Health Systems in Transition
Vol. 26 No. 4 2024

Luxembourg
Health system review

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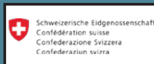

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Suggested citation. Rausch K, Goetzinger C, Lorcy AC, Durvy B, Winkelmann J, Falkenbach M. Luxembourg: Health system review. *Health Systems in Transition*. Copenhagen: European Observatory on Health Systems and Policies, WHO Regional Office for Europe; 2024. Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at http://apps.who.int/iris.

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Print ISSN 1817-6119 Vol. 26 No. 4 **ISBN 9789289014366 (Print)**

Web ISSN 1817-6127 Vol. 26 No. 4 **ISBN 9789289014359 (Web)**

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PREFACE

The Health Systems in Transition (HiT) series consists of country-based reviews that provide a detailed description of a health system and of reform and policy initiatives in progress or under development in a specific country. Each review is produced by country experts in collaboration with the Observatory's staff. In order to facilitate comparisons between countries, reviews are based on a template prepared by the European Observatory, which is revised periodically. The template provides detailed guidelines and specific questions, definitions and examples needed to compile a report.

HiTs seek to provide relevant information to support policy-makers and analysts in the development of health systems in Europe and other countries. They are building blocks that can be used to:

- learn in detail about different approaches to the organization, financing and delivery of health services, and the role of the main actors in health systems;
- describe the institutional framework, process, content and implementation of health care reform programmes;
- highlight challenges and areas that require more in-depth analysis;
- provide a tool for the dissemination of information on health systems and the exchange of experiences of reform strategies between policy-makers and analysts in different countries; and
- assist other researchers in more in-depth comparative health policy analysis.

Compiling the reviews poses a number of methodological problems. In many countries, there is relatively little information available on the health system and the impact of reforms. Due to the lack of a uniform data source, quantitative data on health services are based on a number of different sources, including data from national statistical offices, the Organisation for Economic Co-operation and Development (OECD), the International

Monetary Fund (IMF), the World Bank's World Development Indicators and any other relevant sources considered useful by the authors. Data collection methods and definitions sometimes vary, but typically are consistent within each separate review.

A standardized review has certain disadvantages because the financing and delivery of health care differ across countries. However, it also offers advantages because it raises similar issues and questions. HiTs can be used to inform policy-makers about experiences in other countries that may be relevant to their own national situations. They can also be used to inform comparative analysis of health systems. This series is an ongoing initiative and material is updated at regular intervals.

Comments and suggestions for the further development and improvement of the HiT series are most welcome and can be sent to contact@obs.who.int.

HiTs and HiT summaries are available on the Observatory's website (www.healthobservatory.eu).

ACKNOWLEDGEMENTS

The Health Systems in Transition (HiT) profile on Luxembourg was co-produced by the European Observatory on Health Systems and Policies and the Luxembourg National Health Observatory. The purpose of the National Health Observatory is to guide health decisions and policies and assess their impact by interconnecting data (such as health status, health determinants, non-monetary resources and the use of the health and care system). The National Health Observatory aims to generate information using available data and to put this information into perspective (through historical comparisons and international benchmarking) to identify areas for improvement. The National Health Observatory is an administration placed under the authority of the Minister of Health, though the Law of 2 March 2021 ensures its scientific and professional independence in terms of observation tools, findings and proposals.

This edition was written by Katharina Rausch, Catherine Goetzinger, and Anne-Charlotte Lorcy (National Health Observatory). It was edited by Béatrice Durvy, Juliane Winkelmann and Michelle Falkenbach, working with the support of Anna Maresso and Marina Karanikolos of the European Observatory on Health Systems and Policies. This edition builds on and significantly expands the *HiT in Brief 2015*, written by Françoise Berthet, Anne Calteux, Michèle Wolter and Laurence Weber and edited by Ewout van Ginneken and Anne Spranger.

The European Observatory on Health Systems and Policies and the National Health Observatory of Luxembourg are grateful to Kenneth Grech (Department of Health Systems Leadership and Management University of Malta) and Raymond Wagener (Honorary Director of the General Inspectorate of Social Security (IGSS), Luxembourg) for reviewing the report. This report benefited from the information and invaluable comments on previous drafts of the manuscript provided by the following institutions in Luxembourg: the Ministry of Health and Social

Security, Health Directorate, General Inspectorate of Social Security, National Information and Mediation Service, National Health Observatory, State Office for Assessment and Monitoring of Long-term Care Insurance, Ministry of Family Affairs (Division for the Elderly), National Health Fund and Social Security Centre.

The authors would like to thank, Ala'a Al Kerwi (Section 1.4), Mike Schwebag, Maité Poos (Section 2.8), Stephanie Sorvillo, Juliana D'Alimonte (Section 5.11) and Tanja Ducomble (Section 7.5) for their essential work on the initial drafts. Gratitude is extended to the various health care system stakeholders who participated in the workshops that served as the basis for Chapter 7 and shared their valuable insights. Special thanks also go to Karine Chevreul for moderating these workshops and for her valuable assistance during the HiT process. Thanks are also extended to the WHO Regional Office for Europe for their European Health for All database, from which data on health services were extracted, to the OECD for the data on health services in western Europe, to the World Bank for the data on health expenditure in central and eastern European countries, and to the European Commission for the Eurostat database. The authors are also grateful to the Luxembourg Statistical Office, STATEC, and other national data holders for sharing their expertise and data.

The HiT uses data available up to August 2024, unless otherwise indicated. The HiT reflects the organization of the health system as it was in August 2024, unless otherwise indicated.

The Observatory is a partnership that includes the Governments of Austria, Belgium, Finland, Ireland, the Netherlands, Norway, Slovenia, Sweden, Switzerland and the United Kingdom; the Veneto Region of Italy (with Agenas); the French National Union of Health Insurance Funds (UNCAM); the WHO; the European Commission; the London School of Economics and Political Science (LSE); and the London School of Hygiene & Tropical Medicine (LSHTM). The partnership is hosted by the WHO Regional Office for Europe. The Observatory is composed of a Steering Committee, core management team, research policy group and staff. Its Secretariat is based in Brussels and has offices in London at LSE, LSHTM and the Technical University of Berlin. The Observatory team working on HiTs is led by Josep Figueras, Director; Elias Mossialos, Martin McKee, Reinhard Busse (Co-directors); Ewout van Ginneken and Suszy Lessof. The Country Monitoring Programme of the Observatory and the HiT series are coordinated by Anna Maresso.

The production and copy-editing process of this HiT was coordinated by Jonathan North, with the support of Lucie Jackson, Lesley Simon (copy-editing) and Sarah Moncrieff (design and layout).

LIST OF ABBREVIATIONS

	English	French
AEC	State Office for Assessment and Monitoring of Long-term Care Insurance	Administration d'évaluation et de contrôle de l'assurance dépendance
ALMPS	National Agency for Medicines and Health Products	Agence luxembourgeoise des médicaments et produits de santé
Art.	Article	Article
ASFT	Law of 8 September 1998 regulating relations between the State and organizations working in the social, family and therapeutic fields	Loi du 8 septembre 1998 réglant les relations entre l'Etat et les organismes oeuvrant dans les domaines social, familial et thérapeutique.
CAPAT	Federation of Patients Associations	Cercle des Associations de Patients asbl
CCSS	Social Security Centre	Centre commun de la sécurité social
CEM	Medical Expertise Unit	Cellule d'expertise médicale
CGDIS	Grand-Ducal Fire and Rescue Corps	Corps grand-ducal d'incendie et de secours
CHE	Current health expenditure	
CHF	Congestive heart failure	
CMCM	Mutual health insurance fund	Caisse Médico-Complémentaire Mutualiste
CMFEC	Health Insurance Fund for Communal Civil Servants and Employees	Caisse de Maladie des Fonctionnaires et Employés Communaux
CMFEP	Health Insurance Fund for Civil Servants and Public Employees	Caisse de Maladie des Fonctionnaires et Employés Publics
CMSS	Social Security Medical Board	
CNS	National health fund	Caisse nationale de santé
COPD	Chronic obstructive pulmonary disease	
CPH	Standing Committee for the Hospital Sector	Commission permanente du secteur hospitalier
CSS	Social Security Code	Code de la sécurité sociale

CT	Computed tomography	
CUSS	Universal health coverage project	Couverture universelle des soins de santé
DDD	Defined Daily Dose	
DSP	Electronic health record	
DTP	Diphtheria and tetanus toxoids and acellular pertussis	
EBG	Overall budget allocation for hospital sector expenditures	
ECHR	European Convention on Human Rights	
ED	Emergency department	
EEA	European Economic Area	
EHIS	European Health Interview Survey	
EMCFL	Health Insurance Fund for Railway Workers	Entraide Médicale des CFL
ESAC-Net	European Surveillance of Antimicrobial Consumption Network	Réseau de surveillance européenne de la consommation d'antimicrobiens
EU	European Union	
EU27	27 Member States of the European Union after 1 February 2020	
EUR	Euro	
FFS	Fee-For-Service	
FHL	Federation of Luxembourg Hospitals	Fédération des Hôpitaux Luxembourgeois
FNML	National Federation of the Luxembourg Mutual Societies	Fédération Nationale de la Mutualité Luxembourgeoise
GB	Global budget	
GDP	Gross domestic product	
GNI	Gross national income	
GP	General Practitioner	
HCPN	High Commission for National Protection	Haut-Commissariat à la protection nationale
Hib	*Haemophilus influenzae* type b	
HiT	Health Systems in Transition series	
HIV	Human immunodeficiency virus	
HSPA	Health system performance assessment	

IGSS	General Inspectorate of Social Security	Inspection Générale de la sécurité sociale
IMF	International Monetary Fund	
LIH	Luxembourg Institute of Health	Luxembourg Institute of Health
LNS	National health laboratory	Laboratoire National de Santé
LTC	Long-term care	
M3S	Ministry of Health and Social Security	Ministère de la Santé et de la Sécurité sociale
MEVS	Doctors undergoing specialty training	Médecins en voie de spécialisation
MRI	Magnetic resonance imaging	
OECD	Organisation for Economic Co-operation and Development	Organisation de coopération et de développement économiques
ONA	National Reception Office	Office national de l'accueil
OOP	Out-of-pocket	
OTC	Over-the-counter	
PaRIS	Patient-Reported Indicator Surveys	
PD	Per diem	
PID	Optional third-party payment model	Paiement immédiat direct
PPP	Purchasing power parity	
PPS	Purchasing Power Standard	
PREMS	Patient Reported Experience Measures	
PROMS	Patient Reported Outcome Measures	
SAMU	Emergency Service	Service d'aide Médicale Urgente
SDR	Standardized death rate	
SHI	Statutory health insurance	
STATEC	National Institute for Statistics and Economic Studies	Institut national de la statistique et des études économiques du Grand-Duché de Luxembourg
TPS	Third-party social payment system	tiers payant social
US$	US Dollars	
VHI	Voluntary Health Insurance	
WHO	World Health Organization	

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ABSTRACT

This review of Luxembourg's health system analyses the country's health organization and governance, financing, health care provision, recent developments and reforms, as well as the system's performance.

Luxembourg's statutory health insurance system ensures a comprehensive benefits basket for a large share of the population. Although health care accessibility is high in Luxembourg, administrative considerations, such as the requirement to possess an official address or the lack of automatic third-party payment mechanisms for several services, still constitute significant barriers for vulnerable populations to access care. Overall, Luxembourg performs well on health outcomes, although indicators on behavioural risk factors and socioeconomic disparities remain sources of concern given their adverse impact on population health.

Historically, Luxembourg's health system legislation has been fragmented but the recent merger in 2023 of two ministries to compose the Ministry of Health and Social Security (known by the abbreviation M3S) sets a path towards more cohesive health care planning, legislation and financing. Nevertheless, elements of accountability and transparency in health policy-making still pose important challenges.

Considering its small size, Luxembourg's health care system is highly centralized and the health infrastructure is well distributed. However, the country relies heavily on a foreign-trained health workforce, which raises concerns about the accessibility of care and may undermine the maintenance of high standards of quality of care for complex medical procedures if the retention of skilled medical professionals is not safeguarded. Hence, Luxembourg has been focusing on developing further initial education programmes for its health professionals, as well as developing a digital health care workforce registry and legal framework to encourage multiprofessional collaboration and task-shifting opportunities.

Finally, despite efforts to enhance the sustainability of the health system via reforms for better cost containment, increased investments in preventive services and refinement of hospital services, overall efficiency could be improved. Luxembourg has one of the highest per capita expenditures on health compared with other countries with similar health system and population health outcomes and lacks a mechanism for priority setting in budget allocation, incentives for efficiency improvements, and an enhanced focus on prevention.

EXECUTIVE SUMMARY

Luxembourg is a small country with a significant share of cross-border health and social care professionals

Although Luxembourg is one of the smallest countries in the world, its gross national income per capita is one of the highest (international US$ 98 490 adjusted for differences in purchasing power (PPP)). Bordered by Belgium, France and Germany, Luxembourg had a population of 668 606 inhabitants in 2023. The country has three official languages, French, German and Luxembourgish. The population in Luxembourg is relatively young, with 85.1% aged under 65 years (compared with 78.7% on average in the European Union (EU)) and has grown substantially in the past 10 years (+23% against +1.43% in the EU). This is largely explained by the share of foreign inhabitants, which accounted for 47.4% of the total population in 2023 compared with only 26.3% in 1981. Additionally, the country's labour market is characterized by a significant share of cross-border workers, as 44% of the workforce commutes from neighbouring countries: in the health and social sectors, 41.9% of workers are cross-border employees. The reliance on foreign health professionals was particularly challenging in 2020 when borders closed in response to the COVID-19 pandemic.

Luxembourg exhibits a high life expectancy at birth, but behavioural risk factors remain major drivers of morbidity and mortality

Life expectancy at birth in 2022 was substantially higher in Luxembourg (83.0 years) compared with the EU average (80.7 years) and its gender gap is lower than the EU average (4.4 years compared with 5.4 years in the EU

average). Death rates from circulatory diseases fell from 560.0 deaths per 100 000 population in 1995 to 212.0 in 2022, but they remain the leading cause of death, followed by cancer. Furthermore, similar to the EU average, around one third of all deaths in Luxembourg in 2021 can be attributed to behavioural risk factors, in particular, tobacco consumption (10.6%), dietary risks (9.7%) and alcohol consumption (4.3%). Even if slightly below the EU average (51.3%), overweight, including obesity, was highly prevalent (47.1%) in 2019. Among children aged 11–18 years, overweight, including obesity, has risen with 21% being affected in 2022 compared with 15% in 2014. Finally, excessive alcohol consumption has been a long-standing public health concern: in 2019, Luxembourg ranked third among EU countries on the share of the population aged 15 and over reporting at least one episode of binge drinking per month (23.8%), even though some progress is observed among young people, with 27% of those aged 11–18 years reporting drinking alcohol in the past 30 days in 2022 compared with 33% in 2014.

Luxembourg's health system is centralized and based on statutory health insurance

Luxembourg's health system has a statutory health insurance (SHI) system, guided by the principles of solidarity, mandatory SHI for economically active individuals, income-based contributions and state financial contributions, and a shared financial burden between employers, employees and the state, as well as additional features such as universal access and free choice of providers. Although Luxembourg's health system legislation has been traditionally fragmented due to its long historical evolution, the merger in 2023 of the Ministry of Health and the Ministry of Social Security into the Ministry of Health and Social Security (the M3S) aims at consolidating health care planning, legislation and financing. The Ministry of Family Affairs continues to oversee long-term care (LTC) facilities and services for the elderly and disabled people. Considering its small size, Luxembourg's health system is highly centralized. The National Health Fund (CNS) manages SHI and LTC insurance.

Health sector planning focuses on the hospital sector and deliberately allows flexibility in the ambulatory sector

Planning in Luxembourg's health care system is primarily focused on the hospital sector and pharmacies, as there is no legal mandate requiring the M3S to plan for the ambulatory (or outpatient) sector. Outpatient health care practices can be established throughout the country without geographic restrictions. Health care provision is shared among hospitals and health professionals who are automatically contracted by CNS and must adhere to contractual agreements and tariffs. Not-for-profit organizations play a crucial role in delivering public health services.

Luxembourg has one of the highest shares of public financing for health care and a relatively low share of household out-of-pocket payments

Luxembourg's total health expenditure per capita was EUR 4 316 PPP in 2022, which represented 5.5% of gross domestic product in the same year. This share is not fully reflective of the country's health spending compared with other countries because Luxembourg's high economic activity, driven by cross-border workers and foreign-owned companies, significantly skews the statistic. In 2022, health expenditure from public sources represented just over 86% of current health expenditure (CHE), placing it among the top five rates in the WHO European Region. Public financing mainly derives from social security contributions paid by employers, employees, pensioners, the pension fund and the State. Government schemes represented only 6.3% of CHE and are used to finance public health programmes and infrastructure investments.

Private expenditure represented 13% of CHE in 2022, over two thirds of which was household out-of-pocket (OOP) payments and one third was voluntary private health insurance. Household OOP represented less than one tenth of CHE in 2022 (8.7%), under the EU average of 14.5%, with EUR 374.1 PPP per person stable for the past 10 years. Nevertheless, user

charges are required for most health care goods and services in Luxembourg, and extra billing by health professionals is only very lightly regulated. Consequently, 6% of the population in 2022 reported paying additional payments to their health care providers, which is higher than the EU average (4%).

The health benefits package offers comprehensive coverage to a large share of the population

The SHI is compulsory in Luxembourg for all economically active individuals, pension recipients, those under 18 years and anyone receiving state benefits, with family members being coinsured. Additionally, voluntary affiliation to SHI is available. Exemptions exist for employees working in international organizations located in Luxembourg. They represented 11 900 people in 2022 and partly explain the SHI coverage rate of 91.8%. However, parts of the populations that do not fulfil administrative and financial requirements remain left out of SHI coverage. This prompted the government to launch the universal health coverage pilot project in 2022, that aims at providing access to SHI to vulnerable populations.

Health professionals are mostly paid on a fee-for-service basis

The SHI and LTC schemes in Luxembourg are comprehensive with nationally established fee schedules determined through agreements between CNS and provider associations. Health professionals in the ambulatory sector are paid on a fee-for-service basis. Hospitals negotiate a fixed fee-for-service-based budget with the CNS falling in the limit of a global budget for all hospitals determined by the Government, excluding medical fees, which are billed on a fee-for-service basis. Most hospital health professionals (except medical doctors) are salaried and financed by the hospital's general budget.

Over the past 20 years, hospital mergers have led to larger hospitals with a higher concentration of acute care beds and a decline in the total number of hospital beds

Luxembourg had 10 hospitals in 2023, including four general hospitals that are appropriately distributed across the country. The number of hospitals significantly decreased compared with 1986 (36 hospitals), which can be explained by their conversion into LTC facilities since 1998 in response to an ageing population and by hospital mergers. Hence, coupled with Luxembourg's population growth, the total number of hospital beds has declined in the past 20 years, reaching 400 per 100 000 population in 2022, which is below the EU average (475 per 100 000 in 2022).

Luxembourg has limited human resources and technical equipment available

Luxembourg recorded a below-EU average density of physicians in 2017 (the latest year for which data are available), with 298 practising physicians per 100 000 population compared with 377 per 100 000 in the EU. The relatively low rate is linked to the absence of a comprehensive domestic medical training programme that leads to a total reliance on foreign-trained doctors. In contrast, Luxembourg has a high number of nurses, with 1 172 per 100 000 population (in 2017), far above the EU average (737 per 100 000 population), and with plans for further recruitment. Health professionals can freely settle, leading to geographical disparities in the distribution of health workers, with some cantons lacking health professionals such as physiotherapists.

Despite the recent acquisition of computed tomography (CT) scanners and magnetic resonance imaging (MRI) units, their density per million inhabitants in 2021 (22 CT scanners and 17 MRI units) remained below the Organisation for Economic Co-operation and Development (OECD) average (28 and 18, respectively). Nevertheless, Luxembourg had the second-highest frequency of CT and MRI examinations per inhabitant among OECD countries (244 and 116, respectively, in 2021), raising questions about the appropriateness of their use.

Despite a wide range of public health services, Luxembourg lacks a dedicated strategic plan to tackle key risk behaviours

Luxembourg provides a wide range of public health services, such as vaccination programmes, health promotion activities (including school-based services), as well as maternal, prenatal, child, and cancer-screening programmes. Nevertheless, there is no overarching strategic plan that is dedicated to public health and prevention and high rates of risk behaviours raise questions on the efficacy of public health policies.

Patients' freedom of choice and direct access to all health care providers are key principles of Luxembourg's health system

In Luxembourg, there is no gatekeeping system. Consequently, patients can freely choose their health care providers. Hence, there is no singular patient pathway, although some initiatives have been introduced to encourage patients to use their general practitioner (GP) as the first entry point in the health system. Patients have direct access to both primary care and specialized care providers, blurring the lines between primary and specialized care. In 2019, the share of residents who consulted a GP at least once in the year was similar to the EU average, but it was significantly higher for specialist consultations compared with the EU average (53% versus 35%, respectively). In the past decade, day care hospitalization has increased, from 31% in 2010 to 48% in 2021, and further efforts to transition from inpatient care to ambulatory care are ongoing.

Luxembourg's health care system remains hospital-centric with a greater emphasis on specialized health care services. The average length of inpatient stay in 2021 remained relatively high compared with Luxembourg's neighbours. Over the years, however, Luxembourg made efforts to shift towards more day care and ambulatory services. In 2021, day hospitalizations accounted for 48.1% of total admissions compared with 31.0% in 2010. Additionally, Luxembourg has implemented the delegation of certain services to off-site hospital branches and introduced integrated care approaches involving a range of providers to enhance patient accessibility and reduce the burden on in-hospital care.

■ A wide range of services are delivered for users of long-term care, rehabilitation and mental health care

Luxembourg has four specialized hospitals offering psychiatric, functional and cancer care rehabilitation, as well as strong service delivery in geriatrics rehabilitation care and LTC facilities. In addition to covering a wide range of LTC services and palliative care, Luxembourg also covers informal caregivers' contributions to the pension fund, provides cash benefits for the services delivered and offers training sessions to support caregivers in their roles. Successive reforms have also aimed at deinstitutionalizing mental health care, which can be provided by various providers, including psychiatrists, psychotherapists, rehabilitation facilities, hospitals and community-based services.

■ Key reforms in the past 15 years focused on ensuring Luxembourg's health system sustainability and quality of care

Following the global financial crisis in 2008, Luxembourg adopted the 2010 Health Reform, a comprehensive framework of strategies that targeted cost containment and quality improvement. This reform was key as it laid the groundwork for multiple laws to come, notably on eHealth infrastructure, and established new institutions, such as the Scientific Council for Health Care. The focus on cost containment resulted in the introduction of an overall budget allocation for hospital expenditure. Later, in 2017, the LTC reform had a wide remit and aimed for enhanced quality of care, restructuring the benefits basket, investing in preventive services and establishing clear standards. The 2018 Hospital Law marked another pivotal milestone for hospital care as it notably introduced the obligation of transparency in hospital activities, and refined hospital services based on demographic growth, medical progress and population health.

■ Upcoming policy efforts to address key health system challenges will focus on health care digitalization, pharmaceutical products regulation and health care workforce

Health care workforce shortages are a key concern in Luxembourg. The country is focusing on developing further initial education programmes for its health professionals to reduce reliance on foreign-trained professionals. A digital health care workforce register, as well as a legal framework to encourage multiprofessional collaboration and enhance autonomy and task-shifting opportunities, are also under development. To date, Luxembourg is the only EU country without its own national agency for pharmaceutical products. A draft bill entered the legislative process in 2020 to establish the National Agency for Medicines and Health Products, which will regulate and oversee pharmaceuticals and other health care products. Finally, a comprehensive national digitalization strategy is under development and aims at streamlining the various providers' information technology systems to improve health information flows for primary users, facilitate secondary use of data and prepare for the European Health Data Space.

■ The recently created Ministry of Health and Social Security seeks to tackle fragmentation challenges in Luxembourg's health system governance

In the absence of an overarching public health law, public health policies in Luxembourg lack alignment and coordination, hindering their expected outcomes. The recent merger in 2023 of two ministries to compose the Ministry of Health and Social Security (known by the abbreviation M3S) aims at responding to these issues. Nevertheless, the new M3S will also have to pursue efforts towards a more transparent and approachable health system from the user end, as it can still be perceived as challenging to navigate, especially when it comes to treatment costs and selecting health care providers. Although patient participation is one of the key elements of the 2014 Act for Patients' Rights and Duties and most patients seem

satisfied with their degree of inclusion in clinical decision-making, there is only limited information on patients' actual level of participation, and user representation in the health system remains underdeveloped.

Even though Luxembourg performs well in terms of overall health care accessibility, challenges remain in securing effective coverage of the most vulnerable individuals and in reducing waiting times

In Luxembourg, overall health care accessibility is high, and the insured population benefits from universal access, as well as a broad benefits basket. The requirement to possess an official address remains one of the key barriers to individuals' voluntary affiliation in the SHI scheme. Furthermore, financial barriers are still a major block to accessing health care for the most vulnerable individuals, as evidenced by the higher share of recorded unmet needs for medical care in the lowest income quintile. Nevertheless, unmet needs for medical and dental treatments in Luxembourg are among the lowest in Europe. Catastrophic health spending is also relatively low, affecting 3.3% of households in 2019. Exemption mechanisms on cost-sharing are in place to protect vulnerable individuals, but financial accessibility can still be improved as eligibility information is not easily accessible and rights are not automatically applied. Under the current system, patients have to pay upfront for many services and then be reimbursed by the SHI scheme but efforts to establish a wider application of a third-party payment system are ongoing.

Due to Luxembourg's small population, not all physicians or health facilities have enough patient volumes to meet appropriate standards for certain medical procedures. Hence, specific specialized treatments are available only at a single national location or, for highly complex care, abroad. Luxembourg also depends on the availability of its health care workforce, and the high reliance on foreign-trained and cross-border health care professionals, along with the significant fluctuation in health care staffing levels, constitutes a challenge to adequate health care delivery in terms of quality, safety, accessibility and timeliness.

While Luxembourg's health outcomes indicators are generally good, further efforts are needed in institutionalizing health care quality assurance and enhancing the health system's efficiency

Overall, Luxembourg performs well on measures of its population health status, with one of the highest life expectancies at birth among the EU countries and substantial decreases in recorded deaths between 2022 and the pre-COVID-19 years 2015–19 (–5.5%). Nevertheless, socioeconomic disparities in health status among the population are still evident. Furthermore, there is no national health care quality assurance framework in place, with responsibility for monitoring and ensuring the quality of services falling on service providers. International quality indicators show that Luxembourg is performing relatively well, but data on the quality of care in the country remains insufficient. National evidence-based medical practices for care have been developed, but there is no concrete follow up of their implementation. Finally, efficiency indicators suggest that there is room for improvement within various aspects of the health system. Although Luxembourg has one of the lowest treatable mortality rates per 100 000 population in Europe (a proxy indicator for health system outcomes), the country also has one of the highest per capita expenditures compared with other countries with similar results. Despite several reforms aimed at ensuring the health system's financial sustainability and cost containment, Luxembourg lacks a mechanism for priority setting in budget allocation. The financing system does not incentivize efficiency improvements, and prevention remains a minimal priority in health care delivery. Other factors that impact improving health system efficiency include obstacles to promoting task-sharing approaches between different groups of health professionals and the current lack of interoperability of information technology systems, which leads to non-standardized data recording and health information not being accessible to all health professionals.

1

Introduction

SUMMARY

- The Grand Duchy of Luxembourg is a country in Western Europe with a population of 668 606 inhabitants in 2023 and three official languages: French, German and Luxembourgish. Its population grew by 23% in the last decade, but this can be mainly attributed to immigration, with foreign nationals accounting for 47.4% of the population in Luxembourg.
- Luxembourg is a highly dynamic Eurozone Member State in terms of both economic growth and employment. In early 2023, 47% of Luxembourg's workforce were cross-border commuters. The country has one of the highest Gross National Incomes per capita in the world, at current international US$ 98 490 adjusted for differences in purchasing power in 2023.
- Luxembourg is a parliamentary democracy with a constitutional monarchy, in which the sovereign power rests in the nation. Luxembourg is a centralized country, with mandatory municipal tasks limited to education, urban development, waste management and public safety. Municipalities may also choose to handle additional tasks at their discretion.
- Average life expectancy at birth in Luxembourg has increased over the last two decades to 83.0 years in 2022, which is above the European

Union (EU) average. The leading causes of death in 2022 were circulatory diseases and cancer, while behavioural risk factors remain major drivers of morbidity and mortality. With similar rates to the EU average, tobacco consumption, unhealthy diets, alcohol and low physical activity contributed to more than one third of all deaths in 2019.

1.1 Geography and sociodemography

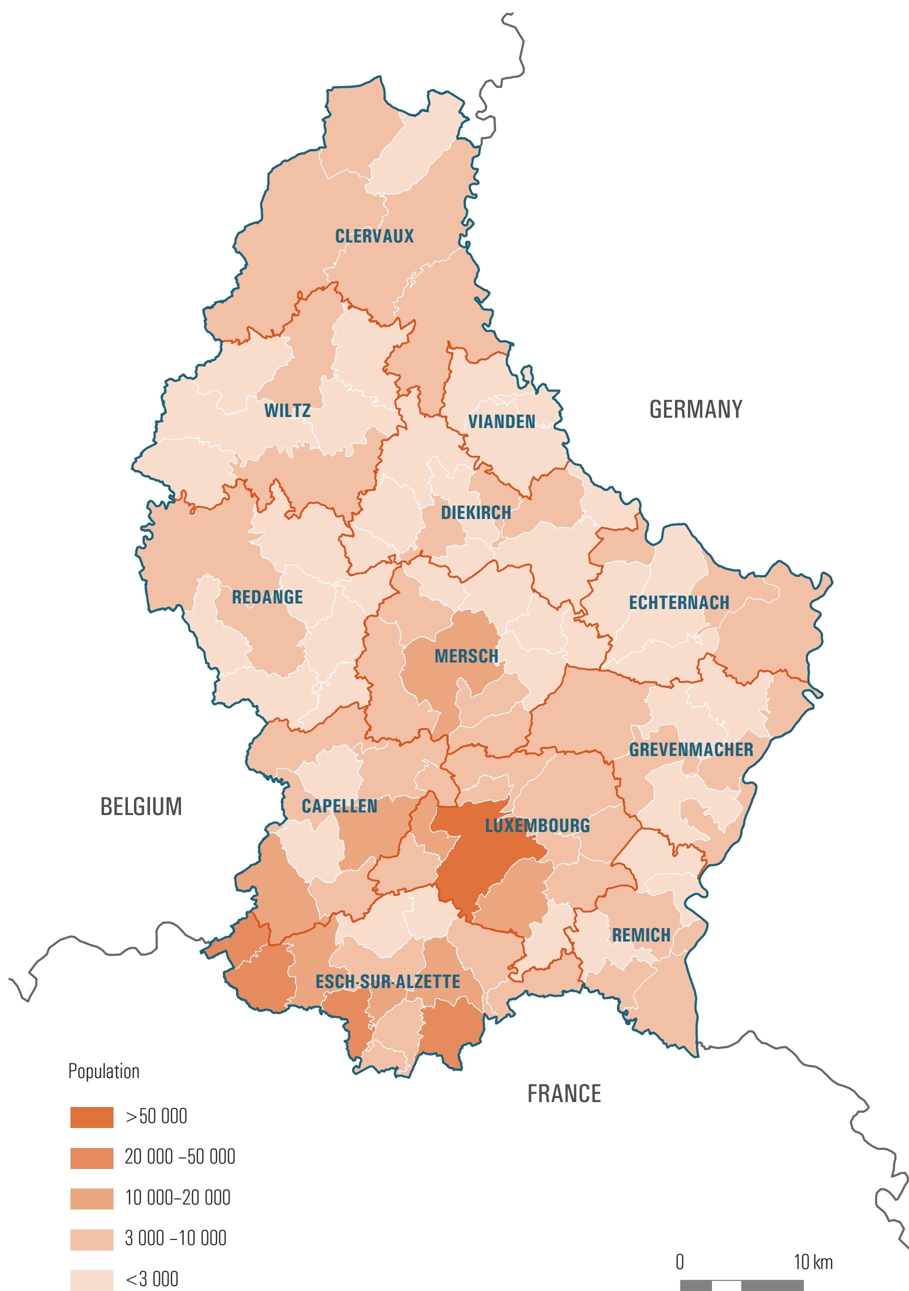
The Grand Duchy of Luxembourg is a Western European landlocked country bordering Belgium, France and Germany (Fig. 1.1). Luxembourg is one of the smallest countries in the world (2 586 km^2), the maximum distance from east to west is 57 km and from north to south is 82 km (Département de l'aménagement du territoire, 2022). Eighty-five percent of the land is wooded or used for agriculture (Ministère de l'Agriculture, 2020).

Luxembourg, divided into 12 cantons without executive roles, consists of 102 municipalities, two judicial districts (Luxembourg City and Diekirch) and four electoral constituencies (south, centre, east and north) (Fig. 1.1). In 2022–23, the country had a population of just under 670 000, marking a 2.4% increase from the previous year and making it the second smallest population in the European Union (EU) and one of only three EU countries with a population below one million. Around 20.1% of the population resides in Luxembourg City (Klein & Peltier, 2023; Eurostat, 2024a). In 2021, national statistics indicate that 53.5% of the total population lived in urban areas, which cover only 5.3% of Luxembourg's territory, while the rest lived in suburban (15.5%) and rural (31.1%) areas (Caruso et al., 2023).

Luxembourg's population density rose from 141 people per km^2 in 1981 to 255.5 per km^2 in 2023, marking an 81.2% population increase (Klein & Peltier, 2023)[1]. This growth includes a substantial 23% rise in the last decade, significantly higher than the increase of the EU population of 1.43% (Eurostat, 2024a). This growth can be largely attributed to immigration, as the native Luxembourgish population growth accounted

[1] Data presented here differ from data presented in Table 1.1. The statistics correspond to 1 January 2023, and the population census dates (1981, 1991, 2001, 2011).

FIG. 1.1 Map of Luxembourg and population distribution



Source: WHO GIS Centre for Health (2024) adapted from STATEC (n.d.a).

for only 16.5% during the same period (STATEC, 2022a, n.d.b). In Luxembourg, foreign inhabitants accounted for 47.4% of the total population in 2023, of whom 12.9% were born in Luxembourg. A steady increase in expats and immigrants has been observed since 1981, when it stood at 26.3%. Most of the foreign population are EU citizens (78.4% in 2023), with Portuguese nationals accounting for most of the Luxembourgish foreign residents (29.4%), followed by French (15.7%), Italian (7.9%) and Belgian (6.1%). Among Luxembourg nationals, 79.4% hold only the Luxembourgish nationality, but 20.6% have dual or multiple nationalities (Klein & Peltier, 2023).

Luxembourg stands out in the EU for its younger population, with 58.2% aged 25–64 years in 2023, higher than the EU average (53.2%) and neighbouring countries – Germany (53.7%), Belgium (52.2%) and France (49.5%). This population profile is driven by professionals relocating to Luxembourg. However, the age structure of Luxembourg's population has changed in recent decades, with a decreasing share of individuals aged 0–14 years and an increasing age-dependency ratio. Furthermore, the population of Luxembourg is ageing, with a notable number of individuals aged 80 years and above, resulting in a median age of 40.2 years for women and 39.1 years for men. Luxembourg exhibits a relatively low fertility rate, at 1.3 live births per woman, compared with the EU average of 1.5 in 2022 (Table 1.1) (Eurostat, 2024a).

Luxembourg has three official languages: French, German and Luxembourgish, the latter recognized in 1984 (SIP, 2022). As of 2021, Luxembourgish stands as the predominant language, with 47.1% of the population using it at home and in public settings. French is spoken by 28.1% of the population, but 30.2% do not use it at all. Portuguese ranks third at 12.4%, and English, spoken by 10.7% of the population, is mainly used in professional settings (STATEC, 2023a). Almost half of the population has at least a university degree (48%).

Just under half (48%) of the population reported being member of a religion in 2021 compared with 75% in 2008. Of these, 92% are Christians, mainly of Catholic faith. The next biggest religious groups are Muslims with 2.7% of the population (STATEC, 2023b).

TABLE 1.1 Trends in population/demographic indicators, selected years

	1995	2000	2005	2010	2015	2023 (or latest available)
Total population (thousands)	408 625	436 300	465 158	506 953	569 604	668 606
Population aged 0–14 years (% of total)	18.0	19.0	19.0	18.0	17.0	15.7
Population aged 65 years and above (% of total)	14.0	14.0	14.0	14.0	14.0	15.4
Population growth (% annual growth rate)	1.4	1.3	1.5	1.8	2.4	2.3
Fertility rate, total (births per woman)	1.8	1.6	1.6	1.5	1.4	1.3
Population density (people per km²)		169.5	180.7	196.9	221.3	244.9
Distribution of population (% rural)	17.1	15.8	13.4	11.5	9.8	7.9

Note: International date on urban/rural population in Luxembourg differ from national sources as there is no universal standard for distinguishing rural from urban areas.

Source: World Bank Group (2024).

1.2 Economic context

Luxembourg's economy is prosperous and stable, with one of the world's highest gross national incomes per capita, a strong financial sector and steady growth (Table 1.2). In 2023, financial services contributed around 30% of gross domestic product (GDP). The small, open economy relies heavily on international trade and EU ties but faces challenges like housing shortages, high living costs, an aging population and reliance on cross-border workers. By the beginning of 2023, 47% of Luxembourg's workforce were cross-border commuters, with the health and social sectors seeing 41.9% of employees from abroad (IGSS, 2024a; STATEC, 2024). Luxembourg's unemployment rate was notably below the EU average in 2023 at 5.2%, lower than France (7.3%) and Belgium (5.5%), but higher than Germany (3.1%) (World Bank Group, 2024).

TABLE 1.2 Macroeconomic indicators, selected years

	1995	2000	2005	2010	2015	2023 (or latest available)
GDP per capita (current US$)	51 032	48 659	80 988	110 886	105 462	128 259
GDP per capita, PPP (current international $)	38 325	55 117	68 787	90 361	107 859	143 342
GNI per capita, PPP (current international $)	37 320	48 770	62 650	61 400	69 410	98 460
GDP growth (annual %)	1.4	6.9	2.5	3.8	2.3	–1.1
General government spending as % of GDP	41.4	38.0	43.4	42.0	40.4	42.9
Government deficit/ surplus (% of GDP)	2.7	5.5	–0.2	–0.3	1.3	–1.3
General government gross debt (% of GDP)		7.5	8.0	19.1	21.1	25.7
Unemployment, total (% of labour force)	2.9	2.3	4.5	4.4	6.7	5.2
Poverty rate (% of total population)			17.3	17.1	18.5	20.9
Income inequality (Gini coefficient of disposable income after tax)	0.28	0.30	0.31	0.31	0.32	0.33

Notes: GDP: gross domestic product; GNI: gross national income; PPP: purchasing power parity; Poverty rate: rate of people at risk of poverty or social exclusion by age and sex.

Sources: World Bank Group (2024); Eurostat (2024); OECD (2024a); Luxembourg Income Study (2024).

The share of people at risk of poverty increased in recent years (from 18.5% in 2015 to 20.9% in 2020) but remains lower than the EU average (21.5%) (Eurostat, 2024a). Income inequality, as measured via the Gini coefficient, has increased over the last decade from 0.31 in 2010 to 0.33 in 2022, and is similar to inequality levels in Germany (0.32) and France (0.32), but higher than in Belgium (0.27) (Luxembourg Income Study, 2024).

1.3 Political context

Luxembourg is a parliamentary democracy in the form of a constitutional monarchy, governed by the 1868 Constitution, which underwent significant reform in 2023. Executive power is vested in the Grand Duke, who, as the hereditary and inviolable head of state, acts in conjunction with his ministers; all actions under his constitutional authority must be countersigned by a government member. Following the October 2023 elections, Luxembourg is led by a two-party coalition between the Christian Social People's Party and the Democratic Party, holding a majority in the 60-seat Parliament. Legislative power lies with the Chamber of Deputies (*Chambre des Députés*), which enacts laws according to constitutional procedures, and the Council of State, which provides advisory oversight with a suspensive veto right. The recent constitutional reform introduced a "citizens' legislative initiative procedure" (*proposition motivée aux fins de légiférer*). Judicial power, exercised independently by the Courts and Tribunals, encompasses civil, criminal and political disputes within the judicial branch, and administrative disputes within the administrative branch. Additionally, the Constitutional Court ensures that laws align with the Constitution (Schwebag & Nys, 2024).

Luxembourg is a relatively centralized country. The 1988 Municipal Government Act outlines the division of mandatory and optional responsibilities among government levels, with key municipal responsibilities including education, urban development, waste management and public safety, while discretionary tasks include sports, culture, housing, tourism and utilities (OECD/UCLG, 2016).

Luxembourg is a founding Member State of the EU and a member of numerous international organizations, including the United Nations, the World Health Organization (WHO), the European Economic Area (EEA), the Organisation for Economic Co-operation and Development (OECD), the World Trade Organization, the North Atlantic Treaty Organization, and the Council of Europe. Additionally, Luxembourg has signed several treaties that directly or indirectly impact health, including the General Agreement on Tariffs and Trade, the European Convention on Human Rights, the WHO Framework Convention on Tobacco Control and the United Nations Convention on the Rights of Persons with Disabilities.

1.4 Health status

In 2022, average life expectancy at birth in Luxembourg was 83.0 years (Table 1.3), 2.3 years above the EU average. The gender gap in life expectancy is lower than the EU average, with women living on average 4.4 years longer than men, compared with 5.4 years on average in the EU (OECD/European Observatory on Health Systems and Policies, 2023).

TABLE 1.3 Life expectancy, selected years

	2000	2005	2010	2015	2020	2022
Life expectancy at birth, total	78.0	79.6	80.8	82.4	82.2	83.0
Life expectancy at birth, male	74.6	76.7	77.9	80.0	79.9	80.8
Life expectancy at birth, female	81.3	82.3	83.5	84.7	84.5	85.2
Life expectancy at 65 years, total	18.1	18.8	19.6	20.5	20.2	20.0
Life expectancy at 65 years, male	15.5	16.7	17.3	18.9	18.5	19.6
Life expectancy at 65 years, female	20.1	20.4	21.6	21.8	21.8	22.2

Source: Eurostat (2024).

The leading causes of death in Luxembourg are circulatory diseases and cancer. Deaths from chronic non-communicable diseases have decreased continuously over the last decades, in particular, ischaemic heart disease and stroke. Between 1995 and 2022 the standardized death rate for circulatory diseases decreased 2.7-fold, from 560.0 to 212.0 deaths per 100 000 population (Table 1.4). Although lower than the EU average, COVID-19 alone accounted for over 10% of all deaths in Luxembourg, emerging as the third leading cause of death in 2020 and 2021 (Saleh, Abad & Weiss, 2023). Circulatory diseases were the leading cause of death in 2022, accounting for 26.4% of total deaths, followed by cancer (25.1%) and respiratory diseases (7.3%) (Table 1.4).

TABLE 1.4 Mortality and health indicators, selected years

SDR per 100 000 population	1995	2000	2005	2010	2015	2020	2022
All causes	1 278.9	1 204.5	1 115.9	1 037.3	898.5	885.9	803.7
Circulatory diseases	560.0	494.3	463.1	374.1	280.3	219.2	212.0
Malignant neoplasms	340.2	306.8	269.5	273.9	245.4	206.0	202.0
Respiratory diseases	92.0	99.5	91.4	80.1	78.8	67.5	59.0
Communicable diseases	6.9	11.2	34.4	27.7	18.3	16.8	22.5
External causes of death	65.8	71.3	48.3	64.3	54.7	45.1	41.9
Infant mortality rate (per 1 000 live births)	4.1	2.4	2.4	2.7	2.3	1.9	1.7

Notes: SDR: Standardized death rate; SDR are age-adjusted rates with the European Standard Population 2013.
Source: Health Directorate (2023).

Considering that mothers' and newborns' deaths are almost always preventable, and their health is closely linked to access to high-quality perinatal care, notable progress in reducing infant mortality was achieved over the past few decades: infant mortality almost halved between 1995 and 2022 (4.1 deaths per 1 000 live births in 1995 against 1.7 in 2022). Additionally, maternal mortality is very low in Luxembourg, with only three maternal deaths recorded between 2011 and 2021 (Seuring, Ducomble & Berthet, 2024).

According to data estimates from the European Health Interview Survey (EHIS), the most common self-reported morbidities in 2019 were lumbar diseases (29.9%), allergies (26.6%), osteoarthritis (16.7%), cervical diseases (16.4%), hypertension (15.5%) and depression (10%). Multimorbidity and chronic diseases are associated with disability and functional decline in the older population reduces quality of life, both constituting important challenges for the health care system. Nearly half of the surveyed people aged 75 years and older stated having functional limitations (47.7%). Moreover, multimorbidity, chronic diseases and functional decline were more often reported among women and people with low education (Coroller et al., 2021).

Behavioural risk factors are major drivers of morbidity and mortality in Luxembourg and were responsible for about one-third of all deaths in 2021, similar to the EU average. Specifically, 10.57% of deaths in Luxembourg could be attributed to tobacco consumption, 9.69% to dietary risks, 4.30% to alcohol consumption and 1.07% to low physical activity (Fig. 1.2). Excessive alcohol consumption remains a long-standing public health concern, with Luxembourg ranking third among EU countries: in 2019, 10.5% of the population aged 15 years and over reported episodes of binge drinking[2] at least once a week and 23.8% every month (but not weekly) (Eurostat, 2024a). However, alcohol consumption among 11–18 year olds progressively declined, with 27% reporting drinking alcohol in the past 30 days in 2022 against 33% in 2014 and 45% in 2006 (HBSC Luxembourg Study, 2023). In 2019, 11.4% of adults aged 15 years and older reported smoking daily, compared with 2014 (14.6%), and a decline below the EU average (19.3%) (Eurostat, 2024a). Nonetheless, an annual survey conducted by the Cancer Foundation showed higher daily smoking rates among people 16 years or older (17% in 2019, 18% in 2023), which may be explained by different sampling methods (Fondation Cancer, 2023; OECD, 2024b).

Overweight, including obesity is highly prevalent (47.1%), affecting 56.5% of men and 37.7% of women aged 15 years and over in 2019 and positioning Luxembourg below the EU average (51.3%) (Eurostat, 2024a). Additionally, the rise of overweight, including obesity, among adolescents is concerning, reaching 21% among the 11–18 year olds in 2022 compared with 15% in 2014 (HBSC Luxembourg Study, 2023). Poor dietary habits contribute to overweight, with only 51.9% of the population aged 15 years and over reporting that they ate fruits and vegetables daily in 2019, a figure considerably lower than the EU average (67.1%) (Eurostat, 2024a). Among children aged 11–12 years, 34% reported eating fruits and vegetables daily in 2022 (Seuring, Ducomble & Berthet, 2024). Moreover, the share of inhabitants aged 15 years and over engaging in 150 minutes or more physical activity per week increased slightly from 41.6% in 2014 to 44.9% in 2019, surpassing the EU average (32.7%), but only 39% of adolescents aged 11–18 years reported engaging in physical activity at least four times per week in 2022 against 43% in 2014 (HBSC Luxembourg Study, 2023; Eurostat, 2024a).

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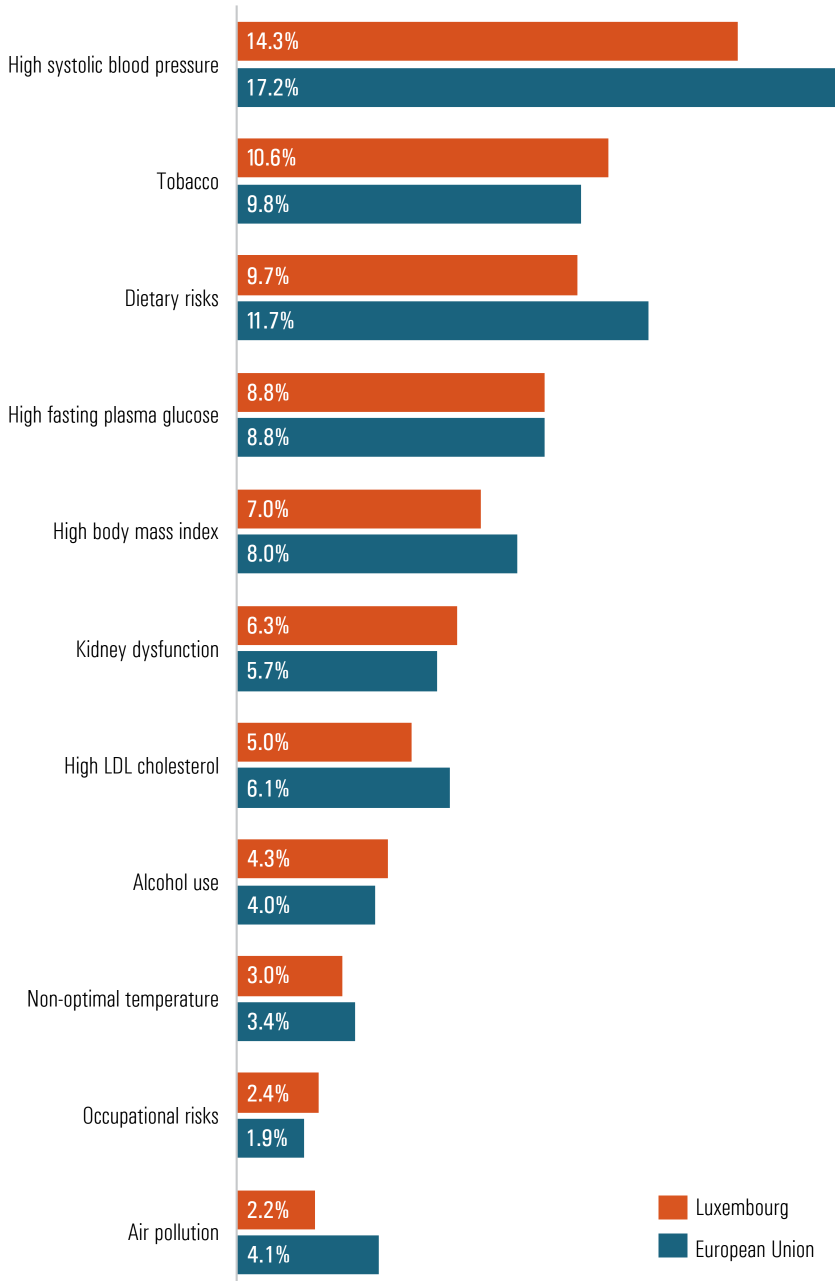
[2] "Binge drinking" is synonymous with heavy episodic drinking and is defined as consuming 60 g or more of pure ethanol (equivalent to five or more drinks in Luxembourg) on a single occasion.

FIG. 1.2 Risk factors affecting health status, 2021



Note: LDL: low-density lipoprotein.
Source: Global Burden of Disease Collaborative Network (2022).

2

Organization and governance

SUMMARY

- Luxembourg's health care system mandates statutory health insurance (SHI) for economically active individuals, financed by income-based contributions. SHI also covers the self-employed, pensioners and other groups of people. It ensures shared financial responsibility between employers and employees and the State, alongside universal access, and patient choice of service providers.
- The delivery of care is shared among private physicians, fee-for-service physicians, other health professionals, and hospitals. The regulated medico-social care sector provides public health services and social care under specific contracts with the sate.
- Health policy jurisdiction and regulation of the health care system are divided between the State (mainly the Ministry of Health and Social Security (known by the abbreviation M3S)) and the SHI, with a highly centralized organization and minimal involvement of local authorities.
- Most providers are paid by the SHI (or directly by patients who are later reimbursed). A Commission establishes the service fee schedules, which are endorsed by the M3S. Providers are automatically contracted by the SHI and are required to adhere to the fee schedules.

- Quality of care is lightly regulated at the national level. Hospitals have the option to undergo a certification process, but it is not mandatory. Until 2024, there was no formal recertification or relicensing process for health professionals. Capacity planning is restricted to the hospital sector and pharmacies.
- Fundamental rights and responsibilities for patients and health professionals are regulated by law, including access to quality health care, shared decision-making, access to patient files and free choice of health care provider.

2.1 Historical background

Disease control and early regulation of the health system

The 1815 Vienna Congress transformed Luxembourg into a Grand Duchy, distinct but in personal union with the King of the Netherlands. Independence was confirmed by the 1867 Treaty of London. An Ordinance of 1818 established a Medical Commission in Luxembourg, like those in other Netherlands provinces, to regulate health care, including practitioner certification and medical practice monitoring. From 1841 onwards, the Medical Commission evolved into the *collège médical*, which still exists today.

Initially, hospitals in Luxembourg were established by religious orders. After the French Revolution, municipalities managed hospitals as *Hospice Civil*. With industrialization, steel companies built hospitals near their sites and supported municipal hospitals. Even secular hospitals collaborated with religious orders, with nuns caring for the sick. The State played a minor role in disease control, and no public health ministry existed until 1945. Historically, medical personnel have been self-employed, operating on a fee-for-service (FFS) basis, paid by patients, and later reimbursed by health insurance funds (Collège médical, n.d.; European Observatory on Health Care Systems, 1999).

Introduction of compulsory health insurance from 1901

The introduction of compulsory health insurance in 1901 for salaried workers marked a significant development. Luxembourg's health insurance system originated from mutual aid societies, which provided support in cases of illness or death. These societies were officially recognized by the State under a law passed in 1891. Economically united with Germany by a customs union (*Zollverein*), Luxembourg introduced the statutory health insurance (SHI) for salaried workers in 1901, inspired by the German Bismarckian social health insurance scheme of 1883. Initially limited to manufacturing sector workers, coverage expanded after the Second World War. By 1973, the entire working population, their families and pensioners were covered by social security through various insurance funds (Unédic, 2022; IGSS, 2023a).

Several laws were enacted to harmonize and merge the different insurance funds to contain costs and address differing conditions for "blue-collar" and "white-collar" workers. In 2008, the introduction of a single regimen restructured the social security branches, including health insurance. The creation of the National Health Fund (*Caisse nationale de santé* (CNS)) in 2009 merged the remaining private sector health insurance funds under a single fund (see Section 3.3.1) (Leist, 2021; IGSS, 2023a).
Further details on Luxembourg's historical background are available in the 1999 edition of the Health Systems in Transition report on Luxembourg (European Observatory on Health Care Systems, 1999). Developments since 2010 are addressed in Section 6.1.

2.2 Organization

According to Article 34 of the Luxembourg Constitution, the protection of health and social security is a civil liberty that the State must regulate by formal law. Laws may be further specified by Grand-Ducal and Ministerial Regulations and orders.

The health care system's guiding principles are aligned with the Bismarckian system's principles:

- Solidarity among the insured with mandatory affiliation to the SHI scheme for economically active persons

- The SHI financed through contributions based on remuneration and no risk adjustment applied
- Financial burden shared between employers and employees and the State (see Section 3.2)

Other key features include universal access, patients' free choice of service providers and direct access to specialist services (see Section 2.8.2). Given its long historical evolution, the Luxembourgish health system's legislation is somewhat fragmented (Berthet et al., 2015). Before 2023, health-related responsibilities were divided between the Ministry of Health, the Ministry of Social Security and, to a lesser extent, the Ministry of Family Affairs[3]. The Ministry of Health managed health policy, laws and health care planning, while the Ministry of Social Security oversaw social security legislation, including sickness and dependency risks. In 2023, a new government, aiming to harmonize the system, merged the two ministries into the Ministry of Health and Social Security (*Ministère de la Santé et de la Sécurité sociale*), which is known by the abbreviation M3S in order to consolidate health care planning, legislation and financing (Mémorial A779, 2023). The Ministry of Family Affairs still oversees long-term care (LTC) facilities and services for the elderly and disabled people (see Section 5.8). In addition to the State, the health care system is regulated by the SHI scheme. The delivery of health care is shared among private physicians, FFS physicians, other health professionals and hospitals (Fig. 2.1).

Ministry of Health and Social Security (M3S)

The M3S develops health policy, enacts laws and regulations with regards to health professionals, and is responsible for planning, organizing and partially financing health care and public health services, including disease prevention. It oversees the application of laws and Grand-Ducal Regulations relating to health and health services by notably:

- Supervising, contracting and financing public and private health institutions and services
- Promoting and regulating health professionals and granting licences to practise

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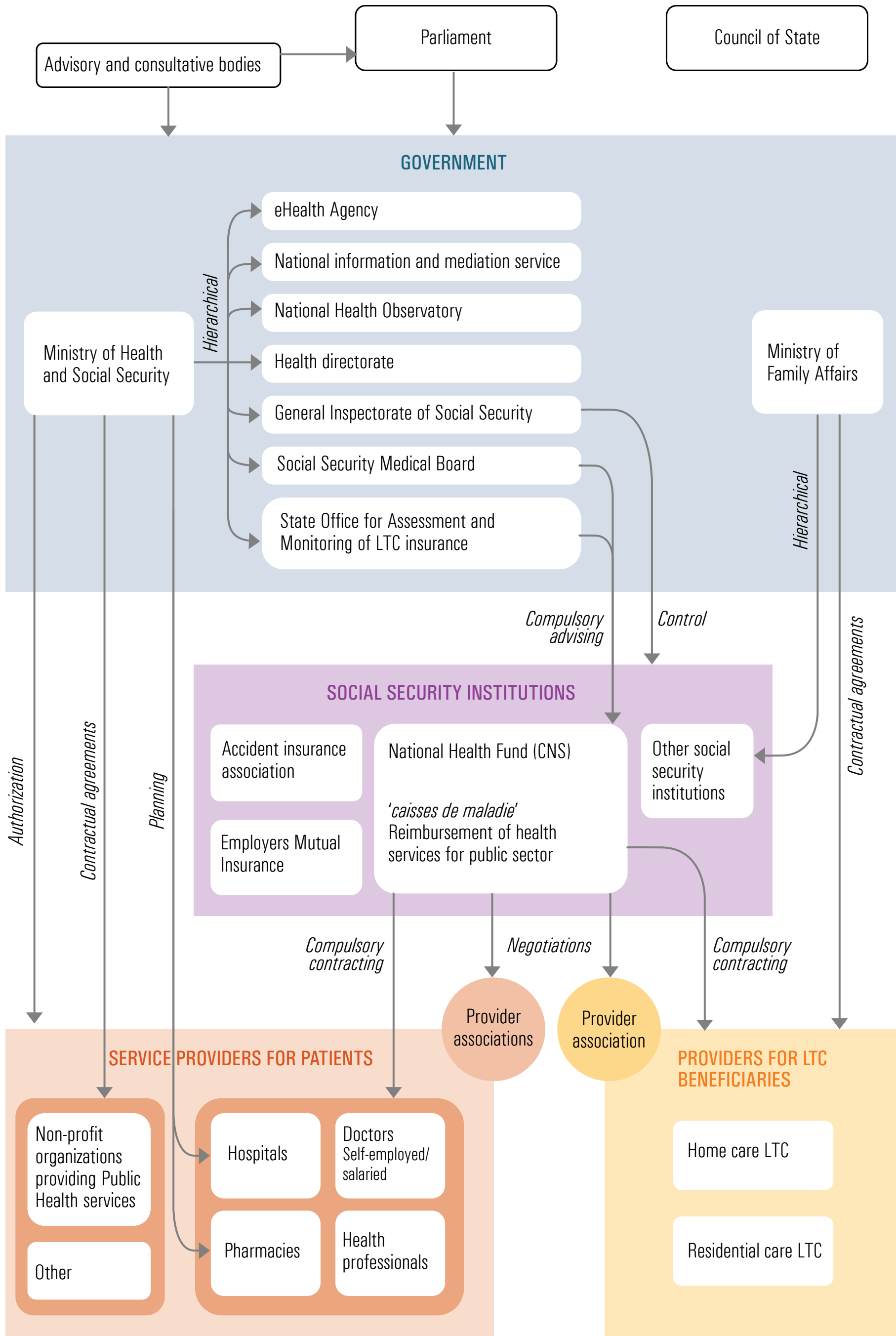
[3] Depending on the government in place, the Ministry of Family Affairs has had different names. To simplify, in this report, this Ministry is called the Ministry of Family Affairs.

FIG. 2.1 Overview of the health system: organizational relationships between the main actors



Note: LTC: long-term care.

Source: Authors' compilation.

- Planning, licensing and supervising the hospital sector
- Developing policies and cooperating with contracted and non-contracted services in the fields of prevention, social health, outpatient psychiatry, disability and chronic diseases
- Promoting eHealth and the integration of digital technologies in the health sector
- Promoting basic and clinical research in the health field (in cooperation with the Ministry of Research and Higher Education)
- Supervising hospitals, which are public institutions.

The M3S is also responsible for social security policies at the national and international levels, comprising the organization, financing, legislation, supervision and jurisdiction of the branches of the social security system as well as its coordination (Mémorial A779, 2023). The M3S relies upon a number of administrations and agencies, which are under its authority:

- The **Health Directorate** (*Direction de la Santé*): executive administration for public health in Luxembourg. Its responsibilities include the legislative and regulatory supervision and implementation of health policies, elaboration of health action plans and programmes for prevention and health promotion (see Section 5.1), assessment and monitoring of population health, control of drug life cycle and pharmaceutical health products (see Sections 2.7.4 and 5.6), and surveillance and control of communicable diseases. The Health Directorate contributes to the drafting of national and international health policies (Mémorial A79, 1980).
- The **General Inspectorate of Social Security** (*Inspéction générale de la sécurité sociale* (IGSS)): conducts analyses and studies to assess and plan social welfare schemes at national and international levels and helps draft legislative and regulatory measures on social security. The IGSS supervises and controls the social security institutions on behalf of the M3S (CSS Art. 422-424).
- The **National Information and Mediation Service** (*Service national d'information et de médiation dans le domaine de la santé*): provides information on health care, patient rights and the health care system, and acts as a mediation centre for patients and professionals (see Section 2.8.1) (Mémorial A140, 2014).
- The **National Health Observatory** (*Observatoire national de la santé*): created in 2022 under the M3S, it operates independently, guided by a council

composed of national and international experts. It aims at guiding decision-makers and health policies, as well as assessing their impact.

- The **Social Security Medical Board** (*Contrôle medical de la sécurité social* (CMSS)): verifies eligibility for social security benefits due to incapacity, invalidity or injury. It authorizes and oversees reimbursements for treatments. The CMSS issues binding advice on drug registration (see Sections 2.7.3 and 2.7.4) and advises on standards for excessive health care consumption and provider practice variations. (CSS Art. 418-421).
- The **State Office for Assessment and Monitoring of LTC insurance** (*Administration d'évaluation et de contrôle de l'assurance dépendance* (AEC)): responsible for making decisions regarding the provision of LTC insurance benefits. Within its LTC insurance services scope, the AEC conducts assessments, evaluations and verifications, while offering guidance and recommendations (see Section 5.8) (CSS Art. 383-386).

Moreover, the National eHealth Agency (*Agence eSanté*) is Luxembourg's national agency for shared health care information. It operates as an Economic Interest Group, bringing together major stakeholders in the medical and social sectors. Its primary objectives include establishing a national platform for health care data exchange and formulating a strategy for interoperable health care information systems (see Section 4.1.3) (Mémorial A242, 2010).

Advisory and consultative bodies

The Ministry of Health depends on several health agencies and commissions under the supervision of the M3S to develop and implement its policies, including:

- The **Nomenclature Commission** (*Commission de nomenclatur*e): formulates detailed advice to the M3S to draw up national fee schedules for health professionals (see Sections 2.7.3 and 3.3.4).
- The **Medical Expertise Unit** (*Cellule d'expertise médicale* (CEM)): advises the Nomenclature Commission upon request, by proposing fee schedules for providers in terms of wording and tariffs of medical services and by providing scientific evidence reports (see Section 2.7.3). The CEM

supports the Scientific Council for Health Care in developing evidence-based medical guidance (CSS Art. 65bis).

- The **Scientific Council for Health Care** (*Conseil scientifique du domaine de la santé*): is an independent body of medical professionals supported by the CEM. It develops and promotes evidence-based medical practices among professionals and the public, with equal representation of state officials and doctors (CSS, 2024; Mémorial A226, 2011) (see Sections 5.1 and 5.2).
- The **Standing Committee for the Hospital Sector** (*Commission Permanente du Secteur Hospitalier* (CPH)): has advisory functions regarding requests from hospitals for financial subsidies of the State, changes in hospital services (authorization, extension, modernization and suppression), creation of integrated care networks, and any legislative change of the hospital sector (Mémorial A222 Art. 22, 2018).
- The **Infectious Diseases Council** (*Conseil supérieur des maladies infectieuses*): advises the M3S on public health issues concerning infectious diseases. It proposes measures for prevention and control independently, despite its members being appointed by the Minister (Mémorial A705, 2018).

Statutory health insurance and long-term care

The CNS, under the supervision and control of the IGSS on behalf of the M3S, manages both the health insurance and LTC insurance branches of Luxembourg's social security system. The CNS is responsible for insured individuals in the private sector (see Sections 2.7.1 and 3.3). Health care costs paid by public sector employees and pensioners are reimbursed by three *caisses de maladie*:

- The Health Insurance for Civil Servants and Public Employees (*Caisse de Maladie des Fonctionnaires et Employés Publics*, CMFEP)
- The Health Insurance for Communal Civil Servants and Employees (*Caisse de Maladie des Fonctionnaires et Employés Communaux*, CMFEC)
- The Health Insurance for Railway Workers (*Entraide Médicale des CFL*, EMCFL).

All other aspects of the health insurance of public sector employees and pensioners are managed by the CNS.

Other actors

Professional organizations

There are two types of professional representative organizations in Luxembourg that advocate for health and care professionals. The first is mandated by law and focuses on medical ethics and overseeing professional practice. It includes the *collège médical* (representing doctors, dentists, pharmacists and psychotherapists), the Ordinal College for regulated health professions (representing other regulated health professionals) and the College of Veterinarians. These organizations must be consulted during legislative processes (Mémorial A20 Art. 19, 1992; Mémorial A84, 1999; Mémorial A58, 2002).

The second includes provider associations, which represent professionals and negotiate conventional agreements with the CNS. These conventional agreements are required by law for various provider groups operating within and outside the hospital sector (see Sections 2.7.3, 3.3.4 and 3.7). The representativeness of these professional associations is based on the number of members, their experience and their seniority within their professions. These associations act as professional unions within the health system. (CSS Art. 61, Art. 62, Art. 75).

Patient organizations

Patients are generally not represented in the consultative bodies of the health system. Exceptions include the Inter-hospital Management Committee (*Comité de gestion interhospitalière*), which is involved in the process of the project assessment of integrated care networks (see Section 5.3), and the Higher Council for Disabled Persons and the Higher Council for the Elderly (CSS Art. 387). Patient representations can issue their statements in the regulatory process. Additionally, Luxembourg's constitution (Art. 79) requires public hearings for petitions with enough signatures (see Section 1.3).

Patient advocacy in Luxembourg is supported by two key organizations. The Patient Representation Association (*Patiente Vertriedung asbl*) promotes and supports patient rights, providing information, advice and legal support on health and social security issues. The Federation of Patients' Associations (*Cercle des associations de patients*), established in 2022, unites and defends the interests of organizations that advocate for individuals with specific illnesses and their families.

Non-profit organizations

Non-profit organizations are important in the provision of preventive and curative health care and LTC. The M3S and the Ministry of Family Affairs sign conventional agreements with organizations to provide these services or finance part of their activities. These conventional agreements are based on the so-called ASFT Law (the Law of 8 September 1998 regulating relations between the State and organizations working in the social, family and therapeutic fields). Following the ASFT Law, any activity, for all groups of people, is subject to approval (*agrément*) (unless there is another legal rule), which includes (1) hosting and accommodating more than three people at the same time, during the day and/or night; and (2) providing services such as advice, assistance, care, support, guidance, social training, entertainment or career guidance (see Sections 3.3.2, 3.7.1 and 5.8) (Mémorial A82, 1998).

2.3 Decentralization and centralization

As a result of Luxembourg's size, the organization of health care is highly centralized. Exceptional delegations to local authorities include certain decentralized provision of school health services for 4- to 12-year-old pupils in some municipalities (for example, Luxembourg City) and the management of cost coverage of health services by social welfare offices (see Section 3.4.1).

2.4 Planning

Luxembourg's health system is governed by both the Social Security Code (CSS) and the Health Code[4], rather than a single legal framework. The M3S and the Health Directorate are responsible for planning health care infrastructure, resource allocation, specialized services and public health (see Sections 5.1 and 7.1).

In 2023, Luxembourg published its first national health plan following a consultative process launched in 2020 with the main health system actors, the so-called *Gesondheetsdësch* (Round table for health issues). The objective

[4] The Health Code is a collection of laws, acts and regulations.

was to identify the major health system challenges, analyse various possible scenarios, and propose priorities and related strategies.
The national health plan sets out to continuously improve on the following three main objectives:

- Population's health
- Patient care pathways
- The general health care system operating framework

Each dimension presents directions but does not specify concrete and measurable objectives. The national health plan and the *Gesondheetsdësch* lack legal institutionalization in the form of national health planning bodies. Further efforts in policy development and implementation capacity-building are ongoing (see Box 2.1).

BOX 2.1 Is there sufficient capacity for policy development and implementation?

The National Health Observatory was established to increase capacity for policy development and implementation, by enhancing evidence-based steering of the health system. In 2024, it launched a project to create a Health System Performance Assessment (HSPA) framework, supported by the European Commission and the Organisation for Economic Co-operation and Development. This framework will help to evaluate Luxembourg's health system's strengths and weaknesses, facilitate international comparisons and track progress over time. It aims to disseminate comprehensive information on the health system, resource investment, population health, and health care outcomes, thereby contributing to improved policy development.

Hospital sector

With the first Hospital Law in the 1970s, the State began taking a more active role in hospital sector planning. Since the 1990s, any changes in the hospital landscape require approval from the Ministry of Health. The 2018 Hospital Law now regulates hospital sector planning in Luxembourg (Mémorial A222, 2018). It specifies the maximum number of beds by type that can be authorized nationally, regulates the denomination of different hospital specialties, and sets the maximum and minimum number of beds per specialty. Planning must be based on health care needs outlined in the

Carte sanitaire, which depicts demographic development, health status of the resident population and international comparisons. The *Carte sanitaire* also provides a detailed inventory of the hospital sector, including services, resources, equipment and utilization rates (Art. 3 of Mémorial A222, 2018; Art. 2 of Mémorial A168, 2021). To prevent scattered efforts and resource misallocation and to regulate specialized care, the Hospital Law also established national departments and integrated care networks (see Section 5.3). For more details on hospital regulation, see Sections 3.7.1 and 4.1.1.

Ambulatory sector

There is no legal mandate for the M3S to plan for the ambulatory sector, nor is there any overall planning of health professionals in Luxembourg. Every health professional licensed to practise can open a practice, without any geographical restriction (see Section 2.7.2 for licensing of providers and Section 4.2.1 on planning of human resources).

Conversely, the number of state concessions for pharmacies is based on local and regional needs and regulated by law (Mémorial A43, 1973). The opening of a new pharmacy requires the authorization of the M3S. Concessions are awarded based on a selection process and there is the possibility to buy a private concession. One quarter of pharmacies are operated under a private concession.

2.5 **Intersectorality**

Apart from the M3S and the Ministry of Family Affairs many of the other ministries work on different public health issues. Examples of ministries and their significant health competencies include:

- Ministry of Home Affairs: organization, administration and training of emergency services, fire and rescue, and civil protection
- Ministry of Labour: campaign against work-related stress and for workers with disabilities
- Ministry of Education, Children and Youth: health promotion and specific education centres for children with special needs

- Ministry of Research and Higher Education: training of some health professionals and health research
- Ministry of Agriculture, Food and Viticulture: organization for the Security and Quality of the Food Chain, genetically modified organisms and pharmaceutical waste management
- Ministry of the Environment, Climate and Biodiversity: hazard prevention, protection of the human and national environment, and quality control of natural resources
- Ministry of State: emergencies (see Box 2.2)

BOX 2.2 How did sectors work together during the COVID-19 pandemic?

During the COVID-19 pandemic, the national response was led by the High Commission for National Protection (HCPN), established in 2001 for inter-ministerial cooperation in risk management. Attached to the Ministry of State, the HCPN coordinated crisis management efforts, working alongside the former Minister of Health and the Director of Health. Together, they established a crisis unit to oversee various aspects such as hospitals, diagnostics, primary care, care homes, logistics, the health reserve and communication.

The Organisation for Economic Co-operation and Development (OECD) evaluation of Luxembourg's policy response to COVID-19 shows that despite Luxembourg experiencing a significantly lower excess mortality rate compared with the OECD average at the beginning of 2022, the pandemic still posed challenges, particularly affecting the elderly and disadvantaged populations. This caused issues including delayed health care and worsening mental health. However, Luxembourg also demonstrated a quick mobilization of resources and actors, leading to the rapid development of new systems and expansion of health services. Looking ahead, crucial steps include strengthening information systems, enhancing the capacity of health care workers, and establishing a central procurement unit for essential products to fortify the health system against future threats. Additionally, addressing long-term needs and vaccine hesitancy remain imperative for ensuring sustained resilience (OECD, 2022).

There is no single intersectoral committee on health. Cooperation among different stakeholders is facilitated through various means, such as intersectoral programmes (for example, the Dementia Action Plan developed in collaboration with the Ministry of Family Affairs; or the Environmental Health Plan developed in collaboration with the Ministries of Agriculture, Labour and Environment), horizontal public health

committees and specific intersectoral structures (for example, the Committee on Health Professional Training). Representatives from the M3S are members of the boards of directors of public entities that relate to public health.

2.6 Health information systems

In Luxembourg, as in other countries, different institutions collect data for specific purposes (for example, registers, surveys or administrative data). Although Luxembourg has a unique patient identifier, it does not have a national health information system (health data platform) that facilitates the collection, quality control, provision and processing of data for population health assessment, including health services utilization and health system performance assessment for planning purposes (Empirica, 2020). Nevertheless, pseudonymized health data can be shared with research organizations and administrations, for example via a platform by the IGSS (IGSS, 2019a).

Luxembourg is following the European development in the field of health information systems and is preparing for the implementation of the European Health Data Space Act. Currently, the legislation is being drafted to implement the Data Governance Act. Current developments are described in Section 6.2.

2.7 Regulation

2.7.1 *Regulation and governance of third-party payers*

As mentioned in Section 2.2, SHI funds fall under the supervision of the M3S, through the IGSS and managed by Councils of Administration. The CNS manages the SHI for both the private and public sectors and reimburses private sector workers for the provided services, whereas the *caisses de maladie* dedicated to the public sector only reimburse the services for public sector employees (CSS Art. 44 and Art. 48).

For health care, the Council of Administration of the CNS is composed of elected representatives of employers, insured employees and self-employed persons in equal shares and is chaired by a representative of

the State. Hence, employee and employer unions play an important role in SHI management.

The Council of Administration is notably responsible for:

- Establishing an overall SHI annual budget, including the budget for administrative costs drawn up by the SHI funds for the public sector
- (Re-)setting the contribution rate
- Establishing the Statutes regulating everything concerning benefits within the limits of the legal, regulatory and conventional provisions
- Approving the overall annual statement of income and expenditure and the balance sheet.

These decisions are subject to approval by the M3S on the advice of the IGSS (CSS Art. 45).

In line with the budget approved by the M3S, it is the Council's mission to prepare the negotiations between the Council's president (or their representative) and the health professionals (see Section 3.3.4).

Since 2018, the CSS sets governance principles (Mémorial A678, 2018). CNS Council of Administration creates a triennial plan outlining strategic goals. The CNS develops action plans to achieve these goals, managing risks. The Council defines governance rules for mission execution and stakeholder interactions, focusing on internal and external communication, security and anti-abuse measures.

The Council of Administration of LTC insurance does not include employers' representatives because employers do not participate in financing LTC insurance (see Section 3.3), and its responsibilities differ slightly from those of the SHI fund's Council (CSS Livre Ier).

2.7.2 *Regulation and governance of provision*

HEALTH CARE PROFESSIONALS

Four different acts within the health code regulate the practice of health and care professionals:

- The modified Law of 29 April 1983 on the regulation of the practices of physicians, dentists and veterinarians (Memorial A31, 1983)
- The act of 31 July 1991 determining the conditions for authorization to practise the profession of pharmacist (Mémorial A60, 1991)

- The Law of 14 July 2015 creating the profession of psychotherapist (Mémorial A136, 2015)
- The modified act of 26 March 1992 on the exercise and enhancement of certain health and care professions, such as health care assistants, social workers, dieticians, nurses, physiotherapists, orthoptists and midwives (Mémorial A20, 1992)

These acts and related Grand-Ducal Regulations set the conditions for receiving authorization to practise and define the rules and modalities regarding the exercise of the profession. Deontological Codes are established by the *collège médical* and the Superior Council of Certain Health Professions. In addition, the CSS defines the relationship between providers and the SHI (CSS Art. 61, Art. 388bis).

Licensed providers with a CNS framework agreement are automatically contracted and must follow CNS tariffs and reimbursement rules, whereas those providers not on the specified list (CSS Art. 17, Art. 61, Art. 64, Art. 388bis) cannot bill through the SHI (for example, osteopaths) (see Sections 3.3.1, 3.3.4 and 3.7.1). The Medical Code of Ethics mandates continuing medical education, coordinated by the Health Directorate. However, there is no legal obligation or incentive for professionals to engage in continuing medical education, and their practice licence is not dependent on it.

An overview of the regulation of providers is displayed in Table 2.1.

HEALTH FACILITIES

The 2018 Hospital Law defines the different types of hospitals and services, their obligations, requirements and organizational structure. The conventional agreement signed by the CNS and the Federation of Luxembourg Hospitals (FHL) stipulates budgetary rules and staffing standards, and mentions several commissions dealing with quality issues (see Box 2.3). Regulation of other health facilities, such as homes for the elderly or ambulatory mental care centres, falls under the responsibility of the Ministry of Family Affairs. It is responsible for conducting inspections to ensure that they meet the criteria set out in the relevant regulations, notably following the criteria set in the 2023 Law on the quality of services for the elderly (Mémorial A562, 2023). Quality in LTC is described in Section 5.8.

TABLE 2.1 Overview of the regulation of providers

	Legislation	Planning	Licensing/ accreditation	Pricing/ tariff setting	Quality assurance	Purchasing/ financing
Public health services	Health code*	M3S Health Directorate	–	M3S Health Directorate	–	State budget
	CSS (conventional agreements regarding prevention)			M3S		
Ambulatory care (primary and secondary care)	Health code* CSS Statutes CNS Conventional agreements CNS-service providers	None	M3S	SHI	–	SHI
Inpatient care	Health code* CSS Statutes CNS Conventional agreements CNS-service providers	M3S Health Directorate	M3S	Overall budget for hospital expenditure fixed by Government SHI	SHI	SHI
Dental care	Health code* CSS Statutes CNS Conventional agreements CNS-service providers	None	M3S	SHI	–	SHI
Pharmaceuticals (ambulatory)	Health code* CSS Statutes CNS Conventional agreements CNS-service providers	M3S Health Directorate	Professionals: M3S Products: Health Directorate	M3S	Health Directorate	SHI
LTC	2023 Act on the quality of services for the elderly	–	Professionals: M3S Products: Health Directorate	SHI	Services: AEC Structures: Ministry of Family Affairs	SHI

Notes: AEC: State Office for Assessment and Monitoring of the LTC insurance; CNS: Caisse Nationale de Santé; CSS: Social Security Code; LTC: long-term care; M3S: Ministry of Health and Social Security; SHI: statutory health insurance. *Health code is a collection of laws, acts and regulations.

Source: Authors' compilation.

BOX 2.3 What are the initiatives to improve quality of care in hospitals?

The evaluation committee, with equal representation from the Federation of Luxembourg Hospitals (FHL) and the National Health Fund (CNS), oversees the quality programme, which sets criteria for performance bonuses. Hospitals must undergo accreditation. They collect data on quality indicators, including health care, human resources, management, patient pathways and processes. A module in the quality programme focuses on documentation as foreseen by the 2018 Hospital Law, ensuring reliable data collection and analysis. The bonus amount depends on overall results, and hospitals can fund initiatives to improve care quality and safety, especially for accreditation.

The CNS finances continuous training for health professionals through the hospital budget. Hospitals must implement risk management, quality assessment and adverse event prevention, including nosocomial infections (Mémorial A222, 2018). They must designate a patient relations officer or complaint manager for incident reporting. The 2018 Hospital Law also established the Inter-hospital Management Committee (CGI) to coordinate and ensure the quality of hospital services and to produce an annual report on quality assurance (Sante.lu, 2022a).

2.7.3 *Regulation of services and goods*

BASIC BENEFITS PACKAGE

The CSS (Art. 17) regulates the services included in the benefits package, with service providers and SHI funds establishing conventional agreements specifying these services and adherence to national fee schedules. Reimbursement rules are outlined in the Statutes of the CNS (see Sections 2.7.1 and 3.3.4).

The M3S has the authority to adjust national fee schedules based on recommendations from the Nomenclature Commission. This commission proposes content and official tariffs for services listed in the nomenclatures, with optional and non-binding advice from the CEM. It comprises two members appointed by the M3S, including the Chairman and one doctor, two members appointed by the Council of Administration of the CNS, two members appointed by the group or groups representing doctors under agreement, and potentially two members from groups involved in relevant agreements depending on the fee schedule. Decisions are made by majority vote.

The benefits basket can therefore be influenced by altering the CSS, conventional agreements and national fee schedules.

Additionally, the M3S annually convenes the quadripartite committee (CSS Art. 80), including government, employee, employer and health care provider representatives, to assess the financial status of SHI and propose actions to improve health care efficiency. The committee has an advisory role and no decision-making authority.

HEALTH TECHNOLOGY ASSESSMENT

Luxembourg does not have a formal health technology assessment agency. However, two public bodies are involved in the assessment of drugs, diagnostics and therapeutic interventions:

1. CMSS (see Section 2.2), which, following applications from pharmaceutical companies, advises on the inclusion of new products on the positive list of drugs prescribed in ambulatory care and reimbursed by the CNS. CMSS advice is included within rapid assessment reports and is binding for the decision-maker.
2. CEM (see Section 2.2), which advises on the diagnostic and therapeutic interventions' effectiveness, quality and economic efficiency – hence using scientific evidence to strengthen the scientific basis of the discussions and decisions taken by the Nomenclature Commission and other bodies (CSS Art. 65bis).

2.7.4 *Regulation and governance of pharmaceuticals*

The Pharmacy and Medicines Division of the Health Directorate oversees pharmacy practice and the regulation of medicines and health products, as the competent authority under M3S. This includes manufacturing, quality control, marketing, advertising, distribution and importation of products, along with drug precursors, cosmetics and medical devices. Luxembourg does not manufacture pharmaceuticals. The National Health Laboratory monitors the quality of pharmaceuticals post-marketing used in Luxembourg, whereas Belgian pharmaceuticals can be controlled by the Belgian Pharmaceutical Association in Belgium and Luxembourg on a random basis (APB, n.d.).

Wholesale distribution of medicines requires authorization from the M3S, following submission of necessary documents. Luxembourg recognizes authorizations from other EU Member States. Pharmacist inspectors conduct inspections every 5 years for Good Distribution Practice certification renewals.

The Pharmacy and Medicines Division ensures compliance with drug advertising regulations, reviewing advertisements submitted by the Marketing Authorization holder and recommending content adjustments based on the medicine type and health care professional's field.

Luxembourg is the only EU country without a dedicated national regulatory authority for medicines and health products, hindering regulatory capacity and market access. A law is underway to create the *Agence luxembourgeoise des médicaments et produits de santé* (ALMPS) (CHD, 2020a) (see Section 6.2).

MARKETING AUTHORIZATION, PRICING AND REIMBURSEMENT

All drugs marketed in Luxembourg are imported, with most coming from Belgium (80–90%), Germany (7–17%) and France (3%) (Conseil de la concurrence, 2022). The holder of exploitation rights for a medicinal product (typically a pharmaceutical company) must apply to the M3S for a marketing authorization. Issuance, withdrawal or suspension of marketing authorizations is regulated and published in the *Journal officiel* (as *Arrêté ministériel*) (Mémorial A27, 1983; Mémorial A103, 1992).

The M3S (previously the Ministry of Social Security) is responsible for setting drug prices, governed by the Grand-Ducal Regulation of 1 December 2011. According to Article 13, the pre-tax price of a drug with a marketing authorization cannot exceed the price approved by the competent authority of the country of origin.

Based on CMSS advice, the CNS decides on the inclusion of medicinal products on the approved and reimbursed list (positive list) and determines the applicable reimbursement rate. The CNS's decision concerns only reimbursement conditions and does not affect the official price.

Outpatient drug reimbursement in Luxembourg depends on inclusion in the positive list published in the *Journal officiel*. Medicines on this list fall into three categories, each with a specific reimbursement rate:

- Reduced Reimbursement Rate of 40%, for drugs of moderate importance in medical practice, mainly for symptomatic treatment of benign pathologies, with exceptions.
- Normal Reimbursement Rate of 80%, applies to all listed drugs not specified differently by CNS bylaws.
- Preferential Reimbursement Rate of 100%, for drugs meeting specific criteria: precise therapeutic indication, single active ingredient, irreplaceable or vital for serious or chronic conditions and resulting in undue financial burden if not fully reimbursed. All conditions must be met concurrently.

PHARMACOVIGILANCE

Health professionals, including physicians, dentists, pharmacists and midwives, are legally required to report suspected adverse effects of medicinal products. Other health professionals and patients may report voluntarily.

The Pharmacy and Medicines Division, under the Health Directorate, handles national pharmacovigilance and collaborates with the French Regional Pharmacovigilance Centre of Nancy. As in all EU countries, the Marketing Authorization holder of medicinal products must establish and maintain a pharmacovigilance system to ensure product safety and monitoring.

Luxembourg, as a member of the European Medicines Regulatory Network, has access to EudraVigilance, a system for managing and analysing information on suspected adverse reactions to medicines in the EEA. It is involved in seven European Medicines Agency scientific committees and has been part of the WHO Programme for International Drug Monitoring since 2020.

2.7.5 *Regulation of medical devices and aids*

MAJOR MEDICAL EQUIPMENT

Medical equipment and devices require authorization from the M3S if they fall into one of the following categories:

- Are subject to national planning or may require highly qualified personnel for their operation. The Hospital Law contains an explicit list of equipment listed in Annex 3 (Hospital Law Art. 14 (1)).
- Exceed the costs of EUR 250 000 (excluding value-added tax) (Hospital Law Art. 14 (2))

Authorization requests can only be made by a hospital and must be accompanied by a cost analysis conducted by the hospital. The M3S must seek the advice from the CPH (see Section 4.1.2 on Equipment infrastructure). The acquisition, installation and use of ionizing radiation sources also require prior authorization from the M3S or the Health Directorate (Sante.lu, 2024a).

MEDICAL DEVICES AND AIDS

Unlike pharmaceuticals, medical devices and aids do not require a marketing authorization. Their regulation is governed by EU Regulation 2017/745 and the modified 1990 Law on medical devices, along with Grand-Ducal Regulations (Mémorial A3, 1990). Medical devices must have the CE marking and an EU declaration of conformity from the manufacturer, indicating compliance with safety and performance requirements as per EU Regulation 2017/745. In Luxembourg, Class I medical devices must be registered with the Health Directorate, but higher-class devices require a certificate of conformity from a notified body.

Reimbursement for medical devices depends on their inclusion in the statutory CNS list and compliance with rules. Specific regulations apply to technical aids for LTC insurance beneficiaries.

Manufacturers based in Luxembourg must register with the Health Directorate. Non-EU manufacturers must appoint an Authorized Representative within the EU, who must also register with the Health Directorate. Economic operators in Luxembourg can register via the EUDAMED Actor Registration Module (Sante.lu, 2024b).

Health technologies contribute about 12% of Luxembourg's manufacturing ecosystem. According to Luxinnovation's 2020 HealthTech ecosystem map, the sector included 136 private companies employing nearly 1 900 people, with growth in recent years (Luxinnovation, n.d.).

2.8 **Person-centred care**

2.8.1 *Patient information*

Various sources of information on accessing health care services for patients exist. Information is provided on the M3S Portal (www.sante.public.lu), hospital websites and through patient organizations. Information about statutory benefits is available on the CNS website. Specific information was set up for patients with rare diseases (Infoline Maladies Rares Luxembourg).

The 2014 Law on patient rights and duties (see Section 2.8.3) created a National Information and Mediation Service (see Section 2.2), which informs patients about their rights, explains Luxembourg's health system, its operation and main actors, mentions recognized health professionals, and notifies of the possibilities for settling a dispute. Patients also have access to a supportive space at the so-called *Patienten House* at the *Centre Hospitalier de Luxembourg*, where they and their families, along with various participating associations and caregivers, can exchange information, receive guidance and actively manage their illness to enhance their quality of life (CHL, n.d.a) (see Table 2.2 for more information on patient information).

Yet, the information available to patients is sometimes not detailed enough to help them find the most suitable health professional. Language barriers are particularly problematic as information is often only available in French. Furthermore, some specific information is very limited (for example, statistics on medical errors, quality indicators, waiting times) or outdated.

2.8.2 *Patient choice*

Patients in Luxembourg can choose and change health care providers freely, including direct access to specialists (see Table 2.3).

Within hospital establishments, however, patients' choice is limited to the physicians and health professionals approved by the establishment. Due to Luxembourg's small population, not all physicians or hospitals have sufficient patient volume to meet standards for certain medical procedures. As a result, some specialized treatments are only available at a single location (national services) or abroad.

TABLE 2.2 Patient information

Type of information	Is it easily available?	Comments
Information about statutory benefits	Yes	Information is online. Physicians have a duty to inform and assist patients, but some patients struggle to access and understand it.
Information on hospital outcomes	No	
Information on waiting times	No	A tool is being developed to inform on waiting times for diagnostic testing.
Comparative information about the quality of other providers	No	
Patient access to own medical record	Yes	Every patient has the right to access their file, consult it, or request a copy. Requests are handled within 15 days, unless urgent. Patients have direct access to a shared electronic health record (*dossier de soins partagé*) (see Section 4.1.3).
Interactive web or 24/7 telephone information	Yes for urgent medical matters	During working hours, patients can contact the hospital, health care provider, information and mediation service, statutory health insurance fund, or patient organizations. A national phone number is available 24/7 for urgent medical matters.
Information on patient satisfaction collected (systematically or occasionally)	Partly – in hospitals	Hospitals collect information on patient satisfaction through non-standardized questionnaires.
Information on medical errors	No	

Source: Authors' compilation.

Health professionals may refuse to treat a patient for personal or professional reasons. Health care must be refused if the provider is not competent to provide the required treatment. The refusal to treat a patient cannot be linked to discriminatory considerations and health professionals must always provide emergency treatment and ensure continuity of care. At the patient's request, providers must assist in finding a qualified health care provider and transmit any relevant information to the successor (Mémorial A140, 2014).

The right to health care and LTC is ensured through the SHI schemes for health, accidents and LTC (see Section 3.3.1).

TABLE 2.3 Patient choice

Type of choice	Is it available	Do people exercise choice? Are there any constraints (for example, choice in the region but not country-wide)? Other comments?
CHOICES AROUND COVERAGE		
Choice of being covered or not	No	Mandatory insurance for economically active people, and pensioners. Private complementary voluntary health insurance is optional
Choice of public or private coverage	No	Private purchase is limited to voluntary complementary private health insurance
Choice of purchasing organisation	No	Attribution to the SHI is automatic, based on the employer (see Section 3.3.1)
CHOICES OF PROVIDER		
Choice of primary care practitioner	Yes	
Direct access to specialists	Yes	
Choice of hospital	In theory Yes, subject to organizational constraints	Initial hospital choice may be limited by organizational constraints. Some hospital services, such as national services, may not offer choice for urgent care
Choice to have treatment abroad	Yes, subject to prior authorization in some cases	Prior authorization for full reimbursement is necessary for planned hospital care abroad or for health care provided using highly specialized medical equipment (see Section 2.8.4)
CHOICES OF TREATMENT		
Participation in treatment decisions	Yes	The 2014 Law on patient rights requires shared decision-making, ensuring patients receive essential health care information. Details like costs, quality and insurance coverage are provided upon request
Right to informed consent	Yes	Health care services require clear, tailored information in one of the official languages. Patients can choose a translator. They have the right to remain uninformed of diagnosis or prognosis unless it risks others' safety, noted in their medical file
Right to request a second opinion	Yes	While not formally guaranteed, patients often seek second opinions. The SHI restricts reimbursement for multiple medical consultations within set time frames
Right to information about alternative treatment options	Yes	Prior information to include information about therapeutic alternatives and foreseeable consequences in case of refusal of the treatment

Note: SHI: Statutory Health Insurance.

Source: Authors' compilation.

2.8.3 *Patient rights*

The 2014 Law on patient rights and duties (Mémorial A140, 2014) consolidates fundamental rights and responsibilities for patients and health professionals. It ensures equitable patient–professional relationships and promotes shared decision-making. Patient rights outlined in the Act (Fig. 2.2) overlap with other legal frameworks like the CSS and medical deontology (Table 2.4). Specific aspects, such as end-of-life care, are governed by dedicated laws (see Section 5.10). Luxembourg has signed but not ratified the Oviedo Convention on Human Rights and Biomedicine.

FIG. 2.2 Main patient rights in the 2014 Law on patient rights and duties

Source: Authors' compilation.

TABLE 2.4 Patient rights

	Yes/No	Comments
PROTECTION OF PATIENT RIGHTS		
Does a formal definition of patient rights exist at the national level?	Yes	2014 Law on patient rights and duties (Mémorial A140, 2014)
Are patient rights included in legislation?	Yes	2014 Law on patient rights and duties (Mémorial A140, 2014)
Does the legislation conform with WHO's patient rights framework?	Yes	2014 Law on patient rights and duties (Mémorial A140, 2014)
PATIENT COMPLAINTS AVENUES		
Are hospitals required to have a designated desk responsible for collecting and resolving patient complaints?	Yes	
Is a health-specific Ombudsman responsible for investigating and resolving patient complaints about health services?	Yes	
Are there other complaint avenues?	Yes	Complaints may be directed to professional orders for disciplinary action, the M3S for licensing, and the Health Directorate for organizational failures, hygiene and non-compliance with mandatory standards
LIABILITY/COMPENSATION		
Is liability insurance required for physicians and/or other medical professionals?	Yes	
Can legal redress be sought through the courts in case of medical error?	Yes	
Is there a basis for no-fault compensation?	No	A no-fault indemnification system for medical accidents, including compensation for therapeutic hazards, has long been considered, but remains unregulated by the legislator for health care accidents
Can patients obtain damage awards for economic and non-economic losses if a tort system exists?	Yes	The patient must prove the fault caused the damage
Can class action suites be taken against health care providers, pharmaceutical companies, etc.?	No	Luxembourg law does not currently allow for class actions. The proposed law N°7650 introducing consumer class actions is pending before Parliament, with its implications for health professionals still unclear (CHD, 2020b)

Note: SHI: Statutory Health Insurance.

Source: Authors' compilation.

2.8.4 *Patients and cross-border health care*

Due to many non-resident workers (see Section 1.1) and the unavailability of tertiary care for many conditions, a significant portion of health care expenses occurs in neighbouring countries. Non-residents often seek care in their home country, and residents are referred abroad for specialist procedures and treatments (Leist, 2021).

In 2022, the CNS spent EUR 555 million on health care services abroad, representing 17.2% of its health care expenses (IGSS, 2023b). Services abroad include coverage for non-residents insured under international agreements (96.3% of services abroad in 2022) and coverage for residents receiving care abroad. The most significant expenditure item related to international agreements concerns cross-border insured individuals (76% in 2022).

For treatment abroad, previous authorization from the CNS is required for planned inpatient treatment and use of specialized, costly equipment. For other services, previous authorization is optional, with reimbursement following national rules. In 2022, 8 689 transfers were authorized, mostly under European Regulation 883/2004 (92.6%) (CNS, 2023a). These authorizations were predominantly motivated by consultations and examinations (54%) and hospital treatments (43%) (CNS, 2023b).

Information on cross-border health care can be obtained through National Contact Points (Directive 2011/24/UE). The CNS provides information on entitlements for cross-border health care, and the National Information and Mediation Service informs on health care in Luxembourg.

3

Financing

SUMMARY

- In 2022, per capita health expenditure in Luxembourg was EUR 4 316 adjusted for differences in purchasing power, and public health expenditure accounted for 86.1% of current health expenditure (CHE), which represents the third highest proportion of public health financing in the WHO European region. Private health financing mostly comes from household out-of-pocket payments, which represent 8.7% of CHE and include statutory cost-sharing, extra billings and non-reimbursed services. Voluntary health care payment schemes represent 4.1%.
- Luxembourg's health system is based on compulsory statutory health insurance (SHI). Contributions are proportional to income level up to a ceiling and there is no selection based on health risks.
- Every health care provider is contracted with the SHI. They must adhere to rules set out in the conventional agreements and to the official tariffs stipulated in the national fee schedules.
- Patients have to pay directly for services and request reimbursement from their sickness fund. A third-party payment system applies for a range of services, such as the purchase of prescribed medicines, hospital care and long-term care. A third-party social payment system exists for people with low incomes and the implementation of an optional third-party payment model started in 2023.

- Health professionals employed by hospitals or other health care facilities are paid with a fixed salary, while self-employed health professionals are paid on a fee-for-service basis. There is no pay-for-performance mechanism in place in Luxembourg.

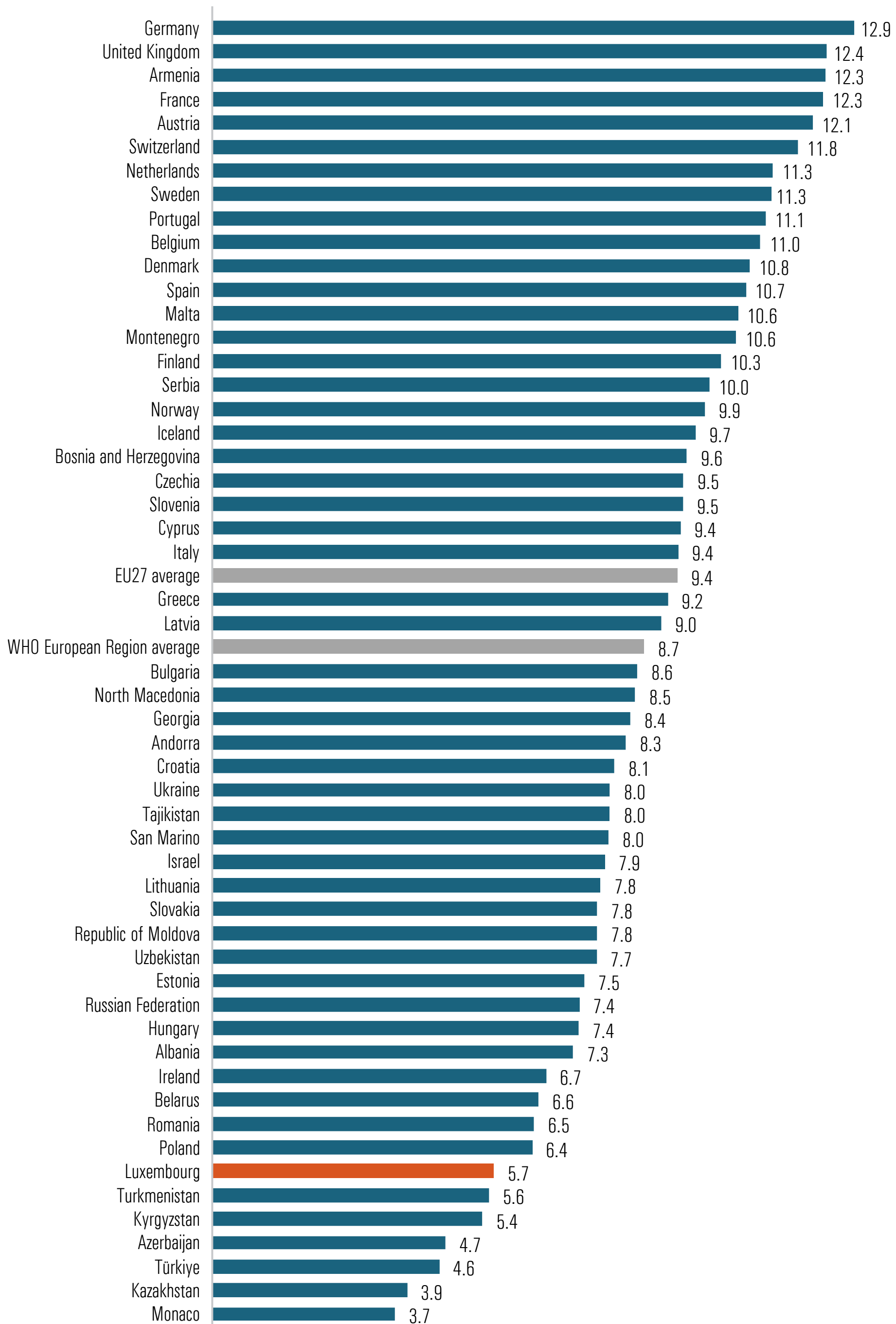
3.1 Health expenditure

Current health expenditure (CHE) significantly increased in the past decade, from EUR 2 638.3 million in 2011 to EUR 4 304.1 million in 2022. Health spending as a share of GDP increased from 5.1% in 2015 to 5.7% in 2021 and 5.5% in 2022, persistently below the EU average (9.4% in 2021) and other countries such as Germany (12.9%), France (12.3%), Switzerland (11.8%) and Belgium (11.0%) (Figs 3.1 and 3.2). However, health spending as a share of GDP is not a perfectly representative measure to compare Luxembourg's health expenditures with other countries. As a result of its geographic characteristics and the predominance of cross-border workers (see Section 1.2), Luxembourg's GDP also includes the economic activity of cross-border workers and profits from foreign-owned companies that are repatriated while, as per the methodology used for establishing international health expenditure statistics, health spending excludes foreigners' health care consumption. Hence, the costs of health services taken up by SHI-insured cross-border workers is not included. Consequently, CHE expressed in gross national income would be a better measure, but international data are not consistently available.

Luxembourg's total health expenditure per inhabitant is among the highest in the WHO European region. In 2021, only Switzerland, Monaco, Norway and Germany had higher per capita health expenditures (Fig. 3.3). Adjusted for differences in purchasing power, Luxembourg's health expenditure per capita increased from EUR 3 305 in 2012 to EUR 4 316 in 2022 (Eurostat, 2024a) (Table 3.1). Additionally, CHE includes spending on LTC, which accounts for approximately 19% – one of the highest proportions in Europe. This is particularly notable, as many countries do not report LTC spending within their CHE data.

As in many other countries, health spending spiked in 2020 and 2021 (5.7% of GDP in both years) because of the COVID-19 pandemic response (Fig. 3.2). This is also illustrated in the health expenditure growth, which increased by 9.0% from 2019 to 2020 and by 12.2% from 2020 to 2021,

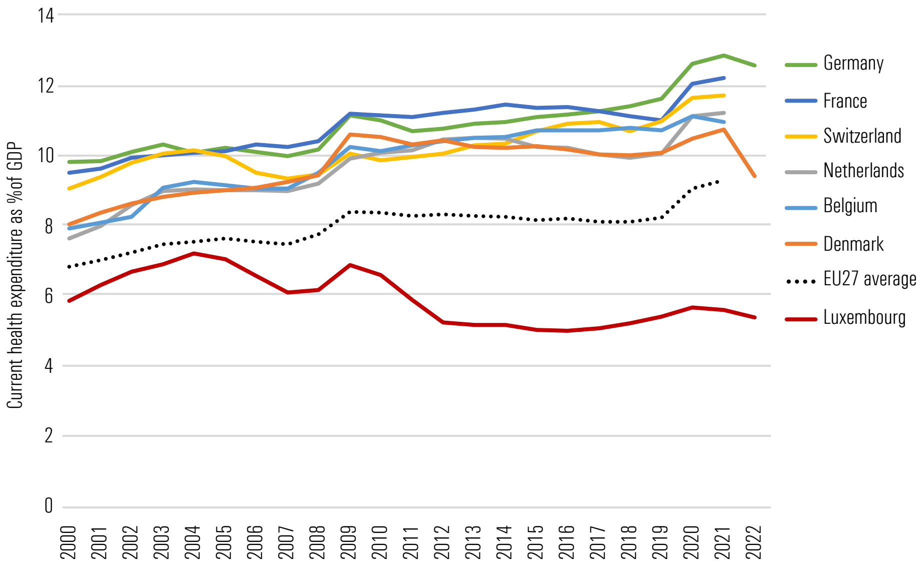
FIG. 3.1 Current health expenditure as a share (%) of GDP in the WHO European Region, 2021



Notes: Long-term care (medical) spending is included; GDP: gross domestic product; EU27: 27 Member States of the European Union after 1 February 2020.

Source: WHO (2024).

FIG. 3.2 Trends in current health expenditure as a share (%) of GDP in Luxembourg and selected countries, 2000–22



Notes: GDP: gross domestic product; EU27: 27 Member States of the European Union after 1 February 2020.
Source: WHO (2024).

compared with the growth rate of around 4% average before the pandemic (2013–19). Following the pandemic, the growth rate from 2021 to 2022 was 3.5%.

According to the WHO Global Health Expenditure Database, in 2021, the share of CHE from public sources in Luxembourg (86.9%) ranked third among the countries in the WHO European Region, following Monaco (89.8%) and San Marino (88.1%), and is far above the EU27 (the 27 Member States of the EU after 1 February 2020) average of 75.5% (Fig. 3.4).[5] The increase in the general government expenditure since 2000 reflects the broad benefits package and the continuous extension of universal coverage (see Section 3.3.1). In contrast, the share of public expenditure on health out of total government expenditure was at 11.4% in 2021, below the EU27 average of 15.0% (Table 3.1).

[5] Due to the differences in the data sources methodology, the public share of health funding shown in Fig. 3.4 differs slightly from the data in Table 3.1.

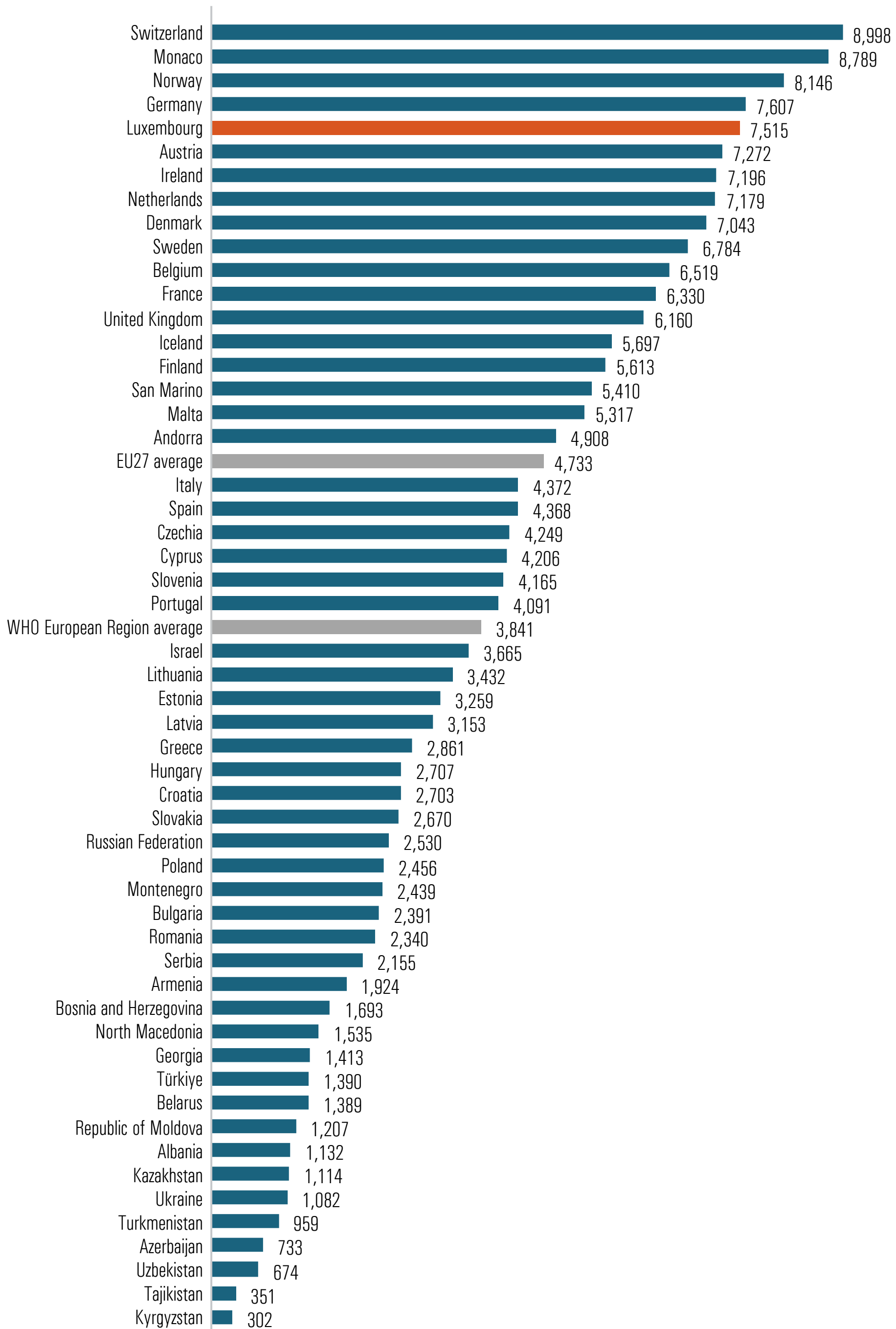
TABLE 3.1 Trends in health expenditure in Luxembourg, 2012 to latest available year (selected years)

	2012	2015	2018	2019	2020	2021	2022
Current health expenditure in EUR per capita (PPS)	3 306	3 402	3 691.0	3 741	3 811	4 172	4 316
Current health expenditure as % of GDP	5.3	5.1	5.3	5.5	5.8	5.7	5.6
Government schemes and compulsory contributory health care financing schemes on health as % of current health expenditure	82.9	83.7	84.1	85.0	86.5	86.2	86.1
Government schemes and compulsory contributory health care financing schemes as % of GDP	4.4	4.3	4.4	4.6	5.0	4.9	4.8
Government schemes and compulsory contributory health care financing schemes as % of general government expenditure *	10.5	10.5	10.5	10.8	10.6	11.4	10.8
Voluntary health care payment schemes as % of total expenditure on health	4.2	4.2	4.1	4.1	3.9	3.9	4.1
Household OOP payments as % of total expenditure on health	11.5	10.7	10.4	9.6	8.4	8.8	8.7
Household OOP in EUR per capita (PPS, current prices)	379	368	385	358	319	367	374
Voluntary schemes/household OOP payments as % of current health expenditure	15.6	15.0	14.5	13.7	12.3	12.7	12.8
Voluntary health care payment schemes as % of voluntary schemes/household OOP payments	26.6	28.3	28.1	30.1	31.6	30.7	32.2
Household OOP payments as % of voluntary schemes/household OOP payments	73.4	71.7	71.9	69.9	68.4	69.3	67.8

Notes: EUR: euros; GDP: gross domestic product; OOP: out-of-pocket; PPP: purchasing power parity; PPS: Purchasing Power Standard.

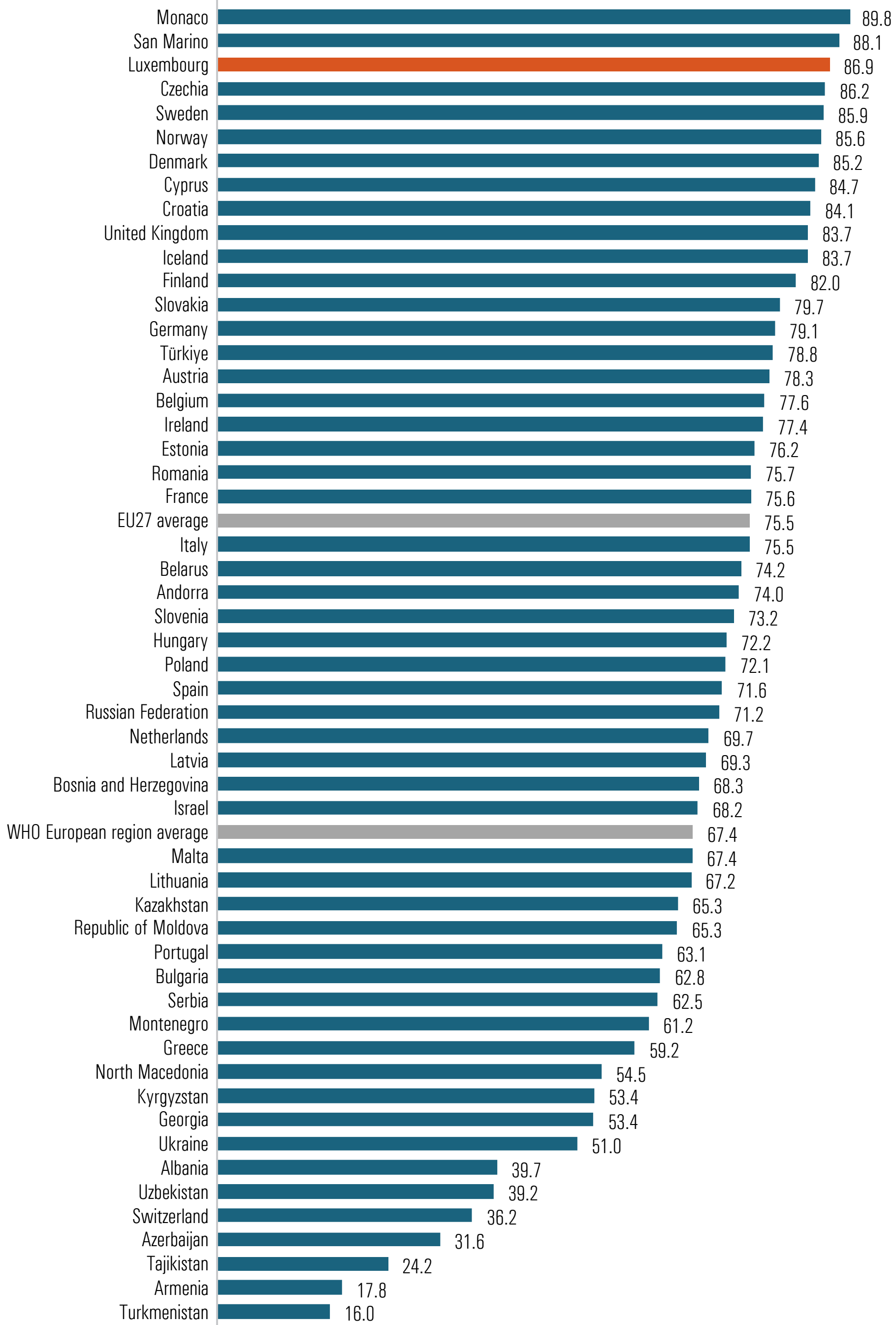
Sources: Eurostat (2024); *WHO Global Health Expenditure Database (2024).

FIG. 3.3 Current health expenditure in US$ PPP per capita in the WHO European Region, 2021



Note: US$ PPP: US dollars adjusted for differences in purchasing power.
Source: WHO (2024).

FIG. 3.4 Public expenditure on health as a share (%) of current health expenditure in the WHO European Region, latest available year



Notes: EU27: 27 Member States of the European Union after 1 February 2020.
Source: WHO (2024).

Simultaneously, private expenditure(OECD, 2017)[6] as part of CHE decreased from 15.6% in 2012 to 12.8% in 2022 (Table 3.1). Out-of-pocket (OOP) payments represented more than two thirds of private expenditure on health (67.8%) (see Section 3.4) with the other third (32.2%) being private spending through voluntary health care payment schemes. In 2022, two thirds of the population (67.3%) had voluntary private health insurance (see Section 3.5) (OECD, 2024a).

3.2 Sources of revenue and financial flows

The main share of CHE is publicly funded (86.1% in 2022; Table 3.1), mostly through reimbursement taking place within the compulsory SHI (78.7%), whereas government schemes represent a smaller share (7.4%) (see Table 3.2). Public financing of the health system is mainly based on social security contributions paid by employers and employees, pensioners and pension funds, but 40% of the SHI contributions and LTC expenditure is based on a fixed State participation paid by general tax revenue. In addition to this participation, general tax revenue is used for various purposes in the health care system, for example public health programmes (see Sections 3.7 and 5.1) and investments in infrastructure (see Section 4.1.1). The share of voluntary health care payment schemes (including complementary voluntary health insurance (VHI)) in CHE (4.1%) is relatively small. Household OOP payments account for 8.7%, which is among the lowest in the EU, but spending by private households is probably underestimated as data are not systematically collected (OECD/Eurostat/WHO, 2023). The SHA data exclude services provided to non-residents, which possibly distorts the overall picture because non-residents constitute 30% of the insured population and account for one sixth of SHI health care expenses (IGSS, 2023b).

The compulsory SHI and LTC insurance are managed by the CNS, which operates on prospective budgets to finance health care and LTC for its members (see Fig. 3.5 and Sections 2.2 and 3.3).

Inpatient care, outpatient (or ambulatory) care, LTC and medical goods

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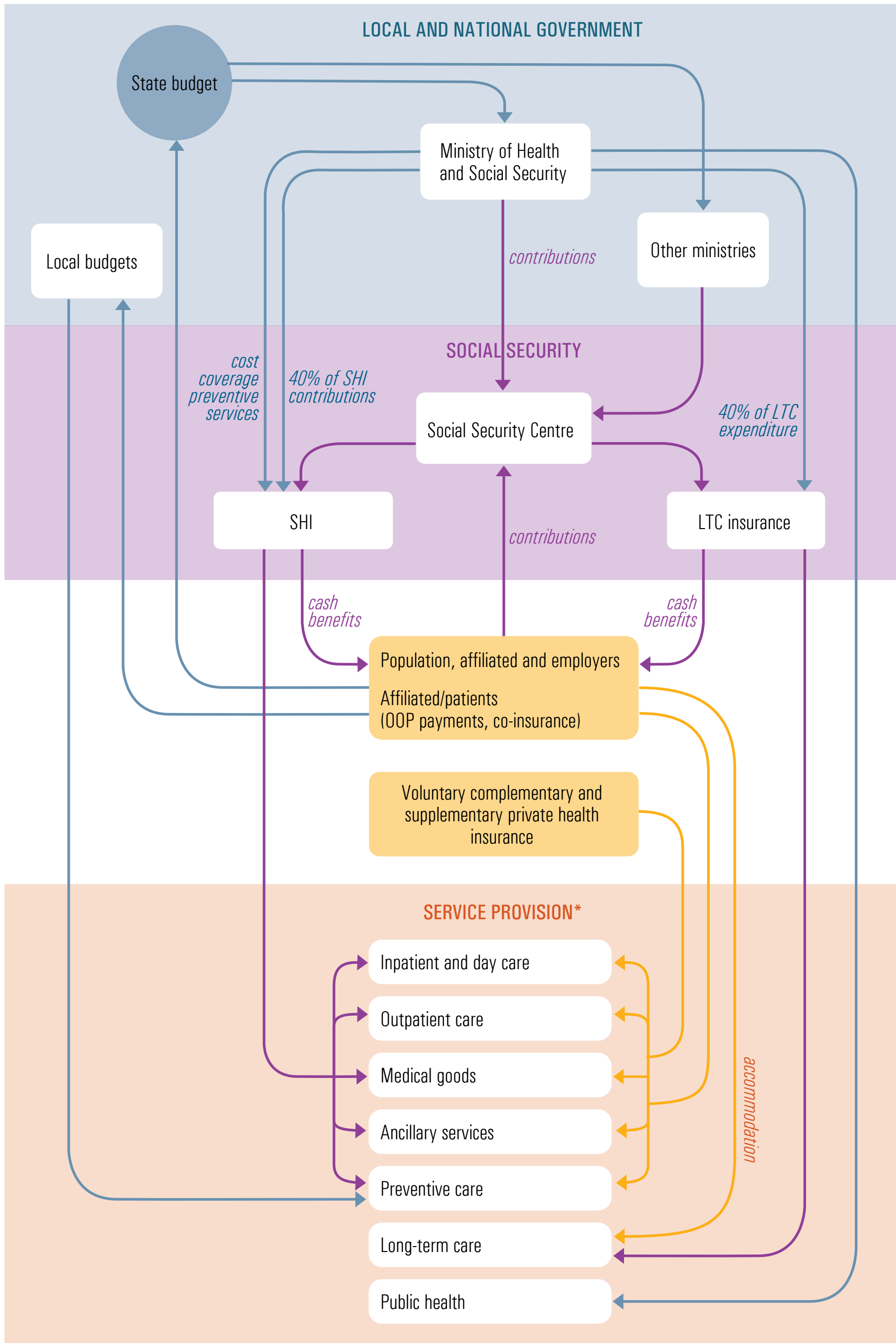
[6] Following the classification of the system of health accounts, private expenditure is composed of voluntary health care payment schemes (including voluntary health insurance schemes and non-profit institutions serving households), as well as household out-of-pocket payments.

FIG. 3.5 Financial flows in the Luxembourg health system



Notes: *includes services provided abroad; SHI: statutory health insurance; LTC: long term care.
Source: Authors' compilation.

TABLE 3.2 Expenditure on health (as % of current health expenditure) according to function and type of financing, 2022

	Curative and rehabilitative care			Long-term care	Ancillary services	Medical goods	Preventive care	Administration	Total
	Total	(Inpatient)	(Outpatient)						
General government	47.4	*21.5*	*21.8*	16.8	5.3	9.3	3.8	3.6	86.1
(Government schemes)	*1.8*	*0.6*	*1.2*	*0.2*	*0.9*	*0.5*	*2.3*	*1.7*	*7.4*
(Compulsory contributory health insurance schemes)	*45.6*	*20.9*	*20.5*	*16.6*	*4.4*	*8.7*	*1.5*	*1.9*	*78.7*
Voluntary health care payment schemes	2.2	*0.7*	*1.5*	0.3	0.0	0.9	0.7	0.0	4.1
Household OOP payments	3.8	*0.4*	*3.2*	1.7	0.1	3.1	0.0	0.0	8.7
Other (for example, non-resident) Rest of the world financing schemes	0.7	*0.3*	*0.4*	0.2	0.0	0.2	0.0	0.0	1.1
Total expenditure	54.1	*22.9*	*26.8*	19.0	5.4	13.4	4.6	3.6	100.0

Notes: Data in italic are not included in the total. OOP: out-of-pocket.

Source: OECD (2024b).

are mainly covered by the SHI, whereas preventive care is mainly financed by government schemes (see Table 3.2). Voluntary private health insurance is mainly used for outpatient care, whereas household OOP payments mainly derive from outpatient care and medical goods, including pharmaceuticals.

3.3 Overview of the statutory financing system

3.3.1 *Coverage*

BREADTH: WHO IS COVERED?

SHI is compulsory in Luxembourg. Any person who is economically active, under the age of 18 years, or receives state benefits/substitutive income (that is, sickness compensation; maternity pay; unemployment benefit; disability, old age or survivor pension; guaranteed social minimum wage) must be affiliated to the Social Security Centre (*Centre commun de la sécurité sociale* (CCSS)) (IGSS, 2023a). The affiliation to social security covers all risks and contingencies in terms of social security (namely, sickness and maternity, accidents at work and occupational diseases, old age and disability, LTC). The insured person, together with their non-earning spouses and children (coinsured), are eligible for benefits provided by the SHI and LTC insurance through the respective competent health and LTC insurance funds (see Sections 2.2 and 2.7.1).

A person who cannot otherwise benefit from health and maternity insurance coverage can choose voluntary SHI affiliation. Two types of voluntary SHI exist: continued and optional. The main difference is the grace period. Those continuing their protection face no grace period, whereas those not covered by social security in the previous 6 months and opting for optional insurance have a 3-month grace period for all services and 1 year for LTC. Voluntarily insured individuals can receive all benefits covered by the CNS, except for cash benefits and maternity leave benefits. Contributions are based on a monthly minimum wage of EUR 2 570.90 at a 5.60% rate, resulting in a monthly VHI cost of EUR 143.97 in 2024 (CCSS, 2024).

The contributions for people not coinsured otherwise, for example, children, students or disabled persons, are covered by the M3S (IGSS, 2023a). The Ministry of Family Affairs pays the contributions for social welfare recipients. Applicants for international protection (for example, asylum seekers) take out voluntary SHI with the CNS through the National Reception Office (ONA), which pays the monthly contribution for the duration of the international protection procedure. During the 3-month grace period, treatment expenses are covered by the ONA (ONA, 2022) (see Section 3.3.3).

In 2021, SHI covered 91.8% of the population in Luxembourg, of which 70% were residents and about 30% were non-residents, many of whom were cross-border workers commuting from neighbouring countries (Belgium, France and Germany) (ObSanté, 2024). About 30% of the insured population were non-earning coinsured (CNS, 2022a).

Exemptions from compulsory SHI apply to employees (and their coinsured family members) of international organizations located in Luxembourg as they do not fall under the national social security legislation. In 2022, 11 900 people worked for international institutions (for example, the European Commission, Court of Justice of the EU, European Court of Auditors, European Investment Fund) (Statistiques.lu, n.d.).

Despite SHI, some people who do not fulfil the administrative and financial requirements (no permanent residence, no official address, not economically active and/or not voluntarily insured) remain without SHI coverage – namely, homeless people, residents whose welfare benefits are ending or undocumented migrants. At least 1 182 people were reported to be without health insurance or faced financial difficulties in 2021 (see Section 7.3) (Médecins du Monde Luxembourg, 2021).

In 2022, the Government introduced the universal health coverage pilot project (*Couverture universelle des soins de santé* (CUSS)), providing access to the SHI to any vulnerable person, usually residing in Luxembourg, but who is not compulsorily affiliated to the SHI, does not have the means to voluntarily affiliate, and is not eligible for support from social welfare or other public entities. The CUSS operates through voluntary SHI, with family members coinsured. The M3S funds the monthly SHI premium, medical expenses during the grace period, and statutory cost-sharing expenses afterward. It also finances social worker positions in affiliated associations for regular follow up with CUSS beneficiaries (CHD, 2022a). As of February 2024, 158 people were affiliated with health insurance through the CUSS pilot project (CHD, 2022a, 2024a).

SCOPE: WHAT IS COVERED?

SHI members and their coinsured are entitled to the same benefits, regardless of their status, health risks, contribution amount or insurance duration (see Section 2.7.3). Health care benefits covered by the SHI include medical and dental care, care by health professionals (including psychotherapy), hospital care, laboratory tests, medical imaging, pharmaceuticals, medical devices, psychiatric and geriatric rehabilitation, patient transportation, palliative care and specific preventive services (Art. 17 of CSS). Generally, the nationally established fee schedules describe all reimbursed services and specify the official fees determined through agreements between the CNS and health professionals (see Section 3.3.4) (CNS, 2023c). Specific preventive programmes are organized in collaboration with the Health Directorate, funded by the State budget (Art. 17-3 of CSS) (see Section 5.1). LTC benefits are regulated separately under statutory LTC insurance (CSS Livre V, see Section 5.8 for more details on benefits covered by LTC insurance). Accident insurance covers any services related to work or school accidents. Excluded services from the SHI coverage include non-prescribed goods and services, those not listed in national fee schedules, costs exceeding official tariffs (see Section 3.4) and LTC services below 3.5 hours per week. Reimbursements for certain services may be age-restricted or condition-specific and require previous approval from the CMSS. There is no cap on service reimbursement volumes, except for specific expensive treatments or devices (CNS, 2024a).

The CNS disburses cash sickness benefits after the legal salary retention period, typically 77 days. During this period, employers provide cash benefits and are later reimbursed 80% by the Employers' Mutual Insurance. Maternity cash benefits from the CNS start on the first day of leave, covering 8 weeks before and 12 weeks after delivery, or 12 weeks for adoption. Public sector employees have unlimited remuneration retention under specific provisions via the State budget (IGSS, 2023a).

DEPTH: HOW MUCH OF BENEFIT COST IS COVERED?

Overall, cost-sharing in Luxembourg is very low because of the comprehensive nature of the SHI scheme. The share of household OOP costs in CHE slightly decreased over the past decade, from 11.2% in 2013

BOX 3.1 What are the key gaps in coverage?

The statutory health insurance (SHI) offers an extensive benefits basket, extending beyond essential services, and ensures uniform benefits for all insured individuals. Nevertheless, examining the extent to which various health services rely on out-of-pocket (OOP) payments reveals the primary deficiencies in health coverage.

Outpatient care accounted for 29.0% of household OOP expenditure in 2022, including dental care 18.4%, and medical goods 35.8%. OOP spending on long-term care (LTC) (20.0%) pertains to participation in the accommodation and meal costs of care facilities, as LTC services are entirely covered by SHI. Spending on inpatient care constituted 4.7% of household OOP expenditure (OECD, 2024b). Detailed data regarding OOP payments in the ambulatory sector are unavailable. These gaps in coverage can be key barriers to appropriate financial protection (see Section 7.3).

A new dental service fee schedule was introduced in 2024, replacing an outdated fee schedule with low official tariffs not considering advancements in technology. Dentists compensate for the advancements in technology by extra billing or direct payments; for example, treatment alternatives to amalgam. The effects of this new fee schedule on surcharges remain to be seen. Dental care for children and adolescents under 18 years is fully covered since 2013 (Luxembourg Government, 2013; OECD/European Observatory on Health Systems and Policies, 2023).

to 8.7% in 2022, and OOP costs per person remain quite stable, with an average value of 369.1 Purchasing Power Standard per person for the 2012–22 period. Nevertheless, some gaps in coverage persist as depicted in Box 3.1.

3.3.2 *Collection*

GENERAL GOVERNMENT BUDGET

Health care in Luxembourg is financed through the budgets of several ministries, in particular the M3S (Fig. 3.5). Government schemes are generally funded by non-earmarked taxes, except for the electricity tax, collected through the State budget, which is set aside for LTC insurance financing. However, the revenue from this tax is quite small, making up just 0.2% of LTC insurance revenue in 2022 (IGSS, 2024b).

TAXES, CONTRIBUTIONS OR PREMIUMS POOLED BY A SEPARATE AGENCY

The CCSS manages the affiliation of insured individuals in accordance with the relevant provisions of social security. It collects the contributions for all social security schemes – both the employer's and the employee's parts – directly from the employers or the responsible public bodies. The State's participation is directly paid to the CNS. The CCSS distributes the payments received for a given reference period to the respective social security institutions.

Since 2014, the contribution rate for the SHI is set at 5.6% of gross income. For insured individuals entitled to cash benefits paid by the CNS (that is, sickness pay and maternity leave), the CNS charges a supplementary contribution rate of 0.5%. This additional contribution rate for sickness and maternity leave benefits applies to individuals engaged in salaried employment, apprentices, seafarers and self-employed individuals, as well as their spouses and partners assisting them. It is not applicable for employees insured with one of the three public SHI funds (IGSS, 2023a).

Generally, the contribution rate is equally shared between employees and employers. Self-employed people and those who have contracted voluntary insurance (see Section 3.3.1) pay their own social contributions. The State pays the contributions for certain groups in full (for example, elite athletes, beneficiaries of temporary protection, under 18 years old and disabled children and army volunteers). The contribution is shared between the State and individuals participating in development cooperation, as well as members of the Parliament and Luxembourg representatives in the European Communities Assembly during their mandate. The contribution is equally shared between the State or the sheltered workshop and disabled employees or individuals receiving income for severely disabled persons. For certain professional groups, the contribution rate is fully borne by the employer (namely, members of the army, police and staff in penitentiary institutions and detention centres; members of religious associations working for the congregation and au pairs) (IGSS, 2023a).

SHI contributions are proportional to income levels, independent of health risks, and free of charge for coinsured. The contribution base is composed of income from gainful employment, pensions or replacement income. It cannot be less than the monthly social minimum wage (EUR 2 570.90 in 2024) and should not exceed five times the monthly social minimum wage (EUR 12 854.60) (CCSS, 2023). The contributions thus

BOX 3.2 Is health financing fair?

The statutory health insurance system in Luxembourg operates on the core principle of solidarity, ensuring that health care is accessible to everyone based on health needs rather than income. Contributions are proportionate to income up to a ceiling, with substantial financial support from public sources. However, a lack of transparency regarding the cost of consultations and treatments can deter patients from seeking care (WHO Regional Office for Europe, 2023). Additionally, exemptions and caps on out-of-pocket spending are not automatically applied (see Sections 7.2 and 7.3).

For coverage of co-payments and supplementary services, voluntary private health insurance can be purchased. Premiums for private voluntary health insurance are either determined by age rather than individual health risks or based on a risk-based model, depending on the insurance type (see Section 3.5), making it less affordable for individuals with lower income levels.

increase proportionally along with income up to an upper limit (see Box 3.2).

The contribution rate for LTC is set at 1.4% on gross income, personal income from assets and replacement income. The employer does not intervene. The contribution to LTC is linked to the income tax (IGSS, 2023a).

The contribution for accident insurance is borne by the employer, or the State, depending on the category of insured persons. The contribution rate is set at 0.7% in 2024 and is multiplied by a bonus-malus factor according to risk classes (Mémorial A631, 2022; CCSS, 2023).

3.3.3 *Pooling and allocations of funds*

Before 2023, health and social security were governed by two separate ministries with two different budgets (see Section 2.2). State budget financing includes 40% of SHI contributions and 40% of current LTC expenditure and contributions to maternity insurance accounted for by the State, previously paid by the Ministry of Social Security. Financing from the Ministry of Health mainly went into capital investment for hospitals, public health services, medical on-duty care, socio-therapeutic care and research activities. Both are now included in the M3S budget.

The Ministry of Family Affairs finances SHI contributions of welfare

recipients, intervenes in the financing of infrastructure and initial equipment costs for services provided under the so-called ASFT Law (see Sections 2.2 and 3.7.1), and supports financially disadvantaged elderly persons via the national solidarity fund by covering rent for continuous care facilities or financially supporting care that falls outside the scope of the LTC insurance (see Section 5.8).

Local authorities may finance public health services at the local level (for example, school health services). Their social welfare offices also pay for welfare services, including the statutory contribution incurred under the social third-party payment system (see Section 3.4.1) and other health-related expenses of social welfare recipients. Social welfare offices can also assist in paying voluntary SHI affiliations for social welfare recipients (see Section 3.3.1).

To cover the SHI costs, the CNS is obliged to maintain a financial reserve of 10% of the annual expenditure (CSS Art. 28). By derogation from the budget law, the reserve can be revised downwards, which happened between 2010 and 2014 to facilitate the short-term recovery of the financial situation of the health and maternity insurance scheme, and create flexibility for the 2010 Health Reform (see Section 6.1) (CHD, 2010). An upper limit of 20% of current expenditure was abolished in 2017 to finance structural expenditures, following the 2018 Hospital Law, improvements in patient care and adaptations of the collective labour agreement in the hospital sector. This led to an increase in the overall SHI fund reserve (IGSS, 2019b). Between 2015 and 2019, the reserve nearly doubled from 16.4% to 31.3% of current spending then decreased to 22% during the COVID-19 pandemic. Estimations from 2023 for the years 2023 and 2024 indicate a global reserve/current expenditure ration of 20.8% and 18.2%, respectively, (IGSS, 2019b, 2023b). If the SHI budget indicates that the statutory reserve falls outside the specified limits, the quadripartite committee (see Section 2.7.3), which meets every autumn, must propose savings and/or increases in contribution rates.

The overall SHI budget is determined each year by the CNS for the following year, based on multiannual expenditure forecasts. It incorporates macroeconomic estimates, the budgets related to administrative expenses and asset management costs of the SHI funds of the public sector. As required by law, the SHI spending is monitored and analysed by the Council of Administration of the CNS. Following a recommendation from the IGSS, the M3S approves the budget.

Apart from the overall budget allocation for hospital sector expenditures (*enveloppe budgétaire globale des dépenses du secteur hospitalier* (EBG)) (see Section 3.3.4), there is no overall allocation of funds or budgetary objective. The SHI budget is based on historical expenditure patterns and not on need-based formulas or performance financing.

The LTC insurance is also financed by a cost-sharing system designed to establish a balance between income and expenditure, with a reserve of at least 10% of annual current expenditure (see Section 5.8).

The efficiency of resource allocation is discussed in Section 7.6.

3.3.4 *Purchasing and purchaser–provider relations*

As outlined in Section 2.7.2, health professionals are obliged to engage in conventional agreements with the CNS, which bind all health professionals and do not require the formal consent of individual providers. Health professionals cannot opt out of conventional agreements. The law specifies elements that negotiators must consider when drafting a conventional agreement (CSS Art. 64); one is the commitment by service providers to adhere to the national fee schedule of services reimbursed by the SHI scheme. SHI reimburses only the cost of health care provided within this normative framework (IGSS, 2023a). Agreements are concluded for an undefined period, can be modified at any time by mutual agreement, and can be terminated with a 12-month notice period.

There are three types of conventional agreements between the CNS and providers:

- Conventional agreements between the CNS and professional associations of health care workers in the ambulatory sector
- Conventional agreements between the CNS and the FHL
- Framework agreements (*convention cadre*) between the CNS and LTC providers.

In the ambulatory care sector, conventional agreements signed by the CNS and professional groups regulate the purchaser–provider relationship. The national fee schedules are established through Grand-Ducal Regulations, based on detailed recommendations from the Nomenclature Commission (see Section 2.7.3). These fee schedules define the catalogue of services and procedures reimbursed by the SHI. Each tariff consists of a

coefficient and a key letter. The coefficient represents the relative value of each procedure, considering factors such as duration, technical skill and intellectual effort required to perform the professional act. Every two years, the revalorization of the key letter is negotiated between the CNS and the groups representing health professionals (CSS Art. 61–65). The key letter, multiplied by the coefficient, determines the official tariff for each procedure or act. Except for laboratory services, all tariffs are automatically increased by 2.5% if the annual inflation rate of the National Consumer Price Index triggers indexation.

In the hospital sector, the government decides every two years on the respective amounts of the EBG for the next two years. The decision is informed by a report on past activities, elaborated by the IGSS and advised by the Standing Committee for the Hospital Sector (the CPH) (see Sections 2.2 and 4.1.1) and the CNS. The EBG includes all activities duly authorized under hospital legislation and that fall within the scope of SHI and accident insurance, including depreciation of infrastructure and medical equipment (see Section 4.1). Some activities provided by hospitals are not covered by the EBG, such as expensive pharmaceuticals and lump sums for diagnostic services provided outside the hospital (see Section 4.1.2). The EBG does not include medical services provided by physicians. All medical activities are billed on an FFS basis by physicians directly to the patient (see Section 3.7.1). Individual hospital budgets are fixed during negotiations between the CNS and the hospital within the limit of the EBG. To ensure transparency, hospitals maintain their financial accounts using a standardized chart of accounts, which includes a breakdown of costs associated with the various hospital services, distinguishing between different service categories. Negotiations and budget monitoring procedures are defined in the conventional agreement between the CNS and the FHL. In case of disagreement over individual hospital budgets, the CNS can refer the matter to the Hospital Budget Commission who reconcile the two parties or settle the dispute. Individual hospital budgets can be adjusted at the request of the CNS or the hospital in the event of unforeseen circumstances within the limit of the EBG. On their own account, hospitals can spend more money than the negotiated budget.

The various LTC providers are represented by the Confederation of Providers and Agreements in the Fields of Prevention, Assistance and Care for Dependent Persons, which signs a framework agreement with CNS. This agreement sets documentation requirements, billing and payment

procedures for LTC services and imposes that providers commit to consistently deliver the necessary assistance and care outlined in the care plan for dependent individuals (see Section 5.8). Providers adhere to this agreement through a contract with the CNS, specifying their target group and geographical scope. Suppliers of technical aids sign service contracts with the CNS, which cover specifications, rental prices and maintenance.

In addition, global contracts are agreed between the M3S and a variety of social, family and treatment services in the fields of prevention and assistance, non-hospital psychiatry, chronic illnesses and substance abuse (see Sections 3.7.1 and 5.1). In some specialized areas of health, the Health Directorate develops action plans to improve population health and submits these to the government to receive specific financing.

3.4 Out-of-pocket payments

More detailed figures on private health expenditure and the composition of OOP payments are depicted in Tables 3.1 and 3.2, and Sections 3.3.1 and 7.3.

3.4.1 *Cost-sharing (user charges)*

User charges are required for most health care goods and services in Luxembourg. The Statutes of CNS (see Sections 2.7.1, 2.7.3 and 3.3.4) set the cost-sharing mechanisms for each health care service, differentiating between coinsurance (a fixed proportion of the official tariff) and co-payment (a fixed fee per item or service) (IGSS, 2023c). Most patient user charges are a proportion of the official fee. Most medical and dental services are reimbursed at 88% of the official tariff. A fixed amount of total fees only applies to hospital stays for adults (EUR 25.50 per day) (see Table 3.3) (OECD/European Observatory on Health Systems and Policies, 2023). Inpatient and outpatient fees for individual convenience (*convenance personnelle*) (see Section 3.4.2 for an explanation of these fees), as well as extra billing for prostheses and other dental services that go beyond “what is deemed useful and necessary” (CSS Art. 23), may be billed to the insured in accordance with the provisions of the conventional agreements governing the relationship between the CNS and the medical profession on top of the

TABLE 3.3 User charges for health services

Type of user charge in place	Exemptions	Cap on OOP spending	Other protection mechanism
AMBULATORY PRIMARY SPECIALIST CARE			
Cost-sharing: 20% for GP visits and 12% for medical acts and services **Extra-billings:** personal conveniences fees **Direct payments**: for non-reimbursed services (for example, above 12 GP visits in 6 months, remaining costs of excess tariffs)	Exemptions: • Children until the age of 18 • Pregnant women for services related to pregnancy • Chemotherapy and other medical services linked with oncology • Preventive and screening examinations • Services linked to COVID-19	Up to 2.5% of annual contributory income of the previous year but not for charges above official tariff	TPS System of third-party payment under certain conditions to protect patients from advancing excessive costs
OUTPATIENT PRESCRIPTION DRUGS			
Different coinsurance rates apply to medicine on the positive list: • 0% for drugs meeting specific criteria: precise therapeutic indication, single active ingredient, irreplaceable or vital for serious or chronic conditions, resulting in undue financial burden if not fully reimbursed. All conditions must be met concurrently • 60% for moderately important drugs intended for the treatment of symptoms of benign conditions • 20% for all other drugs	100% coverage applies when the medicines are: • Prescribed for the treatment of long and costly illnesses • Irreplaceable and particularly expensive, and intended for the treatment of listed heavy pathologies • Administered intravenously, prescribed immediately following hospital treatment, and if they generate an inappropriate user charge for the patient		
INPATIENT STAY			
Co-payment (EUR 25.50 per day) **Co-payment** (EUR 12.75 per day) for day care or monitoring **Extra billing** (first class for hospital stays – medical service fee as well as hospital services)	Exemptions: • Children below 18 years old • First 12 days after childbirth • Psychiatric day care	Up to 30 days or EUR 765 per year for inpatient care	An overnight stay for an accompanying person of a child under 14 is covered System of third-party payment under certain conditions to protect patients from advancing excessive costs

Notes: GP: general practitioner; OOP: out-of-pocket; TPS: third-party social payment system.

Source: Authors' compilation.

TABLE 3.3 (continued) User charges for health services

Type of user charge in place	Exemptions	Cap on OOP spending	Other protection mechanism
DENTAL CARE			
Cost-sharing of 12% of the official fee **Direct payments**: difference where the provider charges over the national fee (extra-billing) and for non-reimbursed services (for example, anaesthesia outside reimbursement criteria)	Exemptions: • Up to EUR 75.46 no coinsurance applies • Children until the age of 18 • Preventive and screening examinations during pregnancy • Preventive examination for children aged between 30 and 36 months and 42 and 48 months		TPS
MEDICAL DEVICES (INCLUDING DENTAL PROSTHESIS)			
Co-insurance of up to 20% (based on official tariff) depending on prothesis category. Any difference between price official tariff **Deductibles** apply for visual aids	Exemptions: • In case of renewal or repair of a total prosthesis • Restorative maxillofacial prostheses		
NON-PHYSICIAN CARE (FOR EXAMPLE, PHYSIOTHERAPY)			
Co-insurance of 30% for psychotherapy and physiotherapy	Exemptions: • Children below 18 years old • Serious illness or part of chirurgical intervention for physiotherapy		

statutory fees. The mention of "what is deemed useful and necessary" is not further defined in the regulation (see Sections 3.4.2 and 7.3).

Patients usually pay providers the official tariffs outlined in the national fee schedules in advance and are reimbursed by the CNS after the submission of receipts. A third-party payment system is applied to laboratory tests, hospitalization costs, pharmaceutical costs, physiotherapy and LTC services, where the insured pays only the statutory contribution. Cost-sharing exemptions for certain services apply to people with disabilities or severe chronic conditions, children and pregnant women, or if statutory cost-sharing exceeds 2.5% of annual gross income (CNS, 2024b; CSS, 2024). However, these exemptions are not always automatically applied (see Section 7.3). No cost-sharing is due for services reimbursed by

the accident insurance. Services from the LTC insurance are also integrally taken over by SHI, except for the accommodation costs in LTC facilities (see Section 5.8).

In 2013, Luxembourg introduced a third-party social payment system (*Tiers payant social* (TPS)) for individuals with low income who encounter difficulties paying in advance for outpatient services. Upon presentation of a time-limited certificate issued by the presiding social welfare office, the individual concerned is not required to pay for their health care (CNS, 2020a). There is no national procedure to determine eligibility, with each social welfare office making case-by-case decisions based on individual requests. The local social welfare office covers any official co-payment the patient cannot afford. Personal convenience fees are, however, borne by the beneficiary, and dental treatment requires prior approval. In 2018, 4 757 insured individuals used the TPS scheme, increasing to 6 226 in 2022, a 30.9% rise over 5 years. Annually, about 0.6% of all health insurance beneficiaries used a TPS from 2018 to 2022. Most services covered by TPS were treatments by general practitioners (GPs) and specialists (CHD, 2023a).

In 2021, the CNS and the Association of Physicians and Dentists decided to implement an optional third-party payment model (*paiement immédiat direct*, PID) for the entire population. This means that in cases where the patient and the physician agree, the CNS, rather than the patient, pays the reimbursed part of the tariff directly to the service provider at the point of care. The implementation started in 2023 with GPs and has gradually expanded to other specialties. Since March 2024, PID services have been available to all doctors and dentists. The extent to which these services are integrated into different practices is up to the individual doctors. As of April 2024, 111 doctors, including 18 dentists, are using PID (CHD, 2024b).

The CNS reported that OOP payments of insured patients cover, on average, 7.2% of the official tariffs, whereas user fees related to hospital stays were 0.7% on average in 2021. According to the 2021 CNS billing data, the average cost-sharing borne by the insured for outpatient services, including these surcharges, amounted to 16.2% of SHI costs on these services. Considering the previously described extra billings, the highest user charges in 2021 were observed for visual aids (72.9%) and dental services (37.1%) (CNS, 2022b). These charges may be covered by private VHI (see Section 3.5) or are part of household OOP payments (see Box 3.1. and Section 3.4).

3.4.2 *Direct payments*

Apart from paying upfront for health services in the absence of a general third-party payment system (see Sections 3.4.1 and 7.3), patients make direct payments for services not covered by the SHI. Benefits that are not included in the benefit basket include for example osteopath treatments, alternative treatment methods, homeopathic medications, and over-the-counter medications not prescribed by a doctor.

On top of the official tariffs, health professionals can apply extra billing and personal convenience fees. Three types of personal convenience fees exist: linked to an appointment, linked to a received treatment and in case of hospitalization in a first-class or single-bed room, which can be arranged upon request for personal convenience. In these instances, any health professional involved in the treatment, including doctors and anaesthetists, may charge a tariff that is 66% higher than the standard rate. The tariff for additional fees for personal convenience is not fixed. Doctors and dentists are required to set these fees "with tact and moderation" (CNS, 2020b).

3.4.3 *Informal payments*

In the 2019 Eurobarometer, 9% of the population reported that, in addition to the official fees, they had to pay or give something extra to providers. This proportion decreased to 6% in 2022 but was higher than the EU27 average (4%) (European Commission, 2022). According to the International Transparency Index, informal payments rates for public hospitals and health centres in Luxembourg are very low (1% of people having used public services reported informal payments), whereas the utilization of personal connections appears to be more prevalent (28% of people having used the public service) (Kukutschka, 2021).

3.5 **Voluntary health insurance**

Given the comprehensive coverage provided by the compulsory SHI, VHI plays a limited role in Luxembourg, accounting for only 4.1% of CHE in 2022 (Eurostat, 2024a). Nevertheless, two thirds of the resident population (67.3%) chose to purchase complementary private VHI in 2022 (OECD,

2024b). Private VHI aims to provide coverage for services that are only partially covered (complementary) or not covered (supplementary) by compulsory health insurance, for example, cost-sharing, additional services in outpatient care or extra billing for single-bed hospital rooms. In Luxembourg, two types of private VHI offer complementary and supplementary coverage, namely mutual health insurance (*mutuelles*) and private health insurance.

The law defines mutual health insurance as non-profit associations of individuals, providing relief and benefits based on available resources. Members contribute with a flat-rate fee. Mutual health insurances operate under the principle of solidarity, with purposes such as providing benefits for illness, accidents and other life events, covering health care expenses not included in compulsory insurance, granting childbirth benefits, allocating allowances for family and education costs, and entering group insurance agreements with approved entities. They are under the supervision of the M3S (Mémorial A530, 2019).

All mutual health insurances are grouped in the *Fédération Nationale de la Mutualité Luxembourgeoise* (FNML). The FNML gave rise to the *Caisse Médico-Complémentaire Mutualiste* (CMCM), a mutual health fund offering complementary and supplementary coverage. The condition for joining the CMCM is membership in one of the mutual health insurances, which offers benefits for additional services such as birth, marriage and/or death premiums. The CMCM maintains a commitment to solidarity and, therefore, cannot refuse to cover anybody who is insured by an SHI fund in Luxembourg or by health insurance of legal status in a bordering country, nor are they entitled to require medical records for admission. Moreover, family members are insured without additional costs. The CMCM offers different packages, including benefits for physiotherapy, home care and cures, medical assistance, repatriation worldwide, single-room hospitalization and transportation, osteopathy, preventive medicines, and dental and optical cost coverage. The CMCM does not cover the coinsurance of usual primary and dental care treatments and pharmaceuticals (CMCM, n.d.). Within the VHI market expenditure, 35–40% is covered by CMCM.

Private health insurance funds are under the supervision of the Insurance Commission (*Commissariat aux assurances*), a public entity placed under the authority of the Ministry of Finance. Admission and contribution rates are based on risk assessment. Affiliation to the SHI is not a condition

for membership. Private health insurances offer complementary and supplementary insurance coverage, including benefits for hospitalization, coinsurance of primary and dental care, dental and optical cost coverage, and alternative treatment methods. Some options further include specialists' appointments within a certain period. Companies can offer company health insurance (AXA, n.d.; DKV, n.d.; Foyer Assurances, n.d.).

3.6 Other financing

Other sources of financing include financing of health for soldiers through the Ministry of Foreign and European Affairs, Defence, Development Cooperation and Foreign Trade and health care expenses for prisoners through the Ministry of Justice. Occupational health services for employees include all measures organized by the multi-sectoral occupational health service or the employer to reduce and prevent accident and health risks in the workplace and to provide occupational medical examinations defined in the labour code and other legislation (Service de Santé au Travail, n.d.)

The M3S supports indigent individuals who cannot afford their medical expenses and are not affiliated with SHI. Disbursements are mostly associated with hospital stays. In 2021, EUR 3 067 705 were used to cover 380 requests from 262 different patients. A special platform exists to support individuals in need of permanent 24/7 assistance and health care, and whose requirements exceed the financial benefits that public institutions can offer or cover. This pertains to adults and children suffering from extremely debilitating degenerative diseases, particularly severe permanent neuromuscular conditions, diseases of the autonomic nervous system or metabolic disorders that often require continuous and uninterrupted monitoring and reliance on essential heavy medical equipment for the maintenance of vital functions. The M3S also covers the insurance premiums paid under the CUSS project (see Section 3.3.1) (CHD, 2022a).

Funding for LTC, as described in Section 5.8, includes LTC insurance and funding from the Ministry of Family Affairs. The latter concerns support for low-income people as well as the financing of infrastructure and activities within the framework of the ASFT Act (see Section 2.2).

3.7 Payment mechanisms

In Luxembourg, diverse payment mechanisms are employed for various health care activities, as detailed in Table 3.4. Most providers are compensated based on service volume, primarily through an FFS model.

3.7.1 *Paying for health services*

PRIMARY AND SPECIALIZED AMBULATORY CARE

Health care services provided by physicians, dentists, midwives, physiotherapists and other health professionals are paid on an FFS basis. As described in Section 3.3.4, they are subject to predetermined national fee schedules. No volume ceilings apply.

HOSPITAL CARE

Hospitals are financed through different sources. Investments are financed through the State (hospital investment fund) and the SHI (see Section 4.1.1), and operating costs are financed through the SHI, private VHI, self-pay patients and international health insurance (see Section 3.3.1). The SHI finances most operating costs via annual budgets (see Section 3.3.4), limited to the share of the expenses that can be related to the SHI or accident insurance. Individual hospital budgets follow a dual system. Fixed costs not linked to the actual activity are paid via monthly advances and include, for example, costs related to personnel, electricity or infrastructure. Variable costs include accommodation and medico-technical activities such as laboratory services, medical imaging and physiotherapy, and are paid based on the actual activity.

In agreement with the CNS, hospitals can retain certain benefits to be remunerated outside the budget, either on an FFS basis or in the form of case payment. The first mode of coverage is applied for certain exceptional, particularly costly, and often unpredictable services, such as costly medicines. The second method of coverage involves case payment, drawing inspiration from the system of homogeneous disease groupings. Services paid as case payment include care provided in cure and convalescence

TABLE 3.4 Provider payment mechanisms

Provider	Payment mechanisms
GPs, other specialists and dental practices	Mainly FFS
Other ambulatory providers (for example, nurses)	FFS
Hospitals (inpatient care)	Health professionals (except medical doctors) are salaried and financed by the GB Mixed financing for clinical biology and medical imaging: FFS and GB PD for certain activities GB for specific activities (for example, research)
Hospitals (outpatient care)	Mainly FFS Daily case payment for certain activities Health professionals (except medical doctors) are salaried and financed by hospital GB
Pharmacies	Pharmacists: Salaried (if not self-employed) Pharmaceutical products: FFS
Public health services	Mixed financing: Salaried, FFS and GB per programme
Long-term care	FFS

Notes: FFS: fee-for-service; GB: global budget; PD: per diem.
Source: Authors' compilation.

establishments, as well as ambulatory services provided in settings dedicated to outpatient health care (antennes de service) (see Sections 4.1.2 and 5.4) (IGSS, 2023b).

Medical activities during hospital stays

Medical activities performed by physicians (for example, consultations, surgical procedures) during hospital stays are paid through FFS directly to the providing physician or for some salaried doctors to the hospital. Hospitals receive additional funding from extra billings charged to patients for single-bed rooms, non-hospital activities and patients' daily rates for accommodation (see Table 3.4).

Measures introduced to control expenditures and to improve quality of care

With the 2010 Health Reform, the separate external budgets of hospital establishments became subject to a global hospital budget, representing an

upper limit to be set by the Government for all hospital establishments for health care services reimbursed by SHI. Each hospital continues to negotiate its own budget and services continue to be paid on an FFS basis. The reform further imposed financial structuring on the entire hospital sector, seeking efficiency and synergies among hospital establishments. Hospitals must integrate into a national approach to organizing hospital services. Furthermore, the EBG compels hospital establishments to better plan and organize their activities, actively incorporating the principles of utility and necessity into their management. This is done while ensuring separate funding mechanisms for exceptional, particularly costly, and often unpredictable services or to promote activity-based pricing (IGSS, 2022a).

PHARMACEUTICAL CARE

Pharmaceutical care financing differs between hospitals and the outpatient sector. Pharmaceuticals dispensed during a hospital stay are included in the annual hospital budgets. Some expensive drugs are reimbursed as additional charges. Pharmaceuticals in outpatient care are dispensed via community pharmacies or, for some specifically defined products, by hospital pharmacies (see Sections 2.7.4 and 5.6). Pharmaceuticals fall under the third-party payer system. The CNS usually pays pharmacies in advance 80% of their monthly average amount settled under third-party payment during the first 10 months of the previous fiscal year. The remaining part is settled using a detailed statement (CNS, 2020c). The sickness fund receives a discount (*abattement*) of 5% of the official selling price after the deduction of value-added tax. This discount can be reduced to 0.25% if the pharmacy transfers the information detailed in the conventional agreement between CNS and the association of pharmacists digitally. The discount does not apply to medicines included in the positive list defined as orphan drugs (Mémorial A128, 2012). Pharmacists must inform patients about available generic substitutes but there is no financial incentive for pharmacists. The extra costs for choosing non-generic are borne by the patient, as the coinsurance is calculated based on the price of the generic (see Sections 5.6 and 7.6). Pharmaceuticals dispensed in hospital pharmacies are purchased and negotiated by hospitals, if possible, on a central level.

PUBLIC HEALTH SERVICES

The M3S, the Ministry of Family Affairs, the Ministry for Gender Equality and Diversity, and the Ministry of Education, Children and Youth sign conventional agreements with non-profit organizations. Within the framework of the conventional agreements, non-profit organizations provide public health services. In 2023, the M3S invested around EUR 100 million in the conventional sector. To be financed by the M3S, activities must respond to public health and social health needs and be aligned with political priorities (for example, action plans or government coalition agreements). In 2024, the main domains funded are the prevention of addictions, mental health issues and chronic diseases. Whereas some services are integrally delegated to one organization only (mostly in chronic diseases), other services are provided by more than one actor (for example, prevention of addictions).

Most of the conventional agreements are based on the so-called ASFT Act (see Section 2.2). Organizations apply for funding in the form of personnel and operating costs for specific activities or projects. In 2023, there was a total of 70 active conventional agreements signed with the M3S.

Next to the funding based on the ASFT Law, projects and services can be funded via a fixed budget. Funding can be complemented by financial and human resources from other ministries, foundations, communes, charities and voluntary work. Some public health services, such as school health services, are directly provided by the Health Directorate or municipalities. In this case, the personnel and services are paid for via the state budget or local budgets.

3.7.2 *Paying health workers*

Nurses, physiotherapists, midwives and other health and care workers are salaried when working in hospitals, laboratories or the LTC sector. Salaried positions in these settings fall under collective wage agreements. When working in hospitals, health care workers are paid via the hospital budget (see Table 3.4).

Most physicians and dentists are self-employed and paid on an FFS basis, with prices set by national fee schedules. They receive separate payments from the State budget for on-call duty services (*garde*) in

hospitals or residential care homes. Additionally, GPs who care for patients with long-term conditions and register their patients in the "referring physician" system (see Section 5.2) receive an extra lump sum per patient. Similarly, most health professionals working outside hospitals, residential care homes, home care and laboratories are self-employed and paid FFS for most services, except for palliative care, which is paid per diem, according to the national fee schedules.

Generally, all interventions provided by nurses and other health professionals require a physician prescription (CNS, 2024a). Exceptions include nursing services for LTC recipients. Salaries as well as official tariffs of the diverse national fee schedules (except for laboratories) are indexed with respect to the cost of living.

4

Physical and human resources

SUMMARY

- Over the past 20 years, hospital mergers have led to larger hospitals and a higher concentration of acute care beds. Luxembourg has fewer hospital beds per capita (400 per 100 000 population) compared with the EU average (475 per 100 000).
- Despite lower density of computed tomography (CT) scans and magnetic resonance imaging (MRI) per population, Luxembourg had the second-highest frequency of CT and MRI examinations per inhabitant among OECD countries, with 244 CT and 116 MRI examinations per 1 000 population in 2021 compared with OECD averages (165 and 84 per 1 000 population, respectively).
- Luxembourg has fewer physicians (298 per 100 000 people) than the EU average (377 per 100 000), but more nurses (1 172 per 100 000) than the EU average (737 per 100 000).
- The country relies heavily on foreign-trained doctors and nurses because of limited training capacity. To address the risk of shortages, notably highlighted by the COVID-19 crisis, Luxembourg is investing in new health professional education programmes.

4.1 Physical resources

4.1.1 *Infrastructure, capital stock and investments*

CURRENT CAPITAL STOCK

Over the past three decades, Luxembourg's hospital landscape has significantly changed, with the number of hospitals decreasing from 36 in 1986 to 10 in 2023 (ObSanté, 2024). This shift was influenced by the introduction of LTC insurance in response to an ageing population, leading to the conversion of several hospitals into LTC facilities since 1998.

Luxembourg has four general hospitals (*centre hospitalier*), offering a wide range of services, each with an emergency ward and a maternity unit. These hospitals vary in size from 357 to 704 beds and operate across multiple sites. Three maternity units are Level 1 (for uncomplicated pregnancies) and one is Level 2 (for complicated pregnancies and neonatal intensive care) (Mémorial A222, 2018). The remaining six are specialized hospitals: two provide acute care in cardiology and radiotherapy, and four focus on psychiatric, geriatric, functional and cancer care rehabilitation. Of the ten hospitals, five are publicly owned, one is private, and four are not-for-profit. Additionally, Luxembourg has one palliative care facility, one thermal cure centre, one national pathology centre and 68 residential nursing homes.

INFRASTRUCTURE

In 2023, Luxembourg had a total of 2 640 hospital beds, of which 76.6% were for acute care, 19.1% were for rehabilitative care, 2.5% were for long-term stays and 1.8% were for palliative care (ObSanté, 2024). Trends show that between 2015 and 2022, the number of acute psychiatric beds slightly increased (from 38 per 100 000 population in 2015 to 41 per 100 000 population in 2022), whereas, because of the conversion of beds into LTC beds and population growth, the ratio of rehabilitative care beds slightly decreased (from 95 per 100 000 population to 83 per 100 000 population over the same period) (Table 4.1). Additionally, not included in the total account subject to planning, there were 573 places in hospital day care units in 2023. These are addressed to ambulatory care and short admissions of

TABLE 4.1 Trends in the number of hospital beds in Luxembourg, per 100 000 population, by type, 2013–22

	Acute care		Rehabilitative care	Long-term care	Total
	beds	(of which psychiatric care beds)	beds	beds	beds
2013	422.6	(NA)	94.6	0.0	517.2
2014	412.9	(NA)	92.4	0.0	505.3
2015	403.1	(37.8)	92.9	0.0	496.0
2016	389.9	(36.9)	90.7	0.0	480.6
2017	377.5	(35.9)	88.7	0.0	466.2
2018	370.3	(35.2)	80.4	0.0	450.7
2019	329.4	(42.6)	86.3	10.8	426.5
2020	323.9	(41.9)	84.9	10.6	419.4
2021	319.0	(41.3)	84.8	10.5	414.3
2022	306.1	(41.3)	83.1	10.3	399.5

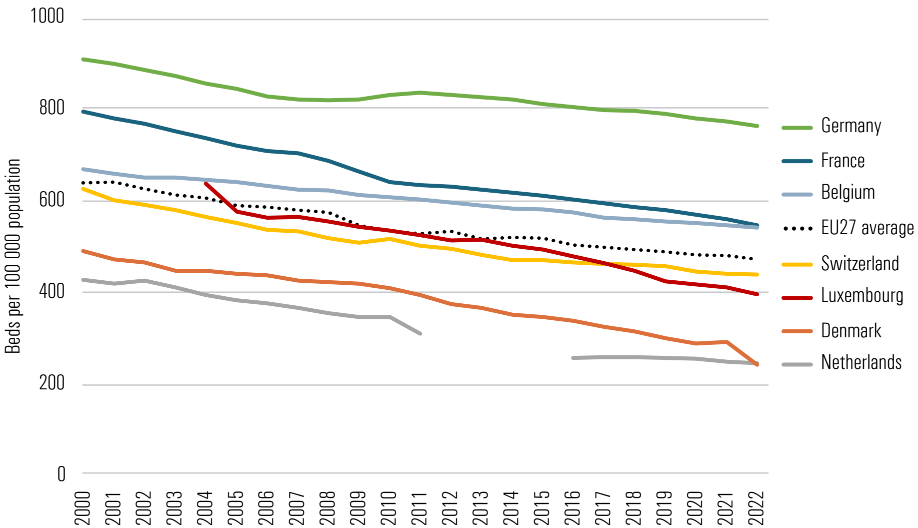
Source: Eurostat (2024).

under 12 hours (excluding overnight stays) covering elective admissions in medicine, surgery, psychiatry, paediatrics and geriatric rehabilitation, as well as dialysis.

Like in other European countries, the number of hospital beds significantly declined since 2004, from 639 per 100 000 population to 400 per 100 000 population in 2022, which is below the EU average of 475 per 100 000 population (Fig. 4.1). Such a decline in acute care capacity ratio is partly explained by Luxembourg's reduction in general hospitals and population growth. Further information on health facilities' distribution can be found in Box 4.1.

In 2023, Luxembourg had 160 intensive care unit beds, including 93 non-specialized, 46 adult-specialized and 21 for neonatal and paediatric care. In response to the pandemic, hospitals increased acute bed capacity by 13% and more than doubled resuscitation beds in 2020 (OECD, 2022) and elective procedures were delayed.

FIG. 4.1 Total beds per 100 000 population in Luxembourg and selected countries, 2000–22



Notes: EU27: EU average unweighted. EU27: 27 Member States of the European Union after 1 February 2020.

Source: Eurostat (2024).

BOX 4.1 Are health facilities appropriately distributed?

With one general hospital in the north, two in the center, and one in the south, Luxembourg's acute care services are well-distributed across its compact geography.

The 2018 Hospital Law abolished hospital catchment areas to centralize highly specialized care and encourage cooperation across hospitals and integrated care networks (see Sections 5.3 and 6.1) (Mémorial A222, 2018). Although this centralization is justified, it affects geographic accessibility to services, with functional rehabilitation only available in the central region and psychiatric rehabilitation concentrated in the north.

REGULATION OF CAPITAL INVESTMENT

Hospitals in Luxembourg require authorization from the M3S to operate or expand, while LTC facilities need approval from the Ministry of Family Affairs. The 2018 Hospital Law (Mémorial A222, 2018) sets the total number of hospitals and assigns the M3S responsibility for national

planning of capital investment (see Sections 2.4 and 6.1). New hospital departments also require the M3S approval, which involves consulting the *Collège médical* and the Standing Committee for the hospital sector (the CPH) (see Section 2.2).

Due to the lack of a national health infrastructure plan, requests for new buildings and modernization originate from hospital management boards, according to authorized hospital departments. Over the last decade, significant construction, and continuous infrastructure renewal have ensured high standards for Luxembourg's hospital buildings, equipment and fittings, offering a safe, secure and efficient environment (Cour des comptes, 2021).

INVESTMENT FUNDING

Since the 1998 Hospital Law, state funding for hospital infrastructure is managed by the Hospital Infrastructure Financing Fund under the M3S (Cour des comptes, 2021). The fund receives yearly budget allocations, governed by multi-year programming, with investments since 2001 totalling approximately EUR 1 570 million.

Regardless of the hospital type (public, private for-profit or not-for-profit), infrastructure is financed the same way from public sources. The government covers 80% of authorized construction and modernization costs exceeding EUR 500 000 for general hospitals and EUR 250 000 for specialized hospitals and CNS covers the remaining 20%.

4.1.2 *Medical equipment*

EQUIPMENT INFRASTRUCTURE

Purchasing major medical equipment (above EUR 250 000 or stipulated in the 2018 Hospital Law) requires prior M3S authorization (see Section 2.7.5). Nationally planned equipment includes major imaging and diagnostic technologies such as radiotherapy equipment or positron emission tomography scanners and, since 2023, magnetic resonance imaging (MRI) and computed tomography (CT) scanners (Mémorial A478, 2023).

Since 2023, to reduce waiting times and improve access to MRI, ambulatory facilities (*antennes de service*) are allowed to carry out medical imaging activities (namely, CT scans, MRI), provided there is a prior M3S authorization and collaboration agreement with hospitals (see Sections 6.1 and 7.2).

According to the *Carte sanitaire* inventory of medical hospital equipment (see Section 2.4), Luxembourg had 15 CT scanners and 12 MRI units in 2023. Despite acquiring four more CT scanners and two MRI units in 2020, the density per million inhabitants in 2021 (22 CT scanners and 17 MRI units) was below the OECD averages (28 and 18, respectively) and those of Germany (36 and 35), but above the averages for Belgium (25 and 11) and France (20 and 17) (Table 4.2).

Despite lower density, Luxembourg had the second-highest frequency of CT and MRI examinations per inhabitant among OECD countries (OECD, 2023), with 244 CT and 116 MRI examinations per 1 000 population in 2021 compared with OECD averages (165 and 84, respectively). National audits in 2016 and 2023 addressed accessibility concerns, revealing that initially, only 61% of CT examinations and 78% of MRI examinations were appropriate according to the national referral guidelines for medical imaging (Bouëtté et al., 2019; Conseil Scientifique, 2023b; DiSa, 2023). Improvements were noted in subsequent audits, with 75% for CT scans and 80% for MRI. The audits recommended continued efforts to improve targeted use, particularly for spinal CT scans and GPs' prescriptions, to enhance accessibility (see Section 7.6).

TABLE 4.2 Diagnostic imaging technologies (MRI units and CT scanners) per million inhabitants in 2021

	OECD average	Luxembourg	Belgium	France	Germany	Netherlands
MRI units	18	17	11	17	35	15
CT scanners	28	22	25	20	36	16

Notes: CT: computed tomography; MRI: magnetic resonance imaging; OECD: Organisation for Economic Co-operation and Development.
Source: OECD (2023).

4.1.3 *Information technology and eHealth*

The general use of information and communications technology in Luxembourg is widespread as 98% of Luxembourg's households have internet access (STATEC, 2023c). In 2022, 54% of persons aged 16–74 years sought online health information, matching the EU average (Eurostat, 2021).

In 2006, Luxembourg's Government adopted its first eHealth Plan, prioritizing medical data exchange and interoperability (Luxembourg Government, 2006). Despite this, digitalization remained fragmented, with laboratories, hospitals and home care institutions using incompatible systems. In 2014, the National eHealth agency (see Section 2.2) launched the electronic health record (*dossier de soins partagé* (DSP)) for all CNS-affiliated persons, shifting to an opt-out approach in 2020 (Mémorial A909, 2019). Deployed between 2021 and 2022, the DSP includes laboratory results, imaging and hospitalization reports, facilitating data exchange (e-Santé, 2023).The DSP complements, but does not replace, medical records kept by health professionals. Patients can access their DSP electronically, with those having a "referring physician" (see Section 5.2) required to have a DSP. Despite a stepwise implementation, the roll-out of the DSP has been slow, as well as its acceptance by both patients and providers. By 2020, 77% of the insured population had an active DSP, though it mostly contains unstructured data, and its clinical usage rate is unknown (e-Santé, 2020).

Moreover, the eHealth Agency provides multiple services such as a management tool for national multidisciplinary consultation meetings in oncology (*IdeoRCP*), a teleconsultation service (eConsult) and the stepwise introduction of an electronic vaccination record in 2022.

The *GesondheetsApp*, developed by the Association of Physicians and Dentists and approved by the eHealth Agency, lets patients schedule appointments and exchange fee statements with health professionals, but does not support medical information exchange. Other systems, like Doctena, exist but are not widely used. The *DispoDoc* app provides real-time information on doctors' availability (e-Santé, 2018). Telemedicine is limited to telemonitoring for elderly patients at home, national tele-expertise in paediatrics for neonatal intensive care or internationally (for example, European Reference Networks for rare diseases), and telepathology for remote biopsy analysis.

During the COVID-19 pandemic, teleconsultations ensured access to non-COVID-19 health services. In mid-March 2020, tariffs for teleconsultation were introduced, and two certified platforms were set up for patients to consult physicians and dentists, obtain work incapacity certificates and get medical prescriptions. Teleconsultations accounted for about 13% of all medical consultations in 2020, 6% in 2021 and 2% in 2023 and are no longer reimbursed since July 2024, pending a legal framework (CHD, 2024c).

The latest developments in the area of digitalization can be found in Sections 6.1 and 6.2.

4.2 Human resources

Four laws within the Health Code regulate health and care professionals (see Section 2.7.2). These laws and related regulations set the conditions for authorization to practise, define professional rules and regulate deontology. The Social Security Code outlines the relationship between providers and the health insurance fund (CSS Art. 61, Art. 388bis). Compulsory contracting with the CNS exists for certain providers (CSS Art. 61, Art. 64). Once health professionals receive a licence to practise in Luxembourg from the M3S, they are automatically registered with the CNS. The remaining cannot bill for services through the health insurance fund (for example, osteopaths) (CSS Art. 17, and see Section 3.3.4).

4.2.1 *Planning and registration of human resources*

There is no comprehensive public health law or strategic document in Luxembourg (see Section 7.1), complicating workforce assessment for health care. Available epidemiological data are rarely used to determine professional resources but are considered for allocating hospital resources (Lair-Hillion, 2019). Given the absence of comprehensive medical training, there is no planning or control on the number of physicians trained, and training capacities for the other health professionals are limited. Historical health care consumption data from the *Carte sanitaire* (see Section 2.4) shape the system's organization.

The M3S maintains registries of regulated medical and health

professionals, which are currently being redesigned for better data use in assessment and planning. It authorizes health and care professionals to practise in Luxembourg (see Section 2.7.2). According to European legislation (European Parliament, 2005), doctors, general nurses and midwives from the EU, Iceland, Norway, Switzerland and Liechtenstein can apply for a licence. For other professions, diploma equivalence must be verified. The list of medical specialties is limited to those recognized by the EU of Medical Specialists, reducing subspecialist attractiveness. There is no formal recertification or accreditation process. Licences can be withdrawn or suspended (Code de la Santé – Legilux, n.d.), and professionals not practising for two years must apply for renewal.

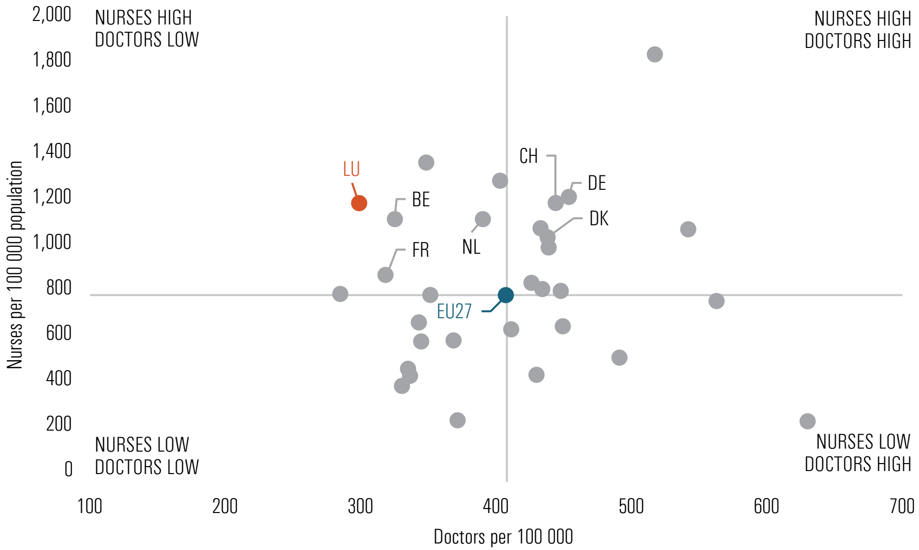
4.2.2 *Trends in the health workforce*

Since 2017, Luxembourg has not reported health workforce data internationally because of digital registry restructuring. Figs 4.2 to 4.4 and comments only include data up to 2017, with limited 2019 values from a survey (Lair-Hillion, 2019). In 2022, the health care sector employed about 22 000 people, representing 4.3% of the active workforce (STATEC, 2022b). Luxembourg has a relatively high number of nurses per 100 000 population, but fewer physicians compared with other countries (Fig. 4.2) and records geographical disparities in its workforce density (see Box 4.2).

In 2017, Luxembourg had fewer practising physicians (298 per 100 000 population) than the EU average (377 per 100 000 in 2017), despite a 39% increase since 2000 (Fig. 4.3), driven mainly by 44% growth in GPs compared with 35% in specialists between 2007 and 2017 (Lair-Hillion, 2019). This low density is due to the lack of comprehensive domestic medical training, leading to reliance on foreign-trained doctors (see Section 4.2.4). Luxembourg University introduced a training programme in 2008 boosting GP numbers. The 2023 national health plan aims to recruit over 1 200 additional doctors by 2030 to reach the EU average (Luxembourg Government, 2023a).

In 2018, 30% of physicians in Luxembourg were GPs, exceeding the EU average (21%) (OECD/European Union, 2020). Physicians are aging, with 54% of GPs and 60% of specialists over the age of 50 years in 2017. The percentage of women increased from 33% to 41% among GPs and from 25% to 35% among specialists between 2007 and 2017.

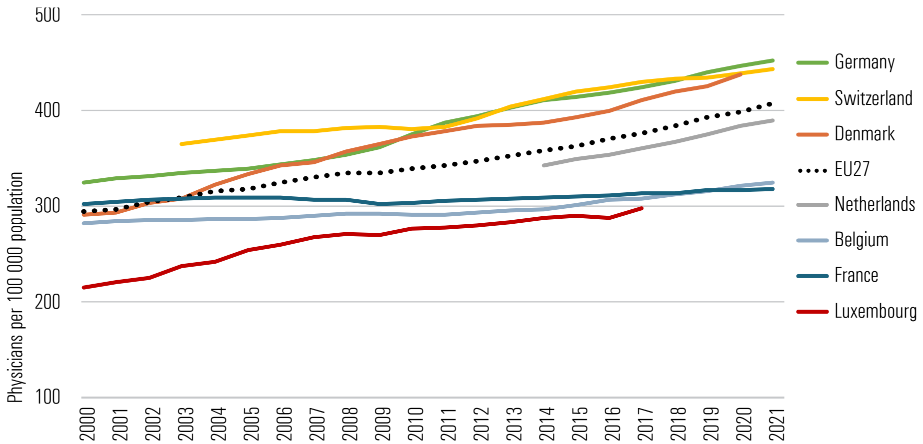
FIG. 4.2 Practising nurses and physicians per 100 000 population, 2021



Notes: Data for Luxembourg are from 2017. BE: Belgium; CH: Switzerland; DE: Germany; DK: Denmark; EU27: 27 Member States of the European Union after 1 February 2020; FR: France; LU: Luxembourg; NL: the Netherlands.

Source: Eurostat (2024).

FIG. 4.3 Number of practising physicians per 100 000 population in Luxembourg and selected countries, 2000–21



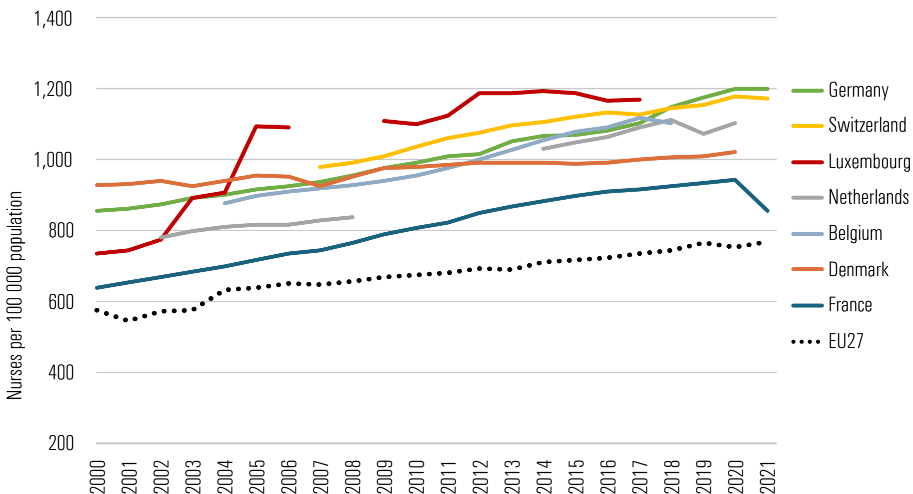
Notes: EU27: 27 Member States of the European Union after 1 February 2020.

Source: Eurostat (2024).

NURSES

In 2017, Luxembourg had 1 172 nurses per 100 000 population, exceeding the EU average (737 per 100 000) (Fig. 4.4). The 2023 national health plan aims to recruit 3 800 more nurses by 2030 (Luxembourg Government, 2023a). In 2019, there were 7 127 nurses, comprising 48.6% of regulated health professionals (excluding physicians, dentists, pharmacists and psychotherapists). Of these, 13.7% were specialized nurses in anaesthesia and intensive care, paediatrics, psychiatry and as *infirmier gradué*[7]. Among non-specialized nurses, 82% were female, with an average age of 41.8 years. Additionally, there were 3 740 nurse aides accounting for 26% of regulated health professionals.

FIG. 4.4 Number of practising nurses per 100 000 population in Luxembourg and selected countries, 2000–21



Notes: EU27: 27 Member States of the European Union after 1 February 2020.

Source: Eurostat (2024).

[7] The *infirmier gradué* or graduate nurse typically works in leadership roles within health care facilities, managing care units, hospital services, home care and centres for the elderly. In-depth knowledge of public health and hospital management is required.

MIDWIVES

In 2019, Luxembourg had 231 practising midwives, with an average age of 40 years. In 2017, Luxembourg recorded 34.7 midwives per 1 000 live births, higher than Germany (30.6) and France (29.6) but lower than Belgium (65.4) (OECD, 2024b).

DENTISTS

From 2007 to 2017, the number of dentists increased by 48%, reaching 497 in 2017. Dentists are younger than GPs or specialists, with only 46% over 50 years old in 2017. The percentage of women dentists rose from 31% in 2007 to 41% in 2017 (Lair-Hillion, 2019).

PHARMACISTS

In 2018, there were 542 pharmacists, of which 80% worked in 97 community pharmacies and 9% worked in five hospital pharmacies (Statistiques.lu, 2018).

COVID-19 PREPAREDNESS

Luxembourg's health reserve, a pool of health workforce volunteers, ensured COVID-19 preparedness. A mandatory census in March 2020 of all licensed health and care professionals, along with a volunteer platform, facilitated this. The reserve deployed volunteers to hotlines, contact tracing, sampling and consultation centres. However, the pandemic revealed Luxembourg's reliance on foreign health professionals, a critical issue during 2020 border closures, highlighting the need for strategic health care planning (see Sections 4.2.3. and 7.2). The reserve was also crucial during the 2022 Mpox and 2023 bronchiolitis epidemics. An OECD evaluation emphasized making the health reserve permanent (OECD, 2022). Currently, the Emergency Preparedness and Response unit at the Directorate of Health in Luxembourg is focusing on this objective by, among other tasks, establishing a legal framework for national recognition

BOX 4.2 Are health workers appropriately distributed?

In Luxembourg, the freedom of settlement for physicians and other health professionals may lead to geographical disparities in workforce density.

In 2017, general practitioner (GP) density ranged from 0.19 GPs per 1 000 population in Vianden to 1.14 in Redange, with higher densities in cantons with hospitals. Dentist density also varied significantly, from 0.19 per 1 000 population in Vianden to 1.38 in Luxembourg canton.

In 2019, similar disparities affected self-employed regulated health professionals, leaving some cantons without speech therapists, physiotherapists and midwives (Lair-Hillion, 2019).

and rapid deployment of the health reserve, developing a digital platform to streamline communication and automate key processes, implementing training programmes to maintain reservists' professional skills, and linking the health reserve with cross-border initiatives.

4.2.3 *Professional mobility of health workers*

Due to the lack of comprehensive medical training, Luxembourg heavily relies on foreign-trained doctors (see Section 4.2.4), challenging the natural renewal of its medical workforce. Between 2007 and 2017, the percentage of Luxembourgish doctors declined from 76% to 68% among GPs and from 66% to 49% among specialists. In 2017, 68% of GPs were Luxembourgish, 14% French, 7% Belgian, and 6% German. Meanwhile, only 49% of specialists were Luxembourgish, 20% German, 14% Belgian, and 10% French. Moreover, 75% of doctors live in Luxembourg, whereas 25% reside in neighbouring countries (Lair-Hillion, 2019).

Despite relatively high numbers (see Section 4.2.2), the nursing workforce faces a similar dependence on foreign-trained professionals. With an annual training capacity of approximately 100 nurses (Luxembourg Government, 2023a), Luxembourg attracts talent with favourable working conditions and competitive salaries. However, this leads to recruitment challenges in cross-border regions and creates linguistic challenges with patients and within teams, with uncertainties about the

long-term sustainability of Luxembourg's health care system. In 2019, 30% of nurses were Luxembourgish, 30% French, 23% German and 12% Belgian, with only 35% residing in Luxembourg.

To tackle these challenges, the Government has recently implemented strategic measures to boost the attractiveness and retention of health professions. Communication efforts, including campaigns and the healthcareers.lu website, are supported by educational and training programmes (see Section 4.2.4). Specific incentives include compensation for duties, intern remuneration, and support for setting up group practices. Additionally, the government is revising the 1992 Law for regulated health professionals to integrate implementing regulations and reviewing professionals' roles (Mémorial A20, 1992). Reform proposals aim to encourage multiprofessional collaboration, enhancing autonomy and task shifting opportunities such as allowing midwives to vaccinate, prescribe and conduct tests. New integrated care networks for specific diseases (see Section 5.4.1) will further improve coordination and task-sharing.

4.2.4 *Training of health personnel*

Health and care professional training is overseen by the Ministry of Education, Children and Youth and the Ministry of Higher Education and Research. Despite increased training opportunities, health care education remains limited. Luxembourg lacks a complete medical curriculum but introduced a bachelor's programme in medical science in 2021 with graduates pursuing further education abroad. Postgraduate training in Luxembourg is restricted to general practice, neurology and oncology since 2021. Training for dentists, veterinarians and pharmacists is unavailable.

Unlike many European countries, Luxembourg does not mandate a bachelor's degree for nurses, but an advanced technician certificate (*Brevet de technicien supérieur*), including two years in secondary education and two years in higher education after the baccalaureate. This limits local nurses' access to higher education and career growth. Nurses trained abroad with higher diplomas have similar roles and salaries, which may hinder retention efforts (Lair-Hillion, 2019) (see Section 7.2).

The Technical School for Health Professions trains midwives, nurses and health assistants. In 2023, the University of Luxembourg introduced four new bachelor's degrees for professionals with a graduate in general

nursing to specialize in medical technical assistance in surgery, anaesthesia and intensive care, paediatrics and psychiatry. In 2024, an additional degree will be launched for general care nurses.

Other programmes include a Bachelor in Physiotherapy at LUNEX University and a bachelor's degree in social and educational sciences for social workers at the University of Luxembourg. However, professionals such as occupational therapists, speech therapists, orthoptists, osteopaths and chiropodists must study abroad, and, laboratory technician training has been discontinued since 2012.

The modified law of 29 April 1983 regulating the practise of physicians, dentists and veterinarians foresees adherence to the Medical Code of Ethics and continuing medical education (see Sections 2.7.2 and 2.8.3) (Memorial A31, 1983).

4.25 *Physicians' career paths*

Luxembourg follows a liberal practice model, with 86% of physicians being self-employed, mainly in primary care or hospitals. In 2017, 64% of physicians worked independently, while 22% worked collaboratively, encouraged by an installation allowance. Among GPs, only 17% worked in group practices, compared with 50% among specialists (Lair-Hillion, 2019).

The *Centre Hospitalier de Luxembourg*, though not a university hospital, is crucial for teaching and research and trains specialist doctors (*Médecins en voie de spécialisation* (MEVS)). Doctors can be affiliated with both the Luxembourg Institute of Health (LIH) and the *Centre Hospitalier de Luxembourg* for research. The LIH supports hospital doctors, promoting collaborative research initiatives (LIH, n.d.a). In 2022, the Luxembourg Clinical and Translational Research Centre (*Fuerschungsklinik Lëtzebuerg*) became the first research infrastructure combining medical equipment, administrative and project management support for clinical research, fostering collaboration among clinicians, researchers and patients (LIH, n.d.b).

There is no defined career path to become a professor or student supervisor for aspirant doctors and MEVS. Supervisors for MEVS are licensed by universities abroad.

4.2.6 *Other health workers' career paths*

For many health professionals, deciding between self-employment and salaried roles shapes their career paths. The percentage of self-employed professionals varies by professions. In 2019, 38% of regulated health professionals worked in hospitals, with nurses slightly more prevalent (48%). Hospital or LTC roles typically involve salaried positions. Nurses have diverse career opportunities, including roles as supervisors, trainers or heads of a nursing school. They may also serve as case managers for conditions such as breast cancer or specialize in oncology.

5

Provision of services

SUMMARY

- In Luxembourg, there is no formal legislation or dedicated overarching strategic plan defining public health objectives and activities. The Ministry of health and Social Security and the Health Directorate are responsible for population health as well as the organization and monitoring of the health care system. These institutions work closely with national and international public health organizations and research centres to govern public health services in Luxembourg.
- The provision of care emphasizes freedom of choice and direct access, without general practitioners (GPs) needing to serve as gatekeepers. However, various initiatives have been implemented to strengthen primary care and to reinforce the role of the "referring physician" as the preferred entry point for health services.
- Day hospitalizations have significantly increased, making up 48.1% of total admissions in 2021 compared with 31.0% in 2010. However, Luxembourg lags behind neighbouring European countries in day surgeries and outpatient care.
- Patients can access emergency care through various entry points: direct self-referral (walk-in patients), referrals from physicians (GPs or specialists) or following an emergency call. In the emergency department a patient triage (Canadian Triage and Acuity Scale) is used

to process patients and to monitor service delivery and care quality.
- Luxembourg benefits from services for informal carers. Pension insurance contributions for carers can be covered by a long-term care insurance, up to the amount equal to the minimum wage.
- Despite having a generic substitution scheme in place, Luxembourg has the lowest volume and value of outpatient generic medicines in the EU, accounting for only 5.6% of the outpatient pharmaceutical market covered by health insurance.
- Luxembourg has made significant progress in mental health care. Psychotherapist consultations upon prescription were introduced into the statutory health insurance benefits basket in 2023. Luxembourg has also made efforts to tackle stigmatization and discrimination with the psychiatric reform (2005) that deinstitutionalized psychiatric care and further developed outpatient services at the community level.

5.1 Public health

The M3S and the Health Directorate are responsible for population health as well as the organization and monitoring of the health care system (see Section 2.2). These institutions work closely with national and international public health organizations and research centres to govern public health services. Their collaboration aims to plan statistical studies and documentation of the population's health status and health determinants. The Luxembourg Institute of Health, the National Health Laboratory (*Laboratoire National de Santé*) and the National Health Observatory (*Observatoire national de la santé*) (see Section 2.2) are integral parts of the public health ecosystem. The Health Inspectorate (*Inspection Sanitaire*) is responsible for disease outbreak notification and surveillance. The organization and financing of specific preventive programmes often vary from one intervention to another (see Section 3.7.1). Furthermore, the Scientific Council for Health Care, which regularly publishes recommendations from its 22 working groups (Conseil Scientifique, 2024), has initiated promotional and awareness initiatives focused on its recently issued recommendations for optimal medical practices and caregiving. These recent initiatives consist of video campaigns highlighting selected key messages, all aiming to increase the national guidelines' visibility and foster their adherence by health professionals.

Public health services are delivered through a variety of channels as the Health Directorate either directly administers the services or collaborates with external partners through conventional agreements (see Sections 2.2, 3.3.4 and 3.7.1). Preventive programmes, such as breast cancer screening, are integrated within standard care and service billing, which is facilitated by agreements between the Health Directorate, the CNS and specialized health professionals (CSS Art. 17).

Additional services, in part provided through contracted partners/stakeholders, range from health education and health promotion to providing free health services and patient support (Ministère de la Santé, 2022).

Public health programmes encompass vaccination for primary prevention, as well as maternal, neonatal, infant and child screening programmes, including school health services and cancer screening.

In Luxembourg, the Health Directorate oversees the universal vaccination programme based on the recommendations of the Infectious Diseases Council (*Conseil supérieur des maladies infectieuses*) (see Section 2.2) (Mémorial A562, 2023). Even though vaccination is not mandatory in Luxembourg, the Infectious Diseases Council provides recommended vaccination schedules for various pathologies (for example, diphtheria, tetanus and pertussis (DTP)) and the new immunization to protect infants and young children from bronchiolitis has been available since September 2023. Vaccines are procured by the Health Directorate through state-funded tenders and distributed free of charge to health care providers. Flu vaccines and pneumococcal vaccines for people aged 65 years and over, as well as for other at-risk populations, are available in pharmacies upon prescription and fully reimbursed by the SHI. In 2022, the National eHealth Agency (*Agence eSanté*) was tasked with developing an electronic vaccination record (Sante.lu, 2024c). However, this record is not yet operational; hence, vaccination coverage in Luxembourg cannot be estimated. The Health Directorate monitors the vaccination rates of 25- to 30-month-old children through surveys conducted every 5 years (Sante.lu, 2024d) and the latest results showed an over 90% coverage for the recommended vaccines up to the age of 24 months in 2018 (Pivot & Leite, 2018).

Systematic medical and dental check-ups are provided, by regulation, for pregnant women and children up to the age of 4 years, with fully reimbursed tariffs and financial incentives (namely, birth allowance of

EUR 1 740.90 in 2024) (see Section 5.12).

Universal screenings during early life years encompass non-invasive prenatal testing for chromosomic anomalies, neonatal screening, cyanogenic cardiac defects and hearing defects, followed by visual screenings at 10 and 40 months of age, and speech and language assessment with hearing tests at 30 months of age (Sante.lu, 2023a).

The 2011 regulation on school health services ensures a comprehensive approach to school-aged children's health (Mémorial A219, 2011a). It operates through both "Health promotion and education" and "Medical–social–school monitoring". The former involves collaboration between schools, municipalities and extracurricular organizations, focusing on specific health domains and based on an intersectoral approach. The latter includes school medical measures and examinations, which are carried out systematically, or as needed, in primary and (partially) secondary school-aged children (for example, oral and dental examinations (see Section 5.12) or visual and auditory assessments).

Furthermore, the Health Directorate runs two organized screening programmes for breast and colorectal cancer:

- The Mammography Programme, first launched in 1992, was designed for women aged between 45 and 74 years, affiliated with the SHI, and residing in Luxembourg (Luxembourg Government, 2024a).
- The colorectal cancer screening pilot programme, launched in 2016 and followed by an organized screening programme in 2021, targets all men and women aged 45–74 years, affiliated with the SHI, and residing in Luxembourg (Luxembourg Government, 2024a).

A summary of these screening programmes is provided in Table 5.1.

In Luxembourg, there is no formal legislation or dedicated overarching strategic plan defining public health objectives and activities. Political priorities for public health are included in the government coalition policy programmes (see Sections 6.2 and 7.1).

The government finances national action plans, aiming to assess both intervention programmes and their implementation. The government collaborates with various stakeholders on strategic documents to produce actionable measures. National plans are disease-specific, including chronic diseases, cancer, cardio-neuro-vascular diseases, rare diseases, infectious diseases (for example, human immunodeficiency virus infection and hepatitis) and mental health conditions, as well as specific to health status,

TABLE 5.1 Screening programmes in Luxembourg

	Target population	Providers	Set-up	Financing	Incentive
Prenatal check-ups	Pregnant women	Obstetricians-Gynaecologists in private practices and hospitals	Private practices and hospital outpatient services	CNS (FFS)	Prenatal allowance
Non-invasive prenatal testing (chromosomal anomalies)	Fetus (on prescription)	LNS	Blood sampling in laboratories	CNS	None
Inborn metabolic diseases	Neonates (5–10 days)	LNS	Blood sampling by midwives	State budget	None
Congenital cardiac defects	Neonates	Midwives / Paediatricians	Maternity facilities	CNS	None
Well-child visits	Children up to the age of 2 years	Paediatricians, GPs, Internists	Maternity facilities, private practices	CNS (FFS)	Postnatal allowance
	Children 30–36 months and 42–48 months	Paediatricians, GPs, Internists	Private practices	CNS (FFS)	Special tariff
	Children from the age of five in schools	Paediatricians, GPs, nurses from school health services	School facilities	M3S, Municipalities	None
Hearing screening	Neonates ($\geq$ 2 days)	Audiometrists from the Health Directorate	Maternity facilities	M3S	None
	Children $\geq$ 30 months and at school entry	Audiometrists from the Health Directorate	Testing centres	M3S	None
	School-aged children	Nurses from school health services	School facilities	M3S, Municipalities	None

Notes: CNS: National Health Fund; FFS: fee-for-service; GP: general practitioner; LNS: National Health Laboratory; M3S: Ministry of Health and Social Security.

Source: Adapted from Seuring, Ducomble & Berthet (2024).

TABLE 5.1 (continued) Screening programmes in Luxembourg

	Target population	Providers	Set-up	Financing	Incentive
Visual screening	Children 10 and 40 months old	Optometrists from the Health Directorate	Testing centres	M3S	None
	School-aged children	Nurses from school health services	School facilities	M3S, Municipalities	None
Dental screening	Children 30–36 months and 42–48 months	Dentists	Private practices	CNS (FFS)	Special tariff
	School-aged children	Dentists	School facilities	M3S, Municipalities	None
Colorectal cancer screening	Individuals aged 45–74 years	Gastroenterologists	FIT test free of charge and Hospital outpatient service	CNS	None
Breast cancer screening	Women aged between 45 and 74 years	Radiologists, Gynaecologists	Hospital outpatient service	CNS	None

Notes: CNS: National Health Fund; FFS: fee-for-service; GP: general practitioner; LNS: National Health Laboratory; M3S: Ministry of Health and Social Security.

Source: Adapted from Seuring, Ducomble & Berthet (2024).

health determinants and/or risk factors (including tobacco, alcohol, illicit drugs) (Sante.lu, 2023b) or specific to certain types of services (for example, palliative care and antibiotic consumption). Although these plans are not legally binding, they highlight important challenges not only for health care service provision, resource allocation (financial and non-monetary), access to care and quality of care in Luxembourg, but also in terms of population health status and determinants (see Sections 1.4 and 7.5).

An example of the impact of these public health interventions in Luxembourg is discussed in Box 5.1.

BOX 5.1 Are public health interventions making a difference?

The example of tobacco

Smoking prevalence among youth has decreased in the last years but rose again slightly in 2021 according to the latest analysis (see Section 1.4). This initial decline can be attributed to anti-tobacco initiatives such as the ban on smoking in public places in 2006 and other legislative measures implemented in 2013 and 2017, prohibiting the use of certain substances, as well as banning the advertisement and sponsorship of tobacco products (except at points of sale) and in the form of the product name and brand ("neutral packaging"). The law requires the use of health and other warnings on tobacco products and of graphic images on cigarette packs and rolling tobacco. In addition to these government initiatives, a smoking cessation support programme is provided, offering free consultations in medical practices and hospitals to support and guide individuals to quit smoking. In 2023, the National Cancer Foundation launched a campaign "A generation free of tobacco" to raise awareness and reach the first tobacco-free adult generation by 2040.

Nevertheless, compared with other European countries, Luxembourg has not been effective in adopting financial incentives against cigarettes and has the cheapest cigarette prices in Europe with 20-cigarette packages costing around EUR 5–8 compared with EUR 12 in France, for example. In July 2023, the 20-cigarette packages increased by EUR 0.20 (Luxembourg Government, 2023b).

Further decrease in smoking rates can be achieved through implementation strategies and their evaluation, in addition to financial incentives against cigarettes.

5.2 Patient pathways

The health care system relies on two main principles:

1. Patients' free choice of their health care provider and direct and unrestricted access to care (no gatekeeping) (see Section 2.8.2)
2. Physicians have full autonomy in deciding therapeutic approaches, without any constraint by specific treatment plans

Therefore, patients in Luxembourg can directly choose their GPs, specialists or dentists. For out-of-hours services, on-call GPs at medical on-call centres, so-called *Maisons médicales de garde*, and emergency departments (EDs) provide unrestricted access to health services (see Section 5.5).

Although there is no single patient pathway, some initiatives were undertaken to support care coordination and specific pathways. The Scientific Council for Health Care develops national medical practice standards and publishes clinical guidelines, including guidance for multidisciplinary care for chronic conditions such as diabetes and cancer (Ministère de la sécurité sociale and Conseil scientifique du domaine de la santé, 2021; Conseil scientifique, 2023a). The 2018 Hospital Law designates certain departments as "national" (that is, unique in the country) to promote centralization for volume-sensitive or complex care (Mémorial A222, 2018). It also introduced integrated care networks for a range of conditions, based on partnerships between hospitals and outpatient health professionals, of which three have been authorized since 2023 (see Section 5.3). The introduction of a "referring physician" system in 2012 aimed at improving care coordination and focused on care for patients with chronic conditions, but did not promote patient pathways. Similarly, the 2019 regulation (Mémorial A909, 2019) established electronic health records to centralize and manage access to patient's information, including test results, allergies and medications (see section 5.3), but was not designed to support specific patient pathways (e-Santé, n.d.; Mémorial A909, 2019). Box 5.2 elaborates patient experiences with the care they receive.

BOX 5.2 What are patient experiences regarding the care they receive?

The European Health Interview Survey conducted in Luxembourg includes information on patients' experiences, such as waiting times, time spent during consultations and comprehensiveness of medical explanation. In 2019, Luxembourgish residents reported that, during their last consultation, their physician spent enough time (for almost 90% of the respondents), provided sufficient information (94%), gave them the opportunity to ask questions or raise concerns about the recommended treatment (90%), and 85% of the respondents felt involved in a shared decision-making.

Luxembourg is also included in the OECD PaRIS survey (Patient-Reported Indicator Surveys) that develops, standardizes and implements a new generation of indicators to measure health care outcomes (PROMs) and experiences (PREMs). To date, the study is focusing on primary care and breast cancer in Luxembourg and data collection is underway.

5.3 Primary care

Primary care – consisting of doctors, dentists, pharmacists, psychotherapists, nurses, midwives and other health care professionals – is usually a patient's first point of contact with the health system. In Luxembourg, there is no umbrella regulation defining primary care.

Patients have direct access to and free choice of health care professionals as they deem appropriate for their care without any referral need or any access restriction (see Section 5.2). Hence, health care professionals in both general and specialist practices are involved in the provision of primary care (Mémorial A20, 1992). GPs, paediatricians and obstetricians–gynaecologists provide screening visits for pregnant women and children, as well as immunizations following the recommended schedule. Paediatricians are the main primary care contact point for children up to the age of 9 years (Seuring, Ducomble & Berthet, 2024). Hence, both GPs and specialists are accountable for the diagnosis of common conditions and their follow up. Out-of-hours primary care, including the *Maison Médicale de garde*, is described in Section 5.5.

Some limitations exist for access to health care professionals such as nurses, who deliver home services upon prescription only, to acute care patients, individuals with chronic illnesses or disabilities, and palliative care patients. Their tasks include wound management and dressings,

administration of medication by injection or infusion, tube feeding and blood sampling (blood tests). Midwives also provide prenatal and postnatal home care to mothers and their infants, while dentists provide primary care services as well as screening visits to pregnant women and children from the age of 2.5 years, that are covered by SHI. Pharmacists can similarly act as initial points of contact, offering guidance on medication, assisting with over-the-counter products and directing patients to physicians when necessary (see Sections 2.7.4 and 5.6).

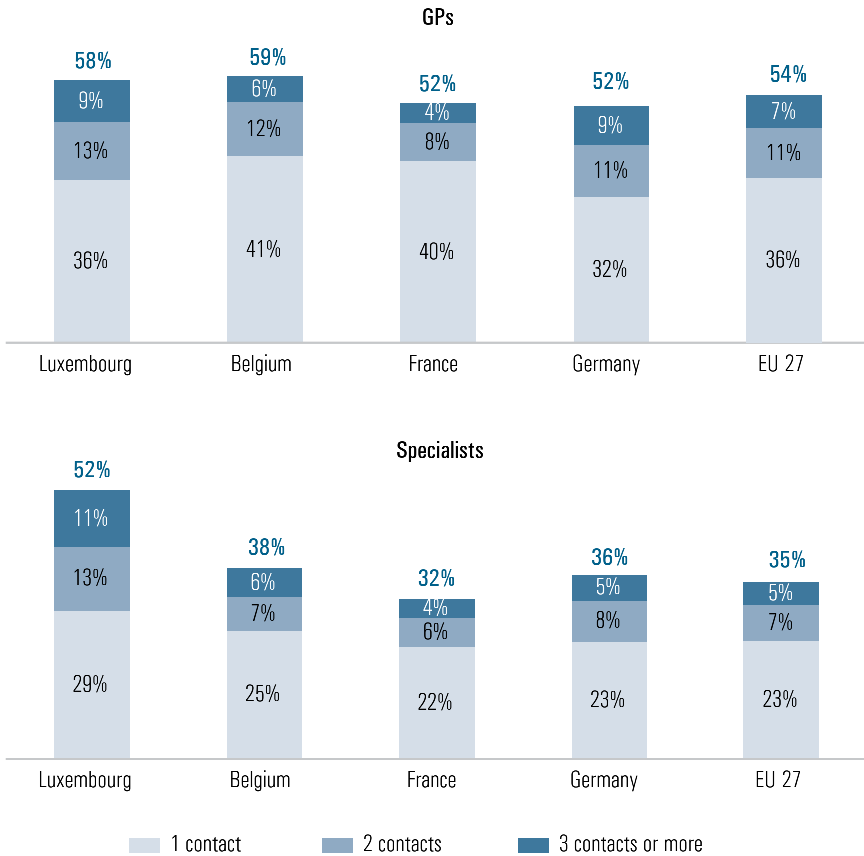
In 2018, the average number of medical consultations for insured residents in Luxembourg was 5.5 per annum, which is below the OECD average of 6.7 consultations (OECD/European Union, 2020). In 2022, a noticeable imbalance existed between specialized physicians and GPs in Luxembourg, with specialized physicians representing 68% of the medical workforce compared with 32% for GPs (see Section 4.2.2).

The 2019 EHIS illustrates differences in health care service utilization. It revealed that 36% of Luxembourg's residents had at least one contact with a GP in 2019, which is similar to the EU average but lower than in Belgium (41%) and France (40%) (Fig. 5.1). On the other hand, results showed that 53% of Luxembourgish residents had at least one contact with a specialist in 2019, which was higher than Belgium (38%), Germany (36%), France (32%) and the EU average (35%).

In 2019, over half of the residents in each canton received at least one outpatient consultation, but utilization rates varied among the different cantons, ranging from 51.9% of residents in the Canton of Luxembourg to 58.7% in the Canton of Esch-sur-Alzette. The four general hospitals (*centre hospitalier*) collectively recorded 1.2 million outpatient visits in 2019 (CHD, 2022b), of which approximately 60% were delivered by hospitals from the centre of Luxembourg, which is in line with the hospital distribution across Luxembourg (see Section 4.1.1).

Although it is not prohibited by ethics code or law for health professionals to work in multidisciplinary teams in primary care practices (Mémorial A47, 2013), the conventional agreements between health professionals and the CNS, as well as the code of deontology, do not encourage such practices. As a result, only practices comprising doctors from the same specialty or professionals of the same discipline are established and most GPs are self-employed in solo practices (see Sections 4.2.5 and 6.2). New reforms in 2024 focus on making it easier for groups of doctors to set up multidisciplinary practices (see Section 6.2).

FIG. 5.1 Self-reported consultations of GPs and specialists, respectively



Notes: EU27: 27 Member States of the European Union after 1 February 2020; GP: general practitioner.
Source: Eurostat (2024).

INITIATIVES TO STRENGTHEN PRIMARY CARE SERVICES IN LUXEMBOURG

While granting individuals direct access and free choice of health care professionals is recognized as a core value of the Luxembourg health system, measures were taken to strengthen the role of GPs as the preferred entry point to health services (Box 5.3). The 2010 health care reform established the concept of "referring physician" to reinforce primary care services for insured individuals (CSS Art. 19bis). In 2024, the tasks of the "referring physician" include:

1. Providing the first level of access to health care
2. Delivering preventive care and contributing to health promotion
3. Regularly monitoring the content of patients' electronic health records (the DSP)
4. Overseeing patients' journey within the health care system while raising patients' awareness about associated risks to treatment duplication, overconsumption and side effects
5. Coordinating care of serious or chronic illnesses and LTC
6. Informing, guiding and advising patients throughout their health care journey

The DSP was developed by the government to support both patient information and the referring physician's role. It includes a patient summary accompanied by all the medical data shared among health professionals involved in the patient's care, laboratory tests and medical imaging results (see Section 4.1.3) (Sante.lu, 2022b). After its launch in 2012, the number of individuals with a designated "referring physician" was 21 374 (4.17% of the resident insured population) in March 2015, involving 196 medical doctors (of which 92% were GPs). Only 3 080 patients (14.4%) registered with a "referring physician" had a long-lasting chronic condition and the coverage rates associated with procedures or medications related to specific conditions were comparable between patients with and without a "referring physician" (Sante.lu, 2014). Moreover, the Luxembourg Government implemented a variety of eHealth tools. These range from digital applications to find the right physician at the right time, to electronic vaccination records or teleconsultation platforms (see Section 4.1.3).

BOX 5.3 What are the key strengths and weaknesses of primary care?

The freedom to choose health professionals is a strength of Luxembourg's primary care system. With no restrictions or additional costs for selecting providers based on personal preferences (subject to professional availability), patients enjoy access to a wide range of services, including specialist care.

Nevertheless, the principle of free choice hampers the coordination and planning of primary care in Luxembourg. It also raises questions regarding the capacity of the available physicians (GPs and specialists) to cover an unregulated demand for care and the need to enhance better distributed geographical accessibility of those physicians (see Section 4.2.2 and Box 4.2). There are initiatives to improve care coordination through the implementation of the electronic health record (*dossier de soins partagé*).

Furthermore, there is no umbrella law establishing the framework and boundaries of primary and ambulatory care, nor clear documentation describing the primary care system as a whole (for example, patient pathway, access, care, quality of care), which complicates primary care organization and governance. The lack of regulation also makes it difficult to have a clear overview of the responsibilities between different health care entities and/or health care professionals and reduces the health system transparency for users.

INTEGRATED CARE

With the 2018 Hospital Law (Art. 28), Luxembourg started moving towards an integrated care approach by regulating the modalities of integrated care networks that encompass primary and specialized care providers from single practice to health care facilities. These networks have a diagnostic and treatment mission but may also engage in research and educational activities. The Hospital Law outlines the different pathologies or groups of pathologies that may be included in the scope of an integrated care network as well as the criteria to obtain an authorization to establish such a network. As of March 2023, three integrated care networks were established:

1. Chronic pain
2. Neurodegenerative Diseases, named "ParkinsonNet"
3. Adult and Paediatric Immuno-Rheumatology

The first patients were included in October 2023 in the ParkinsonNet integrated care network, but the other two networks are not yet operational.

5.4 Specialized care

5.4.1 *Specialized ambulatory care*

Luxembourg's health system operates without a referral system to medical specialists. Hence, the demarcation between primary and more specialized care (such as care and management of a narrower range of medical conditions with higher complexity) is blurred, with specialists providing both primary and specialized care in their practices. The proportion of common medical conditions that could be safely managed at the primary care level but are treated by specialists from the secondary or tertiary levels is unknown, as is the rate of routine follow up of chronic diseases or management of mild acute illnesses provided by a specialist. Many European countries invested in strengthening primary care to provide more person-centred care based on patients' health needs, but Luxembourg's health care system remains hospital-centric with a greater emphasis on specialized health care services.

Medical specialists may choose to practise in a private practice or mono-specialty group practice (see Section 4.2.5), to enter into an agreement with a hospital, or to work both in their private practice and a hospital. In some cases, specialists have contractual agreements in more than one hospital, which contributes to better continuity of care for their patients.

5.4.2 *Day care*

The 2018 Hospital Law defines day care as admission to the hospital and discharge on the same day, without staying overnight. Day care admissions encompass planned procedures such as dialysis, chemotherapy, intravenous therapies, technical procedures and surgical procedures (for example, refractive eye surgery).

Compared with the overall number of hospitalizations, day hospitalization has significantly increased, accounting for 48.1% of the total admissions in 2021, against 31.0% in 2010, but with significant variations between hospitals (ranging from 40.8% to 55.6% of total admissions in 2021). However, when looking at international comparisons, Luxembourg still trails its neighbouring European countries for both day surgeries and

outpatient care. While the rate of cataract surgery performed in a day care setting (98.2% in 2021) is on a par with the rate observed in other countries, other procedures are still mainly performed in inpatient settings and show no progression towards a shift to day care settings (for example, 13.1% of tonsillectomies were performed in a day care setting in 2021 compared with 40% being the OECD average) (OECD, 2023; ObSanté, 2024).

5.4.3 *Inpatient care*

Inpatient care is defined as a patient who receives treatment and/or care in a health care facility, who is formally admitted, and who requires an overnight stay (Eurostat, 2023; ObSanté, 2024). In 2021, the average length of hospital stay was 7.3 days in Luxembourg. In comparison, the average length of stay for acute care was 5.6 days in France, 6.3 days in Belgium and 7.4 days in Germany (OECD, 2024b). In 2016, the average length of stay for normal delivery in Luxembourg was 4.0 days, higher than in France (4.0 days), Belgium (3.1 days) and Germany (3.0 days) (OECD, 2024b).

A bill promoting ambulatory health care delivery of hospital-based specialized care (*virage ambulatoire*) entered into force in 2023, amending the 2018 Hospital Law. This bill introduced the possibility for hospital branches (*antennes*) to offer off-site care in medical imaging (one created in 2014), oncology, renal dialysis and endoscopy. Free-standing surgical clinics are, however, not allowed under this scheme (see Sections 3.7.1, 4.1, 6.1 and 6.2).

Due to the principle of "not everything everywhere" (*pas tout partout*), some specialized services are provided in only one hospital department for the entire country, promoting the concentration of complex or volume-sensitive care (see Section 4.1.1). For highly specialized care and complex conditions, patients in Luxembourg can be referred abroad (see Section 2.8.4).

5.5 **Urgent and emergency care**

Patients in need of urgent care can contact their regular physician, go to a hospital ED, go to the *Maisons médicales de garde* during out-of-office hours, or reach out to emergency response central dispatch, which are operated by

the Emergency Services Administration under the Interior Ministry. Emergency medical assistance planning, organization and implementation are defined by the law of 27 March 2018, which establishes the organization of civil security and the creation of a Grand-Ducal Fire and Rescue Corps (CGDIS). Apart from the hospital's urgent and emergency care, 99 fire and rescue centres ensure emergency care. For the CGDIS, Luxembourg has three emergency health regions (North, Centre and South); within each region, a hospital must admit emergencies – referred to as the "on-duty hospital". The national paediatric ED located in the *Centre Hospitalier de Luxembourg-Kannerklinik* provides 24/7 emergency care for children aged 0–16 years and, when appropriate, up to 18 years (Seuring, Ducomble & Berthet, 2024). The emergency response central dispatch manages emergency hospital transports, dispatching ambulances and medical units when necessary (Box 5.4). The CGDIS performed 70 660 interventions in 2023, responding to people in distress 57 507 times as well as 2 886 fires and 1 847 traffic accidents. Additionally, the SAMU (*Service d'aide Médicale Urgente*) engaged in 9 645 of the 57 507 interventions (CGDIS, 2024).

BOX 5.4 What is the patient pathway for an emergency care episode?

In Luxembourg, a patient can enter emergency care through various entries: direct self-referral (walk-in patients), referrals from physicians (general practitioners or specialists) or following an emergency call.

When calling the emergency line 112, the Emergency Services Administration will decide, based on the emergency severity, the need for referring the patients to emergency care services and the type of transport needed.

In severe to life-threatening situations, an ambulance or helicopter from the emergency medical assistance service is sent. A team from the on-duty hospital including an anaesthesiologist–resuscitation physician and a nurse go to the location of the emergency, where they provide care to the patient on-site and during transportation towards the most appropriate facility for continuation of care.

In less life-threatening situations, a paramedical intervention team, including an emergency ambulance provider and a nurse communicating with a physician through a secure radio connection, is sent on-site. They administer initial medical assistance based on standardized protocols.

Direct self-referral is the most common route to the emergency department in Luxembourg.

The 2019 Regulation sets the standards for hospital EDs, including patient triage with the Canadian Triage and Acuity Scale at admission to the emergency facility; patient pathways for stroke, coronary disease, obstetric, psychiatric, paediatric and geriatric care; and mandatory indicator reporting aimed at monitoring service delivery and care quality (see Section 7.4) to reduce waiting times and improve ED care quality. Yet, Luxembourg's EDs remain overcrowded due to high levels of self-referrals (see Box 5.4). Nearly one out of five ED admissions correspond to non-urgent cases and GPs could treat one out of four individuals who seek care in EDs (Luxembourg Government, 2023a).

In 2017, the average waiting time for emergency services was 3 hours and 49 minutes, which is below the average duration of 4 hours observed in the EU. On average, 75% of patients admitted to an ED wait 3 hours or less to be discharged, which should be increased to 80% to align with international standards (Luxembourg Government, 2017). To date, no consolidated data are available on waiting times or quality of care in EDs.

In 2019, the utilization rate of medical emergency care services in hospitals by the resident insured population stood at 24.8%, decreasing to 20.3% in 2020, and rising to 21.8% in 2021 because of the reduction in activities caused by the COVID-19 crisis (IGSS, 2023c).

The M3S signed an agreement with GPs on a national out-of-office hours primary care duty service (*Maison Médical de garde*), setting up three medical centres (in the North, Centre and South) in December 2010. Each *Maison Médicale de garde* has three doctors (two on-site and one conducting home visits), a vehicle with a driver, and administrative staff to manage records. These structures enable patients to access low-emergency care outside regular office hours (namely, nights, weekends and holidays). Based on a similar concept, paediatric medical centres were set up in 2015 following an agreement between the M3S and paediatricians (Luxembourg Government, 2015).

In 2019, overall, on-call physicians within these *Maison Médicale de garde* conducted over 33 000 consultations. During the first year of the pandemic, the volume of consultations and visits decreased by almost half (–46.7%) compared with 2019 rates, to then increase again by 12.5% in 2021 and by 17.4% in 2022. The purpose and organization of these medical centres were adapted to respond to the crisis. Hence, a large majority of urgent care provided by on-call physicians was on-site, with on-site consultations accounting for 80–90% of all urgent care (IGSS, 2023c).

5.6 Pharmaceutical care

Information on the regulation, reimbursement and distribution of pharmaceuticals can be found in Sections 2.7.4 and 3.7.1.

In 2021, the SHI spending on drugs for outpatient treatments reached EUR 268.5 million in Luxembourg (CNS, 2023d). Out of the total drug expenditure, 23.9% was allocated to outpatient hospital-dispensed drugs, which is a significant increase compared with 2.4% in 2012 (CNS, 2013). This upward trend can be attributed to the introduction of new and expensive drug treatments such as hepatitis C medications, immunotherapy, chemotherapy and others. In addition, Luxembourg ranks 39th in Europe regarding expenditure on pharmaceuticals as a proportion of total household expenditure on health. Pharmaceuticals and therapeutic appliances account for 38% of total household health care expenditure, which is slightly below the OECD average but higher than in neighbouring countries (see Sections 3.4 and 7.3).

According to the European Surveillance of Antimicrobial Consumption Network (ESAC-Net), Luxembourg's antibiotic consumption is below the European average both in community and hospital settings. As observed in almost all European countries, antibiotic consumption significantly decreased in 2020 and 2021, especially in the community setting, then rebounded in 2022. This common trend may be linked to the effect of COVID-19 mitigation measures, with lockdowns and face masks contributing to a decrease in common bacterial infections that returned to normal once COVID-19-related measures were lifted (Högberg et al., 2021). The latest 2022 data shows a total antibiotic consumption of 19.05 Defined Daily Dose (DDD) per 1 000 inhabitants per day in Luxembourg, mostly consumed in the community sector (primary care) (17.64 DDD), including 7.65% quinolones and 11.22% cephalosporins (ECDC, 2023). The hospital sector accounts for very little of the overall antibiotic consumption (1.41 DDD per 1 000 inhabitants per day), but uses a high share of quinolones (9.21%) and cephalosporins (24.82%).

Antibiotic consumption and antimicrobial resistance concerns have been on the political agenda for several years. Efforts include communication campaigns conducted to raise awareness and educate patients, animal keepers, physicians and veterinarians about antibiotic misuse and its associated risks (OECD/European Observatory on Health

Systems and Policies, 2023). Additionally, the National Antibiotic Plan launched in 2018 (subsequently revised and extended until 2024) forms a crucial component tackling the broader "One Health" strategy by integrating various sectors to develop and enforce programmes, policies, laws and research initiatives with the common goal of enhancing public health outcomes.

Much like its European counterparts, Luxembourg faced an increase in medicine shortages in 2022. Already in 2021, there were notable shortages in vaccine availability, including the DTP[8], hepatitis B and Hib[9] vaccines, all experiencing stock unavailability for up to 5 months (CHD, 2022c). Since spring 2022, paediatric doses of paracetamol-based medicines are also subject to availability problems.

Luxembourg records high consumption rates of medicines for benzodiazepines and related drugs, which are the most commonly prescribed sleeping pills and tranquillizers (2020). A study by Cloos et al. showed that almost one-sixth of the adult insured population took at least one benzodiazepine annually, with half of them being intermediate users[10] and almost one-fifth being continuous users[11] (Cloos et al., 2015). Despite benzodiazepine not being recommended for older adults, these rates are even higher when looking at the population aged 65 years and over, with chronic benzodiazepine users representing 52.8 per 1 000 people, much higher than in Denmark (10.9), the Netherlands (16.8), or the OECD average (17.7) (OECD, 2021). To address this public health concern, the National Centre for Addiction Prevention operates a helpline to assist individuals seeking advice and support, particularly those dealing with dependency issues, and to provide informative flyers on benzodiazepines. Similarly, Luxembourg has the highest rates of polypharmacy in people aged 65 years and older when compared with a selection of 16 countries, and over 80% of the Luxembourgish population aged 75 years and above take more than five medications concurrently, further highlighting the prevalence of polypharmacy (OECD, 2021).

The use of generics to improve access to medicines is limited in Luxembourg. In 2014, Luxembourg introduced a generic substitution

[8] Diphtheria and tetanus toxoids and acellular pertussis vaccine, paediatric formulation.

[9] *Haemophilus influenzae* type b (Hib).

[10] Benzodiazepine users with multiple administrations with at least a 1-year interruption.

[11] Benzodiazepine users with multiple administrations with no interruptions.

scheme. Not mandatory, this substitution scheme was assigned to two pharmacotherapeutic groups for substitution with the cheapest generic option, regardless of the doctor's prescription. Pharmacists are obliged to inform patients about available generic substitutes. There are no financial incentives for pharmacists or physicians, but the extra costs for choosing non-generic medication are borne by the patient, as the cost-sharing rate is calculated based on the price of the generic (CSS, 2024). Despite this generic substitution scheme, Luxembourg has the lowest volume and value of generic use in outpatient treatments in the EU, accounting for only 5.6% of the outpatient pharmaceutical market covered by health insurance (OECD/European Observatory on Health Systems and Policies, 2023) (see Sections 3.7.1 and 7.6).

Pharmaceuticals are distributed through community and hospital pharmacies (see Sections 4.2.2 and 2.7.4). Community pharmacies are managed via State concession or privately (see Section 2.7.4). Besides medications, community pharmacies offer therapeutic products, medical devices, nutritional supplements, cosmetics, and hygiene items.

No studies or national reports about waste in pharmaceutical spending is available.

5.7 Rehabilitation / intermediate care

Between 1995 and 2019, rehabilitation and intermediate care in Luxembourg have undergone significant change, with a notable increase in the number of beds due to the conversion of acute care beds to dedicated rehabilitation beds within acute hospitals (see Section 4.1.1). Luxembourg has geriatrics rehabilitation departments in three out of four general hospitals (see Section 4.1.1) and four specialized hospitals are focused on psychiatric, geriatric, functional and cancer care rehabilitation.

Additionally, the *Hôpital Robert Schuman* implemented a fast-track programme for patients undergoing hip and knee surgeries, within which patients receive a predetermined comprehensive care package encompassing pre-surgery appointments and preparations, as well as pre-planned surgical procedure and discharge. This initiative aims at ensuring a seamless hospital experience for patients while also facilitating swift discharge and rehabilitation processes (HRS, n.d.). Finally, independent midwives may offer intermediate care services to assist mothers with their newborns after

hospital discharges. As this is not mandatory, parents can decide whether they require these services (ALSF, n.d.).

5.8 Long-term care

The act of 19 June 1998 introducing LTC insurance in Luxembourg, recognized dependency as a risk covered by social security. LTC operates according to the same principles as health insurance with a compulsory contribution to the LTC insurance for any economically active person and persons receiving state benefits/substitutive income. This contribution, set at 1.4%, is levied on the professional incomes, replacement incomes and personal income from assets of the insured individuals (see Section 3.3.2). Next to the LTC insurance, the Ministry of Family Affairs manages activities in elderly housing, active ageing and home care (Ministère de la Famille, 2023).

Provisions regarding LTC insurance are outlined in Book V of the CSS. The 2017 reform restructured LTC financing and ensured the improvement of care quality (see Section 6.1). LTC insurance aims at compensating the expenses incurred due to the need for assistance from a third party to perform essential activities of daily living (for example, personal hygiene, toileting, eating, dressing, mobility) and necessary technical assistive technology and home adaptations.

The organization of LTC falls within the remits of the M3S and the executing bodies are the CNS and the State Office for Assessment and Monitoring (*Administration d'évaluation et de contrôle de l'assurance dépendance* (AEC)) (see Section 2.2). The CNS manages the LTC insurance (see Section 2.7.1), while the AEC performs assessments to identify individuals' dependency degree and identify a care plan. The AEC also performs quality controls of the provided services. Health professionals must adhere to the convention signed by the CNS and the Association of LTC Service Providers. The Ministry of Family Affairs is responsible for the accreditation of these service providers (see section 2.7.1) and oversees the regulation and supervision of LTC facilities, which includes the establishment of standards and guidelines for the provision of care, as well as licensing and inspection of facilities (Mémorial A562, 2023).

The funding for LTC comes from a mixture of sources including social security contributions and state budget funding. LTC insurance is mainly

financed by contributions of 1.4% paid on personal income from assets and replacement income (pensions), a State contribution of 40% of the total LTC expenditure and, to a lesser extent, a levy on the energy sector. Further funding comes from the Ministry of Family Affairs for the financing of infrastructure, initial equipment costs and services provided under the ASFT law (see Section 2.2), as well as financial support for economically disadvantaged people.

SERVICE PROVIDERS AND INFRASTRUCTURES

Service providers are regulated by the Law of 8 September 1998, which oversees organizations in the social, family and therapeutic fields. Activities subject to approval (*agrément*) include hosting more than three people and providing various services such as advice, care and social training (ASFT law Art. 1). Approvals are managed by the Ministry of Family Affairs. The 2023 law on the quality of services for the elderly sets minimum standards for services, infrastructure, equipment and professional qualifications, requiring providers to implement a quality management system (Mémorial A562, 2023).

Service providers must adhere to the framework agreement between the CNS and their representative association, specifying the groups they care for and their operational areas. By joining, providers commit to delivering assistance and care per the AEC care plan and quality provisions, and to adhering to staffing and qualification procedures.

LTC insurance categorizes service providers into four types:

1. Assistance and Care Network (*Réseau d'aides et de soins*): Professional care providers under CNS contract supporting dependent people at home. In 2022, there were 25 networks.
2. Semi-inpatient Facility (*Centre semi-stationnaire*): Day centres providing daytime care and activities for dependent people. In 2022, there were 61 facilities.
3. LTC Facilities for Continuous Care (*Etablissement d'aides et de soins à séjour continu*): Permanent residences for dependent people, primarily elderly. In 2022, there were 53 facilities with an average stay of 3.5 years.
4. LTC Facilities for Intermittent Stay (*Etablissement d'aides et de soins à

séjour intermittent): Facilities for disabled people alternating between facility and home (176 out of the 702 beneficiaries alternated). In 2022, there were 44 facilities.

In 2022, nursing assistants made up 30.3% of the workforce in continuous care LTC facilities, and nurses made up 34.9% in assistance and care networks. Educators constituted 23.6% in semi-inpatient facilities and 34.7% in intermittent stay facilities. Nurses (including specialized nurses) increased by 9.2% in 2022, while nursing assistants grew by 3.9% annually in 2021 and 2022.

BENEFITS COVERED BY LONG-TERM CARE INSURANCE

The need for assistance must result from an illness or physical, mental or psychological disability, impacting daily activities. Assistance varies by health state: performing or supervising daily activities. To be covered by LTC insurance, the need for assistance and care in the domain of essential activities of daily living must amount to at least 3.5 hours per week and the state of dependency must exceed 6 months or be irreversible. In the case of significant and regular needs, housing adaptations and assistive technology technical aids can be allocated, even without reaching this threshold. Individuals who do not meet these conditions but have a decision from the CNS based on an agreement from the CMSS to receive palliative care are also included in the circle of the LTC insurance beneficiaries (see Section 5.10).

In 2022, 16 706 individuals were receiving benefits from LTC insurance, an increase of 4.4% compared with 2021. A lump sum within the scope of palliative care has been allocated to 2.5% of the beneficiaries.

The AEC assigns dependent individuals to one of 15 weekly need levels. Level one requires at least 3.5 hours of care, increasing by 140 minutes per level. In 2022, 27.8% of beneficiaries were at level one, and 54.0% were in the first three levels. Main causes of dependency were osteoarticular diseases (21.0%), dementia (20.8%) and nervous system diseases (19.4%), representing 61.2% of all cases. Among dependent individuals, 10 919 lived at home, 4 738 were in Continuous Care facilities and 702 were in Intermittent Stay facilities.

LTC insurance covers in-kind benefits at home or in facilities. Home-

resident dependents with AEC-recognized caregivers can substitute up to 14 hours of in-kind benefits with cash, limited to daily activities and chores. Ten lump-sum cash amounts correspond to caregiver care levels, allowing payment for LTC services. Combining cash and in-kind benefits is possible, defined in the care plan.

LTC care benefits are provided by the four service providers explained above, including support for daily activities, supervision, night-time care and household chores. Benefits are retroactive from the application date upon dependency recognition, with 16 lump sums based on care needs. Costs for daily activities care by the Assistance and Care Network and LTC Facilities for Intermittent Stay are covered by the LTC insurance via lump sums paid directly to providers, excluding personal contributions. Continuous care facility residents cover general services and psycho-geriatric support costs, while board and lodging costs vary by facility.

The National Solidarity Fund (*Fonds national de la solidarit*é) supports individuals in continuous care facilities or similar establishments whose resources are insufficient. The gerontology admission supplement covers uncovered accommodation costs, with a maximum contribution of EUR 3 200.48 for a private room and EUR 2 884.29 for a shared room per month. Eligibility requires income below EUR 538.30 and assets under EUR 23 610.75. As of 31 December 2022, 637 people received this supplement.

The Ministry of Family Affairs provides overnight care for severely dependent or palliative care beneficiaries. LTC insurance covers overnight care during caregiver absences. Social pricing aids individuals aged 60 years and over needing less than 3.5 hours of weekly assistance, prioritizing home care. The cost of home assistance varies by income, reviewed annually, with the Ministry of Family Affairs covering the difference between maximum rates and user contributions, paid to service providers with agreements.

5.9 Services for informal carers

A caregiver may be a relative or friend, a person bound by an employment contract, or a professional who does not belong to a care and assistance network.

In 2022, 68.11% of the dependent individuals benefited from a caregiver (IGSS, 2023d). The AEC contact person evaluates caregivers’

capability and availability, determining whether they can provide care alone or need assistance from the formal care and assistance network (see section 5.8). Around 80% of caregivers are under 70 years old. Overall, only one quarter of caregivers are men and up to the age of 79 years, women represent the majority of caregivers. Yet, this reverses from the age of 80 years, when the proportion of male caregivers slightly exceeds that of female caregivers (IGSS, 2022b).

According to the law, pension insurance contributions for caregivers can be covered by long-term care insurance, up to the amount of the minimum wage. Out of the 5 911 identified caregivers in 2022, 26.4% benefited from the coverage of their pension contributions and almost 90% of those covered were women.

Caregivers are eligible for two training sessions, the first aiming at advising and empowering caregivers in using assistive technology for the dependent person at home, with a yearly allocation of 2 hours, and the second is designed to equip caregivers with the necessary techniques and knowledge to perform essential activities of daily living for the dependent person, with a yearly allocation of 6 hours. Yet in practice, only a small share of caregivers benefited from these training sessions, with a total of 413 dependent residents having a home care support plan that incorporates at least one training session in 2022. This figure accounts for 4.4% of beneficiaries who exclusively reside at home. However, caregivers may also benefit from individual or group supervision. Individual supervisions are covered for a total of 7 hours a week, which may be doubled if the caregiver is demonstrably overstretched, and group supervisions are covered for a total of 40 hours a week, with a possible extension to 56 hours a week. Over the 2021–23 period, almost three quarters of caregivers benefited from individual and/or group supervision.

5.10 Palliative care

In 2009, Luxembourg passed a law on palliative care, advance directives and end-of-life support, which entitles any person at the end of life, who is in an advanced or terminal phase of a serious, progressive and incurable illness, to receive palliative care (Mémorial A46, 2009; Ministère de la Sécurité Sociale, Ministère de la Famille, Ministère de la Santé, n.d.).

Requests for palliative care are made by the treating physician upon the

patient or their surroundings and are validated by the Social Security Medical Board within 48 hours. Approvals are valid for 35 days and can be renewed through the same procedure. Patients with approved palliative care requests are entitled to skip the LTC insurance request (see Section 5.8) (AEC, 2018). Patients entitled to palliative care are eligible for the full range of benefits of the LTC insurance except home adaptations. Patients are entitled to active, continuous and coordinated care, including the treatment of pain and psychological suffering, provided by a multidisciplinary team and based on their overall physical, psychological and spiritual needs. Palliative care also assists the patient's loved ones. It is covered based on a lump sum corresponding to 13 hours of assistance with carrying out activities of daily living. Medical acts as well as nursing care carried out under the health insurance system are covered per the rules set out in the CNS Statutes (CNS, 2023e, 2024a).

Palliative care and end-of-life assistance are available in various settings, including an individual's home, the four general hospitals, and accredited care facilities covered by LTC insurance (for example, LTC Facilities for Continuous Care (see Section 5.8)). In addition, Omega 90, a Luxembourgish association for the promotion of palliative care and grief support provides four services:

1. Haus Omega: A palliative care centre with 15 individual rooms caring for individuals at the end of their life and their specific needs.
2. Volunteer service: Over 70 volunteers accompanying individuals entitled to palliative care in hospitals, nursing homes, patients' homes and Haus Omega.
3. Consultation service: Intervenes after a death, providing information and support to grieving relatives.
4. Training service: Organizes, since 1993, training in palliative care for health care professionals and those in the psycho-social-educational sector. Also offers conferences, seminars and training days for the general public. At least 40% of nurses in nursing homes must be trained in palliative care (Wolter et al., 2015).

Omega 90's services are funded through agreements with the Ministry of Family, the CNS, the Ministry of National Education, Childhood, and Youth, and subsidies from the M3S, as well as donations from individuals and various associations (CHL, n.d.b).

When a relative is suffering from a serious terminal illness, leave to

provide care at the end of their life can be requested by one designated carer. The duration of such a leave cannot exceed five working days (or 40 hours) per relative in need per year and ends on the date of the person's death. Family hospice leave may be split into several periods and may also be taken on a part-time basis in agreement with the employer. Two persons can share the family hospice leave granted but its total duration cannot exceed 40 hours (Guichet.lu, 2022).

5.11 Mental health care

In Luxembourg, mental health care is provided by psychiatrists (including child psychiatrists) and psychotherapists working in private practices. All general hospitals have specialized psychiatric services, which are closely linked to community-based outpatient care facilities that provide

BOX 5.5 Who is involved in providing psychiatric care in Luxembourg?

Psychiatric care is provided through a cross-sectoral collaboration between the health and social care sectors, and includes the following services:

- Psychiatric and psychotherapeutic outpatient consultations
- Emergency admissions and specialized psychiatric interventions of relatively short duration with open and closed wards, ambulatory day clinics, and relay antennas for home visits are provided by the general hospitals (4 hospitals, 264 beds, 124 days clinic places)
- Two national departments in general hospitals, one for paediatric psychiatric care (children under 13 years old) and the other for juvenile psychiatric care (children between 13 and 18 years old)
- Specialized psychiatric rehabilitation with longer inpatient hospital stays and outpatient follow up as well as forensic psychiatric care provided by the National Neuropsychiatric Rehabilitation Centre (247 beds, 30 days clinic places)
- Regional outreach and community-based services and supported living facilities and vocational training (work rehabilitation) opportunities
- Mental health support services for asylum seekers
- Non-governmental organizations working in the domain of integration (for example, immigrants, homeless) in specific domains, such as depression and suicide prevention, alcohol or drug abuse prevention, or early detection

psychiatric and mental health care (see Box 5.5).

The M3S oversees the organization of mental health care, whereas services are provided either on an FFS scheme with reimbursement from the SHI or with financing support from the M3S in the form of conventional agreements (see Section 3.7.1).

In the early 1990s there were several reforms aimed at decentralizing and deinstitutionalizing mental health care and developing outpatient services at the regional and community levels. Following these reforms, further legislations and regulations were adopted, notably, to better safeguard human rights with the overhauled legislation on involuntary hospital admission and treatment of persons with mental disorders (2009) (Mémorial A263, 2010); to enhance patient access to psychotherapy with the law creating the profession of psychotherapist (2015) and the Grand-Ducal Regulation introducing psychotherapist consultations upon prescription into the SHI benefits basket (2023); and to tackle stigmatization and discrimination towards mental disorders with the psychiatric reform (2005) that deinstitutionalized psychiatric care and further developed outpatient services at the community level (Rössler & Koch, 2005).

Additionally, the national action plan for suicide prevention (2015–19) included various recurrent actions against discrimination and stigma of mental disorders. Mental health and well-being are also addressed in other non-psychiatric care or non-health-related plans, such as the Youth Action Plan (2022–25), the National Drug Strategy and Action Plan (2020–24), the action plan to tackle the misuse of alcohol (2020–24), and the National Dementia Plan (2013). More recently, the government endorsed a dedicated National Mental Health Plan for the period 2024–28. This plan was crafted following international guidelines (WHO, 2021) with the participation of a broad range of stakeholders. It addresses, with targeted measures, the current challenges for mental health care (including mental health workforce shortages, especially for children and young adults, and lack of data to assess population's mental health status, needs, and the mental health system's performance). Hence, it focuses on mental health care governance, implementing an information system, enhancing mental disorders and health care research and evidence generation, promoting mental care and preventing mental disorders across all age groups, improving mental health care supply and patients' access, and better responding to the health needs of particularly vulnerable groups.

During the COVID-19 pandemic, multiple websites were set up by a wide range of institutions to support individuals' mental health. In parallel, a mental health first-aid training was launched in 2020 to teach individuals how to identify mental disorders, respond effectively to the mental illness of others, and contribute to a caring society. This training is an essential measure that contributed to improving mental health literacy in the general population and reducing stigmatization; since its start, 3 000 first aiders and 60 certified instructors have been trained.

5.12 Dental care

Dental care is provided by general dentists, orthodontists and maxillofacial and oral surgeons (Mémorial A139, 2011). The fees for dental care are fixed in national fee schedules by Grand-Ducal Regulation and follow the same procedure as for physicians (see Sections 2.7.3 and 3.3.4). The fee schedule for dental treatments was updated in January 2024.

OOP expenditure on dental care in Luxembourg amounts to one of the highest cost-sharing portions (see Box 3.1 and Sections 3.3.1, 3.4.1 and 7.3). To ensure better access to people without health insurance, particularly socially vulnerable individuals, *Médecins du Monde* partnered with one of the national hospitals (*Centre hospitalier du Luxembourg*) to provide free dental care to those in need. Additionally, measures are in place to cover expenses incurred by official tariffs upfront instead of advancing fees, but direct payments remain problematic (see Sections 3.4.1, 3.4.2, 3.4.6 and 7.3).

Most dentists operate within private practices, but, similarly to physicians, some hold individual contracts with hospitals and divide their work between their private practices and hospitals. Oral health surgeons affiliated with hospitals frequently collaborate with anaesthetists for their procedures, yet most surgical dental procedures are conducted in outpatient settings.

Despite the existence of legislation, the dental landscape in Luxembourg comprises very few enforced standards, with no supervisory body in place. Hence, breaches in regulations often go undetected or without legal consequences (for example, advertising practices). While the *collège médical* occasionally issues reminders about best practices, there are no penalties associated and it ultimately falls upon the professionals themselves to recognize when they have been engaging in excessive advertising or

promotional communication that goes beyond the allowable limits.

During childhood, two preventive dental visits are covered (at 26–33 months and 40–46 months), distinct from regular appointments. Moreover, there is a legislative text that precisely determines dental health actions (Mémorial A219, 2011b). Regular dental check-ups are provided for school-aged children. Yet, although treatment is available for many children in Luxembourg outside school by dentists, significant efforts are still needed in terms of education. In response, a new programme was launched in 2022 and takes a more systematic approach by focusing on establishing a dental care plan based on key ages (at the ages of 6, 9, 10 and 12 years) rather than the frequency of visits. Additional promotion actions for oral health are conducted between these ages. This pilot project was prolonged until mid-2024.

6

Principal health reforms

SUMMARY

- The 2010 Health Care reform was key in ensuring the health system's financial stability and enhancing quality of care. Further, the 2017 long-term care (LTC) reform reinforced LTC financial sustainability and quality of care, while the 2018 Hospital Law focused on redefining and reinforcing hospital services.
- Future developments focus on reinforcing prevention by developing a prevention strategy, digitalization, and quality and access to care. Ongoing efforts are centred on the health care workforce, aiming to increase its attractiveness, recruitment and retention by expanding training and fostering task-sharing.

6.1 Analysis of recent reforms

Luxembourg's health system underwent numerous legal interventions in recent years. This section summarizes the major reforms and legislative changes from 2010 to 2023. A brief overview of these is provided in Table 6.1.

TABLE 6.1 Major health reforms and legislative changes from 2010 to 2023

Year	Name of the Reform
2010	Law of 17 December 2010, reforming the health care system. *(Mémorial A242, 2010 – Loi du 17 décembre 2010 portant réforme du système des soins de santé).*
2014	Law of 1 July 2014, transposing Directive 2011/24/EU of the European Parliament and of the Council of 9 March 2011, on the application of patients' rights in cross-border health care. *(Mémorial A115, 2014 – Loi du 1er juillet 2014 portant transposition de la directive 2011/24/UE du Parlement européen et du Conseil du 9 mars 2011 relative à l'application des droits des patients en matière de soins de santé transfrontaliers).*
2014	Law of 24 July 2014, concerning patients' rights and obligations, establishing a national information and mediation service in the field of health. *(Mémorial A140, 2014 – Loi du 24 juillet 2014 relative aux droits et obligations du patient, portant création d'un service national d'information et de médiation dans le domaine de la santé).*
2015	Law of 14 July 2015 creating the profession of psychotherapist. (Mémorial A136, 2015 – Loi du 14 juillet 2015 portant création de la profession de *psychothérapeute).*
2017	Law of 29 August 2017, reforming LTC insurance. *(Mémorial A778, 2017 – Loi du 29 août 2017).*
2018	Law of 8 March 2018, regarding hospital establishments and hospital planning. *(Mémorial A222, 2018 – Loi du 8 mars 2018 relative aux établissements hospitaliers et à la planification hospitalière).*
2021	Law of 2 March 2021, creating a National Health Observatory. *(Mémorial A168, 2021 – Loi du 2 mars 2021 portant création d'un Observatoire national de la santé)*
2023	Law of 23 August 2023, concerning the quality of services for the elderly. (Mémorial A562, 2023 – Loi du 23 août 2023 portant sur la qualité des services pour personnes *âgées)*

Note: LTC: long-term care.
Source: Authors' compilation.

COST CONTAINMENT AND QUALITY IMPROVEMENT: THE COMPREHENSIVE 2010 HEALTH REFORM

The 2008 global financial crisis revealed significant shortcomings in health care's financial sustainability, as the previous health system structural reform in Luxembourg dated from 1992. In response, a significant health care reform (Mémorial A242, 2010) was endorsed in 2010, aimed at achieving

long-term financial stability and reinforcing quality of care. It sought to enhance care efficiency by promoting primary health care and improving the coordination of hospital services, while also introducing initiatives to improve hospital medical documentation and better structure patient records (Ministère de la Santé and Ministère de la Sécurité Sociale, 2010; IGSS, 2023a).

When first presented, this reform sparked the most significant demonstrations to date among medical doctors, resulting in a 1-month strike. Yet, following lengthy discussions and modifications, the reform was approved by the Government Council in September 2010 and entered into force in 2011. Hereafter, the reform shaped and determined many subsequent reforms and health policies that took place between 2011 and 2023. Although the reform was initially planned to introduce a universal primary physician model combined with effective cost-containment measures, it eventually brought forward a voluntary "referring physician" model (see Section 5.2) that includes voluntary measures without changing medical doctors' status quo (Leist, 2021).

Furthermore, the law required pharmacists to notify patients of medication substitution with generic products and promoted physicians to prescribe active components rather than brands (see Sections 3.7.1, 5.6 and 7.6). The 2010 reform also initiated the groundwork for a new eHealth infrastructure, aimed at empowering patients and providers with better information for decision-making while fostering cost containment (for example, avoiding double examinations). Subsequently, a national eHealth agency was formed to oversee various tasks, including managing electronic health records (*dossier de soins partagé*), which underwent pilot testing in 2015 and implementation in 2019 (see Sections 4.1.3 and 5.3). This reform also gave rise to several new institutions and processes dedicated to enhancing the health system's quality and efficiency. Examples include the Medical Expertise Unit, established in 2011 to evaluate the effectiveness, quality and cost-effectiveness of specific diagnostic and therapeutic interventions based on scientific evidence; a new Nomenclature Commission, formed in 2011 to establish national tariffs for health care services (see Sections 2.7.3 and 3.3.4); and the creation of the Scientific Council for Health Care and the establishment of the National Cancer Registry, marking further advancements for Luxembourg's health system (Mémorial A79, 2013; Spruit & Hohmann, 2014).

Finally, cost-containment strategies were a key aspect of the 2010

reform package, as it introduced the TPS (see Section 3.4.1). Hospital spending was restrained by instituting overall budget allocation for hospital sector expenditures, introducing generic substitution, temporarily halting the increase in health professionals' tariffs and raising cost-sharing rates as well as contribution rates (from 5.4% to 5.6% of gross income). State funding for the SHI was also increased to 40% and a standardized accounting system for CNS hospital services was established. Combined, these efforts contributed to balancing the SHI budget (OECD/European Observatory on Health Systems and Policies, 2017), marking a first step towards cost containment (see Sections 3.7.1, 4.1.1 and 7.6) (Leist, 2021).

IMPROVING PATIENT RIGHTS

In 2014, the adoption of the Law on patients' rights and obligations (Mémorial A140, 2014), as well as the transposition of the Directive 2011/24/EU of the European Parliament and of the Council of 9 March 2011, on the application of patients' rights in cross-border health care (Mémorial A115, 2014), marked a milestone for patients' empowerment in Luxembourg. These laws revolve around fostering a more coherent and transparent relationship between patients and health professionals. It introduces the obligation, for health professionals to deliver patients accurate information about their health status, diagnosis and care, notably with a transparent plan of examination and treatment options that enables individuals to make well-informed decisions about their available options, including regarding cross-border health care (see Section 2.8.4). This legislation also established the National Health Information and Mediation Service, in operation since 2015, which further enhances communication, facilitates dispute resolution and, overall, elevates the patient experience within the health system (see Section 2.8.1). An evaluation of the law on patient rights is planned for 2024 (Luxembourg Government, 2024b).

FINANCIAL SUSTAINABILITY AND QUALITY OF LONG-TERM CARE

Originally, the 2017 LTC reform (Mémorial A778, 2017) sought to curb expenditure levels. However, because of the favourable financial condition of the LTC insurance system, the focus of the reform shifted towards

enhancing the quality of care, broadening and individualizing the scope of benefits, investing in preventive services and establishing clear standards (OECD/European Observatory on Health Systems and Policies, 2019). The four key amendments of the LTC reform include (Luxembourg Government, 2018):

- The procedure and tools for assessing and determining dependency, with regular assessments of the eligibility criteria and a simplification of procedures
- The evaluation of the appropriateness of certain LTC services (purpose, effectiveness and volume)
- The definition of a normative framework for financing services
- Standards and criteria with adequate and transparent controls.

In 2024, a new law on service quality for older people entered into force, aiming at better organizing the activities of the managing bodies in the fields of active ageing, home care and residential care for the elderly (Mémorial A562, 2023). This reform emphasizes the quality and transparency of services and benefits. It notably entails the establishment of a public register of elderly care facilities, focusing on information availability and transparency, which publishes the services and offers provided by facilities, along with their costs and standard contract templates.

HOSPITAL PLANNING

The 2010 reform first introduced the concepts of transparency in hospital activities and of service centralization, but the 2018 Hospital Law (Mémorial A222, 2018) marked another pivotal milestone on these topics for hospital care in Luxembourg. The main objective was to plan and refine hospital services by considering demographic growth, medical progress and population health (see Section 4.1.1). These adjustments included a new classification for hospital facilities, improved functionality of hospital services, streamlined authorization procedures for operating a hospital facility or administering hospital services, and provisions regarding the operations of hospital laboratories. The reform's overarching goal was to enhance cooperation among various health care providers within the hospital sector (both inpatient and outpatient) and to bridge the gap between hospital environments and research fields, all to enhance the

quality of care for patients (OECD/European Observatory on Health Systems and Policies, 2019).

Integrated care networks were created to foster cooperation and coordination across outpatient and inpatient providers with complementary skills for the management of specific diseases (see Section 5.3). Moreover, the Hospital Law targeted the further substitution of inpatient care with day surgery and set up conditions for improved transparency and accountability. The Law also included additional hospital beds for prolonged hospital stays (see Section 4.1.1) and the increase of beds for geriatric rehabilitation.

In 2023, the 2018 Hospital Law was amended, with an emphasis on expanding ambulatory care services. These amendments were designed to increase the number of service sites within and outside hospitals (*antennes de service*), thereby facilitating improved geographical access to hospital ambulatory health care services. These changes represent a continued effort to reduce waiting times, with a particular focus on extending access to medical imaging services (see Sections 3.7.1, 4.1.2, 5.4 and 7.2) (CNS, 2023f; Mémorial A478, 2023).

6.2 Future developments

The current governmental coalition between the Christian Social People's Party and the Democratic Party (2023–28) places a strong emphasis on prevention, digitalization, quality and access to care, and workforce. Future developments include the continuation of work already started during the last government term (Luxembourg Government, 2023c).

DIGITALIZATION OF HEALTH CARE

To address the lack of a national comprehensive eHealth strategy (see Section 2.6) and ensure interoperability among health providers' information technology systems, as well as compliance with the future European Health Data Space regulation and the European strategy for a data-driven economy, a comprehensive national digitalization strategy is under development. The standardization of data formats and the interoperability of technical solutions will be a priority, thereby creating the

foundation of a regulated ecosystem in which patients and health care providers can securely communicate with each other, both for hospital and out-of-hospital care. Integrated patient journeys will be facilitated, allowing for a holistic approach to patient care by multidisciplinary teams, which is particularly critical for patients with serious or chronic illnesses (Luxembourg Government, 2023a, 2023c).

NATIONAL AGENCY FOR MEDICINES AND HEALTH PRODUCTS

As of 2024, Luxembourg is the only EU country without its own national agency for medicines and health products. To address this, the government introduced a draft bill in 2020, establishing the National Agency for Medicines and Health Products (ALMPS). The ALMPS will regulate and oversee pharmaceuticals and health care products, ensuring that they meet safety and efficacy standards to protect the health of the Luxembourgish population (CHD, 2020a).

HEALTH CARE WORKFORCE

Several actions have been undertaken to enhance the appeal of healthcare careers and improve recruitment and retention within the workforce. The training of health care professions in Luxembourg has been being reorganized since 2021 to offer a progressive and coherent pathway leading to several levels of qualification (see Sections 4.2.5 and 5.3). Specific frameworks for drafting legal regulations reviewing professional remits are being prepared for health care professions to give them greater autonomy. The work on a digital health care workforce register is ongoing (Luxembourg Government, 2021).

Furthermore, a legal framework is being established for medical practices (*sociétés de médecins*), allowing physicians and other health care professionals to be organized in a corporate form. This provides them with the opportunity to pool their human and financial resources and encourages multidisciplinary collaboration. This framework aims to ensure that medical practices are staffed exclusively by qualified medical personnel, thereby maintaining high standards of care and professionalism within the health care sector (Luxembourg Government, 2023a, 2023c).

PREVENTION

The government plans to develop a comprehensive national prevention strategy that includes conducting an inventory of current national prevention and action plans, strengthening the roles of general practitioners and the primary physician model, and introducing incentives for preventive and early detection screenings. Key measures include implementing regular check-ups with GPs or "referring physicians" starting at age 30, offering free self-tests for various conditions (such as sexually transmitted infections), and bolstering school health services to ensure consistent early prevention and screening efforts (Luxembourg Government, 2023a, 2023c).

HOME HOSPITALIZATION

A legal and tariff framework for home hospitalization is currently being developed, with a particular focus on areas such as oncology, high-risk pregnancies and postoperative follow up. Ensuring financial accessibility for home care is a priority in this regard. Coordination of care will be overseen by hospital physicians, who will ensure the treatment's continuation and quality. Additionally, care teams working in patients' homes will receive logistical support to facilitate their actions and enhance the delivery of care services (Luxembourg Government, 2023a, 2023c).

7

Assessment of the health system

SUMMARY

- The merger of two Ministries into the Ministry of Health and Social Security in 2023 aimed at tackling a number of governance challenges in the health system. Key objectives included enhancing transparency and accountability in health decision-making, introducing cohesive public health laws, fostering coordinated responsibilities among entities and systematically incorporating health considerations in legislation. Nevertheless, transparency issues persist at the patient level, particularly regarding treatment costs and selecting health care providers, as patients often remain uninformed about fees and providers' quality metrics.
- In 2021, 91.8% of Luxembourg's resident population was covered by the statutory health insurance, ensuring high health care accessibility with universal coverage and a broad benefits basket. Nonetheless, access barriers persist for some individuals, especially those without a permanent address or those facing financial hardship. Initiatives such as the CUSS project aim to improve access for vulnerable groups, while ongoing reforms target waiting times and service availability to address unmet medical needs.
- Luxembourg does not have a national quality governance framework. The responsibility lies with the service providers. The OECD Health

Care Quality Indicators Project remains a primary tool for assessing and comparing health care quality nationally and internationally.

- Luxembourg claims strong health outcomes, with a life expectancy of 83.0 years in 2022, surpassing the European Union average. All-cause mortality decreased by 5.5% in 2022 to its 2015–19 average, and infant mortality rates are comparable to those of neighbouring countries. Nevertheless, significant health determinants such as high alcohol consumption, smoking and unhealthy diets remain a challenge, contributing to behavioural risk factors that are responsible for about one in three deaths. Intensification of public health efforts is needed to address these issues.
- Luxembourg has one of the lowest treatable mortality rates in Europe but also one of the highest per capita health expenditures, indicating room for efficiency improvement. Public health interventions targeting lifestyle factors remain less effective than required to achieve meaningful impact. Excessive use of diagnostic examinations and high volumes of computed tomography scans and magnetic resonance imaging usage highlight areas of oversupply that lead to inefficiencies; however, there have been some improvements in promoting day-case surgeries and technical efficiency measures in hospitals.

7.1 Health system governance

ACCOUNTABILITY AND TRANSPARENCY

In Luxembourg, the overall policy-making process is fragmented, leading to a lack of transparency in decision-making and therefore accountability. Indeed, the absence of a cohesive global approach to health is evident when looking at several key factors. First, there is a lack of an overarching public health law delineating the roles, missions and responsibilities of stakeholders alongside a comprehensive budgetary framework (see Sections 2.4, 4.2.1 and 5.1). Consequently, organizational fragmentation prevails, with various entities holding disparate responsibilities and no central coordinating body, such as an inter-ministerial committee, to synchronize efforts both thematically and financially. This fragmentation leads to a lack of alignment and coordination in health policies. Moreover, despite the

involvement of many ministries in health-related topics (see Section 2.5), "health in all policies" is not systematically applied; legislation affecting health (such as labour, environment, transport, education) is often passed without health officials' input, thus lacking impact assessments and accountability. The absence of an institutionalized overarching health plan with clear objectives exacerbates this problem, as it results in multiple, often uncoordinated and unassessed action plans. Recognizing this challenge, the government elected in 2023 took proactive measures by merging the Ministry of Health with the Ministry of Social Security, with the goal of addressing the fragmented policy and governance landscape. Furthermore, all action plans will undergo an evaluation process to identify misalignments and overlaps, aiming to improve efficiency and optimize outcomes.

Regarding integrity, the absence of a strong health care industry in Luxembourg means that lobbying and conflicts of interest are not perceived as significant issues. No corruption in the health care sector has been uncovered in recent years. As per the deontological code, members of government, and to some extent high-ranking public servants, must disclose in a public registry their meetings with representatives or third parties, received gifts, their remunerated activity and individual financial participations in a company's capital. Members of parliament have to follow the code of conduct for Luxembourg MPs concerning financial interests with an Advisory Committee on the Conduct of Members of Parliament observing compliance (CHD, 2020c).

On the user's side, the CNS actively works to uncover abuse and fraud in health care. In 2022, EUR 11 million worth of false billing and reimbursement claims from both providers and users were detected and stopped, and EUR 1.4 million were recovered. Part of the strategy for combatting abuse and fraud is prevention, achieved by sending out circular letters, as well as individual warning letters that can contribute to behaviour change and encourage compliance with best practices. Artifical intelligence, data mining and predictive analytics are an integral part of the detection process (CNS, 2023a).

At the user level, navigating Luxembourg's health care system can be challenging, especially for those unfamiliar with its complexities. Information about the system is dispersed across various sources, complicating accessibility and understanding. Should users encounter issues within the system, obtaining pertinent information becomes even more daunting (ObSanté, 2023). While resources such as the mediator and the

"Patient House" exist to provide help in such matters (see Section 2.8.1), they remain relatively unknown to the general public. This is further hindered by the fact that most information is provided predominantly in French, a language not spoken in daily life by 30.2% of the population (STATEC, 2023a). Recognizing the systemic shortcomings, multiple actors have initiated disparate efforts to address the issue, though a cohesive and centralized approach is absent. For instance, the former Ministry of Health and the Health Directorate established helplines to assist users during and after the COVID-19 pandemic. Meanwhile, the CNS aims to streamline communication with health system users and to actively maintain a social media presence.

Transparency issues persist in the area of treatment costs. Although it may not significantly impact their behaviours, patients are often unaware of laboratory, pharmacy and hospital fees because they are paid via a third-party payment system and the patient never receives an invoice or information on the costs incurred. However, for the treatment costs that are not covered by a third-party payment system, patients also only know about the amount to be paid when they receive the invoices (see Sections 3.4 and 7.2). Moreover, there is a lack of quality and patient experience metrics available that would help patients with selecting a health care provider. Data on patient-reported outcome measures (PROMs) and patient-reported experience measures (PREMs), as well as information on adverse events, are currently not collected or accessible to patients (see Section 7.4).

POPULATION PARTICIPATION AND INVOLVEMENT

At the system level

Apart from some exceptions (see Section 2.2), user representation in the health system is underdeveloped; no law ensures users' general right to be consulted or represented. Users are usually not included on the boards of health care organizations and consultative committees.

However, there are signs of progress, as patient representatives take part in the elaboration of national action plans, such as the Cancer Plan, Rare Diseases Plan and National Mental Health Plan. Additionally, to learn about patients' views and experiences, bottom-up initiatives include patient representatives and/or organizations (see Sections 3.7.1 and 5.12).

Consultations of users, even if not mandatory, are increasingly observed in the decision-making processes. Furthermore, the 2023–28 government coalition agreement includes a provision for the participation of a patient representative on the management board of every hospital. Finally, a Federation of Patient Associations (*Cercle des Associations de Patients* (CAPAT)) was set up in 2022, fostering patient participation in governmental consultative bodies (CAPAT, 2023).

At the clinical level

Shared decision-making and patient participation are key elements of the 2014 Act for Patients' Rights and Duties. Most respondents of the EHIS questionnaire are satisfied with their involvement in the decision-making process (85%) (see Box 5.2). However, no other national studies exist to provide further insights into patients' involvement in their treatment decisions. Patient associations argue that patients do not receive adequate support during treatment, highlighting the lack of readily available information to help guide them. This scarcity of resources limits patients' ability to be more involved in their treatment decisions (ObSanté, 2023).

The regulation of the content of patient records remains ambiguous. Even with the 2014 Law granting individuals access to their health-related data and records (Mémorial A140, 2014), accessing medical records is challenging. The absence of standardized procedures or templates for patients or health care professionals to request access exacerbates this difficulty. The lack of a unified patient record system, with each physician managing a distinct file, compounds this issue, and the potential solution offered by electronic health records has yet to be fully embraced (see Section 4.1.3).

CAPACITY

Capacities for evidence-based governance are growing, notably with the establishment of the National Health Observatory in 2022. This institution aims to strengthen insights into healthcare performance, enabling policymakers to identify problems and assess the impact of their actions more effectively. Additionally, the development of a health system performance assessment framework, set to begin in June 2024 (see Box 2.1),

aims to enhance strategic planning, policy development, and the monitoring of Luxembourg's health system and reforms.

Despite this progress, policy capacity in Luxembourg's health system is still difficult to assess. Policies in recent years have often been a reaction to court rulings or opposition from the second chamber (*Conseil d'Etat*), rather than prospective planning instruments. Moreover, the implementation of policies is not systematically monitored, and the evaluation of policies is rarely undertaken. Financial incentives to alter the behaviour of patients or health professionals are lacking, and action plans suffer from inadequate budgeting because the necessary resources are not sufficiently calculated.

7.2 Accessibility

POPULATION COVERAGE

In 2021, 91.8% of the resident population was covered by SHI (ObSanté, 2024). Personnel of international organizations and their family members are covered by other regimens, as are residents working in neighbouring countries. Overall, health care accessibility is high, with universal access and a broad benefits basket available to the whole insured population (OECD, 2024c).

Despite overall good coverage, some individuals still face access barriers, one being the absence of a permanent official address. Possessing an official address is indeed crucial for accessing rights. Although Luxembourg law permits residents, including those without a fixed address, to open a basic payment account, individuals without an official address or declared employment may still face difficulties in accessing this service. This, in turn, can hinder their ability to enroll in voluntary SHI (see Section 3.3.1).

Financial concerns are another major access barrier. In 2021, approximately 85.5% of the beneficiaries of *Médecins du Monde* (an organization that offers medico- psychosocial service to anyone in Luxembourg who has difficulty accessing health care), declared that financial issues act as a significant barrier to health care access (Médecins du Monde Luxembourg, 2021) and financial hardship is more important in the poorest segment of the population (see Box 3.1 and Section 7.3). In response, the ongoing CUSS project (see Section 3.3.1) aims to provide

regular health insurance access for vulnerable individuals. The 2023–28 government coalition agreement stipulates the establishment of a dedicated legal foundation for universal health care coverage, transitioning from its current experimental status and expanding access to more individuals in need by allocating the required human and financial resources (CHD, 2023b). These access barriers to health care contribute to higher recorded unmet medical needs among the lowest income quintile in Luxembourg (see Unmet care needs below).

AVAILABILITY OF SERVICES

According to the Gallup World Polls data on citizens' satisfaction with health and other public services, Luxembourg's population is satisfied with the availability of quality health care in their local areas. The level of satisfaction with the availability of quality health services averaged 67% across OECD countries in 2022, while Luxembourg ranked third (86%), after Switzerland (94%) and Belgium (90%).

With 4.0 hospital beds per 1 000 population in 2022, Luxembourg has more beds than Denmark (2.5) and the Netherlands (2.5) and is situated below the EU average of 5.2 hospital beds (Eurostat, 2024a). The occupancy rate is stable at around 70% and equals the OECD average (OECD, 2023) (see Section 4.1.1).

Due to Luxembourg's small population, not all physicians or hospitals have enough patient volume to meet standards for certain medical procedures. Consequently, some specialized treatments are available only at a single national location or abroad, and patients are often referred to neighbouring countries for highly specialized services that are not offered within Luxembourg. Authorization is required for services involving specialized medical equipment, hospital infrastructure or inpatient treatments with at least one overnight stay. The CNS may withhold authorization if the necessary treatment can be provided in Luxembourg within a medically justifiable time frame (see Section 2.8.4). Waiting times are a barrier to accessing health care services, which are considered a medium to high priority for Luxembourg, as published in 2020 in an OECD survey (OECD, 2020). The report further emphasized that waiting times were problematic across various health care services, including specialist care, diagnostic tests, EDs, primary care and cancer care. Waiting

times in EDs are frequently subject to public debate.

Efforts have been made to address waiting times, with initiatives including the expansion and promotion of primary care services for out-of-hours primary care, notably the medical on-call centres, on-call night duty in elderly homes, and paediatric medical on-call centres (see Section 5.5). Furthermore, reforms to the National Health Laboratory's diagnostic services contributed to reducing outsourcing, enhancing coordination and concentrating services in Luxembourgish hospitals. The government also introduced maximum waiting time targets for cancer care, aiming for at least 95% of patients to receive a diagnosis within five working days, with specific targets for different types of cancer (OECD, 2020). Yet, the average response times of the National Health Laboratory, which holds a monopoly for anatomopathological analyses (see Section 5.1) across all sample types, increased from 8.7 days in November 2022 to 13.8 days in November 2023, with two peaks at 17.8 and 18 days in March and July 2023, respectively. The delays were due to frequent equipment failures, the need for improved digitalization and workflow organization, increased leave days from the 2023 collective agreement, and, unlike other summers, no decrease in examination requests during the summer of 2023 (CHD, 2024d).

Furthermore, in 2019, a regulation was implemented aimed at reducing waiting times in EDs. This regulation mandates patient triage and establishes specific patient pathways. Additionally, the government established a maximum waiting time target of less than three hours for emergency services in 2017 (Ministère de la Santé and Ministère de la Sécurité Sociale, 2017). Following a public discourse on waiting times for diagnostic services, especially MRI scans, another governmental effort was aimed at mitigating waiting times for imaging services by decentralizing specific services typically confined to hospitals. This initiative permits the four hospital centres to provide services to ambulatory centres, either through their own medical personnel or in partnership with independent physicians (see Sections 4.1.2 and 6.1).

Furthermore, a pilot programme is currently in progress to decrease waiting times for diagnostic examinations, including MRI and mammography, by extending operating hours. Additionally, waiting times for MRI scans are now being collected by all hospitals following a single methodology (Luxembourg Government, 2023d, 2023e). However, waiting times are not solely linked to the (geographical) availability of CT/MRI but are also linked to overuse, as discussed in Section 7.6.

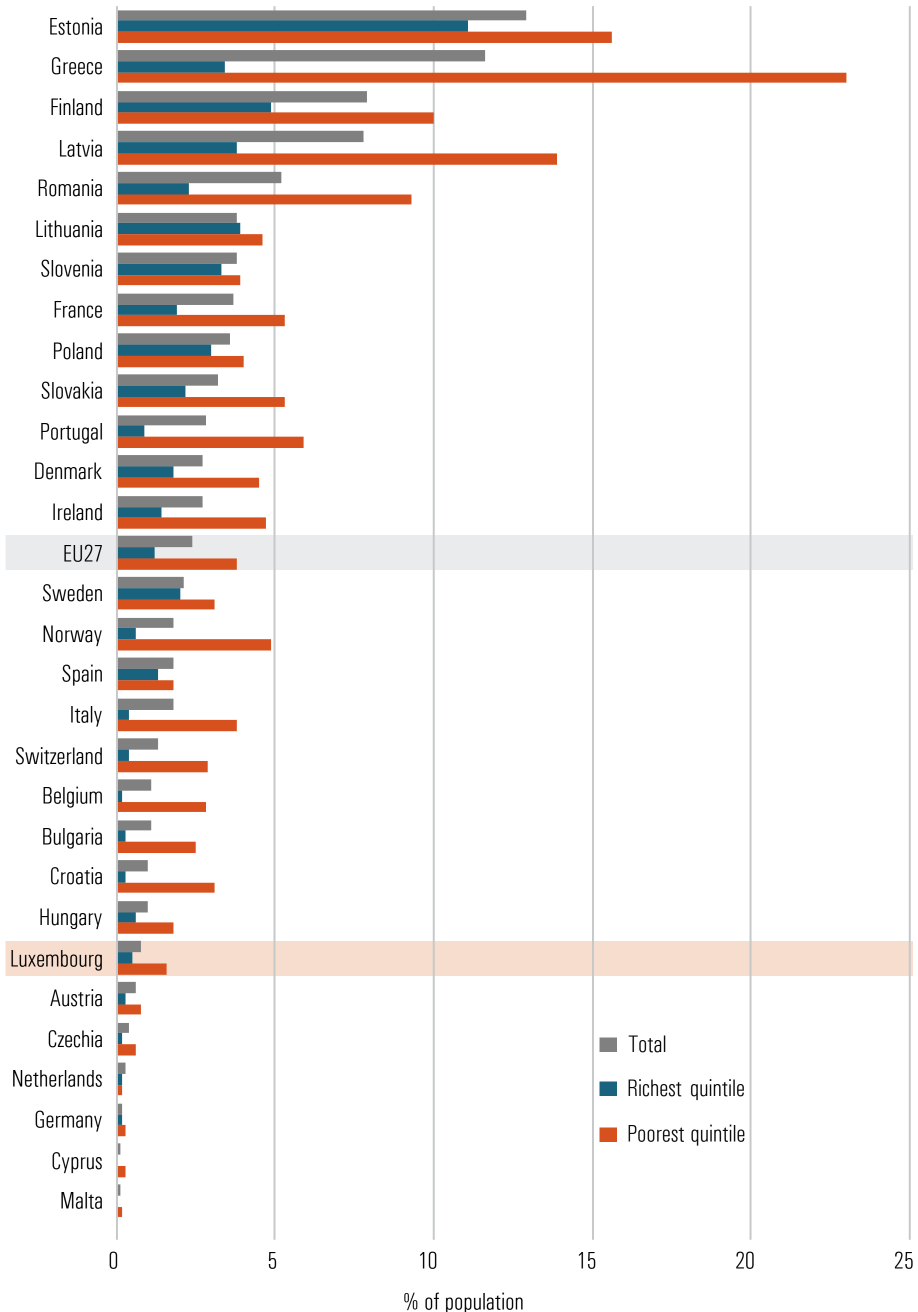
The future provision of services depends on the availability of health professionals. Fluctuations in the nurse and medical staff workforce are notable, compounded by a significant reliance on foreign health care workers. An increasing proportion of hospital employees commute from neighbouring countries (44.9% in 2019 and 48% in 2023), which emphasizes the critical challenge of retaining personnel in their roles (IGSS, 2024b) (see Section 4.2.3). The current absence of a digital registry prevents the quantification of health care professionals (see Sections 4.2.2 and 6.2) and complicates the assessment of the adequacy of health care human resources. A 2019 report focused on workforce availability revealed an impending shortage: by 2034, between 59% and 69% of medical doctors are expected to retire (Lair-Hillion, 2019). In response, the government initiated public campaigns to enhance the appeal of health care professions and introduced a specific training in general medical practice and four bachelor's degrees in nursing at the University of Luxembourg, with additional bachelor's programmes under development (see Sections 4.2.4 and 6.2).

UNMET CARE NEEDS

Unmet needs for medical and dental treatments in Luxembourg are among the lowest in Europe. Only 0.8% of the population cited unmet needs for medical care in 2023, attributing these gaps to factors such as costs, travel distance or waiting times (Fig. 7.1). This result stands significantly below the EU average of 2.4%, emphasizing the relatively minimal obstacles to accessing health care services in the region. In 2023, 1.2% of the population reported unmet needs for dental care, with a significantly higher proportion of 3.0% among those in the lowest income quintile compared to 0.5% in the highest quintile. This share is lower than in most European countries, with an average of 3.4% reported unmet needs for dental care (Eurostat, 2024a).

A lack of transparency on costs and fees can limit access to services. As described in Section 7.1, patients are often unaware of treatment costs, including both upfront payments and cost-sharing, until the conclusion of the consultation or treatment. This uncertainty arises from patients not knowing for which medical services the doctor will charge them. Further, the price of the personal convenience fees that patients have to pay

FIG. 7.1 Unmet needs for a medical examination (due to cost, waiting time or travel distance), by income quintile, EU/EEA, 2023



Note: EU27: 27 Member States of the European Union after 1 February 2020.

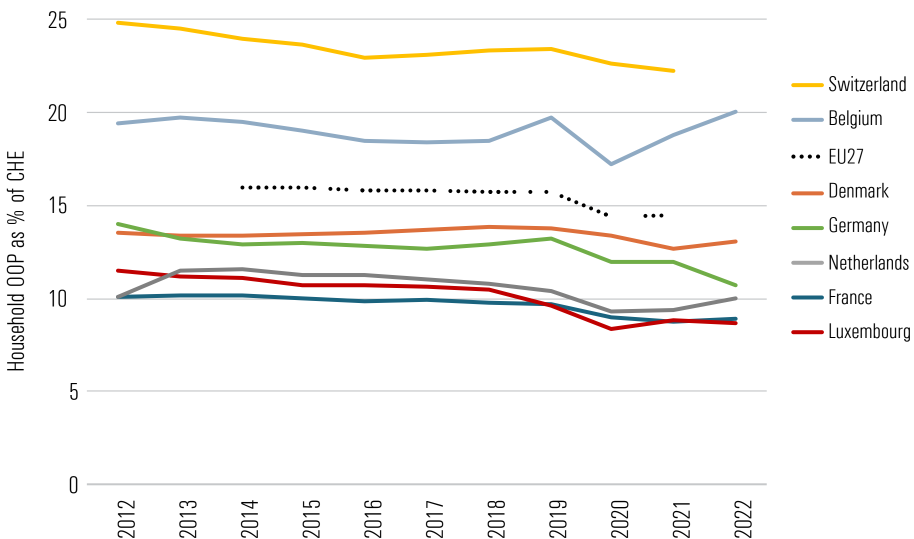
Source: Eurostat (2024).

themselves (see Section 3.4) is not rigorously regulated as the Statutes of the CNS stipulate that the charges must be determined "with tact and moderation" without mentioning a maximum amount or guideline. Although the patient must be informed beforehand by their practitioner and consent is required to settle the additional charge, this is not always the case. The CNS only reimburses the official tariffs, provided the total invoice amount, including personal convenience fees, is fully paid. Patients are responsible for covering the cost of extra-billing (Zahlen, 2019).

7.3 Financial protection

Over the past decade, Luxembourg has maintained a relatively low and stable share of household OOP payments as a proportion of CHE, hovering around 8.7% in 2022, which is lower than the EU average (14.5%) and less than many of the neighbouring countries (Fig. 7.2).

FIG. 7.2 Household OOP as share of CHE for Luxembourg and selected countries from 2012 to 2022



Note: Break in time series in 2013 for France, 2019 in Luxembourg and 2021 in Switzerland, provisional values for EU27 countries for 2020 and 2021. CHE: current health expenditure; EU27: 27 Member States of the European Union after 1 February 2020; OOP: out-of-pocket.

Source: Eurostat (2024).

Luxembourg employs several mechanisms to shield individuals from catastrophic health spending or underutilization of essential services. These include the TPS, an annual cap on official user charges for the entire population, and exemptions from cost-sharing for specific groups, such as children under 18 years and pregnant women for pregnancy-related services. Furthermore, the CUSS Project extends SHI coverage to the most vulnerable populations (see Section 3.3.1).

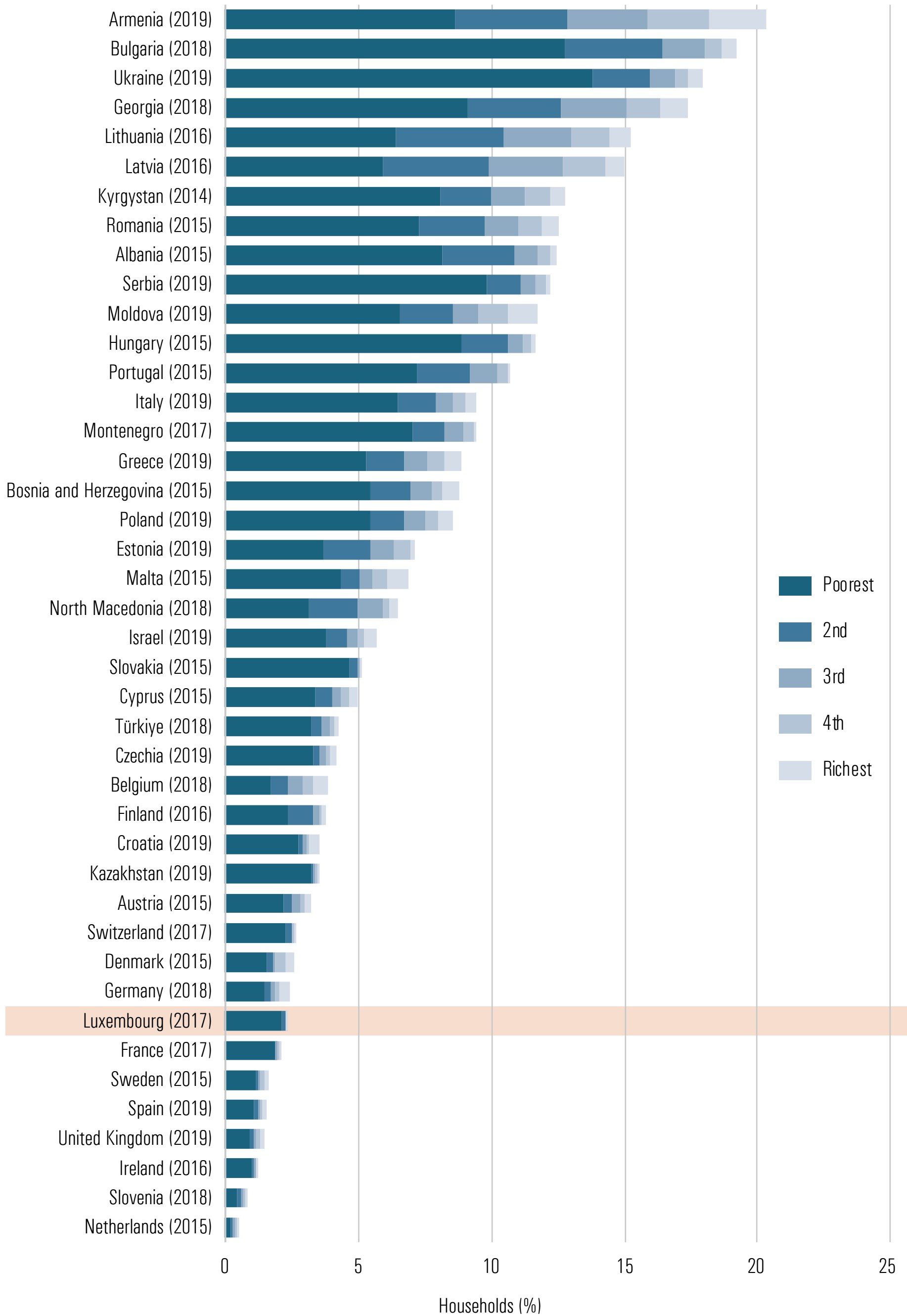
Recent data from the year preceding the COVID-19 pandemic underscores Luxembourg's position among countries with low occurrences of catastrophic health expenditure, with 2.3% of households reporting such expenses (Fig. 7.3). Notably, almost all of these instances (2.1%) were concentrated among individuals facing financial hardship (OECD, 2021). However, financial accessibility poses various challenges, including cost-sharing, extra-billing and upfront payments for doctor consultations in outpatient or inpatient settings, and for dental and paramedical services.

Cost-sharing for services like basic dentures, hearing aids and optical care often requires private complementary health insurance, posing challenges for low-income households because of high costs or incomplete coverage. EHIS data reveal that although prescribed medicines are currently covered by the third-party system, 6% of the respondents reported unmet needs linked to the unaffordability of prescribed medicines (Moran et al., 2021). Medical products are another driver of financial hardship, accounting for around 60% of OOP payments in households with catastrophic health spending in 2017 (WHO Regional Office for Europe, 2023).

Individuals with significant health care needs are exempted from coinsurance if personal contributions exceed 2.5% of their contributable income. However, this right is not automatically applied, and eligibility information is not easily communicated. In 2021, out of around 6 000 individuals requesting a complementary reimbursement, 1 900 requests were legitimate and received an exemption for an average amount of EUR 503. The CNS is unable to determine the number of persons entitled to additional reimbursement. The 2023–28 coalition agreement foresees the creation of a Social Services Desk to streamline administrative processes for beneficiaries, adhering to the "once-only" principle. They also aim to simplify procedures and automate processes to enhance access to social benefits (Luxembourg Government, 2023c; CHD, 2024e).

Luxembourg, alongside Andorra, Belgium and France, still permits retrospective reimbursement for patients accessing publicly funded

FIG. 7.3 Share of households with catastrophic health spending by consumption quintile, latest year pre-COVID-19



Source: WHO Regional Office for Europe (2023).

healthcare. In response to public pressure (Sterba, 2018), an optional third-party payment model (the PID) for medical services is currently being implemented. This initiative aims to improve health care accessibility and strengthen financial protection (see Section 3.4.1). Although TPS exists for low-income households, there is no national procedure to determine eligibility, with each social welfare office making case-by-case decisions. The local social welfare office covers any official cost-sharing that the patient cannot afford. Personal convenience fees are, however, borne by the beneficiary, and dental treatment requires prior approval. One drawback is that some practitioners refuse to treat beneficiaries of TPS.

7.4 Health care quality

Luxembourg does not have a national health care quality assurance programme. The responsibility for monitoring and ensuring the quality of services remains with the service providers.

HOSPITAL CARE

The FHL and the CNS are responsible for documenting the quality and performance of hospital care and are actively involved in developing a quality improvement program. This work focuses on the selection of quality indicators, the accreditation process and hospital documentation. To date, hospitals have an accreditation process (either Accreditation Canada or Joint Commission International Accreditation) through which they collect data for a given quality indicator set (see Section 2.7.2 and Box 2.3). However, information on the quality programme is not publicly available. In addition, administrative data are available and future efforts should focus on leveraging these data on health care quality outcomes.

Regarding patient surveys, Luxembourg implemented national indicators into the EHIS, on patient satisfaction and perception of the health care system (see Section 5.2 and Box 5.2). Hence, patient-reported measures are not regularly monitored, except in acute hospitals where patient-reported experience measures (PREMs) have been collected on an individual basis. Yet, the assessment of PREMs is challenged by a lack of standardized approaches across hospitals. Each institution conducts its own

patient surveys and handles complaints independently, resulting in a fragmented landscape that lacks comparable and publicly available data. Efforts to develop PREMs and Patient-Reported Outcome Measures (PROMs) are underway but, to date, they are not widely implemented.

Despite these initiatives, the OECD Health Care Quality Indicators Project remains a primary tool for assessing and comparing health care quality nationally and internationally. Key indicators are employed to assess health outcomes or enhancements in aspects of health status attributable to health care, including factors like preventable hospital admissions, the prescription of pharmaceuticals for primary care, and the 30-day mortality rate in acute hospital care.

Data regarding cancer survival rates for selected cancers are not publicly available even though a national cancer registry exists (see Section 6.1), further emphasizing the need for better care quality assurance mechanisms in Luxembourg.

Efforts to establish national clinical guidelines tailored to the country's context are underway, with the Scientific Council for Health Care issuing recommendations for good clinical practice (see Sections 2.2, 5.1 and 5.2). However, challenges persist as there is currently no concrete strategy for implementing these guidelines, nor is there a systematic evaluation plan in place. As a result, the responsibility falls on healthcare services to voluntarily adopt these recommendations. Furthermore, although some guidelines may involve other health professionals (for example, midwives for maternal health, dieticians and podologists in diabetes care), they do not extend to dedicated guidelines for other health professionals.

Integration of care across different providers and levels of care, especially for patients with chronic conditions, remains suboptimal, with no comprehensive plan for comorbidity management or care coordination. Initiatives such as integrated care networks exist for specific pathologies at the hospital level, and plans to extend this integration to primary care are in progress (see Section 5.3). Efforts to improve coordination and patient-centred care, such as the "referring physician" model and the electronic health record have yielded mixed results because of a lack of patient incentives, implementation strategies and evaluation frameworks.

Additionally, prevention and education efforts, including health literacy, are not adequately prioritized. Recent reforms, such as the 2018 Hospital Law and the creation of the Interhospital Management

Committee, aim to govern quality matters, although the focus on quality remains nascent.

The enactment of the 2019 Law on Radioprotection is an example of a successful initiative, with facilities conducting clinical audits to assess adherence to standards of good practice. While these audits have led to improvements, there is still ample room for further enhancement, highlighting the ongoing journey toward bolstering health care quality and safety (see Section 7.6).

PRIMARY CARE

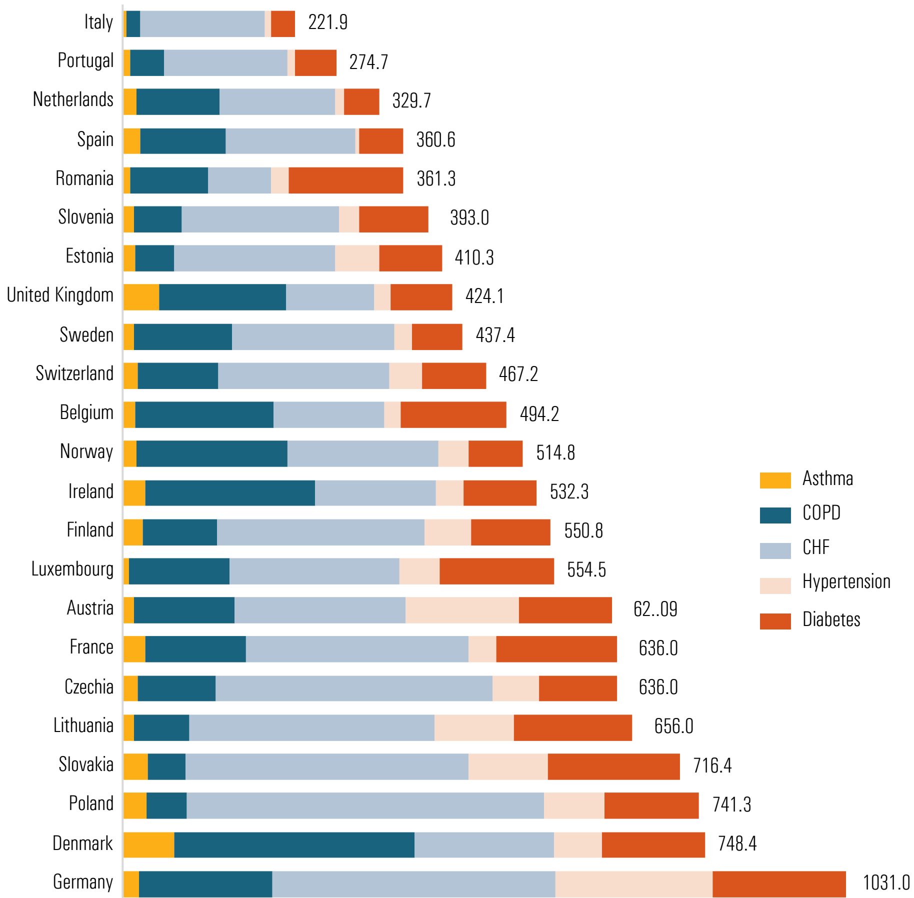
Primary care in Luxembourg does not have an overarching framework for regulation (see Section 5.3) and there is only sparse data on the quality of primary care. As primary care is still not given adequate support on a governmental level and Luxembourg follows a hospital-centred approach, the OECD Health Care Quality Indicators Project remains a key tool to report on avoidable hospital admissions for asthma, chronic obstructive pulmonary disease (COPD), congestive heart failure (CHF), hypertension and diabetes, all of which should be able to be monitored effectively within primary and ambulatory care structures (Fig. 7.4). This is an internationally used metric to gauge the quality of primary care.

Luxembourg's age–sex-standardized rates per 100 000 population for avoidable hospital admissions in 2021 were the highest for heart failure and hypertension, pulmonary conditions and diabetes (Fig. 7.4). Between 2018 and 2021 the rate decreased for asthma and COPD, slightly increased for diabetes and remained stable for hypertension and CHF. Among the selected countries, Luxembourg ranked eighth highest overall for avoidable hospital admissions (Fig. 7.4) (OECD, 2024b).

The relatively high number of avoidable hospital admissions for asthma, COPD, diabetes and CHF in Luxembourg might be attributed in part to the disease prevalence (see Section 1.4). However, it could also be explained by insufficient coordination, continuity and collaboration between the primary care and inpatient sectors (see Sections 5.3 and 5.4).

In 2021, Luxembourg prescribed more antibiotics (14.6 DDD per 1 000 people) compared with the OECD average (13.1 DDD per 1 000 people). Additionally, polymedication among older people and high consumption of sleeping pills are prevalent in Luxembourg (see Section

FIG. 7.4 Avoidable hospital admission rates for asthma, chronic obstructive pulmonary disease, congestive heart failure and diabetes, Luxembourg and selected other countries, 2021 (per 100 000 population)



Notes: CHF: congestive heart failure; COPD: chronic obstructive pulmonary disease.

Source: OECD (2024b).

5.6). Generally, prescriptions are not consistently monitored throughout the patient's treatment journey. Often, patients enter the hospital with a particular drug regimen, receive different medications during their stay, and leave with yet another prescription. This lack of a defined patient pathway and underutilization of electronic health records poses challenges for patients with (multiple) chronic conditions. To improve prescribing practices, Luxembourg needs to invest in a centralized and systematic prescription monitoring system that consolidates all prescriptions.

7.5 Health system outcomes

Luxembourg performs well on measures of its population's health status (for example, life expectancy, overall mortality), but determinants of health (such as alcohol consumption, smoking, unhealthy dietary habits) are highly prevalent. More details on Luxembourg's population health status are depicted in Section 1.4.

In 2022, life expectancy at birth in Luxembourg was 83.0 years, one of the highest among EU27 countries and 2.4 years above the EU average (80.6 years). In 2020, life expectancy had decreased by 6 months (reflecting the impact of higher death rates during the first year of the COVID-19 pandemic) but regained the 2019 pre-COVID level (82.7 years) the following year (Eurostat, 2024a).

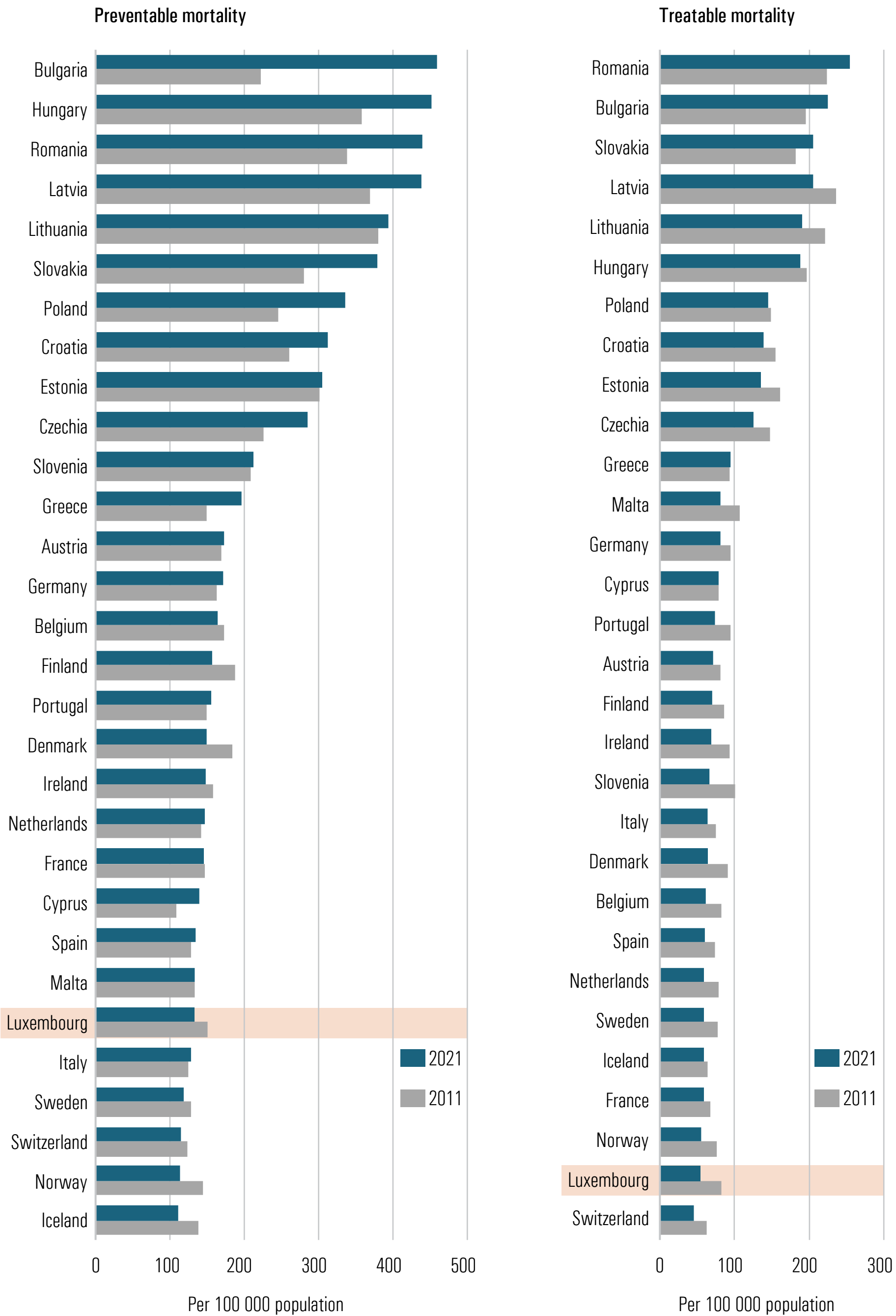
Looking at adjusted all-cause mortality, Luxembourg recorded fewer deaths (–5.5%) in 2022 compared with its 2015–19 average and performed best among OECD countries on this metric (OECD, 2023). In 2021, Luxembourg recorded an infant mortality of 3.1 infant deaths per 1 000 live births, comparable with Belgium, Germany and Switzerland (2.9, 3.0 and 3.1 deaths per 1 000 live births, respectively) (OECD, 2024b).

Over the past decade, Luxembourg has reduced avoidable mortality, driven by a decline in both the mortality attributable to treatable and preventable causes of death (namely, deaths that can be avoided by timely effective treatment and preventive public health measures, respectively). Between 2011 and 2020, the age-standardized treatable mortality rate declined by 22.7 deaths per 100 000 inhabitants, to 60.3 deaths per 100 000 inhabitants in 2022. Luxembourg is also among the EU countries with the lowest age-standardized preventable mortality rate. In 2020, 133.7 deaths per 100 000 inhabitants could have been prevented by effective public health interventions, which is lower than the 2020 EU27 average of 180.0 deaths per 100 000 (Fig. 7.5).

In 2020, the main drivers of treatable mortality were ischaemic heart disease (19%), colorectal cancer (16%) and breast cancer (14%). The main causes of preventable mortality were lung cancer (17%), COVID-19 (16%) and alcohol-related deaths (12%) (OECD/European Observatory on Health Systems and Policies, 2023).

Behavioural risk factors are identified as a major contributor to mortality in Luxembourg and responsible for about one in three deaths (OECD/European Observatory on Health Systems and Policies, 2023).

FIG. 7.5 Mortality from preventable and treatable causes in Luxembourg and selected countries, 2011 and 2021 (or latest year available), all persons, age-standardized death rates per 100 000 population



Source: Eurostat (2024).

Luxembourg's population has one of the highest alcohol consumptions in the EU. In 2019, 43.1% indicated consuming alcohol on a weekly basis and 10.5% indicated weekly "binge drinking" (OECD, 2023)[12]. Data from the annual Luxembourg Cancer Foundation Survey on smoking showed that in 2022 almost one in five adults reported daily smoking, suggesting a recent increase, particularly among youth and young adults (Fondation Cancer, 2023; OECD, 2024b). Overweight and obesity are other major public health concerns with 31.0% of the population self-reporting as overweight and 16.1% as obese in 2019 (Eurostat, 2024). Since 2006, overweight and obesity steadily increased among children aged 11–18 years and reached an ever high of 21% in 2022 (HBSC Luxembourg Study, 2023).

In 2021, compared with the EU average, healthy life years at birth were lower for Luxembourg than the EU average both for women (61.6 years versus the EU average of 64.2 years) and for men (62.3 years versus the EU average of 63.1 years) (Eurostat, 2024a).

Luxembourg's current public health efforts would need to be strengthened to bring further change to problematic health behaviours such as tobacco and alcohol consumption, unhealthy nutrition and low levels of physical exercise, in order to improve the overall health of the population.

EQUITY

Socioeconomic disparities in health outcomes are evident in Luxembourg. In 2019, 81.1% of individuals with the highest educational attainment (tertiary or higher) reported self-perceived good to very good health, while this proportion decreased to 61.5% among those in the lowest educational level (Eurostat, 2024a). Similar health disparities were observed among 11- to 18-year-old pupils based on their perceived family wealth. In 2022, 43% of those from "well-off"[13] families rated their health as excellent, compared with only 19% from "not well-off" families (HBSC Luxembourg Study, 2023). Another example of inequity lies in the distribution of obesity within the population. In 2019, there was a notable difference of 14.6 percentage

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[12] "Binge drinking" is synonymous with heavy episodic drinking and is defined as consuming 60 g or more of pure ethanol (equivalent to five or more drinks in Luxembourg) on a single occasion.

[13] In the HBSC survey, self-perceived wealth of the family was assessed using a five-point scale: answers 1–2 were combined to "not well-off", 3 classified as "average" and 4–5 as "well-off".

points in obesity prevalence between individuals with the highest educational level (9.9%) and those with the lowest educational level (24.5%) (Eurostat, 2024a). Similarly, among 11- to 18-year-old pupils from "well-off" families, the overweight/obesity rate was 12 percentage points lower (19%) in 2022 compared with those from "not well-off" families (31%) (HBSC Luxembourg Study, 2023).

Although the National Health Observatory's mission includes addressing inequity across its initiatives, and the National Health Plan 2023 emphasizes equitable health, well-being, and universal access to care regardless of socioeconomic background, equity is not prominently featured in specific action plans. Additionally, data on socioeconomic equity is not systematically collected, aside from information gathered through surveys. The Ministry of Gender Equality and Diversity, through its Observatory of Equality, provides an overview of indicators by gender across various significant domains such as employment, domestic violence and health (MEGA, 2024).

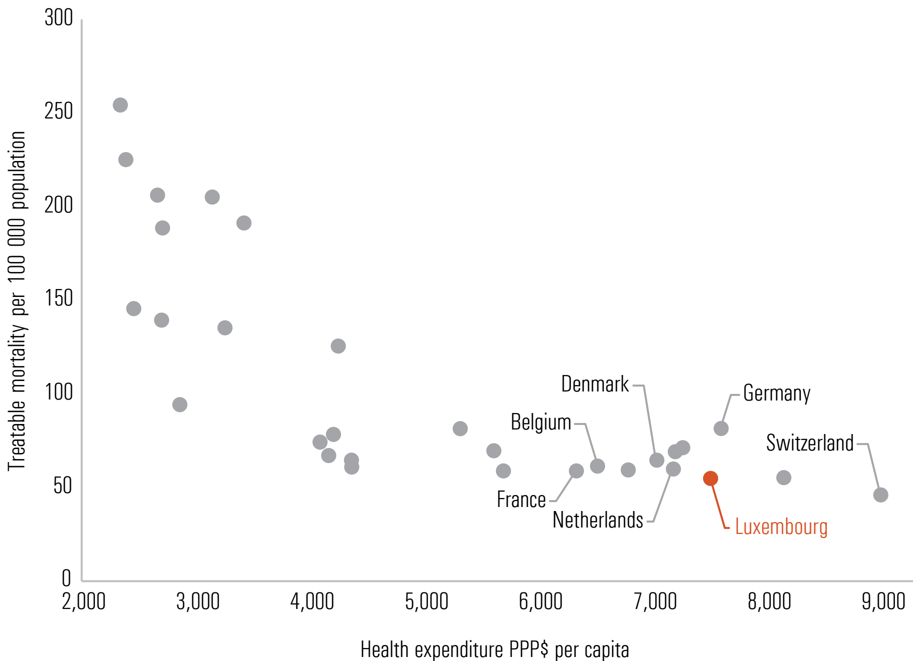
7.6 Health system efficiency

Health system efficiency involves maximizing desired outcomes while ensuring optimal allocation of resources (Cylus, Papanicolas & Smith, 2016). A cursory illustration of the health system's performance in terms of input costs and outcomes can be obtained by plotting current health expenditure against the treatable mortality rate. At this very macro level, Luxembourg shows one of the lowest treatable mortality rates per 100 000 population in Europe (see Section 7.5), yet, it also has one of the highest per capita expenditures. Countries with comparable treatable mortality rates, such as the Netherlands, France and Belgium (see Fig. 7.6), maintain considerably lower health expenditure per capita. This suggests that there is room for improvement in terms of this basic efficiency metric.

ALLOCATIVE EFFICIENCY

Mechanisms for priority setting in budget allocation are absent and the use of evidence regarding effectiveness and cost-effectiveness is limited (see Sections 2.7.2, 2.7.3 and 3.3.3). The risk-adjusted resource allocation is not

FIG. 7.6 Treatable mortality per 100 000 population versus health expenditure per capita, 2021



Note: US$ PPP: US dollars adjusted for differences in purchasing power.
Source: Eurostat (2024); WHO (2024).

used. This can be explained by the positive financial situation of the SHI for several years, making priority setting from a health spending perspective optional. Consequently, prevention and health promotion are underdeveloped, and overuse for some types of care has been observed.

Specifically, there is an apparent pattern of excessive CT and MRI examinations. When considering both types of examinations, Luxembourg ranks among the countries with the highest number of CT and MRI scans within the OECD in 2021, totalling 360 examinations per 1 000 population, surpassed only by the United States of America and Korea, which report 362 examinations per 1 000 population. This rate significantly exceeds the OECD average of 249 examinations per 1 000 population (OECD, 2023). Efforts to address the excessive use of diagnostic examinations were implemented through a national plan, which included actions such as regulation, education and training, guidelines, and audits. Audits conducted in 2016 and 2023 showed a slight improvement in the

rate of justified MRI examinations from 78% to 80% and a notable improvement from 61% to 75% for CT examinations (Bouëtté et al., 2019) (see Section 4.1.2).

In response to Luxembourg's high caesarean section rate, which averaged 32% from 2014 to 2016, health professionals developed reduction measures. This included publishing an informative brochure for parents and national recommendations on scheduled caesareans. An assessment in January 2020 confirmed that these efforts had been successful, as the rate dropped below 30% for the first time in many years, though improvements are still needed for caesarean sections on multiparous women with a previous caesarean (Weber et al., 2022).

Although prevention is highlighted as a priority in both the National Health Plan 2023 and the government programme for 2023–28, its implementation in Luxembourg remains negligible. Notably, a national prevention or health promotion strategy is absent. While some programmes (for example, breast cancer screening) and specific medical procedures (for example, dental examinations during pregnancy and early childhood) exist (see Sections 3.7.1 and 5.1), prevention is not included in the SHI benefit package (CSS Art. 17). Consequently, health care providers lack incentives to engage patients in discussions about healthy behaviours or encourage regular health check-ups. The current system fails to effectively promote a healthy lifestyle (see Section 7.5).

TECHNICAL EFFICIENCY

The financing system for hospitals in Luxembourg does not incentivize efficiency improvements, as made evident by the notably higher average length of hospital stays compared with the EU average and the low bed occupancy rate. The hospital financing mechanism operates on a resource-oriented rather than a results-driven approach. Additionally, the reimbursement system for the services of predominantly autonomous physicians operates independently from the hospital-financing framework, and medical procedures are reimbursed retroactively by SHI. The hospital therefore has limited capacity to steer activity (Rausch, 2021). Physicians get paid the same whether they are treating a patient in a hospital, in an ambulatory, or a day care setting. In an inpatient care setting, physicians have the possibility to charge convenience fees (see Section 3.4). There is no

pay-for-performance system. All services, including hospital services, are remunerated on an FFS basis (see Section 3.7). However, Luxembourg has shown improvement in the technical efficiency of its hospital sector over the recent years (2017–21). There has been a notable rise in day-case surgery rates, increasing from 41.6% of all hospital admissions in 2017 to 48.1% in 2021. Although Luxembourg's rate for cataract surgeries now surpasses the OECD average of 93.8%, its rate for tonsillectomies remains below the OECD average of 40.0% (OECD, 2023). The average length of stay for inpatient hospitalizations remained stable at 7.3 days between 2012 and 2021. The stable average length of stay can be explained by the fact that short stays are increasingly managed as day hospitalizations and thus excluded from this calculation. In 2021, the average stay for acute care was 5.6 days in France, 6.3 days in Belgium and 7.4 days in Germany (ObSanté, 2024). In 2023, the shortage of rehabilitative care beds was addressed by increasing their number, aiming to reduce the number of delayed discharges for acute care, which should influence the average length of stay in the longer term.

For a long time, there have been discussions and efforts to foster the pooling of activities in the hospital sector, such as information technology, laboratories and joint purchasing. The 2010 Health Reform envisaged the centralization of these hospital activities. While efforts in this direction have been undertaken by the FHL, a national coordination approach has only been launched in 2024, pushed by the OECD recommendation as part of the OECD assessment of the Luxembourg public authorities' response to COVID-19 (see Section 2.5 and Box 2.2). In the future, a new entity (National Purchasing and Logistics Centre) will mutualize purchasing and logistics activities in the health care sector (Luxembourg Government, 2023f).

The share of generics in the total pharmaceutical market in Luxembourg is the lowest in reporting OECD countries in 2021, with only 17.6% in volume (and 5.1% in value). For comparison, the rate for volume is 83.4% in Germany, 78.6% in the Netherlands, 66.9% in Denmark, 35.9% in Belgium and 29.3% in France. As described in Section 5.6, substitution is authorized for two pharmacotherapeutic groups only (CSS Art. 22bis). The substitution of biosimilars is not authorized in Luxembourg. Unlike in other countries, Luxembourg has not implemented incentives for physicians and pharmacists to boost generic markets (OECD, 2023). The SHI funds a fixed reimbursement amount in the two authorized groups, allowing

patients choice between the originator or a generic, but with responsibility for any price difference. In practice, the patient is not consistently presented with sufficient information to make an informed decision.

Task-sharing presents significant potential for enhancing efficiency and accessibility within the health care system (WHO/ PEPFAR/ UNAIDS, 2007). However, Luxembourg faces challenges in fully embracing this approach because of its regulations concerning health and care professionals. While multidisciplinary teams are prevalent in hospital settings, they remain largely absent in outpatient care, limiting the scope of task-sharing. Moreover, existing financing arrangements do not incentivize the establishment of multidisciplinary offices in outpatient settings, further impeding progress in this area. A legal framework is under development for medical practices, enabling doctors and health care professionals to form corporations (see Section 6.2).

Luxembourg continues to use various information technology systems that lack interoperability, leading to non-standardized data recording in most cases. Although electronic versions of medical documents exist, they are predominantly used for internal purposes. As a result, the exchange of medical data in Luxembourg continues to heavily rely on traditional paper-based forms, resulting in a lack of efficiency.

8

Conclusion

Luxembourg’s health system operates under an SHI model with a single insurance fund; however, it faces challenges due to fragmented decision-making and multiple financing sources. Efforts to address these issues are underway, notably through the joint management of health and social security. To enhance coordination and reduce fragmentation, it is essential to develop an overarching health plan that integrates various action plans, aligns funding mechanisms and reinforces cross-sectoral policy integration. Establishing a national health coordination committee could also support these efforts. The absence of an overarching public health law limits coordination and policy cohesion within Luxembourg's health system. Such legislation could facilitate a shift from curative care to preventive care, establish clear governance structures, and secure funding that prioritizes a “health in all policies” approach. This would enable more comprehensive strategies to address commercial determinants of health at the population level, ultimately helping to reduce preventable morbidity and mortality. Monitoring the entire system’s performance is crucial for developing effective policies, requiring the integration of data from various sources, and moving beyond siloed information. Incorporating additional data on health care quality and using the Health System Performance Assessment framework that is currently being developed will be instrumental in this process. Eventually, integrating care and implementing integrated care pathways are vital for improving care coordination and patient outcomes, with a continued emphasis on strengthening primary care.

The insured population benefits from a comprehensive health package and reports high levels of satisfaction with the health system, ranking third in 2022 among OECD countries with an 86% satisfaction rate, behind Switzerland and Belgium. Nevertheless, although access for the non-insured is supported by initiatives like the CUSS Project, translating this project into law is crucial for achieving universal coverage and ensuring adequate resources, as not all targeted individuals are currently covered. Although overall unmet medical needs were low at just 0.8% in 2023, they were three times higher among individuals in the lowest income quintile compared to those in the highest. Transparency issues regarding costs and fees can limit access, as patients are often unaware of the full extent of treatment costs or SHI coverage. Fees are consistent for SHI-covered patients, but the obligation to pay at the point of care can exacerbate unmet needs and catastrophic health expenditure among the lowest income group. The optional third-party payment model PID shows progress, but its universal application remains incomplete. Exemptions for cost-sharing, though in place, are not always automatically applied, creating administrative barriers. Continued efforts to measure waiting times are essential for improving timely access to care and patient information.

The 2010 Health Care Reform was crucial for financial stability and quality improvement in Luxembourg's health system. However, further efficiency gains can be made by strengthening prevention, advancing digitalization with a unified strategy and interoperable systems, and promoting the use of generics through financial incentives. Enhancing task-sharing among health professionals, with supported by ongoing efforts to define professional roles and responsibilities, is also essential. The introduction of psychotherapy into the SHI benefit basket has been an important extension and the ongoing deinstitutionalization of mental health services should remain a priority. Additionally, focusing on reimbursing evidence-based and cost-effective services, with increased use of health technology assessments, will be essential for improving system efficiency and prioritization.

9

Appendices

9.1 References

AEC (2018). Prestations. (http://aec.gouvernement.lu/fr/l-assurance-dependance/prestations.html, accessed 26 June 2024).

ALSF (n.d.) Association Luxembourgeoise des Sages-Femmes. (https://www.sages-femmes.lu/annuaire, accessed 26 June 2024).

APB (n.d.). Qui sommes-nous. (https://www.apb.be/fr/corp/Retraits/Procedures/Firmes/Pages/default.aspx, accessed 28 August 2024).

AXA (n.d.) AXA medical insurance. (http://www.axa.lu/en/insurance-health, accessed 25 June 2024).

Berthet F et al. (2015). *Health Systems in Transition, HiT in brief Luxembourg*. Copenhagen, WHO Regional Office for Europe.

Bouëtté A et al. (2019). National audit on the appropriateness of CT and MRI examinations in Luxembourg. *Insights Imaging*, 10:54. (https://doi.org/10.1186/s13244-019-0731-9).

CAPAT (2023). Note au formateur. (https://gouvernement.lu/dam-assets/documents/dossier/formation-gouvernement-2023/notes-au-formateur/c/capat.pdf, accessed 2 September 2024).

Caruso G et al. (2023). *Spatial distribution of the population in Luxembourg: from the submunicipal level to the urban structure*. Luxembourg City, STATEC.

CCSS (2023). Paramètres sociaux. (http://ccss.public.lu/fr/parametres-sociaux.html, accessed 18 June 2024).

CCSS (2024). Voluntary health insurance affiliation. (http://ccss.public.lu/en/particuliers/assures-volontaires/assurance-volontaire-maladie/affiliation-volontaire-assurance-maladie.html, accessed 24 June 2024).

CGDIS (2024). Rapport d'activité 2023. 112.public. (http://112.public.lu/fr/publications/rapports-activite/rapport-activite-2023.html, accessed 9 April 2024).

CHD (2010). Projet de loi N°6196 portant réforme du système de soins de santé et modifiant: 1. le Code de la Sécurité sociale; 2. la loi modifiée du 28 août 1998 sur les établissements hospitaliers.

CHD (2020a). Projet de loi N°7523 portant création de l'établissement public « Agence luxembourgeoise des médicaments et produits de santé (ALMPS) », instituant une commission consultative de qualification et modifiant : 1° la loi modifiée du 21 novembre 1980 portant organisation de la Direction de la santé ; 2° la loi modifiée du 25 septembre 1953 ayant pour objet la réorganisation du contrôle des denrées alimentaires, boissons et produits usuels ; 3° la loi modifiée du 4 août 1975 concernant la fabrication et l'importation des médicaments ; 4° la loi modifiée du 25 novembre 1975 concernant la délivrance au public des médicaments ; 5° la loi du 15 mars 1979 portant réglementation de la transfusion sanguine ; 6° la loi modifiée du 11 avril 1983 portant réglementation de la mise sur le marché et de la publicité des médicaments ; 7° la loi du 18 décembre 1985 relative aux médicaments vétérinaires ; 8° la loi modifiée du 16 janvier 1990 relative aux dispositifs médicaux ; 9° la loi modifiée du 6 janvier 1995 relative à la distribution en gros des médicaments ; 10° la loi du 1er août 2007 relative aux tissus et cellules humains destinés à des applications humaines ; 11° la loi modifiée du 8 mars 2018 relative aux établissements hospitaliers et à la planification hospitalière.

CHD (2020b). Projet de loi N°7650 portant introduction du recours collectif en droit de la consommation.

CHD (2020c). Code de conduite des députés luxembourgeois en matière d'intérêts financiers et de conflits d'intérêts. (https://www.chd.lu/sites/default/files/2022-04/Code%20de%20conduite%20deputes%2020211214.pdf, accessed 25 June 2024).

CHD (2022a). Question Parlementaire n°7028 – Mesures sociales pour aider les personnes physiques et les ménages.

CHD (2022b). Projet de loi N°8009 portant modification : 1° de la loi modifiée du 29 avril 1983 relative à l'exercice de la profession de médecin, de médecin-dentiste et de médecin-vétérinaire ; 2° de la loi modifiée du 8 mars 2018 relative aux établissements hospitaliers et à la planification hospitalière ; 3° du Code de la sécurité sociale.

CHD (2022c). Question Parlementaire n°6574 – Penurie de certains medicaments.

CHD (2023a). Question Parlementaire n°7746 – Tiers payant social.

CHD (2023b). Question Parlementaire n°51 – Suite du projet-pilote visant à mettre en place une couverture universelle des soins de santé (CUSS).

CHD (2024a). Question Parlementaire n°316 – Temps de carence prévu dans le projet pilote CUSS (couverture universelle des soins de santé).

CHD (2024b). Question Parlementaire n°617 – Paiement immédiat direct (PID).

CHD (2024c). Question Parlementaire n°724 – Téléconsultations.

CHD (2024d). Question Parlementaire n°183 – Délais d'attente pour les résultats du Laboratoire National de Santé.

CHD (2024e). Question Parlementaire n°774 – Remboursements complémentaires par les caisses de maladie.

CHL (n.d.a). PatientenHouse | CHL. (https://www.chl.lu/fr/dossier/patientenhouse#les-associations, accessed 14 June 2024a).

CHL (n.d.b). Omega 90 | CHL. (https://www.chl.lu/fr/dossier/omega-90, accessed 26 June 2024b).

Cloos J-M et al. (2015). Hypnotics and Triazolobenzodiazepines – Best Predictors of High-Dose Benzodiazepine Use: Results from the Luxembourg National Health Insurance Registry. *Psychotherapy and Psychosomatics,* 84:273–283. (https://doi.org/10.1159/000434755).

CMCM (n.d.). Allow us to introduce ourselves | CMCM. (https://www.cmcm.lu/en/about_us, accessed 25 June 2024).

CNS (2013). Décompte annuel de l'assurance maladie-maternité – Exercice 2013. (https://cns.public.lu/dam-assets/publications/decompte-annuel/decompte-am-2013.pdf, accessed 26 June 2024).

CNS (2020a). Third-party social payment. (http://cns.public.lu/en/assure/vie-privee/depenses-sante/tiers-payant-social.html, accessed 25 June 2024).

CNS (2020b). Personal conveniences. (http://cns.public.lu/en/assure/vie-privee/depenses-sante/avance-frais/convenances-personnelles.html, accessed 25 June 2024).

CNS (2020c). Agreement between the CNS and the Luxembourg Pharmacists' Union. (https://cns.public.lu/dam-assets/legislations/convention/cns-spl-convention.pdf, accessed 25 June 2024).

CNS (2022a). Rapport annuel 2021 (https://cns.public.lu/dam-assets/publications/rapport-annuel/rapport-cns-2021-internet.pdf, accessed 24 June 2024).

CNS (2022b). Décompte de l'assurance maladie-maternité – Exercice 2021 (https://cns.public.lu/dam-assets/publications/decompte-annuel/decompte-amm-2021.pdf, accessed 24 June 2024).

CNS (2023a). Rapport annuel 2022. (http://cns.public.lu/fr/publications/rapport-annuel/rp-2022.html, accessed 24 June 2024).

CNS (2023b). Décompte de l'assurance maladie-maternité – Exercice 2022. (https://cns.public.lu/dam-assets/publications/decompte-annuel/decompte-amm-2022-.pdf, accessed 24 June 2024).

CNS (2023c). Nomenclature des actes et services des médecins et tarifs applicables. (https://cns.public.lu/dam-assets/legislations/actes-generaux-techniques/medecins/mdecins-nomenclature-et-tarifs-25112023.pdf, accessed 24 June 2024).

CNS (2023d). Comptes annuels de l'assurance maladie-maternité – 2022 établis par la CNS au mois de mai 2023. (https://cns.public.lu/dam-assets/publications/decompte-annuel/decompte-amm-2023.pdf, accessed 24 June 2024).

CNS (2023e). Version coordonnée au 01.09.2023 de la nomenclature des actes et services des prestataires de soins palliatifs et tarifs applicables. (https://cns.public.lu/dam-assets/legislations/actes-generaux-techniques/prestataires-soins-palliatifs/prestataires-soins-palliatifs-nomenclature-tarifs-01092023.pdf, accessed 26 June 2024).

CNS (2023f). Reminder regarding the reimbursement of cross-border healthcare services. (http://cns.public.lu/en/actualites/2023/rappel-prise-en-charge-transfrontaliere.html, accessed 25 June 2024).

CNS (2024a). Les statuts de la Caisse nationale de santé Version coordonnée au 01.06.2024. (http://cns.public.lu/en/legislations/textes-coordonnes/statuts-cns.html, accessed 25 June 2024).

CNS (2024b). Complementary reimbursement. (http://cns.public.lu/en/assure/vie-privee/depenses-sante/avance-frais/paiement-complementaire.html, accessed 25 June 2024).

Code de la Santé – Legilux, (n.d.). (https://legilux.public.lu/eli/etat/leg/code/sante/20230806, accessed 14 August 2023).

Collège médical (n.d.). Célébration 150 ans. (http://www.collegemedical.lu/uploads/Presentation/doc/1_1_C%C3%A9l%C3%A9bration%20150%20ans%20Brochure%20r%C3%A9%C3%A9dit%C3%A9e.pdf, accessed 24 June 2024).

Conseil de la concurrence (2022). Enquête sectorielle médicaments et pharmacies. (http://concurrence.public.lu/fr/avis-enquetes/enquetes/2022/rapport-enquete-medicaments-pharmacies.html, accessed 24 June 2024).

Conseil Scientifique (2023a). Mission Conseil Scientifique Domaine de la Santé. (http://conseil-scientifique.public.lu/fr/conseil-scientifique/mission.html, accessed 6 October 2023).

Conseil Scientifique (2023b). Imagerie médicale: Radioprotection des patients - Recommandation de bonne pratique médicale. (https://conseil-scientifique.public.lu/fr/publications/imagerie-medicale/radioprotection2022.html, accessed 10 June 2023).

Conseil Scientifique (2024). Conseil Scientifique Domaine de la Santé Recommendation. (http://conseil-scientifique.public.lu/fr.html, accessed 26 June 2024).

Coroller GL et al. (2021). European Health Interview Survey (EHIS): Méthodologie de l'étude – 3ème vague 2019 (Factsheet). (https://researchportal.lih.lu/en/publications/european-health-interview-survey-ehis-m%C3%A9thodologie-de-l%C3%A9tude-3%C3%A8me, accessed 20 June 2024).

Cour des comptes (2021). Rapport spécial de la Cour des comptes sur le financement public des investissements hospitaliers. (https://cour-des-comptes.public.lu/dam-assets/fr/rapports/rapports-speciaux/2019/RapportEtablissementsHospitaliers.pdf, accessed 10 June 2024).

CSS (2024). Code de la Sécurité sociale – Lois et règlements, Code de la Sécurité sociale. (https://legilux.public.lu/eli/etat/leg/code/securite_sociale/20240101, accessed 24 June 2024).

Cylus J, Papanicolas I, Smith P (eds) (2016). *Health system efficiency: how to make measurement matter for policy and management*, Health policy series. Copenhagen, WHO Regional Office for Europe.

Département de l'aménagement du territoire (2022). Couverture et utilisation du sol au Grand-Duché de Luxembourg (NR 1), Des cartes et des chiffres. Luxembourg, Ministère de l'Energie et de l'Aménagement du territoire. (https://gouvernement.lu/dam-assets/documents/actualites/2022/10-octobre/21-carte-chiffres/publication-des-cartes-et-des-chiffres.pdf, accessed 24 June 2024).

DiSa (2023). Rapport du 2 ème audit national de la pertinence des demandes d'examens CT et IRM – Portail Santé – Luxembourg.

DKV (n.d.). DKV health insurance. (https://www.dkv.lu/en/private-customers, accessed 25 June 2024).

ECDC (2023). Antimicrobial consumption dashboard (ESAC-Net). (https://www.ecdc.europa.eu/en/antimicrobial-consumption/surveillance-and-disease-data/database, accessed 26 June 2024).

Empirica (2020). Mehrländervergleich Digitalisierungsstrategien ausgewählter EU-Staaten – Digital-Health-Index.

e-Santé (2018). DISPODOC. (https://www.esante.lu/portal/fr/lancement-officiel-de-dispodoc-l-application-mobile-indiquant-en-temps-reel-les-medecins-disponibles-la-ou-vous-etes-5-69.html?args=PQFWPJEj1EvbJ8CG9wMpUFQEBneKXzbGc3LHwoqfHUCS42_GbhZSrVuIV8dAGn7nLYePnwrzHukGts6rQUB0GA, accessed 25 June 2024).

e-Santé (2020). Le DSP et sa campagne de sensibilisation. (https://gouvernement.lu/dam-assets/documents/actualites/2020/10-octobre/Presentation-du-DSP-et-de-sa-campagne-de-communication.pdf, accessed 11 June 2024).

e-Santé (2023). e-Santé – Rapport annuel 2022. (https://www.esante.lu/portal/fr/l-agence-esante-presente-son-rapport-annuel-2022-et-ses-services-lors-d-une-conference-de-presse-5-69.html?args=PQFWPJEj1EvbJ8CG9wMpUFQEBneKXzbGc3LHwoqfHUAg2zd48nZMsSjeKwXK4xlPoeMRgiyvrS3t2iTIpQMpmA, accessed 11 June 2024).

e-Santé (n.d.). FAQ DSP. Agence ESanté Luxemb. (https://www.esante.lu/portal/fr/faq-205-223.html, accessed 6 October 2023).

European Commission (2022). Corruption-eurobarometer. (https://europa.eu/eurobarometer/surveys/detail/2658, accessed 25 June 2024).

European Observatory on Health Care Systems (1999). *Health care systems in transition: Luxembourg, Health Care Systems in Transition*. Copenhagen, WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies.

European Parliament (2005). Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications, OJ L.

Eurostat (2021). Survey on the use of ICT in Europe. (https://ec.europa.eu/eurostat/web/products-eurostat-news/-/edn-20220406-1, accessed 7 August 2023).

Eurostat (2023). Healthcare non-expenditure statistics manual and guidelines for completing the Joint questionnaire on non-monetary healthcare statistics. (https://ec.europa.eu/eurostat/documents/3859598/17120833/KS-GQ-23-001-EN-N.pdf/f7584d59-88c5-b263-f6e2-4670ed8e89a3?version=1.0&t=1688982804201, accessed 21 March 2024).

Eurostat (2024). Eurostat database. (https://ec.europa.eu/eurostat/data/database, accessed 21 March 2024).

Fondation Cancer (2023). Les chiffres du tabagisme au Luxembourg. Ma Vie Tab. (https://www.maviesanstabac.lu/statistiques, accessed 26 June 2024).

Foyer Assurances (n.d.). medicis assurance santé | Foyer Assurances. (https://www.foyer.lu/fr/sante/assurance, accessed 25 June 2024).

Global Burden of Disease Collaborative Network (2022). Global Burden of Disease Study 2019 (GBD 2019) Human Resources for Health 1990–2019. (https://doi.org/10.6069/R6BY-8Y54, accessed 5 September 2024).

Guichet.lu (2022). Congé d'accompagnement d'une personne en fin de vie. (http://guichet.public.lu/fr/citoyens/travail/conges-jours-feries/situation-personnelle/conge-accompagnement-fin-vie.html, accessed 26 June 2024).

HBSC Luxembourg Study (2023). Data visualization of the findings from Luxembourg HBSC surveys. (https://hbsc.uni.lu/de-dashboard, accessed 8 August 2023).

Health Directorate (2023). Statistiques des causes de décès en 2022. (http://sante.public.lu/fr/publications/s/statistiques-causes-de-deces-2022.html, accessed 16 September 2024).

Högberg LD et al. ESAC-Net Study Group (2021). Decrease in community antibiotic consumption during the COVID-19 pandemic, EU/EEA, 2020. *Eurosurveillance* 26:2101020. (https://doi.org/10.2807/1560-7917.ES.2021.26.46.2101020).

HRS (n.d.). Fast-Track-Rehabilitation (Barrierefreiheit). Hôp. Robert Schuman. (https://www.hopitauxschuman.lu/de/flyer-fast-track-rehabilitation, accessed 26 June 24).

IGSS (2019a). Luxembourg Microdata Platform on Labour and Social Protection. (http://igss.gouvernement.lu/fr/microdata-platform.html, accessed 26 June 2024).

IGSS (2019b). Rapport sur la situation financière de l'assurance maladie-maternité presenté en vue de la réunion du comité quadripartite en date du 13 novembre 2019 (Report / Study / Analysis). Luxembourg, General Inspectorate of Social Security.

IGSS (2022a). Rapport d'analyse prévisionnel de l'enveloppe budgétaire globale des dépenses du secteur hospitalier. Luxembourg, General Inspectorate of Social Security.

IGSS (2022b). Rapport général 2022. Luxembourg, General Inspectorate of Social Security.

IGSS (2023a). Droit de la sécurité sociale 2023. Luxembourg, General Inspectorate of Social Security.

IGSS (2023b). Rapport sur la situation financière de l'assurance maladie-maternité presenté en vue de la réunion du comité quadripartite en date du 8 novembre 2023 (Report / Study / Analysis). Luxembourg, General Inspectorate of Social Security.

IIGSS (2023c). Cahier statistique no 15 – Etat des lieux des soins urgents au Luxembourg (Rapport / Etude / Analyse). Luxembourg, General Inspectorate of Social Security.

IGSS (2023d). Assurance dépendance – rapport d'analyse prévisionnel. Luxembourg, General Inspectorate of Social Security.

IGSS (2024a). Emploi salarié par secteur d'activité, statut et caractéristiques individuelles. (https://data.public.lu/fr/datasets/emploi-salarie-par-secteur-dactivite-statut-et-caracteristiques-individuelles, accessed 27 August 2024).

IGSS (2024b). Rapport général sur la sécurité sociale 2023. Luxembourg, General Inspectorate of Social Security.

Klein C, Peltier F (2023). La démographie luxembourgeoise en chiffres – Edition 2023. Luxembourg, Statec.

Kukutschka RMB (2021). Global Corruption Barometer: European Union 2021. (https://www.transparency.org/en/publications/gcb-european-union-2021, accessed 5 June 2023).

Lair-Hillion M (2019). Etat des lieux des professions médicales et des professions de santé au Luxembourg. Luxembourg City, Ministère de la Santé.

Leist A (2021). Luxembourg. In: Immergut EM et al. (eds), *Health Politics in Europe: A Handbook* (pp. 610–629). Oxford, Oxford University Press.

LIH (n.d.a). Making translational medicine a reality: the LCTR-Fuerschungsklinik Lëtzebuerg opens its doors. (https://www.lih.lu/en/article/making-translational-medicine-a-reality-the-lctr-fuerschungsklinik-letzebuerg-opens-its-doors).

LIH (n.d.b). Centre de recherche clinique & translationnelle du Luxembourg (LCTR). (https://www.lih.lu/fr/recherche-translationnelle/centre-operationnel-de-medecine-translationnelle-tmoh/centre-de-recherche-clinique-translationnelle-du-luxembourg-lctr).

Luxembourg Government (2006). Plan d'action eSanté du Luxembourg. (http://sante.public.lu/fr/espace-professionnel/plans-nationaux/programme-esante.html, accessed 22 June 2023).

Luxembourg Government (2013). Traitements dentaires des enfants et jeunes: prise en charge à 100% des tarifs CNS. Communiqué. (http://gouvernement.lu/fr/actualites/toutes_actualites/communiques/2013/10-octobre/07-traitement-dentaire.html, accessed 25 June 2024).

Luxembourg Government (2015). Ouverture de la Maison médicale pédiatrique centralisée au sein de la Kannerklinik. (http://gouvernement.lu/fr/actualites/toutes_actualites/communiques/2015/07-juillet/24-maison-medicale.html, accessed 26 June 2024).

Luxembourg Government (2017). Vers une amélioration des services d'urgence. (http://m3s.gouvernement.lu/fr/actualites.html, accessed 26 June 2024).

Luxembourg Government (2018). Les principes de la réforme de l'assurance dépendance confirmés. (http://gouvernement.lu/fr/actualites/agenda.html, accessed 25 June 2024).

Luxembourg Government (2021). Réforme de l'exercice et des formations de certaines catégories de professions de santé. (https://gouvernement.lu/fr/actualites/toutes_actualites/communiques/2021/05-mai/03-lenert-meisch-cahen-reforme-professions-sante.html, accessed 26 June 2024).

Luxembourg Government (2023a). Plan national de santé. (https://www.gesondheetsdesch.lu/ressources, 28 June 2023).

Luxembourg Government (2023b). Résumé des travaux du 21 avril 2023. (http://gouvernement.lu/fr/actualites/toutes_actualites/communiques/2023/04-avril/21-conseil-gouvernement.html, accessed 16 September 2024).

Luxembourg Government (2023c). Accord de coalition 2023–2028. (https://gouvernement.lu/fr/actualites/toutes_actualites/articles/2023/11-novembre/20-accord-coalition-2023.html, accessed 15 October 2024).

Luxembourg Government (2023d). Ouvertures supplémentaires des IRM durant les weekends. (http://gouvernement.lu/fr/actualites/toutes_actualites/communiques/2023/05-mai/17-irm-weekends.html, accessed 26 June 2024).

Luxembourg Government (2023e). Octobre rose: lutter contre le cancer du sein, l'efficacité du dépistage précoce. (https://gouvernement.lu/fr/actualites/toutes_actualites/communiques/2023/10-octobre/09-sante-octobre-rose.html#:~:text=De%201992%20%C3%A0%202022%2C%20le,40%20pr%C3%A9sentent%20des%20r%C3%A9sultats%20anormaux, accessed 26 June 2024).

Luxembourg Government (2023f). Présentation du Health Information System Luxembourg et de la Centrale nationale d'achat et de logistique. (http://gouvernement.lu/fr/actualites/toutes_actualites/communiques/2023/06-juin/09-lenert-hisl-cnal.html, accessed 26 June 2024).

Luxembourg Government (2024a). The Ministry of Health and Social Security is extending the age groups covered by organised breast and colorectal cancer screening programmes. (http://gouvernement.lu/en/actualites/toutes_actualites/communiques/2024/07-juillet/01-deprez-depistage-cancer.html, accessed 2 September 2024).

Luxembourg Government (2024b). Journée européenne des droits des patients: "Les droits et obligations du patient au cœur de la réflexion commune des acteurs du système de santé!". Commune Acteurs Système Santé. (http://gouvernement.lu/fr/actualites/toutes_actualites/communiques/2024/04-avril/18-journee-droits-patients.html, accessed 25 June 2024).

Luxembourg Income Study (2024). Gini coefficient (after tax). Our World Data. (https://ourworldindata.org/explorers/inequality-lis, accessed 11 July 2024).

Luxinnovation (n.d.). Luxembourg manufacturing ecosystem mapping. (https://luxinnovation.lu/resources/luxembourg-manufacturing-ecosystem-mapping, accessed 24 June 2024).

Médecins du Monde Luxembourg (2021). Observatoire de l'accès à la santé. Luxembourg City, Médecins du Monde Luxembourg.

Mémorial A3 (1990). Loi du 16 janvier 1990 relative aux appareils médicaux.

Mémorial A20 (1992). Loi modifiée du 26 mars 1992 sur l'exercice et la revalorisation de certaines professions de santé.

Mémorial A27 (1983). Loi du 11 avril 1983 portant réglementation de la mise sur le marché et de la publicité des spécialités pharmaceutiques et des médicaments préfabriqués.

Memorial A31 (1983). Loi du 29 avril 1983 concernant l'exercice des professions de médecin, de médecin-dentiste et de médecin-vétérinaire.

Mémorial A43 (1973). Loi du 4 juillet 1973 concernant le régime de la pharmacie.

Mémorial A46 (2009). Loi du 16 mars 2009 relative aux soins palliatifs, à la directive anticipée et à l'accompagnement en fin de vie et modifiant: 1. le Code de la sécurité sociale; 2. la loi modifiée du 16 avril 1979 fixant le statut général des fonctionnaires de l'Etat; 3. la loi modifiée du 24 décembre 1985 fixant le statut général des fonctionnaires communaux; 4. le Code du travail.

Mémorial A47 (2013). Arrêté ministériel du 1er mars 2013 approuvant le Code de déontologie des professions de médecin et de médecin-dentiste édicté par le Collège médical.

Mémorial A58 (2002). Loi du 31 mai 2002 relative au Collège vétérinaire.

Mémorial A60 (1991). Loi du 31 juillet 1991 déterminant les conditions d'autorisation d'exercer la profession de pharmacien.

Mémorial A79 (2013). Règlement grand-ducal du 18 avril 2013 déterminant les modalités et conditions de fonctionnement du registre national du cancer et modifiant le règlement grand-ducal du 20 juin 1963 rendant obligatoire la déclaration des causes de décès.

Mémorial A79 (1980). Loi du 21 novembre 1980 portant organisation de la direction de la santé.

Mémorial A82 (1998). Loi du 8 septembre 1998 réglant les relations entre l'Etat et les organismes oeuvrant dans les domaines social, familial et thérapeutique.

Mémorial A84 (1999). Loi du 8 juin 1999 relative au Collège médical.

Mémorial A103 (1992). Règlement grand-ducal du 15 décembre 1992 relatif à la mise sur le marché des médicaments.

Mémorial A115 (2014). Loi du 1er juillet 2014 portant 1) transposition de la directive 2011/24/UE du Parlement européen et du Conseil du 9 mars 2011 relative à l'application des droits des patients en matière de soins de santé transfrontaliers; 2) modification du Code de la sécurité sociale; 3) modification de la loi modifiée du 29 avril 1983 concernant l'exercice des professions de médecin, de médecin-dentiste et de médecin-vétérinaire; 4) modification de la loi modifiée du 31 juillet 1991 déterminant les conditions d'autorisation d'exercer la profession de pharmacien; 5) modification de la loi modifiée du 26 mars 1992 sur l'exercice et la revalorisation de certaines professions de santé; 6) modification de la loi modifiée du 11 avril 1983 portant réglementation de la mise sur le marché et de la publicité des médicaments; 7) modification de la loi modifiée du 16 janvier 1990 relative aux dispositifs médicaux.

Mémorial A128 (2012). Règlement grand-ducal du 25 juin 2012 déterminant les modalités de calcul de la base de remboursement des médicaments substituables.

Mémorial A136 (2015). Loi du 14 juillet 2015 portant création de la profession de psychothérapeute.

Mémorial A139 (2011). Version consolidée applicable au 17/07/2023: Règlement grand-ducal du 10 juillet 2011 fixant la liste des spécialités en médecine et médecine dentaire reconnues au Luxembourg.

Mémorial A140 (2014). Loi du 24 juillet 2014 relative aux droits et obligations du patient, portant création d'un service national d'information et de médiation dans le domaine de la santé et modifiant: – la loi modifiée du 28 août 1998 sur les établissements hospitaliers; – la loi

modifiée du 2 août 2002 relative à la protection des personnes à l’égard du traitement des données à caractère personnel; – le Code civil.

Mémorial A168 (2021). Loi du 2 mars 2021 portant création d’un Observatoire national de la santé.

Mémorial A219 (2011a). Règlement grand-ducal du 23 octobre 2011 concernant l’acidification des moûts de raisins et des vins provenant de la récolte 2011.

Mémorial A219 (2011b). Règlement grand-ducal du 24 octobre 2011 déterminant le contenu et la fréquence des mesures et examens de médecine scolaire et le fonctionnement de l’équipe médico-socio-scolaire.

Mémorial A222 (2018). Loi du 8 mars 2018 relative aux établissements hospitaliers et à la planification hospitalière, et portant modification: 1. du Code de la sécurité sociale; 2. de la loi modifiée du 21 novembre 1980 portant organisation de la Direction de la santé; 3. de la loi modifiée du 16 juillet 1984 relative aux laboratoires d’analyses médicales; 4. de la loi du 19 décembre 2003 portant création de l’établissement public "Centre national de rééducation fonctionnelle et de réadaptation"; 5. de la loi du 7 août 2012 portant création de l’établissement public "Laboratoire national de santé"; 6. de la loi du 24 juillet 2014 relative aux droits et obligations du patient; 7. de la loi modifiée du 25 mars 2015 fixant le régime des traitements et les conditions et modalités d’avancement des fonctionnaires de l’État.

Mémorial A226 (2011). Règlement grand-ducal du 26 octobre 2011 instituant un Conseil scientifique du domaine de la santé.

Mémorial A242 (2010). Loi du 17 décembre 2010 portant réforme du système de soins de santé et modifiant: 1. le Code de la sécurité sociale; 2. la loi modifiée du 28 août 1998 sur les établissements hospitaliers.

Mémorial A263 (2010). Loi du 10 décembre 2009 a) relative à l’hospitalisation sans leur consentement de personnes atteintes de troubles mentaux, b) modifiant la loi modifiée du 31 mai 1999 sur la Police et l’Inspection générale de la Police et c) modifiant l’article 73 de la loi communale modifiée du 13 décembre 1988.

Mémorial A478 (2023). Loi du 29 juillet 2023 portant modification: 1° de la loi modifiée du 8 mars 2018 relative aux établissements hospitaliers et à la planification hospitalière; 2° de la loi modifiée du 29 avril 1983 relative à l’exercice de la profession de médecin, de médecin-dentiste et de médecin-vétérinaire; 3° du Code de la sécurité sociale.

Mémorial A530 (2019). Loi du 1er août 2019 concernant les mutuelles et modifiant la loi modifiée du 19 décembre 2002 concernant le registre de commerce et des sociétés ainsi que la comptabilité et les comptes annuels des entreprises.

Mémorial A562 (2023). Loi du 23 août 2023 portant sur la qualité des services pour personnes âgées et portant modification de: 1°la loi modifiée du 16 mai 1975 portant statut de la copropriété des immeubles bâtis; 2°la loi modifiée du 8 septembre 1998 réglant les relations entre l'État et les organismes œuvrant dans les domaines social, familial et thérapeutique.

Mémorial A631 (2022). Règlement grand-ducal du 16 décembre 2022 modifiant le règlement grand-ducal du 8 février 2016 déterminant le champ et les modalités d'application du système bonus-malus de l'assurance accident.

Mémorial A678 (2018). Loi du 9 août 2018 modifiant le Code de la sécurité sociale.

Mémorial A705 (2018). Loi du 1er août 2018 sur la déclaration obligatoire de certaines maladies dans le cadre de la protection de la santé publique et modifiant: 1. la loi modifiée du 29 avril 1983 concernant l'exercice des professions de médecin, de médecin-dentiste et de médecin-vétérinaire; 2. la loi modifiée du 16 juillet 1984 relative aux laboratoires d'analyses médicales; 3. la loi modifiée du 16 janvier 1990 relative aux dispositifs médicaux; 4. la loi modifiée du 8 juin 1999 relative au Collège médical; 5. la loi du 24 mai 2018 sur les conditions d'hygiène et de salubrité relatives à la pratique des techniques de tatouage par effraction cutanée, du perçage, du branding, cutting, ainsi que du bronzage UV.

Mémorial A778 (2017). Loi du 29 août 2017 portant modification 1. du Code de la sécurité sociale; 2. de la loi modifiée du 15 décembre 1993 déterminant le cadre du personnel des administrations, des services et des juridictions de la sécurité sociale; 3. de la loi modifiée du 25 mars 2015 fixant le régime des traitements et les conditions et modalités d'avancement des fonctionnaires de l'État.

Mémorial A779 (2023). Règlement interne du Gouvernement.

Mémorial A909 (2019). Règlement grand-ducal du 6 décembre 2019 précisant les modalités et conditions de mise en place du dossier de soins partagé.

Ministère de la Famille (2023). Rapport d'activité 2022 (text).

Ministère de l'Agriculture (2020). Luxembourgish Agriculture Facts and Figures 2020. Luxembourg City, Ministère de l'Agriculture, de la Viticulture et du Développement rural.

Ministère de la Santé (2022). Rapport d'activité 2021 du ministère de la Santé (Rapport d'activités). Ministère de la Santé.

Ministère de la Santé, Ministère de la Sécurité Sociale (2010). Gesondheet fir jiddereen Fir méi Qualitéit an Effizient Sonderausgabe. InSight SantéSécu.

Ministère de la Santé, Ministère de la Sécurité Sociale (2017). Etude du fonctionnement des services d'urgence-Volet I. Luxembourg.

Ministère de la Sécurité Sociale, Conseil scientifique du domaine de la santé (2021). Le Conseil scientifique du domaine de la santé lance une campagne de promotion et de sensibilisation vers le corps médical et soignant et vers les patients. Gouv. Luxemb. (http://gouvernement.lu/fr/actualites/toutes_actualites/communiques/2021/11-novembre/10-cs-campagne-sensibilisation.html, accessed 6 October 23).

Ministère de la Sécurité Sociale, Ministère de la Famille, Ministère de la Santé (n.d.). Guide des soins palliatifs. (https://sante.public.lu/dam-assets/fr/publications/g/guide-soins-palliatifs-fr-de-pt/guide-soins-palliatifs-fr.pdf, accessed 26 June 2024).

Ministére de l'Égalité (2024). Observatoire de l'Egalité. (https://observatoire-egalite.lu, accessed 26 June 2024).

Moran V et al. (2021). Investigating unmet need for healthcare using the European Health Interview Survey: a cross-sectional survey study of Luxembourg. *BMJ Open*, 11:e048860. (https://doi.org/10.1136/bmjopen-2021-048860).

ObSanté (2023). Atelier organisé par l'Observatoire national de la Santé avec les parties prenantes du système de santé sur le thème: "Évaluation du système de soins de santé – Gouvernance du Système de Santé". Strasse, ObSanté.

ObSanté (2024). Carte sanitaire – Edition 2023 – Document principal. (https://sante.public.lu/fr/publications/c/carte-sanitaire-2023-document-principal.html, accessed 25 June 2024).

OECD (2017). *A System of Health Accounts 2011: Revised edition. Organisation for Economic Co-operation and Development.* Paris, OECD Publishing.

OECD (2020). *Waiting Times for Health Services: Next in Line, OECD Health Policy Studies*. Paris, OECD Publishing. (https://doi.org/10.1787/242e3c8c-en).

OECD (2021). *Health at a Glance 2021: OECD Indicators*. Paris, OECD Publishing. (https://doi.org/10.1787/ae3016b9-en).

OECD (2022). *Evaluation of Luxembourg's COVID-19 Response: Learning from the Crisis to increase Resilience*. Paris, OECD Publishing.

OECD (2023). *Health at a Glance 2023: OECD Indicators*. Paris, OECD Publishing. (https://doi.org/10.1787/7a7afb35-en).

OECD (2024a). OECD Data Explorer. (https://data-explorer.oecd.org/?lc=en, accessed 16 September 2024).

OECD (2024b). *OECD* (https://www.oecd.org/els/health-systems/health-data.htm).

OECD (2024c). *How do health system features influence health system performance? Preliminary results*. Paris, OECD Publishing.

OECD/European Union (2020). *Health at a Glance: Europe 2020: State of Health in the EU Cycle*. Paris, OECD Publishing. (https://doi.org/10.1787/82129230-en).

OECD/European Observatory on Health Systems and Policies (2017). *Luxembourg: Country Health Profile 2017, State of Health in the EU*. Paris, OECD Publishing; Copenhagen, WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies.

OECD/European Observatory on Health Systems and Policies (2019). *Luxembourg: Country Health Profile 2019, State of Health in the EU*. Paris, OECD Publishing; Copenhagen, WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies.

OECD/European Observatory on Health Systems and Policies (2023). *Luxembourg: Country health profile 2023, State of Health in the EU*. Paris, OECD Publishing; Copenhagen, WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies.

OECD/Eurostat/WHO (2023). A System of Health Accounts – Metadata. (https://stats.oecd.org/fileview2.aspx?IDFile=37fdaa2f-174a-426a-a71e-4b7ead151ec6, accessed 24 June 2024).

OECD/UCLG (2016). *Regional policy profile Luxembourg*. Paris, OECD Publishing.

ONA (2022). Tout savoir sur l'accueil des demandeurs et bénéficiaires de protection internationale (DPI/BPI) dans les communes. (https://ona.gouvernement.lu/fr/coordination-et-cooperation/communes/tout-savoir-accueil-DPI-BPI-communes.html, accessed 25 June 204).

Pivot D, Leite S (2018). Enquête de couverture vaccinale 2018 au Grand-Duché de Luxembourg.

Rausch K (2021). La Documentation Hospitalière analysée à l'aide de clustering (Report / Study / Analysis). Luxembourg, General Inspectorate of Social Security.

Rössler W, Koch U (2005). Psychiatrie Luxembourg Planungsstudie 2005 Bestandeserhebung und Empfehlungen. (https://sante.public.lu/dam-assets/fr/publications/r/rapport-rossler-psychiatrie-lux-planungsstudie-2005-bestandaufnahme/rapport-rossler-psychiatrie-lux-planungsstudie-2005-bestandaufnahme.pdf, 26 June 2024).

Saleh S, Abad D, Weiss J (2023). Statistiques des causes de décès au Luxembourg pour l'année 2021. Direction de la santé, Luxembourg.

Sante.lu (2014). Le médecin référent : un PLUS pour ma santé. (http://sante.public.lu/fr/publications/m/medecin-referent-fr-de-pt-pt.html, accessed 26 June 2024).

Sante.lu (2022a). Réseaux de Compétences au Grand-Duché de Luxembourg. (http://sante.public.lu/fr/espace-professionnel/exposes/reseaux-de-competences-luxembourg-2019.html, accessed 24 June 2024).

Sante.lu (2022b). Le Dossier de Soins Partagé (DSP). (http://sante.public.lu/fr/publications/d/dossier-soins-partage-flyer.html, accessed 26 June 2024).

Sante.lu (2023a). Tests de dépistage. (http://sante.public.lu/fr/espace-citoyen/dossiers-thematiques/p/petite-enfance/tests-depistage.html, accessed 26 June 2024).

Sante.lu (2023b). Plans nationaux. (http://sante.public.lu/fr/espace-professionnel/plans-nationaux.html, accessed 26 June 2024).

Sante.lu (2024a). Radioprotection. (http://sante.public.lu/fr/espace-professionnel/domaines/radioprotection.html, accessed 24 June 2024).

Sante.lu (2024b). Dispositifs médicaux. (http://sante.public.lu/fr/espace-professionnel/domaines/pharmacies-et-medicaments/dispositifs-medicaux.html, accessed 28 August 2024).

Sante.lu (2024c). Carte de vaccination : Certificat international de vaccination. (http://sante.public.lu/fr/espace-citoyen/dossiers-thematiques/v/vaccination/carte-vaccination.html, accessed 26 June 2024).

Sante.lu (2024d). Surveillance des vaccinations. (http://sante.public.lu/fr/espace-citoyen/dossiers-thematiques/v/vaccination/surveillance-vaccination.html, accessed 26 June 2024).

Schwebag M, Nys H (2024). Luxembourg. In: Nys H (ed.) *IEL Medical Law*. Amsterdam, Kluwer Law International BV; pp. 1–205.

Service de Santé au Travail (n.d.) Accueil | STM. (https://www.stm.lu/fr, accessed 25 June 2024).

Seuring T, Ducomble T, Berthet F (2024). *Eng gesond Zukunft : un rapport sur la santé des enfants au Luxembourg*. Luxembourg City, Observatoire national de la santé, Ministère de la santé, Luxembourg.

SIP (2022). *About… Languages in Luxembourg*. (https://sip.gouvernement.lu/en/publications/minist-etat/sip/brochure/a-propos/A_propos_Langues.html, accessed 20 June 2024).

Spruit G, Hohmann J (2014). *Analytical support on social protection reforms and their socio-economic impact country document. Update 2014. Pensions, health and long-term care: Luxembourg*. Brussels, European Commission.

STATEC (2022a). Luxembourg: Rapport travail et cohésion sociale 2022. (https://migrant-integration.ec.europa.eu/library-document/luxembourg-rapport-travail-et-cohesion-sociale-2022_fr, accessed 20 June 2024).

STATEC (2022b). La démographie luxembourgeoise en chiffres – Édition 2022. Institut national de la statistique et des études économiques.

STATEC (2023a). Linguistic diversity. (http://statistiques.public.lu/en/recensement/diversite-linguistique.html, accessed 25 June 2024).

STATEC (2023b). Net recul des pratiques religieuses et montée des spiritualités alternatives au Luxembourg (No. 03), Regards. STATEC.

STATEC (2023c). Le Luxembourg en chiffres Edition 2023. (https://statistiques.public.lu/dam-assets/catalogue-publications/luxembourg-en-chiffres/2023/luxembourg-en-chiffres-2023.pdf, accessed 15 October 2024).

STATEC (2024). Panorama sur le monde du travail luxembourgeois à l'occasion du 1er Mai (No. Regards 07/24). (http://statistiques.public.lu/fr/publications/series/regards/2024/regards-07-24.html, accessed 27 August 2024).

STATEC (n.d.a). LUSTAT Data Explorer – Population by canton and municipality. (https://lustat.statec.lu/vis?lc=en&pg=0&tm=population%20by%20municipality&df[ds]=ds-release&df[id]=DF_X021&df[ag]=LU1&df[vs]=1.1&pd=2024%2C&dq=A.&vw=tb, accessed 26 August 2024a).

STATEC (n.d.b). LUSTAT Data Explorer – Population par sexe et par nationalité au 1er janvier (x 1 000). (https://lustat.statec.lu/vis?fs[0]=Th%C3%A8mes%2C1%7CPopulation%20et%20emploi%23B%23%7CEtat%20de%20la%20population%23B1%23&fs[1]=Population%2C0%7CLuxembourg%23L02%23&pg=0&fc=Population&df[ds]=ds-release&df[id]=DF_B1101&df[ag]=LU1&df[vs]=1.0&pd=2013%2C2023&dq=A.L02, accessed 26 August 2024b).

Statistiques.lu (2018). Concessions de pharmacies et pharmaciens. (https://lustat.statec.lu/vis?fs[0]=Th%C3%A8mes%2C1%7CConditions%20sociales%23C%23%7CSant%C3%A9%23C3%23&pg=0&fc=Th%C3%A8mes&df[ds]=ds-release&df[id]=DF_C3109&df[ag]=LU1&df[vs]=1.0&pd=2015%2C2018&dq=A, accessed 25 June 2024)

Statistiques.lu (n.d.). LUSTAT. Labour market overview (in 1 000 persons) (https://lustat.statec.lu/vis?pg=0&df[ds]=ds-release&df[id]=DF_B3100&df[ag]=LU1&df[vs]=1.0&pd=2015%2C2022&dq=A.&lc=en, accessed 24 June 2024).

Sterba J (2018). Publique n° 922 Pour le tiers payant chez les médecins. (https://www.petitions.lu/petition/922?cHash=4fca674952b191aa3b66b0ec5ea84ee0, accessed 26 June 2024).

UNÉDIC (2022). *L'indemnisation du chômage au Luxembourg*. Paris, UNÉDIC.

Weber G et al. (2022). Surveillance de la Santé Périnatale 2017–2019 au Luxembourg. Luxembourg City, Direction de la Santé, Luxembourg Institute of Health (LIH).

WHO (2021). *Comprehensive Mental Health Action Plan 2013–2030*. Geneva, World Health Organization.

WHO (2024). Global Health Expenditure Database. (https://apps.who.int/nha/database, accessed 16 September 2024).

WHO GIS Centre for Health (2024). *Map of Luxembourg and population distribution*. Geneva, World Health Organization.

WHO/PEPFAR/UNAIDS (2007). Task shifting: rational redistribution of tasks among health workforce teams: global recommendations and guidelines. Geneva, World Health Organization.

WHO Regional Office for Europe (2023). *Can people afford to pay for health care? Evidence on financial protection in 40 countries in Europe: summary*. Copenhagen, WHO Regional Office for Europe.

Wolter M et al. (2015). Deuxième rapport relatif à l’application de la loi du 16 mars 2009 relative aux soins palliatifs, à la directive anticipée et à l’accompagnement en fin de vie. Luxembourg, Ministère de la Santé, Ministère de la Famille, de l’Intégration et à la Grande Région, Ministère de la Sécurité Sociale.

World Bank Group (2024). World Bank Open Data. (https://data.worldbank.org, accessed 16 September 2024).

Zahlen M (2019). Unklarheiten bei Abrechnungen: Das Tarif-Spiel der Ärzte. Reporter.lu. (https://www.reporter.lu/unklarheiten-bei-abrechnungen-das-tarif-spiel-der-aerzte/, accessed 14 October 2024).

9.2 Useful web sites

Ministry of Health and Social Security
https://m3s.gouvernement.lu/fr.html

National health insurance
https://cns.public.lu/en.html

Luxembourg portal for information and services in health and care
https://cns.public.lu/en.html

National information and mediation service
https://mediateursante.public.lu/fr.html

National health observatory
https://sante.public.lu/fr/espace-obsante.html

General Inspectorate of Social Security
https://igss.gouvernement.lu/en/service.html

Information system website for social protection and health (ISOG)
https://igss.gouvernement.lu/fr/statistiques.html

9.3 HiT Methodolgy and production process

HiTs are produced by country experts in collaboration with the Observatory's research directors and staff. They are based on a template that, revised periodically, provides detailed guidelines and specific questions, definitions, suggestions for data sources and examples needed to compile reviews. While the template offers a comprehensive set of questions, it is intended to be used in a flexible way to allow authors and editors to adapt it to their particular national context. The most recent template is available online at: https://eurohealthobservatory.who.int/publications/i/health-systems-in-transition-template-for-authors.

Authors draw on multiple data sources for the compilation of HiTs, ranging from national statistics, national and regional policy documents to published literature. Furthermore, international data sources may be incorporated, such as those of the OECD and the World Bank. The OECD Health Data contain over 1200 indicators for the 34 OECD countries. Data are drawn from information collected by national statistical bureau and health ministries. The World Bank provides World Development Indicators, which also rely on official sources.

In addition to the information and data provided by the country experts, the Observatory supplies quantitative data in the form of a set of standard comparative figures for each country, drawing on the European Health for All database. The Health for All database contains more than 600 indicators defined by the WHO Regional Office for Europe for the purpose of monitoring Health in All policies in Europe. It is updated for distribution twice a year from various sources, relying largely upon official figures provided by governments, as well as health statistics collected by the technical units of the WHO Regional Office for Europe. The standard Health for All data have been officially approved by the states. In the summer 2007 edition, the Health for All database started to take account of the enlarged EU of 27 Member States.

HiT authors are encouraged to discuss the data in the text in detail,

including the standard figures prepared by the Observatory staff, especially if there are concerns about discrepancies between the data available from different sources. A typical HiT consists of nine chapters.

- *Introduction*: outlines the broader context of the health system, including geography and sociodemography, economic and political context and population health.
- *Organization and governance*: provides an overview of how the health system in the country is organized, governed, planned and regulated, as well as the historical background of the system; outlines the main actors and their decision-making powers; and describes the level of patient empowerment in the areas of information, choice, rights, complaints procedures, public participation and cross-border health care.
- *Financing*: provides information on the level of expenditure and the distribution of health spending across different service areas, sources of revenue, how resources are pooled and allocated, who is covered, what benefits are covered, the extent of user charges and other OOP payments, VHI and how providers are paid.
- *Physical and human resources*: deals with the planning and distribution of capital stock and investments, infrastructure and medical equipment; the context in which IT systems operate; and human resource input into the health system, including information on workforce trends, professional mobility, training and career paths.
- *Provision of services*: concentrates on the organization and delivery of services and patient flows, addressing public health, primary care, secondary and tertiary care, day care, emergency care, pharmaceutical care, rehabilitation, long-term care, services for informal carers, palliative care, mental health care, dental care, complementary and alternative medicine, and health services for specific populations.
- *Principal health reforms*: reviews reforms, policies and organizational changes; and provides an overview of future developments.
- *Assessment of the health system*: provides an assessment based on the stated objectives of the health system, financial protection and equity in financing; user experience and equity of access to health care; health outcomes, health service outcomes and quality of care; health system efficiency; and transparency and accountability.

- *Conclusions*: identifies key findings, highlights the lessons learned from health system changes; and summarizes remaining challenges and future prospects.
- *Appendices*: includes references, useful websites and legislation.

The quality of HiTs is of real importance because they inform policy-making and meta-analysis. HiTs are the subject of wide consultation throughout the writing and editing process, which involves multiple iterations. They are then subject to the following.

- A rigorous review process.
- There are further efforts to ensure quality while the report is finalized that focus on copy-editing and proofreading.
- HiTs are disseminated (hard copies, electronic publication, translations and launches). The editor supports the authors throughout the production process and in close consultation with the authors ensures that all stages of the process are taken forward as effectively as possible.

Two authors are also members of the Observatory staff team and are responsible for supporting the other authors throughout the writing and production process. They consult closely with each other to ensure that all stages of the process are as effective as possible and that HiTs meet the series standard and can support both national decision-making and comparisons across countries.

9.4 About the authors

Katharina Rausch (MA) is a thematic expert at the National Health Observatory, where she is helping to establish the foundation for analysing and assessing health care systems. With a background in health data analysis, she aims to contribute to evaluating health care policies, system performance and public health outcomes.

Catherine Goetzinger (PhD) is a thematic expert at the National Health Observatory. Her work focuses on analysing health care quality, identifying new national health quality indicators, and overseeing their implementation. She also co-leads the development of a national methodology to evaluate the health workforce.

Anne-Charlotte Lorcy (MA) is the general coordinator at the National Health Observatory. She contributed to the establishment of the National Health Observatory and has over 15 years of experience in the health sector, particularly in conducting analyses of health services.

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Juliane Winkelmann (PhD) is a Technical Officer at the European Observatory on Health Systems and Policies, based in Brussels. She is an author and editor of Health System Reviews (HiTs), policy briefs and Observatory studies and supports the State of Health in the EU programme and the Health Systems in Action Insights.

Michelle Falkenbach (PhD) is a Technical Officer at the European Observatory on Health Systems and Policies, based in Brussels. She supports the Observatory's analytical pillar on governance and contributes to knowledge-brokering through a range of activities including reports, policy briefs and webinars.

Health Systems in Transition Series

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The Health Systems in Transition (HiT) country reports provide an analytical description of each health system and of reform initiatives in progress or under development. They aim to provide relevant comparative information to support policy-makers and analysts in the development of health systems and reforms in the countries of the WHO European Region and beyond.

The HiTs are building blocks that can be used:

- to learn in detail about different approaches to the financing, organization and delivery of health services;
- to describe accurately the process, content and implementation of health reform programmes;
- to highlight common challenges and areas that require more in-depth analysis; and
- to provide a tool for the dissemination of information on health systems and the exchange of experiences of reform strategies between policymakers and analysts in countries of the WHO European Region.

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HiT Country Reviews Published to Date

Albania
(1999, 2002[a g])

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(2004)

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(2001[g], 2006, 2013)

Australia
(2002, 2006)

Austria
(2001[e], 2006[e], 2013[e], 2018)

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Turkmenistan
(2000)

Ukraine
(2004[g], 2010[g], 2015)

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(2011)

United Kingdom (Northern Ireland)
(2012)

United Kingdom (Scotland)
(2012)

United Kingdom (Wales)
(2012)

United States of America
(2013, 2020)

Uzbekistan
(2001[g], 2007[g], 2014[g])

Veneto Region, Italy
(2012)

All HiTs are available in English.

When noted, they are also available in other languages:

- a Albanian
- b Bulgarian
- j Estonian
- c French
- d Georgian
- e German
- k Polish
- f Romanian
- g Russian
- h Spanish
- i Turkish

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The Observatory is a partnership, hosted by WHO Regional Office for Europe, which includes other international organizations (the European Commission); national and regional governments (Austria, Belgium, Finland, Ireland, Netherlands, Norway, Slovenia, Spain, Sweden, Switzerland, the United Kingdom and the Veneto Region of Italy (with Agenas)); other health system organizations (the French National Union of Health Insurance Funds (UNCAM), the Health Foundation); and academia (the London School of Economics and Political Science (LSE) and the London School of Hygiene & Tropical Medicine (LSHTM)). The Observatory has a secretariat in Brussels and it has hubs in London (at LSE and LSHTM) and at the Berlin University of Technology.

HiTs are in-depth profiles of health systems and policies, produced using a standardized approach that allows comparison across countries. They provide facts, figures and analysis and highlight reform initiatives in progress.

Print ISSN 1817-6119 Vol. 26 No. 4, ISBN 978 9 2890 1436 6 Web 1817-6127 Vol. 26 No. 4, ISBN 978 9 2890 1435 9