Health Systems in Action

North Macedonia

World Health Organization
REGIONAL OFFICE FOR Europe

European Observatory on Health Systems and Policies
a partnership hosted by WHO

Keywords

DELIVERY OF HEALTH CARE

EVALUATION STUDIES

FINANCING, HEALTH

HEALTH CARE REFORM

HEALTH SYSTEM PLANS – organization and administration

NORTH MACEDONIA

Health Systems in Action

North Macedonia

World Health Organization
REGIONAL OFFICE FOR Europe

European Observatory on Health Systems and Policies
a partnership hosted by WHO

Editorial Team

This edition of the Health Systems in Action Insight for North Macedonia was written by Juliane Winkelmann, Florian Tille, Yulia Litvinova and Bernd Rechel.

The Health Systems in Action series

The Health Systems in Action Insights pilot 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 health system by health system
- 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 pilot 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 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)*.

Please address requests about the publication to:
Publications,
WHO Regional Office for Europe,
UN City,
Marmorvej 51,
DK-2100 Copenhagen Ø, Denmark

Alternatively, complete an online request form for documentation, health information, or for permission to quote or translate, on the Regional Office website (http://www.euro.who.int/pubrequest).

ISBN: 978 92 890 5181 1

Contents page

1 ORGANIZING THE HEALTH SYSTEM 8

2 FINANCING AND ENSURING FINANCIAL PROTECTION 9

3 GENERATING RESOURCES, PROVIDING SERVICES AND ENSURING ACCESS 11

4 IMPROVING THE HEALTH OF THE POPULATION 16

5 SPOTLIGHT ON COVID-19 19

6 EUROPEAN PROGRAMME OF WORK (EPW) 21

Acknowledgements

This Health Systems in Action Insight was written at the behest of the WHO Regional Office for Europe and in the context of the European Programme of Work. It captures for Member States outside the EU core information on their health systems; flags key issues; and allows comparison across countries and over time.

This document could not have been written without the support and insights of the WHO Country Office in North Macedonia and the editorial team are grateful to Jihane Tawilah, Simona Atanasova and Margarita Spasenovska for their valuable comments and inputs.

Colleagues in the WHO Regional Office for Europe kindly reviewed the draft and made crucial inputs and we are grateful to Clayton Hamilton, Amanda Shriwise, Ilaria Mosca and Emma Honkala for their constructive comments.

Thanks are also due to the WHO Barcelona Office for Health Systems Financing, particularly Triin Habicht and Sarah Thomson, and the WHO European Centre for Primary Health Care in Almaty, Kazakhstan, particularly Arnoldas Jurgutis and Zulfiya Pirova.

Stefania Davia and David Novillo Ortiz were key in delivering the data underlying this report and Marina Karanikolos, Jon Cylus, Ewout van Ginneken, Anna Maresso, Suszy Lessof and Bernd Rechel were all central to the development of the approach used for the series.

This edition of the Health Systems in Action Insight for North Macedonia was written by Juliane Winkelmann, Florian Tille, Yulia Litvinova and Bernd Rechel.

HEALTH SYSTEMS IN ACTION: NORTH MACEDONIA

Key points

- North Macedonia's health system provides a relatively comprehensive basic benefits package, with about 90% of the population being covered under the social health insurance scheme.
- Public spending on health has declined in recent years and is among the lowest in South-Eastern Europe. There is strong reliance on out-of-pocket payments which represent 42% of total health spending and are among the highest in South-Eastern Europe.
- Most primary care services are free of charge. However, users have to pay out of pocket for certain health services, in particular outpatient specialist visits, prescribed outpatient medicines and inpatient care.
- Catastrophic health spending remains a problem, particularly for poorer households, and is largely driven by out-of-pocket payments for outpatient medicines.
- Unmet needs for medical care due to financial reasons have declined over the last decade but remain relatively high among people on low incomes.
- The fragmented primary care network and the limited scope of practice lead to many referrals to secondary and tertiary care and high avoidable hospital admission rates.
- The information system *Moj Termin* ('My Appointment') has improved scheduling and reduced waiting times for clinical appointments and diagnostic tests but legal and operational barriers continue to undermine its use in primary care settings.
- Prior to the COVID-19 pandemic, life expectancy in North Macedonia was below the South-Eastern European average, but higher than in some EU countries.
- Childhood immunization rates are high but vaccination coverage for measles in children decreased in recent years. Following a measles epidemic in 2018–2019, catch-up vaccination campaigns were quickly put in place.
- Maternal and infant health improved markedly in recent years, but the quality of prenatal and perinatal health service delivery remains a concern.
- The country faces a high burden of non-communicable diseases, but mortality from stroke and ischaemic heart disease has decreased in recent years.
- The population is at risk from high blood pressure, smoking, high blood sugar and poor diet and, to a lesser extent, alcohol consumption. North Macedonia has one of highest smoking rates worldwide. Increasing overweight and obesity among adults and adolescents, as well as respiratory ill-health due to air pollution, are other major public health concerns.
- The country's capacity to respond to public health emergencies was assessed as low prior to the COVID-19 pandemic.
- North Macedonia was hit harder by the COVID-19 pandemic than many other countries, particularly during the second and third waves. Essential health services were disrupted, but e-health interventions were leveraged as part of the emergency response.

This report looks at the action North Macedonia is taking to strengthen its health system; to achieve the United Nations Sustainable Development Goals; to address the priorities of the European Programme of Work 2020–2025; and to ensure that no one is left behind.

1 ORGANIZING THE HEALTH SYSTEM

North Macedonia has a centralized and single payer health system

North Macedonia's health system is largely financed through a social health insurance (SHI) scheme operated by a single-payer Health Insurance Fund (HIF) that acts as the main purchaser of publicly funded health care. The SHI scheme is funded through contributions and government budget transfers pooled by the HIF. The Ministry of Health has a central role in the decision-making process in most health-related activities, while the Ministry of Finance determines the HIF budget. The most important reforms in recent years were the establishment of the Health Network in 2013 for the purpose of strategic planning of resources and the deployment of the health information system, called *Moj Termin* ('My Appointment') **(see Section 3)**. Both public and private facilities are part of the Health Network (a network of certified providers defined to ensure geographical access to health) and contracted by the HIF. In February 2019 the Ministry of Health launched a national reform of the primary health-care (PHC) system in line with the Astana Declaration, with the aim to introduce a new PHC model of integrated and patient-centred care to make further progress towards universal health coverage **(Box 1)**. The country has introduced public participation in various health policy-making processes, such as in the recently established annual National Health Forums, and during the development of the Health 2020 Strategy and the National Health Strategy 2021–2030, which define the strategic objectives for health development in North Macedonia.

More than 90% of the population has access to a broad benefits package, but cost-sharing can be substantial

In 2009 changes to the Health Insurance Law designated all residents (with identification documents) eligible for public insurance coverage. Since then, health insurance coverage has increased, with about 91% of the population being covered in 2019 (Ministry of Health, 2021). People without insurance coverage are most likely to be without regular employment and employees with a salary payment delay. However, there is uncertainty over the coverage rate, as it is based on population data from 2002, when the last census was conducted.

The Health Insurance Fund provides a broad basic benefits package which covers emergency care, primary and secondary outpatient care, inpatient care, and preventive and rehabilitation services by providers contracted by the HIF. In addition, the HIF covers some dental and mental health-care services, medical devices, prescribed medicines and compensation for sick and maternity leave. Preventive services are available to all citizens and are directly paid by the Ministry of Health. Most primary care services are free of charge but certain health services, in particular outpatient specialist visits, prescribed outpatient medicines and inpatient care, require user charges (co-payments) up to a maximum of 20% of the price (50% for medical products). Overall, co-payments are capped at €98 per service and there is an annual income-related cap on co-payments and exemptions for some people in vulnerable situations. However, these protection mechanisms do not apply to co-payments for outpatient medicines and medical products and there are no exemptions from co-payments for outpatient medicines and medical products for low-income households.

About 88% of the HIF's revenues in 2019 came from health insurance contributions for salaries, as well as contributions from the Employment Agency for the unemployed, the Ministry of Labour and Social Policy for insured persons with social rights, the Pensions and Disability Fund for pensioners and the Ministry of Health for uninsured persons. Transfers from the Ministry of Labour and Social Policy for maternity leave constituted another 8.3% of the HIF's budget in 2019 (Ministry of Health, 2021). In comparison to some other Eastern European countries (e.g. Bulgaria, Czechia, Poland and Romania), government budget transfers to the social health insurance scheme are relatively small (WHO, 2021).

Most providers of outpatient care are private

Primary care is mainly provided by GPs and family doctors, gynaecologists, paediatricians and dentists, who work in single private practices. They refer patients to higher levels of care using the health information system *Moj Termin* **(Box 2 in Section 3)**. Doctors are required to employ at least one nurse. However, due to the high administrative workload in primary care practices, these nurses typically perform mostly administrative tasks. Private doctors may also practise in rented office space in 34 publicly owned health centres. Primary prevention services are performed solely by public health physicians and patronage nurses who are paid directly by the Ministry of Health. They provide emergency care, occupational health services, and preventive and health promotion services such as vaccination, as well as home-based care by patronage nurses, regardless of the health insurance status of the individuals. Community nurses and midwives (so-called 'patronage nurses') perform home visits and provide care for newborns and their families, and

Box 1

Ongoing efforts in reforming primary health care in North Macedonia

The current primary health-care model, predominantly characterized by solo private practices and fragmentation, is not considered to meet people's health needs. Based on a community-oriented care model, the primary health-care reform aims to establish multidisciplinary primary care teams with nurses and midwives in central roles, integrating public health and primary care services, and strengthening accountability of providers, contributing to improving performance and quality of care. This new model centres on meeting the health needs of families and communities (WHO, 2019a).

also have a role in care for older people in some areas. Primary care accounted for 27.8% of the HIF budget in 2019, while hospitals and specialist physicians amounted to about one-third each of HIF expenditure (37.2% and 31.2%, respectively) (Ministry of Health, 2021).

Secondary care specialists are mainly public employees receiving a salary, while some are private and have individual contracts with the HIF. Specialists work in health centres, outpatient clinics or hospitals. There are general hospitals in all major towns and three specialized hospitals in the major cities, but all tertiary health-care services are provided solely in the capital city, Skopje. Most hospitals are in public ownership, but the share of private hospitals has increased, accounting for 4.3% of all hospital beds in 2019 (Eurostat, 2021).

2 FINANCING AND ENSURING FINANCIAL PROTECTION

Health spending has declined in recent years as a percentage of GDP

Health expenditure is relatively low in comparison to European Union (EU) and South-Eastern European countries, both per capita and as a percentage of gross domestic product (GDP). Spending on health as a percentage of GDP decreased from 8.9% in 2000 to 6.6% in 2018. Health expenditure per capita in North Macedonia amounted to US$ 1073 PPP in 2018, which was below the average of South-Eastern European countries (US$ 1419 PPP) but close to the average of upper middle-income countries in the WHO European Region (US$ 1187 PPP) **(Fig. 1)**.

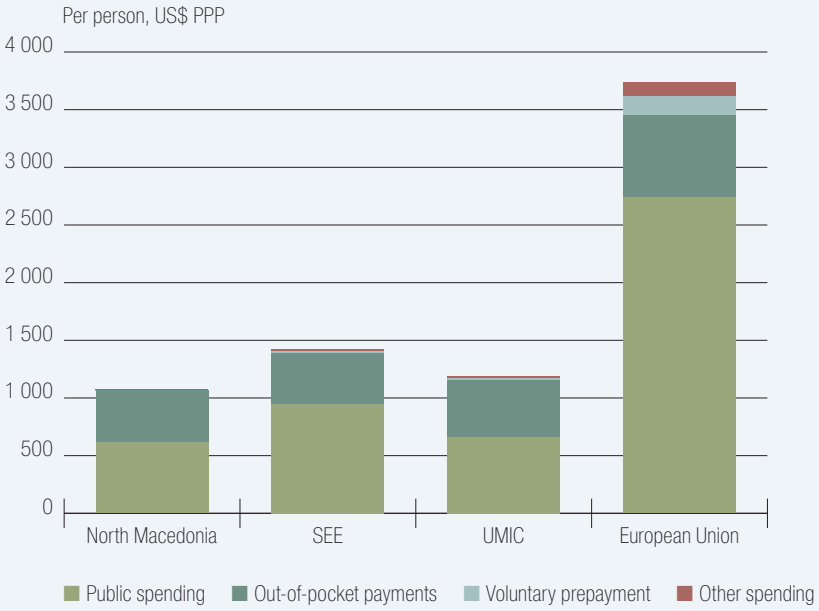
Public spending on health is among the lowest in South-Eastern Europe

Although more than half of health spending comes from public sources (57% of health expenditure), public spending in per capita terms is very low. In 2018 North Macedonia spent US$ 615 PPP on health, the second lowest public spending on health per capita in South-Eastern Europe (average of U$ 946 PPP) after Albania (US$ 377 PPP).

The share of public spending on health as a share of GPD decreased from 5% in 2003 to 3.8% in 2018, which was above the average of upper middle-income countries (UMIC) in the WHO European Region, but below the South-Eastern European average **(Fig. 2)**.

Fig. 1

North Macedonia spends less on health care per capita than in South-Eastern Europe overall

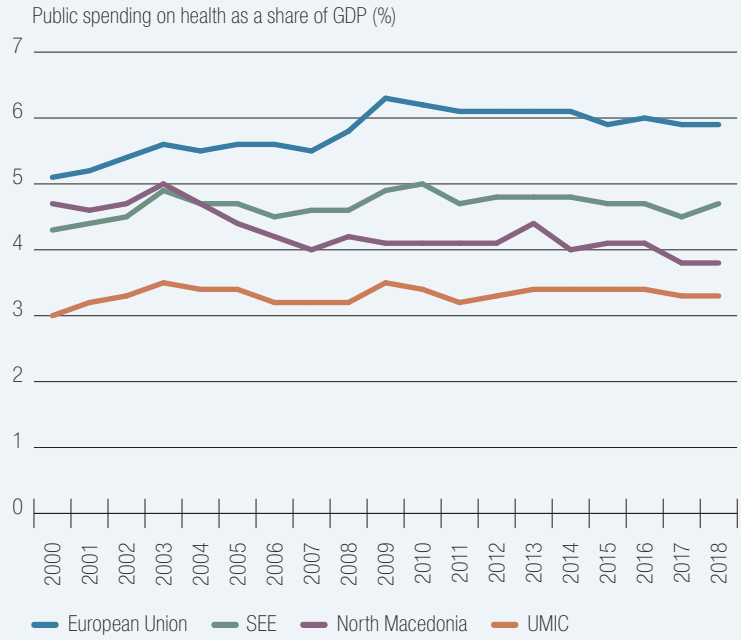


Note: 2018 data. UMIC: upper middle-income countries in the WHO European Region; SEE: South Eastern European countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, North Macedonia, Romania, Serbia); averages are unweighted.

Source: WHO 2021d.

Fig. 2

Public spending on health as a share of GDP has declined

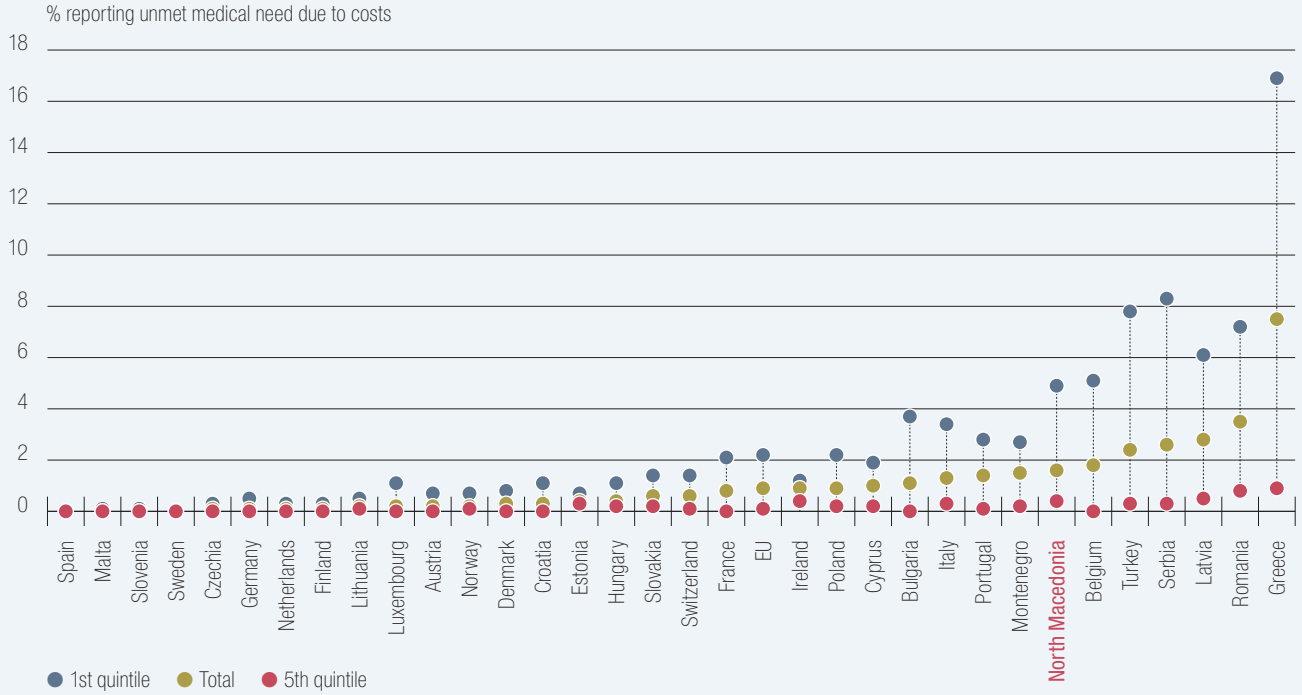


Note: UMIC: upper middle-income countries in the WHO European Region; SEE: South Eastern European countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, North Macedonia, Romania, Serbia); averages are unweighted.

Source: WHO, 2021d.

Fig. 3

Those on low incomes are more likely to report unmet needs due to cost but income inequalities are smaller than in some EU countries



Note: Unmet needs for health care due to cost; data refer to 2019.

Source: EU-SILC, 2021.

Out-of-pocket payments represent over 40% of total health spending

Out-of-pocket (OOP) spending on health accounted for 42% of health spending in 2018, which was far above the average of South-Eastern European (33%) and EU countries (22%) but slightly below the average of UMIC countries (43%). OOP spending mainly consists of co-payments for services partly covered by health insurance and of direct payments for over-the-counter medicines and health services not covered by the SHI scheme. Informal payments, which are common in South-Eastern Europe, are most widespread in gynaecological care and constitute an important portion of OOP spending, but one that is difficult to quantify. High levels of OOP spending, including informal payments, make population groups with low incomes less likely to receive the health services they need. Voluntary health insurance (VHI) is purchased by only 0.6% of the population and most of these contracts are for supplementary VHI, mainly covering services provided by private hospitals (Dimkovski & Mosca, 2021).

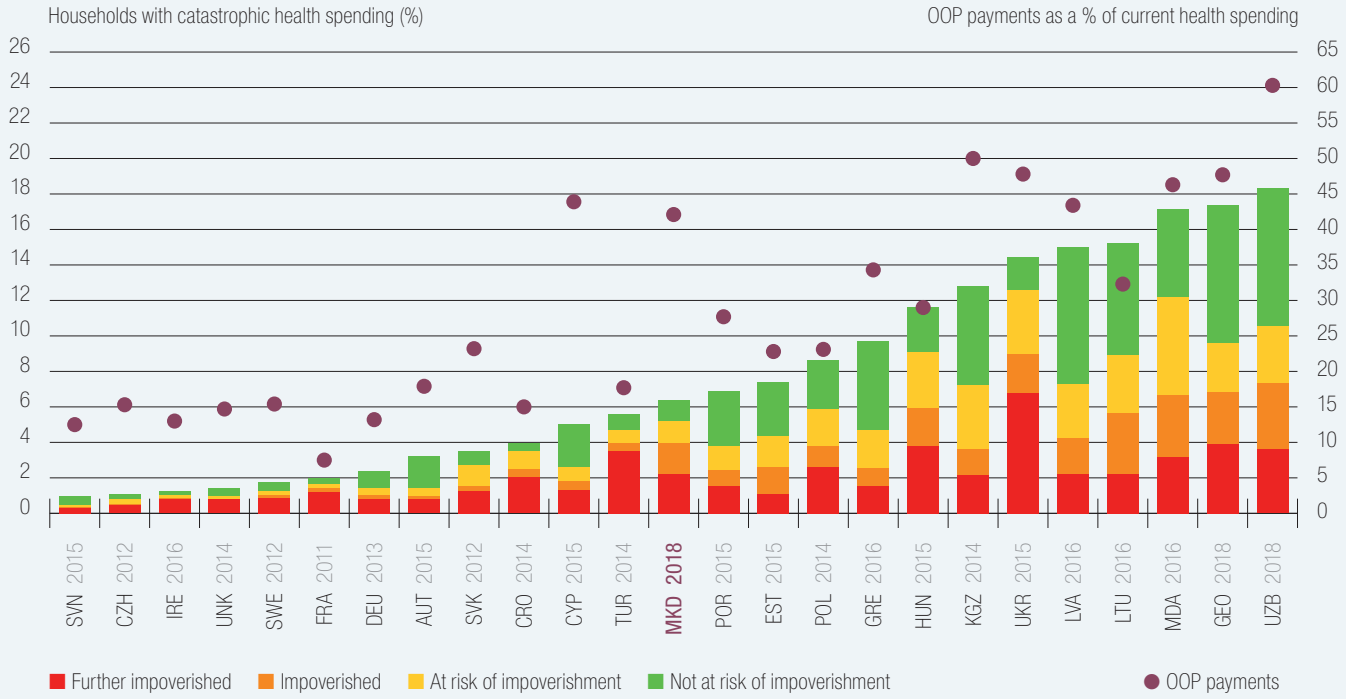
Unmet needs for health services due to cost have decreased but remain high among people on lower incomes

Self-reported unmet needs for medical care due to financial reasons decreased from 10.1% in 2010 to 1.6% of the population in 2019, with reductions across all income groups, though inequities remain. Reasons for the overall reduction in unmet needs may be the introduction of an annual income-related cap on co-payments and exemptions from co-payments for some people in vulnerable situations since 2010, as well as improved living standards and greater accessibility of services. However, unmet needs among those in the lowest income quintile still stood at 4.9% compared to 0.4% in the highest income group in 2019. Compared to other European countries, the share of people in North Macedonia who report unmet needs for health care due to cost is close to that of Belgium and Montenegro, while the gap between income groups is above the EU average but smaller than inequalities in Belgium, Romania or Greece **(Fig. 3)**.

The high level of OOP spending and inequities in unmet needs for health care due to cost suggest that income insecurity and poor health are often linked. Despite recent positive economic trends, unemployment remains high and labour force participation is low, especially for women, people younger than 25 years

Fig. 4

Share of households with catastrophic health spending by risk of impoverishment and out-of-pocket payments as a share of current spending on health



Notes: The data on OOP payments are for the same year as the data on catastrophic health spending. 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). AUT: Austria; CRO: Croatia; CYP: Cyprus; CZH: Czechia; DEU: Germany; EST: Estonia; FRA: France; GEO: Georgia; GRE: Greece; HUN: Hungary; IRE: Ireland; KGZ: Kyrgyzstan; LVA: Latvia; LTU: Lithuania; MDA: Republic of Moldova; MKD: North Macedonia; POL: Poland; POR: Portugal; SVK: Slovakia; SVN: Slovenia; SWE: Sweden; TUR: Turkey; UNK: United Kingdom; UKR: Ukraine; UZB: Uzbekistan.

Sources: Dimkovski & Mosca, 2021; WHO, 2019b, 2021d.

and people older than 55 years (Atanasova & Shriwise, 2021). Poverty rates continue to be consistently higher in rural than in urban areas (World Bank, 2019), impeding access to health care (WHO, 2021b).

High out-of-pocket payments lead to catastrophic health spending, particularly for poor households

Although access and financial protection have improved in recent years, catastrophic health spending remains a problem, particularly for poorer households, and is largely driven by OOP payments for outpatient medicines. In 2018 about 7% of households experienced catastrophic spending **(Fig. 4)**. This is below catastrophic spending in other countries in the WHO European Region and lower than expected in light of the growing reliance on OOP payments.

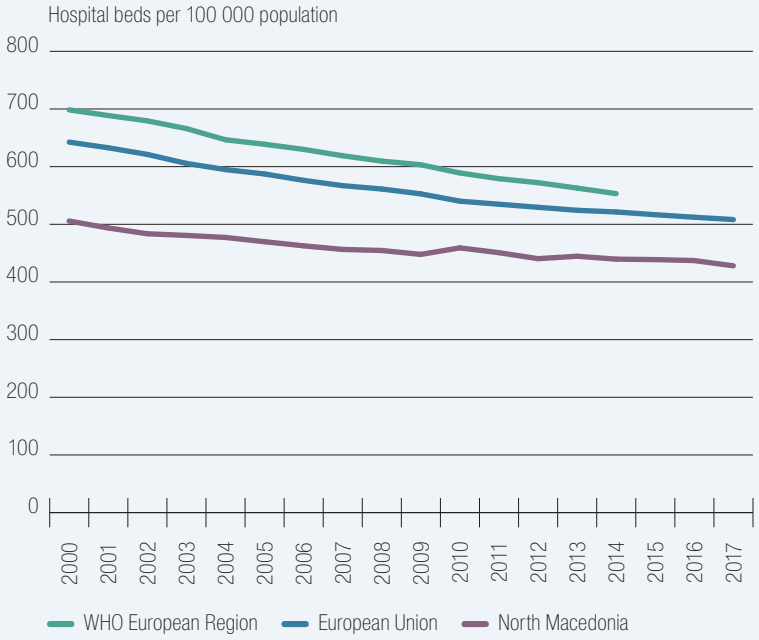
3 GENERATING RESOURCES, PROVIDING SERVICES AND ENSURING ACCESS

Despite a reduction in the number of hospital beds, there is room for efficiency gains in the use of inpatient resources

The network of secondary and tertiary care providers is well developed but there is large variation in the utilization of capacities across similarly classified hospitals. The number of hospital beds per capita decreased from 505 per 100 000 in 2000 to 428 in 2017 and the hospital bed ratio in North Macedonia is now well below that of the EU **(Fig. 5)**. Despite the decrease in beds, hospitals

Fig. 5

North Macedonia has reduced the number of hospital beds



Sources: WHO, 2021c; Eurostat, 2021.

operate at far from full capacity. The bed occupancy rates ranged between 45% in clinical hospitals and 59% in university clinics in 2018 (Ministry of Health, 2021), which were among the lowest in Europe. This indicates scope for efficiency gains through, for example, the rationalization of hospital services, the integration of stand-alone specialized hospitals into general hospitals, and improved provision of outpatient or day-case hospital services. Moreover, the distribution of hospital beds is unequal in North Macedonia, with more than half of all hospitals located in the capital, Skopje. The current hospital sector does not ensure risk-appropriate provision of care which leads to inefficient utilization of resources and unfavourable health-care outcomes. Since the introduction of the Diagnosis-Related Groups (DRGs) reimbursement system in 2009, hospitals have been paid by a combination of DRGs and conditional budgets. Still, the DRGs system requires further refinement.

Uncoordinated primary care and limited scope of practice of physicians lead to high referral and avoidable hospital admission rates

North Macedonia has a well-dispersed network of primary care providers at the municipal level. Primary care providers were privatized as a result of the primary health care reform in 2004–2007. The resulting diversified provider market led ultimately to the creation of the Health Network in 2012. The Health Network aims to create a geographically well-distributed network of certified public and private health-care providers (family physicians, dentists and gynaecologists) contracted by the HIF for providing services under the health insurance system. The Ministry of Health determines annually the number of contracts with the HIF in the Health Network, which also includes the 34 health centres **(see Section 1)**. Pay-for-performance (P4P) for primary care providers was introduced in 2012. However, it is mainly used as a remuneration scheme, as performance indicators are mostly used to monitor volume and processes rather than quality or outcomes.

Despite the Health Network and the vision to establish a new primary health care model with multidisciplinary and integrated teams **(Box 1)**, coordination between primary care providers is at present very limited. This is mostly related to lacking incentives for group practices, larger teams or multidisciplinary work, but also to incomplete implementation of the family medicine model (only about one fifth of primary care doctors have the speciality of family medicine or paediatrics) (Martínez & Sánchez, 2018) and the limited scope of practice of physicians and nurses. Primary care physicians are not able to prescribe certain medicines (e.g., insulin or statins) or to order specific diagnostic tests (e.g., endoscopies, magnetic resonance imaging or computed tomography scans) and need to refer patients with chronic diseases and multimorbidities to specialists. The high referral rate to specialists in turn constitutes a burden for specialist care in health centres, secondary and tertiary care. Nearly two thirds of hospitalizations in 2017 were potentially avoidable hospital admissions for chronic conditions, including chronic obstructive pulmonary disease (28% of potentially avoidable hospitalizations), hypertension (19%) and angina (17%) (WHO, 2019a). Following the COVID-19 outbreak, the scope of practice of the primary care doctors and nurses has been extended. Primary care doctors were given special authority to prescribe for and manage chronic and other conditions, without referral to a specialist.

The primary health-care reform **(Box 1)** aims to improve the definition of the scope of practice of nurses, physicians and other health professionals, and to standardize care through the systematic use of clinical guidelines and protocols for patient transitions, referrals and discharge, accompanied by IT solutions. The implementation of the community-oriented care model will be monitored and assessed along five tracer conditions that have common behavioural risk factors (diabetes, hypertension, chronic obstructive pulmonary disease (COPD), asthma and hypothyroidism) with the aim to expand the scope of the protocols beyond clinical detection and management towards health promotion and disease prevention activities. To prepare primary care nurses for their expanded role in the new model of care, a training programme was delivered from November 2020 to March 2021, covering 430 primary care nurses and midwives.

Box 2

Moj Termin: the digital backbone of the health system

The government of North Macedonia has put major efforts into the development of the health information system, *Moj Termin*. It was introduced as a pilot in 2011 to improve scheduling and waiting times for clinical appointments and diagnostic tests, initially limited to three tertiary care facilities but soon expanding to public hospitals and primary care providers. *Moj Termin* is now available to all clinicians in the public and private sectors. The use of the system by primary care clinics is mandatory by law, and they use the system to issue and record, for example referrals, prescriptions and sick leaves.

In 2012 the Ministry of Health decided to expand *Moj Termin* to include several additional modules, including electronic patient records, referrals from primary care to higher levels of care and to diagnostic services, and electronic discharge letters, as well as e-prescriptions of pharmaceuticals, linking private primary care providers and pharmacies. A telemedicine platform and digital vaccination records were recently added to *Moj Termin* to ensure maintenance of essential health services during the COVID-19 pandemic.

Currently, citizens can only access a small part of their electronic health record (i.e., vaccination records and recovery certificates). The remaining functions of the electronic health record will be rolled out in phases starting in September 2021 via a new patient portal, available to all citizens as a standalone mobile app and through the web.

As a centralized e-health system, *Moj Termin* provides a large collection of data from more than 70 sources, including primary care doctors, health centres, hospitals, institutes, clinics and pharmacies. The data constitute an important source of information with a summary of daily activity of providers and providers' capacities. However, it is not yet fully exploited for health policy planning and management, feedback and quality improvement (WHO, 2019a; Groenewegen, Bryar & Sanchez Martinez, 2019).

North Macedonia has invested in its health information system, but barriers need to be addressed to leverage its full potential

North Macedonia has set up a nationwide eHealth system, originally designed to facilitate making appointments in the hospital sector, called *Moj Termin*, which has been expanded to cover various services across public and private institutions **(Box 2)**. The cloud-based system is managed centrally and has several modules that can be integrated with one another and with other health-care applications. These modules include, for instance, a digital scheduling system; an electronic health record (EHR); e-referrals; the ordering of laboratory and imaging services; and e-prescriptions. Since its implementation, significant reductions in waiting times for diagnostic imaging and clinical appointments have been recorded, demonstrating the importance of strategic planning for eHealth. Despite these successes, there are still several legal and operational barriers hindering further uptake of the system, such as integration of diagnostic images and access to the system for certain health-care providers.

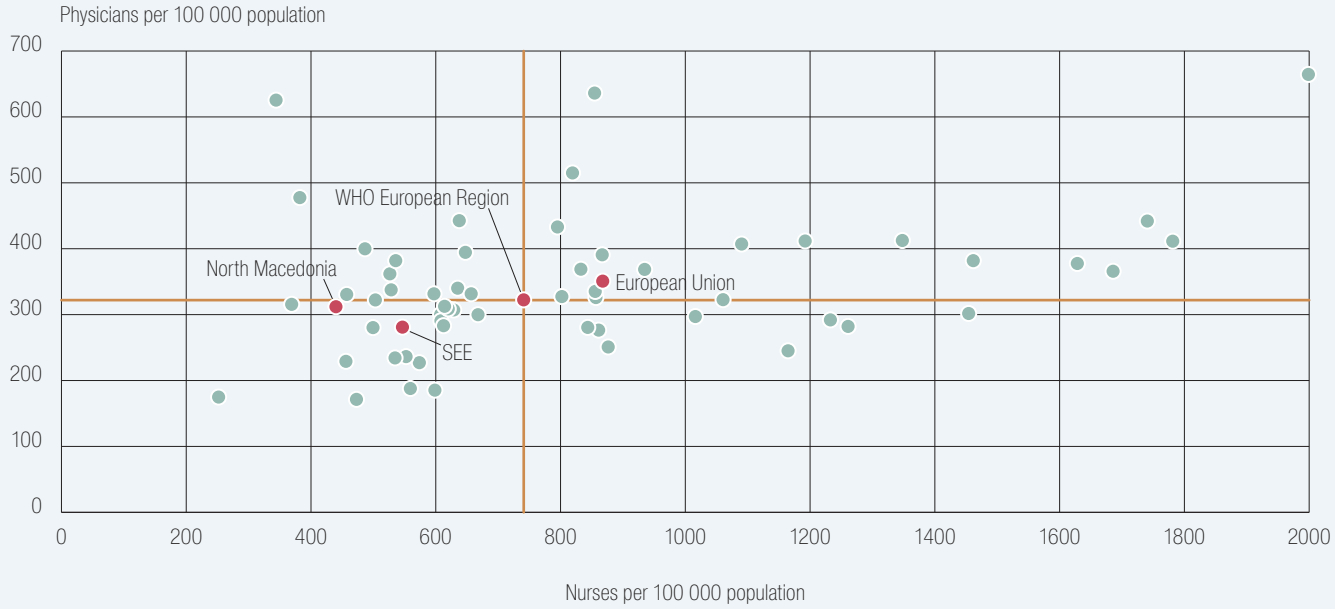
The numbers of health professionals increased but human resources in health remain scarce

With regard to human resources in the health sector, there is a persistent lack of physicians and nurses **(Fig. 6)**. However, the number of physicians increased from 269 per 100 000 population in 2010 to 312 in 2019, approaching the EU average of 382. The number of nurses also increased, from 340 per 100 000 in 2010 to 440 in 2019. In contrast, the number of midwives decreased to 48 per 100 000 in 2019 (Ministry of Health, 2021). Almost 70% of employees in the health sector are publicly employed, with nearly all (97.7%) having contracts that entail social security rights in the form of pensions, health insurance and unemployment benefits (WHO, 2020).

Compared to countries in the EU, the ratio of nurses to population is very low, at almost half the EU average (838 nurses per 100 000 in 2019). This might partly be related to the outmigration of nurses and their weak structural position in North Macedonia. Curricula for nurse training are not unified and there are no requirements for continuing medical education due to lack of an accreditation, licensing and relicensing system. As a result, competencies and the scope of services of nurses remain undefined and completed specializations are not rewarded with higher remuneration. This situation reinforces the restricted, non-autonomous practice of nurses and midwives, especially in primary care, and impedes the development of specialist or advanced practice roles. On a more positive note, the age distribution of nurses is relatively young, with 85% of nurses employed in health-care institutions under the age of 55 years (Groenewegen, Bryar & Sanchez Martinez, 2019).

Fig. 6

The nurse to population ratio is below international averages



Note: 2019 data for North Macedonia, 2014 data for the European Union and the WHO European Region, 2015 or latest available for countries.
SEE: South Eastern European countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, North Macedonia, Romania, Serbia).

Sources: WHO, 2021c; Ministry of Health, 2021 for North Macedonia.

The distribution of primary care providers leads to inequalities in access

As in other countries in Europe, the density of health professionals is higher in urban than in rural or suburban areas. Likewise, the distribution of primary care practices varies widely across regions, which constitutes challenges for equal access to care. The share of people reporting unmet needs due to distance is high, particularly for people in rural areas (0.4% of adults reporting unmet needs due to distance compared to 0.2% in the EU) and people above 75 years (2.3% compared to 0.3% in the EU in 2019) (EU-SILC, 2021).

In addition, numbers of GPs with a HIF contract are decreasing continuously (World Bank, 2019). There are no data on the distribution of secondary specialists but the specialist to population ratio is increasing and there is a trend of specialists moving from the public to the private sector due to better remuneration.

There is good coverage of preventive services but challenges remain with regard to immunization, perinatal care and prevention of noncommunicable diseases

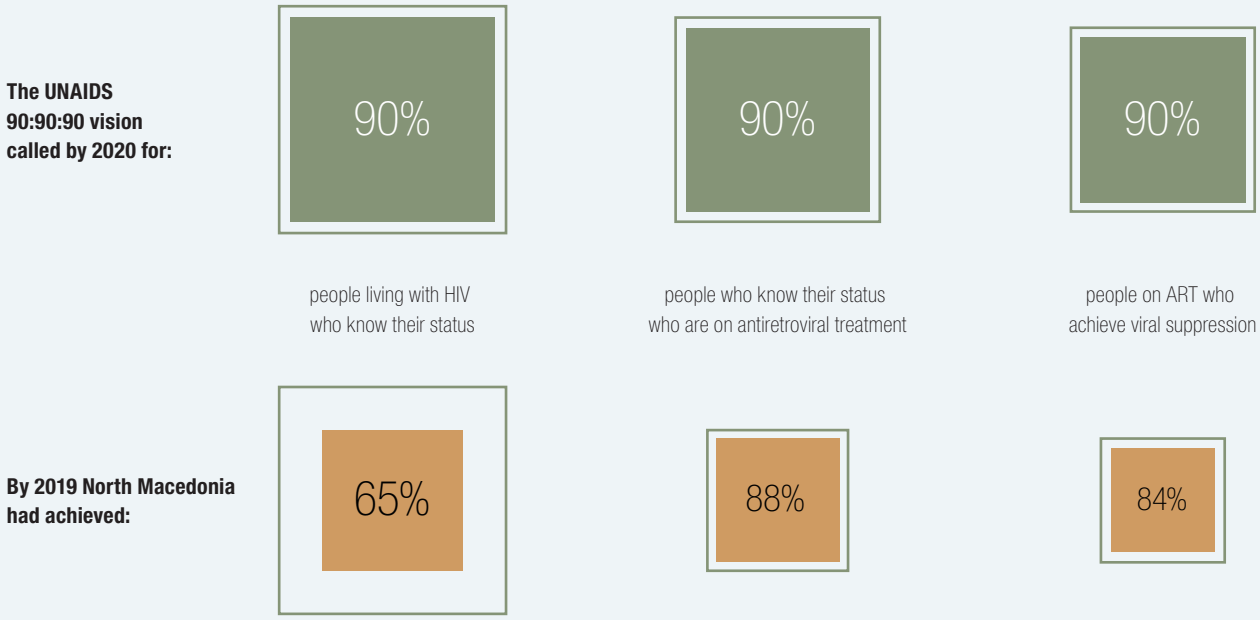
Preventive health services are usually provided in the 34 health centres across the country. Immunization teams, each consisting of a medical doctor and a nurse, immunize children and adolescents in the health centres' immunization units and dispersed immunization points, as well as through mobile units operating in hard-to-reach areas and in immunization pockets, such as in Roma communities.

Historically, the immunization coverage in the country has been high. However, immunization rates of infants receiving the first dose against measles decreased alarmingly from 96% in 2013 to 75% in 2018 (compared to an average of 95% in the WHO European Region). In contrast, 94% of all children received the second dose in 2018 (compared to 91% in the WHO European Region). In the aftermath of a measles epidemic in the country in 2018–2019 (with 91.3 cases per 100 000), the government quickly put in place catch-up vaccination campaigns, assisted by WHO, and thus renewed its efforts to eliminate measles. The country was identified by WHO for priority action, with a focus on an increased commitment to immunization and strengthening vaccine acceptance (Institute of Public Health, 2019a; WHO, 2019d). Since April 2019 vaccination against measles has become compulsory for enrolment in kindergarten and early learning centres.

In addition to gynaecologists who are responsible for perinatal care services, health centres also have community nursing units that carry out visits to mothers and infants in the postnatal period. Improving mother and child health is a strategic priority for the government which aims to uphold the decreasing trends in maternal and infant mortality **(see Section 4)**. In 2019 the national Safe Motherhood Committee and the Perinatal Mortality

Fig. 7

North Macedonia falls behind global HIV/AIDS targets



Source: Together Stronger, 2019.

Audit Working Group were created to develop and implement an audit system on perinatal mortality, while in 2020 the Perinatal Care Master Plan 2020–2030 for improved health of mothers and newborns was launched to accelerate progress towards achieving the Sustainable Development Goals (SDGs) **(see Section 4)**. The Master Plan focuses on four key strategic areas to achieve the defined goals, namely: services delivery, which includes regionalization and service reorganization by levels of care; infrastructure, equipment, human resources, transport and referral system; quality of care; and health information systems (Ministry of Health, 2020).

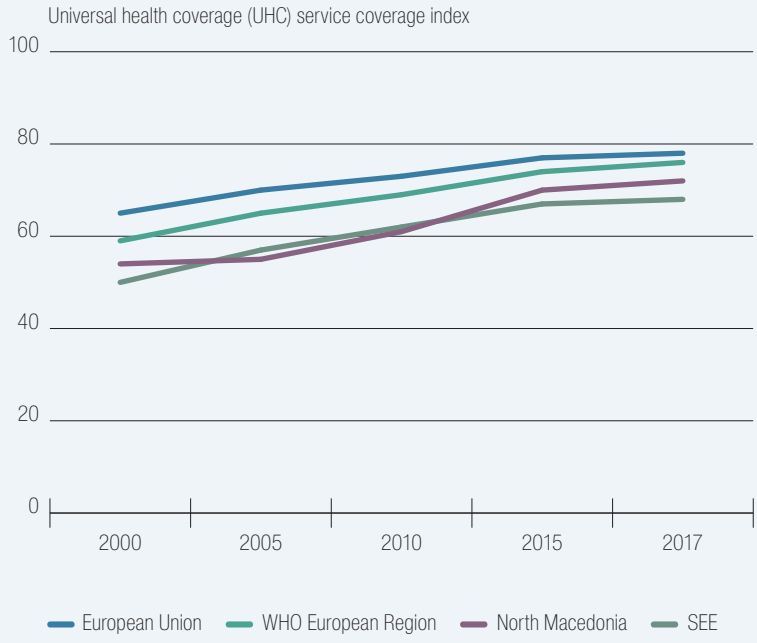
HIV prevalence is low, but there is a worrying rise of new cases

Between 1987 and 2018 North Macedonia registered a total of 403 new HIV cases and 99 HIV-associated deaths. However, more than half of new HIV infections (210) occurred between 2013 and 2018. In 2018 all new cases (45) were diagnosed in males, with the majority of infections (84%) being among 20–39-year-olds and attributable to men who have sex with men (MSM) transmission (82%).

There has been noticeable progress in reaching global UNAIDS 90-90-90 targets: in 2019, 65% of people living with HIV knew their status, 87.8% of those received antiretroviral therapy (ART) and 84% of those on treatment had a suppressed viral load **(Fig. 7)**. Health centres play a key role in HIV prevention activities, providing information on sexual and reproductive health, conducting educational workshops and

Fig. 8

North Macedonia ranks above the South Eastern European average for UHC service coverage



Note: UHC service coverage index in 2017, defined as the average estimated coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health; infectious diseases; noncommunicable diseases; and service capacity and access among the general and the most disadvantaged populations.

Source: WHO, 2021e.

Box 3

North Macedonia is on the path towards ending tuberculosis by 2030

TB prevalence declined noticeably between 2010 (29.8 per 100 000 population) and 2019 (10.4). Cooperation with the Global Fund to fight AIDS, Malaria and Tuberculosis was crucial for the stabilization of the epidemiological situation. Since 2017 the government of North Macedonia has been implementing the Strategy for Tuberculosis Prevention and Control, which includes early detection, as well as proper and timely treatment for every patient.

offering free and confidential tests for HIV and sexually transmitted diseases. With the end of funding from the Global Fund in 2018, the government assumed the responsibility for financing the HIV programme through a social contracting mechanism of civil society organizations to provide these activities. Moreover, the government introduced new preventive measures for MSM transmission and provides ART free of charge.

North Macedonia's UHC health service coverage index is increasing

In terms of the universal health coverage (UHC) service coverage index, access to essential services increased from 54 (out of 100) in 2000 to 72 in 2017. This was below the averages for the EU and the WHO European Region, but above the average of South Eastern European countries **(Fig. 8)**. The relatively good performance of North Macedonia is partly due to a declining incidence of infectious diseases such as tuberculosis and HIV/AIDS (Milevska Kostova et al., 2017) **(Box 3)**. However, an extensive review of perinatal deaths found that quality of care is suboptimal for pregnant women and during childbirth, postnatal and neonatal care. Providers of antenatal care were found to lack information on screening for several important maternal conditions and there were shortcomings in intrapartum (during labour) and neonatal care (WHO, 2019c). Moreover, prevention of noncommunicable diseases and cancer are underdeveloped **(see Section 4)**. Prevention of noncommunicable diseases and cancer are underdeveloped.

4 IMPROVING THE HEALTH OF THE POPULATION

Life expectancy in North Macedonia has increased, but remains below the average of the WHO European Region

The latest mortality data reported by North Macedonia to WHO refer to 2013. According to these data, life expectancy at birth stood at 75.5 years. While this was below the average for South-Eastern Europe and the WHO European Region, it was higher than more up-to-date life expectancy figures for some EU Member States **(Fig. 9)**. On average, females live 4.1 years longer than males (77.6 years compared to 73.5 years), a gender gap which is significantly below the average in the WHO European Region (6.3 years).

Cardiovascular and cerebrovascular diseases and cancers are the most important causes of adult mortality and morbidity. There was an increase in mortality due to diabetes (7.8%) and specific cancers, in particular lung cancer (21.5%), colorectal cancer (20.5%), pancreatic and prostate cancer, as well as Alzheimer's disease (48%) between 2000 and 2017 (WHO, 2019a).

Progress in maternal health has resulted in a reduction of infant and maternal mortality rates

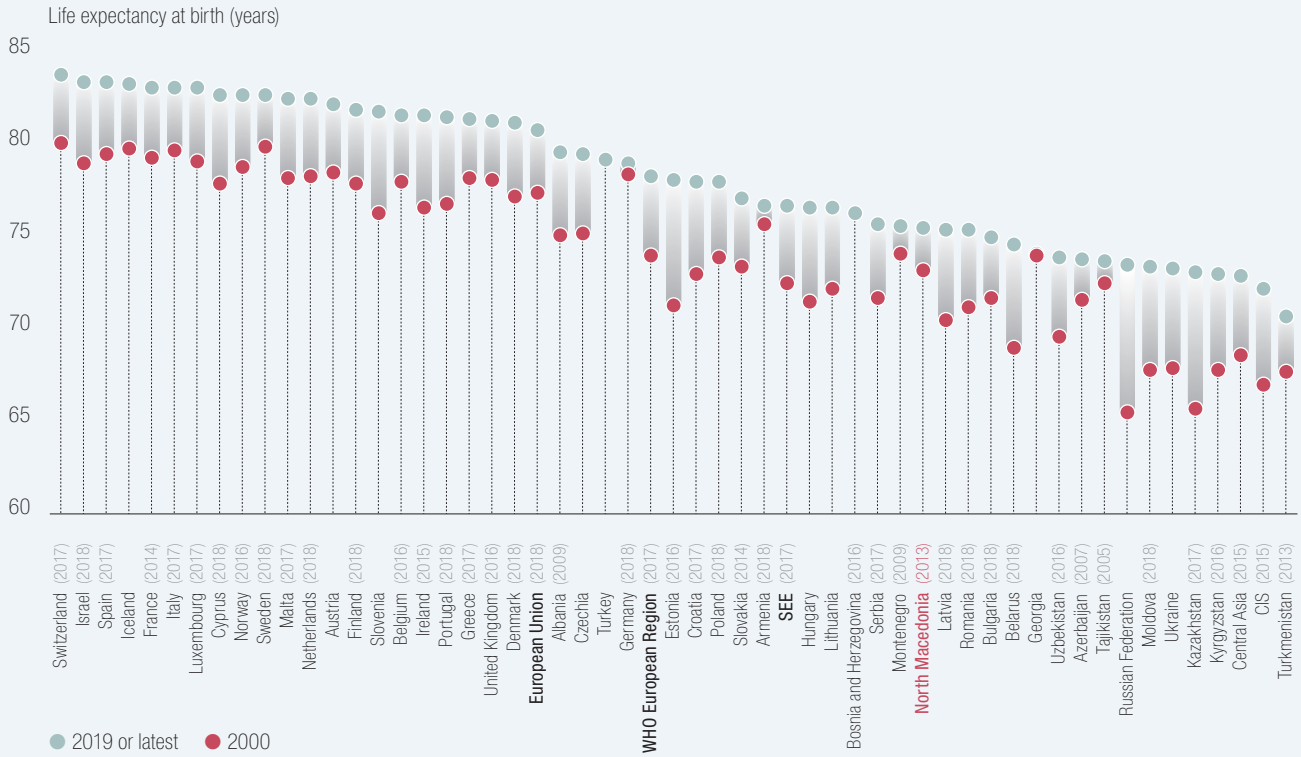
Infant and maternal health is a main focus of national health policies and there have been sustained health promotion activities with regard to infant and maternal health. Maternal mortality decreased from 13 deaths per 1000 live births in 2000 to 7 deaths in 2017, which was well below the averages of the WHO European Region (13) and the EU (7.8). Infant mortality rates fell similarly in this period, but remained above the EU average (8.7 deaths per 1000 live births compared to 4.4 in the EU). The numbers of perinatal deaths, stillbirths and deaths in the first week of life have continuously decreased over the past three decades. After an upsurge of neonatal mortality in 2015, swift action was taken by the Ministry of Health with technical support from WHO, the United Nations Population Fund (UNFPA) and UNICEF, resulting in the national Safe Motherhood Committee, the Perinatal Mortality Audit Working Group and the Perinatal Care Master Plan 2020–2030 **(see Section 3)**.

North Macedonia faces a high burden of noncommunicable diseases

The population of North Macedonia is ageing rapidly and prevalence rates of noncommunicable diseases (NCDs) are increasing; they account for about 95% of all deaths. More than half of all deaths (61%) in 2016 were related to cardiovascular disease and 20% to cancer. Diabetes and chronic respiratory diseases accounted

Fig. 9

Life expectancy in North Macedonia is higher than in some EU Member States



Note: SEE: South Eastern European countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, North Macedonia, Romania, Serbia).

Source: WHO, 2021c.

for 5% of all deaths each (WHO, 2019a). Stroke and ischaemic heart disease are the leading causes of death, followed by lung cancer and Alzheimer's disease (WHO, 2019a). Deaths from stroke and ischaemic heart disease have decreased since the early 2000s, while the other causes of deaths remained relatively stable **(Fig. 10)**.

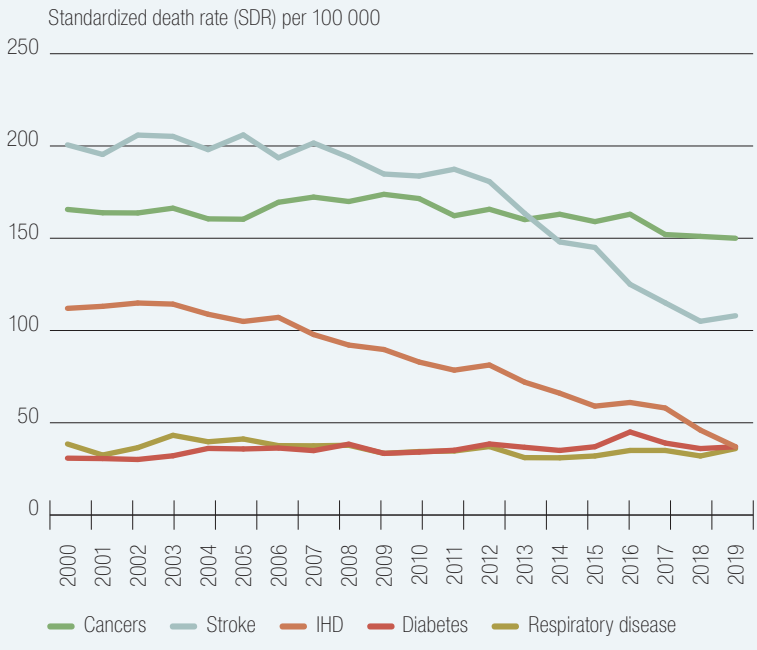
The National Strategy for Prevention and Control of NCDs, adopted in 2009, identified the prevention of circulatory diseases as a priority, and emphasized the promotion of healthy lifestyles and strengthening interdisciplinary work in primary and secondary prevention. In 2015 an assessment of the country's efforts in strengthening the health system for better NCD outcomes showed that preventive health services have been built up, but remain fragmented, as public health programmes are narrowly defined and implemented on an annual basis (WHO, 2018).

Tobacco and unhealthy diets are major risk factors for mortality

Unhealthy lifestyles are major drivers of mortality in North Macedonia. A high prevalence of smoking, high blood sugar levels and unhealthy diets (high consumption of sugar, salt and fat) are estimated to account for nearly three quarters of deaths **(Fig. 11)**. High mortality attributable to high blood pressure (estimated to account

Fig. 10

Deaths from stroke and ischaemic heart disease (IHD) declined, while deaths from other noncommunicable diseases remained stable

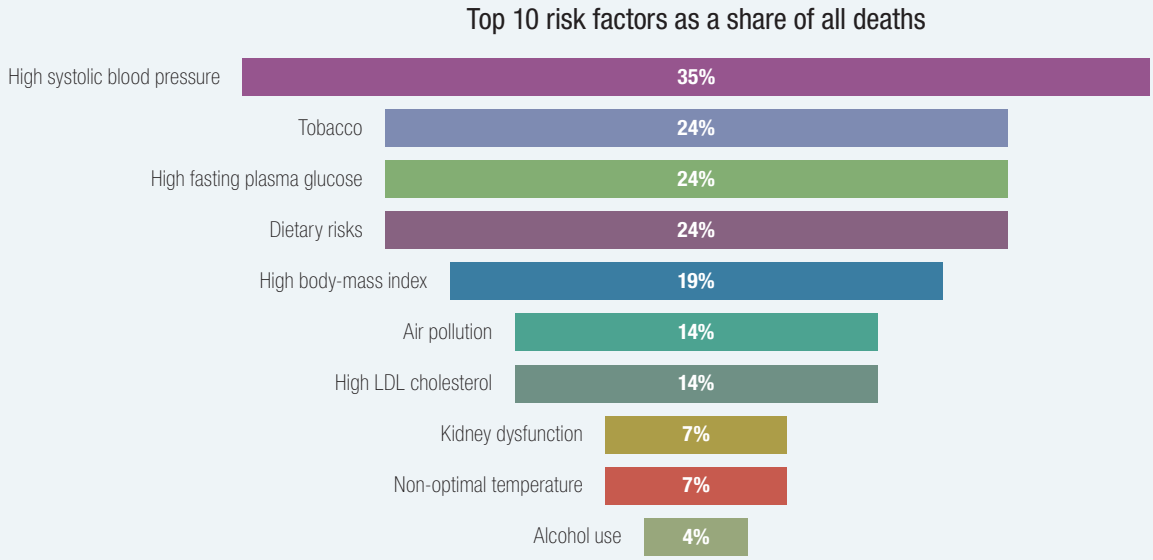


Notes: Data for 2014–2019 are preliminary. IHD: ischaemic heart disease.

Source: WHO, 2000–2013, WHO Country Office (number of deaths), Eurostat (population), WHO European standard population (2014–2019).

Fig. 11

High blood pressure, smoking and dietary risks are major risk factors as a share of all deaths



Note: Shares overlap and therefore add up to more than 100%.

Source: IHME, 2019.

Box 4

Implementation of tobacco control policies has slowed

Although North Macedonia ratified the World Health Organization's Framework Convention on Tobacco Control in 2006 and instituted a general ban on smoking in public places, including restaurants and bars, in 2010, progress has stagnated in recent years. In early 2018 tobacco control measures deteriorated, as the smoking ban was weakened by allowing smoking in specially designated areas and on open-air terraces. At the same time, the government has continued to provide high agricultural subsidies aimed at stimulating tobacco production. Moreover, North Macedonia has the lowest cigarette prices in the South Eastern European region (Albania, Bosnia and Herzegovina, Croatia, Montenegro and Serbia) (Institute of Economic Sciences in Belgrade, 2019). In July 2019 a new law on excise tax was passed, introducing automatic increases in the tax rates for heated tobacco and liquids used in electronic cigarettes as of July 2020.

for 34.9% of deaths in 2019) indicates substantial scope for action in terms of both behavioural and health system performance dimensions, including the control of chronic conditions at primary care level.

North Macedonia ranks among the top countries worldwide in terms of smoking prevalence and the average number of cigarettes smoked among adults and young people (Analytica, 2018; Analytica, 2019). More than one third of the Macedonian adult population (35%) were smoking in 2017, one of the highest levels in South-Eastern Europe (average: 30% of adults in 2017) and the WHO European Region (25%) (WHO, 2021c). Smoking rates in North Macedonia declined from 40% in 2004 (Analytica, 2018), likely due to a 2010 smoking ban in public places, increased unit prices of cigarettes, and improved education and public awareness about the negative health effects of smoking **(Box 4)**. North Macedonia is one of few countries in the WHO European Region routinely recording patients' tobacco use status. However, the data on smoking prevalence are not included in national statistics, forestalling the evaluation of measures undertaken. On a more positive note, alcohol consumption among adults per capita (3.8 litres) was far below the average of the WHO European Region and the EU (7.8 and 10.8 litres, respectively, in 2018).

Overweight and obesity rates among adults and adolescents are increasing

Overweight and obesity rates among adults in North Macedonia have increased in recent years. Almost two thirds (64.9%) of men and more than half of women (51.2%) were overweight in 2016, compared to 56.3% and 46.7% in 2000, respectively. Half of the adult population is not physically active and only 8.3% of adults practise 150 minutes of moderate physical activity per week, which is far below the EU average of 64% (WHO, 2018). Obesity and overweight among 7-year-old schoolchildren also increased between 2010 and 2019, especially among girls, where it increased from 30.9% to 37.8% (Spiroski et al., 2021).

Air pollution is a main risk factor for respiratory diseases among children, while the prevalence of hepatitis remains high

Particulate air pollution as a risk factor for ill-health constitutes an important public health concern in cities and urban centres in North Macedonia. The country has one of the highest levels of air pollution in Europe, in particular in the capital, Skopje (EEA, 2020). In 2019 about one in seven deaths (13.7%) was estimated to be due to poor air quality. Prevalence of respiratory conditions (not including infections or pneumonia) is particularly high among children (0–14 years). In 2019, 39.8% of morbidity in children was related to diseases of the respiratory system. Pre-school age children (0–6 years) in urban settings were twice as likely to acquire diseases of the respiratory system than those in rural areas (Institute for Public Health of the Republic of North Macedonia, 2019b).

In contrast to a low and declining incidence and number of deaths attributable to tuberculosis **(see Section 3)**, the incidence of hepatitis B remains 6.5 times higher than the EU average (7.5 and 1.1 per 100 000 population, respectively) despite the introduction of mandatory hepatitis B vaccination for all babies born after November 2004.

North Macedonia has recently strengthened its preparedness against health emergencies

North Macedonia strengthened its capacity to detect and respond to disease outbreaks prior to the COVID-19 pandemic through the Operational Plan and Guidelines for Risk Management in Case of Pandemic Influenza (2013) and the National Action Plan of the Health Sector for Preparedness and Response in Emergencies, Crisis and Disasters (2017).

5 SPOTLIGHT ON COVID-19

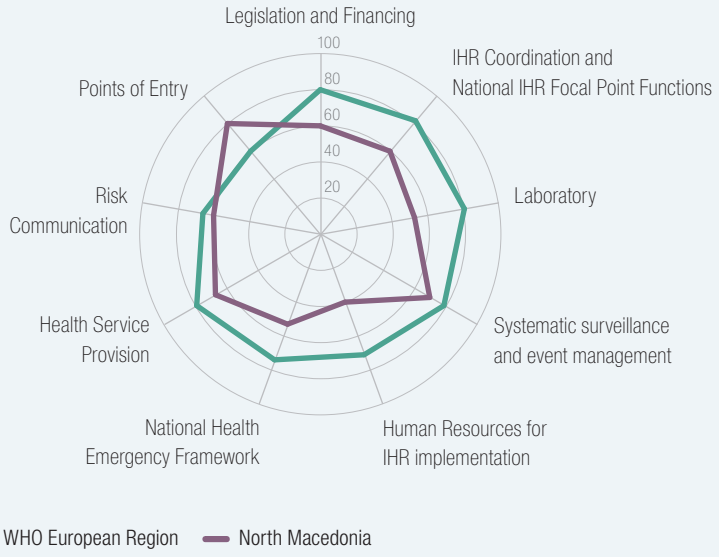
North Macedonia scored low on most core capacities for the implementation of the International Health Regulations (IHR)

North Macedonia's self-assessment on the implementation of the International Health Regulations (2005) in 2019 showed that the country was not well prepared for the outbreak of an infectious disease. The country's score fell below that of the WHO European Region for most core capacities that would allow it to respond effectively to a pandemic. Capacities were assessed particularly low in terms of human resources (40% against 71% in the WHO European Region). With regard to capacity at entry points, however, North Macedonia performed above the average of the WHO European Region. The country also scored relatively highly on surveillance and health service provision, although still below the average of the WHO European Region **(Fig. 12)**.

These results correspond with the 2019 Joint External Evaluation (JEE) (WHO, 2019e) of the IHR core capacities for North Macedonia which identified as weak areas: national legislation, policy and financing related to IHR;

Fig. 12

North Macedonia reported low capacity to address public health emergencies prior to the COVID-19 pandemic

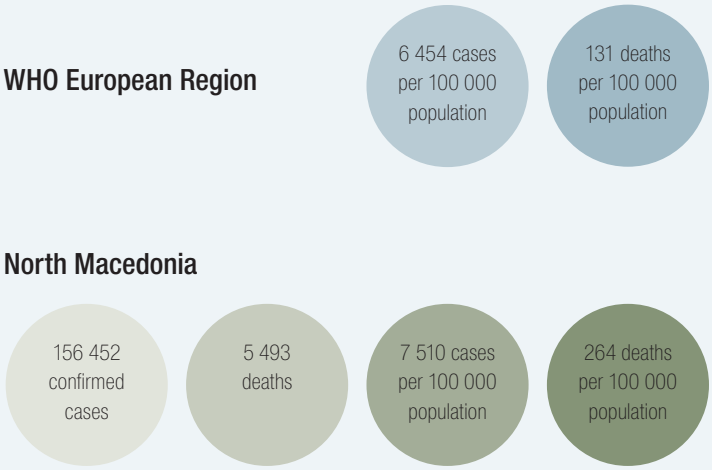


Note: Country self-assessment on selected core capacities for the implementation of the International Health Regulations.

Source: WHO, 2021e.

Fig. 13

COVID-19 had a more severe impact in North Macedonia than in the WHO European Region overall



Note: Data as of 3 August 2021.

Source: WHO, 2021f.

antimicrobial resistance; zoonotic diseases; biosafety and biosecurity; human resources; emergency response operations; risk communication; and chemical events.

North Macedonia has been hit severely by COVID-19, with particularly high infection numbers in the second and third waves

The COVID-19 pandemic had a major impact on population health and mortality in North Macedonia. The first confirmed case of COVID-19 was registered on 26 February 2020. Up to early August 2021 a total of 156 452 infections and 5493 deaths associated with the disease were recorded, resulting in a death rate for COVID-19 twice as high as the WHO European Region average **(Fig. 13)**. Numbers of infections and deaths surged in particular during the second and third waves, towards the end of 2020 and in the spring of 2021, respectively.

COVID-19 reinforced pre-existing health inequalities

A recent analysis has shown that the population of North Macedonia was affected differently by the COVID-19 pandemic. Up to the end of January 2021, 72.8% of all COVID-19 deaths had occurred in people with at least one chronic condition. People aged 50–59 had the highest incidence (6110 per 100 000 people), but mortality was highest among people aged above 60, accounting for 78.8% of COVID-19 deaths. While men and women had similar rates of infections, men accounted for 62.8% of COVID-19 deaths. Furthermore, sub-national trends in health inequalities also emerged. For example, in the Polog and Northeastern regions, COVID-19 incidence was low but case fatality was high compared to national averages, suggesting that COVID-19 exacerbated existing health inequalities (Atanasova & Shriwise, 2021).

A national emergency was declared and measures were taken early in the pandemic

In March 2020 the government formed a Steering Committee to support the coordination and management of the pandemic response, consisting of the Ministries of the Interior, Health, Transport and Communications, Defence and Foreign Affairs. The Ministry of Health coordinated the response through three expert committees (the Infectious Diseases Commission, the IHR Multisectoral Commission and the Operational Crisis Committee). From mid-March 2020 until mid-June 2020 a national state of emergency was declared. This enabled the government to scale up response mechanisms in all sectors of public life. To mitigate and prevent virus transmission, infection control measures such as mask-wearing in public places, restrictions of gatherings in public spaces for groups larger than four persons, strict hygiene protocols for businesses, a lockdown and movement restrictions were implemented.

Simultaneously, laboratory and hospital capacities were scaled up (including setting up prefabricated modular hospitals) and health facilities were repurposed to provide COVID-19 care, alongside essential health services for non-COVID-19 patients. Moreover, emergency beds, medical supplies and equipment were scaled up. Health workers were reassigned from areas with low or no virus transmission to those with increased demands for services. Health workforce capacity was further increased by engaging military doctors (mainly epidemiologists and ICU staff) and medical students in providing care for COVID-19 patients.

Essential health services were disrupted, but e-health interventions were leveraged as part of the emergency response

The shift of health system resources towards the emergency response contributed to a disruption of essential health services. All non-urgent care and elective surgeries were postponed in the spring of 2020. Specialist visits in outpatient and inpatient services were limited to urgent and acute cases. Diagnostics of cancer, asthma and COPD were partially suspended, and dental care services as well as psychiatric group therapies were fully disrupted. In addition, patients refrained from seeking health services due to a perceived risk of infection at health facilities, as well as access barriers, for example due to restrictions in public transport during lockdown. A survey among 1000 respondents in May 2020 found that a quarter had experienced a delay of planned medical examinations during the early phase

of the pandemic (Spasenovska, Atanasova, Tawilah, 2020). The extent to which essential health services were impacted since the beginning of the COVID-19 pandemic, however, has not yet been fully assessed.

The Ministry of Health developed an action plan on maintaining essential health services during the pandemic. A list of essential health services to be maintained was developed and dedicated coordinators were appointed to help organize the work of health facilities and to safeguard the provision of essential health services.

At the same time e-health solutions were expanded. Based on existing infrastructure, telephone consultations for primary care, e-prescriptions for patients with chronic diseases, telemedicine for consultations and a digital roster for health workers were implemented and strengthened. These e-health interventions improved access to essential health services, especially for vulnerable and underserved groups, such as rural communities, migrant groups, older people, people living with disabilities and refugees. Additionally, an e-module for immunizations was implemented, enabling better monitoring of routine vaccination services, enhancing immunization coverage and paving the way for COVID-19 vaccination roll-out (WHO, 2021a).

6 EUROPEAN PROGRAMME OF WORK (EPW)

Moving towards universal health coverage

WHO is supporting North Macedonia's efforts to build a robust, resilient and evidence-informed health system, at the core of post-COVID-19 recovery. The work on UHC is focusing on improving the quality and comprehensiveness of primary care, including through advancing plans for the national primary care model, as well as improving people-centredness across the continuum of care for communicable diseases, NCDs and mental health conditions. WHO has supported the Ministry of Health in its efforts to maintain essential health services during the pandemic by conducting an assessment of the capacity of essential health services, sharing technical information and guidelines, and supporting the piloting of tele-consultations in order to maintain the provision of essential health services.

Another focus is the country's health workforce. WHO has supported the development of national strategies for improving working conditions, with the objectives of retaining and motivating the existing workforce. Educating, training and building the future health workforce corresponding to population health needs are ongoing activities. A major achievement has been the inclusion of nurses as recognized members of primary care teams, supported by the first-ever training and teaching competency training for primary care nurses.

Two flagship initiatives complement WHO's work in support of UHC. Through the 'Mental Health Coalition', North Macedonia is expanding the number of community-based health centres for the provision of mental health care. The initiative 'Empowerment through Digital Health' aims to accelerate digitalized health care to provide continuous home-based care and preventive services for older people, as well as for people with chronic diseases, disabilities and those with mental illnesses.

Protecting against health emergencies

During the COVID-19 pandemic North Macedonia has prioritized the development of systems that provide immediate access to the medical supplies, protective equipment and digital infrastructure required to maintain essential services and protect health-care personnel and patients. There have been substantial efforts in terms of risk communication and public health measures, including establishing protocols for care and protection of vulnerable groups, and providing hotlines for mental health.

WHO has supported the country in building capacity of national public health laboratories for the detection of SARS-CoV-2. This included the large-scale procurement of equipment, supplies and PPE, coupled

with the upgrading of servers for surveillance and laboratory performance, as well as regular training on testing, reporting, biosafety and biosecurity.

Furthermore, an epidemic intelligence and emergency centre has been established, strengthening the capacities to conduct strategic management and monitoring of emergencies, such as communication, coordination and contact tracing. An integrated national database of all national laboratories where testing for Sars-CoV-2 is performed has also been set up.

Through a COVID-19 online training platform for health professionals, training and technical assistance were provided by WHO on relevant and up-to-date guidance for case management of COVID-19 patients, infection prevention and control, and rehabilitation. There was a high degree of uptake at different levels of care, with more than 4000 health professionals being trained.

Promoting health and well-being

To improve health and well-being in North Macedonia, the country, supported by WHO, is increasingly promoting healthy lifestyles, health literacy and preventive public services, and starting to address the consequences of its ageing population and the high burden of NCDs. Environmental health challenges, mainly air pollution, are also being addressed and some improvements have been observed in recent years.

A key achievement has been building institutional capacity for improved health outcomes of mothers and newborns through an integrated national approach. A national master plan for perinatal care was developed, detailing a consolidated implementation plan. In parallel, WHO introduced the first-ever perinatal mortality audit in North Macedonia, an essential tool to inform policy-making, planning and monitoring for the safety and protection of mothers and newborns.

Strengthening the surveillance, coverage and management of vaccines was identified as another priority. The national electronic immunization database was interconnected with the national e-health records and a reporting system created that allows for full oversight of the vaccination situation in the country, paving the way for a coordinated and comprehensive COVID-19 vaccination effort.

Furthermore, new mechanisms were developed for feeding rapid evidence-based assessments and plans into the COVID-19 response and risk communication. By piloting a new tool to support policy-makers, North Macedonia became the first country in the WHO European Region to assess and monitor the health equity and socioeconomic impact of COVID-19. The findings provide evidence to support the decision-making of the Ministry of Health and of United Nations entities on investments in health, health systems and health determinants as part of the country's recovery plans.

Finally, the first-ever national e-Health strategy has been developed with support from WHO. It is hoped to underpin the health system's recovery from the COVID-19 pandemic and to lead to a range of improvements through the interconnection of all levels of the health system, ultimately enhancing the quality of care and efficiency of the health system.

COUNTRY DATA SUMMARY

	North Macedonia	WHO European Region	EU-28
Life expectancy at birth, both sexes combined [a]	75.5 (2013)	78.3 (2017)	81.2 (2017)
Estimated maternal mortality per 100 000 live births (2017)	7.0	13	6.1
Estimated infant mortality per 1000 live births [a] (2019)	5.3	7.5 (2018)	3.5 (2018)
Population size, in million (2019)	2.1	927.2	512
GDP per capita, PPP US$ (2019)	17 583	36 813	46 699
Poverty rate at national poverty lines [a] (2018)	21.6	14.9	17

a Latest year for which data are available shown in brackets.

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

Sources: WHO, 2021b; World Bank, 2021.

References

Analytica (2018). Accelerating Progress on Effective Tobacco Tax Policies in Low- and Middle-Income Countries National Study – MACEDONIA, Economics of Tobacco and Tobacco Taxation. Available at: https://tobacconomics.org/files/research/574/National-study-Macedonia-1-1.pdf (accessed 3 August 2021).

Analytica (2019). The responsiveness of smoking prevalence and cigarette consumption to changes in price and income in North Macedonia. Policy Brief, December 2019. Available at: https://untobaccocontrol.org/taxation/e-library/wp-content/uploads/2020/07/responsiveness-prevalence-North-Macedonia.pdf (accessed 3 August 2021).

Atanasova S, Shriwise A (2021). Health inequity and COVID-19 in North Macedonia: Investing in health and well-being for a fairer and more equitable future for all. Copenhagen: WHO Regional Office for Europe, forthcoming.

Dimkovski V, Mosca I (2021). Can people afford to pay for health care? New evidence on financial protection in North Macedonia. Copenhagen: WHO Regional Office for Europe, forthcoming.

EEA (2020). Air quality in Europe – 2020 report. EEA Report No 09/2020. Copenhagen: European Environment Agency. Available at: https://www.eea.europa.eu/publications/air-quality-in-europe-2020-report (accessed 3 August 2021).

Eurostat (2021). Database. Hospital beds by hospital ownership. Latest data available for 2019 for North Macedonia. Available at: https://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do (accessed 3 August 2021).

EU-SILC (2021). European Commission 2021 Eurostat [database]. Available at: https://ec.europa.eu/eurostat/data/database/ (accessed 10 July 2021).

Groenewegen P, Bryar R, Sanchez Martinez M (2019). Nurses and Midwives in North Macedonia: an assessment of their position, education and practice, and recommendations for change. Report of a WHO Mission, 25 February–1 March 2019.

IHME (2019). Global Results Tool [database]. Seattle: Institute for Health Metrics and Evaluation. Available at: http://ghdx.healthdata.org/gbd-results-tool (accessed 14 May 2021).

Institute for Public Health of the Republic of North Macedonia (2019a). Information on the situation with measles in the Republic of Northern Macedonia in 2018–2019, until 08.08.2019. Available at: https://www.iph.mk/sipanici-do-8-8-2019/ (accessed 3 August 2021).

Institute for Public Health of the Republic of North Macedonia (2019b). Report on the health of the population in the Republic of Northern Macedonia in 2019. Institute of Public Health, North Macedonia. Available at: http://iph.mk/wp-content/uploads/2021/02/Izvestaj-za-zdravje-2019.pdf (accessed 3 August 2021).

Institute of Economic Sciences in Belgrade (2019). Improving tobacco taxation policies in Southeastern Europe. Tobacco taxation Policy Brief. Available at:http://tobaccotaxation.org/cms_upload/pages/files/Policy-Brief-Southeastern-Europe.pdf (accessed 3 August 2021).

Martínez J, Sánchez M, (2018) Improving quality of primary care in the former Yugoslav Republic of Macedonia. Report on a consultancy to the WHO Country Office in the FYR Macedonia.

Milevska Kostova N, Chichevalieva S, Ponce NA, van Ginneken E, Winkelmann J (2017). The former Yugoslav Republic of Macedonia: Health system review. Health Systems in Transition, 19(3):1–160.

Ministry of Health (2020). National Perinatal Care Master Plan, Stratified model of obstetric and newborn care provision.

Ministry of Health (2021). Health Strategy 2021–2030. Republic of North Macedonia. Unpublished.

Spasenovska M, Atanasova S, Tawilah J (2021). North Macedonia: COVID-19 Health System Response Monitor. Available at: https://www.covid19healthsystem.org/countries/northmacedonia/countrypage.aspx (accessed 3 August 2021).

Spiroski I et al. (2021). Changes in weight status of 7-year-old children in North Macedonia between 2010 and 2019. Archives of Public Health, 13(1).

Together Stronger (2019). Annual Report 2019. Skopje: National association for support of people living with HIV "Together Stronger". Available at: https://zp.mk/wp-content/uploads/2020/06/godishen-izveshtaj-2019_04.06.2020.pdf (accessed 3 August 2021).

WHO (2018). National multisectoral multidisciplinary workshop for development of detailed implementation of the draft action plan for noncommunicable diseases (NCDS) in North Macedonia until 2025. Copenhagen: WHO Regional Office for Europe. Available at: https://www.euro.who.int/__data/assets/pdf_file/0020/410726/North-Macedonia-Mission-Report-final-with-covers-1.pdf (accessed 3 August 2021).

WHO (2019a). Primary health care organization, performance and quality in North Macedonia. Copenhagen: WHO Regional Office for Europe. Available at: https://www.euro.who.int/__data/assets/pdf_file/0009/403020/MKD-PHC-report-160519.pdf (accessed 3 August 2021).

WHO (2019b). Can people afford to pay for health care? New evidence on financial protection in Europe. Copenhagen: WHO Regional Office for Europe. Available at: https://www.euro.who.int/en/publications/abstracts/can-people-afford-to-pay-for-health-care-new-evidence-on-financial-protection-in-europe-2019 (accessed 3 August 2021).

WHO (2019c). Perinatal mortality audit North Macedonia 2019. Copenhagen: WHO Regional Office for Europe. Licence: CC BY-NC-SA 3.0 IGO. Available at: https://apps.who.int/iris/bitstream/handle/10665/338875/9789289055383-eng.pdf?sequence=1&isAllowed=y (accessed 3 August 2021).

WHO (2019d). Strategic Response Plan for the measles emergency in the WHO European Region September 2019–December 2020. Copenhagen: WHO Regional Office for Europe. Available at: https://www.euro.who.int/__data/assets/pdf_file/0020/414182/WHO-Measles-Emergency-v8a_hires_pages.pdf (accessed 3 August 2021).

WHO (2019e). Joint external evaluation of IHR core capacities. Republic of North Macedonia: mission report: 11–15 March 2019. World Health Organization. Available at: https://apps.who.int/iris/handle/10665/325320 (accessed 3 August 2021).

WHO (2020). The Health Sector in North Macedonia: Analysis of the Impact on the National Economy. Copenhagen: WHO Regional Office for Europe.

WHO (2021).Spending on health in Europe: entering a new era. Copenhagen: WHO Regional Office for Europe. https://apps.who.int/iris/bitstream/handle/10665/340910/9789289055079-eng.pdf

WHO (2021a). North Macedonia, Accelerating access to essential health services during COVID-19 response. Available at: https://www.who.int/about/accountability/results/who-results-report-2020-mtr/country-story/2020/accelerating-access-to-essential-health-services-during-covid-19-response?fbclid=IwAR3RAvid9CNb7ssUGnP3z58upBfdyxcTKIhzkesASWOM0oPmsSmY_DERD2E (accessed 3 August 2021).

WHO (2021b). Health Inequity and COVID-19 in North Macedonia: Investing in health and well-being for a fairer and more equitable future for all. Copenhagen: WHO Regional Office for Europe, forthcoming.

WHO (2021c). Health for All database. Copenhagen: WHO Regional Office for Europe.

WHO (2021d). Global Health Expenditure Database. Geneva: World Health Organization.

WHO (2021e). Global Health Observatory [database]. Geneva: World Health Organization. Available at: https://www.who.int/data/gho (accessed 14 May 2021).

WHO (2021f). WHO Coronavirus (COVID-19) Dashboard [database]. Geneva: World Health Organization. Available at: https://covid19.who.int/ (accessed 3 August 2021).

World Bank (2019). North Macedonia Strengthening Primary Health Care to Sustain Improvements in Population Health.

World Bank (2021) Word Development Indicators [database]. Washington, DC: The World Bank (https://databank.worldbank.org/reports.aspx?source=World-Development-Indicators, accessed 14 May 2021).

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.

ISBN: 978 92 890 5181 1