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Serbia

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Health Systems in Action (HSiA) Insights

Serbia

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World Health Organization
European Region

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Editorial Team

This edition of the Health Systems in Action Insight for Serbia was written by Erica Richardson.

The Health Systems in Action series

The Health Systems in Action Insights series supports Member States in the WHO European Region that are not in the European Union. The Insights for each country are intended to:

- provide core information and data on health systems succinctly and accessibly;
- outline the country health system context in which WHO Europe's Programme of Work is set;
- flag key concerns, progress and challenges; and
- build a baseline for comparisons, so that Member States can see how their health systems develop over time and in relation to other countries.

The series is co-produced by the WHO Regional Office for Europe and the European Observatory on Health Systems and Policies. It draws on the knowledge and understanding of the WHO Country Offices and of the Division of Country Health Policies and Systems (CPS), the WHO Barcelona Office for Health Systems Financing and other WHO/Europe technical programmes; as well as the Health Systems in Transition series and the work of the European Observatory on Health Systems and Policies.

The Insights follow a common template that provides detailed guidance and allows comparison across countries. The series is publicly available on the websites of the WHO Regional Office for Europe and the European Observatory on Health Systems and Policies (eurohealthobservatory.who.int).

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This edition of the Health Systems in Action Insight for Serbia was written by Erica Richardson.

HEALTH SYSTEMS IN ACTION INSIGHTS: SERBIA

Key points

- The health system was recentralized in 2019 and the Ministry of Health is largely responsible for organization and governance.
- Health care facilities are predominantly state-owned and Serbia has extensive health infrastructure in all regions.
- Reforms have sought to strengthen the role of primary care and patients are expected to register with a "chosen doctor" at the primary care level. Primary care provision is extensive and accessible but underutilized.
- The Serbian health system is based on compulsory health insurance, with payroll contributions the main source of public financing.
- The main purchaser of publicly financed health services is the National Health Insurance Fund (NHIF), which is mainly financed through contributions (payroll taxes).
- The benefits package covers a wide scope of services and 99% of the population, but financial protection is limited by co-payments. People pay a mix of fixed and percentage co-payments for most health care covered by the NHIF.
- Serbia has increased public spending on health, but out-of-pocket (OOP) spending continues to play an important role in health financing.
- Catastrophic spending on health is heavily concentrated among the poorest. Spending on outpatient medicines is the largest driver of catastrophic spending on health and unmet needs for health care.
- Maintaining sufficient health workforce capacity across the country is a challenge and shortages of health workers are exacerbating long waiting times for some elective procedures.
- About one in five of all doctors in Serbia are generalist medical practitioners working predominantly in primary care, which is relatively high in international comparison.
- Life expectancy in Serbia fell sharply during the COVID-19 pandemic but is now recovering, although it remains below the average of the WHO European Region. Excess mortality rates during the COVID-19 pandemic were very high in Serbia.
- Circulatory diseases are the most important causes of adult mortality and morbidity, and uncontrolled hypertension is by far the leading risk factor affecting population health.
- Rates of premature mortality from non-communicable diseases (NCDs) are falling but remain high.

1 ORGANIZING THE HEALTH SYSTEM

The health system was recentralized in 2019 and the Ministry of Health is largely responsible for organization and governance

The Serbian health system traces its infrastructure and organization to the period when the country was part of the former Yugoslavia. Health system reform has been embedded in wider public sector reforms and since 2000 significant progress has been made in the development of health policy, supported by extensive international assistance. Since 2012, health reforms have focused on improving infrastructure, technology and payment mechanisms, and implementing an integrated health information system.

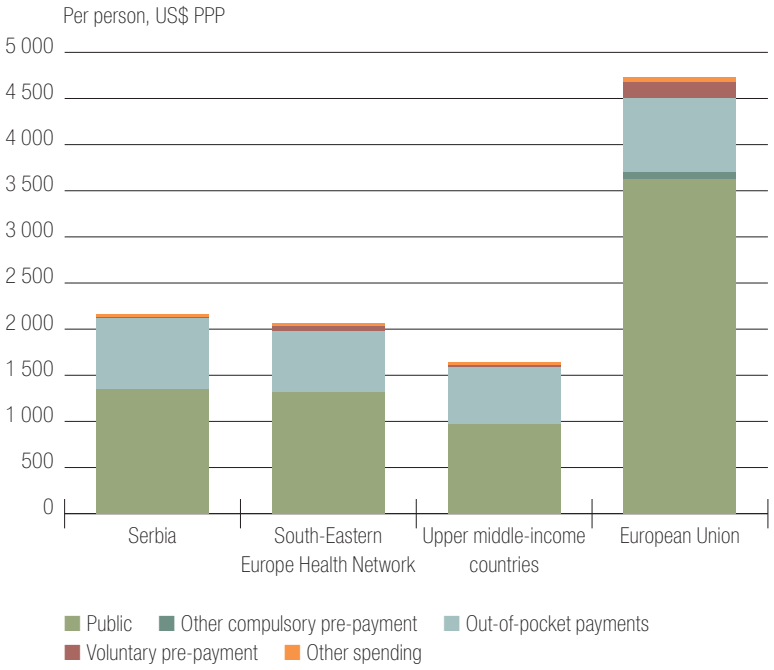
The health system is administratively centralized and the state owns most health facilities and equipment. The Ministry of Health and related agencies oversee the administrative and regulatory functions of the health system, with only some functions devolved to the local level. The Health Care Law (2019, 2023) recentralized primary care by transferring ownership of buildings and equipment to the national level. There is a large private sector, which has developed without much control or state support. Privately provided health services are covered predominantly by OOP payments.

Primary care services are provided by a state-owned network of primary health care (PHC) centres ("Dom zdravlja") and patients can choose the centre and the doctor. Both the Health Care Law (2019, 2023) and the Health Insurance Law (2019, 2023) reinforced the need for patients to have a chosen doctor, that is, a designated PHC doctor who provides them with health services and acts as a gatekeeper to higher levels of care. One aim of this arrangement is to rebalance the system in favour of primary care. There is extensive secondary and tertiary health care provision across the country. The health system is improving information for patients on their rights and entitlements, but the person-centredness of the system has scope for further development.

The main purchaser of publicly financed health services is the NHIF, which is mainly financed through contributions (payroll taxes).

Fig. 1

Health spending per capita in Serbia is below the EU average and OOP spending makes up a considerable share



Source: WHO, 2024a.

Notes: 2021 data. Public refers to transfers from government budgets and social health insurance contributions. Other compulsory pre-payment refers to premiums for MHI schemes in Belgium, Finland, France, Germany, the Netherlands (Kingdom of the) and Switzerland. Other spending includes external funding and some other marginal spending. PPP: purchasing power parity.

The benefits package covers 99% of the population and a wide scope of services, but financial protection is limited by co-payments

Citizens and permanent or temporary residents have the right to access publicly financed health services in Serbia; entitlement is based on payment of mandatory contributions to the NHIF (either by individuals or by the state on their behalf). In 2019, 99% of the population was covered by the NHIF, including non-working people whose health insurance contributions are financed from the central state budget (WHO Regional Office for Europe, 2024c). The package of benefits is very precisely defined, covering nearly all health services, as well as salary reimbursement during temporary work disability and the reimbursement of health-related travel costs. However, financial protection is limited by co-payments and other OOP payments. People have to pay a mix of fixed and percentage co-payments for most health care covered by the NHIF. Although there are some exemptions from co-payments based on age and health status, there are few exemptions based on income and there is no cap on co-payments (Atanasijević, Križnik & Zubović, in press). The precise package of benefits and level of co-payment is determined annually by a positive list. OOP spending accounted for 35.8% of current health spending in 2021, representing the main challenge to equity in health financing and financial protection. The system of mandatory health insurance financing is also highly reliant on payroll taxes with very low government budget transfers to the NHIF.

2 FINANCING AND ENSURING FINANCIAL PROTECTION

Serbia has increased public spending on health, but OOP spending continues to play an important role in health financing

Health spending reached a peak in 2021, accounting for 10% of gross domestic product (GDP). This was largely due to the economic contraction and increased emergency health spending linked to the COVID-19 pandemic. Health spending per capita by purchasing power parity (PPP) grew steadily until 2020 and increased by 27% in 2021 alone, due to spending on the COVID-19 response.

In 2021, Serbia spent US$ 2155 PPP per capita on health, which exceeded the average of upper middle-income countries (UMICs) in the WHO European Region (US$ 1646 PPP) and countries of the South-Eastern Europe Health Network (SEEHN) (US$ 1316 PPP) but was lower than the average for the European Union (EU) (US$ 4733 PPP) **(Fig. 1)**. Public spending accounted for 62.5% of health spending in 2021, while OOP payments accounted for 35.8%. Voluntary health insurance plays only a marginal role, accounting for less than 1% of current spending on health in 2021.

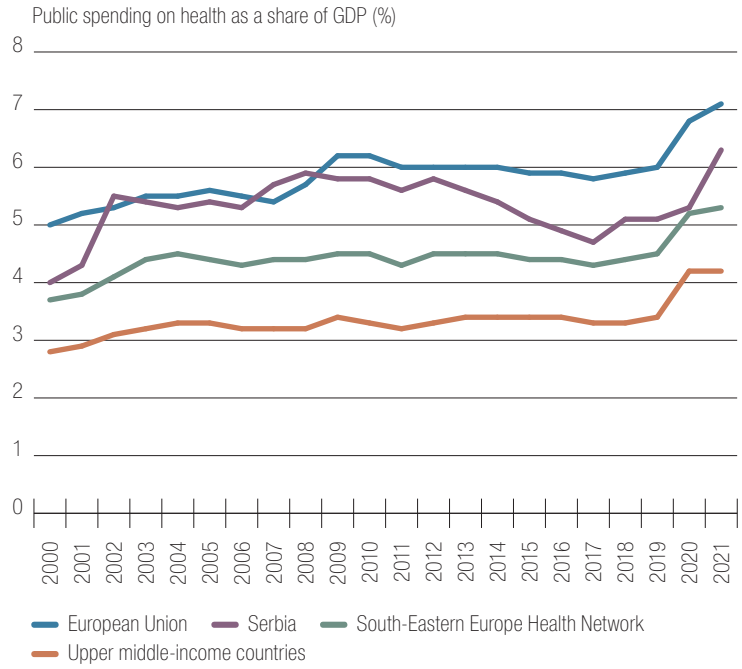
Health spending in Serbia increased sharply in response to the COVID-19 pandemic

Public spending on health as a percentage of GDP fell sharply from 5.8% in 2012 to 4.7% in 2017 before starting to increase again in 2018 **(Fig. 2)**. The fall in the share of GDP between 2012 and 2017 reflects annual reductions in public spending on health per person in real terms and a decline in the share of the government budget allocated to health. However, public spending on health per person increased in real terms in 2017, 2018 and 2019 and jumped sharply in 2021 in response to the COVID-19 pandemic (data not shown), reaching 6.3% of GDP in 2021 (the latest year for which internationally comparable data are available).

The health system relies heavily on OOP payments, which dominate private spending on health. The OOP payment share of current spending on health nearly doubled between 2002 and 2017, reaching a peak of 41% in 2017. OOP payments per person fell in real terms in 2020 but increased quite sharply in 2021 (data not shown).

Fig. 2

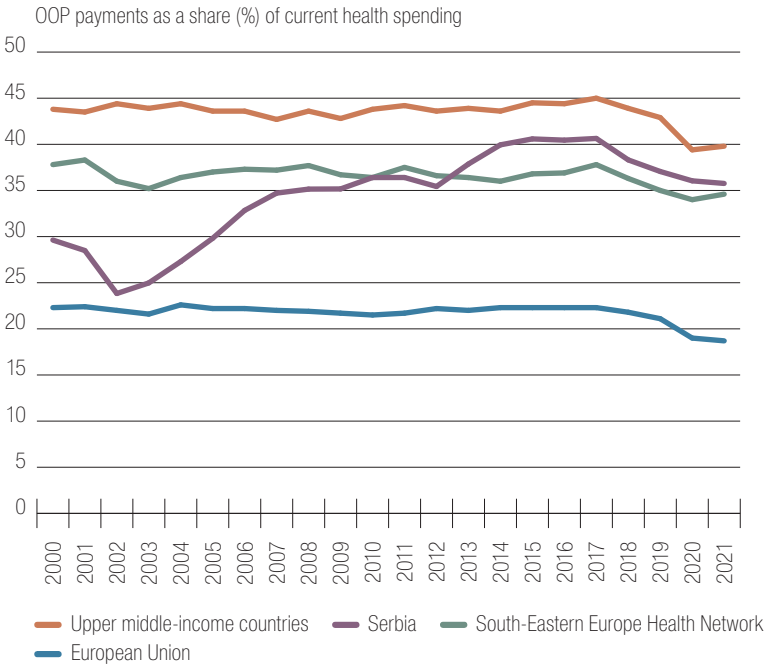
Public spending on health as a share of GDP declined between 2012 and 2017 but was beginning to increase before COVID-19



Source: WHO, 2024.

Fig. 3

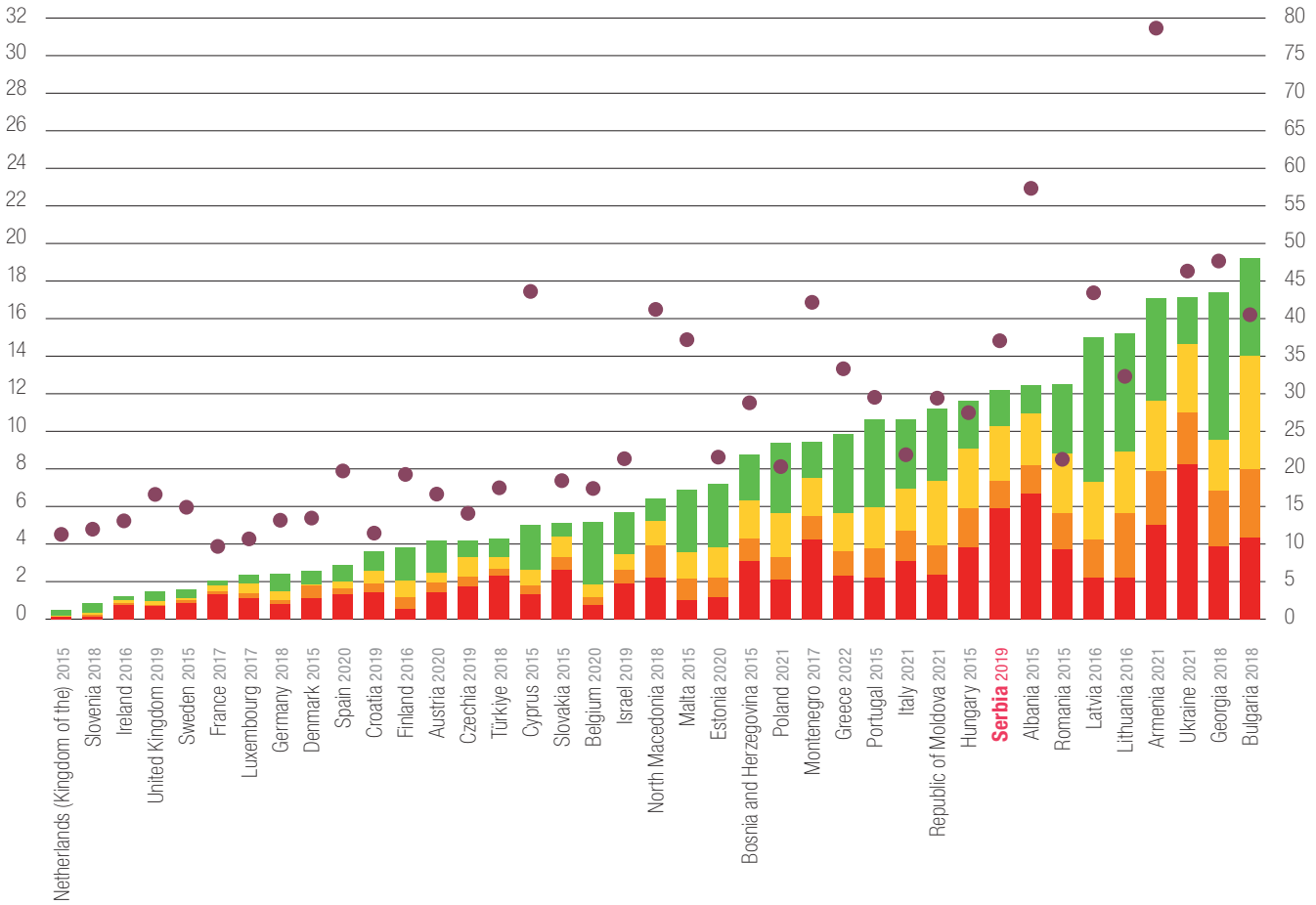
OOP payments as a share of current spending on health nearly doubled between 2002 and 2017 but began to fall in 2018



Source: WHO, 2024a.

Fig. 4

Almost one in eight households in Serbia experiences catastrophic health spending



Source: WHO Regional Office for Europe, 2024c.

Notes: The data on OOP payments are for the same year as the data on catastrophic health spending (except for Greece, where data on OOP spending are from 2021). A household is impoverished if its total spending falls below the poverty line after OOP payments; further impoverished if its total spending is below the poverty line before OOP payments; and at risk of impoverishment if its total spending after OOP payments comes within 120% of the poverty line. The poverty line used here is a relative line reflecting basic needs (food, housing, utilities).

Spending on outpatient care is greater than spending on inpatient care

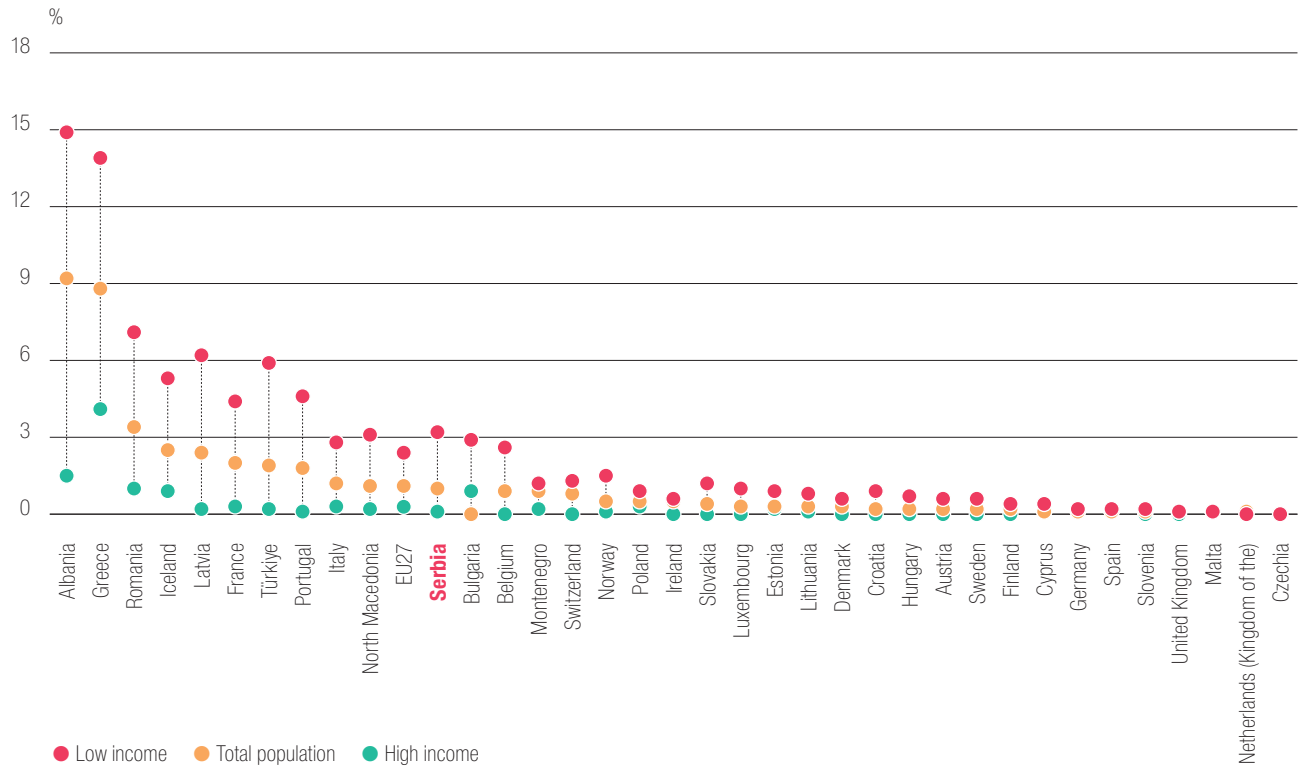
In 2021, medical goods accounted for 27% of current health spending (20% on medicines alone), followed by outpatient care (25%), inpatient care (18%), ancillary services including laboratory services and imaging (16%), rehabilitative care (4%), preventive care (3%) and long-term care (2%). The high level of health spending on medicines suggests scope for efficiency savings, such as through price controls, improvements in the rational prescribing and dispensing of medicines, and an increase in the use of generics. The ongoing strengthening of quality assurance in the medicines supply chain provides a solid foundation for such policies.

High OOP spending on medicines is the key challenge to financial protection and a driver of unmet needs for health care

In 2019, 12.2% of households in Serbia experienced catastrophic health spending, with 7.3% of households experiencing impoverishment or further impoverishment after OOP health spending and 2.9% being at risk of impoverishment **(Fig.4)**. Financial protection is undermined by a heavy reliance on OOP spending. The key driver of catastrophic spending in Serbia is OOP spending on medicines, in particular for the lowest income households (WHO Regional Office for Europe, 2023).

Fig. 5

Unmet needs for medical care due to cost differ substantially by income quintile



Source: Eurostat, 2024. Data refer to 2022, except Albania and Türkiye – 2021, North Macedonia – 2020, and Iceland and the United Kingdom – 2018.

Note: Data refer to unmet needs for a medical examination or treatment due to costs among people aged 16 and over. High income refers to people in the richest income quintile. Low income refers to people in the poorest income quintile. Caution is required in comparing the data across countries as there are some variations in the survey instrument used.

Despite high levels of OOP spending, rates of unmet needs for medical care due to cost are lower than the EU average, although with more pronounced differences between households with the highest and lowest incomes **(Fig.5)**. However, unmet needs for specific goods and services are much higher than for medical care in general, particularly for the lowest-income households, most notably for prescription medicines, but also dental care (data not shown).

Box 1

There is considerable scope for improving allocative efficiency in the health system

Serbia has a well developed primary care sector and the health workforce is more balanced towards general practitioners than specialists. Nevertheless, the health system could use hospitals and inpatient care more efficiently. Average lengths of stay are very long in international comparison – 10.9 days on average in 2021, longer than in any EU Member State (Eurostat, 2024). At the same time, hospital bed occupancy is low (65% in 2018), which also suggests an inefficient use of resources.

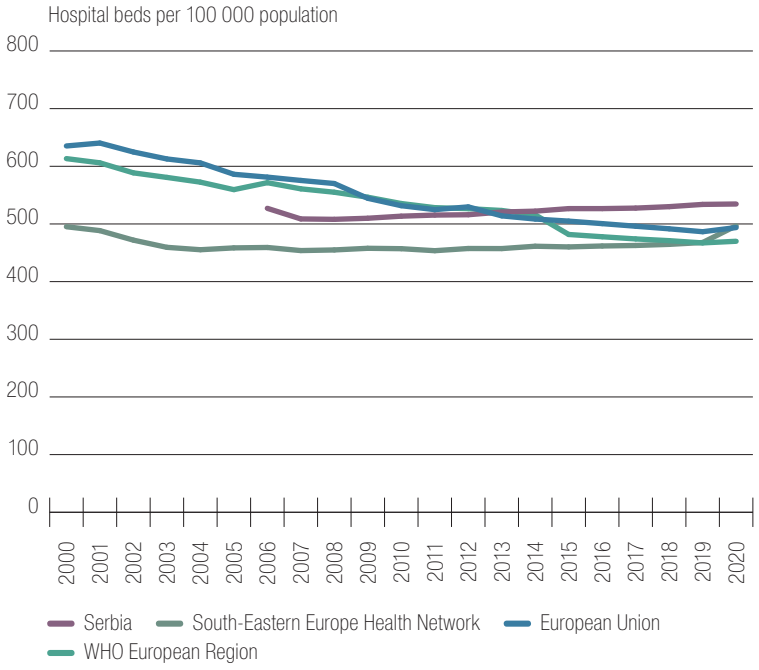
High levels of hospital care partly reflect care that is not clinically appropriate, as well as preventable hospitalizations. Many hospitalizations are for conditions that could have been managed in outpatient settings. Lack of long-term care for older people contributes to high levels of inpatient care. It is common that older people in need of care are accommodated in hospitals for an extended period (Hirose & Czepulis-Rutkowska, 2016).

The adoption of day care, which could deliver services at significantly lower cost, higher quality and greater convenience for patients, is now expanding, but day surgery capacity is still constrained. In the EU only 11% of cataract surgery is performed in hospitals, compared to 74% in Serbia.

Source: World Bank & UNICEF, 2022.

Fig. 6

The number of hospital beds per 100 000 population has increased



Source: WHO, 2024b.

3 GENERATING RESOURCES, PROVIDING SERVICES AND ENSURING ACCESS

Primary care provision is extensive and accessible but underutilized

Services at the primary care level are provided by an extensive state-owned network of PHC centres mainly financed using capitation. Primary care is provided by a chosen doctor and almost 95% of the population have registered with their chosen doctor to receive primary care services. Nevertheless, a lack of trust in primary care has persisted and patients often self-refer to private medical institutions and pay out of pocket for their care (Atanasijević, Križnik & Zubović, in press).

Serbia has extensive hospital infrastructure in all regions

Most hospitals are public and under the Ministry of Health, although there is also a network of parallel providers under the Ministry of Defence. There is at least one hospital in each district in Serbia and smaller towns may have their own hospitals. This ensures good geographical coverage. Over the past decade the number of hospital beds per 100 000 population in Serbia has been gradually increasing, reaching 535 per 100 000 population in 2020 **(Fig.6)**. However, the steady increase in the number of hospital beds per 100 000 population is due to the falling population numbers in Serbia (Bjegovic-Mikanovic et al., 2019). The actual number of hospital beds in the health system has been falling and in 2016 the number of beds was 15% lower than it had been in 1990. The main reduction in capacity was during the public health care sector reform (2003–2006), which included the implementation of hospital care restructuring projects.

The Ministry of Health estimates what expensive medical equipment and capital investments are needed, sets criteria, prepares national investment plans and tender procedures, and approves costs. Expensive medical equipment and capital investment are covered from the national health budget, whereas cheaper medical equipment is the responsibility of individual health care facilities. Despite significant investment in previous years, Serbia remains below the EU average in terms of the availability of diagnostic imaging technologies in the public sector (such as MRI and CT scanners), which contributes to long waiting times (Bjegovic-Mikanovic et al., 2019).

Shortages of health workers are exacerbating long waiting times for some elective procedures

As with hospital beds, the numbers of doctors and nurses per 100 000 population in Serbia have been stable since 1990, but this is largely due to demographic changes and the size of the population contracting. In absolute terms, the size of the health workforce has declined (IPH Batut, 2001, 2021). In contrast, the numbers of doctors and nurses per 100 000 population have been increasing steadily in high-income European countries, so per capita rates for Serbia are now below the averages for the WHO European Region and the EU **(Fig.7)**. There were 579 nurses per 100 000 population in 2020 and 284 doctors per 100 000 population in 2021. Furthermore, there is considerable variation across the country. Health workers tend to be concentrated in urban areas with better infrastructure, medical universities and highly specialized medical centres, and this is most striking in the distribution of midwives across the country (Bjegovic-Mikanovic et al., 2019).

There are shortages of some specialists, such as anaesthetists in the hospital sector, that make it harder for the Serbian health system to respond to the population's health needs effectively. Staffing shortages are one of the reasons for long waiting times to access certain health services, particularly for some elective procedures such as hip and knee replacement, cataract surgery and diagnostic imaging **(see Section 5)**.

Primary care in Serbia is provided by chosen doctors

Health services are provided through a wide network of state-owned health institutions. Health care is organized at three levels: primary, secondary and tertiary. Health

Fig. 7

The numbers of nurses and physicians per 100 000 population in Serbia have fallen below European averages

Source: WHO, 2024c.

Note: Densities were multiplied by 10 to calculate the density per 100 000 population. Averages are based on latest available years.

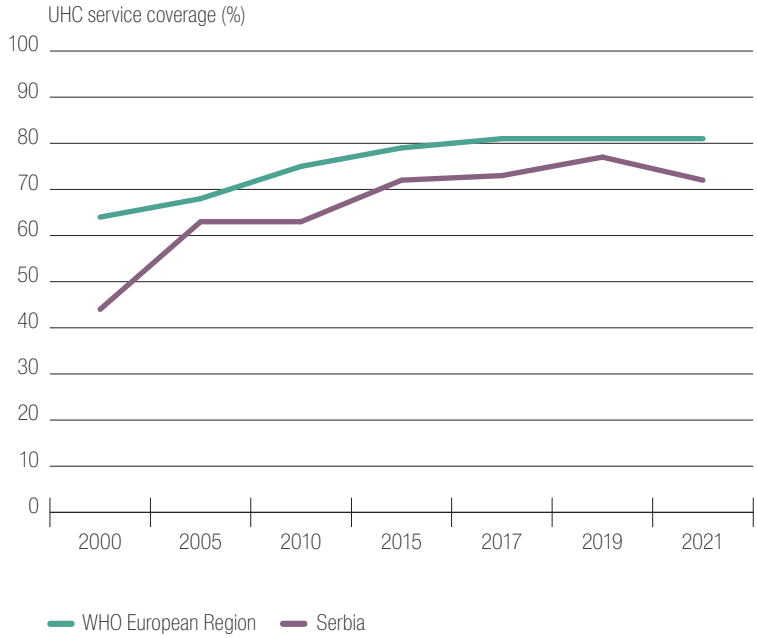
care at the primary level is provided by the state-owned network of primary care centres. Primary care is publicly provided by a chosen doctor (who is either a medical doctor, a dentist or a specialist in general medicine, occupational medicine, paediatrics or gynaecology), with patients assigned according to the area where they live. In primary care a system of referral via the chosen doctor was introduced in a team with nurses at health centres in 2005. The chosen doctors providing primary care services for adults do not require a specialization in general practice. In addition, patients choose a dentist, parents choose a paediatrician for their children, and women also choose a gynaecologist to provide primary care services such as screening and health checks.

Routine childhood vaccination services are provided in primary care by the chosen paediatricians. Despite good coverage, the national targets of 95% for some mandatory vaccines (such as measles, mumps and rubella) have not been reached. In 2022, 81% of infants had received the first dose of the measles vaccine, up from 75% in 2021, and 91% had received their second dose, up from 89% in 2021. For the full course of three vaccinations against diphtheria, tetanus and pertussis (DTP3), 92% of children were covered in 2022. Recent improvements in coverage are the result of the strengthened National Immunization Programme developed with support from WHO **(see Section 6)**.

For the Roma population, the role of Roma health mediators was established in 2008 with the aim of improving access to primary care services, including vaccination. The mediators are assigned to the multidisciplinary teams of primary care centres in

Fig. 8

Progress in strengthening UHC service coverage has stalled



Source: WHO, 2024b.

Note: UHC service coverage index, defined as the average estimated coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health; infectious diseases; NCDs; and service capacity and access; among the general and the most disadvantaged populations.

Fig. 9

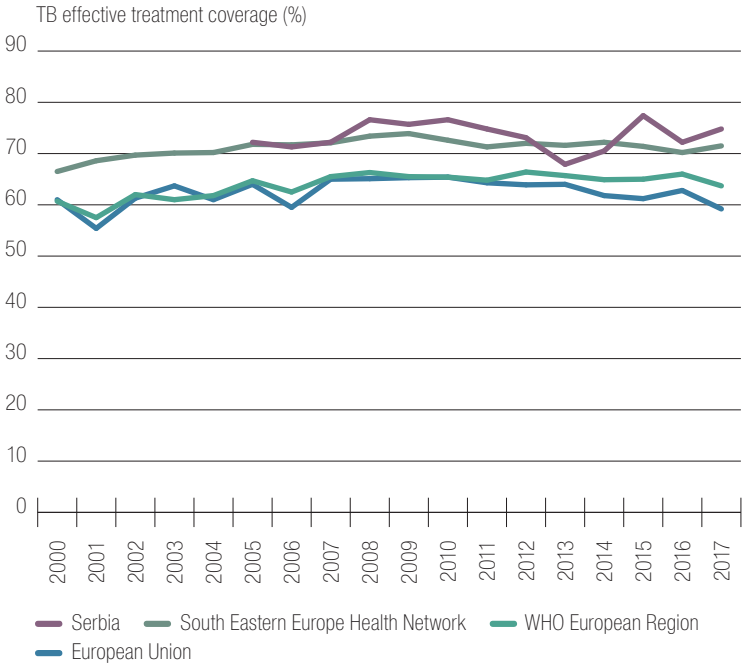
Service coverage for HIV has moved further away from the 95% targets

Source: UNAIDS, 2021, 2023.

Note: The size of the boxes illustrates the number of people living with HIV who benefit from diagnosis and treatment.

Fig. 10

TB effective treatment coverage is comparatively high



Source: WHO, 2024b.

Note: Proportion of TB cases detected and successfully treated (estimate).

59 towns and municipalities that are home to most of the Roma population. Despite progress in immunization of Roma children, still only 63% of children aged 24–35 months living in Roma settlements received all the vaccines recommended in Serbia, compared to a national average of 80% (UNICEF, 2020).

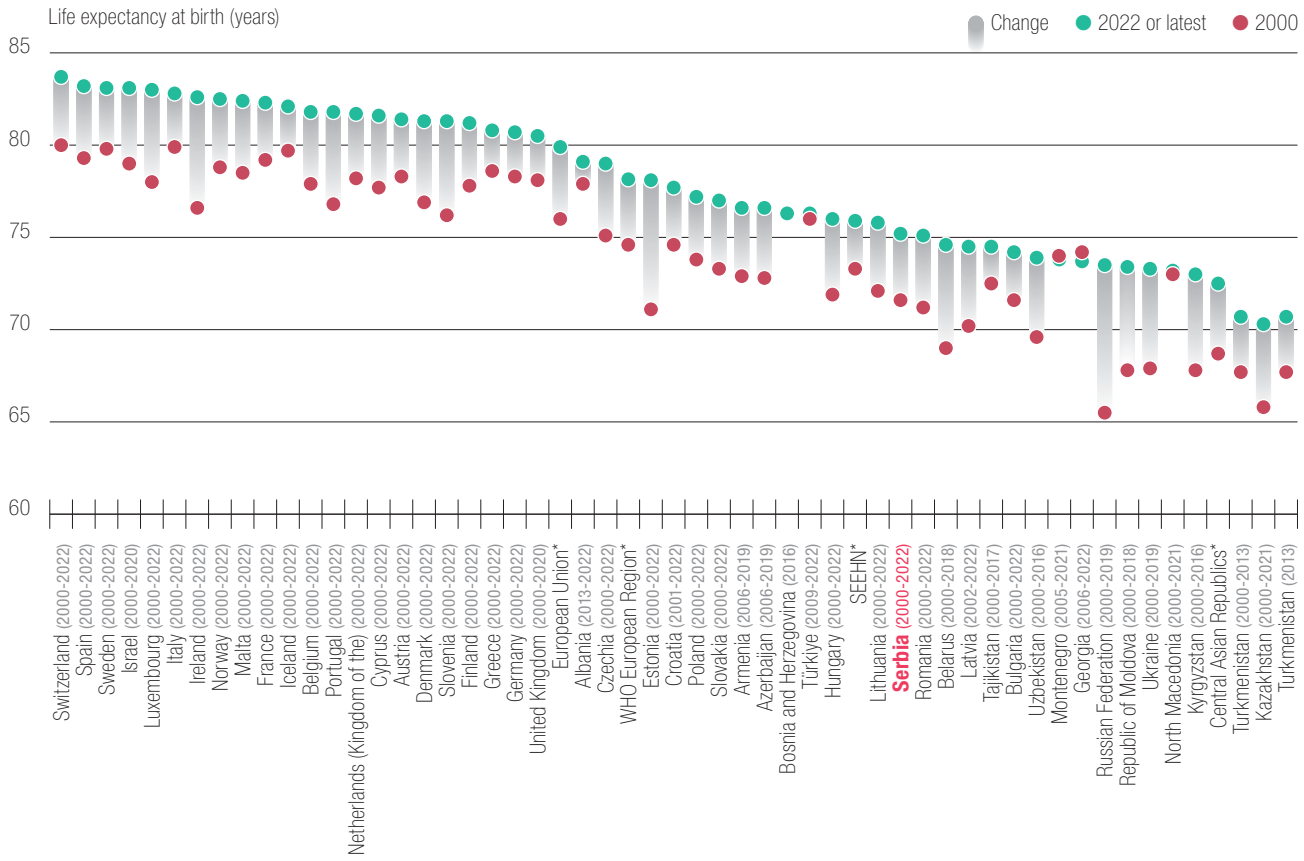
The accessibility of essential services is relatively good, but progress has stalled in many areas

The universal health coverage (UHC) service coverage index measures access to essential services. It increased swiftly between 2000 and 2005 from 49 to 68 (out of 100), but progress then slowed, reaching 77 in 2019 and then falling to 72 in 2021, while the WHO European Region average continued to improve steadily **(Fig.8)**. Service capacity and access have remained stable and high over the same time period (88 in 2021), but the UHC service coverage sub-index on NCDs has only improved from 44 in 2000 to 63 in 2021. The strong overall improvements in the UHC service coverage index between 2000 and 2005 were driven by gains in service coverage for infectious diseases. The sub-index on infectious diseases increased from 21 in 2000 to 81 by 2005, reaching 86 by 2019. However, in 2021 this sub-index had fallen back to 64, which is low for European countries.

Serbia is one of the few countries in Europe where the number of new HIV infections has been increasing over the past decade (UNAIDS, 2021). The country has

Fig. 11

Life expectancy has increased but remains relatively low



Source: Eurostat, 2024, for EU/EEA countries, Albania, Montenegro, North Macedonia, Serbia, Armenia, Azerbaijan, Georgia and Türkiye; WHO Regional Office for Europe, 2024a, for all others.

Note: * averages are based on years with data available. The South-Eastern Europe Health Network includes Albania, Bosnia and Herzegovina, Bulgaria, Israel, Montenegro, North Macedonia, the Republic of Moldova, Romania and Serbia.

made progress towards the UNAIDS 95:95:95 target of ensuring 95% of people living with HIV are aware of their status, 95% of these are on treatment and 95% of those on treatment will achieve viral suppression by 2025 **(Fig.9)**. In Serbia in 2022, 86% of people living with HIV were aware of their status and of these 75% were on treatment, with 90% of those on treatment achieving viral suppression. However, these rates are marginally lower than what had been achieved in 2020 (UNAIDS, 2024).

By contrast, Serbia has made major progress in improving access to tuberculosis (TB) services. It has successfully implemented the Directly Observed Treatment strategy supported by WHO, reducing the TB incidence rate drastically, from 43.1 in 2005 to 6.5 in 2021. Effective TB treatment coverage in Serbia is now among the best in Europe. In 2017, it was estimated that 74.8% of TB cases were detected and successfully treated, which was well above the EU average of 59.2% and the average of 63.7% for the WHO European Region in the same year.

4 IMPROVING THE HEALTH OF THE POPULATION

Life expectancy in Serbia fell sharply during the COVID-19 pandemic but is now recovering

Life expectancy at birth peaked at 76.1 years in 2019 after having improved steadily in the last two decades. However, life expectancy fell sharply during the COVID-19 pandemic and by 2021 it had fallen to 72.8 years. In 2022, life expectancy improved again and reached 75.2 years. This was above the average for SEEHN countries, but below the average for the WHO European Region and far below the EU average **(Fig.11)**. Females live about five years longer than males (77.9 years compared to 72.7 years in 2022), a gender gap which is below the average in the WHO European Region.

Infant, child and maternal mortality have all fallen consistently

In 2020, the estimated maternal mortality rate for Serbia was 10.2 per 100 000 live births. This was below the average for the WHO European Region (12.6 per 100 000 live births) but higher than the average for SEEHN countries (7.3) and the EU (6.4). According to analysis by the Institute of Public Health, using death certificates, birth registrations and hospitalization reports, the maternal mortality rate declined from 14.5 maternal deaths per 100 000 live births in 2008 to 9.7 in 2020. Whatever figures for maternal mortality rates are used, over time both the estimated rate and the measured rate show the same clear and consistent downward trend. In 2019, all births in Serbia were attended by a skilled birth attendant and 97% of pregnant women attended at least four antenatal visits, although this fell to 83% for mothers living in Roma settlements (UNICEF, 2020).

Estimated infant mortality in Serbia has also consistently fallen, from 10.9 per 1000 live births in 2000 to 4.7 deaths per 1000 live births in 2021, with no fluctuation through the COVID-19 pandemic. Similarly, the standardized mortality rate for children aged 0–14 has more than halved, from 111.5 deaths per 100 000 in 2000 to 48.2 in 2021. This was below the average for countries of the WHO European Region (60.5 in 2020) but higher than the EU average (35.1 in 2020).

Estimated infant mortality rates for the Serbian Roma community were considerably higher than the national average, amounting to 8 per 1000 live births in 2019 (UNICEF, 2020). Babies born to households in Roma settlements were twice as likely to have a low birthweight (12% weighing under 2500g in 2019, compared with a national average of 6%). Nevertheless, there was also a steady improvement in infant mortality rates for Serbian Roma communities, decreasing from 25.9 in 2005 to 14 in 2010 (UNICEF, 2007, 2011).

Cardiovascular diseases and cancers are the leading causes of death in Serbia

Deaths from cerebrovascular disease have more than halved between 2000 and 2022 (down 55%) and deaths from ischaemic heart disease have fallen by a fifth (19%). Currently cardiovascular diseases account for around 45% of all deaths **(Fig.12)**. National guidelines for the prevention of arterial hypertension, ischaemic stroke and cardiovascular diseases were introduced in 2005, and these set out both primary and secondary prevention targets and practical guidelines. The Ministry of Health is currently working on developing a new national programme for the prevention, treatment and rehabilitation of stroke. Improvements in cardiovascular mortality rates are likely the result of increased access to effective treatments and preventive programmes to control risk factors (for example, routine use of anti-hypertensives, cholesterol-reducing medication and stronger tobacco control) (Ilic, Ilic & Sipetic Grujicic, 2019). In contrast, there has been no reduction of age-standardized cancer mortality rates in the last two decades. Almost a quarter of cancer deaths in 2022 were due to lung cancer (23%), and the lung cancer mortality rate has remained relatively steady over the last decade.

The COVID-19 pandemic caused substantial excess mortality

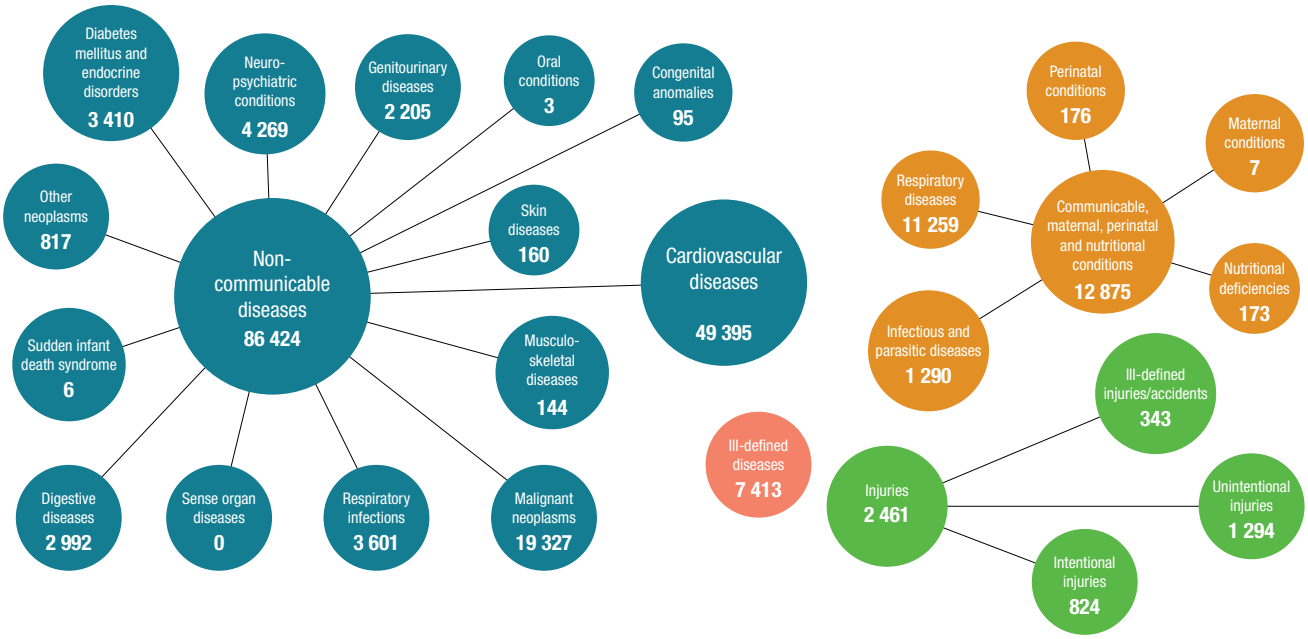
Life expectancy at birth declined by 3.3 years between 2019 and 2021, most likely due to the direct and indirect effects of the COVID-19 pandemic. Excess mortality, that is, those deaths over and above what would normally be expected in a country over a specific time period, increased markedly in 2020, but even more so in 2021 **(Fig.13)**. Life expectancy has since almost returned to pre-pandemic levels.

Premature mortality from NCDs is falling but remains high

Premature mortality (among those aged 30–69 years) from four major NCDs (cardiovascular diseases, cancers, diabetes mellitus and chronic respiratory diseases) has fallen steadily in Serbia, from 650 per 100 000 population in 2000, but remains relatively high at 427 per 100 000 population in 2021, exceeding rates in the EU and the WHO European Region **(Fig.14)**. This suggests that there is still much scope to further improve preventive and curative interventions.

Fig. 12

NCDs predominate as the main causes of death in Serbia

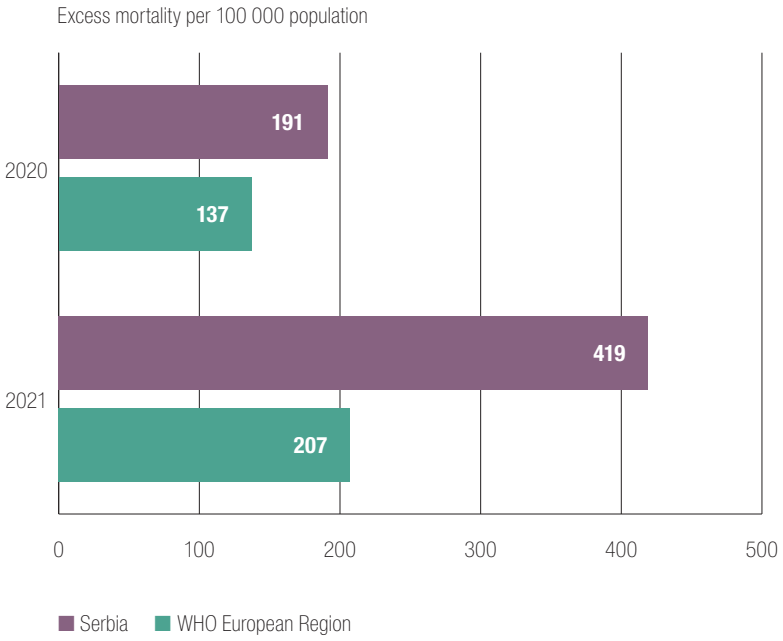


Source: WHO, 2024d.

Note: Overview of the distribution of causes of total deaths grouped by category. Data refer to 2021.

Fig. 13

Excess mortality associated with the COVID-19 pandemic was much higher than in the WHO European Region overall

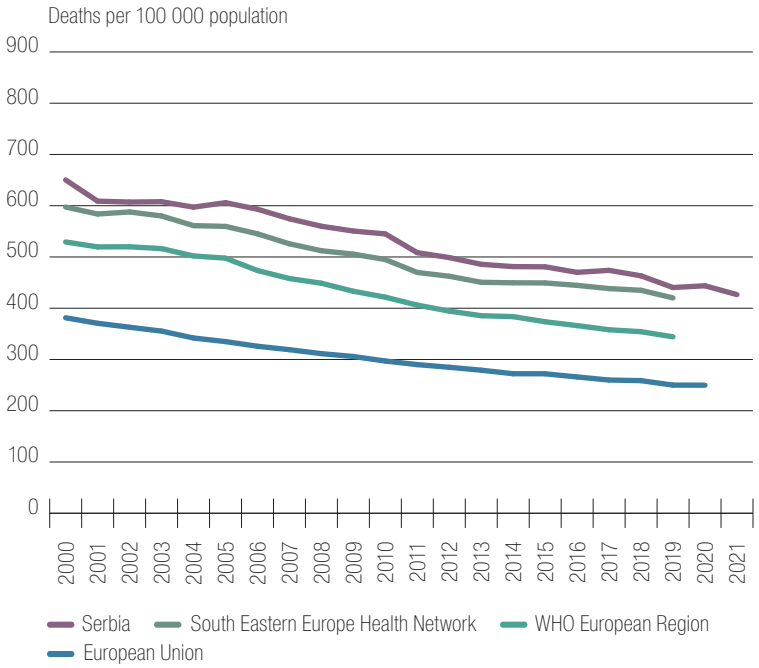


Source: WHO, 2023.

Note: Excess mortality from all causes of death, defined as the difference between the total number of deaths and the number that would have been expected in the absence of a crisis (for example, the COVID-19 pandemic). This difference is assumed to include deaths attributable directly to COVID-19 as well as deaths indirectly associated with COVID-19 through impacts on health systems and society.

Fig. 14

Premature mortality from NCDs is comparatively high



Source: WHO Regional Office for Europe, 2024a.

Note: Premature mortality among those aged 30–69 years from four major NCDs (cardiovascular diseases, cancers, diabetes mellitus and chronic respiratory diseases)).

Cardiovascular diseases dominate the disease burden in Serbia

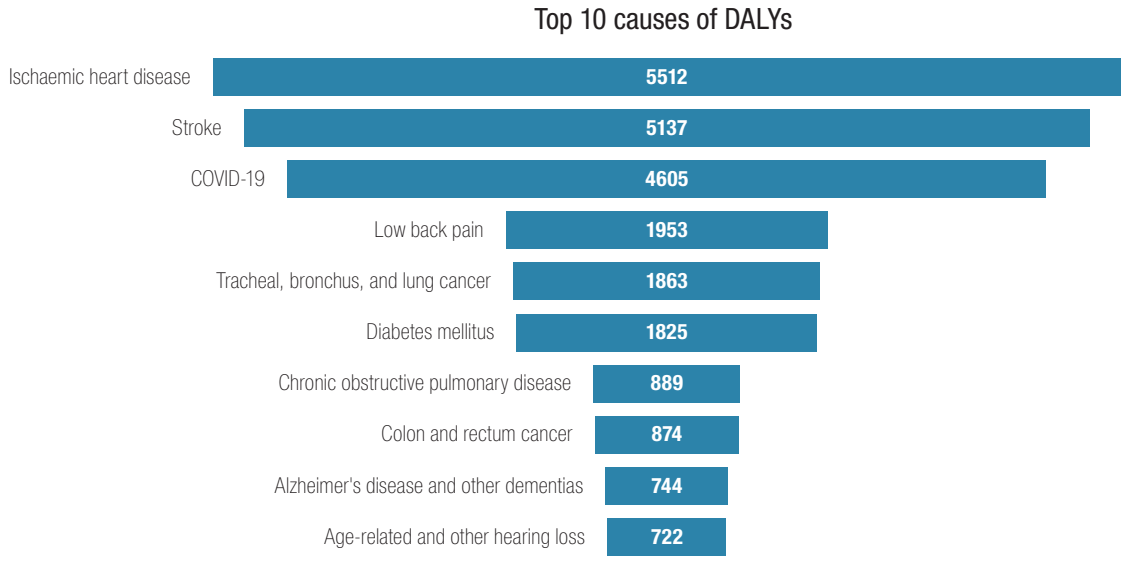
The number of years lost due to ill-health, disability or early death in Serbia echoes mortality patterns, with the top two causes of disability-adjusted life years (DALYs) being ischaemic heart disease and stroke, closely followed by COVID-19 in 2021 **(Fig.15)**. Although not among the top 10 causes of DALYs, addressing the burden of poor mental health has become a major political priority following mass shooting events involving young people in 2023 **(Box 2)**.

Uncontrolled hypertension is by far the leading risk factor affecting population health

Despite the introduction of programmes to improve the control of hypertension, in 2021 high systolic blood pressure was estimated to contribute to more than a quarter (28.7%) of all deaths in Serbia **(Fig.16)**. The high share in Serbia is potentially linked to the high cost of pharmaceuticals, most of which have to be purchased out of pocket, limiting access to antihypertensive medicines (Bjegovic Mikanovic et al., 2019). Unhealthy diet is the next biggest risk factor, estimated to contribute to 17.3% of all deaths in Serbia, while high fasting plasma glucose was estimated to contribute to 12.1% of all deaths in 2021 **(Fig.16)**, which is also very high in international comparison.

Fig. 15

COVID-19 was a major contributor to the disease burden in 2021



Source: IHME, 2024.

Note: Top 10 causes of DALYs per 100 000 population for both sexes and all ages. Data refer to 2021.

Box 2

Integrating mental health services for young people into primary care to broaden access

In response to the tragic shooting incidents in Belgrade and Mladenovac in May 2023, WHO took immediate action to support the Ministry of Health and other stakeholders working on mental health in Serbia. WHO implemented a Training of Trainers programme aimed at 50 psychologists and paediatricians working in primary care centres across the country, focusing on how to recognize and respond to mental health issues in the youth population. A key objective of this initiative was integrating mental health and psychosocial support into PHC. As part of this, the capacity of health workers in primary care was enhanced to provide mental health services and psychosocial support in emergencies.

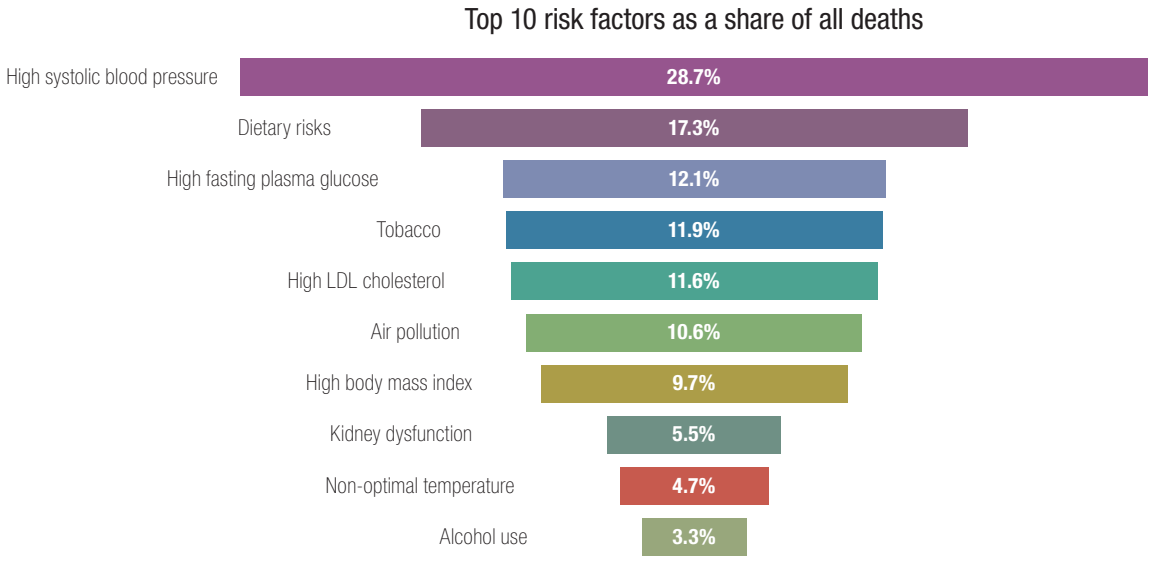
In addition, a digital platform for mental health was developed, along with guidelines for supporting communities during emergencies aimed at psychologists in schools and psychologists and paediatricians in primary care. To further support these activities, a campaign was developed to highlight the importance of mental health among young people. This comprehensive approach demonstrates the commitment of Serbia to addressing mental health issues, particularly in times of crisis.

More than one in ten deaths can be attributed to tobacco use – a highly modifiable risk factor at the population level. In 2023, 36.7% of those aged 15 years and over were estimated to smoke tobacco regularly, which was the highest smoking rate in the whole WHO European Region. Unlike in most countries, in Serbia smoking prevalence among males and females is quite similar – 39.7% of males compared to 35.3% of females in 2023. Smoking rates have fallen since 2000, when 44.1% of those aged 15 years and over were estimated to smoke regularly, but these gains have been driven more by the larger drop in smoking prevalence among males which was 51% in 2000, while it was 39.1% among females in the same year. Based on the investment case conducted by the WHO Framework Convention on Tobacco Control in Serbia on the nationally available data, tobacco-related illnesses cost the Serbian economy RSD 269 billion every year, equivalent to 4.9% of its GDP in 2019. It is also responsible for approximately 19 800 deaths in Serbia annually.

Stronger tobacco control measures are required to address the public health impact of these high smoking rates **(Box 3)**.

Fig. 16

More than a quarter of all deaths in Serbia can be attributed to uncontrolled high blood pressure



Source: IHME, 2024.

Note: Percentage of all deaths attributable to risk factors for both sexes and all ages. Shares overlap and therefore add up to more than 100%.

Box 3

Stronger tobacco control measures are in the pipeline

WHO is supporting the Ministry of Health in drafting the new Tobacco Control Law, which will be a significant step towards strengthening tobacco control in Serbia. WHO is also providing input into the Amendment Law on Tobacco prepared by the Ministry of Finance.

In addition to these legislative efforts, an intensive campaign was conducted on social media platforms from November to December 2023. This campaign aimed to promote online tobacco cessation services at the Institute of Public Health webpage (https://ostavipusenje.rs/). The campaign reached more than 1.5 million people. These efforts have already had a positive impact. A representative public opinion survey conducted by WHO showed that 75% of the population support the introduction of an indoor smoking ban, including for the hospitality sector.

The core social determinant of health in Serbia remains poverty

In 2017, 24.3% of the population was living in poverty according to the national poverty line, a share that has been relatively steady over time. Moreover, Serbia has high rates of income inequality. Serbia's GINI index in 2021 was 33.1, meaning that the gap between rich and poor is relatively wide for a European country (World Bank, 2024). Poverty is a key risk factor for most diseases.

5 SPOTLIGHT ON HEALTH WORKFORCE TRENDS

The number of doctors in Serbia is not growing and the pool of new graduates is shrinking

The numbers of doctors and nurses per 100 000 population have remained reasonably stable in the last decade, although the absolute numbers of health workers has declined, in line with a decrease in the overall population **(see Section 3)**. In contrast, the rates of health workers have increased in many other countries **(Fig.17)**. Moreover, between 2016 and 2020 the number of medical school graduates has shrunk by 26.6%, so it will be challenging to maintain current numbers of physicians, let alone expand health workforce capacity. The number of nursing graduates increased by 8.2% overall between 2012 and 2020.

A large proportion of health workers are approaching or working beyond retirement age

The ageing of the Serbian population is also reflected in the ageing of the country's health workforce. In 2021, 27.8% of doctors were aged 55 years or over **(Fig.18)**. This was a substantial increase from 23.6% in 2012 and the trend is likely to have continued, in line with wider population ageing trends in Serbia. This means that Serbia has a higher proportion of doctors approaching retirement age than many other countries in the WHO European Region. There are no data internationally available on the proportion of nurses aged 55 years or older.

The share of generalist medical practitioners in Serbia continues to be comparatively high

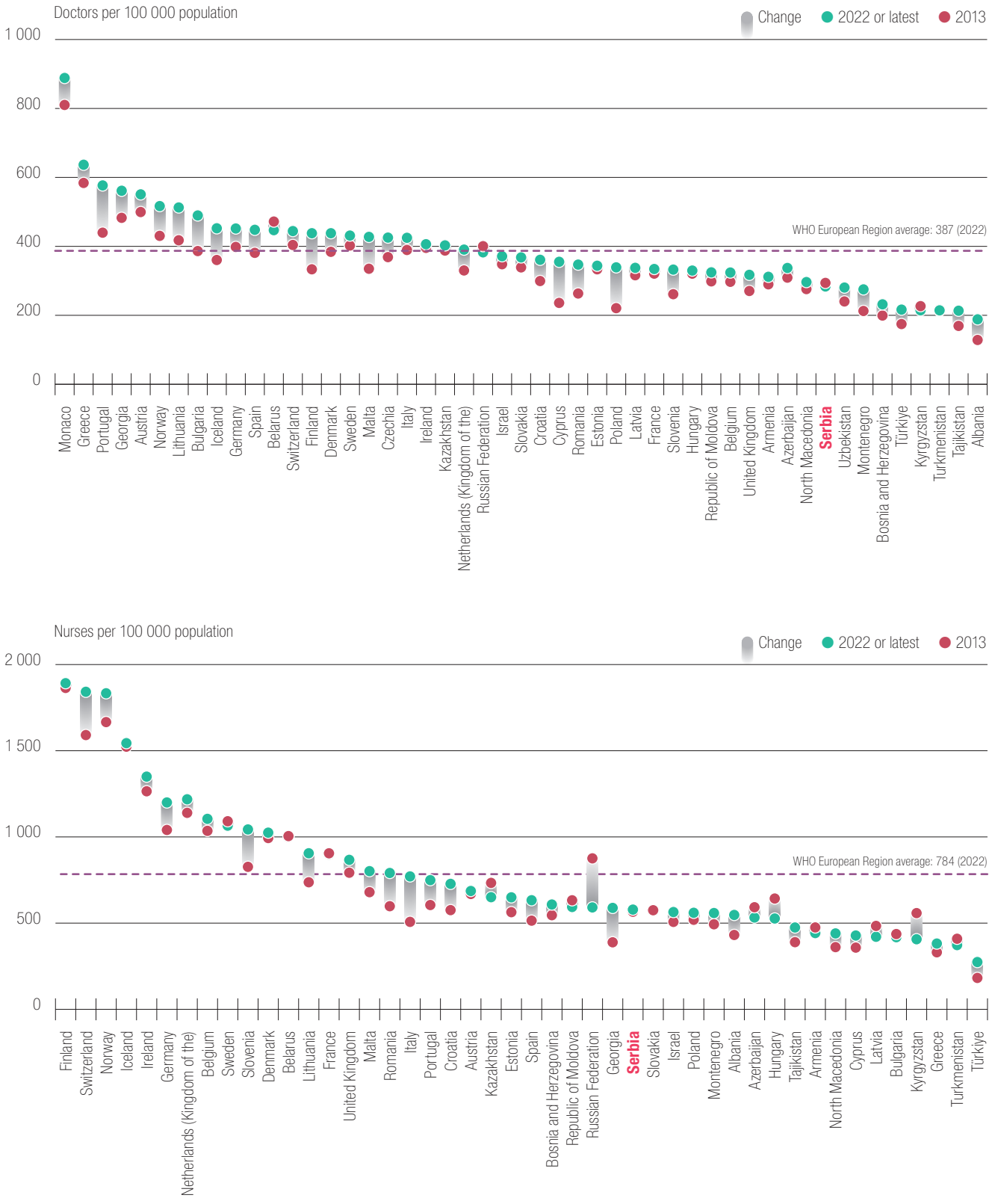
One in five doctors in Serbia are generalist medical practitioners, working predominantly in primary care (18.8% in 2021). Although the absolute number of generalist medical practitioners has fallen, the proportion of doctors working as generalist medical practitioners has remained relatively high in international comparison, albeit it is a smaller share than in 2012 **(Fig.19)**.

Encouraging medical professionals to stay and work in Serbia is a core challenge

Serbia is a source country for international health workforce migration. Germany in particular has targeted Serbian health workers for international recruitment, despite Serbia having among the lowest numbers of doctors and nurses per capita in the WHO European Region (Mans et al., 2020). A study from 2014 found that four fifths of medical students intended to migrate after graduation, partly in response to widening salary differentials with western Europe (Šantrić-Milićević et al., 2014). EU accession is likely to increase the outflow of medical professionals, as was the case in Romania and Bulgaria when they joined the EU, as health workers exercise their right to freedom of movement (Russo et al., 2023). Without measures to retain health workers, increased out-migration could lead to critical workforce shortages in Serbia's health system.

Fig. 17

The numbers of doctors and nurses per 100 000 population have remained stable in Serbia

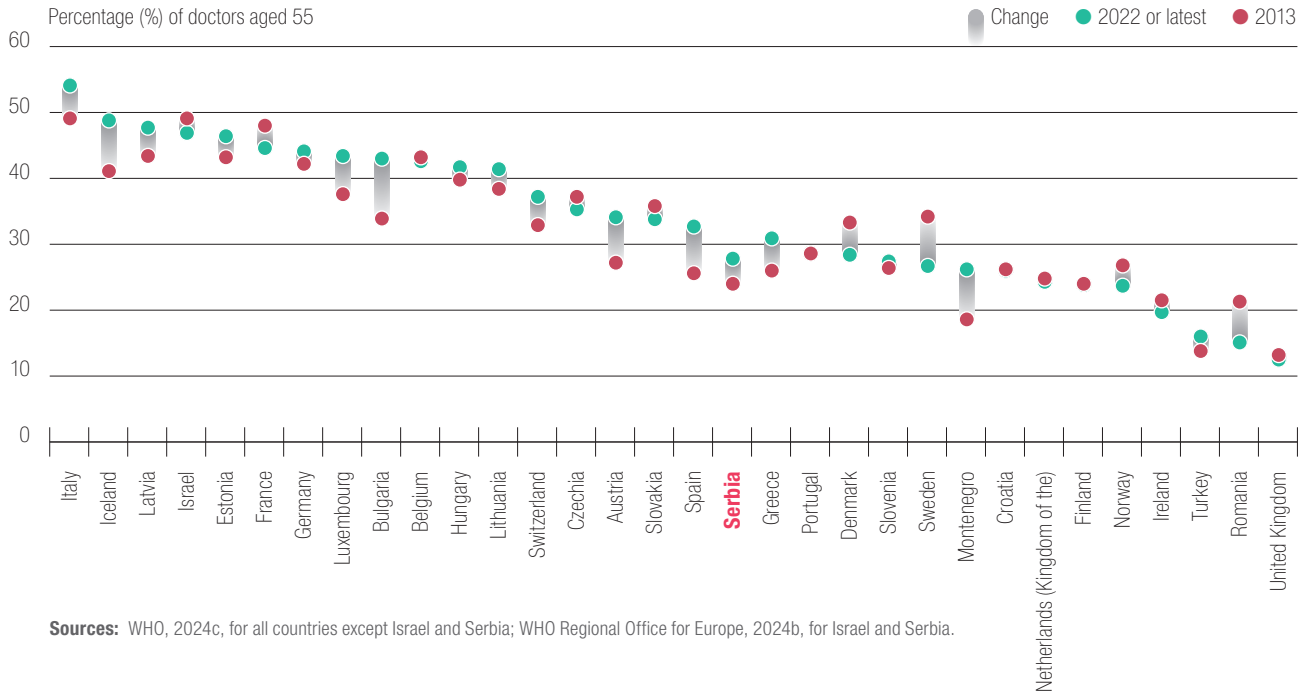


Source: WHO, 2024c.

Note: The number of nurses plotted for Austria has to be treated with caution, due to breaks in the time series and switching between "licensed to practise" and "practising" workforce numbers.

Fig. 18

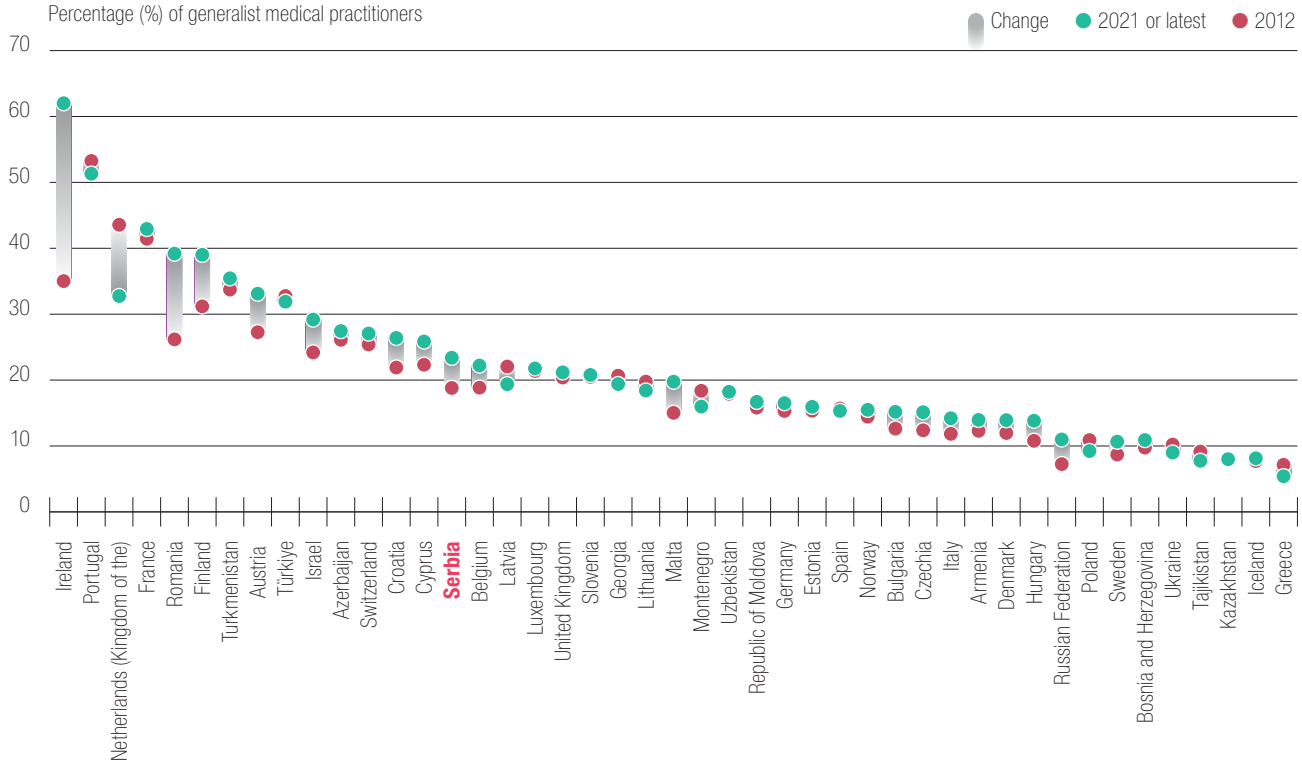
The proportion of doctors aged 55 years and over is higher in Serbia than in many other European countries



Sources: WHO, 2024c, for all countries except Israel and Serbia; WHO Regional Office for Europe, 2024b, for Israel and Serbia.

Fig. 19

One in five doctors in Serbia work as generalist medical practitioners



Source: WHO Regional Office for Europe, 2024b.

Note: Generalist medical practitioners (ISCO-08 code: 2211) are physicians who do not limit their practice to certain disease categories or methods of treatment and may assume responsibility for the provision of continuing and comprehensive medical care to individuals, families and communities. They include general practitioners, district medical doctors, therapists, family medical practitioners, PHC physicians, medical doctors (general), medical officers (general), and medical interns or residents specializing in general practice or without any area of specialization yet. Although in some countries "general practice" and "family medicine" may be considered as medical specializations, these occupations are also classified here. The data for Ireland should be treated with caution due to a break in series.

6 EUROPEAN PROGRAMME OF WORK (EPW)

Moving towards universal health coverage

As part of capacity building for the National Medicines Authorities, WHO secured commitment from the government of Serbia to continue joint work to meet a maturity level 3 for medicines and level 4 for vaccines production, to secure Serbia as one of the first countries outside the EU to meet these standards. WHO is also working with national partners on the knowledge transfer for mRNA technology, making Serbia one of the first countries in the region to have this capacity.

Protecting against health emergencies

The EU-funded IPA Project "EU for Healthcare in Serbia", implemented by WHO and the United Nations Development Programme, is another significant initiative aimed at strengthening the country's health system, particularly the component focusing on strengthening the laboratory system.

With WHO support, the Ministry of Health has also developed and budgeted the National Action Plan for Health Security that is waiting to be adopted.

Promoting health and wellbeing

The COVID-19 pandemic put significant pressure on health systems worldwide, leading to a decline in routine immunizations such as against measles. In Serbia, concerted efforts were made to address this issue. The Ministry of Health received support from WHO to intensify outreach activities to children who had missed their vaccine doses in 2020–2021, aiming to reduce the risk of outbreaks. These activities proved successful, as the National Immunization Programme in Serbia managed to reverse the declining trend in routine vaccine coverage. In 2022, they reported a 6% increase in coverage for the first dose of the measles vaccine. This increase in vaccine coverage laid the foundation for containing a measles outbreak in early January 2023.

COUNTRY DATA SUMMARY

	Serbia	South-Eastern Europe Health Network	WHO European Region	European Union
Life expectancy at birth, both sexes combined (years) [a]	75.2 (2022)	75.9	78.2	79.9
Estimated maternal mortality per 100 000 live births (2020)	10.2	7.3	12.6	6.4
Estimated infant mortality per 1 000 live births (2021)	4.7	4.6	6.3	3.2
Population size, in millions (2022)	6.7 [b]	54.7	929.1	512.7
GDP per capita, PPP$ (2021)	21 432	30 022	38 936	48 615
Poverty rate at national poverty lines (% of population)	20.0 [c] (2021)	22.6 (2017)	14.9 (2018)	17.0 (2018)

Sources: WHO Regional Office for Europe, 2024a;

[a] Eurostat, 2024, for EU/EEA countries, Albania, Montenegro, North Macedonia, Serbia, Armenia, Azerbaijan, Georgia and Türkiye; [b] World Bank, 2024a; [c] World Bank, 2024b.

Note: Life expectancy averages refer to latest available years.

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WHO Regional Office for Europe

WHO is the authority responsible for public health within the United Nations system. The WHO Regional Office for Europe (WHO/Europe) covers 53 countries, from the Atlantic to the Pacific oceans.

To support countries, WHO/Europe seeks to deliver a new vision for health, building a pan-European culture of health, where health and well-being goals guide public and private decision-making, and everyone can make healthy choices. WHO/Europe aims to inspire and support all its Member States to improve the health of their populations at all ages. WHO/Europe does this by providing a roadmap for the Region's future to better health; ensuring health security in the face of emergencies and other threats to health; empowering people and increasing health behaviour insights; supporting health transformation at all levels of health systems; and by leveraging strategic partnerships for better health.

European Programme of Work 'United Action for Better Health in Europe'

The European Programme of Work (EPW) sets out a vision of how the WHO Regional Office for Europe can better support countries in our region in meeting citizens' expectations about health.

The social, political, economic and health landscape in the WHO European Region is changing. United action for better health is the new vision that aims to support countries in these changing times. "United", because partnership is an ethical duty and essential for success, and "action" because countries have stressed their wish to see WHO move from the "what" to the "how", exchanging knowledge to solve real problems. The WHO European Region's solidarity is a precious asset to be nurtured and preserved and, through the EPW, WHO/Europe supports countries as they work together to serve their citizens, learning from their challenges and successes.

The European Observatory on Health Systems and Policies

The European Observatory on Health Systems and Policies supports and promotes evidence-based health policy-making so that countries can take more informed decisions to improve the health of their populations. It brings together a wide range of policy-makers, academics and practitioners, drawing on their knowledge and experience to offer comprehensive and rigorous analysis of health systems in Europe. The Observatory is a partnership hosted by WHO/Europe. Partners include the governments of Austria, Belgium, Finland, Ireland, Norway, Slovenia, Spain, Sweden, Switzerland, the United Kingdom, and the Veneto Region of Italy (with Agenas); the European Commission; the French National Union of Health Insurance Funds (UNCAM), the Health Foundation; the London School of Economics and Political Science (LSE) and the London School of Hygiene & Tropical Medicine (LSHTM). The Observatory is based in Brussels with hubs in London (at LSE and LSHTM) and at the Berlin University of Technology.

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