthcare personnel in Belgium is further aggravated by the high turnover rate that characterizes the nursing profession. Even before the COVID-19 pandemic, 10% of Belgian nurses were considering leaving their job.[153] During the pandemic, this number has risen to an alarmingly high rate. Now, 43.9% of the Belgian nurses is considering resigning.[147] The high turnover rate among nurses has been shown to be related to their poor working conditions and low job satisfaction.[154, 155] According to the KCE, 27% of the Belgian nurses reported low job satisfaction before the pandemic (January 2020), whereas 2 years later this number has increased to 39%.[148] In addition, their results show that hospitals with an exceptionally good work environment managed to limit the impact of the pandemic on the well-being of nurses in the ICU.[148] It is thus crucial to invest in the working conditions and well-being of nurses in order to tackle the personnel shortage.

Recently, the Belgian federal government has taken a number of measures to tackle the shortage of staff in the healthcare sector. In the following sections, these measures are described and discussed. More information on these measures can be found elsewhere.[148]

1. Healthcare personnel: part-time employees will be encouraged to work full-time

Part-time workers will be given priority to fill a vacancy with their employer or to get an open-ended contract. Moreover, it will be investigated how extra hours can be offered to part-time employees who wish to perform extra hours and how the improper use of the combination of a part-time contract with an additional contract through an (interim) agency can be countered.

2. Healthcare personnel: nurses will receive favorable tax incentives to perform overtime

An employee can voluntarily work 220 overtime hours in 2022. These voluntary overtime hours are exempt from contributions and deductions for tax and parafiscal purposes, so the employee will receive 100% of their hourly salary. For 120 hours of these 220 hours (the so called “relance overtime”), the employer doesn’t have to pay the overtime fee which equals 50% for overtime worked from Monday to Saturday or 100% for overtime worked on a Sunday, a public holiday or a day in place of a public holiday.

Favorable regimes for the abovementioned groups are proposed to make healthcare work more (financially) attractive.

Retirees

Income from work of retirees (at least 65 years or retired on July 1st, 2022) for services in the care sectors will be taxed separately at a rate of 33% and will be exempt from personal social security contributions.

Students

Students in Belgium are allowed to work 475 hours which are taxed at a lower rate. Hours of student work performed in a care institution (hospital, rest home, etc.) in the third and fourth quarter of 2022, will not be taken into account for the quota of 475 hours per year. This is an extension of a measure that was already taken for the first and second quarters of 2022.

Volunteers

The maximum annual expense allowance (e.g. meals, transport, telephone use, etc.) for 2022 will be increased to €3,684 (€2,479 not indexed) for volunteers who are effectively active in the care sector in the period from January 1st, 2022 to December 31st, 2022. Volunteers who receive the maximum daily allowance can thus work up to 100 days instead of 74 days in all care institutions

Temporary cumulation scheme

It is proposed to temporarily allow workers in a career break or time credit or temporary unemployment with company allowance (the former early retirement) to work temporarily in the healthcare sector, while retaining 75% of their benefits. These measures will apply for both the private and public healthcare sectors including vaccination sites. This is an extension of a measure that was already in place during the COVID pandemic.

Unemployed

From September 1st, 2022 until December 31st, 2022, a new system will allow unemployed people who have received benefits for at least three months to keep a quarter of their unemployment benefit if they work in the care sector and get a contract of at least one month. This accumulation of benefits and work is possible for a maximum of three months.

3. Leadership coaching to adjust work organisation and task delegation

A sum of €7 million has already been allocated in 2022 to support HR services with the implementation of qualitative measures to increase well-being at work and the establishment of a more modern organisation of work and job delegation.

4. Additional budget for equipment to facilitate nursing tasks

Technology can assist nurses in their tasks and reduce time spent on certain care tasks. It is proposed to further stimulate the introduction of technology in healthcare (e.g. replacing the manual blood pressure measurement by an automated measurement) and to apply it much more widely via a 50/50 co-financing arrangement between government and hospitals.

5. Support for healthcare personnel

- (a) Delegation of administrative tasks to non-care personnel, such as medical secretaries
- (b) Delegation of logistical tasks (e.g. pharmacy assistants)

An additional budget of €20 million for the recruitment of support staff will be made available for this purpose.

6. Further focusing on (lateral) inflow by structurally stimulating the projects “#KiesvoordeZorg” (“#ChooseHealthcare”) and Project 600

People – working outside the care sector and willing to make the transition – can follow a training course to become a carer (#KiesvoordeZorg/#ChooseCare) or nurse (Project 600). During both training courses participants are employed in the care sector and are paid during their training so that they won't suffer loss of income. In addition, after successfully completing the training, participants can start working with the same employer with whom they had an employment contract during the training. An additional budget of €23 million has been allocated to further strengthen the #KiesvoordeZorg (“#ChooseCare”) training course for carers and the Training for Nurses project (Project 600) to increase enrolment. This means that a little over 200 extra individuals each year can be selected for these respective courses.

Analysis

Measures 3 and 6 directly aim to tackle the issue of staff shortage by attracting extra hands and are thus focused on those entering the nursing profession. Attracting extra personnel can be an effective strategy as the personnel shortage increases the pressure on the existing staff, which in turn may lead to turnover.[156] However, attracting new potential nurses is one thing, retaining them another. Policy makers and hospital management should thus actively invest in the retainment of healthcare personnel for this strategy to be effective in the long term. In their study, Stordeur et al. (2007) compared low- and high-turnover hospitals, and reported that workplace well-being is key to limit nurses' turnover.[157]

Measures 1 and 2 aim to stimulate the existing workforce to work more hours. Specifically, part-time employees are encouraged to work full-time and performing overtime will become more (financially) attractive. According to the latest numbers of Statbel (2020), 85.40% of nurses are women. Women still spend more time on household tasks compared to men and will more often perform part-time

work.[158] In addition, fewer female (10%) compared to male (26%) part-time workers transitioned to full-time work in 2017.[157] As such, it remains to be seen how effective the first measure will be. The second measure aims to provide a more favorable regime for overtime. Overtime certainly should be adequately rewarded. However, promoting overtime will probably be an unsuitable strategy to tackle the shortage in nurses. Previous research has shown that long shifts and overtime are predictors of turnover.[159, 160] In addition, encouraging nurses to work more hours can negatively affect patients. Research has shown that both nurses working more than 12 hours in a day and working more than 40 hours per week have an adverse effect on patient outcomes.[161]

Measures 3, 4 and 5 aim to reduce the workload of nurses by introducing technology and equipment, attracting non-care personnel and investing in leadership coaching. Based on the influential and repeatedly validated Job Demands-Resources (JD-R) model, reducing nurses' work load can be an effective strategy.[162–164] In the JD-R model, job demands (e.g. work load) are defined as those physical, psychological, social or organisational aspects of work that require sustained physical and/or psychological effort or skills, whereas job resources (e.g. supervisor and co-worker support) are the physical, psychological, social, or organisational aspects of the job that support employees in achieving their work goals, promote personal growth and development, and lower the job demands and buffer the associated physiological and psychological costs of the demands.[164, 165] Moreover, according to the JD-R model, job demands can contribute to job strain, burnout, and further ill-health through an energy depletion or health-impairment process as these demands gradually drain the employee's (mental) resources. Job resources, on the other hand, induce a motivational process and contribute to employee engagement and other positive attitudes.[163, 165, 166] From a JD-R perspective, these measures will, on the one hand, reduce job demands and, on the other hand, generate extra job resources for nurses, potentially reducing burnout and turnover and promoting engagement and job satisfaction. Previous research among nurses has shown that job stress and leadership affect job satisfaction and that job satisfaction itself is an important predictor of intent to leave and turnover rates.[155] Similar results have been found in a study by Bruyneel et al.(2017) for Belgian ICU nurses.[154] This further highlights the importance of investing in leadership and the work environment in hospitals, and of limiting the workload placed on nurses.

Key findings and recommendations

Belgium is not the only country experiencing a shortage in nursing personnel. In fact, virtually all Westernized healthcare systems are facing this problem, including most of Western Europe,[167] Australia,[168] Canada,[169] and the US.[170] Strategies to tackle the high turnover rates among healthcare workers are therefore a high priority on the agenda of European policymakers and the WHO.[171, 172] This case study can provide valuable insights that might facilitate the implementation of effective and sustainable policy measures to tackle the shortage in healthcare personnel in other countries.

The COVID-19 pandemic had a detrimental impact on nurses' well-being. As a result, approximately 4 out of 10 Belgian nurses are considering leaving their job.[148] This is a catastrophic result given that the Belgian healthcare system has long been facing a shortage in healthcare personnel, especially nurses. Policy measures aiming to tackle this issue should not only focus on the attraction and recruitment of new healthcare staff, but should also actively invest in the retainment of healthcare personnel. Job satisfaction is key in this respect, as it is strongly related to turnover intentions and actual turnover. In order to promote job satisfaction of nurses, policy makers and hospital management should invest in a better work environment (e.g. supervisor support), provide extra resources and reduce the work load. Promoting overtime, as proposed by the Belgian government, is suboptimal, since previous research has shown that long shifts and overtime are predictors of turnover.[159, 160]

Limitations

The findings of this case study should be interpreted in light of some limitations. This case study evaluated the measures that were recently taken by the Belgian Federal government to tackle the shortage in healthcare workers from a theoretical point of view, as these measures have yet to be implemented. Therefore, certain measures, although theoretically relevant, might be hard to implement in practice. Based on this case study, no conclusions can thus be drawn on the practical feasibility of these measures. In addition, more research is needed on the effectiveness of interventions aiming to promote nurses' well-being. Job satisfaction is an important predictor of turnover intentions and actual turnover. Actively improving job satisfaction can thus be an effective strategy to tackle the high turnover rates among nursing personnel, and to alleviate the shortage of healthcare workers. A recent meta-analysis showed that extrinsic motivators (e.g. salary) will never be as effective as investing in intrinsic motivation in nurses (e.g. meaning of work) in boosting job satisfaction.[173] However, there is a great variety in well-being interventions in the literature and long-term efficacy of interventions has not been thoroughly investigated. Therefore, there is a lack of evidence concerning what type of interventions effectively promote well-being in nurses, which ingredients of these interventions may be universally effective and the long-term effectiveness of such interventions.

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