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Bosnia and Herzegovina
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HEALTH SYSTEMS IN ACTION: 
BOSNIA AND HERZEGOVINA

Key points

- Bosnia and Herzegovina consists of two entities (the Federation of Bosnia and Herzegovina and the Republika Srpska) and one autonomous district (the Brčko District of Bosnia and Herzegovina), and has complex health systems, with 13 health insurance funds and 14 ministries in charge of health.

- Population coverage of the health insurance systems is incomplete. About 87% of the population in the Federation of Bosnia and Herzegovina and about 74% in the Republika Srpska were covered in 2020. However, health insurance coverage rates also vary between cantons within the Federation of Bosnia and Herzegovina.

- Public spending on health as a share of GDP is much higher than the South-Eastern European average and even exceeds the European Union (EU) average. Despite a continuous decrease in recent decades, about one third of health spending (30%) remains private, almost entirely consisting of out-of-pocket payments which are mainly spent on medicines and therapeutic appliances.

- The largest challenges of the health systems in Bosnia and Herzegovina are their fragmentation (particularly in the Federation of Bosnia and Herzegovina), lack of transparency and weak financial management structures, which lead to overspending and arrears of health care providers. These challenges have become more visible during the COVID-19 pandemic, which increased pressure on already overstretched publicly funded health services.

- Recent and current reforms to the health systems aim to strengthen primary care. Important progress has been made in establishing family medicine-centred primary health care in primary health care centres and by increasing the numbers of trained family medicine specialists. However, the health systems are still largely hospital-centred.

- Bosnia and Herzegovina is facing low numbers of health professionals because of structural weaknesses in the health systems and migration towards countries with better employment prospects.

- The country's universal health coverage (UHC) index is below the average of the WHO European Region. Childhood immunization rates were historically high, but have decreased since 2014, both for DTP3 and measles, and are now well below the 95% threshold recommended by WHO.

- Prior to the COVID-19 pandemic, life expectancy in Bosnia and Herzegovina was close to the SEE average, and higher than in some EU countries.

- There were major improvements in maternal and infant mortality as a result of policy efforts and high rates of attended births.

- The country faces a high burden of noncommunicable diseases. Mortality from stroke, ischaemic heart disease and cancer has increased in recent years.

- Hypertension and tobacco use are main contributors to the burden of disease in Bosnia and Herzegovina. Tobacco consumption is a major public health concern and there remains major scope for more stringent tobacco control measures.
The health systems in Bosnia and Herzegovina are complex and fragmented

After the war in Bosnia and Herzegovina, the Dayton Peace Agreement (1995) laid the foundation of the current political system and established Bosnia and Herzegovina as a state with two entities each with a high degree of autonomy: the Federation of Bosnia and Herzegovina (comprising about 2.2 million inhabitants) and the Republika Srpska (comprising about 1.2 million inhabitants). In 2000 the self-governing Brčko District of Bosnia and Herzegovina (comprising about 82,700 inhabitants) was created. The Federation of Bosnia and Herzegovina is further devolved into 10 cantons with their respective governments. All administrative units (the state of Bosnia and Herzegovina, the two entities, the cantons and the Brčko District of Bosnia and Herzegovina) have their own governance structures, resulting in a complex institutional structure, with in total 14 ministries/departments in charge of health and 13 health insurance funds (2 entity, 1 district, 10 cantonal in the Federation of Bosnia and Herzegovina).

Health policy decision-making is devolved to the entity/district level, and the two entities and the district each have distinct Laws on Health Care and on Health Insurance. The Republika Srpska is a centralized health system with key authority held by the Ministry of Health and Social Welfare of the Government of the Republika Srpska. In the Federation of Bosnia and Herzegovina, the Ministry of Health has more limited responsibilities and takes on a coordinating role in setting and implementing health policies in its cantons. The 10 cantonal governments are responsible for the planning and delivery of health insurance and health services. Due to these decentralized and fragmented health governance structures and the large number of decision-makers, health policy-making is very challenging (World Bank, 2019b). Furthermore, the limited inter-government cooperation and coordination pose a real challenge to effective policy reform and implementation. Attempts to adopt a common strategy for health system reform have continuously failed due to lack of consensus. Due to these multiple structures and poorly planned services, the health systems’s person-centredness is largely underdeveloped. Moreover, patients often have limited choice of providers and can therefore not vote with their feet (World Bank, 2019b, 2020).
The Federation of Bosnia and Herzegovina established a minimum services package that has to be provided in all cantons, in addition to a list of complex services and expensive medicines to be financed by the Federation’s Health Insurance and Reinsurance Fund. However, the level of benefits varies across cantons, as they can offer additional services or in case they do not ensure the minimum services package. Moreover, user charges that apply to certain services and exemptions thereof vary across cantons. Outpatient primary care, specialist care, medical products, diagnostic tests and dental care consultations and treatment are subject to fixed co-payments, while outpatient medicines are subject to fixed, percentage and reference pricing co-payments (Voncina et al., 2022b).

Resource pooling across health insurance funds is limited

With legal responsibilities for health care insurance devolved to entities and cantons, there exist 13 health insurance funds. In the Federation of Bosnia and Herzegovina, besides the Federal Health Insurance and Reinsurance Fund, each of the 10 cantons has its own health insurance fund with contributions being pooled and allocated at cantonal level. About 10% of each canton’s revenues are pooled across cantons and are allocated to the Health Insurance and Reinsurance Fund of the Federation of Bosnia and Herzegovina. The Fund was introduced in 2002 with the aim of enhancing equity through redistributive capacity across territorial funds. Although in theory patients can access health services in all cantons, the funds are primarily used to purchase high-cost medicines for tertiary care and new therapies in cancer care (Guzvic et al., 2018), leaving patients with limited choice for secondary care services such as cardiology services or long waiting lists. The Republika Srpska and the Bčko District of Bosnia and Herzegovina have their own health insurance funds. Due to the decentralized system of health insurance funds and resource pooling, the insured do not have access to the same health services across entities/district or cantons (see above) and are limited to the services covered at their place of health insurance registration.

Health service provision is hospital-centred

In the 2000s health reforms focused on strengthening primary care according to the concept of family medicine, and a rationalization of secondary and tertiary care. The number of specialists in family medicine increased and the primary care system was rebuit (see also Section 3), partly with support from international donors and educational support such as the Queen’s University (Ontario, Canada) Family Medicine Development Programme (Hodgetts et al., 2020). Primary care is now mainly provided in primary health care centres. Secondary health care is provided by outpatient specialists in primary health care centres and hospitals, and tertiary health care in university clinical centres (WHO, 2020a). Overall, Bosnia and Herzegovina inherited very hospital-dominated health systems (see Section 3). Indeed, in 2015 hospital care accounted for more than one third (35%) of overall health expenditure, while outpatient care and medical goods amounted to about 28% each (WB report, unpublished).

Most hospitals in the Federation of Bosnia and Herzegovina are owned by the cantons, while in the Republika Srpska most inpatient health facilities are owned by the Government of the Republika Srpska. Primary health care centres are usually owned by municipalities. Ownership of the three university clinical centres in the Federation of Bosnia and Herzegovina is shared between the cantons and the Federation of Bosnia and Herzegovina. Despite the broad entitlement to benefits, the capacities of health care providers to offer adequate care vary by canton and may even be insufficient due to lack of funding, inefficient spending and inadequate pooling (see Section 3).

2 FINANCING AND ENSURING FINANCIAL PROTECTION

Health spending in terms of GDP is high, but per capita spending is low

Bosnia and Herzegovina spent 9.0% of its GDP on health in 2019, which was not far below the average among EU countries (9.9%). Spending on health per capita amounted to US$1,477 PPP in 2019 (Fig. 1). This was below the average of SEE countries (US$ 2,207 PPP), but above the average of upper-middle-income countries (UMIC) in the WHO European Region (US$1,338 PPP).

Public spending on health is among the highest in South-Eastern Europe

Public spending on health per capita saw an important increase, from US$ 330 PPP in 2000 to US$ 1,015 PPP in 2019. This was the third highest among SEE countries and above the average of UMIC in the WHO European Region. The share of public spending on health as a share of GDP increased from 4.1% in 2000 to 6.2% in 2019, even exceeding the EU average (6.0%) (Fig. 2).

There is an over-reliance on employment-related contributions and concerns about financial sustainability

In 2019 mandatory employment contributions were responsible for financing 68% out of the total 70% of funding that came from public sources (WHO, 2022d). Given that formally employed persons only represent...
about one third of the total number of the insured, this leads to high contribution rates, which in turn discourages formal employment and negatively affects the financial sustainability of the country’s health and social security systems. In comparison to some other European countries (e.g. Bulgaria, Czechia, Poland, Romania and Türkiye), government budget transfers to the social health insurance scheme, as well as government funds spent directly on health, are very small (WHO, 2021a).

As a share of total health expenditure, out-of-pocket spending has decreased and is close to the average for South-Eastern Europe

Out-of-pocket (OOP) spending on health accounted for 29.4% of overall health spending in 2019, which was close to the average of SEE countries (30.7%) but above the EU average (20.9%). OOP spending has fallen steadily since a high of 45% in 2005 (Fig. 3). Out of total private spending on health, OOP spending represents the largest share (96.9%), while voluntary health insurance represents only about 1%.

Direct payments for medicines and medical products constitute the largest share of OOP spending, followed by spending on specialized ambulatory and hospital treatments. As in many countries in Central and Eastern Europe, informal payments also exist and are most common for hospital and specialized care (Bosnia and Herzegovina, 2012; Vujčić, 2017; Slipićević & Malicbegović, 2012). OOP spending, including informal payments, makes population groups with low incomes less likely to receive the health services they need. Indeed, 8.2% of the population in Bosnia and Herzegovina reported that they spent more than 10% of total household expenditure or income on health in 2015, not accounting for unmet needs (WHO, 2022d).

High OOP payments lead to catastrophic health spending, particularly for poor households

Although protection mechanisms for certain population groups exist, catastrophic health spending remains a problem, particularly for poorer households, and is largely driven by OOP payments for outpatient medicines, diagnostic tests and inpatient care. In 2015 about 8.1% of households in the Federation of Bosnia and Herzegovina and 9.9% in the Republika Srpska experienced catastrophic spending (Voncina et al., 2022a,b) (Fig. 4). This is below catastrophic spending levels in other countries in the WHO European Region, but above levels seen in neighbouring countries such as Croatia and Slovenia.
Despite quality improvement efforts, private health services often remain the more attractive option

Both entities have undertaken various steps to improve quality of care. They established health care accreditation agencies (the Agency for Quality and Accreditation in Healthcare, AKAZ, in the Federation of Bosnia and Herzegovina, and the Agency for Certification, Accreditation and Health Care Improvement, ASKVA, in the Republika Srpska) that run mandatory and voluntary certification programmes for health care providers and monitor quality and safety indicators in hospitals and in primary care. Despite these efforts, the impact remains limited due to lacking payment incentives for improved quality, institutional fragmentation and limited public resources. More than 80% of the population reported to be “quite dissatisfied” or “very dissatisfied” with the health care systems according to a World Bank poll (World Bank, 2020). As a result, and due to long waiting times for specialized services, patients who can afford tend to use health services from the private sector. The majority of private providers are pharmacies, dental practices and specialist practices (Rakic et al., 2018).

The health systems face large financial deficits due to overspending and limited accountability

Weak and fragmented public sector institutions, devolved responsibilities and poor financial management have led to financial deficits among health care providers in the last decades (World Bank, 2020). There is a lack of mechanisms to check that health facilities’ expenditures do not exceed budgeted resources. This lack of accountability leads to overspending, including on salaries for additional staff who are recruited on top of approved posts. Health facilities that accumulate operating deficits and unpaid liabilities to suppliers and other contractors are not penalized. As a result, health facilities accumulate liabilities towards social security and tax authorities, which in turn leads to delays in payments to suppliers and employees, with direct consequences for subsequent provision of services and quality of care and a lack of new investments (World Bank, 2020).

Box 1
Health systems in Bosnia and Herzegovina are characterized by low efficiency

The hospital sector is characterized by the inefficient use of resources which results from payment systems that do not reflect the level of activity. In the Federation of Bosnia and Herzegovina the diagnosis-related group (DRG)-based hospital payment system is not fully implemented and in the Republika Srpska the system does not benefit from a process for systematic tariff revision, so reimbursement is not calibrated with actual costs and incentives for high-quality care. The current payment system does not incentivize hospitals to provide ambulatory care due to underpriced tariffs and fixed hospital budgets. This leads to unnecessary hospital admissions for conditions which could be treated in outpatient settings. Moreover, there are no incentives for joint strategic planning activities for outpatient and inpatient care and for improved patient coordination across sectors. As a result, many patients with chronic conditions are treated within hospital settings. In both entities electronic health records are used and can in theory contribute to better coordination of care across sectors, but implementation is uneven and patient data are not shared across providers (World Bank, 2020).
Inefficiencies in hospital care are due to lack of oversight and inadequate payment systems

The lack of incentives to control and contain expenditure in publicly owned health facilities, in particular hospitals, is a major challenge and a risk for the long-term sustainability of the health systems (World Bank, 2020). Another challenge is the low efficiency of the health systems (Box 1).

Bosnia and Herzegovina has a large hospital network but a comparatively small number of hospital beds

Bosnia and Herzegovina has limited health system resources. Although the country has a large hospital network with a total of 29 public hospitals (18 in the Federation of Bosnia and Herzegovina, 10 in the Republika Srpska and one in Brčko District) and six specialized hospitals (World Bank, 2020), the number of hospital beds per 100 000 population remains below the averages of the EU, the WHO European Region and South-Eastern Europe (Fig.5).
Hospital occupancy rates are low. In the Federation of Bosnia and Herzegovina average bed occupancy is less than 60%, with large variation between hospitals. Variation also exists in the Republika Srpska, with bed occupancy ranging from 51% in Zvornik to 82% in the Clinical Centre of Banja Luka (World Bank, 2020). At the same time, hospital discharges per 100,000 population have increased gradually between 2008 and 2014 while the average length of stay (ALOS) has decreased over the same period.

Despite a shift towards primary care in recent years, the hospital sector remains relatively dominant. Many ambulatory health services continue to be provided through hospital admissions, due to a lack of incentives that encourage outpatient treatment. In the Federation of Bosnia and Herzegovina more than one fourth of all outpatient consultations (27%) resulted in referrals to hospitals. The level of avoidable hospital admissions for conditions that could be treated in outpatient settings, such as asthma, diabetes and hypertension, continues to increase in the Republika Srpska and particularly in hospitals in East Sarajevo, Trebinje and Foca (World Bank, 2020). Comparable data for the Federation of Bosnia and Herzegovina are not available.

Rebuilding and strengthening primary care was a main objective of the health reforms after the war

After the Dayton Peace Agreement in 1996, Bosnia and Herzegovina inherited health systems with depleted human resources, in particular physicians. Many health professionals left the country and medical training was severely affected, resulting in a substantial shortage of physicians and other health professionals. In 1996 the country had only one third of the pre-war numbers of physicians, dentists and pharmacists (Hodgetts et al., 2020; Tokalil et al., 2021).

With the aim of strengthening primary care, improving continuity of care and overcoming the fragmentation of primary care services and the ineffective gatekeeper system of the pre-war health system, the country established a model of family medicine with features of a strong primary health care system (Cain et al., 2002; Hodgetts et al., 2020). Family medicine was established as a medical specialty. Family medicine teams comprising a family physician and one or two family nurses were created and introduced in publicly run primary care health centres of municipalities as gatekeepers and providers of primary care services (Hodgetts et al., 2020). Efforts were also made to increase the numbers of physicians, including through opening new medical schools (Tokalil et al., 2021).

Despite increases over the last decade, the numbers of physicians and nurses remain low

As a result of these efforts, numbers of physicians and nurses have increased continuously since the mid-2000s. In particular, numbers of trained family medicine specialists increased since 2008. However, the overall numbers of physicians remain below the South-Eastern European average. The ratio of physicians to population was almost half the EU average in 2015 (216 versus 382 physicians per 100,000) (Fig. 6).

Box 2

Strengthening the role of nurses to improve primary care services

To improve the recognition, regulation and training of nurses is a key objective of the Strengthening Nursing in Bosnia and Herzegovina project of the Swiss Agency for Development and Cooperation. Since 2012 the project has supported the development of standards of nursing practice and the regulation of continuous education of nurses and their licensing. It particularly targets nurses working in primary care to improve access to health services for vulnerable groups such as older people, people with disabilities, ethnic minorities, people living in remote areas, single mothers, children and youth. The overall aims are to develop community nursing services for patients in their homes and communities and to advocate for the role of community nurses among health authorities (Swiss Confederation, 2021).
Similarly to physicians, the ratio of nurses per population in Bosnia and Herzegovina increased from 486 per 100 000 in 2008 to 573 per 100 000 in 2018. However, the numbers of nurses are also still comparatively low, in view of an EU average of 915 per 100 000 population (Fig. 6).

The country faces important challenges in health workforce management

There are several reasons for the low rates of physicians, nurses and other health professionals. Besides high levels of migration of health professionals (see below), training of nurses and doctors is uneven in the country. There are no standardized curricula and qualifications, which results in a lack of clarity particularly for medical assistants and nurses. Moreover, there is no licensing system for nurses and competences are not clearly defined. Strengthening the nursing role and improving nursing training programmes are major objectives of the Strengthening Nursing project in Bosnia and Herzegovina (Box 2).

Migration of health professionals is a threat to the resilience of the health systems

One of the challenges is that physicians and nurses leave the country to work in other countries (mainly in the EU) where they find better remuneration and perceived better working conditions. The numbers of nurses, physicians and other health professionals who seek employment outside Bosnia and Herzegovina are very high and continue to increase. In 2015/16 the rate of doctors born in Bosnia and Herzegovina who emigrated to work in OECD countries was 14% (Sochaditrich & Dumont, 2021). This trend exacerbates the already existing shortage of health professionals in the country and was particularly painful during the COVID-19 pandemic when essential health services could not be maintained in all places, partly due to the lack of qualified health workers. Low remuneration and even unpaid salaries have been persistent problems in Bosnia and Herzegovina due to (among other reasons) health facilities’ arrears (see Section 2).

On a more positive note, Bosnia and Herzegovina received important support from its diaspora of health workers, both in-kind and through remittances. During the first months of the COVID-19 pandemic critical care workers, especially physicians, from Bosnia and Herzegovina who had emigrated provided a tele-education intervention supported by WHO to share their critical care knowledge related to COVID-19 (Tokalić et al., 2021).

Access to health services has improved but remains below the average of the WHO European Region

In terms of the universal health coverage (UHC) index, access to essential services increased from 43 (out of 100) in 2000 to 65 in 2019, but remains below the average of the WHO European Region (Fig. 7).
The low score of Bosnia and Herzegovina is due, among other things, to limited service capacity and poor access among the most disadvantaged populations. There are important gaps in health insurance coverage for some persons belonging to the Roma community (estimated to be 58,000 persons), which result in barriers to accessing health services. In a 2011 survey, self-reported unmet needs for health care among Roma were nearly twice as high as those among non-Roma living nearby (Arora, Kühlbrandt & McKee, 2016). An assessment of Roma communities in the Republika Srpska in 2018 found that the major reasons for unmet needs were lack of financial resources to cover official user charges, informal payments and transport to health facilities, in particular for those with chronic conditions (Stojisavljevic, Grabez & Stojanovski, 2020).

Immunization rates have decreased

Bosnia and Herzegovina had relatively high rates of routine vaccination among infants, but since 2014 immunization rates have steadily decreased. The coverage for the third dose of the diphtheria-tetanus-pertussis vaccine (DTP3) for infants decreased and was at a historic low of 73% in 2019 (compared to more than 95% in the WHO European Region), a decrease from 92% in 2012. Similarly, immunization rates of infants receiving the first dose against measles decreased from 94% in 2012 to 68% in 2019 and for the second dose to 76% (compared to 95% and 91% respectively in the WHO European Region) (UNICEF, 2022a). Due to these low vaccination rates, Bosnia and Herzegovina witnessed two measles outbreaks in recent years, with 5084 cases in 2014/2015 and more than 1000 cases in 2018, affecting in particular children under the age of 7 years (Arapovic et al., 2019). To better understand the reasons for the decline in vaccination uptake and to inform a long-term strategy, the Institute for Public Health of the Federation of Bosnia and Herzegovina has commenced a WHO Tailoring Immunization Programmes (TIP) project which showed early signs of reversing the declining immunization rates (WHO, 2022b).

Bosnia and Herzegovina has a low prevalence of HIV and tuberculosis, but coverage for tuberculosis treatment is very low

Bosnia and Herzegovina has low HIV incidence and prevalence rates. In 2019 the rate of newly diagnosed HIV infections in the country was among the lowest in the WHO European Region (0.9 compared to an average of 5.4 per 100,000 population) (ECDC & WHO, 2020).

The country has seen an important decrease of tuberculosis (TB) infections. Between 2004 and 2014 the estimated prevalence rate of TB nearly halved to 64 cases per 100,000 population, but was still above the average of the WHO European Region (46 per 100,000). However, for unclear reasons, the estimated effective treatment coverage has declined dramatically in recent years and is now one of the lowest in the WHO European Region (Fig. 8).
As a major transit route for migrants to the EU, Bosnia and Herzegovina faces particular challenges

Bosnia and Herzegovina has seen more than 75,000 migrants and refugees arriving in the country since 2018, mainly from countries such as Pakistan, Afghanistan, Syria and Iraq, fleeing conflict and poverty in their countries. Although the majority intend to stay temporarily in Bosnia and Herzegovina, their need for health care overstretches health service provision in the border regions. In particular, inadequate sanitary and living conditions have a negative impact on the health of migrants (WHO, 2020a; MSF, 2021; MSF, 2019).

Overall, the provision of mental health services in Bosnia and Herzegovina improved in recent years, marked by a shift towards providing services in community mental health care centres. The Republika Srpska and the Federation of Bosnia and Herzegovina, supported by WHO, the Swiss Federal Department of Foreign Affairs and nongovernmental organizations, committed themselves to establishing and funding substantial mental health programmes and networks (De Vries & Klazinga, 2006). These initiatives went along with the main reform in psychiatric care, which started in 2010. To date, case management and occupational therapy became part of a uniform approach in community work in the area of mental health (Racetovic et al., 2021).

Box 4
Suicide rates in Bosnia and Herzegovina are below the average in the WHO European Region but are rising among young adults

The overall suicide rate in Bosnia and Herzegovina in 2019 was below the average in the WHO European Region (8.3 per 100,000 population compared to 10.5) (WHO, 2022a). According to estimates in the Federation of Bosnia and Herzegovina, suicide rates among young adults aged 15–29 years increased from 0.6 per 100,000 population in 2010 to 2.6 per 100,000 in 2020, which highlights a need to retailor suicide prevention programmes in community and school settings (Cilovic-Lagarija et al., 2021).
4

IMPROVING THE HEALTH OF THE POPULATION

Life expectancy in Bosnia and Herzegovina remains below the average of the WHO European Region

The latest mortality data reported by Bosnia and Herzegovina to WHO refer to 2016. According to these data, life expectancy at birth stood at 76.3 years, which was just below the average of South-Eastern Europe (76.7), but two years below the average of the WHO European Region (78.3) (Fig. 9). The difference in life expectancy at birth between genders was 4.9 years, with a male life expectancy of 73.8 years and a female life expectancy of 78.7 years (WHO, 2022e). There are marked differences in mortality patterns. Suicide rates, for example, are much higher in males than in females (13.5 and 3.4 per 100,000 in 2019 respectively) (see Box 4). In contrast, cardiovascular diseases cause more deaths among females (604.5 deaths per 100,000) than males (534.9 deaths per 100,000) (IHME, 2019).

The COVID-19 pandemic is likely to have reduced life expectancy

It is believed that the COVID-19 pandemic had a profound impact on life expectancy in Bosnia and Herzegovina, but official data are not yet available. Up to January 2022 the cumulative number of COVID-19 attributed deaths in the country was 416.7 per 100,000 population, more than double the average of the WHO European Region and the second highest mortality rate in the WHO European Region after Bulgaria. The excess mortality rate during the pandemic was also very high, with peaks in December 2020 and April 2021 (Fig. 10). Overall, Bosnia and Herzegovina swiftly implemented numerous measures for the containment of the SARS-COV-2 virus. Yet COVID-19 testing levels and vaccination uptake remained low by regional comparison until May 2021 (OECD, 2021).

High coverage in perinatal care has led to improvements in maternal and infant health

The country has achieved major progress in reducing maternal and infant mortality. Maternal mortality is estimated to have declined from 17 deaths per 100,000 live births in 2000 to 10 deaths per 100,000 in 2017. This was below the average in the WHO European Region (12.7 deaths per 100,000 live births) and in South-Eastern Europe (11.7 per 100,000) (WHO, 2022e) (Fig. 11).

Similarly positive trends have been observed in infant mortality, decreasing from 18.7 deaths per 100,000 live births in 2000 to 5.1 per 100,000 in 2019 (Fig. 11).
per 100 000) in 2019 were estimated to be due to noncommunicable diseases, mainly cardiovascular diseases and cancer (IHME, 2019). The leading cause of death in 2016 were cardiovascular diseases, including ischaemic heart disease (IHD) and stroke, followed by cancer. Diabetes accounted for 43 deaths per 100 000 in 2016, which is three times higher than the rate across the WHO European Region (WHO, 2022e) (Fig. 12).

The Republika Srpska, the Federation of Bosnia and Herzegovina and the Brčko District of Bosnia and Herzegovina, with WHO support, implemented a comprehensive, quality-monitored programme for cardiovascular risk assessment and management (CVRAM) in primary health care and family medicine. Between 2016 and 2018 over two thirds of all practising family medicine professionals were trained in CVRAM, thus enabling 2.4 million people (68% of the population) in Bosnia and Herzegovina to gain access to standardized monitoring and management of cardiovascular risk factors and diseases (WHO, 2022c).

Following the success of the CVRAM project, the Republika Srpska and the Federation of Bosnia and Herzegovina endorsed action plans for the prevention and control of NCDs and associated health risks. The Action Plan for the Prevention and Control of Chronic Non-Communicable Diseases of the Federation of Bosnia and Herzegovina 2019–2025 and the Action Plan for the Prevention and Control of Non-Communicable Diseases in the Republika Srpska 2019–2026 (adopted by the Government of the Republika Srpska) are time-framed and modelled after the Action Plan for the Prevention and Control of Noncommunicable Diseases in the WHO European Region 2016–25 (WHO, 2016a). The development of these action plans was prepared by a joint project of the WHO Regional Office for Europe, the Swiss Agency for Development and Cooperation and the respective health authorities in the two entities that aimed at improving the performance of the public health systems and the provision of prioritized preventive services. The NCD action plans aim to scale up CVRAM to the entire population of the two entities.

Premature mortality due to cancer is on the rise in both sexes

Premature mortality (among those aged 30–69 years) in the WHO European Region and South-Eastern Europe has gradually declined in recent years. In contrast, premature mortality in Bosnia and Herzegovina increased from 407.3 deaths per 100 000 population in 2011 to 429 in 2016, although data for this time period are incomplete (WHO, 2022e) (Fig. 13).

According to the 2019 Global Burden of Disease Study, cancers were the main cause of deaths among those aged 30–64 years (IHME, 2019). Bosnia and Herzegovina has opportunistic screening available for breast and cervical cancer, and has issued guidelines for the early detection of childhood cancers. However, it is still lacking routine cancer screening programmes and general cancer management guidelines (ICCP, 2020).
Hypertension and tobacco use are main contributors to the burden of disease in Bosnia and Herzegovina

It has been estimated that over 28% of deaths might be attributable to high systolic blood pressure, 26% to tobacco use and approximately 24% to hyperglycaemia (IHME, 2019) (Fig. 14). Hypertension and metabolic risk factors such as high blood sugar are likely linked to unhealthy behaviours, such as smoking, unhealthy diets and lack of physical activity.

Smoking contributes heavily to poor health in Bosnia and Herzegovina. In 2018 the country had one of the highest smoking rates among adults (37.2%) in the WHO European Region, far exceeding the averages for South-Eastern Europe (28.2%) and the WHO European Region (24.6%). Nearly half of all men regularly consume tobacco (45.7%) and about one third of women do so (28.9%), which is for both groups 12 percentage points above the regional averages (WHO, 2022e). The high smoking prevalence is related to the low price of a pack of cigarettes, which is one of the lowest in Europe and Central Asia (Box 3).

Box 3
There is much scope for improving tobacco control in Bosnia and Herzegovina

Given the high prevalence of smoking in the country, legislators have slowly moved towards tightening tobacco control policies. However, despite being a party to the WHO Framework Convention on Tobacco Control, Bosnia and Herzegovina has not yet introduced complete smoking bans in indoor public spaces. In both the Federation of Bosnia and Herzegovina and the Republika Srpska indoor public spaces are allowed to have designated smoking areas. However, unlike in some other countries, there are funds dedicated for the enforcement of smoking violations in Bosnia and Herzegovina, although there is no systematic monitoring of compliance.

Full coverage of smoking cessation services is among the positive developments in the country. Due to the fact that these services had previously only been provided in some health clinics and primary health care facilities, family doctors in both the Republika Srpska and the Federation of Bosnia and Herzegovina have offered smoking cessation consultations (WHO, 2016b).

Prices of cigarettes have been growing steadily, in direct correlation with increasing excise taxes. The total excise burden per packed cigarette was estimated at 73% of the retail price in 2018 and the average price of a pack of cigarettes increased by 61% between 2015 and 2018, from €1.08 to €1.74. The cigarette demand in Bosnia and Herzegovina is highly responsive to prices, and combining further increases in excise tax with improved policy enforcement could lead to noticeable improvements in smoking prevalence (Gligorić et al., 2020).
Poor air quality in cities in Bosnia and Herzegovina poses challenges to population health

Urban areas in Bosnia and Herzegovina experience high concentrations of health-damaging fine particles (PM 2.5) in the air. The average yearly ambient concentrations of PM 2.5 are often multiple times higher than the air quality standards set by the country (20 μg/m³) and recommended by WHO (10 μg/m³). Around 3300 people are estimated to die prematurely per year as a result of being exposed to ambient air pollution in the country. Almost 16% of these deaths happen in the two cities of Sarajevo and Banja Luka (World Bank, 2019a).

The residential sector is the largest source of exposure to harmful fine particles, due to the burning of solid fuels in homes (mainly in wood and coal stoves). The responsibilities for air quality control in the country are decentralized. Therefore, strong regional differences remain in terms of air quality, control and monitoring. Some cantons of the Federation of Bosnia and Herzegovina, such as Sarajevo and Una-Sana, have introduced or scaled up air quality plans focusing on the reduction of harmful fine particles, while other cantons have yet to follow.

Fig. 13
Lack of data on premature mortality in Bosnia and Herzegovina hinders international comparison

Notes:
SEE: South-Eastern European countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, North Macedonia, Republic of Moldova, Romania, Serbia).
Source: WHO, 2022e.

Fig. 14
Metabolic factors along with smoking are estimated to cause most deaths in Bosnia and Herzegovina

Top 10 risk factors as a share of all deaths

Note: Shares overlap and therefore add up to more than 100%.
Bosnia and Herzegovina has two AMR surveillance networks in place with good geographical and population coverage, and expanded its surveillance networks to cover all hospital types in 2016. Bosnia and Herzegovina participates in relevant networks set up by the WHO Regional Office for Europe (the Antimicrobial Medicines Consumption Network and the Central Asian and European Surveillance of AMR (CAESAR) Network) and adopted the European Committee on Antimicrobial Susceptibility Testing methodology as the national standard for antimicrobial susceptibility testing in 2016.

In 2018 the relative antibiotic consumption from the “Access” category in Bosnia and Herzegovina was 66% and thereby above the WHO national monitoring target of at least 60% (Fig. 15). The relative consumption of “Watch” antibiotics in Bosnia and Herzegovina represented 34% of total antibiotic consumption.

Rates of antimicrobial resistance are higher than the EU/EEA average

The rate of bloodstream infections due to methicillin-resistant Staphylococcus aureus (MRSA) in Bosnia and Herzegovina is higher than the EU/EEA average (Fig. 16). Furthermore, the percentages of third-generation cephalosporin resistance in Klebsiella pneumoniae and penicillin resistance (non-wild type) in Streptococcus pneumoniae in Bosnia and Herzegovina are above 25% and higher than the proportions of most European countries (WHO, 2020b).

Bosnia and Herzegovina is committed to AMR surveillance but there is lack of progress

Health authorities in Bosnia and Herzegovina are committed to addressing antimicrobial resistance through strengthened surveillance systems, laboratory capacity, infection prevention and control, awareness raising and evidence-based policies and practices. Bosnia and Herzegovina has an AMR focal point, submits AMR

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Fig. 15
Overall consumption of antibacterials in Bosnia and Herzegovina in 2018 was below the EU/EEA average

Notes: DDD: daily defined dose; EEA: European Economic Area; EU: European Union; Access, Watch and Reserve (AWaRe) traffic light system of antimicrobials (World Health Organization, 2021b) as follows: Access: First- and second-choice antibiotics that should be widely available in all countries; Watch: Antibiotics that should only be used for a specific, limited number of indications; Reserve: Last-resort antibiotics for cases where other antibiotics have failed or for infections of multi-resistant bacteria; Unclassified: Antibiotics which are not yet classified. Countries for which hospital sector data were not included.

Source: European Centre for Disease Prevention and Control, WHO Regional Office for Europe.
data to the regional surveillance network (CAESAR) and participates in the Global Antimicrobial Resistance and Use Surveillance System. However, progress is limited due to lack of unified reporting and monitoring of AMR.

### Protecting against health emergencies

During the COVID-19 pandemic access to medical supplies, protective equipment and digital infrastructure to maintain essential services was disrupted. To improve pandemic preparedness in the future, the Ministry of Civil Affairs of Bosnia and Herzegovina and health authorities in the Federation of Bosnia and Herzegovina, the Republika Srpska and the Brčko District of Bosnia and Herzegovina are committed to review their emergency preparedness and response capacities through the Joint External Evaluation of IHR Core Capacities. Moreover, legal obstacles for public procurement and more effective and efficient emergency management need to be prioritized in this context.

### Promoting health and well-being

The WHO Regional Office for Europe is supporting the governments in the Federation of Bosnia and Herzegovina and the Republika Srpska in developing NCD prevention and control programmes and activities.
To further make progress in the area of tobacco control in Bosnia and Herzegovina a new tobacco control law in the Federation of Bosnia and Herzegovina developed with WHO technical support was enacted in May 2022, developed with WHO technical support. It bans smoking in workplaces and public places, tobacco advertising, introduces pictorial warnings on tobacco packs and regulates labelling and ingredients.

References


COUNTRY DATA SUMMARY

<table>
<thead>
<tr>
<th></th>
<th>Bosnia and Herzegovina</th>
<th>SEE</th>
<th>WHO European Region</th>
<th>EU</th>
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<tbody>
<tr>
<td>Life expectancy at birth (years), both sexes combined</td>
<td>76.3 (2017)</td>
<td>76.7</td>
<td>78.3</td>
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<td>Estimated maternal mortality per 100 000 live births</td>
<td>10.0 (2017)</td>
<td>11.7</td>
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<tr>
<td>Estimated infant mortality per 1 000 live births</td>
<td>5.1 (2019)</td>
<td>5.2</td>
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<td>Population size, in millions</td>
<td>3.4 (2020)</td>
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<td>927.2</td>
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<td>GDP per capita, PPP$</td>
<td>15 612 (2020)</td>
<td>27 355</td>
<td>35 818</td>
<td>44 421</td>
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<td>Poverty rate at national poverty lines</td>
<td>16.9 (2018)</td>
<td>22.6</td>
<td>14.9</td>
<td>17.0</td>
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</tbody>
</table>

Notes: EU: the 28 EU Member States until 2020; GDP: gross domestic product; PPP: purchasing power parity.

Source: WHO, 2022e.
Health Systems in Action: Bosnia and Herzegovina


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.