



State of Health in the EU

Luxembourg

Country Health Profile 2021

The Country Health Profile series

The State of Health in the EU's Country Health Profiles provide a concise and policy-relevant overview of health and health systems in the EU/European Economic Area. They emphasise the particular characteristics and challenges in each country against a backdrop of cross-country comparisons. The aim is to support policymakers and influencers with a means for mutual learning and voluntary exchange.

The profiles are the joint work of the OECD and the European Observatory on Health Systems and Policies, in cooperation with the European Commission. The team is grateful for the valuable comments and suggestions provided by the Health Systems and Policy Monitor network, the OECD Health Committee and the EU Expert Group on Health Systems Performance Assessment (HSPA).

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Data and information sources

The data and information in the Country Health Profiles are based mainly on national official statistics provided to Eurostat and the OECD, which were validated to ensure the highest standards of data comparability. The sources and methods underlying these data are available in the Eurostat database and the OECD health database. Some additional data also come from the Institute for Health Metrics and Evaluation (IHME), the European Centre for Disease Prevention and Control (ECDC), the Health Behaviour in School-Aged Children

(HBSC) surveys and the World Health Organization (WHO), as well as other national sources.

The calculated EU averages are weighted averages of the 27 Member States unless otherwise noted. These EU averages do not include Iceland and Norway.

This profile was completed in September 2021, based on data available at the end of August 2021.

Demographic and socioeconomic context in Luxembourg, 2020

Demographic factors	Luxembourg	EU
Population size (mid-year estimates)	626 108	447 319 916
Share of population over age 65 (%)	14.5	20.6
Fertility rate ¹ (2019)	1.3	1.5
Socioeconomic factors		
GDP per capita (EUR PPP ²)	79 223	29 801
Relative poverty rate ³ (% , 2019)	17.5	16.5
Unemployment rate (%)	6.8	7.1

1. Number of children born per woman aged 15-49. 2. Purchasing power parity (PPP) is defined as the rate of currency conversion that equalises the purchasing power of different currencies by eliminating the differences in price levels between countries. 3. Percentage of persons living with less than 60 % of median equivalised disposable income. Source: Eurostat database.

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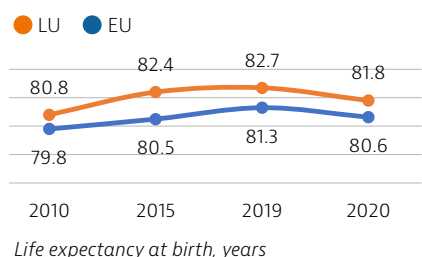
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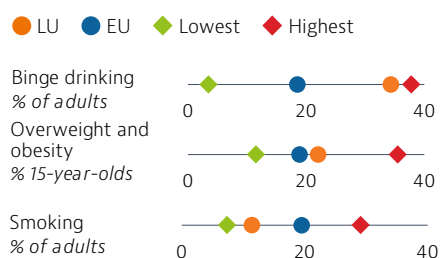
1 Highlights

Luxembourg has seen a continuous increase in life expectancy up to 2019, but there was a significant fall in 2020 because of deaths due to COVID-19. Behavioural risk factors contribute to more than one third of all deaths, with high alcohol consumption and growing obesity rates of particular concern. Luxembourg's population enjoys good access to health care, with a broad benefits package and low out-of-pocket payments. Luxembourg reacted rapidly to the COVID-19 pandemic with implementation of a large-scale testing strategy, teleconsultations, a national reserve of health professionals and a reorganisation of primary care.



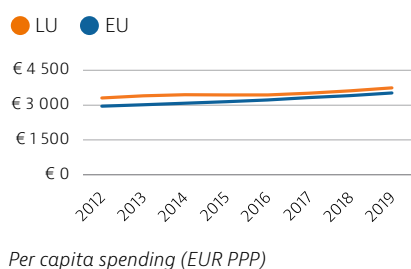
Health Status

Life expectancy at birth in Luxembourg increased by nearly two years between 2010 and 2019. Although it then fell by nearly one year in 2020 during the COVID-19 pandemic, it is still above the EU-wide average. Despite reductions in ischaemic health disease and stroke rates, they remain the leading causes of death, along with lung cancer.



Risk factors

Behavioural risk factors – especially poor nutrition, smoking, physical inactivity and alcohol consumption – are major drivers of morbidity and mortality in Luxembourg. One in three adults report binge drinking behaviour, which is the third highest rate in the EU. Overweight and obesity levels and physical inactivity among 15-year-olds are above the EU average. On a more positive note, smoking levels have declined since 2001 for both adults and adolescents.

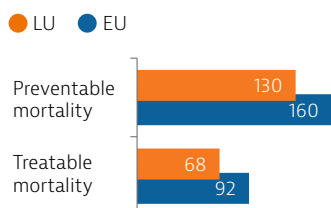


Health system

In 2019, Luxembourg spent EUR 3 742 per capita on health (adjusted for purchasing power parity), which is relatively high compared to the EU average of EUR 3 523. The public share of total health spending (85 %) was also above the EU average. In 2020, public spending on health increased sharply in response to the COVID-19 pandemic.

Effectiveness

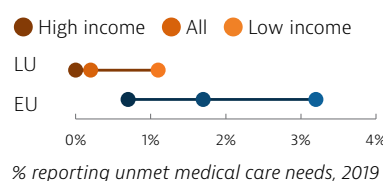
Preventable mortality is lower than the EU average, reflecting the effectiveness of prevention policies. Treatable causes of mortality are also low, indicating that the health system provides effective primary and acute care for potentially fatal conditions.



Age-standardised mortality rate per 100 000 population, 2018

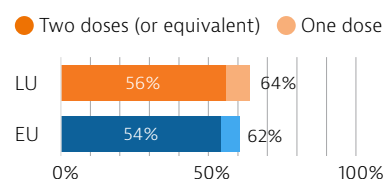
Accessibility

Coverage of health services in Luxembourg is generally good, and unmet needs for care are among the lowest in the EU. However, during the first 12 months of the COVID-19 pandemic, one in five people reported forgoing medical care – slightly lower than the EU average. Growing use of teleconsultations helped to maintain access to care during the various waves of the pandemic.



Resilience

Luxembourg responded rapidly to the pandemic, and set up various measures such as large-scale testing and effective contact tracing. The vaccination campaign was rolled out in six phases. As of the end of August 2021, 56 % of the population had received two doses of COVID-19 vaccine (or equivalent).



Share of total population vaccinated against COVID-19 up to the end of August 2021

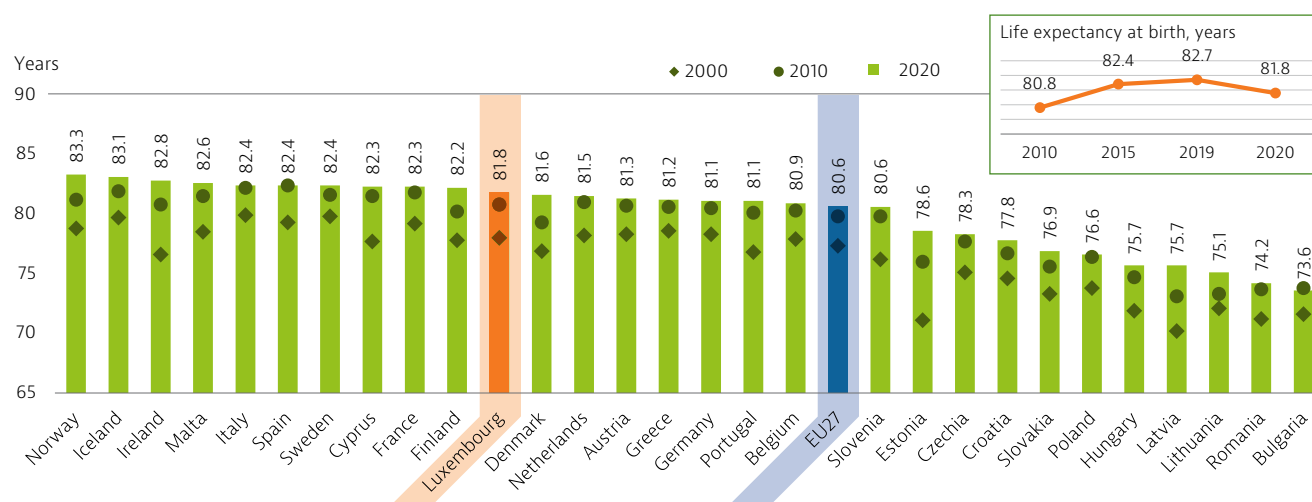
2 Health in Luxembourg

Life expectancy in Luxembourg is relatively high, but COVID-19 had an important impact in 2020

In 2020, life expectancy at birth in Luxembourg stood at 81.8 years, over one year higher than the EU average, but below other EU countries such as Ireland, Malta and Italy (Figure 1). Life expectancy increased

from 80.8 to 82.7 years between 2010 and 2019, but following the outbreak of the COVID-19 pandemic, it fell temporarily by 11 and a half months in 2020 compared to the average in the EU of nearly 8 months. The gender gap in life expectancy was an estimated 4.8 years in 2020, which is smaller than the EU average of 5.6 years.

Figure 1. Life expectancy in Luxembourg is still well above the EU average

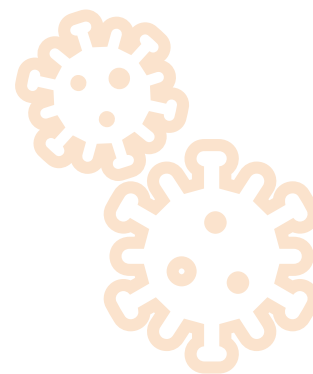


Note: The EU average is weighted. Data for Ireland refer to 2019.
Source: Eurostat Database.

Circulatory diseases and lung cancer are the main causes of mortality, along with COVID-19

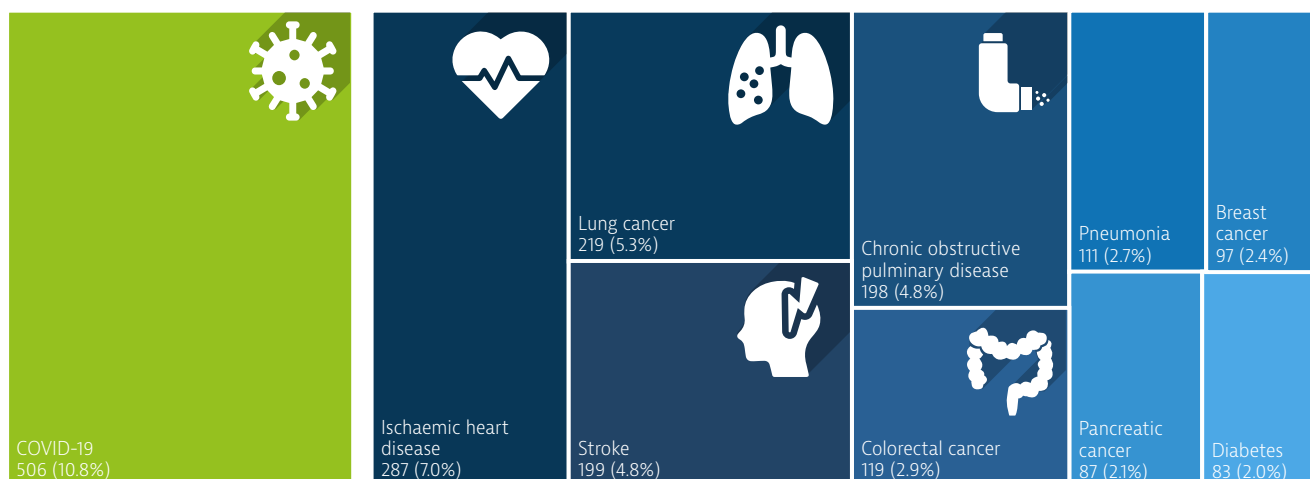
Circulatory diseases account for almost 30 % of all deaths in Luxembourg, followed by cancer (26 %). Looking at more specific diseases, ischaemic heart disease was the leading cause of mortality in 2019, accounting for 7 % of all deaths, followed by lung cancer (5.3 %), which remained the most frequent cause of death by cancer, and stroke (4.8 %) (Figure 2). Over the last decade, Luxembourg's death rates have been falling for nearly all causes. The increase in life expectancy until 2019 resulted in particular from a reduction in premature deaths from circulatory and cerebrovascular diseases, as well as a decrease in the number of suicides and road traffic accidents. In contrast, mortality rates for breast cancer, chronic obstructive pulmonary disease (COPD), diabetes and Alzheimer's and other dementias remained roughly at the same level during this period.

In 2020, COVID-19 accounted for about 500 deaths in Luxembourg (11 % of all deaths). An additional 330 deaths were registered by the end of August 2021. Most deaths occurred among older people (see Section 5.3). The mortality rate from COVID-19¹ up to the end of August 2021 was about 17 % lower in Luxembourg than the average across EU countries (about 1 325 per million population compared with about 1 590).



1. Includes deaths with and from COVID-19 in all settings (hospitals, nursing homes and at home).

Figure 2. In 2020, COVID-19 accounted for a significant share of deaths



Note: The number and share of COVID-19 deaths refer to 2020, while the number and share of other causes refer to 2019. The size of the COVID-19 box is proportional to the size of the other main causes of death in 2019.

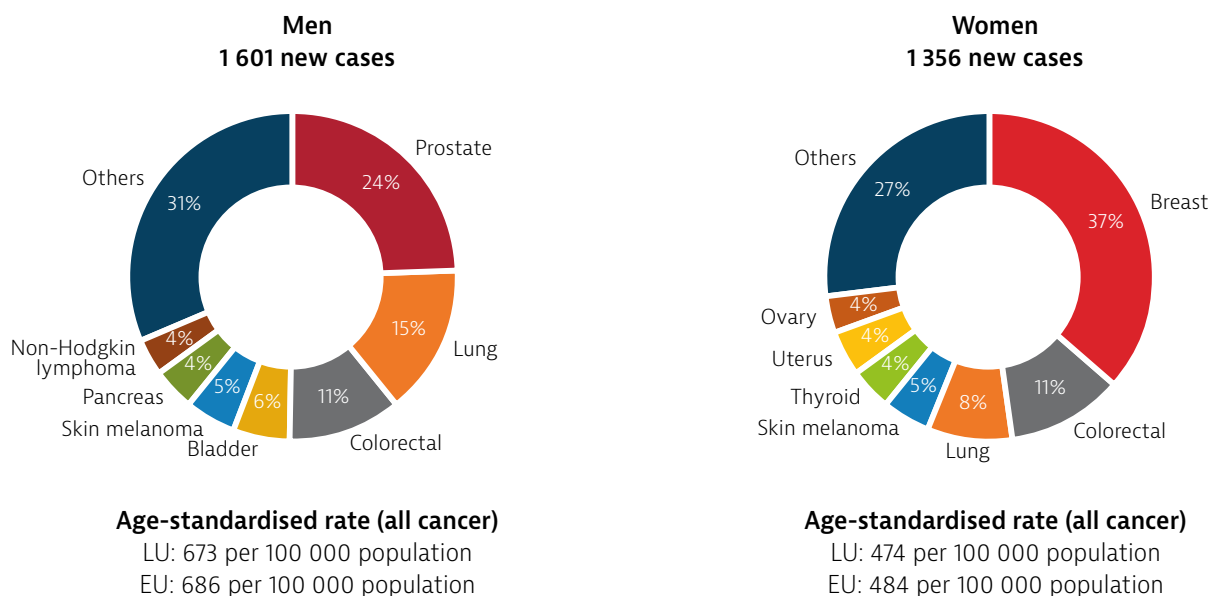
Sources: Eurostat (for causes of death in 2019); ECDC (for COVID-19 deaths in 2020, up to week 53).

Prostate and breast cancers are the most diagnosed cancers in Luxembourg

According to estimates from the Joint Research Centre based on incidence trends from previous years, around 3 000 new cases of cancer were expected in Luxembourg in 2020². The age-standardised incidence

rates for all cancer types were expected to be lower than the EU averages for both men and women. Figure 3 shows that the main cancer sites among men are prostate (24 %), lung (15 %) and colorectal (11 %), while among women breast cancer is the leading cancer (37 %), followed by colorectal (11 %) and lung cancer (8 %).

Figure 3. Nearly 3 000 people in Luxembourg were estimated to have cancer in 2020



Note: Non-melanoma skin cancer is excluded. Uterus cancer does not include cancer of the cervix.
 Source: ECIS – European Cancer Information System.

2. It should be noted that these estimates were made before the COVID-19 pandemic; this may have an effect on cancer incidence during 2020.

3 Risk factors

Behavioural risk factors are a major driver of mortality

More than one third of all deaths in Luxembourg in 2019 can be attributed to behavioural risk factors, such as tobacco smoking, dietary risks, alcohol consumption and low physical activity, while environmental issues like air pollution also contribute to a sizeable number of deaths from circulatory diseases, respiratory diseases and some types of cancer (Figure 4). About 17 % of all deaths were due to

tobacco smoking (including direct and second-hand smoking), a share similar to the EU average. Dietary risks (including low fruit and vegetable intake, and high sugar and salt consumption) are estimated to account for about 13 % of all deaths in Luxembourg. About 7 % of all deaths can be attributed to alcohol consumption, while about 2 % are related to low physical activity. Air pollution in the form of fine particulate matter (PM_{2.5}) and ozone exposure alone accounted for about 2 % of all deaths in 2019.

Figure 4. Tobacco, dietary risks and alcohol are major contributors to mortality in Luxembourg



Note: The overall number of deaths related to these risk factors is lower than the sum of each one taken individually, because the same death can be attributed to more than one risk factor. Dietary risks include 14 components such as low fruit and vegetables diet, high sugar-sweetened beverages consumption. Air pollution refers to exposure to PM_{2.5} and ozone.

Sources: IHME (2020), Global Health Data Exchange (estimates refer to 2019).

Poor nutrition and low physical activity contribute to rising obesity among adolescents

About one in six adults reported being obese in 2019 – a rate equal to the EU average. More than one in five 15-year-olds were overweight or obese in Luxembourg in 2018 – a higher proportion than in most EU countries, and a significant rise since 2006. Boys are more likely to be overweight or obese than girls.

In Luxembourg, as in other countries, poor nutrition is the main factor contributing to being overweight or obese. Fruit and vegetable consumption is less common than in most other EU countries, with only about 40 % of adults eating fruit or vegetables every day. Altogether about 65 % of 15-year-olds reported in 2018 that they did not eat any fruit or vegetables every day. Low physical activity also contributes to weight problems. Regular physical activity among adults is similar to the average among EU countries (63 % compared to a 64 % EU average). Among

adolescents, only one in eight (12 %) 15-year-olds reported doing at least moderate physical activity every day in 2018 – a lower proportion than the EU average (14 %).

Excessive alcohol consumption in adults is among the highest in the EU

Limited progress has been achieved in tackling excessive alcohol consumption, and it continues to be a major public health problem. Although, in general, alcohol consumption has declined slowly over the last two decades, the percentage of adults reporting heavy episodes of alcohol consumption (“binge drinking”³) is the third highest in the EU after Denmark and Romania, with more than one in three adults reporting such behaviour on a regular basis in 2019 (see Section 5.1). On a more positive note, only one in ten 15-year-olds reported having been drunk at least twice in their life in 2018 – the second lowest rate in the EU.

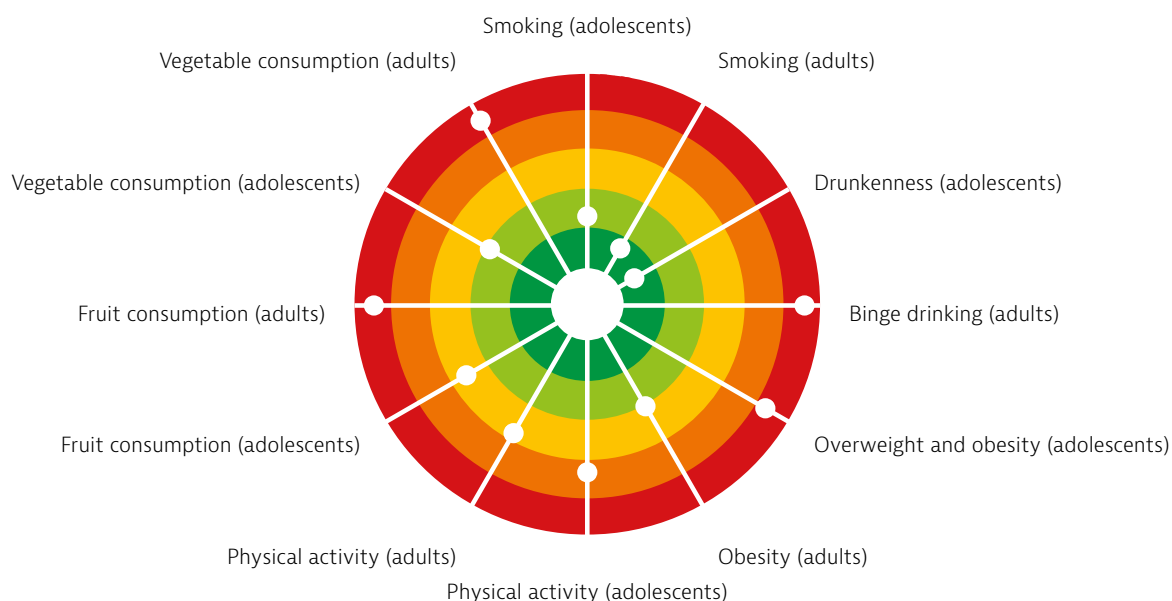
3. Binge drinking is defined as consuming six (five for Luxembourg) or more alcoholic drinks on a single occasion for adults.

Smoking among adults and teenagers has declined

The proportion of adults smoking on a daily basis has decreased in Luxembourg compared to 20 years ago. Only one in nine adults smoked daily in 2019, compared with over one in four in 2001⁴. Similarly, smoking rates among adolescents have decreased over the last decade: 13 % of 15-year-olds reported smoking in the past month in 2018, down from 21 % in 2013-14, and a lower proportion than in most EU

countries (and the EU average of 18 %) (Figure 5). Some of this decrease could be attributed in part to the anti-tobacco initiatives launched over the past few decades, such as the smoking ban in public places in 2006 (see Section 5.1). Although the smoking ban contributed to a reduction in socioeconomic inequalities in smoking (Tchicaya, Lorentz & Demarest, 2016), the difference between the lowest and highest income groups persists.

Figure 5. Rising child obesity and high alcohol consumption among adults are important public health issues



Note: The closer the dot is to the centre, the better the country performs compared to other EU countries. No country is in the white "target area" as there is room for progress in all countries in all areas.

Sources: OECD calculations based on HBSC survey 2017-18 for adolescents indicators; EU-SILC 2017 and EHIS 2019 for adults indicators.

4 The health system

The social health insurance system is administered by two ministries

Luxembourg operates a compulsory social health insurance (SHI) system. The responsibility for financing and purchasing of health services lies with the National Health Insurance Fund – Caisse Nationale de Santé (CNS) – which covers three schemes: health care, sickness leave and long-term care (LTC) insurance. Responsibility for health system governance is highly centralised and split between the Ministry of Social Security and the Ministry of Health. The latter develops health policy and oversees planning and regulatory functions, as well as

licensing of providers. Its Health Directorate oversees public health issues. The Ministry of Social Security supervises the public institutions funding health care, sickness leave and LTC. The Ministry of Family Affairs oversees LTC facilities, home care networks and care services for disabled people. During the COVID-19 pandemic, governance mechanisms were put in place to manage the crisis, with the Ministry of Health primarily in charge of coordinating the health system response (Box 1).

⁴ The results from the Luxembourg Cancer Foundation Survey show higher rates of daily smokers among adults (around 17 % in 2019 and 2020), with a slight increase over the past five years.

Box 1. An inter-ministerial crisis unit was established for the COVID-19 response

The High Commission for National Protection, under the remit of the Prime Minister and Minister of State is responsible for coordinating crisis management and planning the national protection plan, which state ministries, agencies and departments are required to implement. In addition, an inter-ministerial crisis unit was established in mid-March 2020 under the Minister of Health's direction to assess the situation continuously, take necessary measures and coordinate initiatives across ministries. Within the Ministry of Health, an internal crisis unit was quickly set up to analyse the situation in the country, set general response strategies and coordinate implementation of all measures related to the crisis. The crisis unit comprises 10 working groups that oversee and manage distinct areas (such as communication, surveillance, diagnostics and tracing, testing and primary care). This unit coordinates all efforts within hospitals, laboratories, primary care, pharmacies, nursing homes and care networks, as well as managing logistics, medical equipment, health workforce supply and crisis communication.

Source: COVID-19 Health Systems Response Monitor.

Luxembourg's health system scheme provides universal coverage

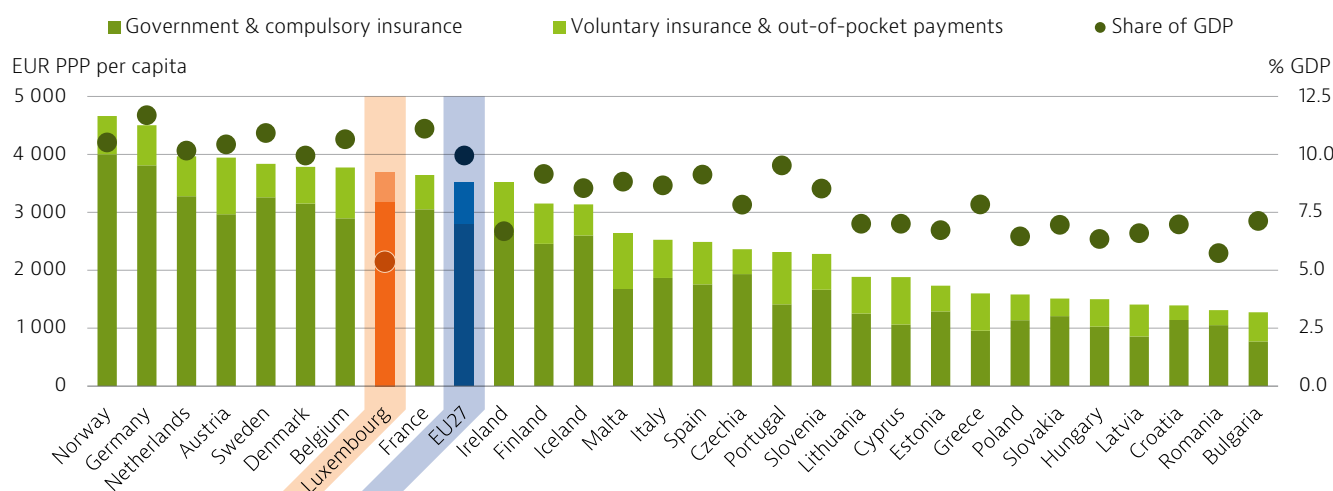
Luxembourg's SHI scheme is compulsory for everyone who is economically active or receiving social security payments from the state. It covers family members, including minors and students who have no other

health insurance coverage. The CNS's large reserves facilitate a broad benefits package (see Section 5.2). People who only work occasionally in Luxembourg (i.e. less than three months per calendar year) are exempt, but may choose to pay voluntary contributions. People working for European institutions or international organisations, who represent an important share of the population, are covered by their employers' health insurance schemes. Official data show that 100 % of the resident population are covered by health insurance; however, a few people are without coverage (see Section 5.2).

Health spending per capita is relatively high, and the share of public funding is above the EU average

Spending on health is high in Luxembourg. Health expenditure per capita stood at EUR 3 742 in 2019 (adjusted for differences in purchasing power) – about EUR 220 higher than the EU average (Figure 6). In contrast, Luxembourg spends only 5.4 % of its GDP on health, the lowest share in the EU (9.9 %). This statistic reflects Luxembourg's strong overall economic performance⁵. Public financing is based on a system of shared contributions: 40 % is paid by the state, and the rest is shared between the insured population and employers. Public expenditure accounts for 85 % of the total, a share that has increased since 2012 (82.8 %) and is above the EU average (79.7 %). Due to the very broad coverage of the SHI scheme, out-of-pocket (OOP) spending is low, at 9.6 % compared to EU average of 15.4 %. Complementary voluntary health insurance (VHI) represents only 4.1 % of health expenditure, although it is purchased by two thirds of the population.

Figure 6. Luxembourg is among the highest spenders on health per capita in the EU



Note: The EU average is weighted.

Source: OECD Health Statistics 2021 (data refer to 2019, except for Malta 2018).

5. A significant proportion of GDP in Luxembourg consist of profits from foreign-owned companies that are repatriated. Thus, gross national income may be a more meaningful measure for the capacity to pay for health care, but even that is not a true measure of the productive capacity of the domestic economy.

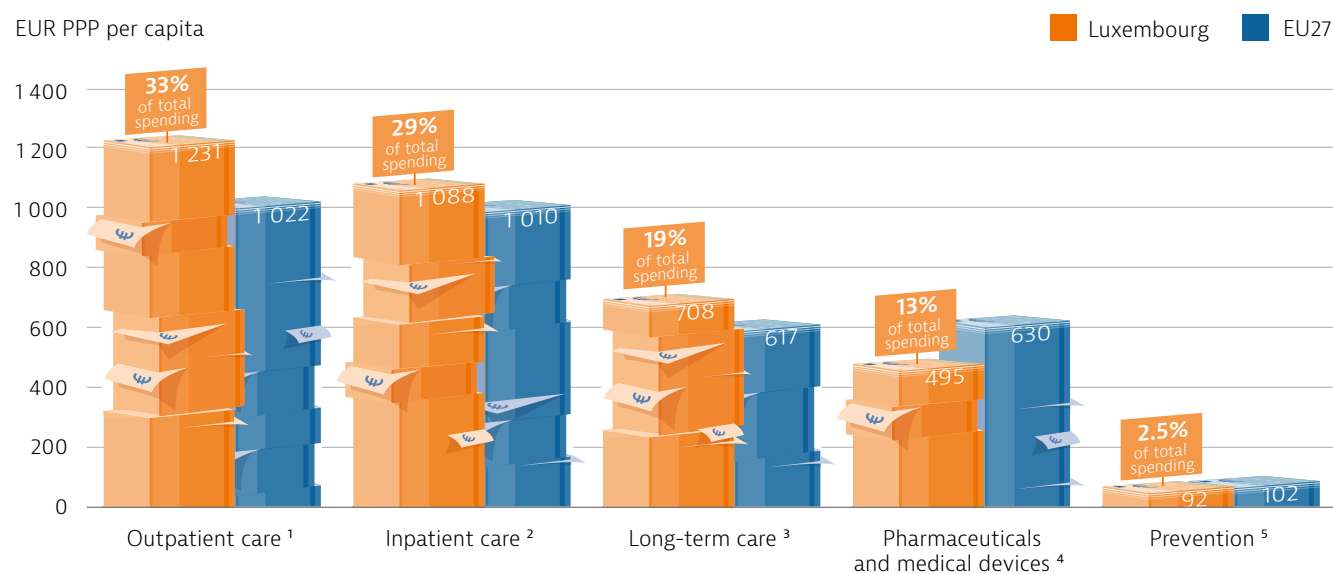
Spending on outpatient care has decreased, while spending on inpatient care has gone up

The largest category of health spending in Luxembourg is outpatient care (including home care) (Figure 7), which accounted for one third (32.9 %) of all health spending in 2019 and is above the EU average (29.5 %). Slightly less than one third (29.1 %) is spent on inpatient care, which is equal to the average in the EU as a whole. Despite the 2010 health reform law that aimed to contain rising health expenditure in hospital care and to strengthen primary care, the share of spending on inpatient care increased by 2.5 percentage points between 2010 and 2019, partly as a result of collective labour agreements in the hospital sector. Conversely, the share of outpatient care spending fell by 5.1 percentage points during the

same period. Spending in the other categories has remained fairly stable. Luxembourg spent slightly more on LTC per capita than the EU average (EUR 708 compared to EUR 617). However, per capita spending on pharmaceuticals, medical devices and prevention is lower than the EU averages (Figure 7).

In 2020, additional financial allocations of EUR 194 million were made to the health system as part of the government's COVID-19 fiscal package. Resources were used to create outpatient health centres for COVID-19 care, acquire medical equipment, boost testing capacities and to cover temporary accommodation expenses for cross-border health and social care workers who needed to stay in Luxembourg during the pandemic (see Sections 5.2 and 5.3).

Figure 7. Luxembourg spends more on outpatient, inpatient and long-term care than the EU averages



Note: The costs of health system administration are not included. 1. Includes home care and ancillary services (e.g. patient transportation); 2. Includes curative-rehabilitative care in hospital and other settings; 3. Includes only the health component; 4. Includes only the outpatient market; 5. Includes only spending for organised prevention programmes. The EU average is weighted. Sources: OECD Health Statistics 2021, Eurostat Database (data refer to 2019).

A substantial share of health services are provided outside Luxembourg

About one third of those covered by the CNS (35 %) are cross-border employees (who make up nearly half of Luxembourg's workforce). As these non-residents mostly seek health care in their country of residence, many health services covered by the CNS are provided outside Luxembourg – mainly in Germany, Belgium and France. In 2019, 8 677 patients (residents and non-residents) requested authorisation by the CNS for care outside Luxembourg, mainly for hospital treatment (45 %) and consultations and examinations (33 %). The costs for treatment in neighbouring countries accounted for 20 % of total health expenditure in 2019 (IGSS, 2021; CNS, 2020).

Patients in Luxembourg enjoy a free choice of providers and unrestricted access to all levels of care (general practitioners (GPs), specialists and hospitals). Hospital care is provided by four general and two specialised hospitals, with 4.3 hospital beds (and 3.3 acute care beds) per 1 000 population, which is below the EU average of 5.3 per 1 000 population. Hospital bed rates have declined steadily by 34 % since 2004, mostly due to population growth. Meanwhile, the average length of stay has increased by half a day since 2011 – up to 9.3 days in 2019, which is well above the European average (7.4 days). During the COVID-19 pandemic, Luxembourg's acute hospitals were required to postpone or cancel procedures and reorganise services to free up 270 acute beds and about 100 intensive care unit (ICU) beds for COVID-19

patients, which represented 13 % of Luxembourg's total acute bed capacity and two thirds of its intensive care capacity (see Section 5.3).

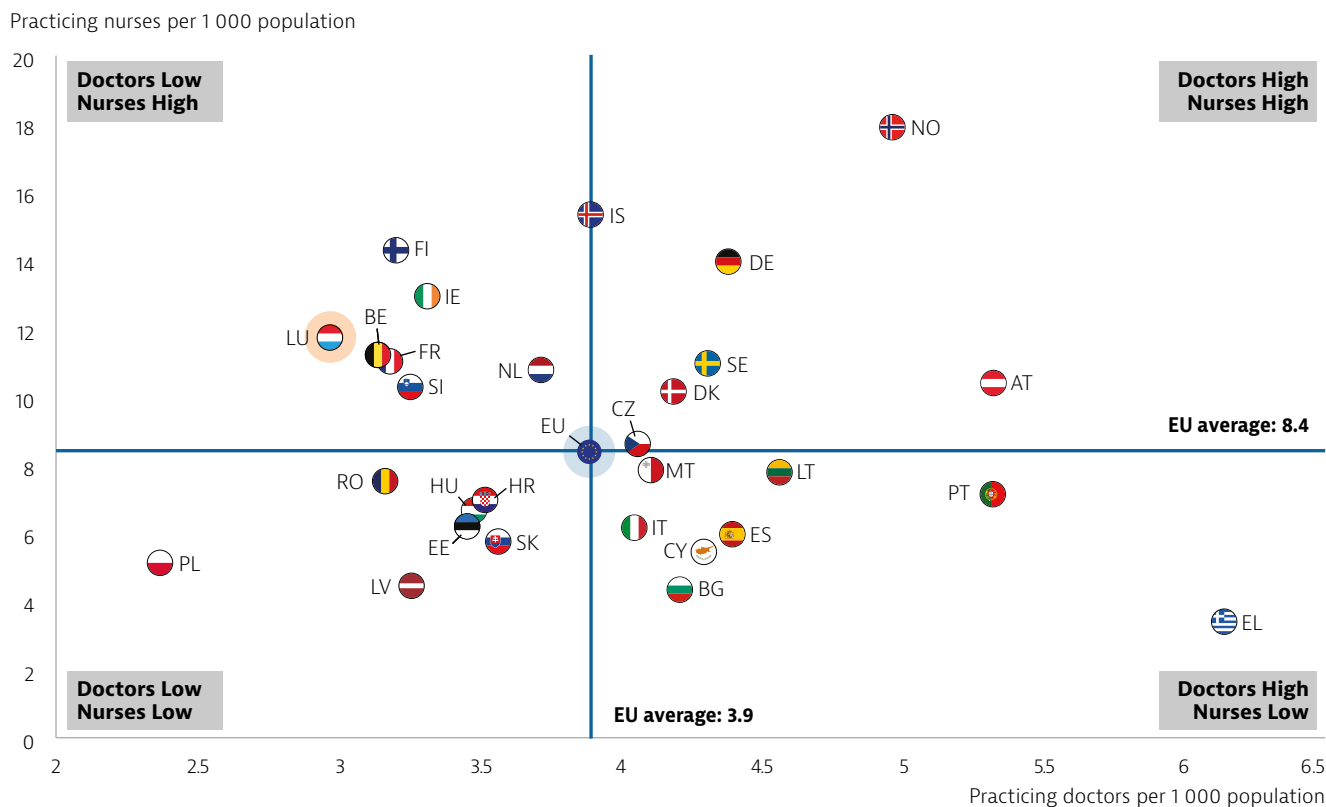
The COVID-19 pandemic stressed the challenge of Luxembourg's dependency on foreign health professionals

Luxembourg has the second lowest number of doctors in the EU, with approximately 3 physicians per 1 000 population in 2019 (compared to 3.9 across the EU; Figure 8) despite an increase of 39 % since 2000. The low density of doctors mostly relates to the absence of medical training in the country, which makes it dependent on foreign-trained doctors. The first national degree in general medicine started in 2021. The share of doctors living outside the country but practising in Luxembourg nearly doubled between 2008 and 2017 (from 15.6 % to 26.4 %), and only about

half of all practising doctors are national citizens of Luxembourg (IGSS, 2021). GPs account for about one third of physicians, which is higher than the EU average (21 %). The physician workforce is ageing: more than half of practising GPs (54.4 %) and nearly two third of specialists (60 %) were over the age of 50 in 2017 (Lair-Hillion, 2019) (see Section 5.2).

In contrast, the number of nurses in Luxembourg has increased continually over the last few years, and its density is one of the highest in the EU (approximately 11.7 compared to an EU average of 8.4 per 1 000). More than two thirds of practising nurses live in the neighbouring countries of France (29 %), Germany (24 %) and Belgium (12 %) (Lair-Hillion, 2019), but are attracted by higher remuneration and good working conditions in Luxembourg. This made Luxembourg particularly vulnerable to border closures during the first lockdown of the COVID-19 pandemic in 2020.

Figure 8. Luxembourg has sufficient nurses, owing to cross-border supply, but has very low numbers of physicians



Note: The EU average is unweighted. In Portugal and Greece, data refer to all doctors licensed to practise, resulting in a large overestimation of the number of practising doctors (e.g. of around 30 % in Portugal). In Greece, the number of nurses is underestimated as it only includes those working in hospitals. Source: Eurostat Database (data refer to 2019 or the nearest year).

5 Performance of the health system

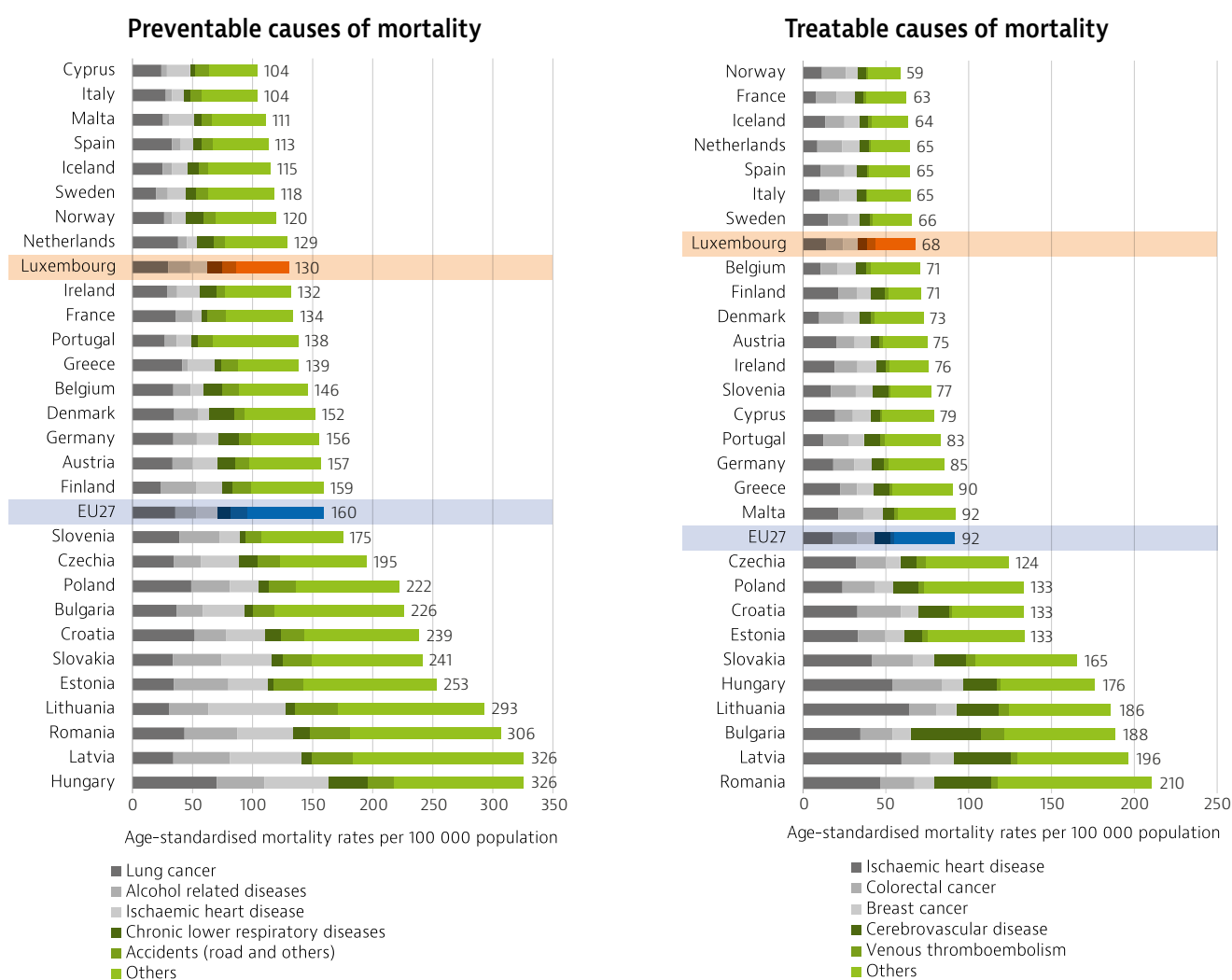
5.1 Effectiveness

Public health interventions in Luxembourg have had a positive impact on preventable deaths

Luxembourg compares favourably with the EU as a whole for mortality from both preventable and treatable causes (Figure 9). In 2018, preventable mortality accounted for 130 deaths per 100 000 population, the main causes being lung cancer,

alcohol-related diseases, chronic lower respiratory disease and ischaemic heart disease. To support decreasing levels of preventable deaths, preventive health policies remain a priority. In 2019, Luxembourg launched its first National Plan against Cardio-neuro-vascular Diseases (2020-24) to reduce related preventable deaths. The main measures include prevention of risk factors, screening and improvement of patient pathways.

Figure 9. Mortality from preventable and treatable causes is among the lowest in the EU



Note: Preventable mortality is defined as death that can be mainly avoided through public health and primary prevention interventions. Treatable mortality is defined as death that can be mainly avoided through health care interventions, including screening and treatment. Half of all deaths for some diseases (e.g. ischaemic heart disease and cerebrovascular disease) are attributed to preventable mortality; the other half are attributed to treatable causes. Both indicators refer to premature mortality (under age 75). The data are based on the revised OECD/Eurostat lists.

Source: Eurostat Database (data refer to 2018, except for France 2016).

The comparatively low levels of preventable deaths from causes such as lung cancer and road traffic accidents registered in Luxembourg may be explained in part by strong public health policies,

such as smoking bans in public places, bars and cafés and awareness-raising campaigns for road safety implemented in 2006 and 2014. The effect of more recent anti-tobacco measures – such as public

awareness campaigns under the Anti-Tobacco Plan 2016-20, the rise in the legal age for purchasing tobacco products in 2017 and tax increases – have helped to reduce smoking rates, particularly among adolescents (see Section 3), but will take time to translate into reduced preventable mortality. Despite these early signs of improvement, the fight against tobacco consumption remains a public health priority. In 2008, the Ministry of Health and the CNS set up a stop smoking programme that covers two doctor consultations and half of the costs for substitutes (capped at EUR 100). Despite its long existence, participation in the programme remains limited.

Frequent alcohol consumption continues to be a public health issue, despite relatively low preventable mortality specifically due to alcohol-related deaths. Luxembourg has very high levels of binge drinking (see Section 3), particularly among men. In 2020, the National Alcohol Plan (2020-24) was finally adopted, after being initiated in 2012, to reduce alcohol misuse and harm and to create supportive environments that enable people to adopt healthy and sensible drinking behaviours at all ages. However, owing to the COVID-19 pandemic, implementation had to be postponed.

Cardiovascular disease and cancers play a large role in mortality from treatable causes

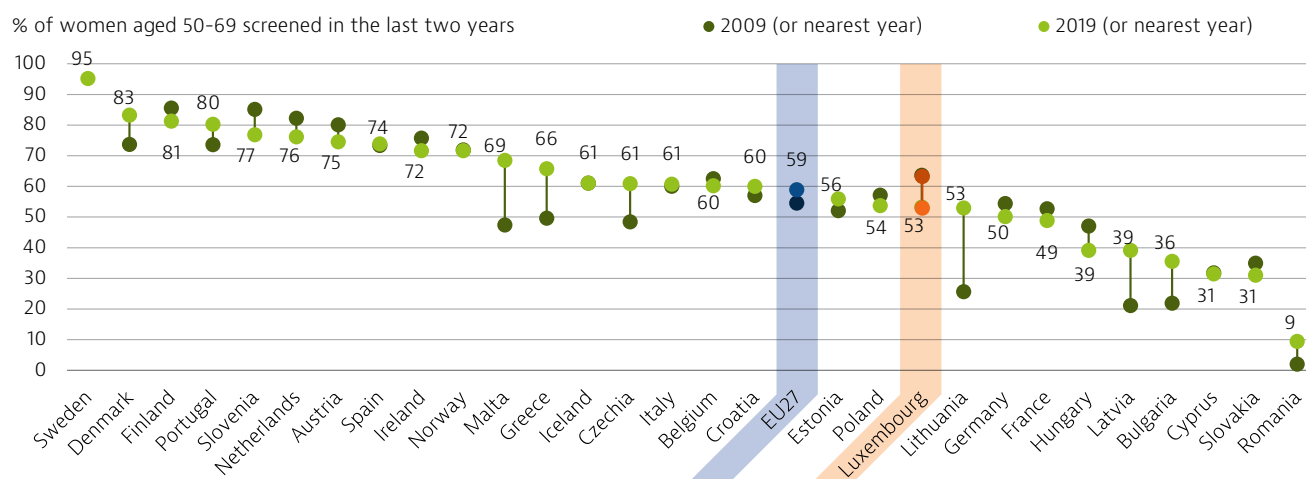
Overall, mortality that can mainly be avoided through health care interventions has decreased since 2011 and, at 68 deaths per 100 000 in 2018 was below the

EU average of 92 deaths per 100 000 (see Figure 9). The main causes of treatable mortality in Luxembourg were ischaemic heart disease, colorectal cancer, breast cancer and stroke, and all rates were below the EU averages.

Cancer screening is based on national recommendations and has a central role in improving survival outcomes and lower overall rates of mortality from treatable causes. The rates of cervical cancer screening across the country increased from 51 % to 70 % between 2013 and 2019. However, the participation rates in breast cancer screening, which was introduced in 1992, have decreased over the last decade from 64 % in 2009 to 53 % in 2019 – below the EU average (Figure 10)⁶. While data on cancer mortality and screening rates for most types of cancer are available, evaluating the quality of cancer care is more difficult, as data on five-year survival rates are not systematically collected. Luxembourg has, however, adopted a second National Cancer Plan for the period 2020-24, which aims to improve prevention and treatment (Box 2).

Due to the COVID-19 pandemic many cancer screenings, operations and non-essential examinations were postponed in 2020. A recent survey among cancer care providers revealed that during the first lockdown the number of radiotherapy sessions fell by almost one third and even after lockdown (between July and October 2020) they remained below usual levels (Backes et al., 2021).

Figure 10. Only about half the women in Luxembourg participate in recommended mammography screening



Note: The EU average is unweighted. For most countries, the data is based on screening programmes, not surveys.
Sources: OECD Health Statistics 2021 and Eurostat database.

6. Other survey data from the European Health Information Survey (EHIS) indicate that 78 % of women reported to have received breast cancer screening in 2019.

Box 2. Luxembourg has adopted a second National Cancer Plan for 2020-24

Luxembourg's second National Cancer Plan (2020-24) continues the efforts and measures of the first National Cancer Plan launched in 2014. The main priorities are digitalisation of data exchange and expansion of information systems, implementation of modern genetics and molecular pathology and the structuring of patient pathways into competence networks. Bolstering the application of research and the central role of the National Cancer Institute are also key elements.

The National Cancer Plan follows the recommendations of the European Partnership for Action Against Cancer and the pillars of the Europe's Beating Cancer Plan, which sets out a new EU approach to tackle the entire disease pathway, from prevention and screening to treatment and quality of life of cancer patients and survivors (European Commission, 2021a).

The government ordered more influenza vaccines in 2020 to increase vaccination rates

The COVID-19 pandemic raised the importance of increasing vaccination rates against seasonal influenza to avoid having another virus spreading widely and to reduce pressures on hospitals. The objective of the 2020/21 campaign was to vaccinate 30 000 more people than in the previous year and to avoid a shortage of influenza vaccine, which Luxembourg experienced in 2018. To that end, up to 120 000 shots in total were ordered by government and the private sector. In the past, the influenza vaccination rate among the population at highest risk (over 65 years) has been low, despite health insurance coverage and broad awareness-raising campaigns. About 40 % of the population over 65 received the vaccination in 2019, which is slightly below the EU average (42 %). In contrast, high coverage is observed for the universal childhood vaccination programme, with centralised public procurement of vaccine products and direct delivery to physician practices.

The low number of avoidable hospitalisations points to effective primary care

Luxembourg's rate of avoidable hospital admissions for chronic conditions is lower than in many other EU countries, suggesting that primary care and outpatient secondary care are effective at managing chronic diseases. Indeed, avoidable hospital admissions for asthma and COPD, remained stable

between 2007 and 2015 and are below the EU average. Avoidable hospitalisations for diabetes decreased in this period, although they are still above the EU average. The outdated data on avoidable hospital admissions and the data gaps on hospital quality indicators such as 30-day in-hospital case fatality rates, as well as cancer survival rates, point to gaps in data collection. The new National Health Observatory that Luxembourg is setting up aims to centralise and harmonise health-related data, such as data on health status and health provision (see Section 5.3).

5.2 Accessibility

Unmet needs for medical care have been low but rose during the COVID-19 pandemic in 2020

Since health coverage is universal and the benefits package is fairly comprehensive, before the COVID-19 pandemic, very few residents in Luxembourg (0.2 %) reported having experienced unmet needs for medical care due to cost, distance or waiting times – a share well below the EU average, and with little difference between income groups (Figure 11). The share of people reporting unmet needs for dental care was also among the lowest in the EU (0.4 % compared to 2.8 %). However, according to the Eurofound (2021) survey⁷, during the first 12 months of the COVID-19 pandemic, 19 % of respondents reported having forgone medical care compared to 21 % across the EU as a whole although due to the small sample size, these results should be viewed with caution.

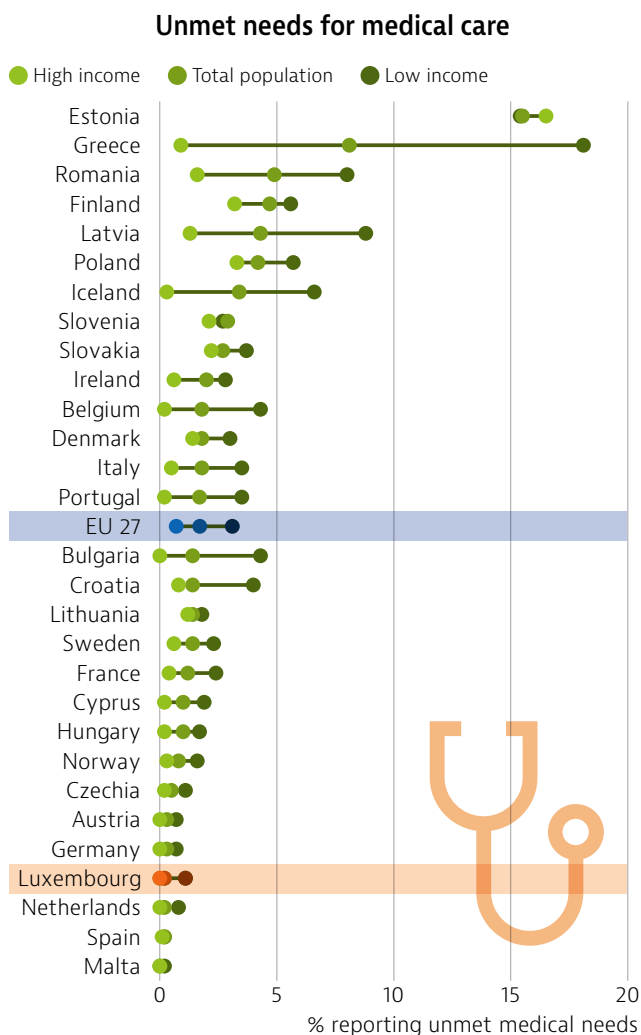
Despite universal coverage some gaps and access barriers remain

Despite compulsory health insurance, some population groups remain without coverage and have very limited access to health care – namely, homeless people, residents whose welfare benefits are ending and undocumented migrants. At least 880 people were reported to be without health insurance or faced financial difficulties obtaining it in 2019 (Médecins du Monde, 2019). In 2013, Luxembourg introduced a “benefit-in-kind model”⁸ for vulnerable groups who encounter difficulties paying in advance for outpatient services. A third-party payment system is planned for the entire population from 2023, which will mean that the CNS, rather than patients, will pay the reimbursed tariff directly to providers for services at the point of care.

7. The data from the Eurofound survey are not comparable to those from the EU-SILC survey because of differences in methodologies.

8. People on low incomes may apply for the benefit-in-kind model: local social welfare offices certify eligibility on an annual basis for medical and dental treatment costs to be directly covered by the CNS. Patients' co-payments are paid by local social welfare offices.

Figure 11. Before the pandemic, Luxembourg recorded among the lowest levels of unmet needs, with little variation by income



Note: Data refer to unmet needs for a medical examination or treatment due to costs, distance to travel or waiting times. Caution is required in comparing the data across countries as there are some variations in the survey instrument used.
Source: Eurostat Database, based on EU-SILC (data refer to 2019, except Iceland 2018).

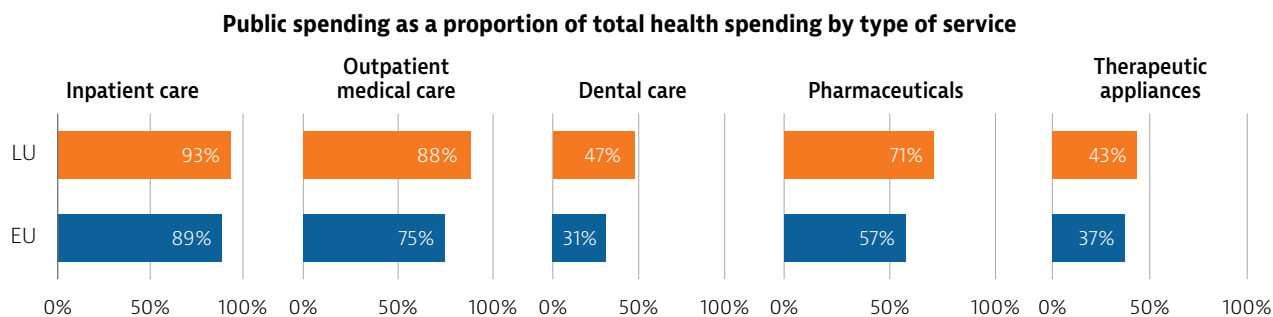
The benefits package provides good coverage for most health services

Individuals covered by the compulsory SHI scheme enjoy a very broad benefits package, which goes well beyond essential services and continues to be extended gradually, especially for therapeutic services. The SHI scheme covers most inpatient treatments directly, with the exemption of a per diem levied on all adults. Most outpatient services are currently based on reimbursement: patients pay providers in advance and are later reimbursed by the CNS at different rates, ranging from 60 % to 100 %. Usually, 88 % of costs for medical and dental services are reimbursed by the CNS, and the first EUR 66.50 of costs for dental care per year is also paid by health insurance. Medicines included in the positive lists are reimbursed at three different rates (100 %, 80 % and 40 %). Cost-sharing exemptions apply for people with disabilities or severe chronic conditions, children and pregnant women, or if cost-sharing exceeds 2.5 % of annual gross income.

The shares financed by public spending for selected health services and medical goods reflect the limited cost-sharing requirements described above, and are well above the EU averages (Figure 12). To cover OOP payments or services not included in the benefits package, such as acupuncture or single rooms in hospitals, about 65.5 % of the population purchases VHI.



Figure 12. Extensive public coverage of services reflects comprehensive benefits coverage



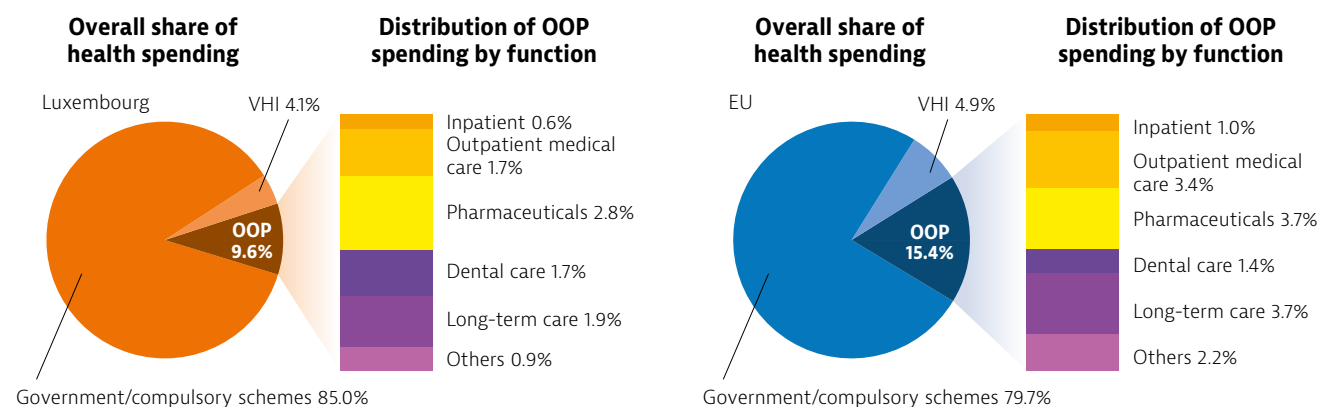
Note: Outpatient medical services mainly refer to services provided by generalists and specialists in the outpatient sector. Pharmaceuticals include prescribed and over-the-counter medicines as well as medical non-durables. Therapeutic appliances refer to vision products, hearing aids, wheelchairs and other medical devices.
Source: OECD Health Statistics 2021 (data refer to 2019 or nearest year).

Luxembourg has very low out-of-pocket spending, but pharmaceutical payments can be substantial

The proportion of OOP payments in total health spending is the second lowest among EU countries (9.6 %) after France, and well below the EU

average (Figure 13). As a share of final household consumption, it is one of the lowest in the EU (1.6 % compared to a 3.1 % EU average). However, OOP payments can still be substantial for pharmaceuticals, LTC and dental care. About one third of OOP spending is devoted to pharmaceuticals (29 %), and about one fifth each to LTC, outpatient and dental care.

Figure 13. Out-of-pocket spending in Luxembourg is well below the EU average



Note: The EU average is weighted. VHI also includes other voluntary prepayment schemes.
Sources: OECD Health Statistics 2021; Eurostat Database (data refer to 2019).

Reorganisation of health care training aims to increase the attractiveness of some health professions

As noted in Section 4, Luxembourg has low numbers of doctors; this has the greatest impact on ambulatory care. To address potential scarcities of health professionals in the longer term, various initiatives have aimed to decrease dependence on foreign health care professionals and improve the attractiveness of the medical profession. For example, specialised medical training for doctors who have completed their studies has been expanded in the areas of oncology and neurology, and a new bachelor's programme in general medicine starts in 2021. In the next few years, the government also plans to offer new academic nurse training programmes to enhance the profession, including bachelor's degrees in nursing care, midwifery and radiology medical technical assistance and four specialised nursing bachelor programmes. An advanced four-year nursing degree is also being planned. The new professions will allow more collaborative working environments, in which care is provided by multidisciplinary teams, and the opportunity to alleviate doctor shortages through task-shifting. The creation of a digital registry of health professionals is also planned; this will aid creation of work placements in areas of need.

A newly created teleconsultation platform has helped to maintain provision of services

At the outbreak of the COVID-19 pandemic, Luxembourg acted quickly to ensure that health services were maintained while preventing transmission of the virus to vulnerable populations and health professionals. In March 2020, the Ministry of Health reorganised the model of primary health care, establishing four different care patient pathways: teleconsultations; medical visits within residential care facilities and at patients' homes; advanced care centres for COVID-19 patients; and emergency department visits (see Section 5.3).

Teleconsultations played a key role in maintaining access to non-COVID-19 health services. In mid-March 2020, a teleconsultation platform was set up to allow patients to consult their treating physicians, dentists or midwives via telephone or teleconsultation, as well as to obtain a certificate of incapacity for work or medical prescription. By 9 April, about 600 doctors and more than 4 000 patients had registered with the e-consult platform, and almost 3 000 teleconsultations had been carried out. According to the Eurofound (2021) survey, 44 % of the population reported having a medical teleconsultation (above the EU average of 39 %) in the first 12 months of the pandemic.

Simultaneously, a remote monitoring tool for COVID-19 patients was launched throughout Luxembourg to follow up patients who had been discharged and were in isolation at home. Monitoring was carried out by a team of professionals from the Health Directorate: within the first month of its operation, 388 patients were recuperating at home using this new tool (Ministry of Health, 2020a). As part of Luxembourg's ongoing consultation process to develop a national health plan, initiated in 2020 and known as "Gesondheetsdësch", the monitoring tool will be expanded into a permanent telemedicine solution, integrated into e-health services.

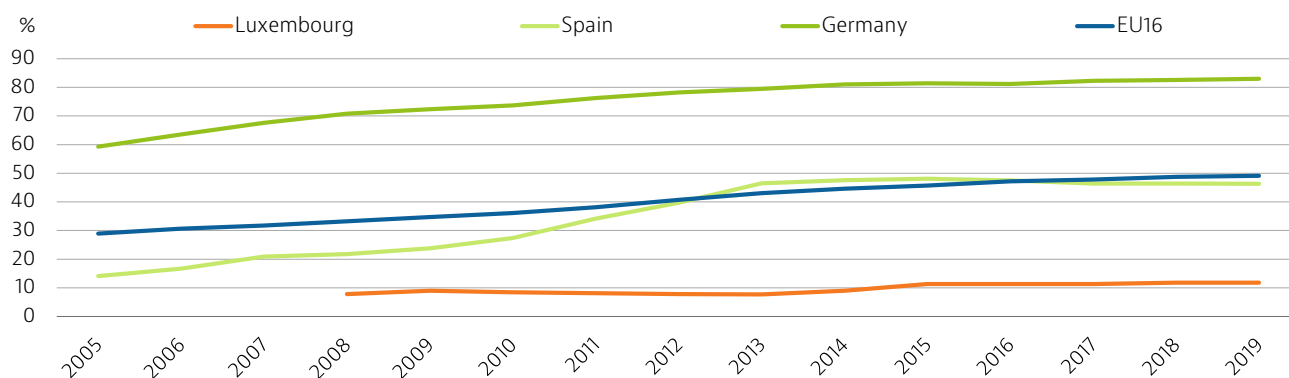
Draft legislation aims to improve patients' access to pharmaceuticals

Luxembourg is currently the only EU country without its own medicines authorisation agency. This leads to challenges in pharmaceutical negotiations and a lack of transparency in pricing and reimbursement decisions. To ensure access to medicines, the government adopted a draft bill in 2019 that provides for the creation of a National Agency for Medicines and Health Products, with comprehensive functions such as monitoring the quality and safety

of medicines, authorisation and control of activities of biotech companies, administration of clinical trials and price determination of medicines and medical devices. The aim is to improve patient access to medicines that have not yet been authorised in Luxembourg⁹. Addressing medicines shortages aligns with one of the key planks of the European Commission's pharmaceutical strategy for Europe, which sets out enhanced co-operation between national authorities on pricing, payment and procurement policies, with a view to improving the affordability and cost-effectiveness of medicines (European Commission, 2020).

Use of generics as a means of widening access to medicines is low in Luxembourg. In 2014, the country introduced a system of generic substitution by specifying two pharmacotherapeutic groups to be eligible for mandatory substitution for the lowest priced generic alternative, regardless of what the doctor has indicated on the prescription. Even so, the country has the lowest generic penetration in the EU by volume (Figure 14) and by value: only 5.6 % of the publicly funded pharmaceuticals market consists of generics.

Figure 14. Use of generics in Luxembourg continues to be low



Note: Data refer to the share of generics by volume.
Source: OECD Health Statistics 2021.

5.3 Resilience

This section on resilience focuses mainly on the impacts of and responses to the COVID-19 pandemic¹⁰. As noted in Section 2, the COVID-19 pandemic had a major impact on population health and mortality in Luxembourg, with just over 830 COVID-19 deaths recorded between January 2020 and the end of August 2021. Measures taken to contain the pandemic also had an impact on the economy, but Luxembourg's GDP fell by only 1.3 % in 2020, which is lower than the drop of 6.2 % across the EU as a whole.

Various mitigation measures were implemented throughout successive waves of the pandemic

After the first cases of COVID-19 were identified in early March 2020, the government released several recommendations and containment measures, such as calling off large public events with more than 1 000 people, restrictions on travel, suspension of face-to-face teaching and restrictions on hospital and care home visits (Figure 15). By mid-March, when a state of emergency was declared, the parliament endorsed a full lockdown, with shop closures and restrictions on mobility. In April and May, these

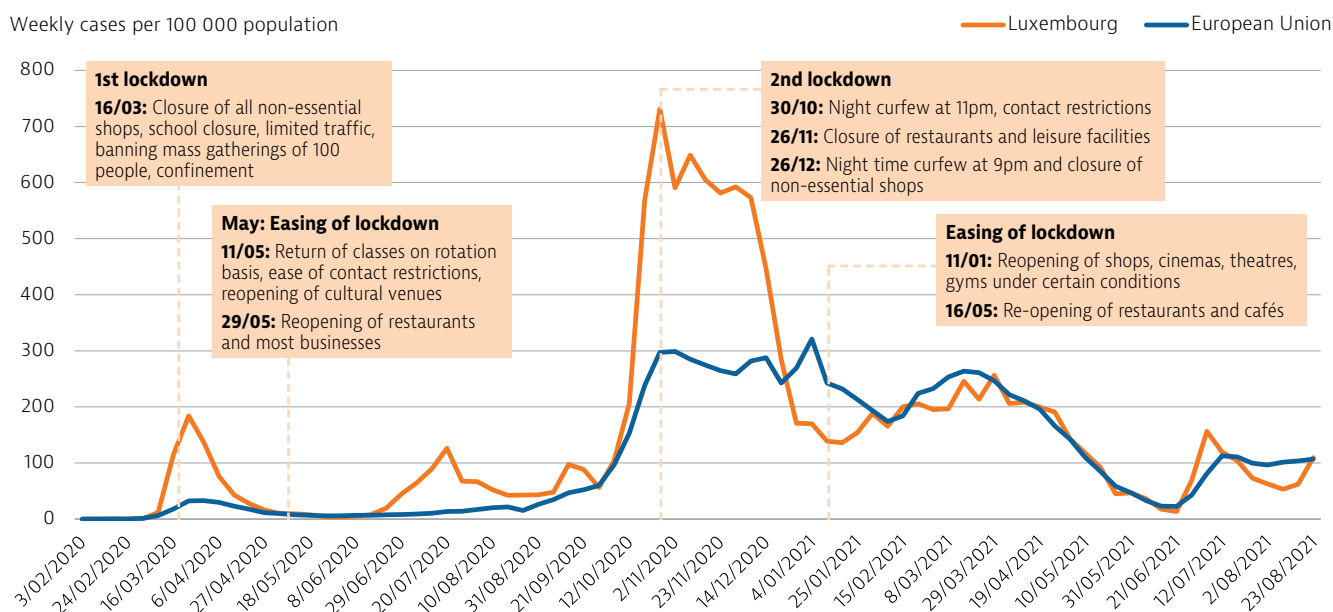
9. Currently, marketing authorisations are issued by the Ministry of Health, and reimbursement pricing is determined by the Ministry of Social Security.

10. In this context, health system resilience has been defined as the ability to prepare for, manage (absorb, adapt and transform) and learn from shocks (EU Expert Group on Health Systems Performance Assessment, 2020).

measures were lifted gradually, accompanied by a large-scale testing and preventive measures such as mask-wearing in public spaces and social distancing. From summer 2020 onwards, Luxembourg experienced a second wave of cases, although numbers were less pronounced than in some other European countries. In response, the government implemented restrictions on gatherings, which were further tightened in October 2020 when case numbers again surged, followed by new mitigating measures in November and a second lockdown in December

2020 (including a night curfew and non-essential shops closures). Most of these restrictive measures extended well into the new year and were gradually lifted between January and May 2021. The government also implemented the “CovidCheck” digital (or paper) certificate, which is applicable for hospitality establishments, events and a range of activities. The certificate provides proof that the registered user has been vaccinated against COVID-19, has received a negative COVID-19 test or has recovered from the disease.

Figure 15. Containment measures have brought down COVID-19 case numbers



Note: The EU average is unweighted (the number of countries used for the average varies depending on the week).

The number of COVID-19 cases in EU countries was underestimated during the first wave in spring 2020 due to more limited testing.

Source: ECDC for COVID-19 cases and authors for containment measures.

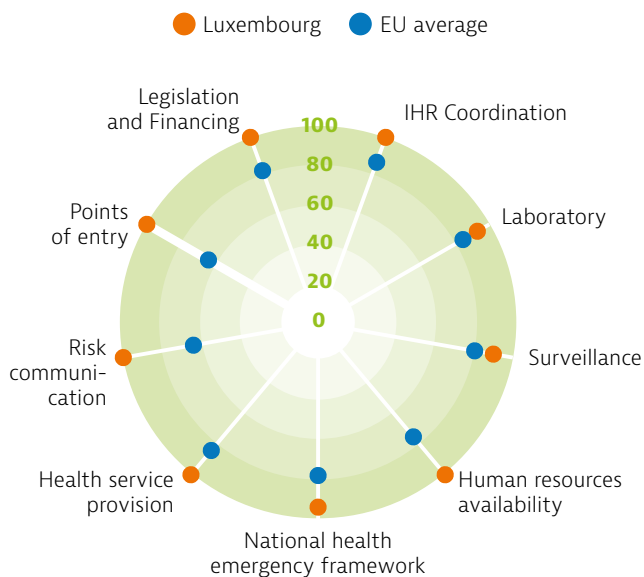
Luxembourg was relatively well prepared for a public health emergency

Luxembourg had a very rapid initial response to the COVID-19 pandemic. Although the country was confronted with similar challenges to those seen throughout Europe, such as shortages of personal protective equipment (PPE) and health care workers, public actors from various governance levels (including communities and the fire and rescue corps) rapidly joined the national effort to respond to the crisis. Luxembourg's small size helped it to put public health measures in place quickly, and health system actions (including mask-wearing, testing, contact tracing, marshalling hospital infrastructure and medical equipment, and organising COVID-19 care) were centrally coordinated by the crisis unit at the Ministry of Health (see Section 4).

According to the International Health Regulations (IHR) framework¹¹, Luxembourg recorded above-average scores for indicators of self-reported capacity to detect and manage public health risks (Figure 16). This ample capacity was on display as the country swiftly created ambulatory service points providing testing and care for suspected COVID-19 cases, as well as central procurement of laboratory equipment and a centralised data monitoring system. At the Health Directorate, a central contact tracing unit for early detection of cases and clusters and notifications was set up in March 2020. Laboratory capacities were limited in the beginning but were quickly scaled up with a large-scale testing strategy. Furthermore, prior to the COVID-19 pandemic, Luxembourg had no national PPE emergency stockpile, which mostly affected nursing homes and primary care providers. However, the government procured material from Asia and received stock from the EU.

11. Since 2005, the IHR have provided an overarching legal framework that defines countries' rights and obligations in handling public health events and emergencies. Under the IHR, all Member States are required to develop public health capacities to prevent, detect, assess, notify and respond to public health risks. The monitoring process of IHR implementation status involves assessing, through a self-evaluation questionnaire, 13 core capacities.

Figure 16. Prior to the pandemic, Luxembourg reported better IHR public health emergency capacities than the EU average



Note: The EU average is unweighted.
Source: WHO IHR (data refer to 2019).

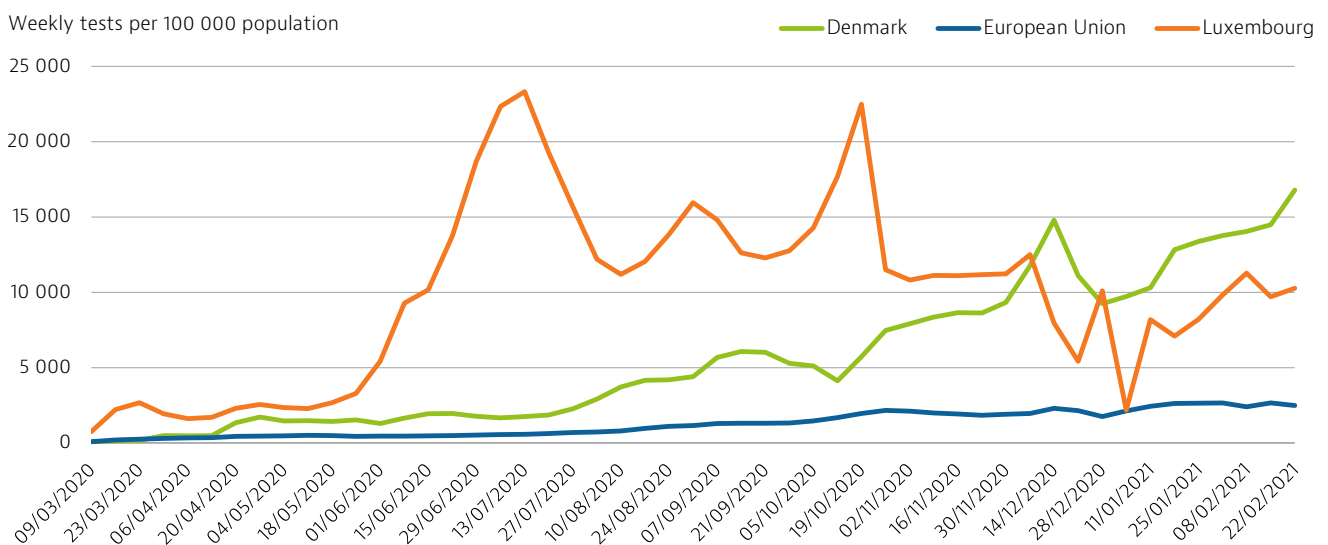


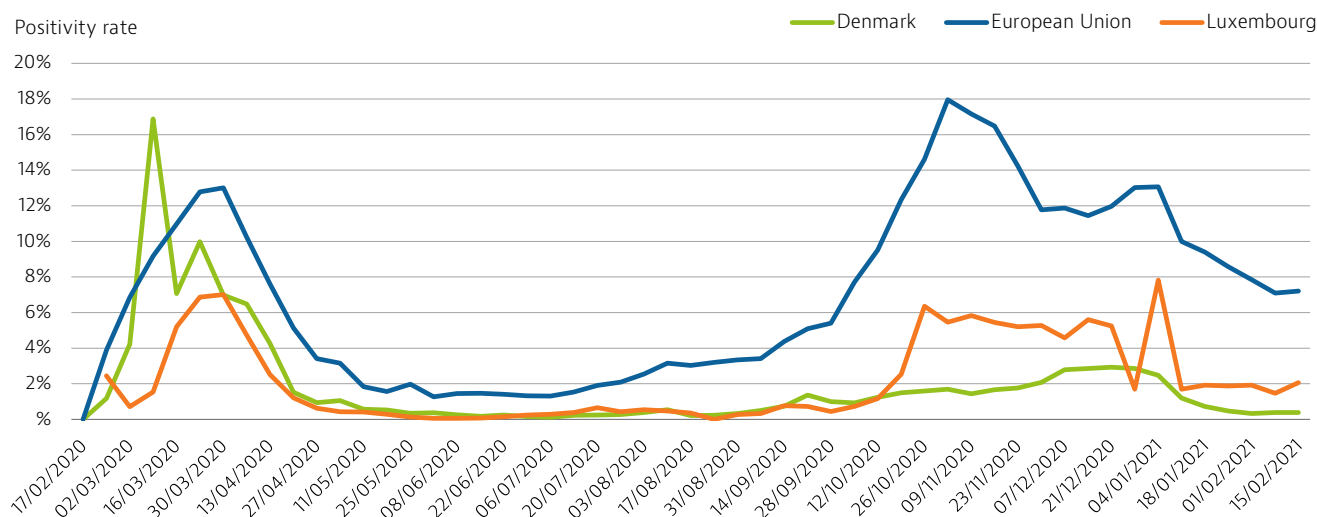
A long-term, large-scale testing strategy was launched early on

From the onset of the COVID-19 pandemic, Luxembourg pursued an ambitious large-scale testing policy free of charge for everybody, resulting in a very high testing rate (Figure 17). From May to July 2020, the entire population and cross-border workers were invited for PCR testing, with the aim of lifting lockdown restrictions based on reliable information, and to gain a longitudinal perspective on household transmission. The population was divided into three categories depending on their risk of being exposed to the virus, with each category invited at different frequencies. Second and third testing phases were rolled out in September 2020 to February 2021 and in March to July 2021.

For this population-wide testing, Luxembourg had to build the highest testing capacity in the EU, reaching a weekly maximum of 23 321 tests per 100 000 population by mid-July 2020 – far above Denmark, another country with a high testing rate (Figure 17). All passengers entering the country from the end of May 2020 were offered free COVID-19 testing on arrival at Luxembourg's airport. Until summer 2020, family gatherings made up a large part of Luxembourg's identified clusters, while cross-border workers accounted for 16 % of infections (ECDC, 2020). When large-scale testing started in May and June 2020 and testing rates increased, positivity rates remained stable and below 1 %. During the second wave starting in October 2020 testing declined somewhat and positivity rates rose accordingly, peaking at between 6 % and 8 % (Figure 17).

Figure 17. Luxembourg achieved the highest testing rate in the EU early on, while positivity rates remained lower





Note: The EU average is weighted (the number of countries included in the average varies depending on the week).

Source: ECDC.

The effective contact tracing system did not necessitate an accompanying app

In March 2020, the Health Directorate set up a contact tracing unit that identifies contacts, administers quarantine and isolation and manages clusters of infections. The contact tracing team comprised 220 people, including 68 employees from the national airline, who were redeployed for this purpose. Owing to rapidly rising positive cases in November 2020, the Health Directorate simplified and sped up its procedure by asking people who had tested positive for COVID-19 to provide contact names through an online form without having to wait to be contacted by the contact tracing unit. People were also asked to transfer a link and their reference number to their high-risk contacts.

Luxembourg's contact tracing system was very effective: the time between identification of laboratory-confirmed cases and notification was generally 24-48 hours. Because of the effective contact tracing system, Luxembourg did not set up a contact tracing app, unlike most other EU countries. However, from June 2020 residents could use other European apps, such as Germany's Corona-Warn-App.

Luxembourg had sufficient infrastructure and workforce to manage COVID-19 patients

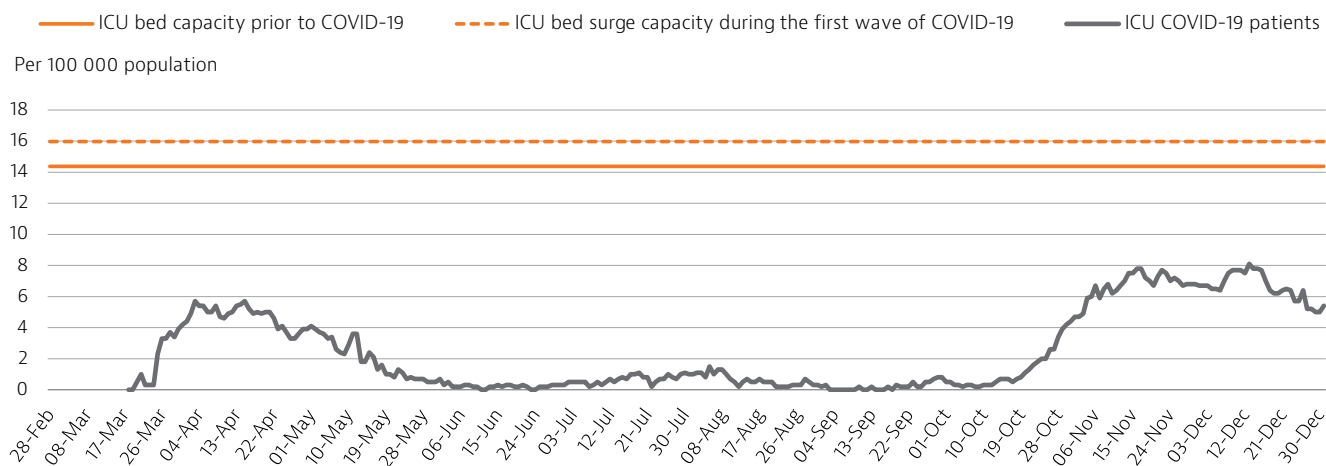
To meet the increased demand for health care due to the COVID-19 pandemic, the government carried out a mandatory census of all licensed health professionals in March 2020, including residents, students, retirees and people on unpaid leave. In parallel, it set up a platform for medical and non-medical volunteers. Based on these databases, Luxembourg started to build up a medical reserve. Volunteers were also

deployed to other settings, such as hotlines, contact tracing, sampling centres and COVID-19 consultation centres.

Luxembourg is well equipped with acute and ICU hospital beds, with rates above the EU averages (see Section 4). The government asked hospitals to make capacity available for COVID-19 patients, mostly by delaying planned and elective procedures, as well as by creating additional ICU beds. The operation of hospital services was centrally coordinated and defined by four phases according to the COVID-19 surge capacity plan in place. As a result, the available capacities of acute and ICU beds were not exhausted during the first and second wave of the COVID-19 pandemic (Figure 18). In fact, COVID-19 patients from neighbouring countries such as France were transferred to Luxembourg for treatment.

Four advanced ambulatory care centres expanded capacity during the COVID-19 pandemic

Early in the COVID-19 pandemic (mid-March 2020), the government and health professional organisations set up four advanced care centres. These aimed to provide specific care for COVID-19 patients, to reduce pressure on hospitals and to keep patients away from emergency departments and general practices. The centres operated daily from 08:00 to 20:00, and had two strictly separate channels of consultation: the first for patients with signs of COVID-19 infection; the second for those without (Ministry of Health, 2020b). Patients with a positive test result were either sent home for isolation or transferred to a hospital if necessary. The patient's information was also transferred to the Health Directorate's contact tracing unit to ensure appropriate contact tracing.

Figure 18. Hospitals had sufficient intensive care unit capacity for COVID-19 patients

Note: Only includes ICU beds for level 3 in 2020 (the most intensive care); other ICU beds at levels 1 and 2 are not included.

Source: Ministry of Health.

Consultations in advanced care centres were free of charge, irrespective of a person's health insurance coverage. Outside these centres, COVID-19 tests were carried out upon presentation of a medical prescription, social security card and identity card. With decreasing case numbers, the advanced care centres were successively closed by early summer 2020 – and two consultation centres reopened in October and November 2020 for patients with COVID-19 symptoms or a COVID-19 diagnosis, with the aim of relieving pressure on GPs and reducing the risk of transmission.

Nursing homes were strongly affected during the first wave, but the response improved immediately afterwards

As in many countries, residential LTC facilities in Luxembourg were particularly affected by the first wave of COVID-19. Between March and the end of May 2020, nearly half (46 %) of all COVID-19 deaths in Luxembourg were among LTC residents (OECD, 2021). A working group devoted to nursing homes set up various safety and hygiene measures to prevent transmission within these facilities. Training and guidance on use of PPE, infection control, hygiene measures and testing for care professionals were as important as inspections and recommendations by hygienic teams on care quality, and safety measures to ensure separate patient flows and non-COVID-19 areas within nursing homes.

The new organisational model for primary care during the COVID-19 pandemic (see Section 5.2) also included the establishment of on-call GP services during weekends and public holidays for residential facilities. The 24/7 availability of doctors aimed to reduce hospital admissions and deliver better

continuity of care within nursing homes. Due to these positive experiences, the government started a pilot project in July 2020 that aims to continue the 24/7 on-call medical system in the future.

Luxembourg started vaccinating health professionals and care home residents in December 2020

The country's vaccination strategy consisted of six phases with different risk groups. The first phase started at the end of December 2020: it targeted health care professionals and staff in hospitals and residential facilities, as well as care home residents. The subsequent phases included population groups by age and pre-existing health condition. Vaccinations were carried out in six vaccination centres (for the general population) and hospitals. Mobile teams carried out vaccinations for older people in their homes and in nursing homes. By the end of August 2021, more than half (56 %) of the population had received two doses of the vaccine (or equivalent) (Figure 19).

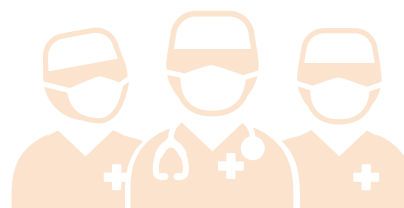
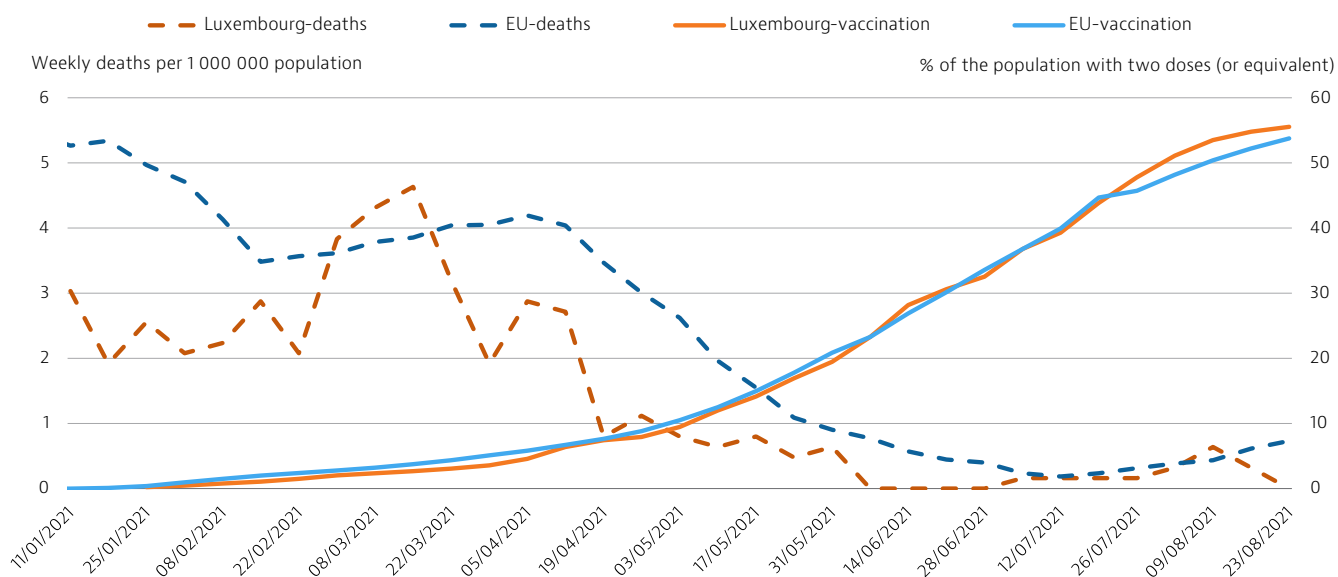


Figure 19. Vaccination rates in Luxembourg have kept pace with EU-wide vaccination progress

Note: The EU average is unweighted (the number of countries used for the average varies depending on the week).
Sources: ECDC for COVID-19 cases and Our World in Data for vaccination rates.

The COVID-19 pandemic revealed the need for an improved health information system

The development of real-time monitoring of available resources and epidemiological surveillance during the COVID-19 pandemic showed that centralised and timely collection of health-related data and data exchange between health care providers is essential for a functioning and responsive health care system. Luxembourg's new National Health Observatory, established in 2021, will play a central role in the development of health data and information systems. Its activities include collecting and analysing disease and death registries data.

Moreover, the Luxembourg Centre for Systems Biomedicine is involved in the European Health Data Space initiative, which is designed to promote better exchange and access to different types of health data, including electronic health records, genomics data and data from patient registries, to support health care delivery, as well as health research and policy-making (European Commission, 2021b). In particular, Luxembourg is supporting the development of the future European Health Research and Innovation Cloud, a decentralised digital health infrastructure, which is the cornerstone of the European Health Data Space

Resilience is being strengthened through financial reserves and the EU's Recovery and Resilience Facility

The CNS has registered continuous revenue surpluses over the past few decades, building up a large financial reserve, which facilitated rapid mobilisation of resources during the COVID-19 pandemic.

Despite additional expenses as part of the government's pandemic response, such as extended family leave, sick leave payments and new payment rates for doctors and dentists the CNS estimated a surplus of EUR 6.7 million for 2020 and a reserve of 26.3 % of current expenditure in 2021. This surplus is also made possible by an additional financial injection from the state of EUR 200 million in 2020.

In addition, as part of its National Recovery and Resilience Plan, Luxembourg has dedicated EUR 1.2 million to strengthening the resilience of the health care system. In particular, health sector investment will support reforms in bolstering the competencies of health professionals. Specific measures include broadening skills, expanding domestic training and creating a register of health care professional for better health planning (EUR 0.34 million). Moreover, there is a focus on the challenges identified in the *Gesondheitsdësch* to future-proof the health system. Among these, the digitalisation of health care will be addressed by proposed investments in telemedicine solutions (EUR 0.83 million) (Ministry of Finance, 2021).

6 Key findings

- Life expectancy in Luxembourg has increased by more than two years since 2010, reaching 81.8 years in 2020, which is well above EU average. However, COVID-19 accounted for an estimated 11 % of deaths in 2020, which contributed to a reduction of nearly 11 months in life expectancy compared with 2019. Risk factors, including smoking and poor diet, account for one third of all deaths. Public health policies such as smoking bans and tax increases on tobacco products have contributed to reducing smoking among adolescents and adults. However, heavy alcohol consumption in adults remains a cause for concern.
- Low mortality rates from treatable causes suggest that Luxembourg's health system provides effective health care interventions. Mortality rates from heart attack, stroke and cancer have declined in the last decade. The mortality rate for breast cancer has remained relatively stable, albeit close to the EU average. Luxembourg's second National Cancer Plan (2020-24) aims to improve the use of modern genetics and molecular pathology in treating cancer.
- Health spending per capita in Luxembourg is among the highest in the EU, although it represents a relatively small share of its GDP. The public share of health financing is considerably higher than the EU average, at 85 % in 2019. The population enjoys a broad benefits package, and out-of-pocket spending is the second lowest in the EU. Unmet needs for medical and dental treatment are among the lowest in Europe. However, out-of-pocket spending for pharmaceuticals, dental care and long-term care can still be substantial. To further improve access to outpatient medical care and streamline administration, the government aims to extend the third-party payment system from 2023.
- Luxembourg's health workforce is marked by strong dependence on neighbouring countries. Around two thirds of nurses and one quarter of doctors practising in Luxembourg live outside the country. During the early phase of the COVID-19 pandemic, the reliance on foreign health professionals made Luxembourg particularly vulnerable to the risk of border closures with Belgium, France and Germany. The government aims to alleviate reliance on cross-border health professionals by raising the attractiveness of health professions among the resident population, expanding medical training opportunities and implementing skill-mix approaches.
- The country acted rapidly in response to the COVID-19 pandemic, and was relatively well prepared. The crisis unit at the Ministry of Health coordinated all related actions, with support from other public services. The public health surveillance system included an efficient contact tracing and large-scale testing strategy.
- The COVID-19 pandemic triggered rapid progress and innovations in the organisation of health care provision, while also revealing persistent problems. For example, Luxembourg started to use teleconsultations extensively, created a reserve of health professionals and fostered co-operation with the Ministry of Family Affairs for support and supervision of nursing homes. The collaborative effort by public services, health care providers, the armed forces and private companies, as well as the financial reserves of the National Health Insurance Fund, made it possible to create dedicated structures, such as the advanced care centres, testing centres and new on-call GP services for nursing homes. Some of these innovations will be maintained in the long term.

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Country abbreviations

Austria	AT	Denmark	DK	Hungary	HU	Luxembourg	LU	Romania	RO
Belgium	BE	Estonia	EE	Iceland	IS	Malta	MT	Slovakia	SK
Bulgaria	BG	Finland	FI	Ireland	IE	Netherlands	NL	Slovenia	SI
Croatia	HR	France	FR	Italy	IT	Norway	NO	Spain	ES
Cyprus	CY	Germany	DE	Latvia	LV	Poland	PL	Sweden	SE
Czechia	CZ	Greece	EL	Lithuania	LT	Portugal	PT		

State of Health in the EU

Country Health Profile 2021

The Country Health Profiles are an important step in the European Commission's ongoing *State of Health in the EU* cycle of knowledge brokering, produced with the financial assistance of the European Union. The profiles are the result of joint work between the Organisation for Economic Co-operation and Development (OECD) and the European Observatory on Health Systems and Policies, in cooperation with the European Commission.

The concise, policy-relevant profiles are based on a transparent, consistent methodology, using both quantitative and qualitative data, yet flexibly adapted to the context of each EU/EEA country. The aim is to create a means for mutual learning and voluntary exchange that can be used by policymakers and policy influencers alike.

Each country profile provides a short synthesis of:

- health status in the country
- the determinants of health, focussing on behavioural risk factors
- the organisation of the health system
- the effectiveness, accessibility and resilience of the health system

The Commission is complementing the key findings of these country profiles with a Companion Report.

For more information see: ec.europa.eu/health/state

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