



At a turning point: Healthcare systems in Central and Eastern Europe

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About this report

At a turning point: Healthcare systems in Central and Eastern Europe presents a broad view of health systems and funding dynamics in 13 European countries, including eight countries in central and eastern Europe (CEE)—Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Slovakia and Slovenia—and five countries in western Europe—Austria, Germany, France, Portugal and the UK. The selected countries provide a representative view of major trends in European health funding and health systems across various levels of wealth, as well as geographical representation from east to west.

This report explores the current status of health system and funding dynamics with the objective of highlighting key differences and commonalities in healthcare financing and policy approaches as governments rise to the challenge of managing the interlinked dynamics of population health and economic uncertainty following the covid-19 pandemic. The report aims to benchmark access and provision of healthcare services, medicines, healthcare outcomes and quality of care, identifying key gaps within CEE and between the included countries of CEE and western Europe. The findings are intended to form a basis for further discussion with key officials and experts from the selected CEE countries and beyond to identify priorities that can support future direction and ongoing health system reform.

As part of this research, we conducted interviews with leading experts, including policymakers, health economists, academics, healthcare professionals, and members of relevant local- and European-level associations. We did this to gain their perspectives and insights on the state of spending, the impact of current policy on population health outcomes, and enablers and barriers to progress. Our thanks are due to the following for their time and insights (listed alphabetically):

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- **Dr Szemere Maurer**, Healthcare Division lead at Századvég Economic Research Institute, Hungary
- **Dr Wim Groot**, professor of health economics, Faculty of Health, Medicine and Life Sciences, Maastricht University, The Netherlands

A series of country profiles complement the study, featuring detailed data and additional analysis on the national dynamics. Country profiles are available for seven of the CEE countries: Bulgaria, Croatia, Czech Republic, Hungary, Poland, Slovakia and Slovenia. Romania has been included in this study as a comparator country. The country profiles can be accessed at amchameu.eu.

Foreword

The COVID-19 pandemic was a wake-up call for policymakers globally. As the crisis placed healthcare systems under intense pressure, it demonstrated the need to strengthen their resilience and prioritise long-term planning. The ongoing geopolitical and economic uncertainty, the war in Ukraine, skyrocketing inflation, the compounded energy and food crisis as well as the disruption of global supply chains, only add to this difficult backdrop.

This challenging environment calls for decisive action in Europe. Driving innovation and investment is critical to deliver benefits to citizens and promote more favourable conditions. This study highlights emerging trends in healthcare financing models, delivery of care, access to innovative treatments, diagnostics and digital infrastructure. It also offers important recommendations for national and EU policymakers to build more sustainable health systems. In particular, unity across EU Member States continues to be a critical component to Europe's success.

This report puts a special emphasis on central and eastern Europe. It considers the specific historical and socio-economic context and identifies what European countries can learn from each other. It outlines some counterintuitive findings between national models and outcomes through benchmarking. Ultimately, it underlines the need to prioritise investment in healthcare systems across the region.

Despite global uncertainty, there is also cause for optimism. The last decade has seen unprecedented innovation in health technology at the intersection of medicines, medical devices, diagnostic technologies and, increasingly, digital health. New developments are transforming the way in which we organise healthcare systems as well as deliver and manage treatments. American companies in Europe are committed to providing solutions and supporting the communities where they operate.

With a focus on investment, alternative financing models, primary and community care, improved access to innovative treatments and technology and digital infrastructure, there is an opportunity to build more resilient, sustainable and innovative health systems across the region.



Susan Danger,
CEO, AmCham EU

Key findings

Healthcare systems in central and eastern Europe (CEE) are at a turning point

The covid-19 pandemic, while having a detrimental effect on immediate and longer-term health outcomes, has also exposed the weaknesses, accumulated through decades of underinvestment, of many health systems across the CEE region. Decision-makers from both health and non-health sectors are now undeniably aware of the close links between health and the economy. The current situation can serve as a turning point in CEE to prioritise investment in healthcare and commit to long-term planning that will narrow the gap with western Europe.

The **geopolitical and economic context** will shape the **future of healthcare in CEE**:



Aftermath of covid-19



War in Ukraine



Current economic slowdown



Changing EU policy landscape

Takeaways

Healthcare spending and outcomes



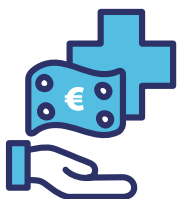
Spending on healthcare is lower in CEE countries both in terms of total healthcare spending per head and as a percentage of GDP. It translates into generally poorer health outcomes and higher amenable and preventable mortality rates. However, healthcare spending in Europe will continue to grow due to rising incomes, new medical technologies, increasing drug prices and volumes, and the shifting demographics of a growing and ageing population.

Recommendations

Position healthcare as an investment rather than a cost

Increasing spending on healthcare now is a necessary investment that will support economic growth and lead to a more cost-effective health system in the future. Additional provisions should be made in the short term to offset the current economic downturn and mitigate the demand for diagnosis and treatment that accumulated during the pandemic.

Financing dynamics



The social health insurance (SHI) model, which relies on employment-based contributions as the primary source of revenue, is no longer sustainable, especially amid economic recession, rising unemployment and ageing populations. Widespread out-of-pocket (OOP) and informal payments constitute a major financial burden and weakens financial protection for the most vulnerable, leading to higher morbidity, mortality and higher healthcare costs.

Transition to alternative health financing models

Reducing the reliance on out-of-pocket payments and diversifying revenue streams should be a key feature of immediate and future policy reforms to address the unmet need for healthcare access and reduce financial hardship. While no model or health system is perfect, governments should lean toward providing universal access to healthcare.

Takeaways

Service delivery and resources



The allocation of resources could be optimised in CEE countries and workforce shortages put health systems under pressure. Less resources are allocated to preventive and long-term care, and the legacy of hospital-centric care still dominates. While many CEE countries have employed various retention strategies, they face outward migration of healthcare professionals as a result of the free movement within the EU.

Recommendations

Develop a health system, centred on primary and community care

Future population and epidemiological demographics point to an ageing population and an increase in non-communicable diseases (NCDs) and other lifestyle-related diseases. These needs are best managed outside of the health system through the development of a strong integrated network of primary, community and long-term care closely linked to the social care system. Developments in health infrastructure should prioritise primary and community care services.

Access to medicines and technology



CEE countries lag behind the rest of the EU in terms of accessibility and availability of innovative treatments and medicines. CEE countries have also been focused on cost-containment measures regardless of the long-term benefit of new health technologies on healthcare costs and outcomes.

Improve access to innovative medicines

Solutions include adjustments to pricing and cost-control mechanisms, such as reference pricing and value-based evaluations, including health technology assessments (HTAs). These will require co-ordination and transparency with multiple stakeholders within each country and across the region.

Adoption of digital health



While the pandemic showed the need for rapid digitalisation across their healthcare sectors, CEE countries are not keeping up with other EU countries in terms of readiness for digital adoption. The capacity and pace for digital adoption depends on a number of factors beyond the health sector, including infrastructure readiness, internet access and speed, availability of ICT specialists, legal and data privacy frameworks, as well as the willingness and ability of the population to use digital tools.

Invest in digital infrastructure

Laying the foundations in digital health through functional and integrated health information systems will complement improved patient care and create a system ready to accept and implement advanced technology driven by big data and AI. The immediate investment priority for CEE policymakers should be to develop digital capability and capacity at a national level that will serve as the foundation for all sectors, including health. Policymakers should also take advantage of EU funding directed towards digital infrastructure.

Executive summary

The prevailing lag in healthcare spending between central and eastern Europe (CEE) and western Europe indicates a failure among CEE governments to take advantage of increased fiscal capacity and economic growth to invest in their healthcare systems.

Healthcare expenditure across Europe has grown over the past decade owing to rising incomes, new medical technologies, increasing drug prices and volumes, and the shifting demographics of a growing, ageing population. Despite generally stronger growth of gross domestic product (GDP) and GDP per head over the past decade among the CEE countries included in this report, these countries still spend lower proportions of their national resources on healthcare.

Spending on healthcare as a percentage of GDP is lower in all CEE countries than in western Europe comparator countries, with Hungary and Romania recording the lowest levels, at 6.3% of GDP and 5.7% of GDP respectively.¹ Total healthcare spending per head in all of the CEE countries is significantly lower than the EU average. Spending on health varies from less than €626 in Bulgaria (or €1,314 per head in purchasing power standards (PPS)) to over €4,000 per head in Germany, the Netherlands and Austria.²

The surge in healthcare spending in response to the covid-19 pandemic is expected to stabilise from 2022, owing to the impact of economic slowdown and conflict in Ukraine.

Historic spending on healthcare was a key determinant of countries' preparedness to deal with the impacts of the covid-19 pandemic. Decades of underfunding and austerity measures meant that many CEE countries were not as well equipped to meet the challenges of covid-19, resulting in a higher mortality rate across many countries.

A failure among CEE countries to prioritise investment in the immediate future could further widen the gap with western Europe. A significant increase in public health expenditure is required to manage the backlog created by widespread disruption to health services, as well as to mitigate the adverse health effects of foregone care, unemployment, and future economic challenges and potential shocks.

There is agreement among European healthcare experts that current public financing models in CEE countries are no longer sustainable in the face of changing population demographics, rising economic uncertainty and a global commitment to moving towards universal healthcare (UHC).

Widespread out-of-pocket (OOP) payments constitute a major financial burden for patients and barrier to health services in CEE. Informal payments are also deeply rooted in many CEE health systems. High OOP spending weakens financial protection for the most vulnerable—those with poor health and low incomes. Individuals who are unable to pay often resort to borrowing money or foregoing service utilisation, which can negatively affect their health and social welfare. Reducing the reliance on OOP payments should be a key feature of immediate and future policy reforms to address the unmet need for healthcare access and reduce financial hardship.

Access or coverage linked to employment status, as per the social health insurance (SHI) model used across all CEE countries in this study, disadvantages people in vulnerable situations. Driving progress toward UHC and the UN Sustainable Development Goals (SDGs) will require strengthening investment in the public health system and paying careful attention to the design of coverage policy as many CEE governments explore alternative sources of funding and healthcare provision.

The region faces significant infrastructure and workforce shortages as a result of underinvestment and mass migration of healthcare workers.

Decades of focusing on hospital infrastructure and neglecting healthcare professionals has led to inefficiencies and a mismatch of resources across many CEE countries. Healthcare systems across Europe are transitioning from a hospital-focused care system with a high reliance on inpatient beds to a patient-centric system with a greater focus on primary and community care.

The free movement of healthcare professionals within the EU has proven to have a substantial and largely negative impact on the healthcare systems of CEE countries, which have seen outward migration of health workers. Migration of healthcare workers has generally been more

¹ Eurostat. Health care expenditure. 2019. Available from https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HP/default/table?lang=en&category=hlth.hlth_care.hlth_sha11.hlth_sha11_sum
² Eurostat. Health care expenditure. Euro per capita. 2019. Available from https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HP/default/table?lang=en&category=hlth.hlth_care.hlth_sha11.hlth_sha11_sum

emphasised in the most deprived regions and countries, and has dire consequences for health care access in some areas of CEE. Countries such as Bulgaria, Poland and Hungary have employed various retention strategies, such as increasing salaries and improving working conditions and medical infrastructure, thereby increasing the quality of healthcare provision; these measures have resulted in return migration.

Elevating the role of primary and community care is necessary to support transformation in the healthcare system to generate cost savings and improve patient health.

Investment in primary healthcare (PHC) is the most efficient and equitable way of using available resources and supporting progress towards UHC. The World Health Organisation (WHO) recommends that all countries, regardless of economic size, allocate an additional 1% of GDP to PHC from public sources to reach UHC.³

The evolution of community-based PHC in Slovenia is a notable case study for the rest of the CEE region. The new primary care model was developed with a strong focus on preventative care and health promotion centres. The number of covid-19 related deaths is lower in Slovenia than in other CEE countries, despite the country having the highest number of confirmed cases per population in the study—this has been largely attributed to the quality of primary care.⁴

The promising pipeline of new innovative drugs and therapies provides an important opportunity to transform how care is delivered and improve patient outcomes. However, the CEE lags behind the rest of the EU in the number of new innovative medicines available and the time to availability.

The rate and speed at which medicines are adopted in many western European countries presents a risk that the gap in terms of spending and outcomes will widen even further, or, at the very least, that CEE countries will continue to lag behind. Although the impact of new innovative treatments not reaching patients in CEE countries is difficult to quantify, it is likely to lead to higher mortality and avoidable deaths, lost quality of life for potential patients, and an increase in unnecessary healthcare costs.

The solutions to inequitable access are also multifactorial and require coordination across multiple stakeholders within and across countries, and a commitment to make medicine prices better reflect the value that they deliver for patients and societies, as well as the socioeconomic context of individual countries.⁵

The EU Pharmaceutical Strategy highlights the importance of addressing patient access inequalities across EU member states. Measures put forward seek to increase coordination across EU members, with the possibility of obliging EU-licensed marketing authorisation holders (MAHs) to market or supply to all EU member states a platform to improve transparency around timing and processing of pricing and reimbursement (P&R) and reasons for delays, as well as standardising approaches across HTA agencies through proposed EU HTA regulation, and introducing a framework for equity-based tiered pricing that takes into account a country's ability to pay, while also addressing the unintended consequences of external reference pricing (ERP).⁶

Investment in innovative medical technology and equipment, as well as updating and maintaining equipment and technology, is also essential to support access to screening and early diagnosis, as well as improving overall health system performance

According to analysis by COCIR, a trade body representing the medical imaging, radiotherapy, health information and communication technologies (ICT) and electromedical industries, the majority of countries in Europe have fallen behind in improving equipment over the past five years. A high percentage of medical equipment across European countries is more than ten years old. This ranges from 21–22% for computed tomography (CT), magnetic resonance imaging (MRI) and molecular imaging position emission tomography (MI PET) scanners to 34% for interventional x-ray equipment.⁷

Europe's Beating Cancer Plan recommends that cancer screening technologies reflect the latest available scientific evidence. Decommissioning and replacing older machines with more modern technology and expanding access by ensuring an adequate number of machines per population and that services are accessible, particularly by those in remote areas, will be essential to developing screening programmes and providing early diagnosis.

3 WHO. Countries must invest at least 1% more of GDP on primary health care to eliminate glaring coverage gaps. Accessed May 2022 <https://www.who.int/news/item/22-09-2019-countries-must-invest-at-least-1-more-of-gdp-on-primary-health-care-to-eliminate-glaring-coverage-gaps>

4 H Ritchie, E Mathieu, L R Guirao, et al. 2020 - Coronavirus Pandemic (COVID-19). Published online at OurWorldInData.org.

5 IQVIA. EFPIA Patient W.A.I.T. Indicator 2021 Survey. Available from <https://www.efpia.eu/media/636821/efpia-patients-wait-indicator-final.pdf>

6 EFPIA. A shared approach to supporting Equity-Based Tiered Pricing. Discussion document. Available from <https://www.efpia.eu/media/637159/ebtp-efpia-discussion-document-final-060722.pdf>

7 COCIR. Medical Imaging Equipment Age Profile and Density. 2021 Edition. https://www.cocir.org/fileadmin/Publications_2021/COCIR_Medical_Imaging_Equipment_Age_Profile_Density_-_2021_Edition.pdf

The pandemic has accelerated the adoption of telehealth and the use of remote consultations and virtual care. However, there is still uneven development of digitisation and eHealth solutions across CEE and European comparator countries.

The capacity and pace of digital health adoption depend on a number of factors beyond the healthcare sector, including infrastructure readiness, internet access and speed, availability of qualified ICT specialists, legal and data privacy frameworks, and the willingness and ability of healthcare workers and the population to use digital tools.

Readiness for digital adoption, as measured by the Digital Economy and Society Index tool, shows a clear gap between CEE countries and western European counterparts, with the exception of Slovenia, which ranks above the EU average, with a total score of 53.4%, and places 11th out of the 27 EU countries.⁸

For CEE countries to realise the full potential of digital health solutions, addressing a number of areas outside of the health sector to establish the needed foundations for telehealth, e-health and health information system solutions will be critical.

Financial resources are identified by health professionals as the most important factor affecting the quality of healthcare, with inadequate funding impacting negatively on planning, services and access to medicines.

Higher spending on healthcare in Austria, Germany, France, Portugal, the Netherlands and the UK translates into generally better results on measures commonly used to assess population health, such as life expectancy at birth and infant mortality. These indicators do reflect the effects of spending on healthcare, with the lowest-spending countries in per capita terms—Bulgaria, Hungary, Poland and Slovakia—constituting the worst performers overall on these outcome measures.^{9,10}

Avoidable deaths, as measured by treatable and preventable mortality, are notably higher among many CEE countries, with a broad correlation between healthcare spending and lower rates of avoidable deaths. The leading causes of death for treatable diseases and conditions in the EU in people aged under 75 years are ischaemic heart diseases, colorectal cancer, breast cancer among females,

cerebrovascular diseases, pneumonia, diabetes mellitus and hypertensive diseases.¹¹

Going forward, reducing the burden of these diseases and their adverse impact on life expectancy, labour productivity, and national economies will depend on investment in and timely access to diagnostics and the most effective available treatments.

The CEE region has the highest cardiovascular disease mortality rate in the world, while cancer and diabetes are also increasing, calling for more investment in preventative care and screening.

Bulgaria, Hungary, Poland and Slovakia record the highest rates of deaths from ischaemic heart disease. This aligns directly with their status as the lowest-spending countries on healthcare per capita. In the case of Bulgaria and Hungary, it also reflects the highest prevalence of smoking, a leading behavioural factor contributing to heart disease.

Recorded cancer prevalence rates in CEE countries are lower than in western European comparator countries, but this is due in part to less effective and timely screening and diagnosis. Mortality rates for most types of cancer are higher in CEE countries, largely owing to late diagnosis and treatment.¹²

The covid-19 pandemic has caused widespread disruption to screening programmes and delays in treatment, meaning that health outcomes may worsen in the coming years, placing more pressure on healthcare systems.

Population ageing set in much later in CEE than in other parts of Europe. However, dramatic drops in fertility rates, a steady rise in life expectancy and mass emigration of working-age people mean that the ageing phenomenon is shifting eastwards.

This trend is expected to continue until 2050. Although the comparator European countries generally have proportionately larger elderly populations, it has been projected that many countries in western Europe may experience a stabilisation in median ages by 2040, faster than most countries in CEE and southern Europe. Slovenia and Croatia are the only countries that are projected to have a higher proportion of people aged over 65 years than the EU27 average by 2025.¹³

8 European Commission. The Digital Economy and Society Index (DESI). Accessed May 2022 <https://digital-strategy.ec.europa.eu/en/policies/desi>

9 Eurostat. Life expectancy by age and sex. Available from https://ec.europa.eu/eurostat/databrowser/view/demo_mlsexpec/default/table?lang=en

10 Eurostat. Infant mortality rates. Available from https://ec.europa.eu/eurostat/databrowser/view/demo_minfind/default/table?lang=en

11 Data from Eurostat, WHO, Institute of Health Metrics and Evaluation (IHME)

12 Sources: Eurostat, Global Health Observatory, IDF Diabetes Atlas.

13 OECD/European Union (2020), Health at a Glance: Europe 2020: State of Health in the EU Cycle, OECD Publishing, Paris. Available from <https://doi.org/10.1787/82129230-en>

Ageing populations are stoking the prevalence of leading causes of mortality. Age is an independent risk factor for cardiovascular diseases in adults, and more than half of all cancers are diagnosed in people over 70 years of age. Health systems also need to adapt to the different healthcare requirements of older people. There is likely to be a surge in demand in all CEE countries for long-term care and treatments for other diseases that typically affect the elderly, such as arthritis, dementia and sensory impairment.

The covid-19 pandemic illustrates the precarious state of health systems in CEE and demonstrates where they lag behind western European counterparts. It should serve as a roadmap and opportunity to build back better.

A comparison of the number of deaths points to underprepared health systems across CEE and an inability to cope with surges, despite decades of focus on hospital infrastructure.¹⁴ Identified focus areas as countries move beyond covid-19 include prevention of non-communicable diseases (NCDs), with cancer diagnosis and prevention and early diagnosis of mental health issues raised as priorities. Health outcomes after the pandemic are likely to worsen in the longer term owing to the disruption of screening programmes and delays in treatment.

The pandemic has also highlighted the importance of stable and resilient healthcare systems to manage future unexpected surges of demand. Furthermore, in the years following the height of the covid-19 pandemic, we can expect to see a clear link between economic recovery and health outcomes, emphasising the importance of promoting and establishing more resilient health systems.

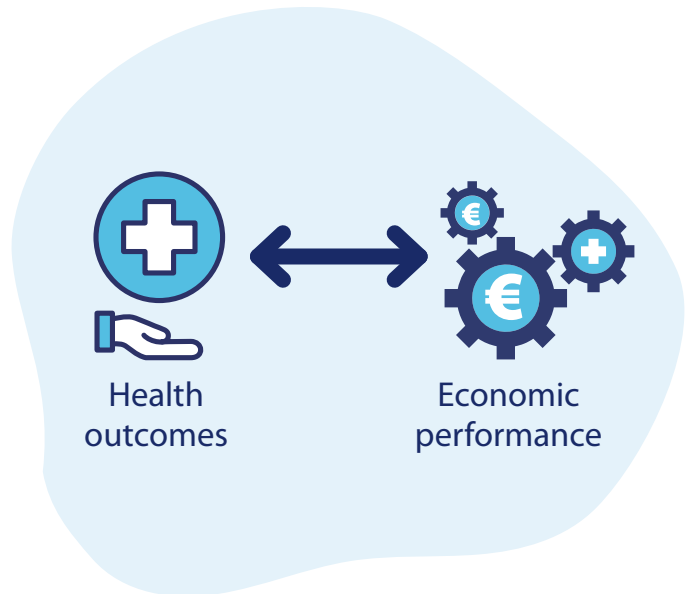
¹⁴ H Ritchie, E Mathieu, L R Guirao, et al. (2020) - "Coronavirus Pandemic (COVID-19)". Published online at OurWorldInData.org.

Introduction

There is a bidirectional link between health outcomes and economic performance. In general, good health is a cause, as well as a consequence, of higher income. Wealthier countries have healthier populations, but they also spend more on health in both per capita terms and as a proportion of gross domestic product (GDP). Higher incomes stimulate better living standards, greater access to healthcare services and better national health outcomes. Improved access to healthcare and medicines leads to longer life expectancy, boosts labour productivity and improves returns on investment in education.

Universal access to healthcare, efficient distribution of resources, high-quality healthcare services and optimal treatment efficacy are the fundamental objectives of most European healthcare systems. Despite common objectives, European countries have adopted diverse approaches to healthcare financing, health system organisation and spending priorities.

Historically, countries in central and eastern Europe (CEE) have spent less on healthcare than other parts of the EU. Although health expenditure in CEE countries has grown over time, it has not kept pace with GDP growth, and public spending per capita is currently up to five times lower than it is in France, Germany, Italy, Spain and the UK. Low public spending on health has led to weak financial protection and high levels of unmet need for health services across many countries in the region. Overall, healthcare delivery needs modernisation, with an excess of investment in hospital infrastructure, a shortage of general practitioners (GPs) and an underdeveloped foundation for digital health driving the need for structural reform.



Disparities between health spending and health outcomes persist between east and west. EU instruments aimed at addressing these disparities have so far failed to provide meaningful solutions. There is a long-standing debate on whether accession to EU membership and adoption of EU policies have had a conflicting impact on healthcare access and financial sustainability in certain parts of CEE. Although there has been a general improvement in access to healthcare since accession to the EU, these improvements have not kept pace with overall economic development.

The covid-19 pandemic has exacerbated the disparities in health spending and outcomes between east and west. While the pandemic led to a short-term increase in healthcare spending to deal with treatment and containment of the virus, it has also highlighted the importance of stable and resilient healthcare systems to manage future, unexpected surges of demand.

Objectives of European healthcare systems



Universal access



Efficient distribution of resources



High-quality services



Optimal treatment efficacy

As Europe recovers from the pandemic and faces unprecedented economic uncertainty healthcare is firmly recognised as an investment by EU leaders. The EU4Health Programme (2021-27) was launched to scale up investment in health, improve the availability, accessibility and affordability of medical products, and strengthen health systems. The programme will invest €5bn over seven years to improve health in the EU.¹⁵

In 2020 the European Commission announced the Pharmaceutical Strategy for Europe and a number of legislative proposals. These included a health technology assessment (HTA) framework, as well as the creation of the Health Emergency Response Authority, a clinical trials framework, the European Health Data Space and the Intellectual Property Action Plan. All are designed to support long-term alignment on pharmaceutical policy across the EU, and the creation of a regulatory framework

that promotes access and affordability of medicines and health system sustainability.¹⁶

This report presents a broad overview of access to healthcare and medicines in 13 European countries. It highlights differences and commonalities in healthcare financing trends and policy approaches as governments rise to the challenge of managing the interlinked dynamics of population health and economic growth. The sections in this report are loosely modelled on the World Health Organisation (WHO) Health System Framework, which describes healthcare systems in terms of six essential 'building blocks'—service delivery, workforce, information, medical products and technologies, financing, and governance—with the goal of achieving improved health, efficiency and responsiveness, and social and financial protection.¹⁷

What to expect in the chapters

Chapter 1 provides an overview of patterns and trends in health spending. This includes its relation to economic growth, the immediate and long-term impact of covid-19 and the current economic slowdown. It also highlights the need to strengthen leadership and organisational capabilities across health systems to support long-term planning. Furthermore, this chapter compares sources of revenue across health systems, the impact of high reliance on out-of-pocket (OOP) payments and the sustainability of social health insurance (SHI) models.

Chapter 2 compares healthcare spending by function and the challenges posed by current healthcare infrastructure, including an overreliance on the hospital system and workforce shortages as many healthcare professionals migrate to western Europe. The chapter then focuses on mechanisms to address these challenges, such as strengthening primary and community care.

Chapter 3 focuses on the potential impact of innovative medicines on health outcomes, efficiency and healthcare costs; considers the different pricing and reimbursement mechanisms used across the countries in this study; and explores disparities and inequities in the availability and accessibility of innovative medicines, as well as providing

potential solutions to address these inequities. The chapter also explores the importance of investment in medical equipment and technology, adoption of digital health, and the role of research and development (R&D) in supporting economic growth and access to advancements in medical technologies.

Chapter 4 assesses the impact of healthcare spending on key population health outcomes, the burden of non-communicable diseases—including cancer, heart disease and diabetes—, and explores how health systems should prepare for population ageing. The chapter also looks at measures of quality and efficiency of health systems, including population perceptions of quality of care, and the importance of health system resilience in the face of ongoing challenges and uncertainty.

The report ends with **conclusions** and **recommendations** on improving access, system sustainability and outcomes across the CEE countries featured in this study.

A series of **country profiles** complement the study, featuring detailed data and additional analysis on the national dynamics. They can be accessed at amchameu.eu.

15 European Commission. EU4HEALTH - Performance. https://ec.europa.eu/info/strategy/eu-budget/performance-and-reporting/programme-performance-overview/eu4health-performance_en

16 European Commission. Pharmaceutical Strategy for Europe. Directorate General for Health and Food Safety. 2020 Available from https://health.ec.europa.eu/system/files/2021-07/ev_20210707_co02_en_0.pdf

17 WHO. MONITORING THE BUILDING BLOCKS OF HEALTH SYSTEMS: A HANDBOOK OF INDICATORS AND THEIR MEASUREMENT STRATEGIES. 2010. Geneva. <https://apps.who.int/iris/bitstream/handle/10665/258734/9789241564052-eng.pdf>

1

Healthcare spending and financing dynamics

1.1 Healthcare spending

Spending on healthcare is lower in CEE countries both in terms of total healthcare spending per head and as a percentage of GDP

Across the countries included in this report, expenditure on health in nominal per capita terms and as a share of GDP is clearly linked to wealth and economic growth (Figure 1). Overall, countries in CEE record lower levels of wealth and spend less on healthcare. Although Slovenia and the Czech Republic record higher GDP per capita than Portugal, they (like all selected CEE countries) lag behind comparator countries in terms of healthcare spending.

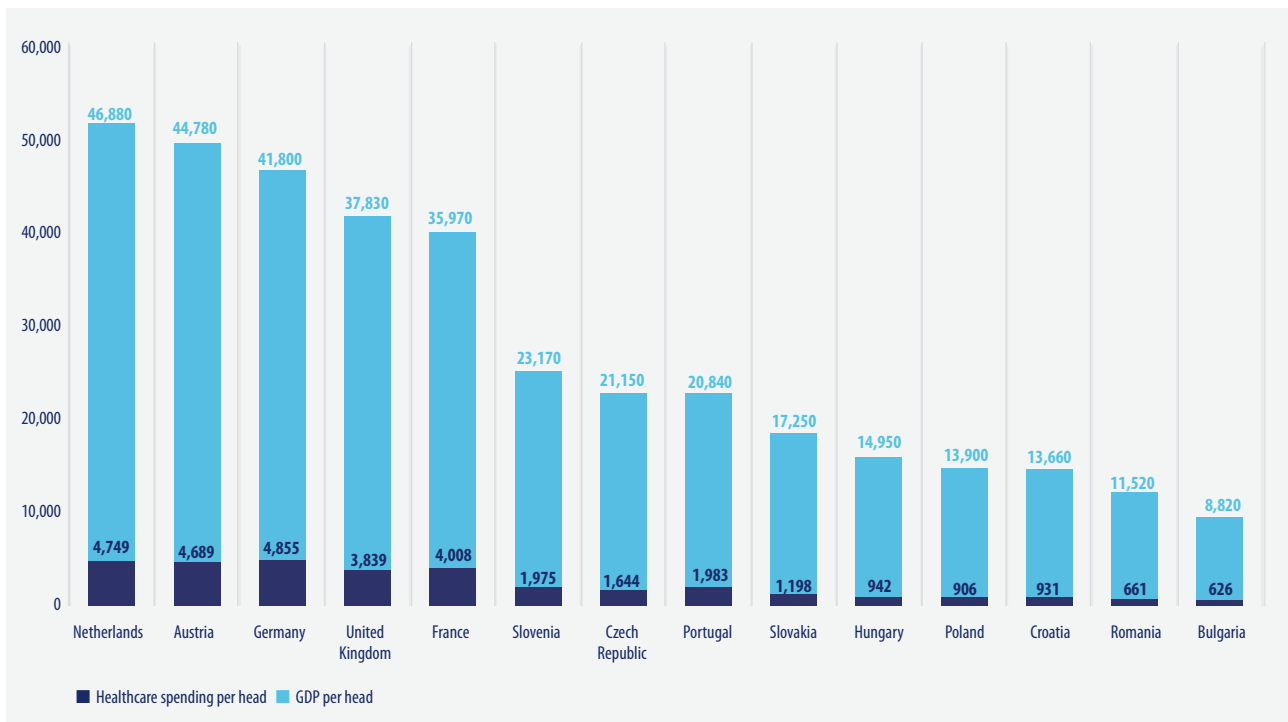
Spending on healthcare as a percentage of GDP is lower in all CEE countries than in western Europe comparator countries, with Hungary and Romania recording the lowest levels, at 6.3% of GDP and 5.7% of GDP respectively.¹⁸ In all of the CEE countries included in this report, total healthcare spending as a proportion of GDP remained lower than the EU 27 average of 9.9% in 2019.

In nominal per capita terms, the spending gap between the comparator countries in western Europe and the CEE countries reviewed is even starker. Total healthcare

spending per head in all of the CEE countries was significantly lower than the EU 27 average of €3,103 in 2019. Spending on health varies from less than €626 per head in Bulgaria and €661 per head in Romania to over €4,000 per head in Germany, France, the Netherlands and Austria. Compared with purchasing power standards (PPS) to adjust for price differences between EU Member States, these disparities are less apparent. Adjusted for PPS, Bulgaria spends €1,314 per head and Romania €1,354 per head, while spending in Germany, the Netherlands and Austria remains at over €4,000 per head.¹⁹



FIGURE 1: HEALTH EXPENDITURE AND GDP PER HEAD IN 2019 (EURO).



Source: Eurostat, 2019.

¹⁸ Eurostat. Health care expenditure. 2019. Available from https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HP/default/table?lang=en&category=hlth.hlth_care.hlth_sha11.hlth_sha11_sum
¹⁹ Eurostat. Health care expenditure. Euro per inhabitant. 2019. Available from https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HP/default/table?lang=en&category=hlth.hlth_care.hlth_sha11.hlth_sha11_sum

“The lack of funding is by and large considered a common denominator across the [CEE] region, but there are large variations from one country to the other in terms of absolute spending and in terms of dynamics,” says François Lamérant, senior manager at the European Federation of Pharmaceutical Industries and Associations (EFPIA). Despite the overall pattern of lower spending in CEE countries, there is considerable variation, with Slovenia recording total health expenditure of 8.5% of GDP in 2019, and Romania recording the lowest, at 5.7% of GDP. Slovenia also records the highest per capita spending, of €1,975 in 2019 (€2,361 in PPS per head), followed closely by the Czech Republic, with €1,644 (or €2,449 in PPS per head).²⁰

Healthcare spending in CEE has not kept pace with increased fiscal capacity and GDP growth

Healthcare expenditure across Europe has grown over the past decade owing to rising incomes, new medical technologies, increasing drug prices and volumes, and the shifting demographics of a growing, ageing population.²¹

How much a country invests in healthcare largely depends both on fiscal capacity and political willingness. The greater the fiscal capacity (a state’s ability to extract revenue, usually through taxes, to spend on public goods and services), the greater the government’s ability to spend on healthcare.

Despite generally stronger GDP and GDP per capita growth in the CEE study countries over the past decade and following the entry into the EU, these countries still spend lower proportions of their national resources on healthcare. Healthcare spending as a proportion of GDP and per capita remains considerably lower than in western Europe.

A report published by EFPIA and PwC in 2019 estimates that if CEE countries spent the same proportion of GDP as the EU5 (France, Germany, Italy, Spain and the UK), per capita healthcare spending could increase by 65%.²²

The prevailing lag in healthcare spending between CEE and western Europe indicates a failure among CEE governments to take advantage of increased fiscal capacity and economic growth to invest in their healthcare systems. Political willingness largely determines the proportion of government budget allocated to health. “Part of the issue with the funding is that up until now—covid-19 has maybe changed the situation—healthcare was not really a political priority,” says Silviu Popa, lead of the EFPIA CEE Task Force on healthcare financing in CEE, adding that while healthcare is often discussed at election time, “it’s not reflected in the political agenda, at least in the budget allocation”.

Healthcare expenditure in Europe



Rising incomes



New medical technologies



Drug prices and volumes



Ageing population

The surge in healthcare spending in response to the covid-19 pandemic is expected to stabilise from 2022 owing to the impact of economic slowdown and the war in Ukraine

Historic spending on healthcare was a key determinant of countries’ preparedness to deal with the impacts of the covid-19 pandemic. The global financial crisis of 2008-09 saw a shift away from public spending on healthcare that persisted throughout much of the past decade. Decades of underfunding and austerity measures meant that many CEE countries were not as well equipped to meet the challenges of covid-19, resulting in higher covid mortality rates across many countries.

Although health expenditure across all countries surged in 2020 and 2021 owing to the covid-19 pandemic and the recovery of non-covid care, spending is expected to stabilise from 2022, with risks of decline due to the impact of economic slowdown and the war in Ukraine.

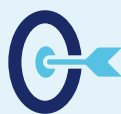
While internationally comparable data on health spending on covid-19 is limited, spending on healthcare has been generally higher among western European countries than CEE counterparts. Additional spending areas were linked to health insurance, salaries, personal protective equipment (PPE) and medical devices in the Czech Republic; PPE and staff in France; PPE, staff and vaccine development in Germany; hospital equipment, transportation and staff in Poland; and PPE in Slovenia.²³

20 Eurostat. Health care expenditure. 2019. Available from https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HP/default/table?lang=en&category=hlth.hlth_care.hlth_sha11.hlth_sha11_sum
21 WHO. Spending on health in Europe: entering a new era. Copenhagen: WHO. Regional Office for Europe; 2021. License: CC BY-NC-SA 3.0 IGO.
22 EFPIA, PwC. Healthcare outcomes and expenditure in Central and Eastern Europe – a review. 2021. Available from <https://www.efpia.eu/media/602945/pwc-strategy-report-increasing-healthcare-investment-in-cee-countries.pdf>
23 OECD/European Union (2020), Health at a Glance: Europe 2020: State of Health in the EU Cycle, OECD Publishing, Paris. Available from <https://doi.org/10.1787/82129230-en>

Close the gap between CEE countries and the wider EU



Spending priorities within healthcare systems



Effectiveness of healthcare financing schemes



National policies

A failure among CEE countries to prioritise investment in the immediate future could further widen the gap with western Europe. A significant increase in public health expenditure is required to manage the backlog created by widespread disruption to health services and to mitigate the adverse health effects of foregone care, unemployment, and future economic challenges and potential shocks. The conflict in Ukraine will further test resilience, with many health systems already under pressure owing to the influx of refugees and competition for limited national budgets.

The long-term and delayed health and economic impacts of the covid-19 pandemic also remain to be seen. Data from the International Monetary Fund (IMF) indicate that the reduction in GDP in 2020 in Europe (-5.9%) was much larger than the reduction experienced during the global financial crisis in 2009 (-3.8%).²⁴ Many countries in the CEE region have still not fully recovered from the 2009 financial crisis. In the years following the height of the covid-19 pandemic, we can also expect links between economic recovery and health outcomes to demonstrate that poor financial stability and unemployment may have a negative impact on future health outcomes, underlining the importance of promoting and establishing more resilient health systems.

Many CEE countries lack consistent health-system leadership and governance, which impedes long-term planning and structural reforms

“Decades of underfinancing have caused the [health] system to fall apart, and now we have to put out the fires all the time.”

Dr Christoph Sowada, professor of health economics, Jagiellonian University, Poland.

Many of the experts interviewed for this report agree that while healthcare spending and funding is lower in the CEE region than in many European countries, the management and organisation of available funds is the critical compounding issue impacting health outcomes and the overall functioning of health systems. Spending on healthcare reflects not just economic development but also political priorities, governance and long-term planning. Increasing spending does not always improve health outcomes—how money is spent (and how efficiently) also matters. Improving efficiency relies on optimising existing resources and freeing up additional resources to be used in higher-value areas.

Lack of consistency in leadership means that needed reforms to health systems are often short lived. “In some of these countries, you see rapid changes in ministers of health,” says Dr Wim Groot, professor of health economics in the Faculty of Health, at Maastricht University in the Netherlands, adding that these ministers bring different opinions and different directions to policies, so that “in the end, nothing big gets done”. Mr Popa says that, as many health ministers don’t serve a full mandate, quick wins are often prioritised over long-term structural reforms. “There are historical inefficiencies in the system,” he says. “It’s a huge task to actually reform the system, so structural reforms are often postponed. It’s difficult to do what needs to be done in one mandate. We are having small reforms here and there that are implemented but not consistent, which results in a lot of complexity”.

As well as national wealth and total healthcare spending levels, progress by CEE countries to close the gap in outcomes with the wider EU will be determined by spending priorities within healthcare systems, the effectiveness of healthcare financing schemes, as well as other national policies affecting access to vaccines and medicines, such as drug pricing and reimbursement and the implementation of innovative funding mechanisms. These areas will be explored in the subsequent chapters of this report.

24 WHO. Spending on health in Europe: entering a new era. Copenhagen: WHO. Regional Office for Europe; 2021. License: CC BY-NC-SA 3.0 IGO.

1.2. Sources of revenue

Healthcare systems in CEE are generally funded through social health insurance models reliant on employment-based contributions

Healthcare systems across Europe are mainly based on compulsory health financing through government schemes or social health insurance (SHI) schemes. SHI models are largely dependent on employment-based social security contributions from employers and employees and subsidised by government funding raised from general taxation. The main exception among the countries covered in this report is the UK, where universal coverage is provided by the National Health Service (NHS) and funded from general taxation.

Health systems in many CEE countries have evolved from the Semashko model of the Soviet era, based on state financing, free access at point of delivery and centralised management and control of health services. With the shift to market economies and ascension into the EU, these states have transitioned towards an SHI model.

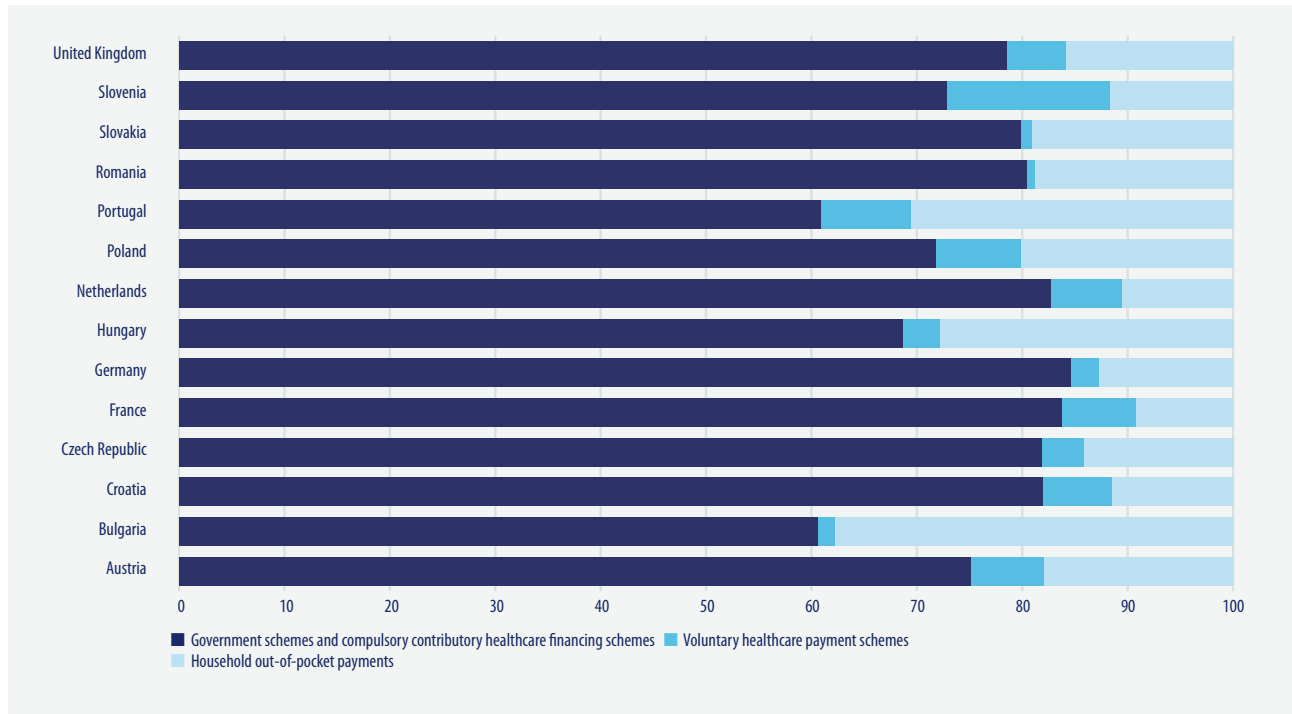
In the countries we looked at, government schemes and compulsory contributory healthcare financing schemes range from 84% of current healthcare expenditure in Germany to just over 60% in Bulgaria and Portugal (Figure 2).

The share of voluntary health insurance (VHI) is negligible in Romania, Bulgaria and Slovakia, at less than 2% of current health expenditure, and highest in Slovenia, at over 15% of current spending. Out-of-pocket (OOP) payments tend to be lower where VHI is higher. Among our study countries, the share of OOP is lowest in France, at 9%, and highest in Bulgaria, at almost 38%.²⁵ The OECD average for 2019 was 20.3%.²⁶

Although the health systems in this study in theory provide universal care, coverage is often not comprehensive. In Romania, 13% of the population was not covered by the national health insurance system in 2016, and 12% of the population in Bulgaria lacked health insurance in 2020.^{27,28}

“There is a professional consensus that contributions do not cover health expenditure. In Hungary, the ratio of private spending to government spending on health is very

FIGURE 2: FINANCING SOURCES AS % OF CURRENT HEALTH EXPENDITURE



Source: Eurostat. Health care expenditure. 2019. Available from https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HP/default/table?lang=en&category=hlth.hlth_care.hlth_sha11.hlth_sha11_sum

25 Eurostat. Health care expenditure. 2019. Available from https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HP/default/table?lang=en&category=hlth.hlth_care.hlth_sha11.hlth_sha11_sum
 26 WHO. Global Health Expenditure Database. 2019. Available from <https://apps.who.int/nha/database>
 27 OECD/European Observatory on Health Systems and Policies (2017), Romania: Country Health Profile 2017, State of Health in the EU, OECD Publishing, Paris/European Observatory on Health Systems and Policies, Brussels. <http://dx.doi.org/10.1787/9789264283534-en>
 28 ECD/European Observatory on Health Systems and Policies (2017), Bulgaria: Country Health Profile 2017, State of Health in the EU, OECD Publishing, Paris/European Observatory on Health Systems and Policies, Brussels. <http://dx.doi.org/10.1787/9789264283305-en>

high—30% of health expenditure is financed from private pockets, mainly from OOP” says Dr Csaba Dózsa, associate professor in the Faculty of Health Sciences at the University of Miskolc in Hungary. “This is a major weakness in the Hungarian health financing system, and it definitely needs to change by increasing the share of public spending from GDP by approximately 1.5-2% within the next four to five years”.

Moreover, although universal coverage is a key indicator of access to healthcare, it is not a guarantee of equity. Even in some supposedly universal systems coverage may be shallow or uneven, leaving some patients facing OOP charges or needing to take out private insurance to cover their unmet healthcare needs. In some countries, such as France, health policies are designed to encourage and enable this, with private insurance incorporated as a key element of the public system.

OOP payments for health services constitute a major financial burden for patients in CEE countries

Widespread OOP spending constitutes a major financial burden for patients and a barrier to health services in CEE. Informal payments are also deeply rooted in many CEE health systems, making the true extent of OOP or patient payments difficult to determine. Although Poland introduced penalties for accepting informal or “gratitude” payments in 2014, many patients across CEE states still resort to making such payments, distorting service utilisation and health priorities and limiting access for those who need it most.²⁹ Low salaries, deficient healthcare infrastructure and prevailing corruption contribute to the continued existence of informal payments.³⁰

High OOP spending weakens financial protection for the most vulnerable—those with poor health and low incomes. Individuals who are unable to pay often resort to borrowing money or foregoing service utilisation, which can negatively affect their health and social welfare.³¹



Reducing the reliance on OOP payments should be a key feature of immediate and future policy reforms.

“In Slovakia, people who need healthcare but can’t pay the premiums are not coming to the doctors when they are not well. In the long term, this puts an additional strain on the health system because these people will eventually need more costly care.” says Ms Lucia Roussier, founder and executive director of EQUITA, an NGO in Slovakia that works to reduce inequalities in health access. Reducing the reliance on OOP payments should be a key feature of immediate and future policy reforms to address the unmet need for healthcare access and reduce financial hardship.

Many agree that the SHI model is no longer sustainable in the face of changing population demographics, rising economic uncertainty and a global commitment to UHC

There is agreement among European healthcare experts that current public financing models in CEE countries are no longer sustainable. “This kind of [SHI] model was introduced in completely different conditions, [when] the contribution based on income made sense, because the main purpose of the local health authorities was to pay sickness benefits, and amounts depended on people’s earnings,” says Dr Christoph Sowada, professor of health economics at Jagiellonian University in Poland. Dr Pia Vračko, a health economist and senior advisor at Slovenia’s National Institute of Public Health, adds that healthcare provision based on SHI can serve as an economic risk in times of crisis:

“The weakness [of the SHI model] is that not much funding come from the state budget, which makes the system vulnerable to economic crisis, as its contributions come in through payroll tax – if people do not work, there are no contributions”.

Dr Pia Vračko, health economist and senior advisor, National Institute of Public Health, Slovenia.

29 Zandian H; Esfandiari A; Sakha M; Takian A. Strategies to reduce informal payments in health systems: a systematic review. *East Mediterr Health J.* 2019;25(12):914–922. <https://doi.org/10.26719/emhj.19.057>

30 Sokol, T. The Effect of EU Integration on Health Care in Central and Eastern Europe. 2021. *J Health Polit Policy Law* 46(1): 147-175.

31 Tambor M, Pavlova M, Rechel B, Golinowska S, Sowada C, Groot W. The inability to pay for health services in Central and Eastern Europe: evidence from six countries. *Eur J Public Health.* 2014 Jun;24(3):378-85. doi: 10.1093/eurpub/ckt118. Epub 2013 Sep 23. PMID: 24065370;

All European healthcare systems are primarily built on the principles of universality, equity and solidarity. Many countries find that adhering to these underlying principles inevitably leads to rising expenditure as populations grow and age, quality expectations rise, and more advanced medical treatments are developed. Additional challenges such as covid-19, the current economic downturn and the conflict in Ukraine have led to the introduction of short-term measures that may adversely affect health provision in the longer term.

According to the WHO, gaps in population coverage are larger in countries financed through SHI schemes. Access or coverage linked to employment status disadvantages people in vulnerable situations. Driving progress toward UHC and the UN Sustainable Development Goals (SDGs) will require strengthening investment in the public health system and paying careful attention to the design of coverage policy.³²

“Our problem is that in the past, we had a very socially oriented healthcare system, meaning our population is used to having all health services readily available and free,” says Ms Ana Ivičević Uhernik, who works for the Department for Health Economics of the Croatian Institute of Public Health. “Now, this is more limited, due to the simple fact that the available amount of money is limited and technological possibilities are costing more and more, leading to growing discrepancies each year”.

Many countries with SHI models are making efforts to diversify revenue streams. Countries such as Germany are beginning to use taxes or central government transfers to supplement social insurance funding, with the aim of reducing the vulnerability of public health insurance to economic or employment fluctuations. Other countries are also exploring additional sources of income—one example being Poland, which introduced a sugar tax in 2021.³³

The role of external funding, primarily through the EU, remains important in CEE

EU member states in CEE have been the main beneficiaries of EU budgets since accession, with funds mainly directed to strengthen territorial cohesion and reduce inequalities. Most non-EU external funding has been traditionally mobilised by multilateral and bilateral organisations and directed towards disease-specific programmes, such as HIV.³⁴ The European Commission recently introduced the Recovery and Resilience Facility to mitigate the economic and social impact of covid-19. Several countries, including Slovakia, Bulgaria, Croatia, the Czech Republic, Germany and Portugal, have been approved as beneficiaries of loans and grants from the fund, which totals €723bn (US\$736bn). While the funding is ultimately aimed at boosting GDP and jobs, a high percentage has been directed towards digital transformation, including in healthcare.³⁵

32 WHO. Spending on health in Europe: entering a new era. Copenhagen: WHO. Regional Office for Europe; 2021. License: CC BY-NC-SA 3.0 IGO.

33 Eykelenboom, M., van Stralen, M.M., Olthof, M.R. et al. Political and public acceptability of a sugar-sweetened beverages tax: a mixed-method systematic review and meta-analysis. *Int J Behav Nutr Phys Act* 16, 78 (2019). <https://doi.org/10.1186/s12966-019-0843-0>

34 WHO. Spending on health in Europe: entering a new era. Copenhagen: WHO. Regional Office for Europe; 2021. License: CC BY-NC-SA 3.0 IGO.

35 Economic Commission. Recovery and Resilience Facility. Accessed May 2022 https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en



2

Service delivery and resources

2.1. Allocation of financial resources

The allocation of funding to inpatient care remains high across CEE, while funding for preventative and long-term care lags behind

Health systems differ in how they allocate available finances to different functions. Only two of the seven CEE countries studied for this report—Croatia and Slovenia—spend more on outpatient curative and rehabilitative care than on in-patient curative and rehabilitative care. In all western European comparator countries there is a trend towards lower proportional allocations to in-patient and higher allocations to outpatient care (Figure 3)—three of the six countries (Portugal, the Netherlands and the UK) spend more on outpatient care than inpatient care. To varying degrees, this same trend has been discernible in nearly all CEE countries covered since 2016, the exception being Bulgaria. Of all the countries covered by this study, Portugal spends the highest proportion of its healthcare budget on outpatient care (38.7%), which can be attributed in part to a 2005 reform of primary healthcare and the establishment of Family Health Units.³⁶

Spending on long-term care, which will become increasingly important owing to population ageing, is notably lower across all CEE countries. Far below 1% of current healthcare spending in Bulgaria and Slovakia goes towards long-term care, at 0.12% and 0.39% respectively. The EU27 average is 16%, with the Netherlands spending significantly more (28%; see Figure 3).

Hungary and Slovenia spend the highest on preventative care among the CEE countries, at almost 3.2% of current health spending, higher than the EU27 average of 2.8%. Slovenia's high preventative spending can partly be attributed to its primary care commitment. While most CEE countries also aim to focus on strengthening primary and preventative care, spending on preventative care is still negligible in Slovakia, at 0.8% of current health spending.

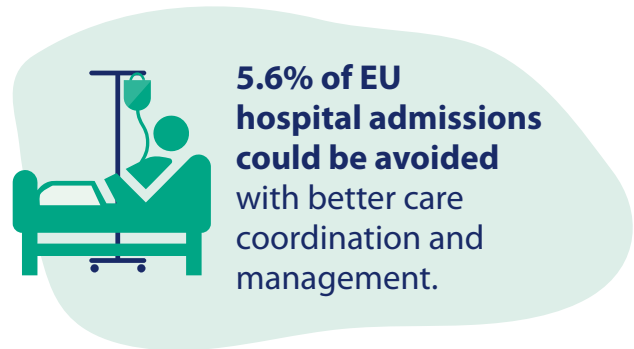
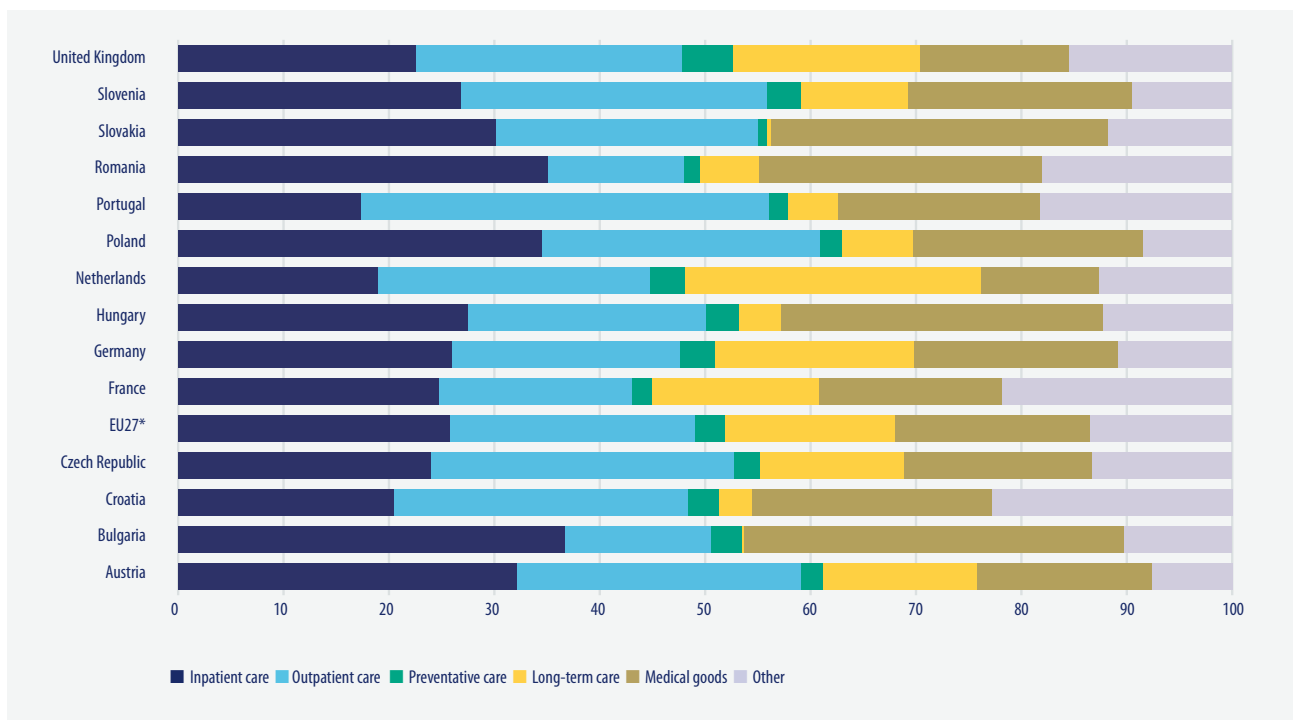


FIGURE 3: HEALTHCARE EXPENDITURE BY FUNCTION (% OF CURRENT HEALTH EXPENDITURE)



*EU27 data from 2018, latest available year

Source: Eurostat. Healthcare expenditure by function. 2019. Available from Sourced from: https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HC/default/table?lang=en&category=hlth.hlth_care.hlth_sha11.hlth_sha11_sum

36 Biscaia AR, Heleno LC. Primary Health Care Reform in Portugal: Portuguese, modern and innovative. Cien Saude Colet. 2017 Mar;22(3):701-712. Portuguese, English. doi: 10.1590/1413-81232017223.33152016. PMID: 28300980

Siloed healthcare budgets across many CEE countries mean that financial resources are often assigned to specific healthcare functions and disease areas, limiting coordination across these functions and leading to challenges such as duplication and inappropriate use of resources. It is estimated that approximately 5.6% of EU hospital admissions could be avoided with better care coordination and management.³⁷ Health spending allocation between infrastructure and human resources also varies across the region.

The following sections explore current infrastructure capacity and quality following decades of focus on hospital care, the urgent need for increasing human capital in health, and the potential of mitigating these challenges through strengthening primary and community care and enhancing patient access and system coordination through digitisation of healthcare. Spending on and access to medicines will be discussed in the following chapter.

2.2. Healthcare infrastructure

A legacy of hospital-centric care still dominates as CEE countries aim to move from a focus on quantity to quality

Healthcare systems across Europe are transitioning from a hospital-focused care system with a high reliance on inpatient beds to a patient-centric system with a greater focus on primary and community care. “The main problem is the completely reversed organisation of the healthcare system when it comes to the needs of modern society,” says Dr Sowada. “The system is hospital-centric, and the organisation of the financing system follows that organisation of these diagnostic processes and therapies.”

Germany, and Austria have the highest number of hospital beds relative to population (see Figure 4). Bulgaria has the largest number of hospital beds relative to the population in CEE, at 7.7 beds per 1,000 population in 2019. Bulgaria also has the highest hospital admission rate in the EU and inpatient care continues to grow, largely driven by private-sector expansion.³⁸ From 2000 to 2018 the number of private hospitals increased sixfold, and the number of hospital beds in the private sector increased by 40. Private hospitals also offer higher pay, attracting a greater proportion of nursing graduates, contributing to a shortage in the public sector.³⁹

Poland, with 6.17 beds per 1,000 population in 2019, also ranks above the EU and OECD averages, with public hospitals reporting high debt levels. As in many countries across the region, the government is trying to promote integrated care. In 2017 it established a hospital network that allocates a lump-sum payment per patient.⁴⁰

Hospital indebtedness is also a significant barrier to higher investment and improvement of services in Slovakia. In 2017 the overall debt for the 17 hospitals managed by the country’s Ministry of Health amounted to around €728m (around 0.9 % of GDP).⁴¹ The government has been pumping state funds into loss-making and heavily indebted healthcare institutions. The health ministry plans to reduce the number of hospitals by 2030 and divide the hospital system into five tiers—community, regional, complex, endpoint and national—based on the services that they offer. Attention must be paid to the facilities themselves: David Balla, associate manager, Site Analytics at IQVIA in Slovakia points out the need “to centralise the inpatient system and make sure that the infrastructure is invested in. The healthcare buildings in Slovakia are very old”.

The age of hospital infrastructure in Croatia is also a challenge. Ms Ivičević Uhernik says that while the need for improvement in infrastructure has been recognised, a decreasing population in Croatia means that “efforts should be directed to improving infrastructure rather than increasing capacity.”⁴² The implementation of the 2012-20 Strategy aimed at modernising hospital services has lagged behind, and health reform initiatives have been poorly coordinated,” adds Dr Luka Vončina, a medical doctor and health policy consultant based in Croatia.

With 4.4 hospital beds per 1,000 people, Slovenia is the only CEE country in this study that falls below the EU and OECD averages. At just over 2.1m, Slovenia has a smaller population than many of its CEE counterparts, meaning that the requirement for hospital infrastructure is lower.⁴³ Currently, there are 29 hospitals in Slovenia, all of which operate mainly in the public sector (although some also offer private health services), and 64 primary healthcare centres.⁴³ Dr Dorijan Marušič, former minister of health in Slovenia, says that while “the current government [in Slovenia] accepted that the system is underfunded, investment is directed towards infrastructure and new buildings,” adding that the government should invest more in human resources and education.

37 OECD. Health at a Glance: Europe 2018. State of Health in the EU Cycle. OECD Publishing, Paris. Available from https://health.ec.europa.eu/system/files/2020-02/2018_healthatglance_rep_en_0.pdf

38 OECD/European Observatory on Health Systems and Policies (2019), Bulgaria: Country Health Profile 2019, State of Health in the EU, OECD Publishing, Paris/European Observatory on Health Systems and Policies, Brussels.

39 Grancharova, Gena & Dulgerova, S & Aleksandrova-Yankulovska, Silviya. (2020). Public and private hospitals – different opportunities for nurses (Bulgaria, Pleven, 2016-2018). European Journal of Public Health. 30. 10.1093/eurpub/ckaa166.489.

40 Sowada C, Sagan A, Kowalska-Bobko I, Badora-Musiał K et al. European Observatory on Health Systems and Policies. Health Systems in Transition. Poland: Health system review. 2019. Vol.21, No1

41 European Commission. Improving the Cost-Effectiveness of Slovakia’s Healthcare System. 2018. Available from https://ec.europa.eu/info/sites/default/files/economy-finance/eb041_en_0.pdf

42 The World Bank. Population, total – Slovenia. Accessed May 2021. <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=SI>

43 Rozman U, Mis NF, Kupirovič UP, Pravst I, Kocbek P, Strauss M, Turk SŠ. Nutritional quality of beverages available in vending machines in health and social care institutions: do we really want such offers? J Health Popul Nutr. 2021 Jul 2;40(1):29. doi: 10.1186/s41043-021-00250-1.

The UK has the lowest number of hospital beds per 1,000 population, at 2.5 in 2019. According to the King's Fund, a UK-focused health think-tank, the total number of hospital beds in England has fallen in the past 30 years as a result of a strong commitment to providing treatment and care outside of the hospital, as well as a shift in the type of beds available, with fewer overnight beds and more day-only beds.⁴⁴

FIGURE 4: HOSPITAL BEDS (PER 1,000 POPULATION)

| | 2016 | 2017 | 2018 | 2019 |
|----------------|------|------|------|------|
| Germany | 8.06 | 8.00 | 7.98 | 7.91 |
| Bulgaria | 7.27 | 7.45 | 7.57 | 7.74 |
| Austria | 7.42 | 7.37 | 7.27 | 7.19 |
| Romania | 6.84 | 6.89 | 6.97 | 7.06 |
| Hungary | 7.00 | 7.02 | 6.95 | 6.91 |
| Czech Republic | 6.66 | 6.63 | 6.62 | 6.58 |
| Poland | 6.64 | 6.62 | 6.54 | 6.17 |
| France | 6.06 | 5.98 | 5.91 | 5.84 |
| Slovakia | 5.78 | 5.82 | 5.70 | 5.76 |
| Croatia | 5.49 | 5.54 | 5.61 | 5.66 |
| EU27 | 5.45 | 5.41 | 5.38 | 5.32 |
| Slovenia | 4.49 | 4.50 | 4.43 | 4.43 |
| Portugal | 3.39 | 3.39 | 3.44 | 3.51 |
| Netherlands | 3.41 | 3.28 | 3.21 | 3.08 |
| United Kingdom | 2.57 | 2.54 | 2.50 | 2.50 |

Source: Eurostat. Healthcare resources. Hospital beds. Available from https://ec.europa.eu/eurostat/databrowser/view/TPS00046/default/table?lang=en&category=hlth.hlth_care.hlth_res.hlth_facil Ranked highest to lowest based on 2019 data

While the higher number of hospital beds in CEE may have been somewhat advantageous when the pandemic placed extra pressure on the system during the peak of the covid-19 outbreak, higher death rates indicate that having adequate hospital beds does not compensate for underinvestment in infrastructure, equipment and healthcare personnel. Dr Pavel Hroboň, a partner at the Advanced Healthcare Management Institute in the Czech Republic, notes that the over-reliance on hospitals did mean that the Czech hospital system was in a good position to “withstand the increase and change in demand in times of the pandemic.” However, in the long term the hospital system needs to move beyond “standalone islands”, highlighting a need for hospital networks and system integration.

2.3. Human capital

Combating workforce shortages and reversing migration flows remains a priority in Europe

The free movement of healthcare professionals within the EU has proven to have a substantial impact on the healthcare systems of CEE countries, mainly through outward migration. The overall effect of workforce mobility in CEE has varied between different countries. Outflows have generally been more emphasised in the most deprived regions and countries, with dire consequences for healthcare access in some areas of CEE. Countries such as Bulgaria, Poland and Hungary have employed various retention strategies, such as increasing salaries and improving working conditions, thereby increasing the quality of healthcare provision; these measures have resulted in return migration.

Austria employs more resources in parts of its healthcare sector than many western European neighbours. The number of practising physicians per 1,000 population in Austria was estimated at 5.35 in 2020, which is among the highest in the world, and well above the EU average (Figure 5). Germany also has among the highest rates of doctors and nurses per head in the EU, with 4.47 doctors per 1,000 population in 2020. Recent legislation has focused on recruiting more GPs in rural areas and raising nursing retention rates via improved pay and conditions.⁴⁵ To improve working conditions, new minimum nursing staff levels were introduced in 2021 for an extended range of hospital care services.⁴⁶

Bulgaria has a high density of doctors, with 4.28 per 1,000 population in 2020. However, regional disparities are high, and GPs are scarce. A recent agreement between the Ministry of Health and Federation of Trade Unions in Healthcare will see a rise in wages for both doctors and nurses, with the hope that the improved remuneration will slow migration and attract young people to the sector.⁴⁷



The free movement of healthcare professionals within the EU has proven to have a substantial impact on healthcare systems of CEE countries, mainly through outward migration.

⁴⁴ The King's Fund. The number of hospital beds (internet). 2021. Available from <https://www.kingsfund.org.uk/projects/nhs-in-a-nutshell/hospital-beds>

⁴⁵ OECD/European Observatory on Health System and Policies. Germany County Health Profile 2019, State of Health in the EU. OECD Publishing

⁴⁶ Bloomberg Tax. Germany to Increase Nursing Minimum Wages. Accessed May 2022. <https://news.bloombergtax.com/payroll/germany-to-increase-nursing-minimum-wages>

⁴⁷ Confederation Syndicate European Trade Union, Pay boost for Bulgarian health workers. Accessed May 2022. <https://www.etuc.org/en/pay-boost-bulgarian-health-workers>

Poland has among the lowest numbers of practising doctors and nurses per 1,000 population in the EU, with an estimated 2.38 practising physicians per 1,000 population in 2017 (latest available). This lack of resources may have affected Poland's response to the covid-19 crisis. However, the retention of healthcare workers is expected to improve following the UK's exit from the EU. In addition, Polish medical training is changing to allow nurses and other staff to perform tasks such as prescribing medicines and carrying out diagnostic tests.⁴⁸ Unlike in other CEE countries, the government turned down workers' demands for a significant pay rise amid widespread protests by doctors and nurses in September 2021.⁴⁹

The ageing of the healthcare workforce is also a concern across the region. In the Czech Republic almost a quarter of doctors are now aged over 60.⁵⁰ The Czech Republic also struggles to retain highly trained doctors, with low pay leading to emigration. Although this "brain drain" is expected to ease due to the UK's exit from the EU, many Czech doctors still head to Germany and other western European countries. The Czech government increased pay for healthcare workers by 10% in 2021, following an 8% increase for doctors in 2020. The Ministry of Health reports that doctors' pay is now around the EU average, having increased by 32% in the five years prior to 2019.⁵¹

Hungary, with 3.14 doctors per 1,000 population in 2020, faces a shortage of healthcare professionals, especially nurses, partly due to emigration. "The main problem is that the Hungarian health system is fundamentally under-resourced, even compared to what Hungary can afford in terms of national wealth and people's income," says Dr Dózsa. "The ageing of our doctors is a big problem, and we have to tackle it," adds Dr Szemere Maurer, Healthcare Division lead at the Századvég Economic Research Institute. Under a 2016 agreement following widespread strikes, basic wages in the health sector have increased. Monthly wages for doctors rose by 100% between 2000-2018, and doctors also received a one-off pay rise during the pandemic, with base pay set to double between 2021 and 2023.⁵² Nurses' salaries are set to increase by 21% from January 2022.⁵³

In Croatia, despite concerns over the effects of EU accession in 2013 and potential outward migration of health



The ageing of the healthcare workforce is also a concern across the region.

professionals, the ratio of doctors and nurses to population has increased steadily since then. In 2015 the government adopted the Strategic Plan for Human Resources in Health Care for 2015-2020, which aims to establish a human-resources management system, although reported success has been limited.⁵⁴

Despite its high expenditure on healthcare, Slovenia has a relatively low number of doctors, estimated at 3.3 per 1,000 people in 2020. The government has been unable to enforce regulations that cap the number of patients registered with each GP, prompting protests about overwork.⁵⁵ "We have two big challenges," says Dr Vračko. "[The first is] shortages of healthcare doctors, primary care and nurses. Nurses often leave and find better-paid jobs in the private sector. The second challenge is prolonged waiting times in secondary health services. The root causes are complex, related to the system, the organisation of systems, payments and workforce shortages, so solutions are not easy to find".

With relatively high pay for doctors compared to other CEE countries, Slovenia has not been markedly affected by an exodus of medical professionals seeking better compensation and conditions in more prosperous EU countries.

Slovakia is also struggling with a mass departure of healthcare workers. "Another 1,300 healthcare workers left during the pandemic," says Ms Roussier, founder and executive director of EQUITA 5. "The health system was under-resourced already and it is even worse now." The Slovak Society of General Practice reported in 2019 that there are 2,200 patients per GP and that 30% of the country's GPs are aged over 65.⁵⁶

48 Zimmermann A, Cieplikiewicz E, Wąż P, Gaworska-Krzemińska A, Olczyk P. The Implementation Process of Nurse Prescribing in Poland-A Descriptive Study. *Int J Environ Res Public Health*. 2020 Apr 2;17(7):2417. doi: 10.3390/ijerph17072417. PMID: 32252355; PMCID: PMC7177755.

49 Forbes. Thousands Of Polish Medical Workers Protest Over Pay And Working Conditions. Accessed May 2022 <https://www.forbes.com/sites/lidiakurasinska/2021/09/11/thousands-of-polish-medical-workers-protest-over-pay-and-working-conditions/?sh=3418db4739a0>

50 OECD/European Observatory on Health Systems and Policies (2017), Czech Republic: Country Health Profile 2017, State of Health in the EU, OECD Publishing.

51 Ministry of Health of the Czech Republic. The government approves bonuses for healthcare and social services workers, new programmes to help entrepreneurs. Accessed August 2022 <https://koronavirus.mzcr.cz/en/the-government-approves-bonuses-for-healthcare-and-social-services-workers-new-programmes-to-help-entrepreneurs/>

52 Government of Hungary. 2020 National Reform Programme of Hungary. April 2020. Available from https://ec.europa.eu/info/sites/default/files/2020-european-semester-national-reform-programme-hungary_en.pdf

53 Reuters. Hungary PM Orban flags further wage hikes ahead of 2022 election. 2021. Accessed May 2022. <https://www.reuters.com/world/europe/hungary-pm-orban-flags-further-wage-hikes-ahead-2022-election-2021-10-08/>

54 OECD/European Observatory on Health Systems and Policies (2019), Croatia: Country Health Profile 2019, State of Health in the EU, OECD Publishing

55 OECD/European Observatory on Health Systems and Policies (2017), Slovenia: Country Health Profile 2017, State of Health in the EU, OECD Publishing, Paris/European Observatory on Health Systems and Policies, Brussels. <http://dx.doi.org/10.1787/9789264283558-en>

56 OECD/European Observatory on Health Systems and Policies (2017), Slovak Republic: Country Health Profile 2017, State of Health in the EU, OECD Publishing, Paris/European Observatory on Health Systems and Policies, Brussels. <http://dx.doi.org/10.1787/9789264283541-en>

With 2.8 doctors per 1,000 people, the UK's doctor/patient ratio is the lowest among western European countries. Tighter immigration policies following Brexit are making it harder for the NHS to recruit foreign workers, who accounted for almost 15% of NHS England staff as of 2021.⁵⁷ France, which also falls below the EU average in the number of doctors per 1,000, has proposed reforms to raise the number of doctors by 20% through changes to medical education and a move towards remote consultations and telehealth.⁵⁸

Recognising the history of health systems in the CEE region is essential to understanding the gap and challenges in the transition to primary and community care. "The system in these countries is quite different from most western European countries. [CEE] had a very hospital-oriented system where primary care was generally thought of as inferior and frequently bypassed by people who wanted to see a medical specialist and go to the hospital almost immediately," explains Dr Groot. "[Primary care is] gradually building up, but has taken much longer than many people would expect it to".

"[In CEE] primary care was generally thought of as inferior and frequently bypassed by people who wanted to see a medical specialist and go to the hospital almost immediately".

Dr Wim Groot, professor of health economics, Faculty of Health, Medicine and Life Sciences, Maastricht University, The Netherlands.

Strengthening primary and community care and increasing investment in primary and community care will increase equity of access and reduce pressure on overstretched healthcare workers

FIGURE 5: DOCTORS PER 1,000 POPULATION

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|
| Austria | 5.13 | 5.18 | 5.24 | 5.32 | 5.35 | 5.45 |
| Portugal* | | | | 5.10 | 5.10 | |
| Germany | 4.19 | 4.25 | 4.31 | 4.39 | 4.47 | 4.53 |
| Bulgaria | 4.11 | 4.18 | 4.22 | 4.24 | 4.28 | |
| Czech Republic | | | 4.04 | 4.07 | 4.10 | |
| Netherlands | 3.54 | 3.60 | 3.67 | 3.75 | 3.83 | |
| EU27 | | 3.60 | 3.80 | | 3.80 | |
| Croatia | 3.24 | 3.36 | 3.44 | 3.52 | 3.52 | 3.60 |
| Slovakia** | | 3.40 | | | 3.40 | |
| Roania | 2.84 | 2.93 | 3.05 | 3.19 | 3.33 | |
| Slovenia | 3.01 | 3.10 | 3.18 | 3.26 | 3.30 | |
| France | 3.12 | 3.14 | 3.14 | 3.17 | 3.18 | |
| Hungary | 3.21 | 3.32 | 3.38 | 3.49 | 3.14 | 3.28 |
| United Kingdom | 2.78 | 2.81 | 2.84 | | 2.84 | |
| Poland | 2.42 | 2.38 | | | 2.38 | |

Source: Eurostat. Practising medical doctors per thousand inhabitants. Available from https://ec.europa.eu/eurostat/databrowser/view/TPS00044/default/table?lang=en&category=hlth.hlth_care.hlth_res.hlth_staff

* Sourced from: OECD/European Observatory on Health Systems and Policies (2021), Portugal: Country Health Profile 2021.

** Sourced from: OECD/European Observatory on Health Systems and Policies (2019), Slovakia: Country Health Profile 2019.

Ranked highest to lowest based on 2020 data or latest available year

According to Dr Hroboň, primary care is now one of the priorities for medical students in the Czech Republic. This is "a significant change from 10-20 years ago," he says. "We are still facing about a ten-year gap in numbers, but we already have an emerging strong new generation or new interests who will bring numbers up." Although primary care is a priority, Dr Hroboň also warns that the hospital system should not be neglected: "We need to restructure the hospital system with reorganisation towards outpatient services".

"We need to invest effort and money into integrating care. Patients go from doctor to doctor on their own. Services are not coordinated. Investing a lot more effort into integrated care is a major priority".

Dr Luka Voncina, health policy consultant, World Bank (formerly of the Croatian National Health Insurance Fund and Croatian Ministry of Health).

57 House of Commons Library. NHS staff from overseas: statistics. 2021. Accessed May 2022 <https://commonslibrary.parliament.uk/research-briefings/cbp-7783/>

58 The Connexion. France sets out key healthcare reforms for 2022 law. Accessed May 2022. <https://www.connexionfrance.com/article/French-news/France-health-minister-Agnes-Buzyn-sets-out-key-healthcare-reforms-for-2022-Ma-Sante-law>



The evolution of community-based primary healthcare in Slovenia

The development of a “multidisciplinary, community-based, prevention-oriented service delivery model for primary health care” has been a policy priority and investment focus in Slovenia since 2011. A compulsory family medicine residency programme was introduced in 2000, and from 2004 screening and control of chronic diseases were established in family medicine practices.⁵⁹ The new primary care model, developed with a strong focus on preventative care, saw the formation of health promotion centres, group interventions to support healthy lifestyles, and screening programmes introduced for NCDs, with nurses providing counselling and disease management support.

“Slovenia really pays attention to preventative public health services,” says Pia Vračko, a health economist and senior advisor at Slovenia’s National Institute of Public Health. Dr Vračko details several developments: “Registered nurses for family doctor teams, who are responsible for following up and screening of chronic patients; group workshops for those who need support with a healthy lifestyle; and programmes focusing on healthy lifestyle and disease prevention”.

The number of covid-19 related deaths is lower in Slovenia than in other CEE countries, despite the country having the highest number of confirmed cases per population of those included in this study. “The Slovenian primary healthcare system managed to carry 90 to 95% of the covid burden,” says Dr Vračko. “All mild and moderate cases were dealt with by primary healthcare.” She adds that although workforce gaps remain an issue, “the pandemic would be much worse without a robust primary healthcare system”.

Recent policies to support preventative care in Slovenia include a national strategy on food, nutrition and physical activity, spanning from 2015 to 2025, and a national cancer control programme, which spans from 2017 to 2021. The latter includes a set of activities for the systematic and long-term reduction of the cancer burden in Slovenia, such as national screening programmes for breast, colorectal and cervical cancers.⁶⁰

The Polish government has also made promises to boost primary care. “Up to 80% of health problems can be successfully dealt with at the primary healthcare level,” says Dr Sowada. He also notes that although coordinated care programmes are moving in the right direction, there is a lack of evaluation in the Polish health system. “We do not know for sure if these programmes are working well,” he says. “Evaluation is not supposed to tell us that something is working wonderfully or not at all, but evaluation is also needed to check how we can make it even better. This is lacking in Poland, unfortunately”.

Investment in primary healthcare is the most efficient and equitable way of using available resources and supporting progress towards UHC. The WHO recommends that all countries allocate an additional 1% of GDP from public sources to fund public healthcare.⁶¹ Many health systems in CEE are still a long way from having primary care as the first point of access. Reaching the full potential of primary care also requires developing multi-professional teams,

introducing digital technology and seamlessly integrating with specialised care services. Empowering patients and measuring how primary care systems deliver services that truly make a difference to people’s lives are also key for the provision of high-performing care.

“With covid-19, it was clear that you have to develop primary care and community-based care,” says Gian Matteo Apuzzo, focal point for health strategies and emergencies response for the Italy-based Central European Initiative. “A shift in investment [towards primary and community care] is a priority for these countries.” Sustained investment and commitment to developing a model for primary and community care can boost health systems’ capacity to contain and manage future health crises and reduce the unnecessary hospitalisation of people who can be effectively treated in the community.

59 Johansen AS, Vracko P, West R. The evolution of community-based primary health care, Slovenia. Bull World Health Organ. 2020 May 1;98(5):353-359. doi: 10.2471/BLT.19.239616. Epub 2020 Mar 9. PMID: 32514200; PMCID: PMC7265942.

60 OECD/European Observatory on Health Systems and Policies (2021), Slovenia: Country Health Profile 2021, State of Health in the EU, OECD Publishing, Paris/European Observatory on Health Systems and Policies, Brussels.

61 WHO. Countries must invest at least 1% more of GDP on primary health care to eliminate glaring coverage gaps. Accessed May 2022 <https://www.who.int/news/item/22-09-2019-countries-must-invest-at-least-1-more-of-gdp-on-primary-health-care-to-eliminate-glaring-coverage-gaps>



3

Access to medicines and technology

3.1. Spending on medical goods

CEE countries need to balance high cost burden with containment measures

The higher proportional allocations for medicines in the CEE countries in our study highlights a considerable burden of high drug costs, which has prompted various interventions in the realm of drug pricing and reimbursement measures. Since the 2008-10 eurozone economic crisis, cost-containment has taken priority in CEE countries, with combinations of various strategies applied with greater intensity across the region, including international reference pricing (sometimes referred to as external reference pricing), therapeutic reference pricing, rebates, pro-generic policies, and mandatory discounts for reimbursement lists in the public sector.⁶²

Although there is considerable variation and diversity in pricing and reimbursement systems in the CEE countries, all use some form of international reference pricing. This form of pricing is also used, in combination with other

mechanisms, in many western European markets, including Austria, the Netherlands, Portugal and France. However, the majority of CEE countries reference against the lowest price for all or select countries in the EU, resulting in much lower prices and steeper declines in prices over time. As a result of these cost-containment measures, proportional allocations to medicines have declined in recent years in all of the CEE countries, despite continuous year-on-year incremental rises in per capita and total value terms.⁶³

Disparities between spending on medicines, in value terms, in part reflect pricing in the different markets, with most pharmaceutical companies offering tiered pricing that takes into account affordability within a particular country (healthcare payers in the CEE countries use affordability as a negotiating tool to drive down prices). As a result, when measured in PPS, the gap in medicine spending between CEE countries and the comparator countries is blurred (Figure 6).

FIGURE 6: SPENDING ON MEDICAL GOODS

| Spending on medical goods (€ m) | | | | | Purchasing power standard per inhabitant | | % of current health expenditure | |
|---------------------------------|--------|--------|--------|--------|--|--------|---------------------------------|-------|
| | 2016 | 2017 | 2018 | 2019 | | 2019 | | 2019 |
| Germany | 69,771 | 71,553 | 73,909 | 78,151 | Germany | 902.42 | Bulgaria | 36.09 |
| France | 46,574 | 46,694 | 46,813 | 46,915 | Austria | 686.08 | Slovakia | 31.97 |
| United Kingdom | 35,770 | 34,635 | 34,735 | 36,103 | France | 656.14 | Hungary | 30.21 |
| Netherlands | 8,727 | 8,740 | 8,855 | 9,242 | EU27 | 570.63 | United Kingdom | 27.65 |
| EU27* | 8,753 | 8,902 | 9,133 | | Slovenia | 500.58 | Romania | 26.93 |
| Poland | 6,434 | 6,951 | 7,210 | 7,490 | Slovakia | 500.27 | Croatia | 22.77 |
| Austria | 6,236 | 6,521 | 6,735 | 7,008 | Bulgaria | 474.2 | Poland | 21.77 |
| Portugal | 3,435 | 3,540 | 3,672 | 3,902 | Hungary | 466.89 | Slovenia | 21.2 |
| Romania | 2,749 | 2,627 | 2,928 | 3,450 | Netherlands | 460.28 | Germany | 19.37 |
| Czech Republic | 2,567 | 2,757 | 2,977 | 3,121 | United Kingdom | 452.35 | Portugal | 19.14 |
| Hungary | 2,619 | 2,623 | 2,660 | 2,802 | Portugal | 450.62 | EU27 | 18.48 |
| Slovakia | 1,980 | 1,991 | 2,003 | 2,089 | Czech Republic | 435.57 | Czech Republic | 17.79 |
| Bulgaria | 1,413 | 1,525 | 1,529 | 1,575 | Romania | 364.76 | France | 17.41 |
| Slovenia | 769 | 793 | 839 | 875 | Poland | 356.24 | Austria | 16.89 |
| Croatia | 775 | 804 | 819 | 862 | Croatia | 326.13 | Netherlands | 11.22 |

Source: Eurostat.

Note. Includes prescribed and over-the-counter pharmaceuticals and medicines, other medicinal non-durable goods and therapeutic appliances.

* Latest available EU27 data is from 2018.

62 Rémuzat C, Urbinati D, Mzoughi O, El Hammi E, Belgaied W, Toumi M. Overview of external reference pricing systems in Europe. *J Mark Access Health Policy*. 2015 Sep 10;3. doi: 10.3402/jmahp.v3.27675. PMID: 27123181; PMCID: PMC4802694.

63 Kawalec P, Tesar J, Vostalova L, et al. Pharmaceutical Regulation in Central and Eastern European Countries: A Current Review. *Front Pharmacol*. 2017;8:892. Published 2017 Dec 18. doi:10.3389/fphar.2017.00892

Improving access to innovative medicines is critical to reducing cancer mortality in Europe

Pressure is growing on all governments to improve access to clinically effective innovative medicines for all prevalent diseases, not only to contain mortality rates, but also to reduce additional costs driven by hospitalisations, long-term care, and the economic impact of reduced productivity due to illness, disability and demands on family caregivers. This challenge is steepest for lower-income CEE countries.

It is well documented that significant reductions in cancer mortality can be attributed to pharmaceutical innovation, particularly for certain types of cancers, such as breast and colorectal cancers. Higher expenditure on novel treatments will be needed to increase survival and lower the costs associated with cancer morbidity and mortality in CEE countries.

An important part of investment is the cost of advanced new medicines, and the high cost of novel oncology drugs

typifies the growing burden of treatment costs for chronic diseases on already overstretched healthcare budgets in CEE countries. A study published by *The Oncologist*, a medical journal, states that, when adjusted for inflation, expenditure on cancer care per capita increased by 56% in the EU between 1995 and 2014, and this increase was a third larger in CEE than in western Europe.⁶⁴ However, the average expenditure on oncology drugs per capita was 2.5 times higher in western Europe than in CEE. The average per capita expenditure on medications used to treat cancer in western Europe was €83 in 2015, compared with €29 in CEE, although as a percentage of GDP the expenditure levels were similar—the average was 0.25% of GDP in western Europe and 0.28% of GDP in CEE countries.

Pricing and reimbursement policies impact market dynamics and overall system performance

Several western European countries implemented drug pricing cost-containment as part of broader austerity measures in response to the lingering effects of the 2008-2010 eurozone economic crisis.

Lessons from Germany on pricing

Germany's Arzneimittelmarkt-Neuordnungsgesetz (AMNOG) HTA framework, initially introduced in 2011, allows pharmaceutical manufacturers to set the price of new medicines for a period of 12 months following launch. In the 13th month, a negotiated reimbursement price applies. Negotiations are based on assessments that consider improvements in health status, reductions in durations of illness, survival gains, the reduction of side-effects or an improvement in quality of life compared with current standard of care. For new medicines offering evaluated additional benefit, the Federal Association of Sickness Funds negotiates a reimbursement price, with the aim of providing coverage with minimal access restrictions. If the medicine is deemed to have no additional therapeutic benefit, it is placed in a reference price bracket that then determines its reimbursement price. Patients will then pay the difference between a reference price and the drug's market price.⁶⁵

The German pricing system has been effective in reducing the prices of in-patent products in Germany. By 2016, price reductions were estimated to have reduced the drug expenditure of SHI funds by approximately 21%. (However, drug prices in Germany are still higher than in most countries in Europe, and far higher than those in CEE countries).⁶⁶

In October 2022, the German Bundestag, or federal parliament, passed the 'Financial Stabilisation of the Statutory Health Insurance System' bill, aimed at reducing the estimated €17 billion deficit of the country's SHI budget in 2023. The changes implemented through bill bring into question the effectiveness and benefits of the current system for pharmaceutical pricing in Germany. The final proposal reduces the free-pricing period for new drugs from 12 to 6 months, toughens pricing rules, increases mandatory discounts for patented drugs and introduces mandatory discounts for combination products, all of which might negatively impact patient access to new treatments, disincentivise industry and decrease competitiveness for future investments.⁶⁷



64 Vrdoljak, Eduard et al. "Expenditures on Oncology Drugs and Cancer Mortality-to-Incidence Ratio in Central and Eastern Europe." *The oncologist* vol. 24,1 (2019): e30-e37. doi:10.1634/theoncologist.2018-0093

65 OECD, 2018, <https://www.oecd.org/els/health-systems/Pharmaceutical-Reimbursement-and-Pricing-in-Germany.pdf>, accessed February 2022

66 Zaprutko T, Kopicuch D, Kus K, et al. Affordability of medicines in the European Union. *PLoS One*. 2017;12(2):e0172753. doi:10.1371/journal.pone.0172753

67 Covington. Global Policy Watch. Germany significantly tightens Drug Pricing and Reimbursement Laws. October 2022.

Available from <https://www.globalpolicywatch.com/2022/10/germany-significantly-tightens-drug-pricing-and-reimbursement-laws/>

Bulgaria's current pricing system relies more heavily on an international reference pricing system than a system like Germany's (see box), although the precise workings and applications of the mechanism are not completely transparent.⁶⁸ The system references ten other European countries—Belgium, Greece, Spain, Italy, Latvia, Lithuania, Romania, Slovakia, Slovenia and France—and applies the lowest price for all prescription medicines and all those on the positive drug list that are paid with public funds, including generic medicines. This blanket approach, which is common in the CEE countries covered here, limits opportunities for value-based pricing and reimbursement decisions that direct funds to the most clinically effective medicines and those that are most cost-effective within each national context. In 2013-14 the government-imposed price freezes on drugs, and these were extended again in 2020, followed by mandatory discounts for high-cost innovative medicines since 2015. Pharmaceutical companies are also liable to pay rebates if public drug spending rises more than expected.

The government of Bulgaria ushered in more changes to pricing and reimbursement in 2019. Medicines previously unreimbursed in Bulgaria and without sufficient evidence of therapeutic efficacy became obliged to negotiate levels of reimbursement with the National Health Insurance Fund, based on the outcome of treatment. Although this was intended to inject a greater element of value assessment into the system, industry representatives complained about the vagueness of the regulations and uncertainty over transparency in decisions in this payment-by-results system.⁶⁹

Although driving down prices across the board through international reference pricing and mandatory discounts for reimbursement listings is intended to improve affordability and access, such mechanisms can cause markets to become unprofitable, leading companies to withdraw or limit supplies. International reference pricing can also drive down prices in other markets in Europe or other non-European countries that include these markets as reference countries in their own pricing systems. This can motivate companies to delay introducing innovative new medicines in countries with pricing systems that do not offer returns on advanced medicines with high R&D costs. Low prices in CEE countries such as Bulgaria also drive a thriving parallel trade in Europe, whereby medicines are bought at lower prices in poorer countries for use in wealthier countries.⁷⁰

Although international reference pricing is used widely in Europe, the impact on market dynamics and access can vary considerably, depending on various features of the system, such as which drugs are subjected to the mechanism (whether this is all drugs, only in-patent drugs or medicines listed for reimbursement) the number of countries referenced, the criteria for selecting reference countries, the method used to calculate the reference price, and whether IRP is used in combination with other pricing and cost-control mechanisms, such as internal therapeutic reference pricing and value-based evaluations such as HTAs.

Lessons from England on the use of QALYs

England uses a value-based pricing strategy in conjunction with negotiations with manufacturers. The National Institute for Health and Care Excellence (NICE), on behalf of the National Health Service (NHS), evaluates clinical and cost-effectiveness of new drugs by using Quality Adjusted Life Years (QALYs). Despite the absence of direct price controls, England spends considerably less on pharmaceuticals in per capita terms. This can be attributed in part to the economies of scale that can be harnessed in negotiations owing to the NHS's status as the main buyer of pharmaceutical products, but prices are also set through negotiations with the manufacturers. Generic prescribing also means that, as in Germany, these lower-cost follow-on medicines account for the majority of the reimbursable drugs market.

Nevertheless, the country's ranking in access to innovative medicines is less than impressive, suggesting that a somewhat rigid method of health technology assessment (HTA) combined with cost containment measures could have a negative impact on patient access.⁷¹ When making reimbursement recommendations, NICE uses a baseline cost-effectiveness threshold between £20,000 and £30,000 per quality-adjusted life year (QALY). This baseline has not been revised since NICE's inception in 1999, meaning that, accounting for inflation, the threshold has declined in real terms by more than 40% over the past two decades.⁷²



68 European Observatory on Health Policies and Systems, 2018 <https://apps.who.int/iris/rest/bitstreams/1280495/retrieve>, accessed February 2022.

69 Pharmaceutical Technology, 2019, <https://www.pharmaceutical-technology.com/pricing-and-market-access/new-payment-by-results-and-payback-regulations-for-bulgaria-html/>, accessed February 2022.

70 ISPOR. Parallel trade of medicines in Bulgaria (presentation). https://www.ispor.org/docs/default-source/presentations/473.pdf?sfvrsn=71c9fa99_1

71 IQVIA. EFPIA Patient W.A.I.T. Indicator 2021 Survey. Available from <https://www.efpia.eu/media/636821/efpia-patients-wait-indicator-final.pdf>

72 Gandjour, A. Willingness to pay for new medicines: a step towards narrowing the gap between NICE and IQWiG. *BMC Health Serv Res* 20, 343 (2020). <https://doi.org/10.1186/s12913-020-5050-9>

3.2. Access to innovative medicines

The differences in time to reimbursement for innovative treatments across Europe illustrate inequalities in patient access and disparities between east and west

“Access to medicines is an issue: in the CEE Region, patients generally have access to innovative medicines later than in the western part of the EU, and in smaller volumes”.

Mr François Lamérant, senior manager at the European Federation of Pharmaceutical Industries and Associations (EFPIA).

Disparities in the availability and time that it takes for patients to access new medicines across Europe are increasing. The EFPIA's Waiting to Access Innovative Therapies (WAIT) indicator looks at the rate of availability, as measured by the number of medicines available to patients in European countries, and the time to availability, as measured by the average delay between market authorisation and patient access.⁷³

The time that it takes for innovative treatments to reach patients ranges from four months in Germany to almost two and a half years in Romania. These differences are also observable in the number of new medicines that are available in CEE countries, which score between 23% (Slovakia) to 55% (Czech Republic). Between 36 and 88 of the 160 approved products in the EU are available in the CEE countries, while comparator western European countries score between 51% (Portugal) and 92% (Germany), with 82 to 147 of the 160 approved products available (Figure 7).

These discrepancies are also visible between the different categories of medicines examined in the 2021 WAIT analysis, with lower availability and significant delays across CEE. Germany, Austria, England, the Netherlands and France have access to over 80% of oncology products, while availability is under 50% in six of the eight CEE countries. The availability of orphan medicines is less than 40% across all CEE countries and even lower for

The time that it takes for **innovative treatments** to reach patients ranges from **four months in Germany** to almost **two and a half years in Romania**.



non-oncology orphan medicines. Time to availability is slightly better in some categories, albeit still months or years behind the western European leaders, Germany and Austria. The timeframe to access available oncology drugs is better than the EU average in both Hungary and Croatia, while Slovakia ranks better than the EU average in time to availability for both categories of orphan drugs.⁷⁴

FIGURE 7: EFPIA PATIENTS WAIT INDICATOR: RATE OF AVAILABILITY AND TIME TO AVAILABILITY, ALL PRODUCTS (2017-2020)

| Country | Rate of availability (2017-2020) | | Time to availability | |
|----------------|----------------------------------|----------------|----------------------|------------|
| | % of total approved products | No of products | Country | No of days |
| Germany | 92 | 147 | Germany | 133 |
| Austria | 79 | 127 | Netherlands | 294 |
| Netherlands | 70 | 112 | Austria | 315 |
| England | 68 | 108 | England | 340 |
| France | 66 | 105 | Croatia* | 479 |
| Czech Republic | 55 | 88 | Hungary | 480 |
| Portugal | 51 | 82 | France | 497 |
| Slovenia | 49 | 78 | EU27 | 511 |
| EU27 | 46 | 74 | Slovakia | 564 |
| Hungary | 41 | 65 | Czech Republic | 573 |
| Bulgaria | 31 | 49 | Slovenia | 577 |
| Poland | 26 | 42 | Portugal | 676 |
| Romania | 24 | 38 | Bulgaria | 764 |
| Slovakia | 23 | 36 | Poland | 844 |
| Croatia * | 22 | 35 | Romania | 899 |

Source: EFPIA Patients W.A.I.T. Indicator 2021 Survey
 * Croatia did not complete a full dataset and therefore rate of availability may be unrepresentative. Data is from 2018.

73 IQVIA, EFPIA Patient W.A.I.T. Indicator 2021 Survey. Available from <https://www.efpia.eu/media/636821/efpia-patients-wait-indicator-final.pdf>
 74 IQVIA, EFPIA Patient W.A.I.T. Indicator 2021 Survey. Available from <https://www.efpia.eu/media/636821/efpia-patients-wait-indicator-final.pdf>

FIGURE 8: EFPIA WAIT INDICATOR: RATE OF AVAILABILITY BY PRODUCT CATEGORY (2018-2020)

| Oncology | | | Orphan medicines | | | Non-oncology orphan medicines | | | Combination therapies | | |
|----------------|------------------------------|----------------|------------------|------------------------------|----------------|-------------------------------|------------------------------|----------------|-----------------------|------------------------------|----------------|
| | % of total approved products | No of products | | % of total approved products | No of products | | % of total approved products | No of products | | % of total approved products | No of products |
| Germany | 100 | 41 | Germany | 95 | 54 | Germany | 93 | 39 | Germany | 88 | 21 |
| Austria | 85 | 35 | Austria | 74 | 42 | Austria | 74 | 31 | Netherlands | 88 | 21 |
| England | 85 | 35 | England | 61 | 35 | France | 67 | 28 | Austria | 79 | 19 |
| Netherlands | 80 | 33 | Netherlands | 56 | 32 | England | 55 | 23 | France | 71 | 17 |
| France | 80 | 33 | France | 72 | 41 | Netherlands | 48 | 20 | England | 67 | 16 |
| Portugal | 71 | 29 | Portugal | 51 | 29 | Portugal | 43 | 18 | Czech Republic | 67 | 16 |
| Czech Republic | 66 | 27 | Czech Republic | 39 | 22 | EU27 | 32 | 13 | Slovenia | 54 | 13 |
| Slovenia | 63 | 26 | Slovenia | 39 | 22 | Czech Republic | 31 | 13 | EU27 | 53 | 13 |
| EU27 | 55 | 23 | EU27 | 37 | 21 | Slovenia | 31 | 13 | Hungary | 50 | 12 |
| Hungary | 49 | 20 | Hungary | 26 | 15 | Romania | 24 | 10 | Portugal | 42 | 10 |
| Bulgaria | 41 | 17 | Bulgaria | 14 | 8 | Hungary | 21 | 9 | Bulgaria | 42 | 10 |
| Poland | 41 | 17 | Poland | 19 | 11 | Slovakia | 12 | 5 | Romania | 33 | 8 |
| Croatia* | 27 | 11 | Croatia* | 12 | 7 | Bulgaria | 10 | 4 | Slovakia | 33 | 8 |
| Romania | 24 | 10 | Romania | 23 | 13 | Croatia* | 10 | 4 | Poland | 25 | 6 |
| Slovakia | 22 | 9 | Slovakia | 14 | 8 | Poland | 7 | 3 | Croatia* | 14 | 4 |

Source: EFPIA Patients W.A.I.T. Indicator 2021 Survey

* Croatia did not complete a full dataset and therefore rate of availability may be unrepresentative.

FIGURE 9: EFPIA WAIT INDICATOR: TIME TO AVAILABILITY BY PRODUCT CATEGORY (2018-2020)

| Oncology | | Orphan medicines | | Non-oncology orphan medicines | | Combination therapies | |
|----------------|------------|------------------|------------|-------------------------------|------------|-----------------------|------------|
| | No of days | | No of days | | No of days | | No of days |
| Germany | 100 | Germany | 102 | Germany | 79 | Germany | 107 |
| Austria | 229 | Austria | 261 | Austria | 271 | Netherlands | 196 |
| England | 268 | Hungary | 378 | Hungary | 370 | Austria | 232 |
| Netherlands | 270 | Netherlands | 380 | Netherlands | 413 | England | 264 |
| Hungary | 405 | England | 414 | England | 438 | France | 336 |
| France | 490 | Slovakia | 565 | Slovakia | 540 | EU27 | 407 |
| Croatia* | 491 | EU27 | 636 | EU27 | 587 | Slovenia | 415 |
| EU27 | 545 | France | 660 | Croatia* | 594 | Czech Republic | 437 |
| Slovakia | 563 | Czech Republic | 666 | Czech Republic | 646 | Hungary | 448 |
| Slovenia | 563 | Croatia* | 672 | Portugal | 652 | Portugal | 460 |
| Czech Republic | 657 | Slovenia | 741 | France | 710 | Croatia* | 488 |
| Bulgaria | 701 | Portugal | 784 | Slovenia | 739 | Slovakia | 503 |
| Portugal | 753 | Bulgaria | 787 | Poland | 755 | Poland | 577 |
| Poland | 888 | Romania | 787 | Romania | 792 | Bulgaria | 830 |
| Romania | 964 | Poland | 993 | Bulgaria | 963 | Romania | 863 |

Source: EFPIA Patients W.A.I.T. Indicator 2021 Survey

* Croatia did not complete a full dataset and therefore rate of availability may be unrepresentative.



Availability vs accessibility: Example from Hungary on access and wait times to innovative medicines.

The EFPIA W.A.I.T. study provides an overarching snapshot of average access and wait times to innovative medicines across Europe, focusing on a retrospective cohort and first patient access. This analysis can fail to account for differences in reimbursement systems. In Hungary, named patient programs (NPP), a reimbursement method that provides patients and physicians access to medicines that are not available in their country, play a dominant role. The time to availability figures in the EFPIA W.A.I.T. 2021 study distorts the actual reality of wait times in Hungary.

When adjusted to reflect only regular reimbursement decisions, the average time to availability increases from 480 days to 693 days, moving Hungary towards the bottom of the table. The time to availability for new medicines included after the 2021 analysis indicates a longer wait time with 1,477 days between E.U. authorization and reimbursement decision for ten new molecules, up from 968 days in 2020.⁷⁵ Median time to availability can also vary significantly within other countries – for example in France the variance ranges from 112 days to 1,772 days.⁷⁶

According to analysis by the EFPIA, the root causes behind inequalities and delays to access are multifactorial, with ten interrelated factors including regulatory process delays, late initiation of reimbursement assessment, duplicative evidence requirements, reimbursement decision delays, and local formulary decisions and limited budget (Figure 10). There is also a negative relationship between income and delays. Pharmaceutical cost-containment measures in CEE limit access to innovative therapies and also overlook their potential impact on healthcare outcomes.^{77,78}

Delays also occur at different stages of the value chain, with the biggest risk of delay during the pricing and reimbursement process. Access is also delayed in countries like Bulgaria, Croatia, the Czech Republic and Poland where, despite European Medicines Agency (EMA) approval being granted for an unmet medical need based on phase 2 data, there is a demand by pricing and reimbursement

bodies for phase 3 data before they will consider the application.

The EU Pharmaceutical Strategy highlights the importance of addressing patient access inequalities across EU member states. Measures put forward seek to increase coordination across EU members, with the possibility of obliging EU-licensed marketing authorisation holders (MAHs) to market or supply to all EU member states a platform to improve transparency around timing and processing of pricing and reimbursement (P&R) and reasons for delays, as well as standardising approaches across HTA agencies through proposed EU HTA regulation, and introducing a framework for equity-based tiered pricing that takes into account a country's ability to pay, while also addressing the unintended consequences of external reference pricing (ERP).⁷⁹

⁷⁵ IQVIA Consulting; NEAK. W.A.I.T. Indicator survey 2022 for Hungary

⁷⁶ EFPIA. The root cause of unavailability and delay to innovative medicines: Reducing the time before patients have access to innovative medicines. 2020. Available from <https://www.efpia.eu/media/554527/root-causes-unavailability-delay-cra-final-300620.pdf>

⁷⁷

⁷⁸ EFPIA. The root cause of unavailability and delay to innovative medicines: Reducing the time before patients have access to innovative medicines. 2020. Available from <https://www.efpia.eu/media/554527/root-causes-unavailability-delay-cra-final-300620.pdf>

⁷⁹ EFPIA. A shared approach to supporting Equity-Based Tiered Pricing. Discussion document. Available from <https://www.efpia.eu/media/637159/ebtp-efpia-discussion-document-final-060722.pdf>

FIGURE 10: THE ROOT CAUSES OF UNAVAILABILITY AND DELAY

| Category | Potential causes | Example |
|---|--|--|
| Time prior to market authorisation | 1. The speed of the regulatory process | Official timelines for EMA EU marketing authorisation take up to 210 days; however, a 2019 study indicates that the median approval time for approved new active substances was approximately 423 days. |
| | 2. Accessibility of medicines prior to marketing authorisation | Funded early access schemes in many countries provide patients access to new treatments before regulatory approval. |
| Price and reimbursement (P&R) process | 3. Initiation of the process | Access following market authorisation timelines vary - Germany allows a temporary period of free pricing to enable access to EMA authorised medicines while pricing negotiations are ongoing. Other countries, such as the Czech Republic, use other EU countries as a reference to set pricing and reimbursement levels; therefore, availability in at least three other member states is necessary before P&R application in the Czech Republic. |
| | 4. The speed of the national timelines and adherence | The time taken from application for reimbursement to approval for reimbursement also varies across EU countries. The EU Transparency Directive sets a maximum time of 180 days for reaching a national P&R; however, the timeline can vary from 234 days in the Netherlands to 891 days in Poland. |
| Value assessment process | 5. Misalignment on evidence requirement | Misalignment on evidence can occur between industry, regulators, and HTA bodies and between regulators and HTA bodies, as well as among different HTA bodies. The type of evidence generally accepted also varies, for example, clinical endpoints are not accepted in Portugal, yet are sometimes accepted on case-dependent basis in Poland. |
| | 6. Misalignment on value and price | Agreement on novel payment mechanisms varies across the EU, particularly in CEE counties that have been later to adopt alternative payment mechanisms. |
| | 7. The value assigned to product differentiation and choice | Epidemiological profiles vary between countries and drive demand for medicines - meaning some countries have a higher number of patients with a particular condition than others. Treatment approaches also vary. |
| Health system readiness | 8. Insufficient budget to implement decisions | Spending on healthcare varies across Europe, from less than €661 per head in Romania (or €1,354 per head in PPS terms) to over €4,000 per head in Germany, the Netherlands and Austria. Spending on medical goods ranges from €78bn in Germany to €0.86 million in Croatia. Higher expenditure on healthcare often indicates a higher allocation of budget to innovative medicines. |
| | 9. Diagnosis and supporting infrastructure | Existing health infrastructure is a barrier to access in many CEE countries - new therapies often require high-quality health facilities, modern diagnostic centres and availability of health personnel - many of which are lacking in CEE countries. |
| National/regional approval requirements | 10. Multiple layers of decision-making processes | Some countries require reimbursement decisions at national, regional and sometimes even local levels which can prolong access timelines. For example, Croatia organises price negotiations, assessment, appraisal and budget allocation on a national level. In Germany, these decisions are made at a regional level. |

Source: Adapted from EFPIA. The root cause of unavailability and delay to innovative medicines: Reducing the time before patients have access to innovative medicines. 2020. Analysis of Eurostat data on healthcare spending included in this report.

Poorer access to innovative medicines in CEE countries is associated with poorer health outcomes

Innovative medicines have already significantly increased survival, delivering treatments to patients with chronic diseases and those with previously untreatable cancers or rare genetic conditions. Both the unprecedented speed of innovation exhibited over the past five years and the promising pipeline of new innovative drugs and therapies provide an important opportunity to transform how care is delivered and, ultimately, improve patient outcomes.

The rate and speed at which innovative medicines are adopted in many western European countries presents a risk that the gap in terms of spending and outcomes will widen even further—or, at the very least, that CEE countries will continue to lag behind. Although the impact of new innovative treatments not reaching patients in CEE countries is difficult to quantify, it is likely to lead to higher

mortality and avoidable deaths (explored in the next chapter), lost quality of life for potential patients and an increase in preventable healthcare costs.

It is also important to recognise that availability is not access. As explored in chapter 2, existing health infrastructure and workforce constraints are barriers to access in many CEE countries. Screening and diagnostic infrastructure are essential to the process of identifying and referring patients. Emerging therapy areas such as cell and gene therapy also require specialised centres to administer the treatment.

Investment in new medical technology is an important priority

Investment in innovative medical technology and equipment, as well as updating and maintaining equipment and technology, is also essential to improving health system performance and outcomes. Data from



Lower access to innovative treatments is likely to lead to **higher mortality and avoidable deaths, lost quality of life** for potential patients and an increase in **preventable healthcare costs**.

COCIR reports that an alarmingly high percentage of medical equipment across European countries is more than ten years old. This ranges from 21 to 22% for computed tomography (CT), magnetic resonance imaging (MRI) and molecular imaging position emission tomography (MI PET) scanners to 34% for interventional x-ray equipment.⁸⁰

According to the COCIR analysis, the majority of countries in Europe have fallen behind in improving equipment over the past five years. Romania performs at the better end of the scale in terms of the age of CT and MRI equipment, with just 11% of CT equipment and 9% of MRI equipment over ten years old. Comparatively, 42% of CT equipment and 32% of MRI equipment in Slovenia is more than a decade old. All CEE countries in the study have less than the EU average number of CT and MRI units per million inhabitants at 38.2 CT units and 20 MRI units, with Hungary the lowest at 15.6 CT units and 7.5 MRI units. Slovenia and the Czech Republic have more than the EU average of 27 x-ray units per million inhabitants, at 38.1 and 29.1 respectively. Slovenia, the Czech Republic and Croatia also have more than the EU average of 2.4 MI-PET units per million inhabitants.

These machines and equipment are a vital support to screening and early diagnosis. The EU's Beating Cancer Plan recommends that cancer screening technologies reflect the latest available scientific evidence. High cancer mortality rates across many CEE countries are associated



An alarmingly high percentage of **medical equipment** across European countries is **more than ten years old**.

with fragmented screening programmes (see Chapter 4). Decommissioning and replacing older machines with more modern technology, expanding access by ensuring an adequate number of machines per population and ensuring that services are accessible, particularly for those in remote areas, will be essential to developing screening programmes and providing early diagnosis.

3.3. Adoption of digital health

The covid-19 pandemic has demonstrated the need for rapid digitisation across the healthcare sector. Digital technologies played an important role in the coordinated response to the pandemic, as seen through the adoption of the EU Digital COVID Certificate to facilitate safe, free movement within the EU and national tracing and contact apps with strong data protection rules. Although the pandemic has accelerated the adoption of telehealth and the use of remote consultations and virtual care, there is still uneven development of digitisation and eHealth solutions across CEE and western European comparator countries.

Investment and implementation of digital health solutions, including telehealth and health information systems, can help to close infrastructure gaps and workforce shortages while improving integration and coordination across systems of care. A report by Polityka, a Polish news outlet, estimates that increased adoption of eHealth solutions could decrease health expenditure in most European countries by approximately 5%.⁸¹

CEE countries lag behind other EU members in terms of readiness for digital adoption

The capacity and pace of digital health adoption depend on a number of factors beyond the healthcare sector, including infrastructure readiness, internet access and speed, availability of qualified ICT specialists, legal and data privacy frameworks, and the willingness and ability of healthcare workers and the population to use digital tools.

Covid-19 changed the role and perception of digitisation and accelerated its pace of adoption. The pandemic also intensified the use of public and private online services, putting pressure on the capacity of digital connectivity networks and exposing gaps in infrastructure readiness. The EU has committed to massive investments and structural reforms to build a more sustainable, resilient and fairer Europe. Digitisation is at the heart of these reforms. A recovery plan, Next Generation EU, offers EU

80 COCIR. Medical Imaging Equipment Age Profile and Density. 2021 Edition. https://www.cocir.org/fileadmin/Publications_2021/COCIR_Medical_Imaging_Equipment_Age_Profile_Density_-_2021_Edition.pdf

81 Polityka Insight. Transforming eHealth into a political and economic advantage. Poland. 2017. Available from https://www.politykainsight.pl/_resource/multimedia/20111291

Capacity and pace of digital health adoption



Infrastructure readiness



Legal and data privacy frameworks



Internet access and speed



Willingness and ability for healthcare workers and the population to use digital tools



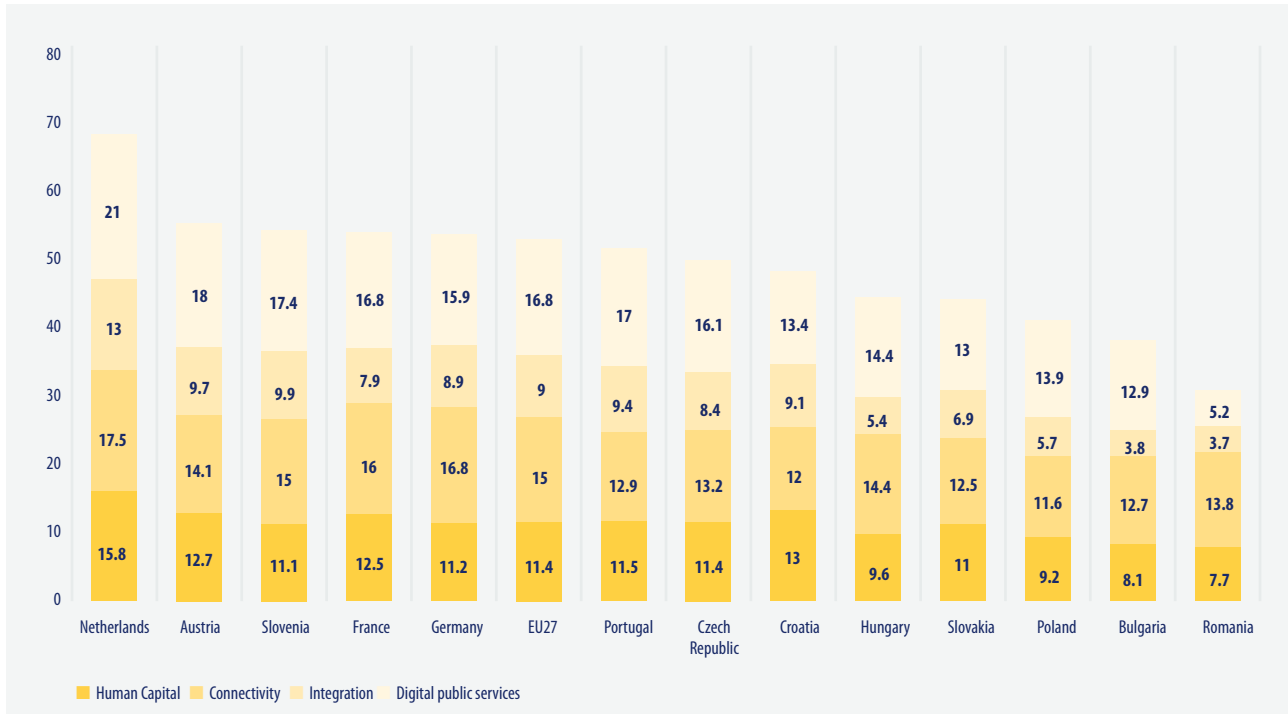
Availability of qualified ICT specialists

member states funding to address the fallout from the pandemic, kick start their economies and develop digital infrastructure.⁸²

Readiness for digital adoption varies across EU member states and the countries included in this report. The European Commission’s Digital Economy and Society Index (DESI) measures and tracks digital performance and progress across four domains: human capital, connectivity, integration, and digital public services.

integration of digital technology and digital public services. The 2022 DESI index shows a clear gap between CEE countries and western European counterparts, with the exception of Slovenia, which ranks above the EU average and France and Germany, with a total score of 53.4% and is placed 11th out of the 27 EU countries. Romania and Bulgaria sit at the bottom of the table with respective scores of 30.6% and 37.7% (Figure 11).

FIGURE 11: DIGITAL PERFORMANCE AND PROGRESS IN THE EU



Source: Digital Economy and Society Index, 2022.⁸³

82 European Commission. Recovery plan for Europe. Accessed July 2022 https://ec.europa.eu/info/strategy/recovery-plan-europe_en

83 European Commission. The Digital Economy and Society Index (DESI). Accessed May 2022. Available from <https://digital-strategy.ec.europa.eu/en/policies/desi>

In terms of human capital, recruitment of ICT specialists is a challenge across 55% of EU enterprises surveyed for the DESI, with 75% in the Czech Republic reporting difficulty filling positions. Bulgaria scores the lowest on the DESI in terms of internet connectivity.

Integration of digital technology is an important indicator of data capacity, processing and security. Bulgaria, Hungary and Romania perform weakest on the DESI in this category. The digital public services domain looks at the application of e-government and measures both the demand and supply sides of digital public services and open data. The EU Digital Decade has set the target for all key public services for businesses and citizens to be fully online by 2030. Romania, Bulgaria and Italy were the only three countries where the percentage of citizens interacting with public administrations online was less than 40%. Poland ranks high in commitment to open-data policy, at 90%, while Hungary, Portugal and Slovakia score below 60%.

For CEE countries to realise the full potential of digital health solutions, addressing a number of areas outside of the health sector to establish the needed foundations for telehealth, e-health and health information system solutions will be critical.

Integrated telehealth and health information systems can drive the development of future digital technologies

Lack of clarity and gaps in regulations have been a long-serving barrier to the adoption of telehealth across many CEE countries. There is no legislation regulating remote, online medical check-ups in the Czech Republic, while e-prescriptions have been obligatory (with some exceptions) since 2018. Although e-prescriptions are used in Bulgaria, medicinal products paid for by the country's National Health Insurance Fund are not accepted. There are also no explicit regulations for remote or online medical check-ups. In Romania, medical check-ups are required to be in person by law. In Poland, on the other hand, online and remote health services have been widely used since 2015.⁸⁴

The newly adopted European Common Health Data Space (EHDS) aims to provide a common framework across EU member states for the sharing and exchange of quality health data, such as electronic health records, patient registries and genomic data. It aims to support healthcare delivery while also facilitating health research, policymaking and legislation. While implementing the

“In terms of telemedicine, we have seen swift directions allowing distance consultations via phone calls or videoconferencing. The question is how this will be transformed into long term sustainable value-adding, cost-efficient use of telemedicine”.

Dr Pavel Hroboň, partner, Advanced Healthcare Management Institute, Czech Republic.

EHDS framework is expected to be a challenge across the EU, especially in less-developed CEE countries, the framework should help to ease regulatory ambiguity and gaps, and reinforce the adoption of telehealth and e-health solutions.⁸⁵

Functioning and integrated health information systems and electronic medical records are essential requirements for supporting coordination and integration across systems of care. They are also foundational for enabling future digital technologies such as artificial intelligence (AI) and remote monitoring. Electronic health systems and records improve the accuracy and availability of medical data, enabling better and more efficient patient management.

Yet in CEE countries, digitised services are lacking. “[In Bulgaria] there is a lack of a unified information system that would facilitate this integration of medical care,” says Dr Antoniya Dimova, dean of the Faculty of Public Health at the Medical University-Varna in Bulgaria. Dr Dimova adds that while e-health is present in many health strategies in Bulgaria, concrete steps to roll it out had not been taken prior to the pandemic.

Implementing a successful integrated health information system requires the long-term investment and development that forms the foundation for future digital health solutions. “In the future, a modern cloud system should be set up to organise patients' medical histories, and widely use telemedicine services to improve access to necessary specialist services.” says Dr Dózsa. Yet in Hungary, for the time being at least, medical records only exist on paper. AI should be used to solve this, says Dr Dózsa, but this is still in its “infancy” in Hungary.

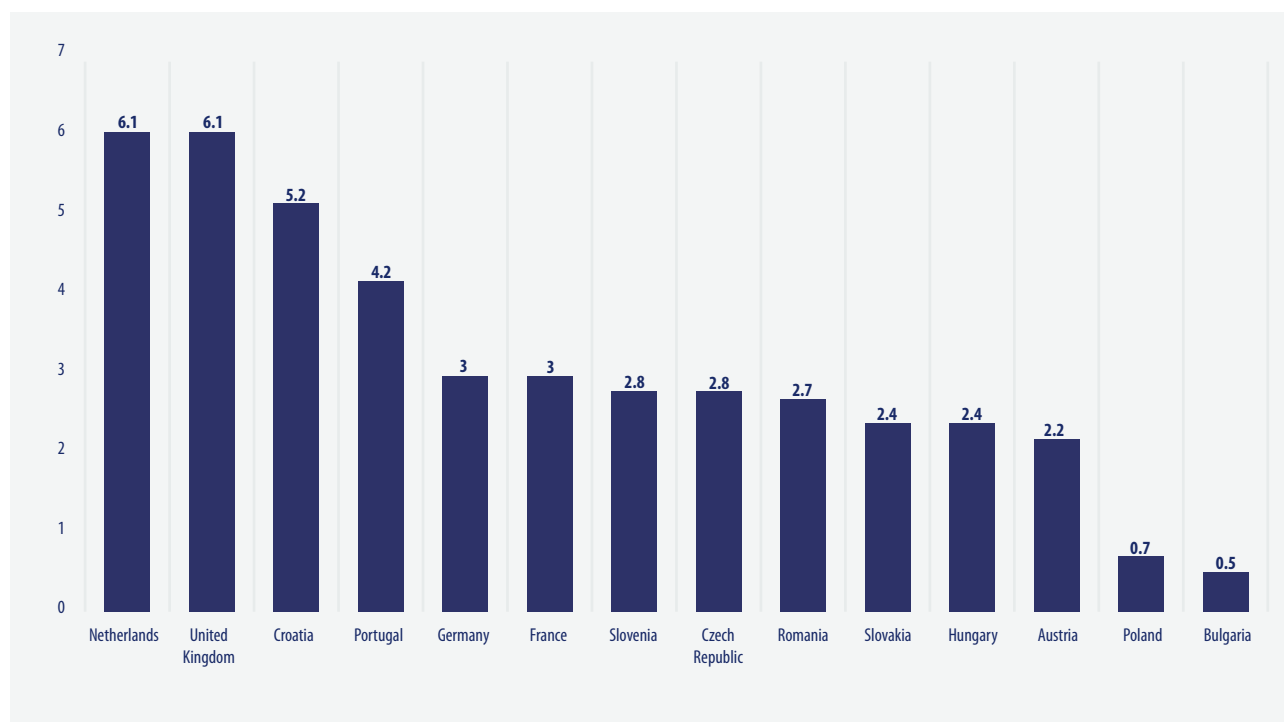
84 Schonherr. E-healthcare and telehealth become vital to tackling COVID-19 in CEE. 2020. Accessed online May 2022 <https://www.schoenherr.eu/content/e-healthcare-and-telehealth-become-vital-to-tackling-covid-19-in-cee/>

85 Emerging Europe. Europe's regulatory framework needs to keep pace with innovation in healthcare. Accessed May 2022. <https://emerging-europe.com/news/europes-regulatory-framework-needs-to-keep-pace-with-innovation-in-healthcare/>

In the meantime, more needs to be done to support the integration of care and monitoring and evaluation systems, “There is a lot of potential to use these technologies in integrating care [in terms of] making sure that all service providers are connected and communicating, sharing a vision of how the patient should be treated,” says Dr Vončina. “We need to do a lot more in terms of measuring and reporting outcomes, and this is something technology should be able to help with”.

The E-health Composite Index produced by Polityka (Figure 12) provides a summary of the average deployment of e-health across five measures: availability of online appointment booking, e-Prescription status, 24/7 healthcare information service availability, usage of online appointments and e-prescriptions by GPs. Denmark ranks the highest of all European countries with a score of 9.2, while the Netherlands, UK and Croatia rank the highest among countries in this study, with Poland and Bulgaria at the bottom.⁸⁶

FIGURE 12: E-HEALTH COMPOSITE INDEX, 2016



Source: Polityka (adapted from: https://www.politykainsight.pl/_resource/multimedia/20111291).

Countries in western Europe are taking advantage of the realised benefits of telehealth and health information highlighted during the pandemic. A new Digital Supply Act in Germany aims to boost the provision of online patient consultations, healthcare apps and e-prescriptions. From 2021 all sickness funds are obliged to offer policyholders an electronic health record following the arrival of a new

data protection law and e-health portal.⁸⁷ In France, a new health transformation plan, My Health 2022, aims to improve general care in rural areas and proposes greater use of digital healthcare technology. The plan sets aside €500m for the digital programme, as well as €1.5bn for AI systems and the creation of a national data platform.⁸⁸

⁸⁶ Polityka Insight. Transforming eHealth into a political and economic advantage. Poland. 2017. Available from https://www.politykainsight.pl/_resource/multimedia/20111291

⁸⁷ Gerke, S., Stern, A.D. & Minssen, T. Germany's digital health reforms in the COVID-19 era: lessons and opportunities for other countries. *npj Digit. Med.* 3, 94 (2020). <https://doi.org/10.1038/s41746-020-0306-7>

⁸⁸ French Healthcare. The Health Data Hub publishes its roadmap for 2022. Accessed July 2022 <https://frenchhealthcare.fr/the-health-data-hub-publishes-its-roadmap-for-2022/>

Closing the digital divide looks promising but will require the right policy environment and digital infrastructure

“There are lots of opportunities in data and digital health that have not been exploited. Once data becomes more structured, it can support a health information system with clinical decision-making, research and policy decision-making, such as generating real-world evidence to evaluate outcomes for new innovative therapies and treatment”.

Dr Antal Zemlenyi, assistant professor, pharmacoconomics, Faculty of Pharmacy, University of Pecs, Hungary.

The success of digital health requires a sophisticated policy environment for data security, licensure, and patient confidentiality and privacy. Ongoing training and development will also be needed for health professionals.

While adoption of digital health solutions will reduce costs and ease workforce demands in the long-term, in the short-term health systems need to commit investment and a temporary duplication of services. “When you start investing in digital health, you have to be aware in the first few years you have to spend more,” says Dr Apuzzo. “Why? Our cost-benefit analysis shows that it takes four or five years to have real evidence of [lower costs] when you invest in digital solutions. At the beginning, sometimes you have duplication of tasks ... and that means more work for professionals”.

The outlook for the development of digital infrastructure and capability in CEE looks promising, with funding commitment from the EU through the Recovery and Resilience Facility placing digitisation at the heart of post-covid-19 recovery plans. In addition, the EHDS should mean that developments arise in standardising approaches to digital health across the EU.

3.4. Investment in R&D

Developing an R&D ecosystem is required to move beyond pockets of innovation

Developing and incentivising a culture of innovation are essential in shaping national economic growth, private-sector development and job creation, and creating products and services that benefit the health of the local population. For innovation to have real impact it needs to reach patients. The speed of a new treatment reaching a patient is often based on where they live rather than what they need. R&D conducted locally for innovative medicines, both in terms of manufacturing and clinical trials, supports faster, more equitable access.

R&D expenditure is lower across the CEE region. Bulgaria, Croatia and Slovakia spend less than 1% of GDP on R&D.⁸⁹ The domestic pharmaceutical manufacturing industry in CEE has traditionally focused on generics. Yet R&D is also at the heart of economic recovery in Europe, with €5.4bn of Next Generation EU funding allocated towards supporting research and innovation through its Horizon Europe programme.⁹⁰

FIGURE 13: SPENDING ON R&D

| | as a % of GDP* | Pharma industry R&D (€ m)** |
|----------------|----------------|-----------------------------|
| Austria | 3.2 | 283 |
| Germany | 3.1 | 7,813 |
| OECD | 2.6 | - |
| France | 2.2 | 4,451 |
| EU27 | 2.2 | - |
| Netherlands | 2.2 | 642 |
| Slovenia | 2.0 | 334 |
| Czech Republic | 1.9 | 72 |
| United Kingdom | 1.7 | 5,639 |
| Hungary | 1.5 | 298 |
| Portugal | 1.4 | 90 |
| Poland | 1.2 | 431 |
| Croatia | 1.0 | 40 |
| Slovakia | 0.8 | 35 |
| Bulgaria | 0.8 | 91 |
| Romania | 0.5 | 69 |

Sources: *World Bank (2018)⁹¹, **EFPIA (2020)⁹².

89 World Bank. Data. Research and development expenditure (% of GDP). 2018. Available from <https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS>

90 European Commission. Recovery plan for Europe. Accessed July 2022. https://ec.europa.eu/info/strategy/recovery-plan-europe_en#introduction

91 World Bank. Data. Research and development expenditure (% of GDP). 2018. Available from <https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS>

92 EFPIA. The Pharmaceutical Industry in Figures. Key data 2022. Available from <https://www.efpia.eu/media/637143/the-pharmaceutical-industry-in-figures-2022.pdf>

In Hungary, the Ministry of Innovation and Technology is in charge of enhancing R&D activities and implementing a health industry strategy. "It's very important to us to attract as many clinical trials and studies into our country as possible," says Dr Maurer. "The government intends to cut red tape and other constraints or burdens to accelerate the number of R&D activities carried out both by big pharma companies and by start-ups and other groups".

Clinical trial activity can have many benefits across health, society and the economy. Mr Popa says that clinical trials can have "significant economic value" and can "indirectly support job creation, while also helping countries drive scientific excellence and enabling early patient access to

novel therapies". But he also notes that authorities in the region often overlook these aspects and they think first and foremost about manufacturing when looking at the value the biopharmaceutical sector can generate.

The existing manufacturing and local production industries provide solid foundations to support R&D for both pharmaceutical and biotech development and medical advancements that will benefit the region's health and broader economic goals. However, government commitment to supporting and incentivising R&D is essential, as is developing an enabling regulatory environment in terms of intellectual property, patent laws, and regulatory registration and reimbursement.



4

Health system assessment

4.1. Healthcare outcomes

Higher spending translates into generally better population health outcomes

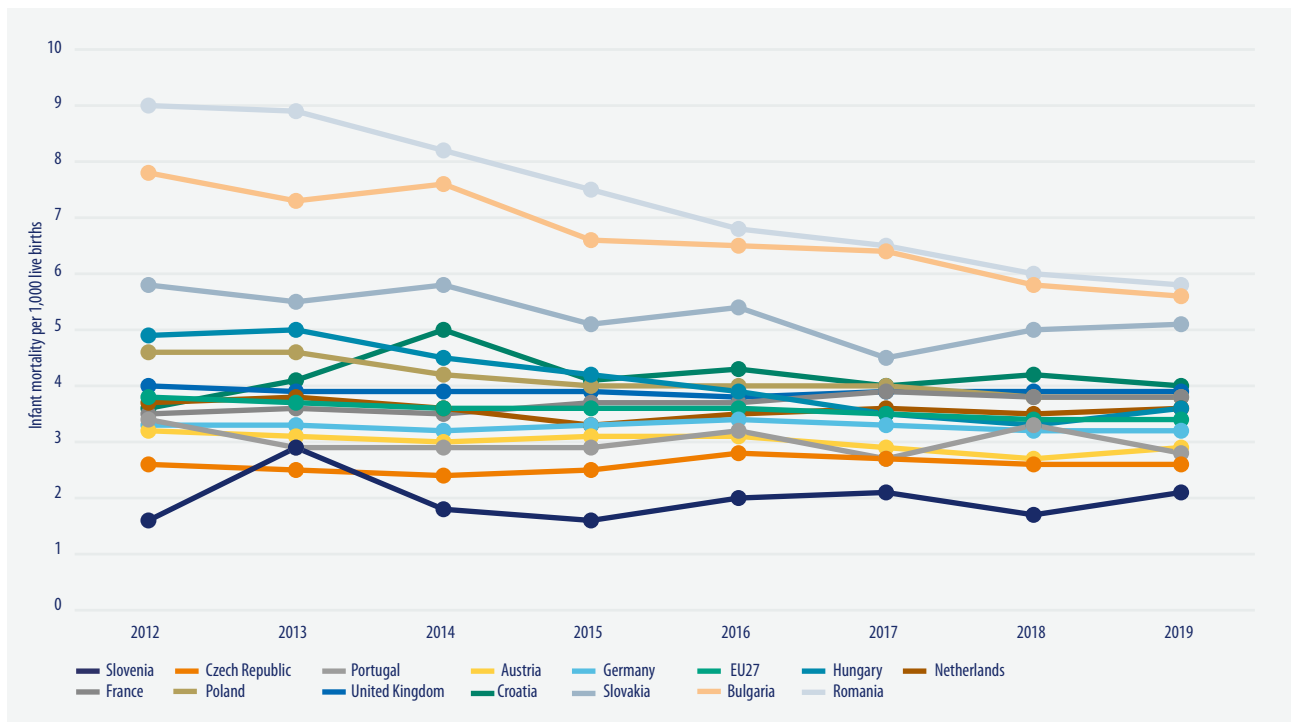
Health professionals identify financial resources as the most important factor affecting the quality of healthcare, with inadequate funding impacting negatively on planning, services and access to medicines. The link is reflected in healthcare outcomes among the countries covered in this study. Higher spending on healthcare in Austria, Germany, France, Portugal, the Netherlands and the UK translates into generally better results for measures commonly used to assess population health, such as life expectancy at birth and infant mortality.

On a broad level, life expectancy and infant mortality reflect spending on healthcare. In CEE the lowest spending countries in per capita terms—Bulgaria and Romania—are

the worst performers overall on these outcome measures. However, there are some outliers, such as Slovenia and the Czech Republic, which record infant mortality rates that are not only significantly lower than the rest of the CEE group, but also lower than those in the four highest-spending countries covered by the study (Germany, Austria, the Netherlands and France).

Despite higher total spending on healthcare, the UK also records higher infant mortality rates than all but two of the CEE study countries. This could potentially be attributed to insufficient support to families after birth in areas such as housing and postnatal mental health support, and it correlates with rising rates of child poverty since 2013.⁹³ Slovenia and the Czech Republic, which have the lowest infant mortality rates in this study at 2.1 and 2.6 per 1,000 live births in 2019, also have among the lowest rates of infant and child poverty in Europe.⁹⁴

FIGURE 14: INFANT MORTALITY RATE (PER 1,000 LIVE BIRTHS), MALE AND FEMALE.



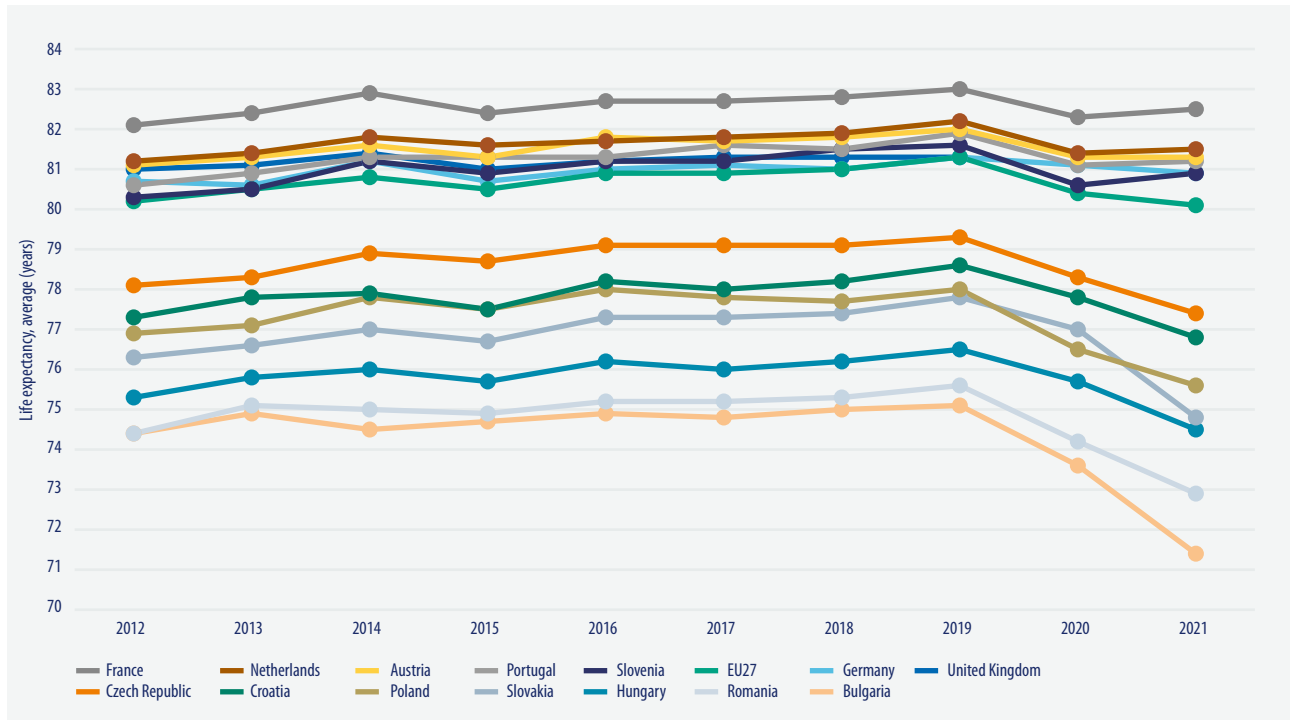
Source: Eurostat. Infant mortality rates. Available from https://ec.europa.eu/eurostat/databrowser/view/demo_minfind/default/table?lang=en

93 Nath, S., Hardelid, P., & Zylbersztejn, A. (2021). Are infant mortality rates increasing in England? The effect of extreme prematurity and early neonatal deaths. *Journal of Public Health*, 43(3), 541-550.
 94 Eurostat. 1 in 4 children in the EU at risk of poverty or social exclusion. 2021. Available from <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20211028-1>

Life expectancy and infant mortality rates recorded by Germany belie its status as the largest economy in the EU, and the largest spender on healthcare in both nominal per capita and percentage of GDP terms. At 80.9 years in 2021, Germany's life expectancy at birth was the lowest of all non-CEE comparator countries included in the review.

Although the country's infant mortality rates are below the EU27 average of 3.4 deaths per 1,000 live births (2021), they are significantly higher than in Slovenia and the Czech Republic, which spend between 59% and 66% less on healthcare in nominal per head terms.⁹⁵

FIGURE 15: LIFE EXPECTANCY, AVERAGE (YEARS), MALE AND FEMALE



Source: Eurostat. Life expectancy. Available from https://ec.europa.eu/eurostat/databrowser/view/demo_mlexpec/default/table?lang=en

CEE countries face the greatest burden with respect to ischaemic heart disease and cancer mortality rates

The leading causes of death for treatable diseases and conditions in the EU in people aged under 75 years are ischaemic heart diseases, colorectal cancer, breast cancer (among females), cerebrovascular diseases, pneumonia, diabetes mellitus and hypertensive diseases.⁹⁶ For all of these diseases, there are established and effective treatments and promising new medicines in development that offer potential for better treatment outcomes. Going forward, reducing the burden of these diseases and their adverse impact on life expectancy, labour productivity and national economies will depend on investment in (and timely access to) diagnostics and the most effective available treatments.

With respect to preventable diseases, the leading causes of death in Europe are lung cancer, ischaemic heart disease, alcohol-specific disorders and poisoning, cerebrovascular diseases, chronic pulmonary disorder, intentional self-harm, and accidental injuries.⁹⁷ Tackling preventable deaths and reducing their adverse impact on economies and societies more generally requires a broad set of interventions across various health, social, educational and environmental fields, which are not within the remit of this report.

Reducing avoidable death rates will present a steeper challenge for some countries than others, depending on the burden of disease, as well as the prevalence of risks posed by contributing factors such as smoking, obesity, population ageing, and the speed of economic recovery from the covid-19 pandemic and the ongoing economic crisis.

95 Eurostat. Health care expenditure. Euro per inhabitant. 2019. Available from https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HP/default/table?lang=en&category=hlth.hlth_care.hlth_sha11.hlth_sha11_sum

96 Data from Eurostat, WHO, Institute of Health Metrics and Evaluation (IHME)

97 OECD. Eurostat. Avoidable mortality: OECD/Eurostat lists of preventable and treatable causes of death (January 2022 version). Available from <https://www.oecd.org/health/health-systems/Avoidable-mortality-2019-Joint-OECD-Eurostat-List-preventable-treatable-causes-of-death.pdf>

4. HEALTH SYSTEM ASSESSMENT

FIGURE 16: MORTALITY DUE TO ISCHAEMIC HEART DISEASE AND CANCER, HIGHEST TO LOWEST

| Ischaemic heart disease deaths per 100,000 people, age-standardised, latest available | | Cancer deaths per 100,000 people, 2019, age standardised | |
|---|--------|--|--------|
| Hungary | 367.48 | Hungary | 181.93 |
| Slovakia | 359.25 | Poland | 175.21 |
| Romania | 299.93 | Netherlands | 162.99 |
| Czech Republic | 286.96 | Bulgaria | 161.01 |
| Croatia | 283.45 | Croatia | 159.83 |
| Bulgaria | 188.31 | Slovakia | 152.85 |
| Austria | 167.54 | United Kingdom | 150.91 |
| Germany | 136.55 | Romania | 148.34 |
| Poland | 125.36 | Czech Republic | 145.92 |
| EU 27 | 119.37 | Slovenia | 144.39 |
| United Kingdom | 109.88 | EU 27 | 140.59 |
| Slovenia | 99.32 | France | 140.53 |
| Portugal | 66 | Germany | 140.45 |
| Netherlands | 58.12 | Portugal | 131.1 |
| France | 46.43 | Austria | 122.34 |

Source: Eurostat. Ischaemic heart diseases deaths. Rate per 1000,000. Total. Age standardised. 2016.

Source: Institute for Health Metrics and Evaluation, Global Burden of Disease (2019). DEATHS - NEOPLASMS - SEX: BOTH - AGE: AGE-STANDARDIZED (RATE).

FIGURE 17: SNAPSHOT OF RISK FACTORS—SMOKING, OBESITY AND DIABETES, HIGHEST TO LOWEST

| Prevalence of smoking (daily smokers, % of population aged 15 years and over; 2019; highest to lowest) | | Prevalence of adult overweight & obese (% of adults; 2016; highest to lowest) | | Age-adjusted prevalence of diabetes (20-79 yrs, %, 2021 highest to lowest) | |
|--|------|---|------|--|-----|
| Bulgaria | 28.7 | United Kingdom | 63.7 | Portugal | 9.1 |
| Germany | 21.9 | Czech Republic | 62.3 | Bulgaria | 7.4 |
| Croatia | 21.8 | Bulgaria | 61.7 | Czech Republic | 7.1 |
| Slovakia | 20.4 | Hungary | 61.6 | Hungary | 7 |
| Austria | 20.2 | Croatia | 59.6 | Europe | 7 |
| Hungary | 19.3 | France | 59.5 | Germany | 6.9 |
| Czech Republic | 19.3 | EU 27 | 58.8 | Poland | 6.8 |
| Romania | 18.7 | Poland | 58.3 | Romania | 6.5 |
| Poland | 18.4 | Netherlands | 57.8 | United Kingdom | 6.3 |
| EU 27 | 18.4 | Romania | 57.7 | Slovakia | 5.8 |
| France | 17.8 | Portugal | 57.5 | Slovenia | 5.8 |
| Slovenia | 16.6 | Germany | 56.8 | France | 5.3 |
| Netherlands | 14.6 | Slovakia | 56.2 | Croatia | 4.8 |
| United Kingdom* | 14.1 | Slovenia | 56.1 | Austria | 4.6 |
| Portugal | 11.5 | Austria | 54.3 | Netherlands | 4.5 |

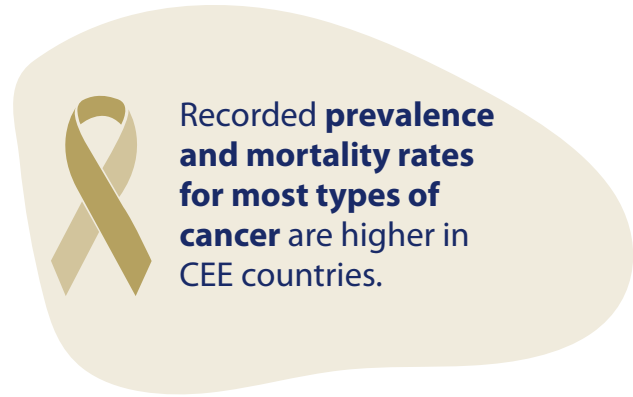
Sources: Eurostat. Tobacco consumption. Daily smokers of cigarettes by sex, age and educational attainment level. 2019. Available from https://ec.europa.eu/eurostat/databrowser/view/HLTH_EHIS_SK3E__custom_3229146/default/table?lang=en

*UK data from Office for National Statistics, UK (smoking prevalence based on 'current cigarette smokers' including those who smoke occasionally)
WHO. Global Health Observatory. Prevalence of overweight among adults, BMI ≥ 25 , age-standardized. Estimates by country. 2016. Available from <https://apps.who.int/gho/data/node.main.A897A?lang=en>
IDF Diabetes Atlas, 2021. Available from <https://idf.org/>

CEE countries face the greatest burden with respect to ischaemic heart disease and cancer mortality rates, particularly when calculated on an age-standardised basis (to more effectively compare populations with different age structures). Lower rates of death from ischaemic heart disease in the European comparator countries are in line with a broader trend of falling age-standardised prevalence and death rates in high-income countries since the 1970s. This has been due to rapid declines in smoking, improvements in hypertension treatment and control, widespread access to cholesterol-lowering statins, and the development of and timely access to thrombolysis and stents to limit or prevent infarction.⁹⁸

Although the age-standardised prevalence rate of cardiovascular disease (CVD) has fallen in most European countries over recent decades, the greater decreases have been in northern, western and southern European countries rather than those in CEE. This is reflected in the most recent age-standardised death rates due to ischaemic heart disease (Figure 16). Several CEE countries, including Bulgaria and the Czech Republic, have moved up the global rankings of highest CVD prevalence over the past two decades, and eastern European countries in general sustain among the highest prevalence rates worldwide.

Hungary, Slovakia and Romania record the highest rates of deaths from ischaemic heart disease. This aligns directly with their status as being among the lowest-spending countries on healthcare per capita; in the case of Bulgaria and Hungary, it also reflects a higher prevalence of smoking, a leading behavioural factor contributing to heart disease (Figure 17). Of all the CEE countries, Slovenia has the lowest mortality rates from ischaemic heart disease and cancer (on an age-standardised basis). This reflects higher levels of healthcare spending and better access to disease screening and treatments, including statins. Whereas the proportion of deaths from CVD has fallen slightly in Slovenia in recent years, the overall cancer mortality rate is rising, owing to the country's ageing population. Lower age-standardised mortality rates from key preventable diseases in Slovenia can be attributed in part to the successful development of a multidisciplinary, community-based, prevention-oriented service delivery model for primary healthcare, as well as higher proportional spending on preventative care as a percentage of total health spending.



Both Slovenia and the Czech Republic have lower cancer mortality rates on an age-standardised basis than two higher-income European comparator countries, the Netherlands and the UK. Cancer prevalence in the Netherlands was estimated to be third highest in the EU after Ireland and Denmark in 2020.⁹⁹ Although total rates of smoking in the Netherlands are lower than in Slovenia and the Czech Republic, smoking amongst women is comparatively high, and the country therefore faces a high burden of cancers in which smoking is an important risk factor, such as oesophageal, bladder and lung cancers. The higher age-standardised cancer mortality rate in the UK can be attributed in part to the high proportion of UK adults who are overweight or obese, which is the second leading cause of cancer in the country.¹⁰⁰

Overall, recorded prevalence and mortality rates for most types of cancer are higher in the CEE countries. As well as a greater scarcity of screening programmes and higher rates of late-stage diagnosis, this is due to less-effective control strategies, and generally lower coverage, quality and frequency of primary prevention. Patients in CEE countries are commonly disadvantaged by the lower availability of cancer treatment options, as well as a lack of multidisciplinary health teams, comparatively poor infrastructure and weak organisation of oncology care.¹⁰¹ These health system weaknesses are reflected in lower cancer survival rates.¹⁰²

98 Mensah, G. A., Wei, G. S., Sorlie, P. D., Fine, L. J., Rosenberg, Y., Kaufmann, P. G. & Gordon, D. (2017). Decline in cardiovascular mortality: possible causes and implications. *Circulation research*, 120(2), 366-380.

99 Integraal Kankercentrum Nederland (IKNL), 2020, <https://iknl.nl/nieuws/2020/europese-vergelijking-vaker-kanker-in-nederland>.

100 WHO. Global Health Observatory.

101 Vrdoljak, E., Bodoky, G., Jassem, J., Popescu, R. A., Mardiak, J., Pirker, R., & Šikić, B. I. (2016). Cancer control in Central and Eastern Europe: Current situation and recommendations for improvement. *The Oncologist*, 21(10), 1183-1190.

102 EFPIA. Cancer Survival. 5-year, age standardised. 2010-2014.

FIGURE 18: FIVE-YEAR NET SURVIVAL RATE (%) FOR SELECTED CANCERS (BREAST, LUNG AND COLON), HIGHEST TO LOWEST, 2010-2014

| | Breast Cancer | Colon Cancer | Lung Cancer | Average five-year survival for selected cancers |
|----------------|---------------|--------------|-------------|---|
| Germany | 86 | 64.8 | 18.3 | 56.4 |
| Austria | 84.8 | 63.7 | 19.7 | 56.1 |
| France | 86.7 | 63.7 | 17.3 | 55.9 |
| Netherlands | 86.6 | 63.1 | 17.3 | 55.67 |
| Portugal | 87.6 | 60.9 | 15.7 | 54.7 |
| Slovenia | 83.5 | 61.9 | 14.8 | 53.4 |
| United Kingdom | 85.6 | 60 | 13.3 | 53 |
| EU27 | 83.6 | 60.9 | 14.2* | 52.9** |
| Czech Republic | 81.4 | 56.1 | 10.6 | 49.4 |
| Poland | 76.5 | 52.9 | 14.4 | 47.9 |
| Croatia | 78.6 | 51.1 | 10 | 46.6 |
| Slovakia | 75.5 | 51.8 | 11.2 | 46.2 |
| Bulgaria | 78.3 | 52.4 | 7.7 | 46.1 |
| Romania | 74.8 | 52.2 | 11.1 | 46 |

Sources: EFPIA. Cancer Survival. 5-year, age standardised. 2010-2014.
Notes. *EU27 average is unavailable. Figure represents average of countries included in study for which data is available. **Average calculated includes lung cancer average survival for available study countries, as described above.
Data not available for Hungary

Portugal has the highest prevalence of diabetes, a major predisposing factor for the development of CVD in ageing populations in the EU. The high prevalence in Portugal is due in part to historically high rates of smoking and alcohol consumption. Smoking is an independent risk factor for type 2 diabetes, while alcohol increases the chances of hypoglycaemia amongst diabetics. A focus on alcohol and smoking prevalence in the national health plans published by Portugal since 2000 has significantly reduced these contributing risks, particularly in the case of smoking prevalence.¹⁰³

A positive impact on diabetes prevalence is likely to be discernible over the next decade. The relatively high diabetes prevalence rates in Bulgaria, Czech Republic and Hungary, where incidence is higher than the EU average, reflects low levels of spending on healthcare, which impedes the coverage and quality of prevention and treatment interventions and increases lifestyle risk factors.

While the prevalence of diabetes has stabilised in many EU countries, particularly in the Nordic region, upward trends have continued mainly in southern European and CEE countries. These trajectories are partly due to the rise in physical inactivity and obesity, along with their interactions with population ageing.

Prevention is a top priority, with national screening programmes being important tools in ensuring early diagnosis

Nearly half of cancer deaths can be avoided with more preventative action to address and mitigate risks. Whereas lifestyle determinants such as smoking, nutrition and physical activity aim to reduce the incidence of cancer, appropriate cancer screening programmes and early detection methodologies can be important tools in ensuring an early and accurate cancer diagnosis, and they can also be effective in reducing health disparities.

Since 2003, the EU has recommended screening for breast, cervical and colorectal cancer through organised, population-based programmes. As of 2020, 25 EU countries had introduced population-based screening programmes for breast cancer, 22 for cervical cancer and 20 for colorectal cancer as part of national cancer control plans. The majority of CEE countries in this study have active population-based screening programmes for each of these three disease areas. The exceptions are Bulgaria, which currently has no population-based screening programmes; Slovakia, where there is a population-based programme for breast cancer but not for cervical cancer or colorectal cancer; and Romania, where there is currently no population-based screening programme for colorectal cancer.¹⁰⁴

Slovenia has a strong commitment to preventative care. In addition to population-based screening programmes for major cancers, Slovenia has introduced screening for chronic diseases and counselling for chronic disease management through family medicine practices. The national cancer registry shows a decrease in colorectal



Nearly half of cancer deaths can be avoided with more preventative action to address and mitigate risks.

¹⁰³ Diabetes.co.uk, <https://www.diabetes.co.uk/news/2012/nov/portugal-diabetes-rates-highest-in-eu-99133994.html>, accessed January 2022.

¹⁰⁴ Baus P Status of implementation and organization of cancer screening in The European Union Member States—Summary results from the second European screening report. 2017. <https://doi.org/10.1002/ijc.31043>.

cancers since the introduction of population-based screening programmes. The five-year cancer survival rate (Figure 18) is higher than the EU average and the highest among CEE countries.

Poland introduced cancer screening on a national scale in 2006 with population-based screening programmes for breast, cervical and colorectal cancer. However, participation remains low among the eligible population at 16%, 20% and 40% respectively, according to 2014 data. Survey data from the Czech Republic shows that participation in screening for women averages 77% for breast cancer screening (the EU average is 61%) and 87% for cervical cancer screening (the EU average is 66%).¹⁰⁵

According to the European Cancer Patient Coalition (ECPC), a patient advocacy group, the high mortality rate for cervical cancer in Romania is a direct consequence of its fragmented screening programme. Reported quality and uptake of screening in Romania are poor—in 2014 only 6% of women aged 50 to 69 reported for breast cancer screening and only 5% of those aged 50 to 74 reported for colorectal cancer screening. Explanations for differences in participation rates vary; however, the ECPC highlights individual socioeconomic status as a critical factor on capacity and willingness to access appropriate screening services, emphasising a critical barrier to reducing cancer disparities.¹⁰⁶

Croatia has recently become the first country in the EU to introduce nationwide screening for early lung cancer detection. The programme will target active smokers aged 50-70 and those who have quit smoking within the last 15 years.¹⁰⁷

The covid-19 pandemic has caused widespread disruption to screening programmes and delays in treatment, meaning that health outcomes may worsen in the coming years, placing more pressure on healthcare systems. “In the years to come, we will definitely see the consequences of the fact that people had issues accessing the system,” says Dr Vončina.

“With preventative screening programmes put on hold, we can expect to see more people diagnosed with more advanced phases of cancer and people with cardiovascular diseases and diabetes who have not been checked and controlled, putting additional strains on the health system in the months and years to come”.

Dr Luka Vončina, health policy consultant, World Bank (formerly of the Croatian National Health Insurance Fund and Croatian Ministry of Health), Croatia.

4.2. Shifting demographics

Ageing societies present a major problem for healthcare systems across Europe

Population ageing set in much later in CEE than in other parts of Europe. However, dramatic drops in fertility rates in the 1990s and 2000s, as well as falling infant mortality rates, a steady rise in life expectancy and mass emigration of working-age people, have caused the ageing phenomenon to shift eastwards. This trend is expected to continue until 2050. Although the comparator European countries generally have proportionately larger elderly populations, the OECD projects that many countries in western Europe may experience a stabilisation in median ages by 2040, sooner than most countries in CEE and southern Europe.¹⁰⁸

Slovenia and Croatia are the only countries that are projected to have a higher proportion of people aged over 65 years than the EU27 average by 2025. Nevertheless, other CEE countries, including Poland and Slovakia, have also recorded very rapid rises in elderly populations. Increased momentum in population ageing demands policy and institutional adjustments in all CEE countries included in the study.¹⁰⁹

¹⁰⁵ OECD/European Union (2020), Health at a Glance: Europe 2020: State of Health in the EU Cycle, OECD Publishing, Paris. Available from <https://doi.org/10.1787/82129230-en>

¹⁰⁶ European Cancer Patient Coalition. <https://ecpc.org/wp-content/uploads/2019/08/ECPC-White-Paper-Europe-of-disparities-EN-3.pdf>

¹⁰⁷ ECHA Alliance. Croatia first to introduce early screening for lung cancer. Accessed May 2022 <https://echalliance.com/croatia-first-to-introduce-early-screening-for-lung-cancer/>

¹⁰⁸ OECD/European Union (2020), Health at a Glance: Europe 2020: State of Health in the EU Cycle, OECD Publishing, Paris. Available from <https://doi.org/10.1787/82129230-en>

¹⁰⁹ World Bank. Data. Population ages 65 and above (% of total population). Available from <https://data.worldbank.org/indicator/SP.POP.65UP.TO.ZS>

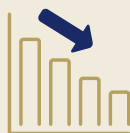
The ageing phenomenon has shifted eastwards



Dramatic drops in fertility rates in the 1990s and 2000s



Steady rise in life expectancy



Falling infant mortality rates



Mass emigration of working-age people

Health systems need to adapt to the different healthcare requirements of older people. There is likely to be a surge in demand in all CEE countries for long-term care and treatments for other diseases that typically affect the elderly, such as arthritis, dementia and sensory impairment.¹¹⁰ Age is also a risk factor for CVD in adults, and more than half of all cancers are diagnosed in people over 70 years of age.¹¹¹

Ageing populations create a double-edged healthcare challenge. On the one hand, pressure grows on healthcare systems, owing to higher demand for costly long-term treatments and care. On the other hand, fiscal constraints tighten, owing to proportionately smaller working-age populations, which reduces funding through tax revenue and compulsory insurance contributions.

FIGURE 19: PERCENTAGE OF THE POPULATION OVER 65 YEARS, RANKED HIGHEST TO LOWEST BASED ON 2030 DATA

| | 2015 | 2020 | 2025 | 2030 |
|----------------|------|------|------|------|
| Portugal | 20.8 | 22.8 | 24.8 | 27 |
| Germany | 21.2 | 21.7 | 23.5 | 26.2 |
| Slovenia | 18 | 20.7 | 23.2 | 25.5 |
| Croatia | 19.2 | 21.3 | 23.1 | 25.1 |
| EU27 | 19.2 | 20.8 | 22.7 | 24.7 |
| Netherlands | 17.9 | 20 | 22.2 | 24.6 |
| France | 18.9 | 20.8 | 22.4 | 24.1 |
| Austria | 18.8 | 19.2 | 21 | 23.7 |
| Bulgaria | 20 | 21.5 | 22.6 | 23.4 |
| Poland | 15.7 | 18.7 | 21.7 | 23.2 |
| Romania | 18.3 | 21 | 22.8 | 23 |
| Czech Republic | 18 | 20.1 | 21.3 | 22.2 |
| Hungary | 18.1 | 20.1 | 21.7 | 22 |
| United Kingdom | 18 | 18.7 | 19.8 | 21.5 |
| Slovakia | 14 | 16.7 | 19.1 | 21 |

Source: World Bank. Data. Population ages 65 and above (% of total population). Available from <https://data.worldbank.org/indicator/SP.POP.65UP.TO.ZS>

“In the long term, we [in the Czech Republic] face a problem very similar to other European countries, caused by the ageing population, growing demand and the share of the economically active population going down. We will most likely have to come up with a new way of funding public healthcare”.

Dr Pavel Hroboň, partner, Advanced Healthcare Management Institute, Czech Republic.

110 European Commission. Ageing Europe/ 2019 Edition. Available from <https://ec.europa.eu/eurostat/documents/3217494/10166544/KS-02-19%E2%80%91EN-N.pdf/c701972f-6b4e-b432-57d2-91898ca94893>

111 Cancer Research UK. Cancer incidence by age. Accessed January 2022 <https://www.cancerresearchuk.org/health-professional/cancer-statistics/incidence/age>

“[We have a] very old population and a big problem with emigration, people moving to more developed EU countries, especially young people with families”.

Ana Ivičević Uhernik, Department for Health Economics, Croatian Institute of Public Health, Croatia.

World Bank data project that by 2025 Slovenia, Croatia and Bulgaria will record higher old-age dependency ratios than the EU27 average.¹¹² In the case of Slovenia, the effects of health policy and institutional reforms introduced over the

past 20 years should help to contain expenditure growth driven by an older population. Measures have included the implementation of a compulsory family medicine residency programme, which includes services for screening and control of chronic diseases, and health promotion centres for group interventions to support healthy lifestyles.

Croatia is less well prepared than Slovenia for the impact of the demographic shift, with primary care and specialist outpatient care mostly provided by hospital outpatient departments, and lower proportions of spending going to preventative and long-term care.¹¹³ Bulgaria, meanwhile, is ill-prepared for the impact of an ageing population, blighted as it is by over-utilisation of hospital care, weak primary care capacity, and low levels of spending on preventative interventions and long-term care. This inflates costs and weakens the financial sustainability of the whole healthcare system.

FIGURE 20: OLD-AGE DEPENDENCY RATIO, RANKED HIGHEST TO LOWEST BURDEN

| 2015 | | 2020 | | 2025 | | 2030 | |
|----------------|------|----------------|------|----------------|------|----------------|------|
| Germany | 32.4 | Portugal | 35.5 | Portugal | 39.3 | Portugal | 44.3 |
| Portugal | 31.9 | Germany | 33.7 | Germany | 37.7 | Germany | 44 |
| Bulgaria | 30.5 | France | 33.7 | Slovenia | 37.3 | Slovenia | 41.8 |
| France | 30.1 | Bulgaria | 33.6 | France | 36.9 | Netherlands | 40.8 |
| EU27 | 29.4 | Romania | 33.3 | Romania | 36.8 | Croatia | 40.5 |
| Croatia | 29.1 | Croatia | 33.1 | Croatia | 36.6 | EU27 | 40.4 |
| Austria | 28.1 | EU27 | 32.4 | Bulgaria | 35.6 | France | 40.4 |
| United Kingdom | 27.9 | Slovenia | 32.3 | EU27 | 36.1 | Austria | 38.5 |
| Romania | 27.7 | Czech Republic | 31.4 | Netherlands | 35.5 | Bulgaria | 37.2 |
| Netherlands | 27.4 | Netherlands | 31.2 | Poland | 34.1 | Poland | 37 |
| Czech Republic | 26.9 | Hungary | 30.8 | Hungary | 33.9 | Romania | 36.6 |
| Slovenia | 26.8 | United Kingdom | 29.3 | Czech Republic | 33.6 | Czech Republic | 35.3 |
| Hungary | 25.7 | Austria | 28.9 | United Kingdom | 31.5 | United Kingdom | 34.8 |
| Poland | 22.7 | Poland | 28.4 | Austria | 32.7 | Hungary | 34.5 |
| Slovakia | 19.9 | Slovakia | 24.6 | Slovakia | 29.1 | Slovakia | 32.7 |

Source: World Bank. Data. Age dependency ratio, old (% of working-age population). Available from <https://data.worldbank.org/indicator/SP.POP.DPND.OL>
 Note. Old-age dependency ratio is the ratio of older dependents—people older than 64—to the working-age population—those aged 15-64. Data are shown as the proportion of dependents per 100 working-age population.

112 World Bank. Data. Age dependency ratio, old (% of working-age population). Available from <https://data.worldbank.org/indicator/SP.POP.DPND.OL>

113 Johansen, A. S., Vracko, P., & West, R. (2020). The evolution of community-based primary health care, Slovenia. *Bulletin of the World Health Organization*, 98(5), 353.

4.3. Quality of care

Avoidable deaths, as measured by treatable and preventable mortality, are notably higher in many CEE countries, with a broad correlation between higher healthcare spending and lower rates of avoidable deaths. Performance on indicators for avoidable and preventable mortality is influenced by the quality and effectiveness of healthcare provision in each country. However, these outcomes are also affected by other factors, including general living standards, public health risks, wealth

disparities, welfare and social policy, and environmental variables such as air and water pollution.

A more useful indicator of the direct harm or benefit done by a country's healthcare system is provided by amenable mortality rates. A death is amenable "if, in the light of understanding of the determinants of health at the time of death, all or most deaths from that cause could be avoided by public health interventions in the broadest sense," according to data definitions by Eurostat.¹¹⁴

FIGURE 21: MORTALITY FROM AVOIDABLE CAUSES—TREATABLE AND PREVENTABLE DEATHS VS HEALTH EXPENDITURE, 2019

| Treatable deaths (per 1,000) 2019 | | Preventable deaths (per 1,000) 2019 | | Highest to lowest, countries by health spending per capita, 2019 |
|-----------------------------------|--------|-------------------------------------|--------|--|
| Netherlands | 61.29 | Netherlands | 123.51 | Netherlands |
| France | 62.05 | France | 129.9 | Austria |
| Slovenia | 71.98 | Portugal | 135.48 | Germany |
| Austria | 73.15 | Germany | 149.6 | United Kingdom |
| Portugal | 79.02 | United Kingdom | 150.43 | France |
| Germany | 81.72 | Austria | 151.94 | Slovenia |
| United Kingdom | 87.41 | EU27 | 160 | Czech Republic |
| EU27 | 92.09 | Slovenia | 173.33 | Portugal |
| Czech Republic | 120.3 | Czech Republic | 188.3 | Slovakia |
| Croatia | 128.28 | Poland | 218.5 | Hungary |
| Poland | 133.69 | Bulgaria | 230.8 | Poland |
| Slovakia | 163.53 | Slovakia | 231.1 | Croatia |
| Hungary | 173.21 | Croatia | 232.61 | Romania |
| Bulgaria | 188.95 | Romania | 295.8 | Bulgaria |
| Romania | 208.34 | Hungary | 315.33 | *not available for EU average |

Sources: Eurostat. Treatable and preventable mortality of residents by cause and sex. 2019, or latest available year. Available from https://ec.europa.eu/eurostat/databrowser/view/hlth_cd_apr/default/table?lang=en
Eurostat. Health care expenditure. Euro per inhabitant. 2019. Available from https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HP/default/table?lang=en&category=hlth.hlth_care.hlth_sha11.hlth_sha11_sum

Rates for amenable mortality (deaths deemed potentially preventable, given effective and timely care) vary widely across the European countries under review and correlate strongly with per capita healthcare spending: lower spending CEE countries record higher amenable mortality. Slovenia again stands out as bucking the wider trend, with an amenable death rate on par with the comparator European economies and performing better on this measure than the European average. Although Slovenia also records the lowest rate of preventable deaths among the CEE countries, its outcome on this measure is more in line with those recorded in the region.

Regardless of the nuances, there is a visible link between healthcare spending and avoidable and preventable

mortality rates. The Netherlands has the lowest treatable and preventable mortality across all countries and is among the highest spenders of healthcare in terms of GDP per capita. At the other end of the spectrum, Romania, Bulgaria and Hungary sit towards the bottom of the table across all three indicators.

Perceived quality of services varies, but there is ample room for improvement

There are differences between European countries in both how quality is understood and how it is measured, which makes comparing quality a challenge. However, there is

114 Eurostat. Statistics Explained. Archive. Amenable and preventable deaths statistics. 2018. Available from: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Archive:Amenable_and_preventable_deaths_statistics&oldid=390164

common agreement that a quality health system should be effective, safe and people-centred.

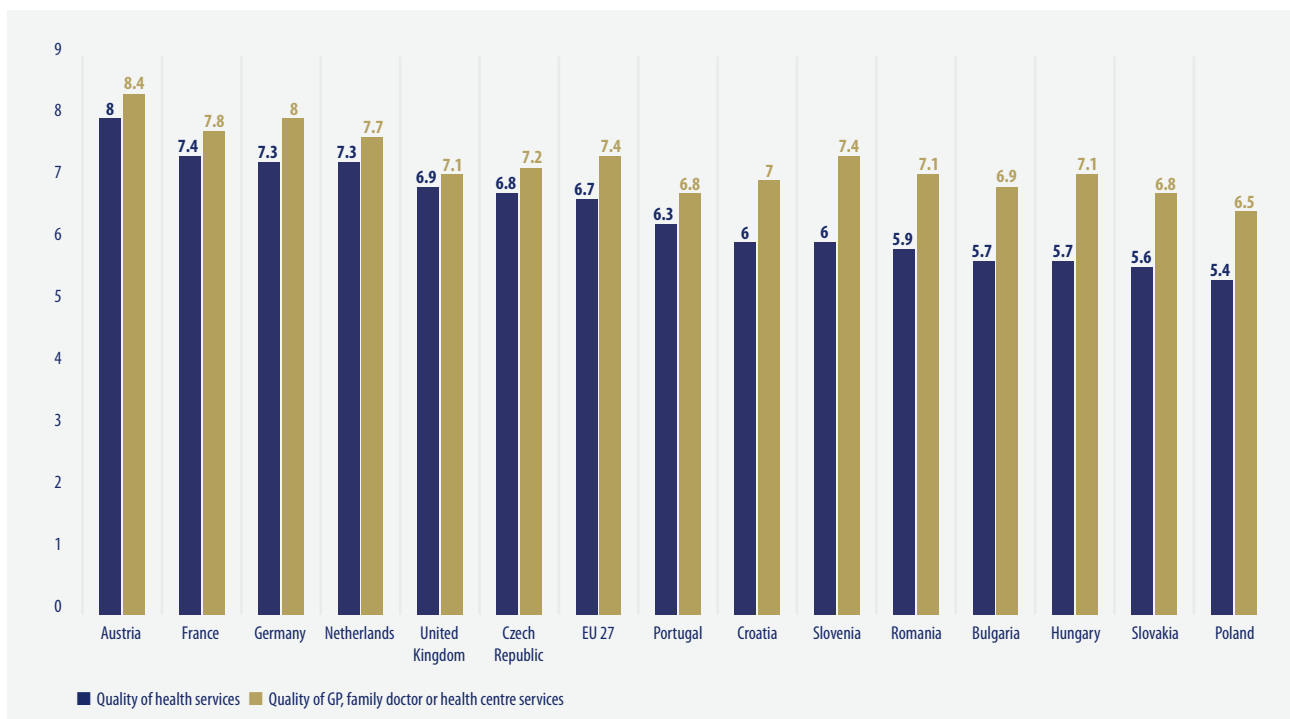
Promoting more people-centred care has become a growing priority across the EU in recent years as countries seek to improve the quality of care and the responsiveness to patients' expectations. This has been accompanied by national and European efforts to develop and implement patient-reported experience measures (PREMs) and patient-reported outcomes measures (PROMs) to monitor progress for individual providers and at the national level.

Although systematic data on population satisfaction or patient-reported outcomes is still limited, the European Quality of Life Survey, which collects information from

people about their views on the quality of different services in their country, including healthcare, indicates that the perceived quality and satisfaction with GP, hospital and specialised services is higher in western Europe than in CEE—except for Slovenia, which scores above the EU27 average in both categories (Figure 12).¹¹⁵

A 2016 study looking at overall satisfaction with quality and access to healthcare services in six CEE countries reveals that although average satisfaction per country is relatively high, there is ample room for improvement, specifically in the high shares of informal payments and the ability of service users to pay more broadly, leading to questions about the fairness of healthcare provision.¹¹⁶

FIGURE 22: PEOPLE-REPORTED QUALITY OF HEALTH SERVICES (OUT OF 10)



Source: European Quality of Life Survey, 2016.

115 Eurofound. European Quality of Life Survey 2016. Quality of health and care services in the EU. Available from <https://www.eurofound.europa.eu/publications/report/2019/quality-of-health-and-care-services-in-the-eu>

116 Stepurko T, Pavlova M, Groot W. Overall satisfaction of health care users with the quality of and access to health care services: a cross-sectional study in six Central and Eastern European countries. *BMC Health Serv Res.* 2016 Aug 2;16(a):342. doi: 10.1186/s12913-016-1585-

4.4. Health system resilience

Covid-19 was a wakeup call, unveiling vulnerabilities in health systems

After CEE countries appeared to initially mitigate the effects of the first wave of the covid-19 pandemic in early 2020, subsequent waves exposed vulnerabilities related to the quality of healthcare infrastructure, workforce shortages, and political strength and decision-making. The impact of the pandemic illustrates the precarious state of health systems in CEE and where they lag behind western European counterparts.

The total number of confirmed cases does not reveal much, but a comparison of the number of deaths points to underprepared health systems across CEE and an inability to cope with surges, despite decades of focus on hospital infrastructure.¹¹⁷ "The availability of healthcare professionals [in Croatia] impacted the quality of care provided during covid," says Ms Ivičević Uhernik, adding that doctors were working "unbelievably long working hours" during the pandemic, leading to disputes over payment.

Covid-19 also exposed vulnerabilities in the Hungarian healthcare system. "[On one hand] we can see that there [was] a huge number admitted to hospitals [with covid]," says Dr Zemlenyi. "[On the other hand] lots of patients also disappeared from the system or did not receive care in a timely manner owing to fear of the health system. The healthcare system was not very well prepared to handle

the situation; we cannot see the full impact from current statistics".

Hungary also recorded a high mortality rate, and the causes remain unclear. "We need to investigate if this was due to the general condition of the health system, health conditions or health literacy," says Dr Zemlenyi. "These conclusions have to be drawn and I hope the Ministry of Human Capacities will devise a programme on how to learn from [the high death rate] and reform [as a result]".

The prevailing lack of investment in infrastructure and workforce amplified the impact of covid-19 in Slovakia. "The underinvested infrastructure can't handle a crisis. There are many cases where people caught covid-19 inside the hospital. Many hospitals lack proper isolation units," says Mr Matej Mišík, director at the Institute for Health Analyses at the Ministry of Health in Slovakia, adding that the shortage of healthcare personnel, and the age of GPs, with many close to retirement, also contributed to the situation.

Covid-19 vaccination rates are significantly lower among all CEE countries, owing to a lack of trust in government, lack of support from healthcare workers and GPs, and lack of knowledge among the general population. "The pandemic showed a gap in democracy, [as shown by] the lack of people willing to get vaccinated," says Jana Skoupá, former president of the Czech Chapter of the International Society for Pharmacoeconomics and Outcomes Research.

FIGURE 23: COVID-19 CONFIRMED CASES, DEATHS AND VACCINATIONS

| Total confirmed cases per 1,000 | | Total deaths per 1,000 | | Share of people fully vaccinated | |
|---------------------------------|--------|------------------------|------|----------------------------------|------|
| Slovenia | 468.03 | Bulgaria | 5.3 | Portugal | 93% |
| Netherlands | 465.3 | Hungary | 4.72 | France | 78% |
| Slovakia | 450.8 | Croatia | 3.82 | Germany | 75% |
| Austria | 428.3 | Czech Republic | 3.7 | Austria | 73% |
| Czech Republic | 357 | Slovakia | 3.56 | United Kingdom | 72% |
| Portugal | 354.4 | Romania | 3.35 | Netherlands | 72% |
| France | 348.8 | Slovenia | 3.13 | Czech Republic | 64% |
| United Kingdom | 312 | Poland | 3.05 | Slovenia | 59% |
| Croatia | 269.9 | United Kingdom | 2.43 | Poland | 59% |
| Germany | 257.3 | Portugal | 2.14 | Croatia | 55% |
| Hungary | 192.4 | France | 2.11 | Hungary | 51% |
| Bulgaria | 165.3 | Austria | 1.76 | Slovakia | 51% |
| Poland | 157.9 | Germany | 1.55 | Romania | 28%* |
| Romania | 146.8 | Netherlands | 1.29 | Bulgaria | 16% |

Source: Our World in Data.

* Share of people fully vaccinated includes total number of people who received all doses prescribed by the initial vaccination protocol. Data correct as of March 25th 2022, apart from Romania vaccination data, which is correct as of September 27th 2021 (latest available).

117 H Ritchie, E Mathieu, L R Guirao, et al. (2020) - "Coronavirus Pandemic (COVID-19)". Published online at OurWorldInData.org.

As countries move beyond covid-19, identified focus areas include prevention of non-communicable diseases, with cancer diagnosis and prevention and early diagnosis of mental health issues raised as priorities. Health outcomes after the pandemic are likely to worsen in the longer term owing to the disruption of screening programmes and delays in treatment.

While focusing on preventing and treating non-communicable diseases is a high priority across the region, the covid-19 pandemic has also reminded governments not to neglect communicable (or infectious) diseases. "Covid-19 proved to us that there are no borders in the healthcare system." says Dr Marušič.

The pandemic has also highlighted the importance of stable and resilient healthcare systems to manage future unexpected surges of demand. In the years following the height of the covid-19 pandemic, we can also expect to see a link between economic recovery and health outcomes, demonstrating the potential negative impact of poor financial stability and unemployment on future health outcomes. This will underline the importance of promoting and establishing more resilient health systems.

Uncertainty prevails with the ongoing economic slowdown and the war in Ukraine

The current situation facing many CEE health systems and economies is an intimidating one. Whereas healthcare spending increased in response to the pandemic, there is a risk that spending on health will decline, at a time when it is most urgently needed, owing to the impact of the economic slowdown and war in Ukraine. As the war continues, national budgets will be constrained, inflation and unemployment will continue to rise, and supply chains will be disrupted.

The war has also sparked a refugee crisis on a far greater scale than any other European conflict since the Second World War. According to data from the UN High Commissioner for Refugees, by the end of May 2022, Poland had received over 3 million refugees, Romania had received more than 900,000 and Hungary more than 600,000.¹¹⁸ Although these figures do not discount the number of refugees passing through these countries, spending on health and social care will need to increase in response and healthcare systems will be under increased pressure. In addition, it will be important to address the needs of refugees with pre-existing chronic conditions, as non-communicable diseases are the largest contributor to the disease burden among Ukraine adults. Other

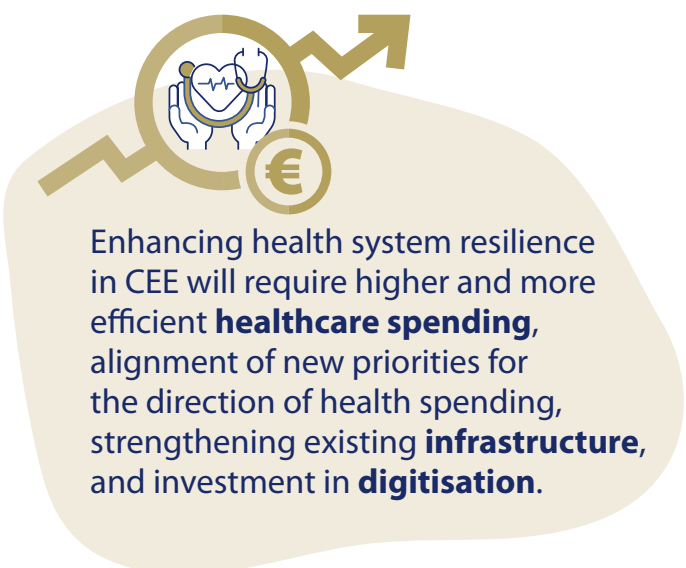
factors to think about include elderly refugees, and those without access to medical records or adequate medication supplies.^{119, 120}

The war in Ukraine has had adverse consequences on economies and societies in CEE. One of the main impacts of the war has been a surge in the cost of living, which is likely to weaken economic growth in the immediate future and result in ongoing hardship on households; this is likely to impact private consumption of healthcare. In addition, increased upward pressure on wages, including in the healthcare sector, could fuel demand-side inflation.

The response to the covid-19 pandemic and the current economic situation demonstrate the need to strengthen health system resilience

Resilient health systems not only plan for shocks such as pandemics, economic crises or the effects of climate change, but also minimise the negative consequences of such disruptions, recover as quickly as possible, and adapt by learning lessons from the experience to become even better performing and more prepared. Improved resilience increases the capacity of health systems and societies to respond more rapidly and more effectively to new challenges.

The response to the covid-19 pandemic and the ongoing economic situation provides the ultimate test for health system resiliency. While the pandemic has exposed the lack of preparedness and capacity of most health systems, it has also presented countries with the opportunity to plan and build back better for the future.



118 UNHCR. Ukraine Refugee Situation. Operational Data Portal. Accessed May 2022 <https://data.unhcr.org/en/situations/ukraine#>

119 Murphy A, Fuhr D, Roberts B, et al. The health needs of refugees from Ukraine. *BMJ*. 2022;377:o864.

120 Lewtak K, Kanecki K, Tyszko P, et al. Ukraine war refugees - threats and new challenges for healthcare in Poland. *Journal of Hospital Infection*. 2022;125:37-43.

Enhancing health system resilience in CEE will require higher and more efficient healthcare spending, alignment of new priorities for the direction of health spending, strengthening existing infrastructure, and investment in digitisation. Building a resilient health system will also demand an openness to change and reform, which may challenge some political leaders and governments. “The country is rather conservative, and questions around changes in healthcare often become a political topic. For this reason, not many people are willing to try to change something,” says Ms Skoupá, speaking about the situation in the Czech Republic.

As healthcare systems in CEE develop and further public health challenges emerge, developing health literacy is essential to empower populations to manage their wellbeing and become more resilient. Low health literacy is associated with several adverse outcomes and lower uptake of preventive interventions including vaccinations.¹²¹ Health literacy can create “herd immunity” against misinformation and disinformation, challenges which are growing since the covid-19 pandemic.

Developing health (along with digital) literacy in populations will be crucial to guarantee that no citizen is left behind.

Levels of health literacy vary widely across the EU, a study from 2015 of selected EU countries reported that 26.9% of participants in Bulgaria displaying inadequate general health literacy compared with 10.2% of respondents in Poland and with 1.8% of respondents in the Netherlands.¹²²

Intelligent investments in health resilience can protect economies from destabilising shocks and protect people from premature death. Making these investment decisions will require co-operation, support and commitment from multiple government bodies and decision-makers—from health and finance—at a time when public finances are constrained.

The current crisis is far from over. For health systems to stay resilient in the near future and further down the road, significant changes in planning for and approaching health service provision are needed.

121 Baccolini, V., Rosso, A., Di Paolo, C. et al. What is the Prevalence of Low Health Literacy in European Union Member States? A Systematic Review and Meta-analysis. *J GEN INTERN MED* 36, 753–761 (2021). <https://doi.org/10.1007/s11606-020-06407-8>

122 Sørensen K, Pelikan JM, Röthlin F, et al. Health literacy in Europe: comparative results of the European health literacy survey (HLS-EU). *Eur J Public Health*. 2015. Dec; 25(6): 1053-8.

Conclusions and recommendations

The covid-19 pandemic, while having a detrimental effect on immediate and longer-term health outcomes, particularly in terms of late-diagnosed cancer and neglected NCDs, has also exposed the weaknesses, accumulated through decades of underinvestment, of many health systems across the CEE region. Crises are often viewed as catalysts for change. Decision-makers from both health and non-health sectors are now undeniably aware of the close links between health and the economy. The current situation can serve as a turning point in CEE to prioritise investment in healthcare and commit to long-term planning that will narrow the gap with western Europe.

The current situation also coincides with a number of policy reforms and budget commitments at the EU level. The Recovery and Resilience Facility has committed €724bn to support national recovery and resilience plans across Europe, while the introduction of the European Common Health Data Space and EU Pharmaceutical Strategy offers opportunities for standardisation and alignment across all EU countries in data and pharmaceutical regulation and reimbursement. These reforms provide an opportunity for CEE countries to prioritise health reforms so that they are moving with the EU and not lagging behind.

The following key takeaways and proposed solutions are intended to guide common priorities across the CEE countries featured in this study as they seek to improve access, system sustainability and outcomes. Although the recommendations are adaptable across the region, we recognise that particular socio-economic conditions and contextual factors may vary across countries.

1. Recognise that increasing spending on healthcare now is a necessary investment that will support economic growth and lead to a more cost-effective health system in the future

CEE policymakers must view healthcare as an investment rather than a cost. Improved access to healthcare, enhanced screening and diagnosis, timely access to treatment and innovative medicines, and efficiencies gained through better infrastructure and digitisation will have a far-reaching and compounding effect on health outcomes and economic productivity. Getting there will require governments to allocate more of the national budget to health now and continue to increase this investment.

Although CEE policymakers should commit to increasing budgets at the same pace as overall economic growth, additional provisions should be made in the short term to

offset the current economic downturn and mitigate the demand for diagnosis and treatment that accumulated during the pandemic.

Committing to a multi-year strategic plan or vision for the development of the healthcare system will help keep countries on the right track. However, such a plan will only be effective with quantifiable targets and a clear strategic direction for future healthcare spending that defines the roles and responsibilities of finance, health and other key government sectors.

2. Explore alternative methods of raising revenue and delivering healthcare, and evaluate where and how the private sector can play a role

The SHI model, which relies on employment-based contributions as the primary source of revenue, is no longer sustainable, especially amid economic recession rising unemployment and ageing populations. The UN predicts that Bulgaria, Croatia and Romania will be among the ten most rapidly shrinking countries in the world in terms of population size over the next decade. The combination of falling birth rates and accelerating emigration since 2000 is becoming an increasing liability for CEE countries in terms of per capita GDP growth and the costs of an ageing population affected by a higher proportion of chronic health conditions. The proportion of employed people will also fall, putting additional constraints on SHI schemes.

Cost is a universal problem across all countries and health systems. And while no model or health system is perfect, governments should lean toward providing universal access to healthcare. Many countries with SHI models are making efforts to diversify revenue streams. Ways forward include using taxes or central government transfers to supplement SHI funding, or allowing the private sector to play a greater role in voluntary or supplementary health insurance. Reducing reliance on employment-based contributions will ultimately reduce vulnerability to economic and employment fluctuations and support health system resilience.

3. Develop a health system, centred on primary and community care, that meets the needs of tomorrow's population

Future population and epidemiological demographics point to an ageing population and an increase in NCDs and other lifestyle-related diseases. These needs are best managed outside of the health system through the development of a strong integrated network of primary,

community and long-term care closely linked to the social care system. Investment in developing these structures now will pay dividends in the medium to long term.

The current trajectory, driven by ageing populations and rising NCD prevalence, will result in more pressure, resources and funding at the tertiary level. Preventing or delaying the progression of these diseases will reduce pressure on the health system and improve the quality of life of patients as diseases are prevented or diagnosed and treated early.

Developments in health infrastructure should prioritise the development of primary and community care services. Reaching the full potential of primary care also requires developing multi-professional teams, introducing digital technology and seamlessly integrating with specialised care services.

4. Invest in building the foundations for digital infrastructure and data governance

Digital health infrastructure includes telemedicine, health information systems and digital tools. The capacity and pace of digital health adoption depend on factors outside of the health sector, such as national infrastructure readiness, internet access and speed, the availability of qualified ICT specialists, legal and data privacy frameworks, and the willingness and ability of healthcare workers and the population to use digital tools. The CEE region lags behind other European countries in the majority of these areas.

The immediate investment priority for CEE policymakers should be to develop digital capability and capacity at a national level that will serve as the foundation for all sectors, including health. Policymakers should also take advantage of EU funding directed towards digital

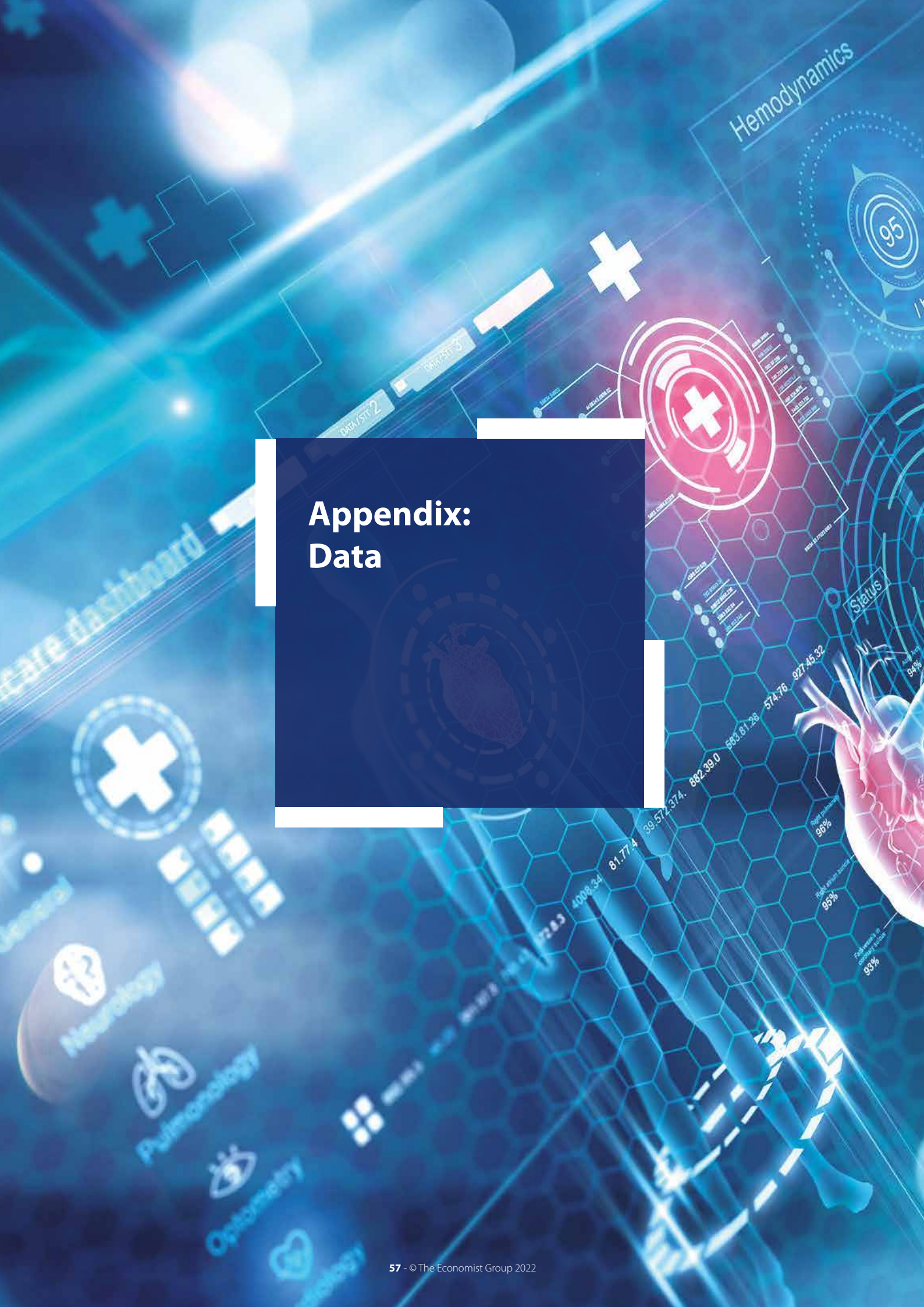
infrastructure and align with EU policies and frameworks on data protection and privacy to mitigate ambiguity among providers.

Although there will be demands for initial capital and resource requirements, laying the foundations in digital health now through functional and integrated health information systems will also complement improved patient care and, in the longer-term, create a system ready to accept and implement advanced technology driven by big data and AI. Such a system would also support research and an R&D ecosystem that will generate local and regional health insights to inform future policy.

5. Commit to improving access to innovative medicines

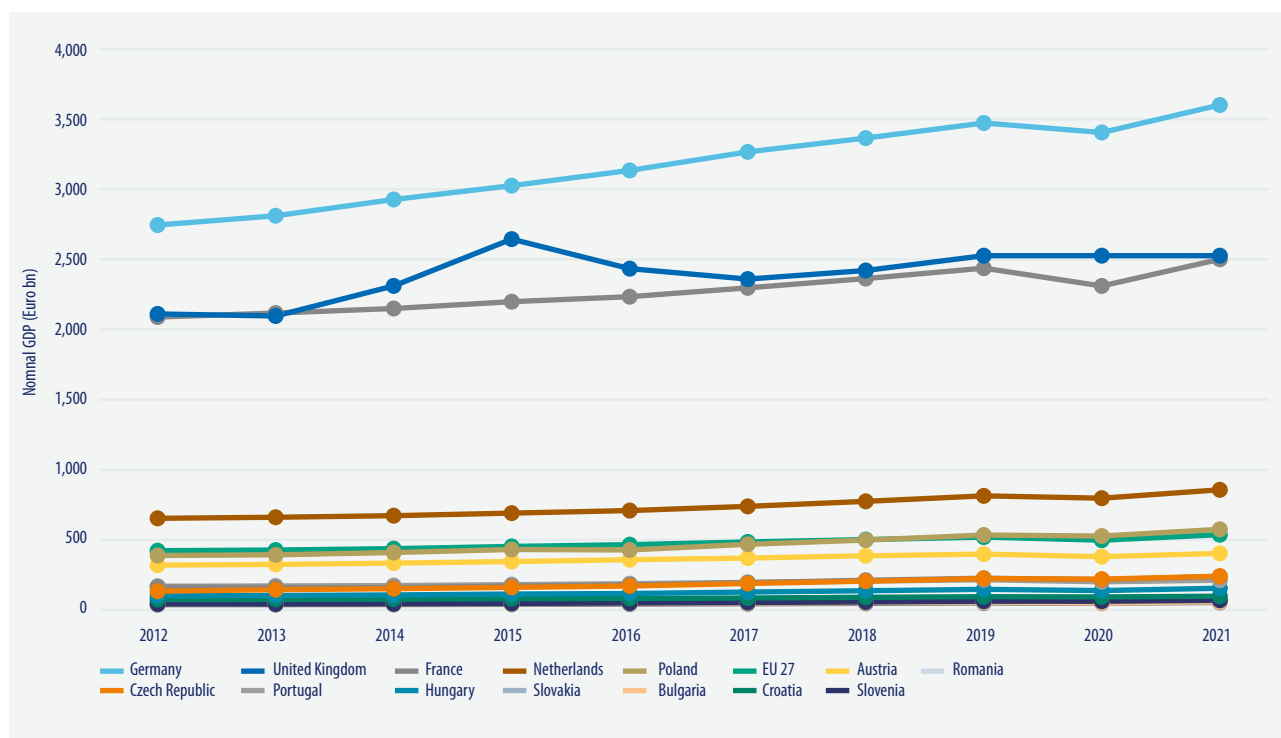
New innovative drugs and therapies provide an opportunity to transform how care is delivered and improve patient outcomes across many disease areas that currently burden health systems across CEE, particularly cancer and NCDs. Patients in CEE countries wait significantly longer for access to innovative treatments and have access to a much smaller pool of approved innovative drugs than those in western European countries, leading to higher mortality, avoidable deaths and avoidable healthcare costs.

The causes that limit access in CEE countries are complex, ranging from cost-containment measures and regulatory processes to reimbursement complications and budget constraints, among many others. Yet the challenges contributing to inequitable access are not insurmountable. Solutions include adjustments to pricing and cost-control mechanisms, such as reference pricing and value-based evaluations including HTAs. These will require co-ordination and transparency with multiple stakeholders within each country and across the region.



Appendix: Data

FIGURE 1.1: NOMINAL GDP (€ BN)



Source: Eurostat

Description: Gross domestic product (GDP) at current market prices in € Euro. Unit € bn.

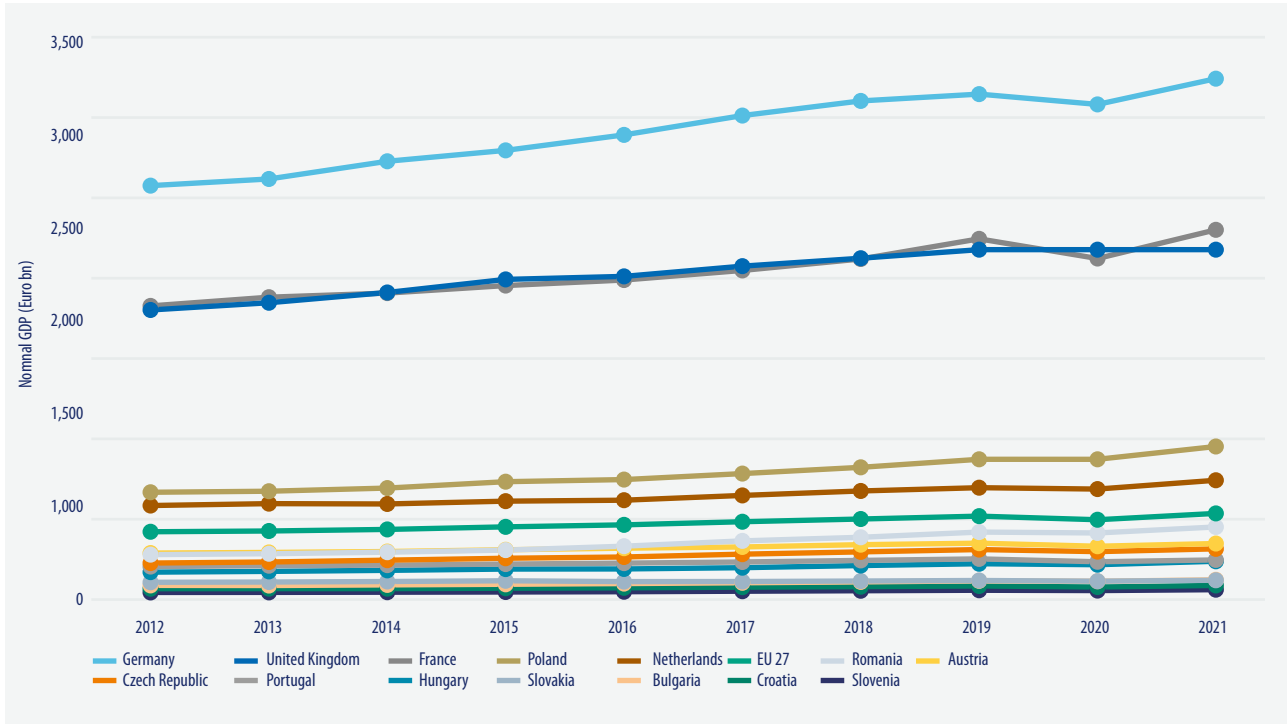
Data extracted on 08/08/2022

Sourced from: https://ec.europa.eu/eurostat/databrowser/view/nama_10_gdp/default/table?lang=en

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Germany | 2,745.3 | 2,811.4 | 2,927.4 | 3,026.2 | 3,134.7 | 3,267.2 | 3,365.5 | 3,473.3 | 3,405.4 | 3,601.8 |
| United Kingdom | 2,111.0 | 2,096.3 | 2,311.1 | 2,644.7 | 2,434.1 | 2,359.8 | 2,420.9 | 2,526.6 | 2,526.6 | 2,526.6 |
| France | 2,088.8 | 2,117.2 | 2,149.8 | 2,198.4 | 2,234.1 | 2,297.2 | 2,363.3 | 2,437.6 | 2,310.5 | 2,500.9 |
| Netherlands | 653.0 | 660.5 | 671.6 | 690.0 | 708.3 | 738.1 | 774.0 | 813.1 | 796.5 | 856.4 |
| Poland | 387.9 | 392.3 | 409.0 | 430.5 | 427.1 | 467.4 | 497.8 | 533.6 | 526.4 | 574.4 |
| EU27 | 421.9 | 421.9 | 421.9 | 421.9 | 421.9 | 421.9 | 421.9 | 421.9 | 421.9 | 421.9 |
| Austria | 318.7 | 323.9 | 333.1 | 344.3 | 357.6 | 369.4 | 385.4 | 397.5 | 379.3 | 402.7 |
| Romania | 132.7 | 143.7 | 150.7 | 160.1 | 170.1 | 187.8 | 204.5 | 223.2 | 218.9 | 240.2 |
| Czech Republic | 162.6 | 159.5 | 157.8 | 169.6 | 177.4 | 194.1 | 211.0 | 225.6 | 215.8 | 238.2 |
| Portugal | 168.3 | 170.5 | 173.1 | 179.7 | 186.5 | 195.9 | 205.2 | 214.4 | 200.1 | 211.3 |
| Hungary | 100.3 | 102.3 | 106.3 | 112.8 | 116.3 | 127.0 | 136.1 | 146.1 | 137.4 | 154.1 |
| Slovakia | 73.4 | 74.2 | 76.1 | 79.9 | 81.0 | 84.4 | 89.4 | 94.0 | 92.1 | 97.1 |
| Bulgaria | 42.3 | 42.1 | 43.0 | 45.8 | 48.8 | 52.5 | 56.2 | 61.6 | 61.3 | 67.9 |
| Croatia | 44.5 | 44.3 | 43.9 | 45.2 | 47.2 | 49.9 | 52.7 | 55.6 | 50.2 | 57.2 |

Note. Sorted from largest to smallest based on 2021 data

FIGURE 1.2: NOMINAL GDP (PPS € BN)

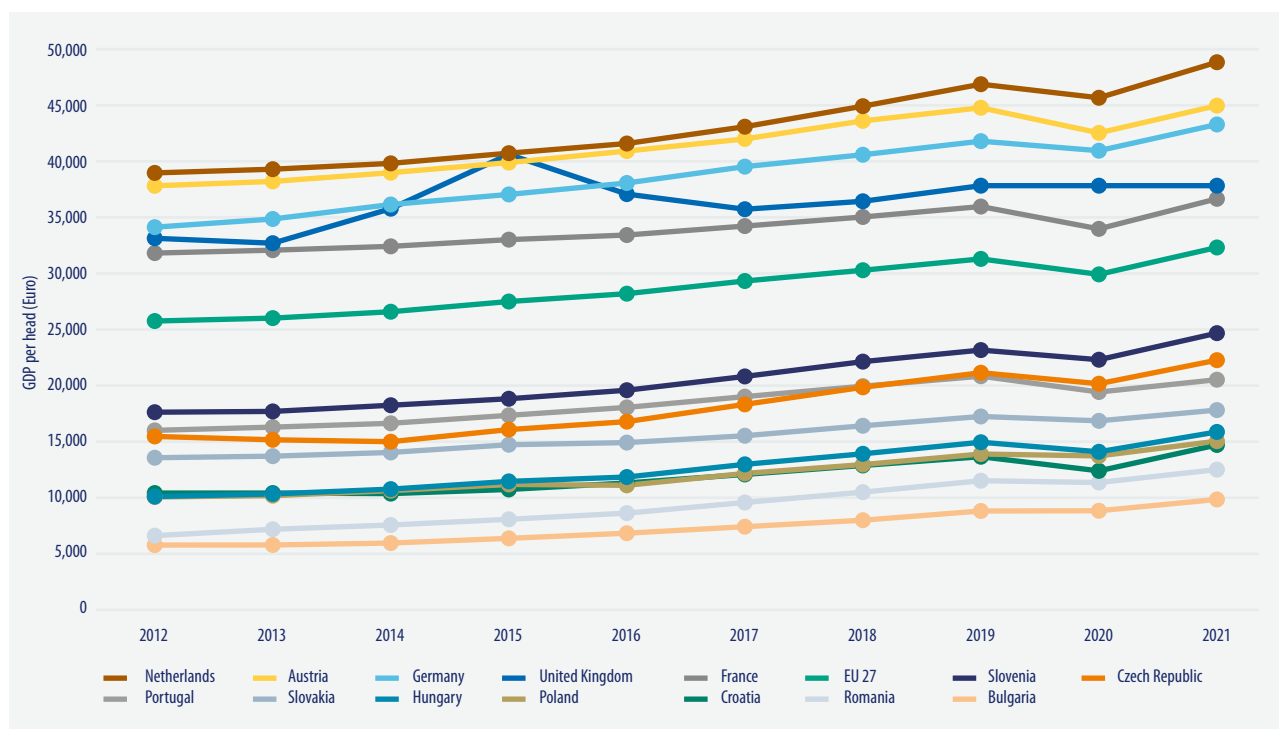


Source: Eurostat.
 Description: Gross domestic product (GDP) at purchasing power standard (PPS) in Euro. Unit PPS (EU27 from 2020) bn.
 Data extracted on 09/08/2022
 Sourced from: https://ec.europa.eu/eurostat/databrowser/view/NAMA_10_GDP__custom_3200340/default/table?lang=en

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Germany | 2,576.14 | 2,617.69 | 2,727.78 | 2,795.70 | 2,892.09 | 3,012.32 | 3,103.48 | 3,145.84 | 3,081.75 | 3,241.96 |
| United Kingdom | 1,802.27 | 1,847.33 | 1,911.18 | 1,992.59 | 2,011.44 | 2,075.10 | 2,124.39 | 2,177.74 | 2,177.74 | 2,177.74 |
| France | 1,827.62 | 1,881.83 | 1,907.34 | 1,954.21 | 1,988.70 | 2,048.40 | 2,119.65 | 2,245.01 | 2,122.60 | 2,301.22 |
| Poland | 667.69 | 674.20 | 693.83 | 733.52 | 746.70 | 783.99 | 822.94 | 872.92 | 872.86 | 952.58 |
| Netherlands | 585.11 | 596.95 | 594.92 | 612.38 | 618.32 | 648.05 | 675.79 | 696.23 | 687.62 | 742.42 |
| EU27 | 421.92 | 426.67 | 436.45 | 452.40 | 464.91 | 484.33 | 501.19 | 519.13 | 496.74 | 536.11 |
| Romania | 279.60 | 285.19 | 294.68 | 307.77 | 332.04 | 365.10 | 387.53 | 419.96 | 414.36 | 451.80 |
| Austria | 289.31 | 293.16 | 298.82 | 309.81 | 319.60 | 327.27 | 341.52 | 350.84 | 331.78 | 348.68 |
| Czech Republic | 227.15 | 233.76 | 245.11 | 256.99 | 264.84 | 282.46 | 296.62 | 311.13 | 298.18 | 315.55 |
| Portugal | 205.36 | 210.75 | 214.20 | 220.85 | 226.61 | 233.73 | 243.61 | 253.12 | 235.15 | 246.70 |
| Hungary | 170.57 | 175.26 | 181.68 | 189.68 | 190.45 | 198.29 | 211.58 | 222.78 | 216.78 | 238.18 |
| Slovakia | 107.41 | 109.02 | 112.32 | 116.83 | 111.79 | 112.28 | 115.31 | 118.61 | 114.37 | 120.01 |
| Bulgaria | 88.12 | 87.25 | 91.18 | 94.90 | 99.35 | 104.32 | 109.66 | 116.26 | 113.81 | 122.97 |
| Croatia | 67.46 | 67.79 | 67.80 | 70.41 | 73.07 | 76.91 | 80.06 | 84.47 | 77.84 | 87.79 |

Note. Sorted from largest to smallest based on 2021 data

FIGURE 1.3: GDP PER HEAD (€)



Source: Eurostat.

Description: Nominal GDP divided by population. Unit €.

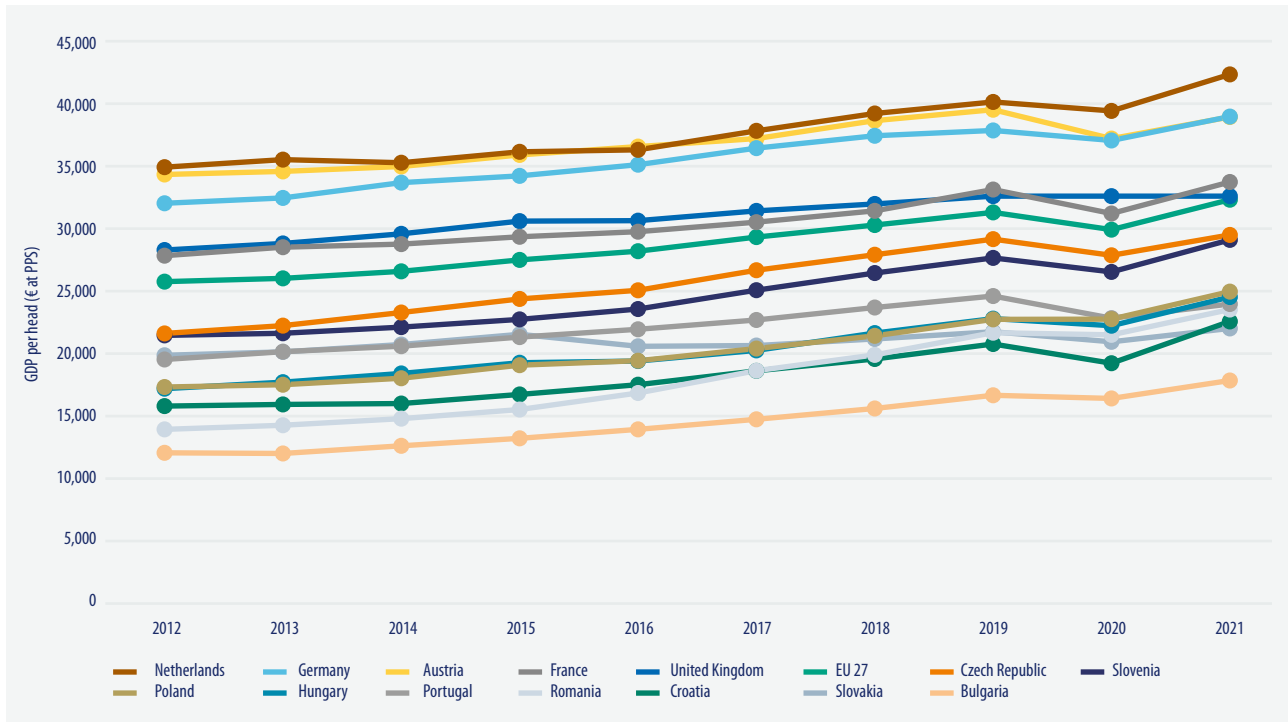
Data extracted on 08/08/2022

Sourced from: https://ec.europa.eu/eurostat/databrowser/view/nama_10_pc/default/table?lang=en

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Netherlands | 38,970 | 39,300 | 39,820 | 40,730 | 41,590 | 43,090 | 44,920 | 46,880 | 45,670 | 48,840 |
| Austria | 37,820 | 38,210 | 38,990 | 39,890 | 40,920 | 42,000 | 43,610 | 44,780 | 42,540 | 44,970 |
| Germany | 34,130 | 34,860 | 36,150 | 37,050 | 38,070 | 39,530 | 40,590 | 41,800 | 40,950 | 43,290 |
| United Kingdom | 33,140 | 32,700 | 35,780 | 40,620 | 37,080 | 35,730 | 36,440 | 37,830 | 37,830 | 37,830 |
| France | 31,820 | 32,080 | 32,420 | 33,020 | 33,430 | 34,230 | 35,040 | 35,970 | 33,980 | 36,660 |
| EU27 | 25,760 | 26,020 | 26,590 | 27,500 | 28,200 | 29,330 | 30,290 | 31,300 | 29,920 | 32,320 |
| Slovenia | 17,630 | 17,700 | 18,250 | 18,830 | 19,590 | 20,820 | 22,140 | 23,170 | 22,310 | 24,680 |
| Czech Republic | 15,470 | 15,170 | 15,000 | 16,080 | 16,790 | 18,330 | 19,850 | 21,150 | 20,170 | 22,270 |
| Portugal | 16,010 | 16,300 | 16,640 | 17,350 | 18,060 | 19,020 | 19,950 | 20,840 | 19,430 | 20,530 |
| Slovakia | 13,570 | 13,710 | 14,040 | 14,730 | 14,920 | 15,530 | 16,420 | 17,250 | 16,860 | 17,820 |
| Hungary | 10,110 | 10,340 | 10,770 | 11,460 | 11,850 | 12,980 | 13,920 | 14,950 | 14,100 | 15,870 |
| Poland | 10,070 | 10,190 | 10,630 | 11,190 | 11,110 | 12,170 | 12,960 | 13,900 | 13,730 | 15,050 |
| Croatia | 10,420 | 10,420 | 10,370 | 10,740 | 11,320 | 12,080 | 12,880 | 13,660 | 12,400 | 14,710 |
| Romania | 6,620 | 7,190 | 7,570 | 8,080 | 8,630 | 9,580 | 10,500 | 11,520 | 11,360 | 12,510 |
| Bulgaria | 5,780 | 5,790 | 5,960 | 6,380 | 6,840 | 7,420 | 8,000 | 8,820 | 8,840 | 9,850 |

Note. Sorted from largest to smallest based on 2021 data (data highlighted in red is forecasted).

FIGURE 1.4: GDP PER HEAD (€ AT PPS)

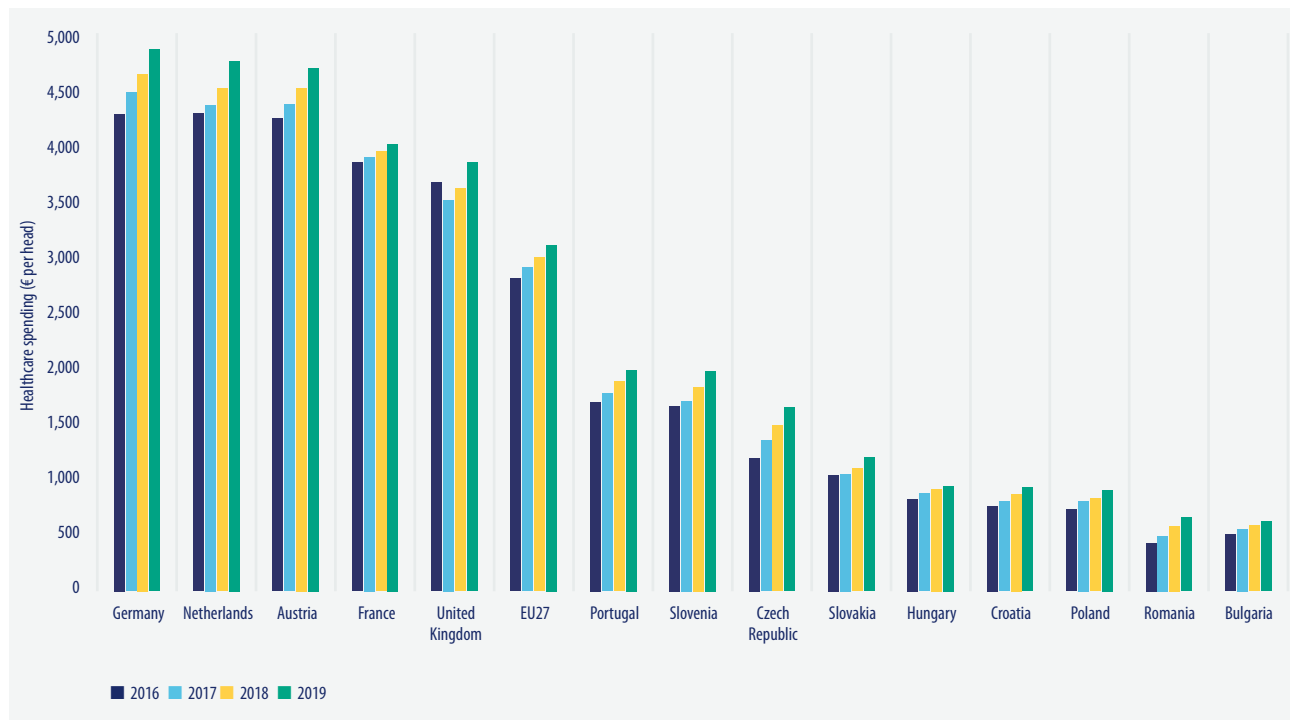


Source: Eurostat.
Description: GDP at purchasing power standard (PPS), divided by population. Unit PPS (EU27 from 2020) per head.
Data extracted on 08/08/2022
Sourced from: <https://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Netherlands | 34,921 | 35,525 | 35,276 | 36,150 | 36,308 | 37,829 | 39,217 | 40,140 | 39,423 | 42,344 |
| Germany | 32,031 | 32,459 | 33,683 | 34,225 | 35,120 | 36,444 | 37,434 | 37,859 | 37,058 | 38,968 |
| Austria | 34,335 | 34,582 | 34,975 | 35,901 | 36,568 | 37,210 | 38,643 | 39,519 | 37,208 | 38,936 |
| France | 27,838 | 28,516 | 28,763 | 29,351 | 29,757 | 30,520 | 31,426 | 33,131 | 31,213 | 33,734 |
| United Kingdom | 28,291 | 28,817 | 29,586 | 30,604 | 30,640 | 31,422 | 31,977 | 32,602 | 32,602 | 32,602 |
| EU27 | 25,760 | 26,023 | 26,585 | 27,500 | 28,196 | 29,326 | 30,290 | 31,302 | 29,921 | 32,317 |
| Czech Republic | 21,615 | 22,240 | 23,289 | 24,376 | 25,067 | 26,673 | 27,913 | 29,161 | 27,867 | 29,498 |
| Slovenia | 21,459 | 21,628 | 22,120 | 22,739 | 23,568 | 25,076 | 26,449 | 27,660 | 26,539 | 29,103 |
| Poland | 17,327 | 17,511 | 18,029 | 19,075 | 19,432 | 20,405 | 21,424 | 22,741 | 22,758 | 24,962 |
| Hungary | 17,194 | 17,716 | 18,414 | 19,270 | 19,406 | 20,258 | 21,644 | 22,800 | 22,233 | 24,529 |
| Portugal | 19,531 | 20,154 | 20,594 | 21,322 | 21,947 | 22,692 | 23,689 | 24,608 | 22,836 | 23,970 |
| Romania | 13,938 | 14,268 | 14,796 | 15,526 | 16,849 | 18,634 | 19,897 | 21,675 | 21,503 | 23,529 |
| Croatia | 15,801 | 15,934 | 16,005 | 16,733 | 17,513 | 18,622 | 19,570 | 20,769 | 19,232 | 22,576 |
| Slovakia | 19,868 | 20,140 | 20,728 | 21,546 | 20,585 | 20,646 | 21,173 | 21,750 | 20,945 | 22,016 |
| Bulgaria | 12,062 | 12,009 | 12,623 | 13,221 | 13,939 | 14,743 | 15,610 | 16,666 | 16,413 | 17,849 |

Note. Sorted from largest to smallest based on 2021 data (data highlighted in red is forecasted).

FIGURE 1.5: HEALTHCARE SPENDING (€ PER HEAD)



Source: Eurostat.

Description: Total public and private expenditure on health, per head. Unit € per head.

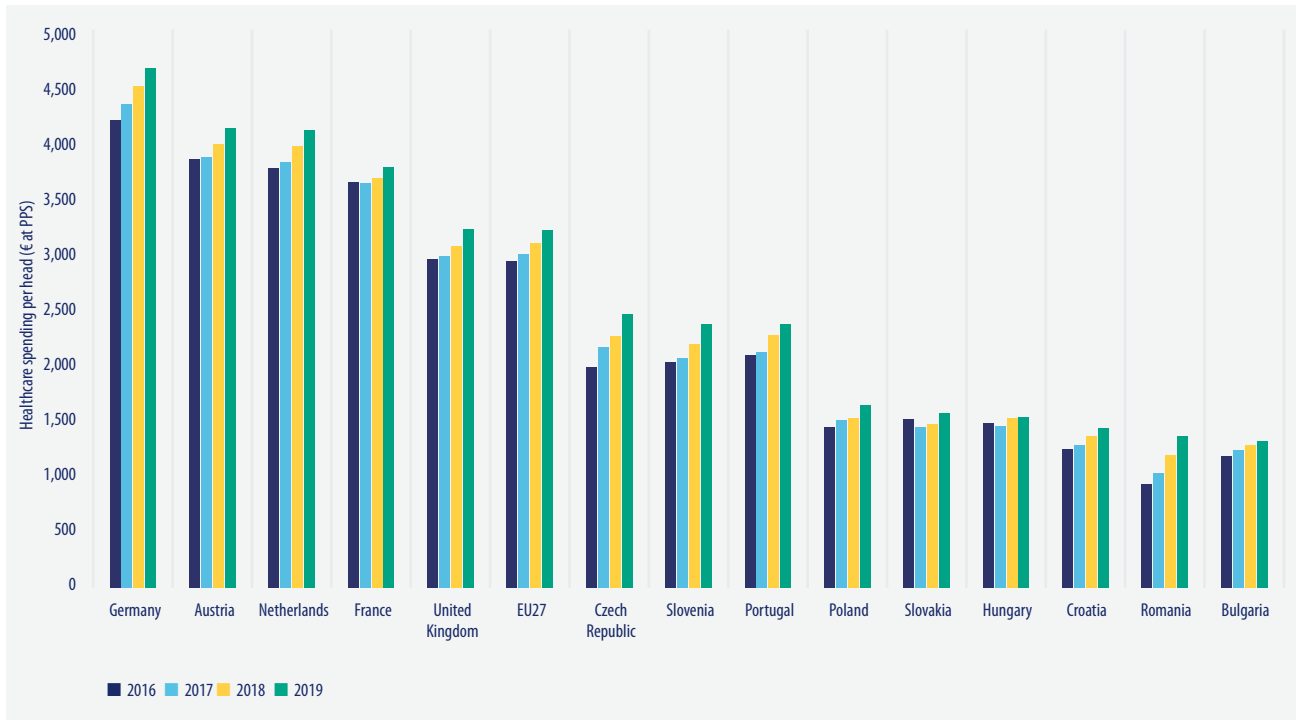
Data extracted on 09/08/2022

Sourced from: https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HP/default/table?lang=en&category=hlth.hlth_care.hlth_sha11.hlth_sha11_sum

| | 2016 | 2017 | 2018 | 2019 | 2020 |
|----------------|-------|-------|-------|-------|-------|
| Germany | 4,277 | 4,468 | 4,636 | 4,855 | |
| Netherlands | 4,282 | 4,355 | 4,506 | 4,749 | |
| Austria | 4,237 | 4,360 | 4,510 | 4,689 | 4,881 |
| France | 3,841 | 3,890 | 3,940 | 4,008 | |
| United Kingdom | 3,663 | 3,504 | 3,608 | 3,839 | |
| EU27 | 2,803 | 2,898 | 2,988 | 3,104 | |
| Portugal | 1,697 | 1,770 | 1,878 | 1,983 | 2,050 |
| Slovenia | 1,660 | 1,704 | 1,831 | 1,975 | |
| Czech Republic | 1,193 | 1,352 | 1,483 | 1,644 | 1,894 |
| Slovakia | 1,043 | 1,052 | 1,100 | 1,198 | |
| Hungary | 828 | 875 | 915 | 942 | 1,022 |
| Croatia | 763 | 806 | 870 | 931 | 963 |
| Poland | 731 | 807 | 830 | 906 | |
| Romania | 432 | 494 | 584 | 661 | |
| Bulgaria | 510 | 556 | 587 | 626 | |

*Ranked highest expenditure to lowest expenditure based on 2019 data

FIGURE 1.6: HEALTHCARE SPENDING PER HEAD (€ AT PPS)



Source: Eurostat.

Description: Total public and private expenditure on health, per head, at purchasing power standard. Unit PPS per head.

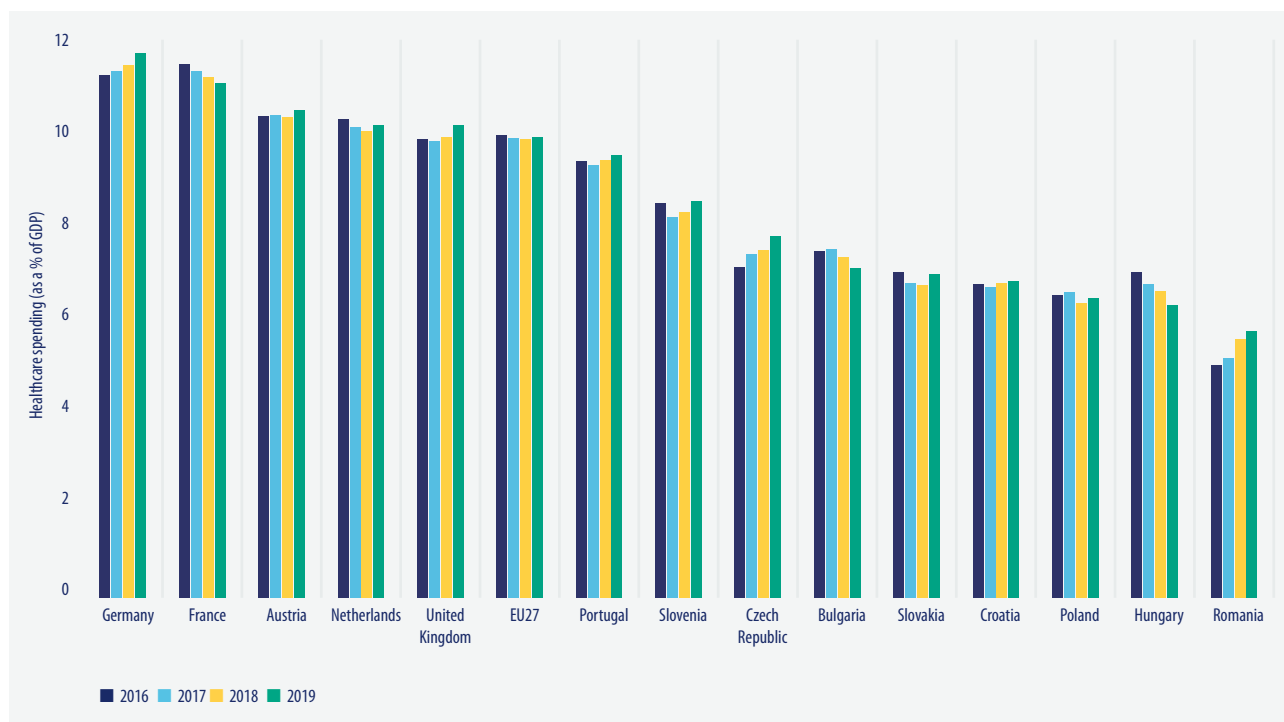
Data extracted on 09/08/2022

Sourced from: https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HP/default/table?lang=en&category=hlth.hlth_care.hlth_sha11.hlth_sha11_sum

| | 2016 | 2017 | 2018 | 2019 | 2020 |
|----------------|-------|-------|-------|-------|-------|
| Germany | 4,188 | 4,328 | 4,493 | 4,659 | |
| Austria | 3,837 | 3,860 | 3,975 | 4,115 | 4,234 |
| Netherlands | 3,763 | 3,816 | 3,956 | 4,102 | |
| France | 3,635 | 3,628 | 3,669 | 3,770 | |
| United Kingdom | 2,947 | 2,974 | 3,062 | 3,214 | |
| EU27 | 2,926 | 2,989 | 3,086 | 3,206 | |
| Czech Republic | 1,973 | 2,157 | 2,254 | 2,449 | 2,790 |
| Slovenia | 2,022 | 2,057 | 2,186 | 2,361 | |
| Portugal | 2,079 | 2,111 | 2,258 | 2,359 | 2,410 |
| Poland | 1,439 | 1,498 | 1,516 | 1,636 | |
| Slovakia | 1,506 | 1,434 | 1,464 | 1,565 | |
| Hungary | 1,477 | 1,451 | 1,517 | 1,532 | 1,729 |
| Croatia | 1,237 | 1,280 | 1,356 | 1,432 | 1,497 |
| Romania | 924 | 1,027 | 1,189 | 1,354 | |
| Bulgaria | 1,180 | 1,229 | 1,273 | 1,314 | 1,528 |

*Ranked highest expenditure to lowest expenditure based on 2019 data

FIGURE 1.7: HEALTHCARE SPENDING (AS A % OF GDP)



Source: Eurostat.

Description. The sum of public and private health expenditure as a percentage of GDP. Unit %.

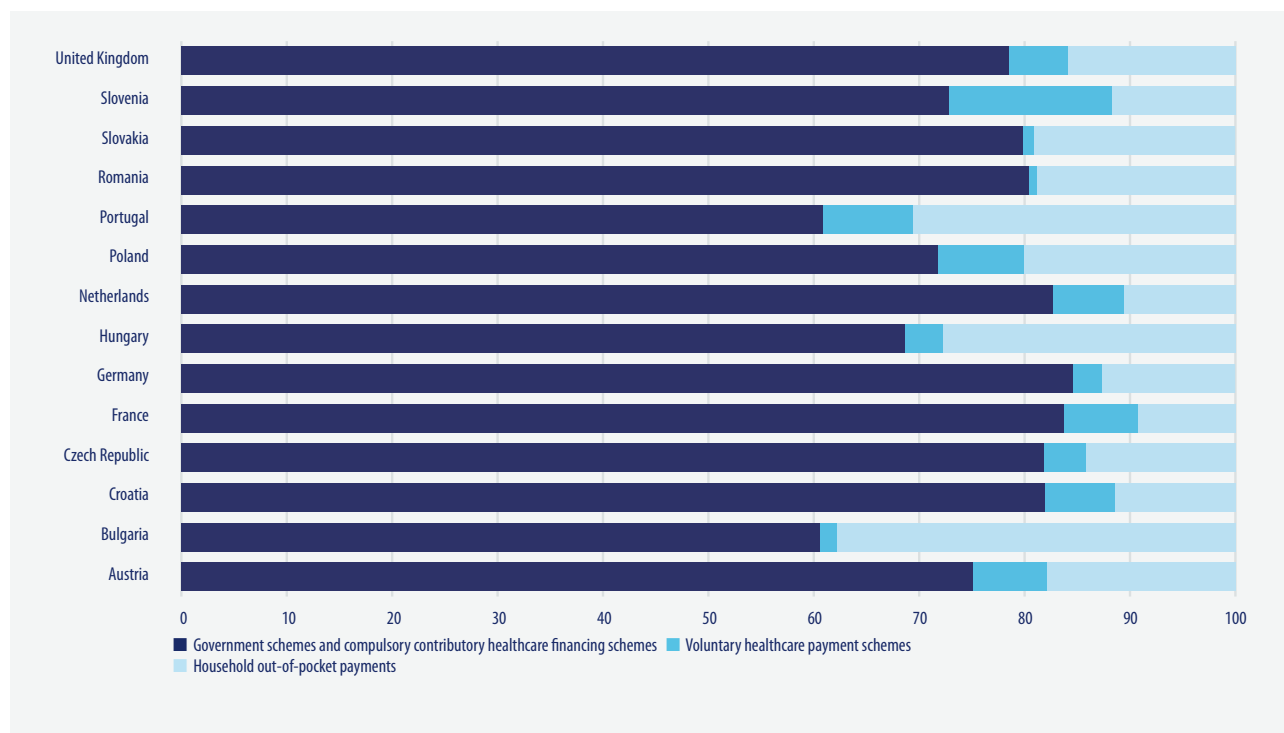
Data extracted on 09/08/2022

Sourced from: https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HP/default/table?lang=en&category=hlth.hlth_care.hlth_sha11.hlth_sha11_sum

| | 2016 | 2017 | 2018 | 2019 | 2020 |
|----------------|-------|-------|-------|-------|-------|
| Germany | 11.24 | 11.33 | 11.45 | 11.70 | |
| France | 11.47 | 11.33 | 11.19 | 11.06 | |
| Austria | 10.35 | 10.38 | 10.34 | 10.48 | 11.47 |
| Netherlands | 10.29 | 10.11 | 10.03 | 10.17 | |
| United Kingdom | 9.87 | 9.81 | 9.90 | 10.15 | |
| EU27 | 9.94 | 9.88 | 9.86 | 9.90 | |
| Portugal | 9.39 | 9.31 | 9.41 | 9.51 | 10.55 |
| Slovenia | 8.48 | 8.19 | 8.28 | 8.52 | |
| Czech Republic | 7.11 | 7.38 | 7.47 | 7.78 | 9.41 |
| Bulgaria | 7.46 | 7.49 | 7.33 | 7.09 | 8.52 |
| Slovakia | 6.99 | 6.77 | 6.71 | 6.96 | |
| Croatia | 6.74 | 6.67 | 6.76 | 6.81 | 7.77 |
| Poland | 6.50 | 6.56 | 6.33 | 6.45 | |
| Hungary | 6.99 | 6.74 | 6.58 | 6.30 | 7.25 |
| Romania | 5.00 | 5.15 | 5.56 | 5.74 | |

Note. Ranked highest expenditure to lowest expenditure based on 2019 data.

FIGURE 2: FINANCING SOURCES (% OF CURRENT HEALTH EXPENDITURE)



Source: Eurostat.

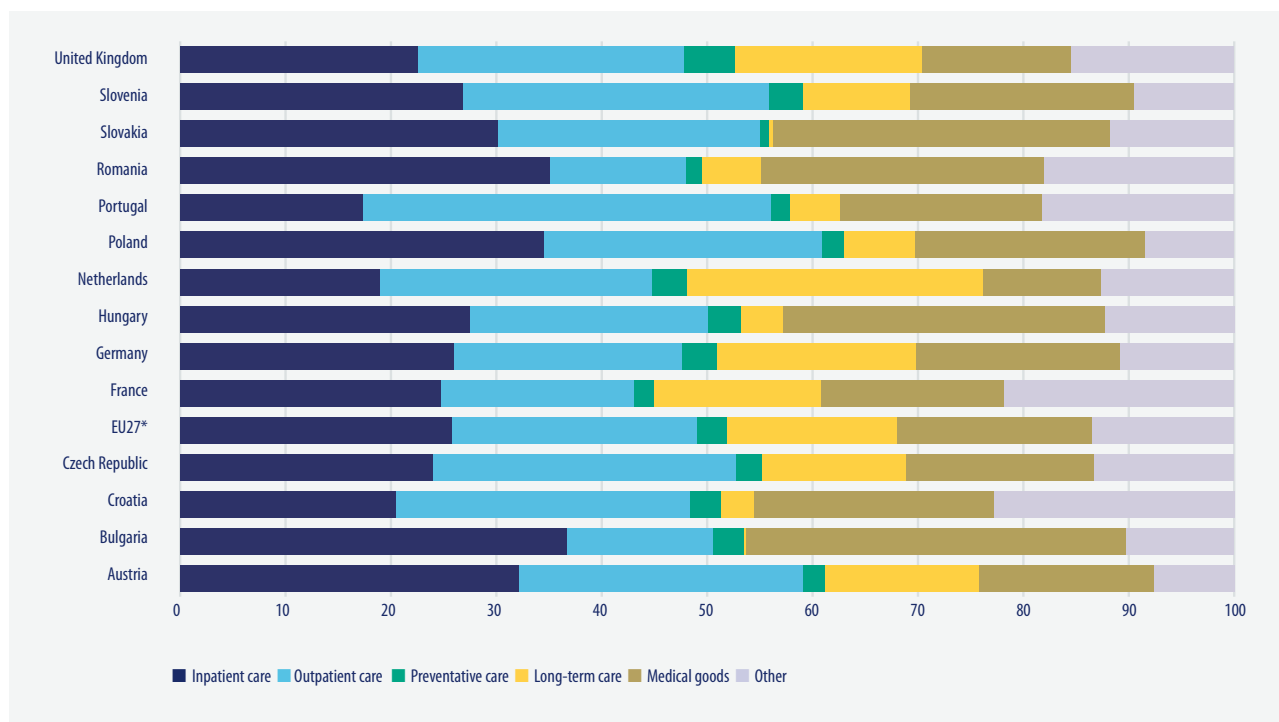
Description. Healthcare expenditure by financing source as a percentage of current health expenditure. Unit %

Data extracted on 09/08/2022

Sourced from: https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HP/default/table?lang=en&category=hlth.hlth_care.hlth_sha11.hlth_sha11_sum

| | Government schemes and compulsory contributory healthcare financing schemes | Voluntary healthcare payment schemes | Household out-of-pocket payments |
|----------------|---|--------------------------------------|----------------------------------|
| Austria | 75.08 | 7.01 | 17.91 |
| Bulgaria | 60.59 | 1.61 | 37.80 |
| Croatia | 81.91 | 6.63 | 11.46 |
| Czech Republic | 81.80 | 4.05 | 14.15 |
| France | 83.71 | 7.03 | 9.26 |
| Germany | 84.60 | 2.70 | 12.70 |
| Hungary | 68.65 | 3.54 | 27.80 |
| Netherlands | 82.64 | 6.78 | 10.58 |
| Poland | 71.78 | 8.13 | 20.09 |
| Portugal | 60.85 | 8.54 | 30.61 |
| Romania | 80.45 | 0.68 | 18.88 |
| Slovakia | 79.79 | 1.05 | 19.16 |
| Slovenia | 72.78 | 15.55 | 11.66 |
| United Kingdom | 78.51 | 5.61 | 15.87 |

FIGURE 3: HEALTHCARE EXPENDITURE BY FUNCTION (% OF CURRENT HEALTH EXPENDITURE)



Source: Eurostat.2019. (EU27 data from 2018, latest available year).

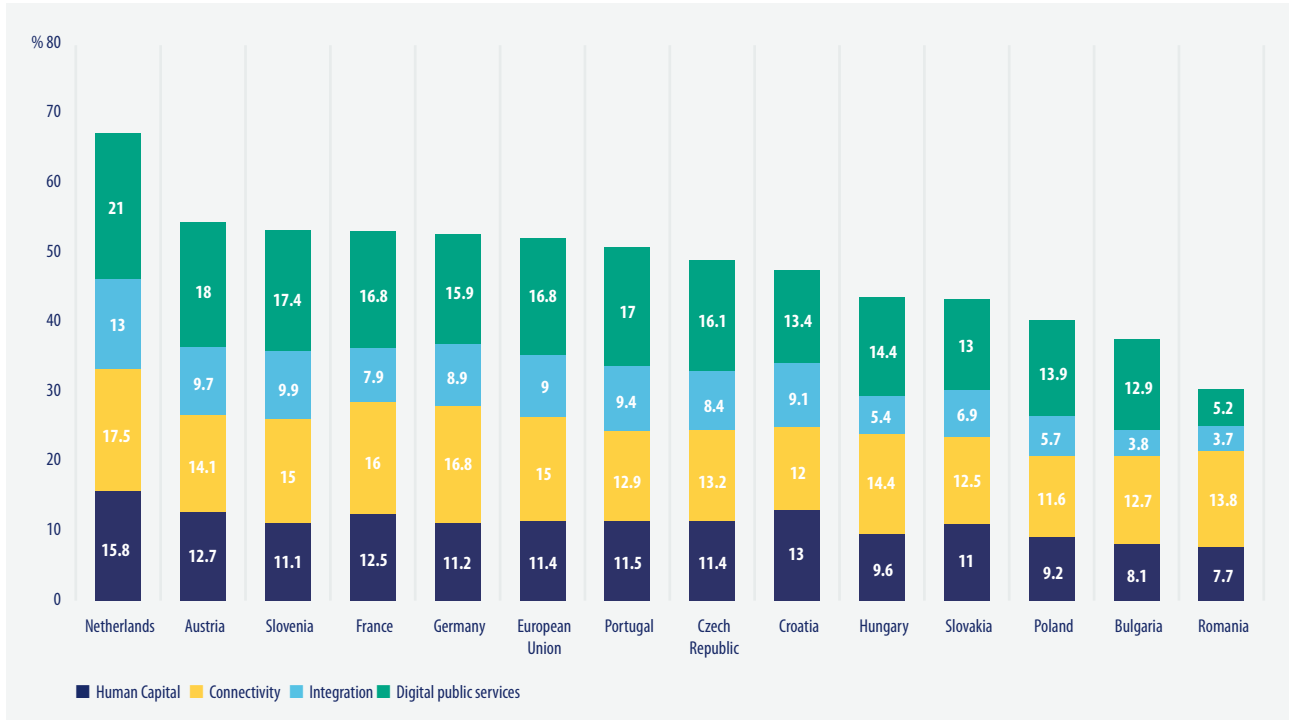
Description. Healthcare expenditure by function as a percentage of current health expenditure. Unit %.

Data extracted on 09/08/2022

Sourced from: https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HC/default/table?lang=en&category=hlth.hlth_care.hlth_sha11.hlth_sha11_sum

| | Inpatient care | Outpatient care | Preventative care | Long-term care | Medicines |
|----------------|----------------|-----------------|-------------------|----------------|-----------|
| Austria | 32.15 | 26.92 | 2.11 | 14.53 | 16.67 |
| Bulgaria | 36.68 | 13.86 | 2.96 | 0.12 | 36.09 |
| Croatia | 20.40 | 27.93 | 2.97 | 3.13 | 22.77 |
| Czech Republic | 24.00 | 28.69 | 2.51 | 13.66 | 17.79 |
| EU27* | 25.76 | 23.25 | 2.83 | 16.12 | 18.51 |
| France | 24.73 | 18.31 | 1.88 | 15.85 | 17.41 |
| Germany | 25.96 | 21.60 | 3.34 | 18.85 | 19.37 |
| Hungary | 27.43 | 22.61 | 3.19 | 3.96 | 30.47 |
| Netherlands | 18.96 | 25.80 | 3.30 | 28.04 | 11.22 |
| Poland | 34.53 | 26.36 | 2.09 | 6.72 | 21.77 |
| Portugal | 17.32 | 38.74 | 1.77 | 4.78 | 19.10 |
| Romania | 35.08 | 12.91 | 1.52 | 5.55 | 26.93 |
| Slovakia | 30.12 | 24.89 | 0.81 | 0.39 | 31.97 |
| Slovenia | 26.84 | 29.01 | 3.18 | 10.21 | 21.20 |
| United Kingdom | 22.54 | 25.28 | 4.77 | 17.81 | 14.07 |

FIGURE 4: DIGITAL PERFORMANCE AND PROGRESS IN THE EU



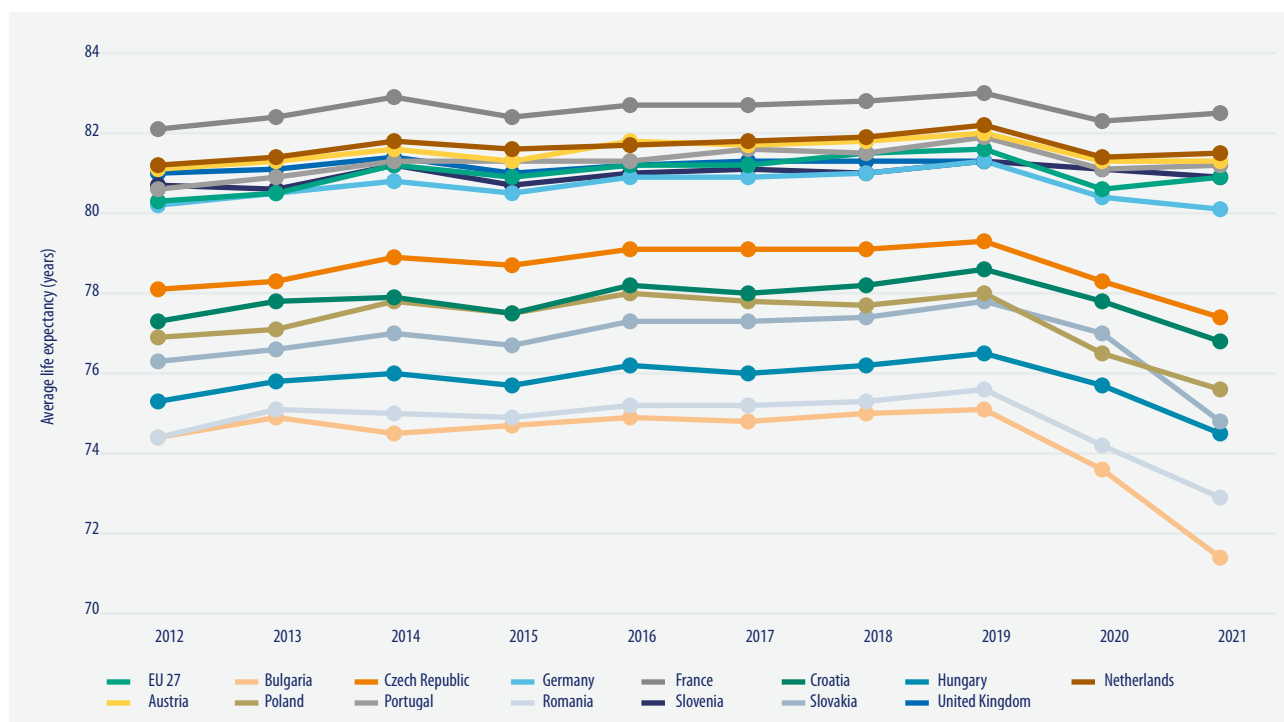
Source: Digital Economy and Society Index 2022

Note: The index summarises indicators on Europe's digital performance and tracks the progress of EU countries.

| | Rank | Score | Human Capital | Connectivity | Integration | Digital public services |
|----------------|------|-------|---------------|--------------|-------------|-------------------------|
| Netherlands | 3 | 67.4% | 15.7 | 17.5 | 13 | 21 |
| Austria | 10 | 54.7% | 12.7 | 14.1 | 9.7 | 18.2 |
| Slovenia | 11 | 53.4% | 11 | 14.9 | 9.9 | 17.3 |
| France | 12 | 53.3% | 12.4 | 16 | 7.9 | 16.8 |
| Germany | 13 | 52.9% | 11.2 | 16.8 | 8.9 | 15.8 |
| European Union | | 52.3% | 11.4 | 14.9 | 9 | 16.8 |
| Portugal | 15 | 50.8% | 11.4 | 12.8 | 9.3 | 16.9 |
| Czech Republic | 19 | 49.1% | 11.3 | 13.1 | 8.4 | 16.1 |
| Croatia | 21 | 47.5% | 12.9 | 12 | 9.1 | 13.2 |
| Hungary | 22 | 43.8% | 9.6 | 14.4 | 5.3 | 14.3 |
| Slovakia | 23 | 43.4% | 11 | 12.5 | 6.9 | 12.9 |
| Poland | 24 | 40.5% | 9.2 | 11.2 | 5.7 | 13.9 |
| Bulgaria | 26 | 37.7% | 8.1 | 12.6 | 3.8 | 12.9 |
| Romania | 27 | 30.6% | 7.7 | 13.8 | 3.7 | 5.2 |

Note: Ranked highest to lowest based on combined score from 27 EU countries.

FIGURE 5: AVERAGE LIFE EXPECTANCY (YEARS), MALE AND FEMALE



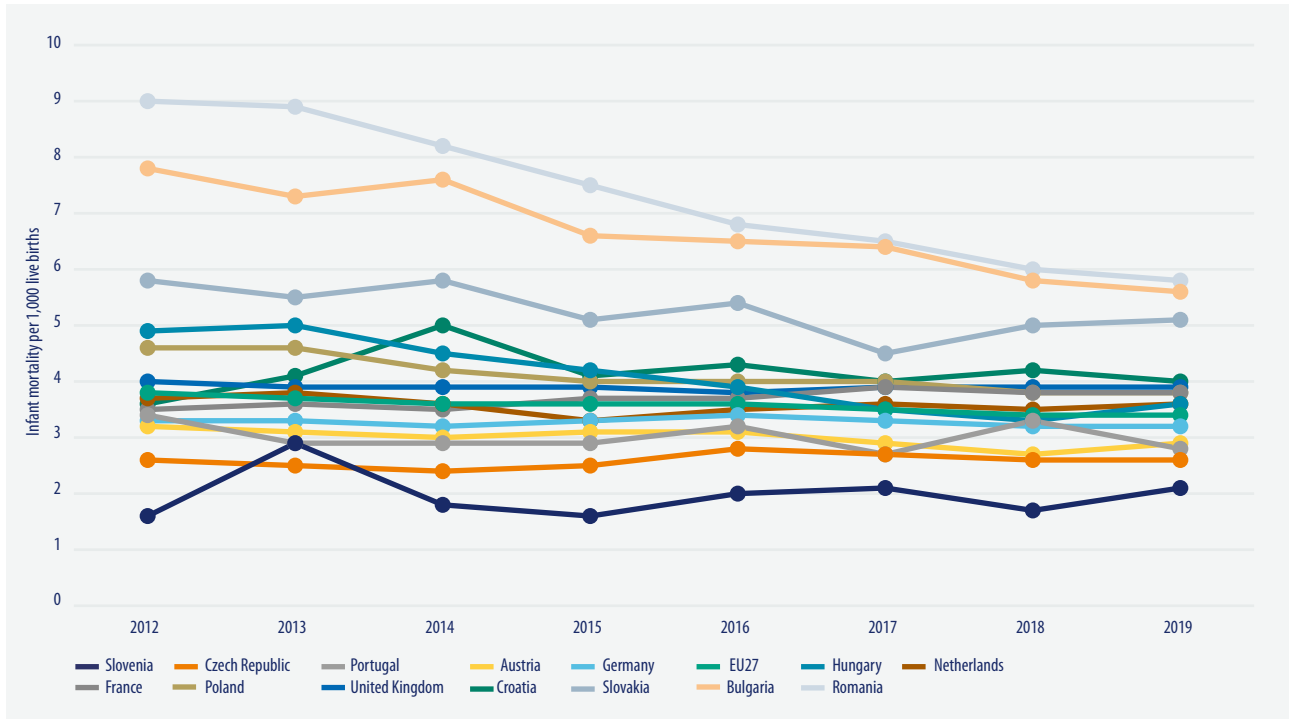
Source: Eurostat.

Description: Number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.
 Sourced from: https://ec.europa.eu/eurostat/databrowser/view/demo_mlexpec/default/table?lang=en

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|
| France | 82.1 | 82.4 | 82.9 | 82.4 | 82.7 | 82.7 | 82.8 | 83.0 | 82.3 | 82.5 |
| Netherlands | 81.2 | 81.4 | 81.8 | 81.6 | 81.7 | 81.8 | 81.9 | 82.2 | 81.4 | 81.5 |
| Austria | 81.1 | 81.3 | 81.6 | 81.3 | 81.8 | 81.7 | 81.8 | 82.0 | 81.3 | 81.3 |
| Portugal | 80.6 | 80.9 | 81.3 | 81.3 | 81.3 | 81.6 | 81.5 | 81.9 | 81.1 | 81.2 |
| Slovenia | 80.3 | 80.5 | 81.2 | 80.9 | 81.2 | 81.2 | 81.5 | 81.6 | 80.6 | 80.9 |
| EU27 | 80.2 | 80.5 | 80.8 | 80.5 | 80.9 | 80.9 | 81.0 | 81.3 | 80.4 | 80.1 |
| Germany | 80.7 | 80.6 | 81.2 | 80.7 | 81.0 | 81.1 | 81.0 | 81.3 | 81.1 | 80.9 |
| United Kingdom | 81.0 | 81.1 | 81.4 | 81.0 | 81.2 | 81.3 | 81.3 | 81.3 | | |
| Czech Republic | 78.1 | 78.3 | 78.9 | 78.7 | 79.1 | 79.1 | 79.1 | 79.3 | 78.3 | 77.4 |
| Croatia | 77.3 | 77.8 | 77.9 | 77.5 | 78.2 | 78.0 | 78.2 | 78.6 | 77.8 | 76.8 |
| Poland | 76.9 | 77.1 | 77.8 | 77.5 | 78.0 | 77.8 | 77.7 | 78.0 | 76.5 | 75.6 |
| Slovakia | 76.3 | 76.6 | 77.0 | 76.7 | 77.3 | 77.3 | 77.4 | 77.8 | 77.0 | 74.8 |
| Hungary | 75.3 | 75.8 | 76.0 | 75.7 | 76.2 | 76.0 | 76.2 | 76.5 | 75.7 | 74.5 |
| Romania | 74.4 | 75.1 | 75.0 | 74.9 | 75.2 | 75.2 | 75.3 | 75.6 | 74.2 | 72.9 |
| Bulgaria | 74.4 | 74.9 | 74.5 | 74.7 | 74.9 | 74.8 | 75.0 | 75.1 | 73.6 | 71.4 |

Note. Arranged highest to lowest based on 2019 data. 2021 data are estimates.

FIGURE 6: INFANT MORTALITY PER 1,000 LIVE BIRTHS, MALE AND FEMALE



Source: Eurostat.
 Note. Number of infants who die before reaching one year of age per 1,000 live births in a given year.
 Sourced from: https://ec.europa.eu/eurostat/databrowser/view/demo_minfind/default/table?lang=en

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|----------------|------|------|------|------|------|------|------|------|
| Slovenia | 1.6 | 2.9 | 1.8 | 1.6 | 2.0 | 2.1 | 1.7 | 2.1 |
| Czech Republic | 2.6 | 2.5 | 2.4 | 2.5 | 2.8 | 2.7 | 2.6 | 2.6 |
| Portugal | 3.4 | 2.9 | 2.9 | 2.9 | 3.2 | 2.7 | 3.3 | 2.8 |
| Austria | 3.2 | 3.1 | 3.0 | 3.1 | 3.1 | 2.9 | 2.7 | 2.9 |
| Germany | 3.3 | 3.3 | 3.2 | 3.3 | 3.4 | 3.3 | 3.2 | 3.2 |
| EU27 | 3.8 | 3.7 | 3.6 | 3.6 | 3.6 | 3.5 | 3.4 | 3.4 |
| Hungary | 4.9 | 5.0 | 4.5 | 4.2 | 3.9 | 3.5 | 3.3 | 3.6 |
| Netherlands | 3.7 | 3.8 | 3.6 | 3.3 | 3.5 | 3.6 | 3.5 | 3.6 |
| France | 3.5 | 3.6 | 3.5 | 3.7 | 3.7 | 3.9 | 3.8 | 3.8 |
| Poland | 4.6 | 4.6 | 4.2 | 4.0 | 4.0 | 4.0 | 3.8 | 3.8 |
| United Kingdom | 4.0 | 3.9 | 3.9 | 3.9 | 3.8 | 3.9 | 3.9 | 3.9 |
| Croatia | 3.6 | 4.1 | 5.0 | 4.1 | 4.3 | 4.0 | 4.2 | 4.0 |
| Slovakia | 5.8 | 5.5 | 5.8 | 5.1 | 5.4 | 4.5 | 5.0 | 5.1 |
| Bulgaria | 7.8 | 7.3 | 7.6 | 6.6 | 6.5 | 6.4 | 5.8 | 5.6 |
| Romania | 9.0 | 8.9 | 8.2 | 7.5 | 6.8 | 6.5 | 6.0 | 5.8 |

Note. Arranged lowest to highest based on 2019 data.

Health systems in central and eastern Europe are at a turning point. The covid-19 pandemic has exposed their weaknesses, accumulated through decades of underinvestment. Prioritising investment in healthcare and committing to long-term planning is an absolute priority to strengthen the resilience of health systems and improve outcomes for patients in the region.

At a turning point: Healthcare systems in Central and Eastern Europe highlights the key differences, commonalities and trends in healthcare financing and policy approaches across 13 European countries, as governments rise to the challenge of managing the interlinked dynamics of population health and economic uncertainty. The report identifies major trends and aims to benchmark access and provision of healthcare services, medicines, healthcare outcomes as well as quality of care. It also puts forward a number of recommendations for action, in areas such as financing models, delivery of care, access to innovative treatments, diagnostics and digital infrastructure.

Supporting partners



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