## Health Systems in Action

# Ukraine











## Health Systems in Action (HSiA) Insights

## Ukraine

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This edition of the Health Systems in Action Insight for Ukraine was written by Nathan Shuftan, Astrid Eriksen, Aron Aregay, Dene Cairns, Solomiya Kasyanchuk and Erica Richardson.

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

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

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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 (europealthobservatory,who.int).

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## HEALTH SYSTEMS IN ACTION INSIGHTS: UKRAINE

### **Key points**

- Ukraine's health system features a single national purchasing agency, the National Health Service of Ukraine (NHSU), which contracts public and private health care providers and is responsible for implementing the Affordable Medicines Programme (AMP) and the Programme of Medical Guarantees (PMG).
- Regional and local authorities have decision-making powers about how to manage their health facilities and providers have a large degree of autonomy.
- The basis for entitlement is legal residence, and those displaced internally by the Russian Federation's full-scale invasion in February 2022 are entitled to access services across the country.
- Public spending on health increased from 2.5% of gross domestic product (GDP) in 2000 to 4.1% in 2021 and public spending accounted for 51% of health spending in 2021, up from 44.8% in 2019.
- Out-of-pocket (OOP) payments in Ukraine are high and catastrophic health spending was experienced by 17.1% of households in 2021.
- Inpatient care receives the largest share of health spending by function, followed by medical goods, outpatient care and long-term care.
- Russian attacks on health care facilities have impacted the ability to deliver health care to residents, although a WHO assessment in November 2022 found that 93% of inspected facilities were fully operating despite the war.

- Major challenges remain in the context of the war regarding infrastructure, security and workforce.
   Progress has simultaneously been made on developing digital health and remote services to meet health needs.
- Life expectancy at birth stood at 73.3 years in 2019, but the impact of the COVID-19 pandemic and the Russian invasion are not yet reflected in internationally available life expectancy data.
- Other challenges to population health include smoking, as well as communicable diseases such as tuberculosis (TB) and HIV/AIDS.
- Maternal mortality rates have declined by half since 2000, while premature mortality rates from noncommunicable diseases (NCDs) have also decreased but remain comparatively high (more than double the EU average). NCDs are responsible for more than 80% of total annual deaths in Ukraine.
- It is difficult to fully analyse the state of the health workforce in Ukraine, but historically the health workforce has been substantial. No figures on health workers in Crimea and some territories in Donetska and Luhanska oblasts have been available since 2014.
- National statistics have been published on the health workforce in the rest of the country following the Russian invasion. Workforce ageing was a concern before the war, and displacement of professionals has created challenges to realizing a transition to enhanced primary care services.

## 1 ORGANIZING THE HEALTH SYSTEM

# There is a single public payer that contracts with public and private health care providers

The Ministry of Health is responsible for developing and implementing national health policies and administering state-owned specialized health facilities. Decentralization reforms gave more functional and managerial powers to the regional and local authorities but also made it more difficult to address health system inefficiencies at the national level. Regional and local authorities have substantial autonomy in decision-making about the management of their local health facilities.

In 2017, the government created a single national purchasing agency — the NHSU — to enable better resource allocation and strategic purchasing. It introduced a purchaser-provider split and new methods of paying health care providers and allowed the NHSU to contract private providers. At the same time, it established two defined sets of benefits, one for outpatient medicines known as the AMP and one for health services (initially primary care but later including specialist and emergency services) known as the PMG.

The NHSU began to contract primary care providers in 2018 under the PMG, then took over the AMP in 2019 and introduced e-prescriptions for AMP medicines in the same year. In 2020, it started contracting for specialist and emergency care under the PMG. These Programmes have been an important attempt to explicitly link publicly financed health benefits to population health needs and available resources. Patient-centredness in the Ukrainian health system remains underdeveloped.

# Although coverage is comparatively comprehensive, patients pay out of pocket when accessing medicines and services

The basis for entitlement is legal residence, although this needs to be proven when registering with a primary care provider in order to access publicly financed health care. Ukrainians displaced internally by the Russian Federation's full-scale invasion in February 2022 are formally entitled to access services anywhere in the country. This entitlement is facilitated by the use of electronic health records and other digital tools, but in reality there are barriers when accessing primary care services and outpatient medicines (see Section 2).

The publicly financed PMG is relatively comprehensive. OOP spending is dominated by spending on medicines. The list of covered outpatient medicines (under the AMP) has been expanding even in the context of the war and now covers many essential medicines. The list of covered inpatient medicines is small, and access is further limited by budget constraints and inefficiencies in procuring and distributing medicines.

User charges are not a formal feature of the financing model. Although purchaser-provider contracts prohibit the levying of additional patient charges, people frequently pay out of pocket, even for services formally covered, due to persistent underfunding and inefficiencies. There are some formal co-payments for some outpatient medicines in the AMP, based on a reference pricing system. Informal payments and "charitable donations" are most common when accessing hospital services. Levels of informal payments have decreased in primary care since the NHSU introduced capitation payments for primary care services in 2018 (WHO Regional Office for Europe, 2023c).

# 2 FINANCING AND ENSURING FINANCIAL PROTECTION

# Public spending on health increased in 2020 and 2021, but private spending remains substantial

In 2021, Ukraine spent US\$ 552 (adjusted for purchasing power parity, PPP) per capita on health, which exceeded the average of lower middle-income countries (LMICs) in the WHO European Region (US\$ 266 PPP), but was notably lower than the average for the WHO European Region (US\$ 2837 PPP) (Fig. 1).

Public spending on health as a percentage of GDP has fluctuated in Ukraine in the last two decades, ranging from 2.5% in 2000 to 3.9% in 2006 and 2009 (Fig.2). Health spending increased during the COVID-19 pandemic, reaching 4.1% in 2021 (the latest year for which internationally comparable data are available).

Despite the economic shock caused by the Russian Federation's full-scale invasion of Ukraine, the government managed to maintain the same nominal level of public spending on health in 2022 with additional direct budget support from international donors (WHO Regional Office for Europe, 2023c). However, the health system's longstanding underfunding and inefficient use of available resources have led to continued heavy reliance on OOP payments (see below).

# Ukraine has increased its public spending on health, but health financing continues to rely on OOP spending

Public spending as a percentage of current spending on health accounted for 51.0% in 2021, which was a smaller share than in the WHO European Region (67.4%). Spending on health from public sources in Ukraine has fluctuated over time, reaching the highest share (60.4%) in 2006 and the lowest (44.8%) in 2019. The low proportion of public spending on health in Ukraine leads to inefficiencies within the health system and a heavy reliance on OOP payments (Box 1).

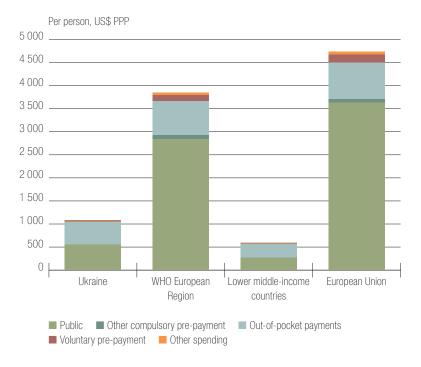
In 2019, OOP payments accounted for 51.1% of current spending on health, marking the highest share recorded in the country, significantly surpassing the lowest share of 36.1% in 2006 (Fig.3). While OOP payments decreased to 47.9% in 2020 and 46.6% in 2021, likely due to increased public health spending in response to the COVID-19 pandemic and the expansion of the PMG to include specialist care in 2020, they continue to make up almost half of current health spending (WHO, 2024a). Heavy reliance on OOP payments looks set to continue, as the government budget faces growing financial pressure and high inflation, but the actual level of OOP payments may fall due to rising poverty and unmet needs (WHO Regional Office for Europe, 2023c).

Informal payments are also prevalent within the Ukrainian health system and mainly occur in inpatient and outpatient specialist care. They are less frequent in primary care and typically involve directly paying health workers (WHO Regional Office for Europe, 2023c). There has been a significant increase in the salaries of health workers, partly due to legislative requirements for a quaranteed minimum wage and extra payments linked to the COVID-19 pandemic response. However, in 2023, 37% of health workers had a positive attitude towards cash-based informal payments. This is almost three times higher than the 14% recorded in 2020. Among patients, there has been no change in the positive attitude, with 9% reported in both 2020 and 2023 (Health Index, 2024). Service users justify informal payments to secure better attention from health professionals, while health professionals justify them due to low wages (WHO Regional Office for Europe, 2023c).

## Spending on inpatient care dominates spending on health

In 2020, inpatient care accounted for 33.8% of health spending, followed by medical goods (mainly medicines) (28.4%), outpatient care (19.7%), long-term care (3.2%), rehabilitative care (1.1%) and preventive care (0.6%).

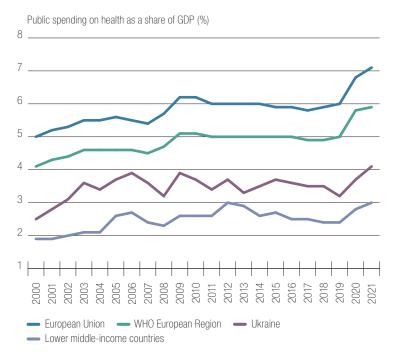
Fig. 1
Ukraine spends more on health than countries with similar income levels



Source: WHO, 2024a.

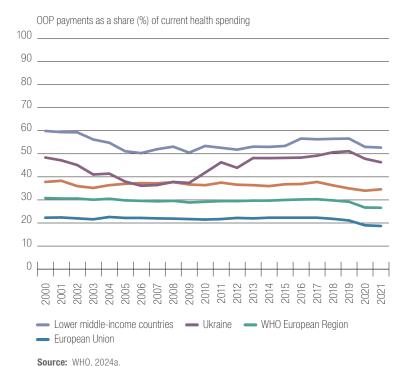
**Notes:** 2021 data. Public refers to transfers from government budgets and social health insurance contributions. Other compulsory pre-payment refers to premiums for MHI schemes in Belgium, Finland, France, Germany, the Netherlands (Kingdom of the) and Switzerland. Other spending includes external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

Fig. 2
Public spending on health as a share of GDP increased in 2020 and 2021



Source: WHO, 2024a.

Fig. 3
The overall high share of OOP payments did not change much between 2000 and 2021



Ukraine has one of the highest rates of catastrophic health spending in the

WHO European Region

Around 17.1% of households in Ukraine experienced catastrophic health spending in 2021, higher than in almost every other country (except Georgia and Bulgaria in 2018) in the WHO European Region. Furthermore, 8.2% of households were impoverished and 2.7%

were further impoverished after OOP payments (Fig.4). The poorest households are most at risk of facing catastrophic OOP payments and suffering from associated financial hardships. In 2021, 64% of households in the poorest quintile experienced catastrophic health spending (WHO Regional Office for Europe, 2023c).

Inpatient care and medicines are the main drivers of catastrophic health spending in Ukraine, and this pattern has been relatively stable over time. In 2021, inpatient care accounted for 44% of catastrophic health spending, while medicines accounted for 43% (WHO Regional Office for Europe, 2023c).

## Self-reported unmet needs are highest for medicines

Internationally comparable data on unmet needs for health services are not available for Ukraine. However, survey data collected by WHO in September/October 2023 (Box 2) found that 92% to 96% of people, depending on the type of service needed, could access necessary health services (WHO Regional Office for Europe, 2024a). The most commonly reported problem while accessing health care is cost of medicines (particularly for those with chronic conditions), followed by cost of treatment and time needed to access the services. Overall, 7% of respondents lacked access to necessary medicines. People who have become internally displaced experience more difficulties in accessing health care and medicines compared to those who have remained in their communities. However, households in areas with ongoing hostilities have the most limited access to family doctors and face more challenges in affording and accessing medicines and medical services than residents in other regions (WHO Regional Office for Europe, 2024a).

#### Box 1

Health system reforms are being built into the Ukraine Recovery Plan to ensure greater efficiency

The government is working on the Ukraine Recovery Plan to plan post-war reconstruction and development priorities. This has been recognized as an opportunity to invest selectively in rebuilding and renovating hospital infrastructure to support developing a more efficient, better-quality and more people-centred health system. An extra emphasis has also been placed on improving the energy efficiency of health infrastructure to support the country's energy security, but also to ensure climate resilience.

Long-standing inefficiencies in the Ukrainian health system include an over-reliance on specialized and

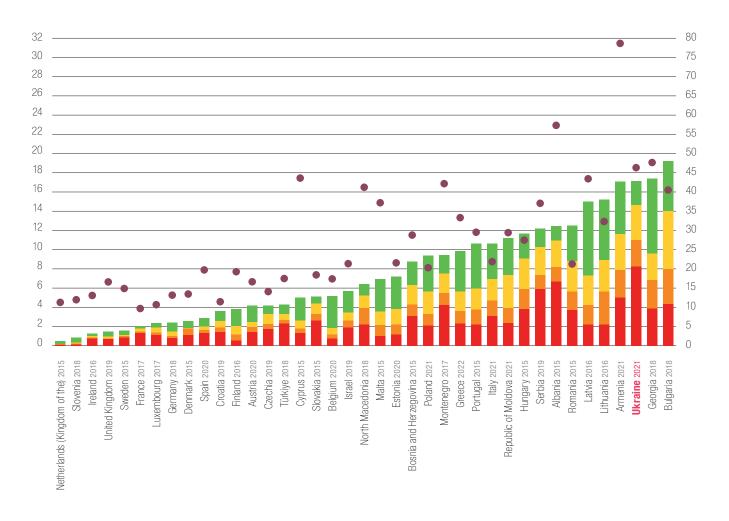
inpatient care. Patient pathways through the system are not shaped to ensure efficient resource use and persistent underfunding of the package of benefits and high levels of OOP spending contribute to the inefficiency of the health system. Primary health care (PHC) is underfunded and gatekeeping underdeveloped, so that patients tend to seek care at more specialized levels of the system.

For frontline health service providers infrastructure development has included the installation of solar panels, individual boilers and electricity generators and the drilling of wells so that they can continue to provide health services throughout the conflict.

**Sources:** WHO Regional Office for Europe, 2022, 2023c, 2024c; WHO et al., 2022.

Fig. 4

Over one in six Ukrainian households experience catastrophic health spending



Source: WHO Regional Office for Europe, 2024a.

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

# 3 GENERATING RESOURCES, PROVIDING SERVICES AND ENSURING ACCESS

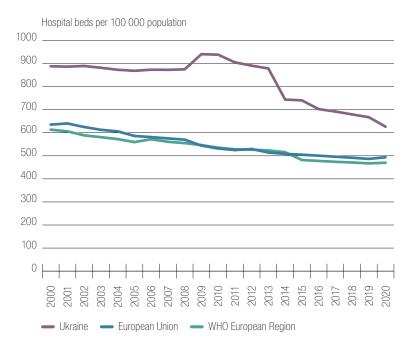
## Bed capacity in Ukrainian hospitals was historically high

From 2000 onwards, hospital capacity decreased overall, reaching 626 beds per 100 000 population in 2020 (Fig.5). Despite this downward trend, capacity remains well above the European Union (EU) and WHO

European Region averages. Hospital reform to rationalize excess capacity has long been discussed and some progress has been made recently to advance this agenda.

Between the full-scale invasion on 24 February 2022 and 29 May 2024, the Surveillance System for Attacks on Health Care (SSA) recorded a total of 2367 attacks impacting facilities in Ukraine (WHO, 2024b). In November 2022, WHO implemented the Health Resources and Services Availability Monitoring System in Ukraine to assess the impact of the full-scale invasion on the health system. Since the inception of the system, 2364 health care facilities (including over 12 000 health service units) have been assessed, with 93% of them remaining fully operational. However, operational challenges persist in oblasts like Donetska, Kharkivska and Khersonska, mainly

Fig. 5
Hospital bed capacity has overall decreased in the last two decades, but remains high



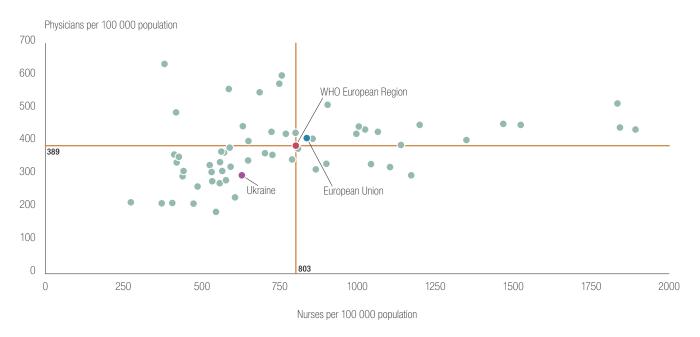
**Source:** WHO, 2024d.

due to infrastructure and equipment damage, security issues and workforce shortages (WHO Regional Office for Europe, 2023b). Data collected in the ten most affected oblasts in January 2023 and January 2024 reflect a complex scenario where, despite substantial increases in building and equipment damage, there is a concerted effort to keep health facilities accessible and functioning, albeit with a notable portion operating at reduced capacity. This highlights the resilience and ongoing efforts to adapt and maintain health services in a challenging and dynamic conflict environment (WHO, 2024c).

### There are fewer physicians and nurses in Ukraine compared to other countries in the WHO European Region

The rates of nurses and physicians per 100 000 population in 2014 were below WHO European Region and EU averages (2018). As in many other countries, the health workforce is characterized by a larger share of nurses than physicians (Fig.6). In 2014 (the latest year for which there are internationally comparable data), there were 630 nurses and 299 physicians per 100 000 population in Ukraine. Health workforce shortages have been exacerbated by the war (see Section 5).

Fig. 6
The numbers of physicians and nurses per 100 000 population were below the WHO European Region and EU averages



Source: WHO, 2024e.

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

# Secondary and tertiary care is provided at various levels and by different providers

Secondary care in larger cities is provided in city hospitals, maternity hospitals and children's city hospitals, while central rayon hospitals in each administrative district of each region provide care for their respective populations. Tertiary hospital care is provided in regional multiprofile hospitals, monoprofile specialized hospitals, regional children's hospitals, psychiatric hospitals, and TB and other monoprofile facilities (Ministry of Health, 2020).

## PHC is provided by both public and private providers

PHC in Ukraine is provided by public and private providers, including public communal providers, private institutions, or private practices owned by a doctor (who may work alone or employ additional practitioners) known as fizychna osoba-pidpryemets. The NHSU can contract all three types of PHC provider. In 2022, the NHSU contracted 2226 providers, and 57% of these were public communal providers. The number of privately owned PHC providers has increased from 34% in 2020 to 43% in 2022. The variety of PHC providers has enhanced service availability, but additional steps are needed to ensure universal access to PHC providers capable and willing to provide comprehensive services (WHO Regional Office for Europe, 2023d).

### There is a growing need and demand for progress in the use of digital health and remote health care solutions

The full-scale invasion in Ukraine continues to pose an enormous challenge for the already overburdened health system and has led to significant population displacement. According to the findings of health needs assessments done regularly by the WHO Country Office since early 2022 (Box 2), the regions that experienced active hostilities in the early stages of the invasion have regained access to medical care and no longer differ significantly from the regions that did not experience active hostilities (WHO Regional Office for Europe, 2024a).

However, residents of regions that are still experiencing active hostilities and areas that the government of Ukraine does not fully control have less access to family doctors and medicines than the rest of the country. In terms of access to a family doctor, internally displaced people continue to be more vulnerable than local communities.

Digital health has the potential to improve health care and access to rehabilitation for people living in remote or war-affected regions, while also easing the burden on the health system (WHO Regional Office for Europe, 2023b). The growing experience with mobile and remote solutions has the potential to inform future primary health care reforms (WHO Regional Office for Europe, 2022).

## Ukraine struggles with early HIV detection and diagnosis

Despite an increase in the percentage of individuals aware of their HIV status from 67% in 2019 to 79% in 2022, Ukraine has yet to meet the UNAIDS target for early HIV detection of 95%. The proportion of those aware of their status who are on antiretroviral treatment (ART) slightly declined to 79% in 2022, compared to 80% in 2019. Likewise, the rate of viral suppression among those on ART slightly decreased to 93% in 2022, compared to 95% in 2019, but almost meets the UNAIDS target for 2025, despite the disruption to medical supplies due to the war **(Fig.7)**.

## Despite an overall downward trend, the burden of TB remains substantial

The TB incidence rate in Ukraine increased from 66.9 per 100 000 population in 2000 to 90.0 per 100 000 population in 2022 (WHO, 2023a). The total TB incidence rate remained well above the average of 25 per 100 000 population in the WHO European Region and 9 per 100 000 population in the EU in 2022 (ECDC & WHO Regional Office for Europe, 2024). In the first six months of 2023, there has been an increase in recorded TB cases (WHO Regional Office for Europe, 2023b). The effective treatment coverage of TB increased from 46.2% in 2006 to 52.0% in 2022. The rate remained below the averages in the WHO European Region (75%) and the EU (59.2%), although the gap with the EU is closing **(Fig.8)**.

#### Box 2

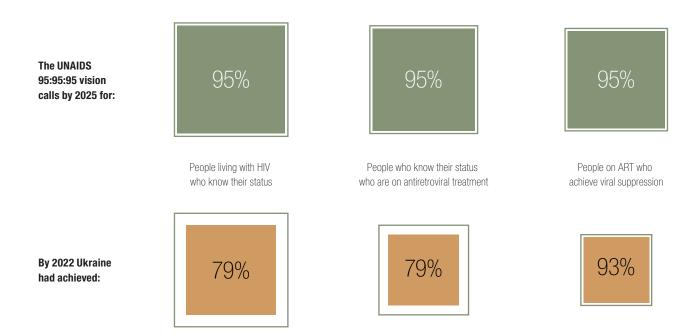
Health needs assessments are done regularly to ensure health services are responsive to health needs

Due to the full-scale invasion, the WHO Country Office in Ukraine has been monitoring health needs in Ukraine among people who have been internally displaced and people in their home communities at national

and macroregional level. The monitoring is done through a serial and quantitative cross-sectional study of self-reported health needs and access to health services. The study was conducted in September 2022 (round 1), December 2022 (round 2), April 2023 (round 3), and September—October 2023 (round 4). Each round comprised a sample size of 4000 respondents.

Source: WHO Regional Office for Europe, 2024a

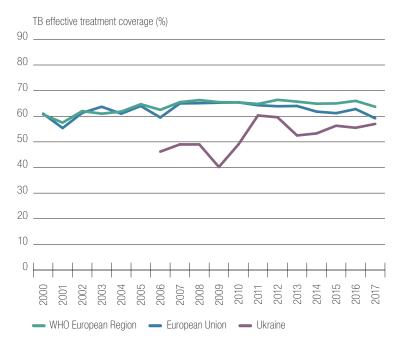
Fig. 7
More people living with HIV in Ukraine are aware of their status



Source: UNAIDS, 2023.

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

Fig. 8
TB effective treatment coverage was close to the EU average in 2017



Source: WHO, 2024d.

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

Ukraine has a high number of TB/HIV co-infection cases (23% estimated HIV infection among incident TB cases (new and relapse) in 2022), and effectively tackling both requires consistent attention to vulnerable populations, such as those living in overcrowded conditions, sex workers, men who have sex with men, and individuals who inject drugs (WHO Regional Office for Europe, 2024b).

# Although Ukraine has made considerable progress in improving access to essential health services, financial burdens persist

In terms of the universal health coverage (UHC) service coverage index, access to essential services has increased from 53 (out of 100) in 2000 to 76 in 2021. The coverage rate remains below the average of the WHO European Region (81), but the gap is closing (Fig.9).

Although publicly funded health services are theoretically free at the point of use, gaps in public coverage impose significant financial burdens on patients. Most OOP payments are spent on medicines (54% in 2021), followed by inpatient care (25%), dental care (9%) and diagnostic tests (7%) (Goroshko, Riabtseva & Shapoval, 2023). The high share of OOP payments (including informal payments) not only results in access barriers but also reduces transparency in the health system.

# 4 IMPROVING THE HEALTH OF THE POPULATION

## Life expectancy at birth is one of the lowest in Europe

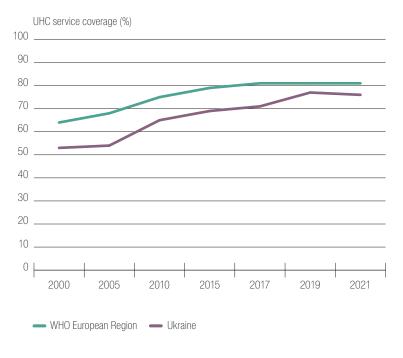
Life expectancy at birth in Ukraine increased by 5.4 years from 67.9 years in 2000 to 73.3 years in 2019 (Fig.10). However, this was more than 5 years shorter than the average across the WHO European Region (78.8 years) and more than 7 years shorter than the EU average (80.9 years). The latest available data in 2019 notably do not include the impact of the COVID-19 pandemic nor the full-scale Russian invasion in 2022. Contributors to the lower life expectancy in Ukraine include behaviours (i.e. tobacco and alcohol use) that aggravate NCDs, as well as environmental factors and lingering challenges with communicable diseases such as TB and HIV/AIDS (WHO Regional Office for Europe, 2024b; Marchese et al., 2022).

Broken down by gender, disparities in life expectancy are much larger in Ukraine than the EU and the WHO European Region averages. Ukrainian women lived 11.3 years longer than Ukrainian men in 2000 (against 6.6 years in the EU and 7.7 years in the WHO European Region) – this gap only narrowed marginally to 10 years in 2019. The gender gap in life expectancy is largely explained by differences in behaviours, notably alcohol and tobacco use (see below).

## The maternal mortality rate has more than halved since 2000

In 2020, 16.5 women per 100 000 live births died due to complications related to pregnancy or labour, a marked decrease from 35.8 in 2000. While the maternal mortality rate in Ukraine was still above the averages for the WHO European Region (12.6 per 100 000) and the EU (6.4 per 100 000), the reduction of 53.9% in 20 years reflects improvements in perinatal care and targeted efforts by health authorities (Marushko & Dudina, 2020). An October 2023 survey by WHO found that 49% of all households that sought pregnancyrelated health services encountered at least one problem accessing care, with the main issues being costs of medicines and treatment. This had been reduced from a reported 58% in December 2022 (WHO Regional Office for Europe, 2024a). UNICEF, in conjunction with the Ministry of Health, has been assisting with a nurse-at-home visiting programme in some areas (UNICEF, 2023a), while also helping renovate bomb shelters to accommodate mothers and their newborns at 16 hospitals across the country (UNICEF, 2023b).

Fig. 9
The UHC service coverage in Ukraine is almost on a par with the WHO European Region average

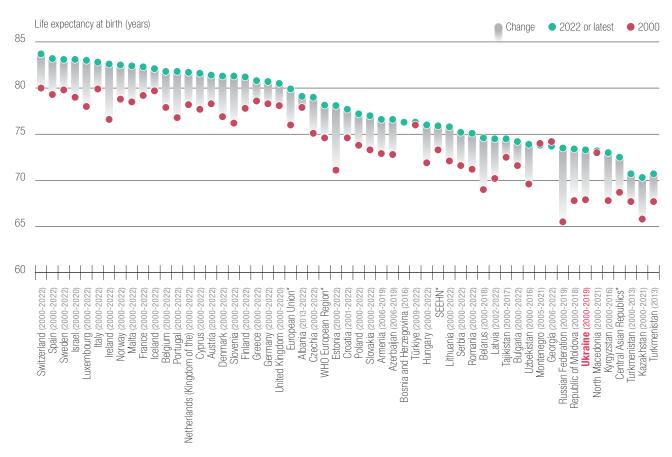


Source: WHO, 2024d.

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

The infant mortality rate declined by more than half — from 15.6 per 1000 live births in 2000 to 7 in 2021, just below the average for the WHO European Region (6.3 per 1000), although much higher than the EU average (3.2 per 1000). Prior to the full-scale Russian invasion and the COVID-19 pandemic, there were large geographic disparities in newborn deaths, which were highest in Zakarpatska Oblast in the west of the country. Generally, birth rates have decreased since the war began as many younger women have fled Ukraine.

Fig. 10
Ukraine has a lower life expectancy than most countries in the region



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

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

## Cardiovascular diseases are the leading cause of death in Ukraine

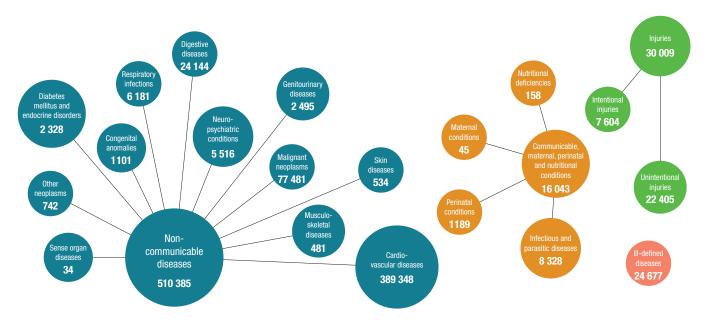
Nearly 390 000 deaths were attributed to cardiovascular diseases in Ukraine in 2019, and cardiovascular diseases are by far the leading cause of mortality in Ukraine, followed by cancers and injuries (Fig. 11). The full-scale invasion of Ukraine is likely to have resulted in a marked increase in deaths due to external causes.

The impact of the COVID-19 pandemic was felt most strongly in 2021. In 2020 excess mortality (deaths attributable directly to COVID-19 as well as deaths indirectly associated with COVID-19 through impacts on the health system and society) per 100 000 population stood at 99 deaths in Ukraine and 137 across the WHO European Region (Fig. 12). In 2021, however, the excess mortality rate per 100 000 population tripled in Ukraine, far outstripping the increase across the WHO European Region.

# Premature mortality from NCDs has declined since 2000 but remains comparatively high

In Ukraine, premature (at age 30-69 years) deaths from major NCDs stood at 584 per 100 000 population in 2019, a large reduction from 853 in 2000. However, the rate in Ukraine in 2019 was still much higher than the average in the WHO European Region (344 per 100 000 population) or the EU (250), but it was following the same gradual downward trend (Fig. 13). In Ukraine there is a dramatic gender gap in premature mortality, as 902 men out of 100 000 in the premature age group died from a major NCD in 2019, compared to 344 women out of 100 000. Overall, 9 out of 10 primary causes of premature death are NCDs, and NCDs are responsible for 84% of total annual mortality in Ukraine (WHO Regional Office for Europe, 2024b). Pre-war/pre-pandemic, the 2019 STEPS survey from the Ministry of Health and the WHO Country Office in Ukraine found that many patients were not taking antihypertensive medications for their high blood pressure or insulin for their diabetes (Rakovac et al., 2020).

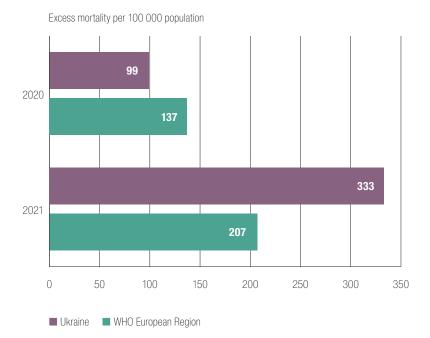
Fig. 11
Cardiovascular diseases account for the majority of deaths due to noncommunicable diseases



Source: WHO, 2024f.

Note: Overview of the distribution of causes of total deaths grouped by category. Data refer to 2019.

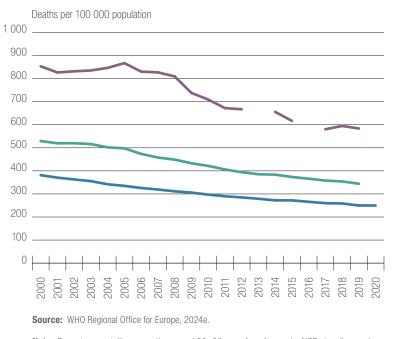
Fig. 12
The second year of the COVID-19 pandemic hit Ukraine the hardest



**Source:** WHO, 2023b.

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

Fig. 13
Premature deaths from NCDs are higher in Ukraine than across the WHO European Region, but have declined



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

## Healthy life years are most impacted by ischaemic heart disease

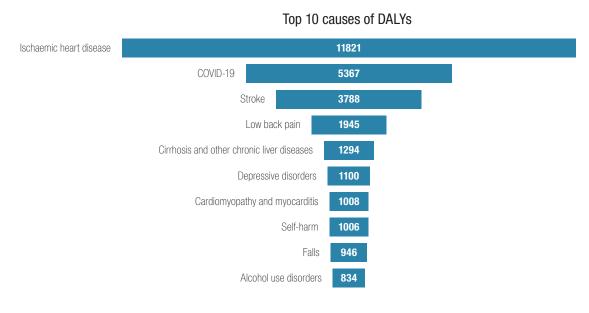
Estimates of disability-adjusted life years (DALYs) in Ukraine indicate that in 2021 ischaemic heart disease was the biggest contributor to lost years of healthy life in the country, accounting for nearly 12 000 DALYs per 100 000 population. This was followed by COVID-19 and stroke (Fig.14). External causes are likely to have become more prominent as a cause of DALYs from 2022 onwards.

# Tobacco control is high on the policy agenda as a leading risk factor for mortality

Hypertension and a diet low in fruits and vegetables but high in salt, sugar and trans-fats are estimated to be risk factors accounting for 31.6% and 20.2% respectively of all deaths in 2021, followed by high levels of LDL cholesterol (15.5%) (Fig.15).

Tobacco consumption is another major risk factor, and data show that men are much more likely to smoke than women (with an estimated smoking prevalence in 2023 of 37.6% among males compared to 8.6% among females). Additionally, the risk of second-hand smoke exposure remains high. According to the 2019 STEPS survey, 30.4% of adults who worked indoors were exposed to tobacco smoke at their workplace and 30.2% were exposed in their homes (Rakovac et al., 2020). There is a smoking ban in indoor workplaces and public places, but a lack of formal enforcement. The taxation of tobacco

Ischaemic heart disease was the greatest cause of the burden of disease in 2021



Source: IHME, 2024.

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

#### Box 3

WHO work on prevention and health risk reduction

One of the key strategic priorities of the 2024–2030 WHO Country Cooperation Strategy with the Ministry of Health is the prevention and reduction of major health risks. Given the low life expectancy at birth in regional comparison, as well as the 10-year gap between females and males in 2019,

WHO is planning to work in the communities with local partners to promote healthy eating and living habits, as well as to support the development of green spaces to boost movement and sport and to contribute to environmental health. In the context of the full-scale invasion, education campaigns and community needs assessments will continue to form part of the technical support to the country.

Source: WHO Regional Office for Europe, 2024b

products remains an underused mechanism for tobacco control and since 2016 has been unable to keep the tax share at or above the 75% level, as recommended by WHO (though Ukraine did start taxing e-cigarette liquids in 2021). This highlights the need for stricter tobacco control policies and the WHO Country Office in Ukraine has made this part of their strategic priority on prevention (Box 3).

# Environmental and mental health challenges in the context of war are the dominant public health concerns

Environmental risk factors, such as air pollution, pose threats to health, but the key challenge Ukraine is currently facing is the increasing impact of Russian

attacks on Ukrainian infrastructure. The bombing of dams, mines, power plants, the national electricity grid and sewage systems has occurred throughout and each time forces the government, WHO and other stakeholders to divert resources from ongoing activities to try to respond to, and control, potential grave environmental and public health threats. Ukrainian health workers have been receiving extensive training in responding to the potential risks associated with chemical, biological, radiological and nuclear threats as part of the national health security strategy (EUMAM Ukraine, 2024; WHO, 2024b).

Furthermore, as a result of the full-scale Russian invasion, mental health needs have risen. Already by March 2022, 53% of Ukrainian adults were reporting having experienced mental distress (Lushchak et al., 2024). This has been felt by all impacted by the war:

Fig. 15
High blood pressure, poor diet and high cholesterol levels are leading risk factors contributing to deaths in Ukraine

#### High systolic blood pressure 31.6% Dietary risks 20.2% High LDL cholesterol 15.5% 9.9% Tobacco 8.9% Kidney dysfunction 8.8% High body mass index 8.3% Air pollution High fasting plasma glucose 6.6% Non-optimal temperature 4.2% Alcohol use

Top 10 risk factors as a share of all deaths

Source: IHME, 2024.

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

those who remained in place, those who were displaced within Ukraine, and those who sought safety abroad. As part of the 2024–2030 WHO Country Cooperation Strategy with the Ministry of Health, actions are planned to meet the population's mental health needs (**Box 4**).

## 5 SPOTLIGHT ON HEALTH WORKFORCE TRENDS

# Although precise data are limited, health workforce shortages are looming

Health workforce trends in Ukraine are challenging to map over the past 10 years. Since the initial invasion of Ukraine and annexation of Crimea by the Russian Federation in 2014, no data have been available for the number or distribution of health workers in the Republic of Crimea, Sevastopol and some territories in Donetska and Luhanska oblasts. The most recent internationally comparable data available on health workforce trends in Ukraine are from 2014, when 299 doctors per 100 000 population were practising in the country alongside 630 nurses per 100 000 population. This was below the averages for the EU and the WHO European Region.

#### Box 4

Efforts to provide psychosocial services during the war and beyond

An estimated 10 million people in Ukraine are currently experiencing mental ill-health as a direct result of the ongoing war and are suffering from anxiety, depression and post-traumatic stress disorder. This is felt broadly across the population from veterans, to grieving families, to victims of sexual violence, to displaced people. Demand for medical information on how to access mental health support has also increased as the war has continued into its third year. In response, mental health services are planned for inclusion in a new integrated health service package that is being designed with the support of WHO.

Source s: WHO Regional Office for Europe, 2024a, 2024b.

Since the full-scale invasion in February 2022, health workforce data have not been published by the central statistics agency or the Ministry of Health and the most recent national data are from 2019. There were 417 physicians per 100 000 population in 2019 (excluding dentists), a decline from 462 in 2000. Numbers of nurses and midwives in Ukraine have declined from 1103 per 100 000 population in 2000 to 743 in 2019.

# The health workforce is ageing and many health workers have been displaced by war

Health workforce ageing contributes to imbalances. National data show that in 2019, 24.7% of active physicians had reached retirement age (Ministry of Health, 2019). This echoes wider demographic trends in Ukraine which have been exacerbated by the war displacing civilians both within Ukraine and across borders. Since February 2022, 41% of all health facilities experienced personnel relocation related to the war, where health workers have moved to another location within or outside Ukraine (WHO Regional Office for Europe, 2023a). The NHSU recorded a 14% (equating to 89 000 medical professionals) increase in health workforce outflow in 2022 compared with 2021, with a substantial number of physicians re-registering in neighbouring countries (WHO Regional Office for Europe, 2023b).

Even before the war, the need for investment in Ukraine's health workforce was recognized in order to enable the longer-term transformation to a more patient-centred delivery network, in line with ongoing reforms. With the loss (including through out-migration) of many health workers during the war, and considering the longer-term implications of the war for population health needs (for example, rehabilitation, mental health, outbreak preparedness), investment in human capital is now even more crucial (WHO et al., 2022). In view of the reduced number of available physicians, task-shifting and nursing empowerment is one area where possible solutions could be found (WHO Regional Office for Europe, 2024b).

### Primary care services have proved remarkably resilient in the face of ongoing hostilities and shortages of primary care workers

In 2014, 12% of doctors were generalist medical practitioners, which was low in international comparison. Many health facilities have tried using incentives (such as increased wages or housing) to attract GPs and specialists, in order to avoid risking non-compliance with NHSU contracting regulations on staffing and equipment (NHSU, 2020). Historically, the largest staff shortages have been in rural areas, but currently those territories with active hostilities are facing the most acute difficulties in maintaining sufficient personnel to ensure access to services (WHO Regional Office for Europe, 2024a). WHO has been working with the Ministry of Health to develop and deliver mobile and replacement modular health clinic solutions in areas that have experienced hostilities.

Overall, during the war primary care facilities have been able to quickly adapt in managing their workforce to meet population needs. A guarter (26%) of all facilities had adapted human resources management since the escalation of hostilities because of changes in patient volume or patient needs. The main changes were related to 1) repurposing skills towards mental health or rehabilitation services, and 2) reassigning to different units or responsibilities in the facility (WHO Regional Office for Europe, 2023a). In the frontline regions family doctors are often responsible for a large number of internally displaced persons in addition to patients from the local community, which can create financial challenges for providers due to the way capitation payments are organized (WHO Regional Office for Europe, 2024c). A higher share of displaced people had no access to a family doctor (11%) than local communities (3%), but residents of regions that continue to experience active hostilities have less access to family doctors than the rest of Ukraine (WHO Regional Office for Europe, 2024a).

6 EUROPEAN PROGRAMME OF WORK (EPW)

## Moving towards universal health coverage

In 2023, Ukraine made significant strides towards UHC despite the ongoing conflict. WHO supported the development of the National Health Strategy 2030, integrating elements from the pre-war plan with the National Health System Post-War Recovery Plan. This strategy aims to enhance health service delivery, focusing on PHC and financial protection. The introduction of the flagship WHO Barcelona Health Financing Course

for Universal Health Coverage tailored for Ukraine significantly improved health financing understanding among policy-makers. Moreover, WHO facilitated a comprehensive costing analysis for provider payments in PHC, offering policy recommendations to enhance health outcomes and optimize public spending.

Promoting mental health has been a critical focus in Ukraine. WHO contributed to the All-Ukrainian Mental Health Programme, initiated by First Lady Olena Zelenska, providing technical guidance and support. The establishment of the Coordination Centre for Mental Health and the introduction of Community Mental Health Teams (CMHT) have been pivotal. CMHTs, supported by WHO, provided care to over 6200 individuals with severe mental health conditions in 2023, promoting person-centred and recovery-oriented support.

### Protecting against health emergencies

To bolster health care in frontline communities, WHO has focused on strengthening PHC. This includes the procurement and distribution of essential medical supplies and equipment to recently liberated regions. In 2023, WHO delivered 2015 metric tonnes of medical supplies valued at US\$ 61.85 million to 1016 health facilities across 24 oblasts. This ensured that frontline health facilities remained operational and capable of meeting the immediate health needs of the population. Emergency responses to events like the missile attack on a Dnipro health care facility and the Kakhovka Dam's destruction highlighted WHO's capacity for prompt and strategic interventions. WHO's collaboration with the State Emergency Service of Ukraine and international partners ensured the continuous delivery of critical medical care and facilitated treatments abroad.

## COUNTRY DATA SUMMARY

	Ukraine	WHO European Region	European Union
Life expectancy at birth, both sexes combined (years)	<b>73.3</b> (2019)	78.2ª	79.9ª
Estimated maternal mortality per 100 000 live births (2020)	16.5	12.6	6.4
Estimated infant mortality per 1 000 live births (2021)	7.0	6.3	3.2
Population size, in millions (2022)	39.7	929.1	512.7
GDP per capita, PPP\$ (2021)	14 219	38 936	48 615
Poverty rate at national poverty lines (% of population)	1.6 <sup>b</sup> (2020)	<b>14.9</b> (2018)	<b>17.0</b> (2018)

Sources: WHO Regional Office for Europe, 2024e;

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

Note: Life expectancy averages refer to latest available years.

### Promoting health and wellbeing

Tackling NCDs has been a critical focus in Ukraine. In collaboration with WHO, the Centre for Public Health of the Ministry of Health advanced significant NCD initiatives despite challenging circumstances. A major milestone was the implementation of comprehensive tobacco control legislation in January 2022, regulating traditional and novel tobacco products. WHO supported a national survey in April 2023 to understand adult tobacco use, informing the evaluation of tobacco regulations. Additionally, WHO's efforts in addressing stroke and cancer were highlighted through the review of the National Cancer Strategy and the prioritization of stroke on the national health agenda.

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### **WHO Regional Office for Europe**

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

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

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

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

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

## The European Observatory on Health Systems and Policies

The European Observatory on Health Systems and Policies supports and promotes evidence-based health policy-making so that countries can take more informed decisions to improve the health of their populations. It brings together a wide range of policymakers, 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.