World Health Organization

European Region

Avoidable mortality, risk factors and policies for tackling NCDs: leveraging data for impact

Monitoring commitments in the WHO European Region ahead of the Fourth United Nations High-Level Meeting

World Health Organization

European Region

Avoidable mortality, risk factors and policies for tackling NCDs: leveraging data for impact

Monitoring commitments in the WHO European Region ahead of the Fourth United Nations High-Level Meeting

Abstract

Noncommunicable diseases (NCDs), such as cardiovascular diseases, cancers, diabetes and chronic respiratory diseases, remain the leading cause of death and disability in the WHO European Region. Approximately 1.8 million deaths annually are avoidable, with 60% preventable through reduced exposure to risk factors and public health interventions, and 40% treatable with timely and high-quality health care. While premature mortality has decreased since 2010, progress was significantly disrupted by the coronavirus disease pandemic. Progress towards many global targets has been made, but in all cases (except suicide mortality and alcohol use) it is not sufficient to meet agreed targets by 2025 and 2030. Inequalities between sexes and countries have decreased for mortality and air pollution, but increased for tobacco use, obesity, raised blood pressure and diabetes. The report notes that, in order to tackle NCDs and address the commercial, social, environmental and digital determinants of health, there is a need for accelerated multisectoral whole-of-government and whole-of-society action, integrated policies, enhanced preventive measures and strengthened health systems.

Keywords

NONCOMMUNICABLE DISEASES; MORTALITY, PREMATURE; RISK FACTORS; TOBACCO USE; ALCOHOL DRINKING; OBESITY; HEALTH POLICY

Document number: WHO/EURO:2025-12445-52219-80271 (PDF)

Suggested citation. Avoidable mortality, risk factors and policies for tackling NCDs: leveraging data for impact: monitoring commitments in the WHO European Region ahead of the Fourth United Nations High-Level Meeting. Copenhagen: WHO Regional Office for Europe; 2025. Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at http://apps.who.int/iris.

Sales, rights and licensing. To purchase WHO publications, see http://apps.who.int/bookorders. To submit requests for commercial use and queries on rights and licensing, see http://www.who.int/about/licensing.

Contents

Foreword

Noncommunicable diseases (NCDs) remain the leading cause of death and disability in the WHO European Region. One in five men and one in 10 women in the Region die before the age of 70 as a result of cardiovascular diseases, cancer, diabetes or chronic respiratory diseases. Despite decades of advancement, recent years have seen unprecedented challenges, with progress towards reducing premature NCD mortality stalling or reversing. This report delivers a timely and much needed data-driven assessment of current trends in NCD mortality and risk factors, highlighting setbacks and opportunities for renewed action.

The COVID-19 pandemic exposed vulnerabilities in health systems and demonstrated the consequences of neglecting NCD prevention and management. Disruptions to essential services and slowed policy implementation have left the Region off track to meet its target of a 25% reduction in premature NCD mortality by 2025, putting the more ambitious 2030 Sustainable Development Goal at risk.

This report shows that, while some risk factors have declined, others, such as obesity and diabetes, are rising. Persistent inequalities across countries and population groups highlight the need for tailored, equitable approaches. The economic burden is immense, with avoidable deaths costing over US$ 0.5 trillion in annual productivity losses.

Yet, while the statistics are sobering, the report also offers hope. The overall pace of progress may be too slow to meet most targets, but some countries are nevertheless making notable progress, demonstrating that strong political will, comprehensive prevention policies and high-quality health systems can deliver life-saving results.

For the first time, we now report on avoidable mortality from NCDs, broken down into preventable and treatable mortality. Around 60% of NCD deaths are linked to causes that are avoidable by implementing effective public health interventions or modifying risk factors such as tobacco and alcohol use, unhealthy diets, and physical inactivity; the remaining 40%, meanwhile, are due to causes that can be avoided through effective treatment.

These deaths are not inevitable. With intensified prevention efforts, improved access to treatment and comprehensive coordinated efforts across governments, sectors and communities, we can turn setbacks into solutions. To measure the impact of our actions, we need timely, reliable data.

With the 2025 United Nations Fourth High-Level Meeting on NCDs and mental health and the Second European Programme of Work, we have two pivotal opportunities to renew political commitment, set achievable targets and scale up implementation of quick buys that deliver measurable public health impact within five years.

At the WHO Regional Office for Europe, we remain committed to supporting countries. We urge governments, communities, civil society and partners to seize this opportunity to advance health, build resilient societies, strengthen economies and deliver on the promise of longer, healthier lives.

Our message is clear. There are no more excuses. We have the knowledge and the tools. What remains is the will to implement them swiftly and hold ourselves accountable for delivering real results. This is not just a matter of public health; this is a matter of justice, security and competitiveness, and a shared future.

Dr Hans Henri P. Kluge
WHO Regional Director for Europe

Acknowledgements

This report was prepared by Ivo Rakovac, Gauden Galea, Nadia Scott, Laura Vremis, Stephan Spat, Allison Ekberg, Sergei Bychkov, Natalia Fedkina and Sumudu Kasturiarachchi, Special Initiative on Noncommunicable Diseases and Innovation, WHO Regional Office for Europe. For their review and suggestions for improving the report, the authors are grateful to Angela Ciobanu, Marilys Corbex, Daniela Correia, Clare Farrand, Jill Farrington, Carina Ferreira-Borges, Maria Neufeld, Elena Tsoy, Steven Whiting, Kremlin Wickramasinghe and Julianne Williams, WHO Regional Office for Europe; Knut-Inge Klepp, Norwegian Institute for Public Health, Norway; Benedetta Armocida, Beatrice Formenti and Graziano Onder, Istituto Superiore di Sanità, Italy; Bente Mikkelsen, World Diabetes Foundation; and Marianne Takki, DG SANTE, European Commission. The strategic leadership of Gauden Galea, Strategic Advisor, Special Initiative on Noncommunicable Diseases and Innovation, and Gundo Weiler, Division of Prevention and Health Promotion, is gratefully acknowledged.

This work was financially supported by grants from the governments of Denmark, Estonia, Finland, France, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Norway, Slovenia and Sweden.

Abbreviations

AQG	air quality guidelines
CIS	Commonwealth of Independent States
COVID-19	coronavirus disease
CPL	cost of productivity loss
CVD	cardiovascular disease
EAP	European Action Plan
EPW	European Programme of Work 2020–2025
EPW2	Second European Programme of Work 2026–2030
EU	European Union
GDP	gross domestic product
GMF	Global Monitoring Framework
ICD	International Classification of Diseases
NCD	noncommunicable disease
PI	progress monitor indicator
SDG	Sustainable Development Goal
UHC	universal health coverage

Glossary of key terms

Avoidable mortality	Deaths occurring before 75 years of age from causes that are either preventable or treatable. It can be further divided into preventable and treatable mortality.
Premature NCD mortality	Unconditional probability of dying between ages 30–69 years from four major noncommunicable diseases (NCDs): cardiovascular diseases, cancers, diabetes and chronic respiratory diseases [ICD-10 (International Classification of Diseases, 10th revision) underlying causes of death I00–I99, COO–C97, E10–E14, J30–J98; or ICD-11 (11th revision) underlying causes of death 8B00–8B2Z, BA00–BE2Z, 2A00–2F9Z, 5A10–5A2Y, CA20–CA2Z, CA60–CA8Z, CA00–CA0Z, CB00–CB0Z, CB20–CB2Z, CB40, CB41, CB60–CB64, CB7Z].
Preventable mortality	Deaths occurring before 75 years of age from causes that are avoidable through effective public health interventions, including immunizations, or linked to modifiable risk factors (such as tobacco, alcohol, unhealthy diet and physical inactivity).
Treatable mortality	Deaths occurring before 75 years of age from causes that can be avoided through access to timely and effective health-care interventions.

Key messages

Progress towards targets derailed by the coronavirus pandemic

Noncommunicable diseases (NCDs) continue to be the main driver of death and disability in the WHO European Region. Currently, every fifth man and every 10th woman are dying before the age of 70 as a result of cardiovascular diseases (CVDs), cancers, diabetes or chronic respiratory diseases. This report reveals for the first time that progress towards reducing premature mortality from NCDs was disrupted during the coronavirus disease (COVID-19) pandemic. As a result, the WHO European Region is no longer on track to achieve the regional target of a 25% reduction in premature mortality from NCDs between 2010 and 2025. The Sustainable Development Goal (SDG) premature mortality target is more ambitious, and it is not likely that it will be met. The pandemic also disrupted policy implementation – while adoption of WHO best buys increased steadily until 2019, progress has since stalled. Significant variation remains in policy implementation across countries, highlighting that every country has room for improvement.

Avoidable mortality from NCDs: it is mostly preventable

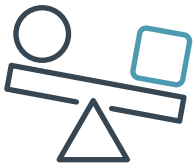
Avoidable mortality refers to those deaths before 75 years of age from causes that are either preventable with effective public health services or treatable with appropriate health-care services. Of the 1.8 million avoidable deaths from NCDs in the WHO European Region, approximately 60% are due to preventable causes, meaning that they are linked to modifiable risk factors and low vaccination coverage, while the remaining 40% are due to treatable causes. In high-income countries, rates of treatable deaths are similar, but preventable deaths vary more, showing that prevention efforts are uneven and need strengthening.

Cost of avoidable mortality is high

Avoidable mortality from NCDs in the WHO European Region imposes a significant cost of productivity loss (CPL), totalling US$ 514.5 billion annually. Over 60% of this cost is caused by preventable mortality, with cancer mortality accounting for the largest share. Prevention remains chronically underfunded despite offering high returns.

Risk factors are on the decline but not fast enough to meet most targets

While levels of most risk factors have been declining in the WHO European Region since 2010, they remain high and declines are too slow to meet the targets. Notable exceptions to this are rising rates of obesity and diabetes, and insufficient physical activity, which has stagnated.



Mortality inequalities are declining, but risk factor gaps increasing

Since 2010 the inequalities between countries have decreased significantly for premature mortality, as well as for preventable and treatable mortality. Nevertheless, substantial inequalities remain, largely driven by excess CVD and male mortality, as well as by differences between eastern and western parts of the WHO European Region. Rising inequalities between countries in tobacco use, high blood pressure, obesity and diabetes prevalence are also concerning.

Ambitious but achievable targets should be set, and data and monitoring strengthened

Reliable and timely data are key to measuring real progress and holding everyone accountable. As we approach 2030 and look towards 2050, it is vital to revise NCD targets and strengthen the data systems that track progress. New targets should be ambitious yet achievable, grounded in the best-performing countries' results and reflecting the need for upward convergence. We must invest in better data and data use to monitor and strengthen response to NCDs.

Comprehensive action on both prevention and treatment is required for success

Lessons from successful countries show that prevention and treatment must go hand in hand, reducing prevalence of risk factors through comprehensive policies and strengthening the health system response to NCDs, to reduce both CVD and cancer mortality. Ignoring either leads to avoidable deaths and missed health gains. Prevention interventions often lie beyond the health system, emphasizing the importance of whole-of-government and whole-of-society approaches.

Addressing NCDs is key to competitiveness and resilience

Effectively tackling NCDs will play a key role in improving competitiveness by increasing human capital and decreasing cost. One of the lessons from the COVID-19 pandemic is the importance of a dual-track approach, ensuring an effective emergency response while maintaining essential health services delivery. For this reason, it is essential to include NCDs and mental health in emergency preparedness, response and recovery plans, as has been done in the new WHO European strategy Preparedness 2.0.

Act now: with bold action 2030 targets are still within reach

With rapid scaling of effective policies, the 2030 targets can still be reached. The 2025 Fourth High-Level Meeting of the United Nations General Assembly on the prevention and control of NCDs and the promotion of mental health and well-being and the Second European Programme of Work are pivotal opportunities to reimagine the European response to NCDs. Strong political commitment from all stakeholders, innovation, and implementation of quick and other best buys, as well as their enforcement, are essential to reduce NCDs, protect health and promote sustainable development to ensure years lived longer are lived in good health.

Introduction

Noncommunicable diseases (NCDs), such as cardiovascular and respiratory diseases, cancers and diabetes, in addition to mental health conditions, substance use disorders and neurological conditions, are the main causes of ill health in the WHO European Region. In 2019, prior to the COVID-19 pandemic, these conditions caused 90% of deaths and 85% of years lived with disability in the Region. Even as deaths from COVID-19 peaked in 2021, NCDs still accounted for 74% of deaths and 85% of disability *(1)*. Annually, NCDs caused 2.5 million premature deaths (deaths occurring below 70 years of age), or 83% of all such deaths in the Region, prior to the COVID-19 pandemic. This is comparable to all reported COVID-19 deaths for all ages over the four-year period 2020–2024 *(2)*. Two thirds of deaths from these conditions can be attributed to a handful of risk factors, including tobacco and alcohol use, unhealthy diet, insufficient physical activity, overweight and obesity, and raised blood pressure, lipids and glucose, as well as air pollution *(3)*.

In addition to the health effects of NCDs on morbidity and mortality, NCDs incur enormous social and economic losses *(4)*. It is estimated that NCDs will incur costs of US$ 37 trillion globally between 2011 and 2030 *(5)*. This is particularly pertinent to countries of the WHO European Region, whose NCD burdens are among the highest in the world *(1)*. It is thus incumbent on countries to take action to reduce NCD morbidity and mortality as expeditiously as possible. At the same time, NCDs accounted for only 2.1% of global developmental assistance for health in 2022, with a decrease of 34% since 2020 *(6)*.

This report presents the key policy messages of the WHO Regional Office for Europe's more detailed 2025 NCD trends report *(7)*, which describes the current situation regarding NCD risk factors and disease groups across the WHO European Region, identifies the trends and trajectories of NCD indicators against the various targets, and provides an assessment of where the Region stands ahead of the Fourth High-Level Meeting of the United Nations General Assembly on the prevention and control of noncommunicable diseases and the promotion of mental health and well-being, to be held in New York, United States of America, on 25 September 2025.

Key facts. Annual death toll in the WHO European Region

Total deaths (all causes)	Deaths due to NCDs (including mental health and neurological conditions)	Total premature deaths (below age 70)	Premature deaths due to NCDs (below age 70)	Avoidable deaths due to NCDs (below age 75)
9.2 million	8.2 million	3.0 million	2.5 million	1.8 million

This analysis provides the first assessment of the impact of COVID-19 on NCDs in the WHO European Region and gives special focus to the interconnectedness of NCDs and the toll and cost of avoidable mortality from NCDs, as well as to the persistent inequalities between countries and sexes. It also provides an opportunity to draw lessons from the current extended period of instability and insecurity – what has been termed a "permacrisis" – as we look ahead to the Second European Programme of Work 2026–2030 (EPW2) *(8)* and further to 2050: the opportunity to craft a regional response to NCDs that considers the need to build a more prepared, integrated and resilient region, taking account of the rising megatrends – large-scale systemic shifts across demographic, environmental, technological, economic and geopolitical domains – that are transforming the landscape of public health.

Key facts. Death toll at all ages by cause in the WHO European Region

CVD	Cancers	Chronic respiratory disease	Diabetes	Mental health (excluding suicide)	Neurological conditions
3.9 million	2.1 million	0.4 million	0.2 million	0.1 million	0.6 million

Reporting on progress

Through a series of agreements, countries have committed to a set of targets and indicators related to NCDs. These include outcome indicators from the Global Monitoring Framework (GMF) *(9)* and the SDGs and progress monitor indicators (PIs) to track the adoption of recommended policies, including the WHO NCD best buys *(10)*. In addition, countries in the WHO European Region have adopted a framework to monitor implementation of the European Programme of Work 2020–2025 (EPW) *(11)* to guide collective efforts to reduce the burden of NCDs and mental health conditions by 2025, in alignment with GMF, SDG and PI targets and indicators. This report provides a comprehensive analysis of progress towards these targets, the trends and status of NCDs, their risk factors, and policies in the WHO European Region since 2010 *(12–14)*. The data reveal a sobering reality: although progress has been made, the COVID-19 pandemic has put us off course to meet our commitments and further work is needed to achieve global and regional targets.

New insights

In addition to providing updated analysis of new data for all considered outcome indicators and PIs, this analysis presents the following new insights:

- avoidable mortality from NCDs, disaggregated into preventable and treatable components;
- economic impact of preventable and treatable mortality;
- expanded reporting on the 5-by-5 approach, including indicators for mental health and air pollution;[1]
- systematic evaluation of trends in inequalities between countries; and
- quantification of changes during the COVID-19 pandemic for premature and avoidable mortality from NCDs and risk factors, and PIs.

Avoidable mortality from NCDs: it is mostly preventable

Avoidable mortality refers to those deaths before 75 years of age from causes that are either preventable with effective public health services or treatable with appropriate health-care services. Mortality from all avoidable causes is a widely used indicator endorsed and used by international organizations and many countries in their official statistics *(15–19)*.[2]

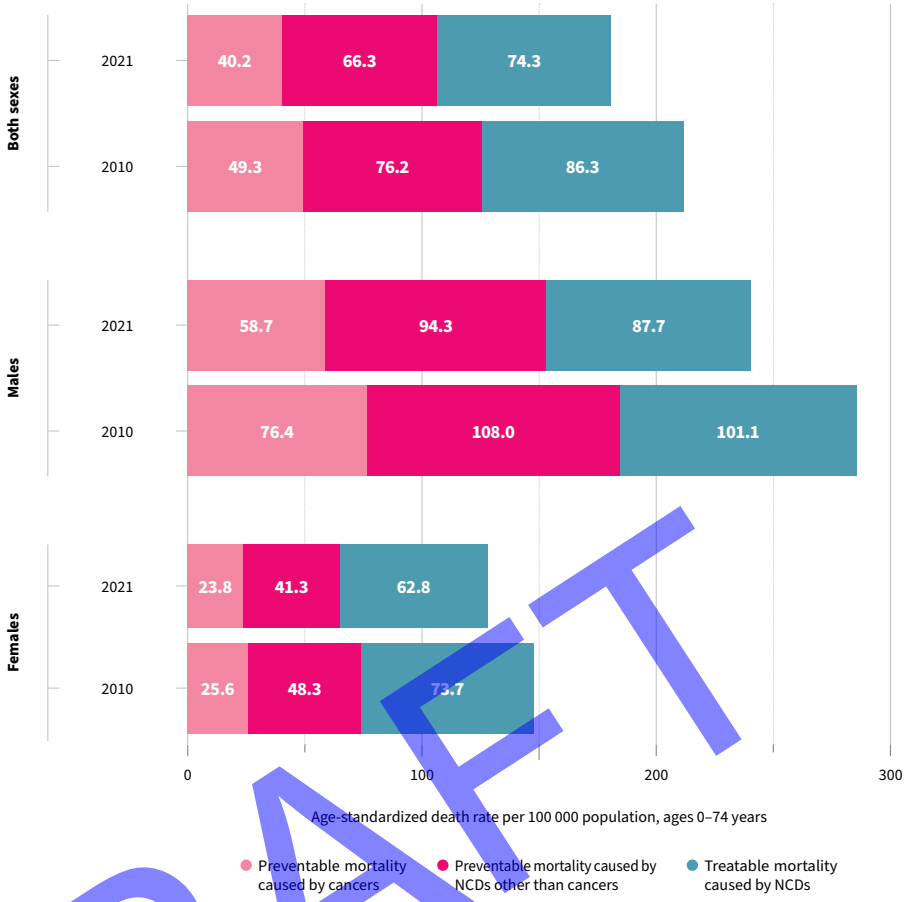
Preventable mortality from NCDs is largely influenced by modifiable risk factors (such as tobacco or alcohol use, physical inactivity, unhealthy diet and air pollution) and/or can be prevented with immunization. Treatable mortality from NCDs reflects the effectiveness of the health-care system. While both have fallen substantially since 2010, there is significant room for improvement across the WHO European Region (Fig. 1).

Of the 1.8 million avoidable deaths caused annually by NCDs in the WHO European Region, approximately 60% are due to preventable causes, meaning that they are linked to modifiable risk factors (of these, about 40% are due to cancers) and the remaining 40% are due to treatable causes. While greater gains have been observed among males, they continue to have higher levels of preventable mortality. Progress among females has largely stalled, especially for mortality from preventable cancers.

1 The 5-by-5 approach focuses on five key disease groups (cardiovascular diseases, cancers, chronic respiratory diseases, diabetes and mental disorders) and five major risk factors (tobacco use, alcohol use, unhealthy diet, physical inactivity and air pollution).

2 The list of avoidable causes needs to be periodically reviewed and modified to reflect advances in medical knowledge and available treatments.

Fig. 1. Avoidable mortality from NCDs in the WHO European Region, by sex, 2010 and 2021

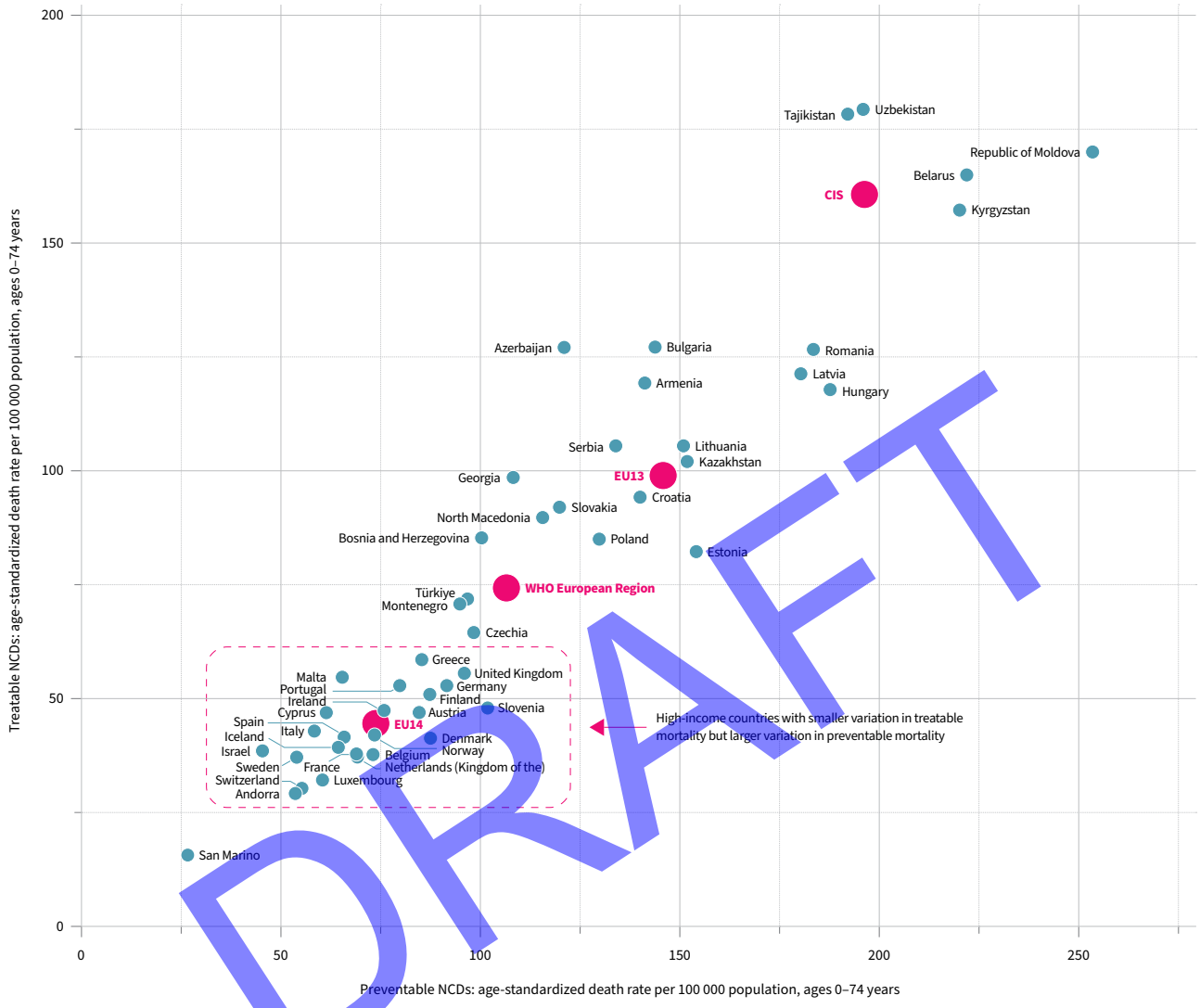


Inequalities persist but declining

Since 2010 the inequalities between countries have decreased significantly for both preventable and treatable mortality. A trend among a cluster of countries – mostly from the EU14 country group and with very high gross domestic product (GDP) per capita – shows relatively low variation in treatable mortality but a more substantial variation in preventable mortality (Fig. 2).[3] This indicates a greater variation between countries in the effectiveness of regulatory frameworks and preventive policies compared to curative services and health-care systems. The gap between sexes for treatable mortality in the EU14 has narrowed over time to a degree not observed for preventable mortality.

3 The EU14 comprises countries that were members of the European Union (EU) prior to 2004: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands (Kingdom of the), Portugal, Spain and Sweden. The 13 countries that joined the EU after 2004 are referred to as the EU13: Bulgaria, Croatia, Cyprus, Czechia, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia.

Fig. 2. Preventable and treatable mortality from NCDs by country, latest available data[a]



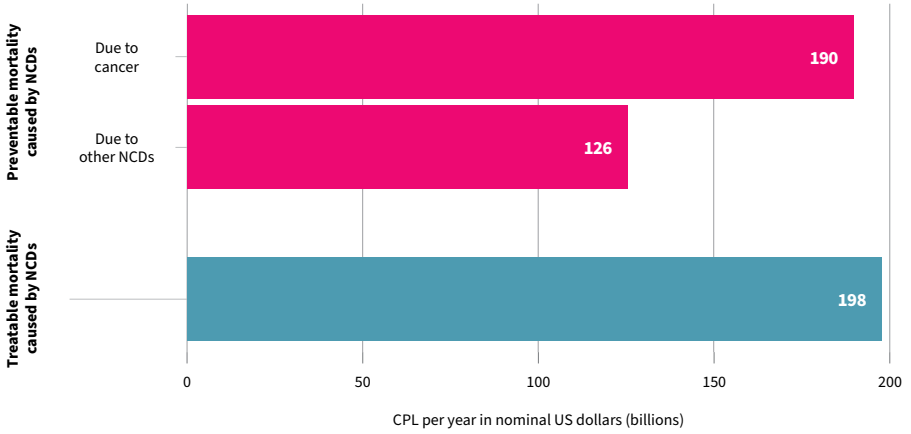
[a] The EU14 includes countries that joined the EU before 2004; the EU13 those that have joined since 2004 (see footnote 3). The Commonwealth of Independent State (CIS) currently consists of 10 countries: Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Republic of Moldova (suspended participation), Russian Federation, Tajikistan, Turkmenistan (associate member) and Uzbekistan.

The high cost of avoidable mortality

Avoidable mortality from NCDs in the WHO European Region imposes a significant CPL, totalling US$ 514.5 billion annually (Fig. 3).[4] Over 60% of this cost is caused by preventable mortality, with cancer mortality accounting for the largest share.

4 CPL is calculated as the number of years of life lost between the ages of 35 and 75 multiplied by GDP per capita. The CPL approach has several important limitations: it does not include direct medical costs or costs associated with absenteeism and presenteeism at the workplace; and the choice of age cut-off points has considerable implications.

Fig. 3. Annual CPL due to avoidable NCDs in the WHO European Region, latest available data



Preventable mortality accounts for over US$ 100 billion more than that for treatable mortality, highlighting the enormous cost borne by society when prevention is not given sufficient attention. Across the WHO European Region, countries spent on average only 2.5% of their current health expenditure in 2019 on preventive services *(20)*. The share increased temporarily during the COVID-19 pandemic, but available data for 2023 largely show decreases to 2019 levels.

Key facts. Annual CPL due to NCDs

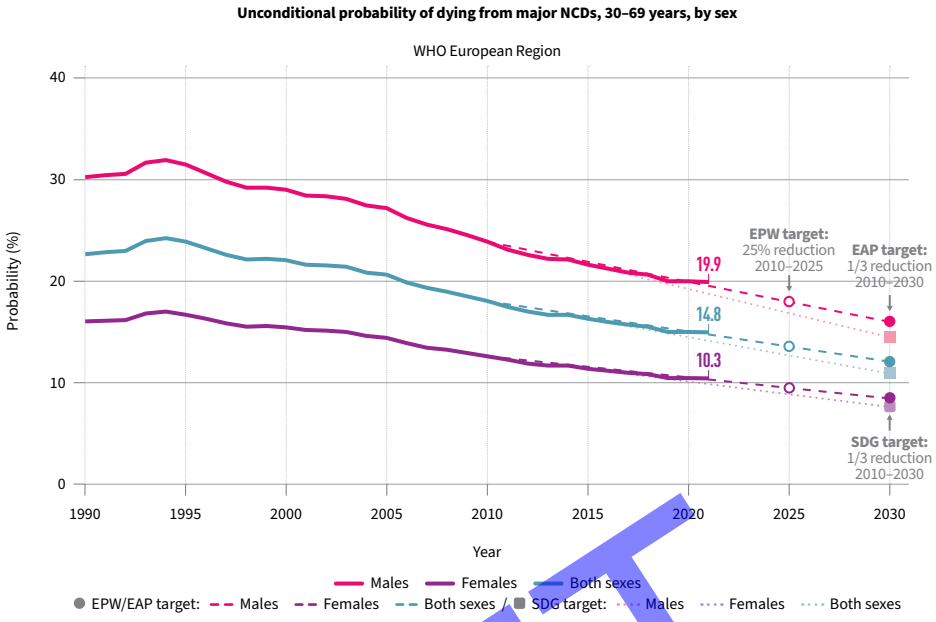
WHO European Region	EU	CIS	Eurasian Economic Union
514 billion	302 billion	110 billion	105 billion

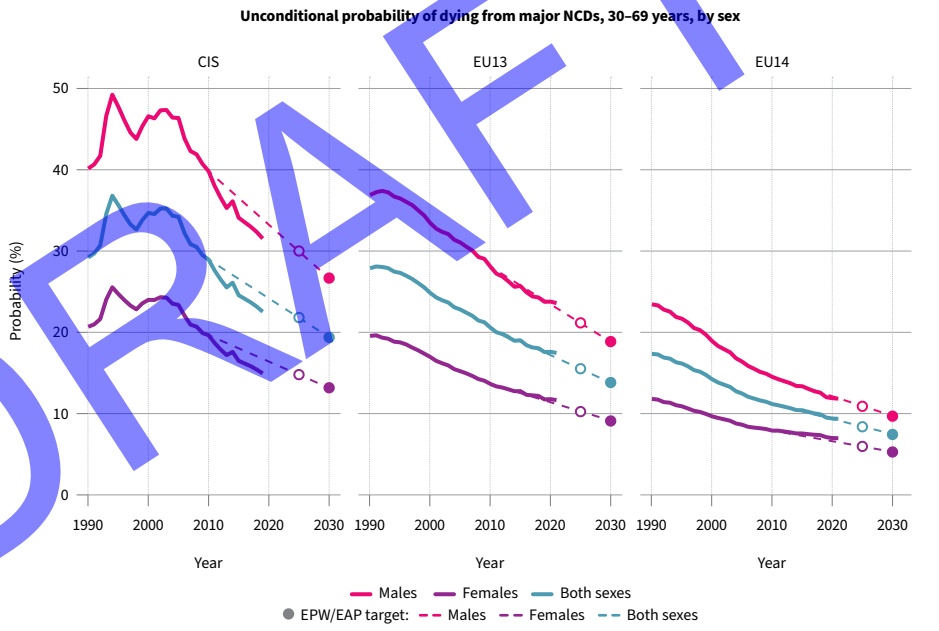
Premature mortality declining, but inequalities remain

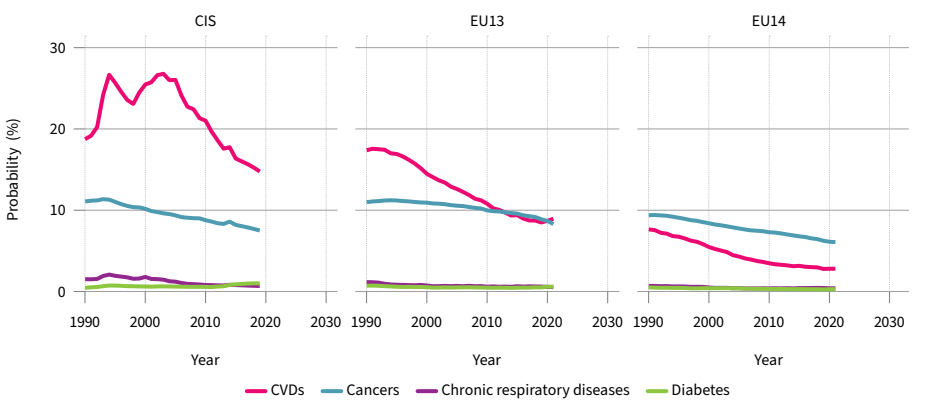
Although premature mortality from the four major NCDs has been declining for decades, progress has slowed since 2014 (Fig. 4). Currently, CVDs, cancers, diabetes and chronic respiratory diseases are killing one in five men and one in 10 women between 30 and 69 years of age in the WHO European Region. NCDs are causing more than half of all deaths and more than three times the number of deaths caused by COVID-19 among this demographic, and it is estimated that, in 2021, NCDs caused more premature deaths than COVID-19 for all ages *(2)* .

Since 2010, inequalities between countries in premature mortality from NCDs have decreased significantly. However, inequalities remain high and are largely driven by three major factors: (i) inequalities between men and women; (ii) inequalities between the eastern and western parts of the WHO European Region; and (iii) inequalities in CVD mortality.

Fig. 4. Premature mortality from four major NCDs in the WHO European Region, CIS, EU13 and EU14







Progress derailed by the COVID-19 pandemic

This report reveals for the first time that progress towards reducing premature mortality from NCDs was disrupted during the COVID-19 pandemic. As a result, the WHO European Region is no longer on track to achieve the regional target of a 25% reduction in premature mortality from NCDs between 2010 and 2025.[5] Increases in premature mortality have been most prominent in countries that have the highest burden of NCDs (especially CVD) and treatable mortality. These countries are mostly in the eastern part of the Region. The SDG target of a one-third reduction in premature mortality between 2015 and 2030 is well off track.

This report also quantifies, for the first time, the impact on premature and avoidable mortality due to NCDs resulting from disruptions to health services during the COVID-19 pandemic. Prior to the pandemic, both preventable and treatable deaths from NCDs were declining; however, in 2020 treatable mortality from NCDs increased threefold compared to preventable mortality (Fig. 5). Observed increases in premature mortality from CVD and treatable mortality from NCDs are only the tip of the NCD-related burden caused by COVID-19, as the majority of CVD deaths occur after 70 years of age. Increases in mortality from CVD have also been reported in the 70+ age group in the period 2020–2021.

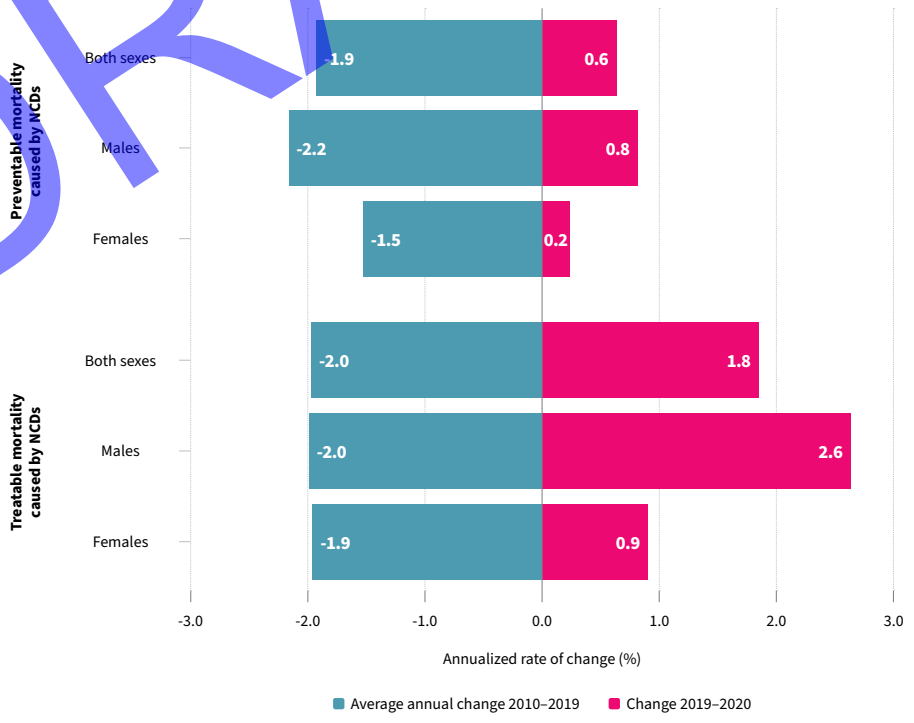


Fig. 5. Annualized changes in preventable and treatable mortality from NCDs in the WHO European Region before (2010–2019) and during (2019–2020) the COVID-19 pandemic

5 The EPW sets a target of a 25% reduction in premature mortality from NCDs between 2010 and 2025 *(11)*; this is aligned with the European Action Plan (EAP) target of a reduction by one third between 2010 and 2030 *(21)*.

The pandemic has had a dual effect on people living with NCDs and mental health conditions, putting them at higher risk of severe outcomes from COVID-19, including mortality, while also worsening outcomes for pre-existing disease *(22–24)*. In addition, prevalence of mental health conditions increased by 25% during the pandemic *(25)*. While COVID-19 no longer constitutes a public health emergency, its indirect and long-term impact on NCD mortality and morbidity and the mental health burden remains to be fully quantified.

At the same time, we are in what can be characterized as a permacrisis, facing the challenges of conflict, growing inequality, economic uncertainty, natural disasters and climate emergencies. The two-year period 2023–2024 was the hottest ever recorded, while the decade between 2015 and 2024 was the warmest in the 175-year observational history *(26)*. One of the lessons from the COVID-19 pandemic is the importance of a dual-track approach, ensuring an effective emergency response while maintaining essential health services delivery. For this reason, it is essential to include NCDs and mental health in emergency preparedness, response and recovery plans, as was done in the new WHO European strategy Preparedness 2.0 *(27)*, and to build resilient and sustainable health systems, with a focus on enhancing trust and empowering the health workforce *(28,29)*.

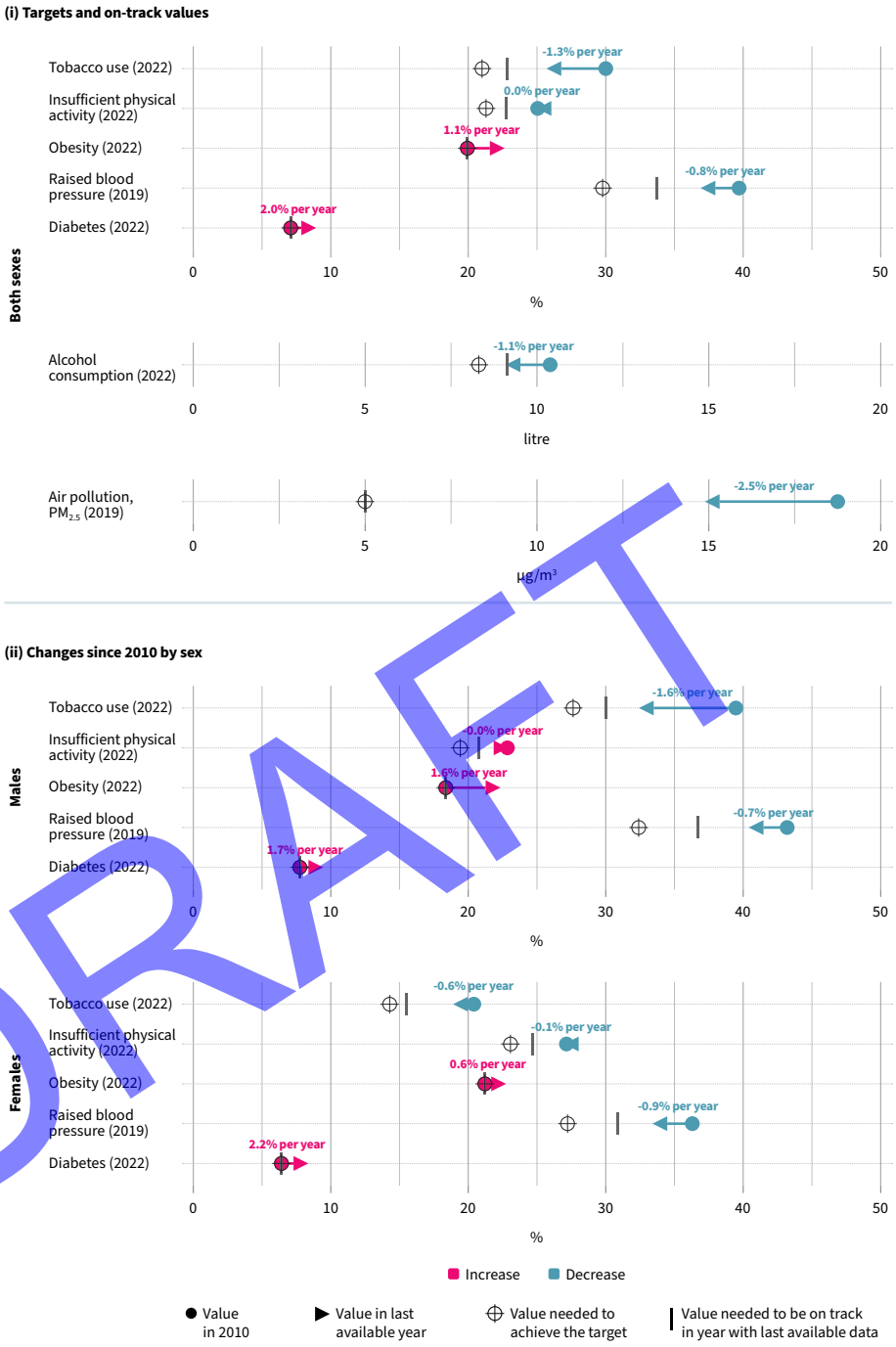
Levels of risk factors and diseases on the decline, but progress not sufficient to meet most targets

While levels of most risk factors have been declining in the WHO European Region since 2010, they remain high and the rate of decline is too slow to meet the targets (Fig. 6). Notable exceptions to this are rising rates of obesity and diabetes, and insufficient physical activity, which has stagnated. Rising inequalities between countries in tobacco use, high blood pressure, obesity and diabetes prevalence are also concerning.

Only decreases in alcohol consumption were large enough to stay on track up to 2022. Regional-level decline has been driven by a substantial decrease in Commonwealth of Independent States (CIS) countries, while in EU countries no progress was visible.

Although the WHO European Region as a whole is not on track to reach all risk factor targets (with the exception of alcohol), individual countries or country groups are on track to reach or exceed some of them. Latest estimates suggest that France and Spain may halt the rise in both obesity and diabetes and that EU14 countries are levelling off, even though earlier estimates showed a strong increase for both obesity and diabetes in all countries *(12,13)*.

Fig. 6. Changes in levels of NCD risk factors in the WHO European Region since 2010: (i) targets and on-track values; (ii) changes since 2010 by sex



Source: (30).

Tobacco

In 2022, 25.3% of the WHO European Region's population used tobacco, a 14.2% decrease since 2010. However, this decline is insufficient to meet the 30% reduction target by 2025. While seven countries have met the target early and five are on track,

31 countries are progressing too slowly, and six have seen increases, with only one showing statistical significance. Tobacco use remains nearly twice as high among men as among women, but the slower decline among women is concerning, and some countries are reporting higher prevalence among females. Inequalities between countries have widened since 2010, and e-cigarette use among young people has risen, surpassing adult rates in several countries.

Alcohol

In 2022 the average per capita alcohol consumption among adults over three years in the WHO European Region was 9.09 litre, a 12.5% decline from 2010, and the WHO European Region was just on track to achieve a 20% decrease between 2010 and 2030. Between-country variations were significant (0.73–17.06 litre). Fourteen countries were on track, with seven already below target levels. Declines were more pronounced in the CIS than in EU countries. Male alcohol consumption remains a major concern, being several times higher than that of females.

Physical inactivity

Between 2010 and 2022, 25% of the population of the WHO European Region was insufficiently active. While rates varied considerably between countries (from 8.4% to 51.6%), 17 countries (mostly in the EU14) achieved the target of a 15% reduction by 2030 early. In 35 countries women were less active than men.

Blood pressure

Despite a decline to 36.9% in 2019 – a 7.1% drop since 2010 – prevalence of high blood pressure in the WHO European Region remains above the target of a 25% reduction by 2025. Prevalence among men (40.4%) is hindering progress. Prevalence is rising in EU13 countries but falling in EU14 countries, with only four on track to meet the target. Inequalities between countries have also increased.

Obesity

Obesity is rising in the WHO European Region, with a 21.2% relative increase in prevalence among men and a 7.1% increase among women since 2010. The target to halt the increase will be missed. While most countries are seeing increases, WHO estimates indicate that France and Spain may succeed in halting the rise in prevalence. This success has helped to flatten the curve in the EU14 group, but overall inequality in obesity across the Region has worsened.

Diabetes

Diabetes prevalence reached 8.9% in 2022, a 26.1% increase since 2010, with a greater rise in females. The 2025 target to hold the rise will not be reached. As in the case of obesity, WHO estimates that France and Spain have halted the rise, contributing to a flattening curve in the EU14 group. Prevalence in countries ranged from 1.8% to 21.4% in 2022, with significant increases in inequality since 2010.

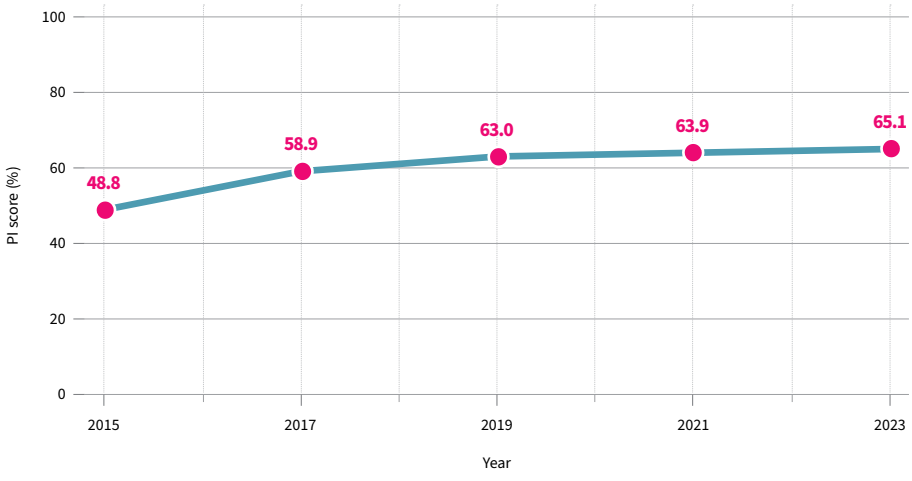
An interconnected agenda: NCDs, mental health and air pollution

This assessment presents for the first time a selection of mental health and air pollution indicators. The WHO European Region is on track to achieve a reduction of one third in suicides between 2015 and 2030. As in the case of premature mortality from NCDs, CIS countries have the highest rates of suicide, but the rates are falling rapidly. In the EU14, rates are lower, but the trends are flattening. Only mortality at all ages was considered in this report, and it cannot be excluded that trends are different in different population subgroups, for instance among young or older people or vulnerable populations. In addition, it should be noted that suicide represents only the tip of the iceberg of the mental health burden and the impact on morbidity and quality of life is much greater. The burden of mental health problems increased significantly during the COVID-19 pandemic. Air pollution also causes a significant burden of ill health. Although both levels of ambient air pollution and the inequalities between countries are on the decline, no country has yet achieved the recommended level of $PM_{2.5}$ of 5 µg/m^3 set in the WHO global air quality guidelines (AQG) *(31)*.

Policy response

Analysis of PIs shows that, following their adoption in 2014, there was a notable increase in implementation until 2019, just after the Third High-Level Meeting of the United Nations General Assembly on the prevention and control of NCDs in 2018. Since then, including the period of the COVID-19 pandemic, implementation of PIs has stalled, probably partly as a result of disruption caused by the pandemic. As of 2023, with the pandemic at an end, there had been only marginal progress in PI implementation (Fig. 7).

Fig. 7. Implementation of PIs in the WHO European Region, 2010–2023



In 2023 countries averaged 49% for full adoption of PIs and 32% for partial adoption, with a wide variation between policy areas. Alcohol policies saw the lowest full adoption, while health system policies had the highest. Less than half of countries adopted recommended levels for several key areas, including alcohol, tobacco, nutrition and human papillomavirus vaccination. Small countries, countries in south-eastern Europe and CIS countries showed the lowest adoption.

Average levels of achievement mask important changes. For example, the proportion of countries fully achieving NCD survey implementation, including objective measurement of key risk factors, decreased from 28% in 2021 to 19% in 2023, and the proportion of countries with operational multisectoral NCD strategies decreased from 60% in 2021 to 55% in 2023. The proportion of countries adopting NCD management guidelines for all four major NCDs increased to 85% by 2023. Across the WHO European Region there is room for all countries to strengthen leadership and increase implementation of the WHO best buys and other recommended interventions for prevention and control of NCDs *(10)*.

Lessons from leading countries

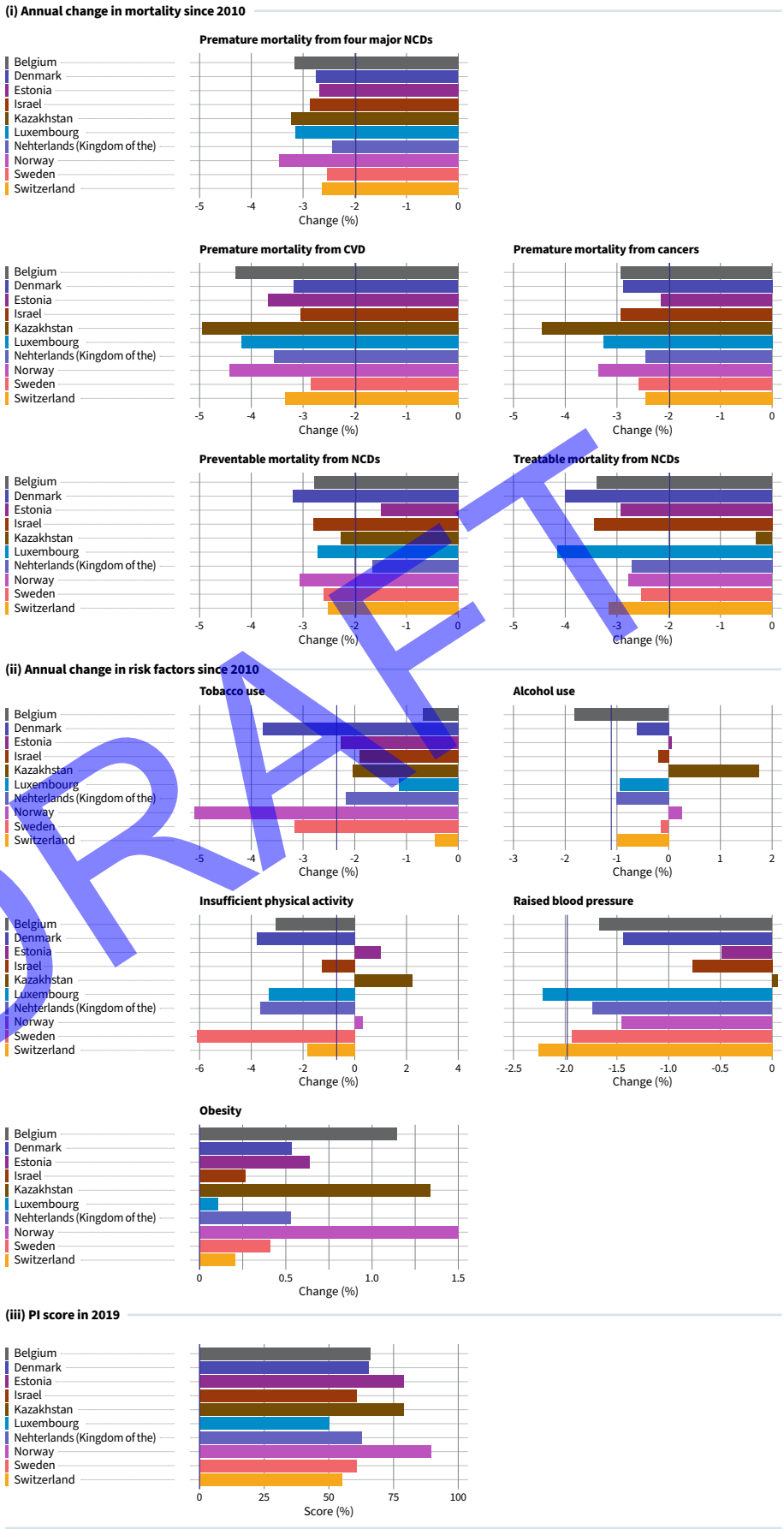
There is reason to be hopeful and lessons to be learned from the 10 countries that have achieved the EPW target of a 25% reduction in premature mortality from NCDs between 2010 and 2025 ahead of the deadline *(11)*. To achieve this target, an annual reduction of at least 2% is required. Of these 10 countries, four are also on track to achieve the ambitious SDG target of a one-third reduction in premature mortality from NCDs between 2015–2030.

Notably, these 10 countries shared the following (Fig. 8):

- they implemented comprehensive packages of WHO best buys and other recommended policies *(10)*, as indicated by high PI scores;
- they decreased prevalence of multiple risk factors and strengthened health systems response to NCDs, as indicated by a reduction or slower rise in risk factor levels and substantial reductions in mortality from both preventable and treatable NCDs (most by more than 2% per year); and
- they substantially reduced premature mortality from both CVD and cancers (most by more than 2% per year).

It is encouraging to see that countries from all corners of the WHO European Region are succeeding in achieving this target of a 2% annual reduction. Many of the 10 countries already had relatively low levels of mortality in 2010, which shows that it is possible to achieve ambitious targets even with a relatively low baseline level of premature mortality when cancers are the main cause of such mortality.

Fig. 8. Performance of 10 countries achieving EPW target ahead of the 2025 deadline: (i) annual reduction in premature, preventable and treatable mortality from NCDs (since 2010); (ii) annual reduction in selected risk factors (since 2010); and (iii) PI score (2019)



Towards 2030 and beyond

Moving forward, a dual-track approach is required both to accelerate collective action to deliver public health gains by 2030 (RACE to the Finish) and simultaneously to advance the key generational shifts required to achieve sustainably healthier environments and communities (Vision 2050). These two approaches underpin the WHO Regional Office for Europe's dual-track strategy on NCDs *(32)*.

Looking beyond 2025

With key frameworks (EPW, GMF and EAP) set to expire in 2025, it is important to revisit the targets for mortality, risk factors and policies to ensure accountability and reporting of progress beyond 2025. In light of the ongoing co-creation process driving the development of EPW2 *(8)*, this is an opportune moment to consider new NCD-related targets for 2030 and beyond. In accordance with the initial considerations in developing the GMF, it is proposed to set ambitious but achievable targets based on current trajectories *(33)*. However, given the substantial gap between the most recent data and the target line, it appears that the quantifications initially chosen for risk factors in the GMF – which were based on past trajectories of a small number of best-performing countries – are too ambitious *(33)*.

A more comprehensive analysis of possible indicators and quantification of timebound targets is beyond the scope of this report. However, considering the results of the best-performing tertile of countries in the WHO European Region since 2010, and provided that there is strong political commitment to addressing NCDs and mental health and well-being by a majority of countries and civil society accompanied by increased investment, the timebound targets for risk factors shown in Table 1 could be considered for 2030 within EPW2, with 2019 pre-pandemic levels as baseline. For prevalence of obesity and diabetes, this approach would result in an increased target, which does not align with public health principles. Therefore, no increase is proposed for those two indicators, recognizing that the proposed target is much more ambitious than for other indicators. New targets are not proposed for alcohol use and insufficient physical activity, as targets are already available for 2030.

Table 1. Annual changes for top tertile of best-performing countries and proposed targets for the WHO European Region, 2019–2030

	Annual change for tertile of best-performing countries (%)	Proposed target 2019–2030 (rounded) (%)
Raised blood pressure	−1.11	−12
Tobacco use	−2.11	−21
Obesity	0.82	No increase
Diabetes	1.35	No increase

The current level of premature mortality from four major NCDs in the WHO European Region is 15%. At this level, cancers start replacing CVD as the leading cause of premature death. As reductions in mortality from cancers have been slower than from CVD, this implies that it may be more difficult to sustain the current pace of reduction in the future when the share of cancer deaths becomes larger than the share of CVD deaths, especially in the longer term.

For EPW2, the current EAP target of a one-third reduction in premature mortality from four major NCDs between 2010 and 2030 is proposed. Although the Region is not currently on track to achieve this target, the lag to the target line is relatively small at 0.7 years.

As a longer-term aspirational target, a 50% reduction in premature mortality from all causes by 2050 has been proposed, with 2019 as the baseline *(34,35)*. To achieve this target, a 2.2% annual reduction in premature mortality is required. For NCDs, this would mean a target value of premature mortality from four major NCDs in the WHO European Region of 7.5% or lower. This level can be reached, with five countries currently having levels below this threshold.

As this analysis shows, it will be difficult to maintain annual reductions of 2.2% or more in premature mortality from NCDs until 2050 for the whole WHO European Region, especially as cancers increasingly represent the dominant cause of premature deaths from NCDs. Therefore, a 50% reduction between 2019 and 2050 seems overly ambitious as an NCD target. An alternative would be to use 2010 as the baseline for a 50% reduction by 2050. This would require a 1.72% annual reduction and a regional target of 9% or lower for premature mortality from NCDs by 2050. Since 2010, 28 of the 44 countries with high-quality cause-of-death data have achieved this rate of reduction in premature mortality from four major NCDs, and 23 countries in premature mortality from cancers. A target of a 50% reduction in avoidable mortality from NCDs could also be considered, with 26 countries with high-quality data achieving annual rates of reduction of 1.7% or more for both preventable and treatable deaths from NCDs.

Moving beyond targets focused on reduction of levels of premature mortality, the simultaneous reduction of inequalities – so-called upward convergence – should be considered as a principle and goal for a renewed set of WHO European Region NCD targets. Inequalities within countries can be monitored using existing survey data and linked data for civil registration and vital statistics – additional data are not required *(36)*.

Improving reliability, quality and timelines for data is essential to increase precision and usefulness of NCD-related estimates of mortality, morbidity and risk factor trends. To this end, the following steps are needed: (i) increased investment in health examination surveys (only 19% of countries have implemented surveys for all major biological risk factors in the last five years); (ii) improved quality of cause-of-death data, especially in the 13% of countries with low-quality data; and (iii) increased use of data from health services, especially electronic health records, to monitor clinical outcome and quality of care.

WHO European Region policy context and implications

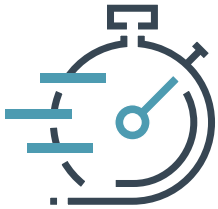
Indicators related to risk factors and health systems are based on the WHO NCD best buys – interventions with cost-effectiveness ratios of 100 international dollars or less per healthy life year gained in low-income and lower-middle-income countries *(10)*.[6] Of over 90 interventions considered and 22 overarching/enabling policy actions, only 28 met this criterion and are consequently considered best buys and included as PIs.

This has important consequences. First, interventions without evidence of sufficient cost-effectiveness in low- and middle-income countries are not included in the WHO best buys and consequently in the established PIs. Second, cost-effectiveness in high-income or upper-middle-income countries is not taken into consideration. In the WHO European Region, only three countries are classified as low-income or lower-middle-income countries, with 69% of countries classified as high-income countries. Therefore, there are additional interventions that would be assessed as very cost-effective in high-income and upper-middle-income countries and should therefore be considered in the WHO European Region. Third, a considerable number of interventions, especially newer interventions, have not yet been assessed for cost-effectiveness.

The suite of recommended WHO European Region policy options for prevention and treatment of NCDs should therefore go beyond the existing PIs. Consideration should be given to additional indicators for coverage and effectiveness of interventions for the management of treatable NCDs such as acute CVD events, hypertension, diabetes and some cancers, while taking into account new developments and emerging threats related to NCDs, such as novel tobacco and nicotine products *(37,38)* and digital marketing of unhealthy commodities *(39)*. Given the significant differences in levels and trajectories of premature mortality and risk factors between men and women, a gender-sensitive approach should also be considered *(40–42)*.

Lastly, PIs lack a measure of policy enforcement. Policy enforcement varies widely between countries and, without it, policies are ineffective in achieving the desired target *(43)*. It is therefore proposed that a set of NCD policy scores should be developed for the WHO European Region; these should encompass the aforementioned elements as far as possible, and there should be periodic reporting to increase accountability.

6 The international dollar is a hypothetical unit of currency that has the same purchasing power parity that the US dollar had in the United States at a given point in time.



RACE to the Finish: accelerating progress towards 2030

The time left to achieve the NCD targets and related SDGs is growing short, and extra efforts and innovation are required. As we enter the last five years of the SDG era, it is imperative that countries accelerate implementation of interventions that can move the whole European Region forward by 2030. Despite their proven effectiveness, uptake of the WHO NCD best buys has been disappointing and uneven. In March 2025 the WHO Regional Office for Europe introduced the NCD quick buys – interventions that demonstrate measurable public health impact in less than five years *(44)*. These interventions, drawn from the WHO best buys and other recommended interventions with a higher cost-effectiveness ratio, provide policy-makers with a list of 25 interventions addressing both risk factors and disease management that, if implemented and enforced, can accelerate progress towards the agreed targets, often within a single political cycle and before the 2030 deadline.

Furthermore, it is necessary to harness and institutionalize innovation for NCD prevention and control. There are many good-practice examples in the area of innovation in the WHO European Region *(45)*, and the new Strategy for Harnessing Innovation for Public Health in the WHO European Region 2025–2030 will provide a comprehensive strategic framework and contribute to the creation of an innovation ecosystem across the Region *(46)*.

Vision 2050: shaping a more NCD-resilient future

As these efforts accelerate progress towards 2030, work must also be undertaken in parallel to allow more fundamental, long-term, generational shifts that will make the WHO European Region more resilient to NCDs, carbon-neutral, safe, at peace and food-secure. Powerful global megatrends – demographic shifts, climate change, technological disruption, urbanization and globalization – are transforming our lives, impacting public health and putting increased pressures on health systems. This context requires that substantial attention be given to tackling the commercial determinants of NCDs to counter the increasing encroachment of industries and their impact on the NCD epidemic; dealing with NCDs in emergencies and humanitarian settings; and addressing the linkages between NCDs and the climate crisis.

Post pandemic, countries cannot deal with health issues in isolation. NCDs are deeply interconnected with the rising global megatrends, requiring an integrated policy response *(8)*. Climate change and environmental factors exacerbate NCD risks through air pollution, heat stress and unsustainable food systems, necessitating

green and health-conscious policies. At the same time, drivers of NCD risk factors and the health sector also contribute to the climate crisis: it has been estimated that food systems are responsible for 26% of greenhouse gas emissions *(47)* and health-care systems for an additional 4–5% *(48)*. Demographic shifts demand stronger NCD prevention and control across the life-course to ensure that lives lived longer are lived in good health, and this in turn can reduce strain on health and social care systems. For example, up to 45% of dementia cases can be prevented or delayed through prevention of NCD risk factors *(49)*. As mentioned before, healthier populations will increase resilience and health security. Further, emergency preparedness must plan for and take account of the care of people living with NCDs, as disruptions in care for NCDs and mental health conditions increase morbidity and mortality during pandemics and disasters. Addressing NCDs and mental health conditions holistically will enhance resilience, sustainability and population well-being.

Many United Nations agencies and supranational organizations, including the EU, the Organisation for Economic Co-operation and Development, the CIS and the Eurasian Economic Union, play an important role in the response to NCDs, galvanizing action to tackle NCDs, especially through prevention. The current EU Commission's focus on strengthening comprehensive NCD prevention policies across the life-course and its determination to tackle CVD in addition to cancers are exemplary steps in this direction *(50,51)*. The comprehensive work undertaken in this regard by two EU-funded joint actions, PreventNCD *(52)* and JACARDI *(53)*, working closely with the WHO Regional Office for Europe, represents a major step forward in shaping innovative practices. In alignment with EU priorities, tackling NCDs will play a key role in improving competitiveness by increasing human capital and decreasing cost *(54,55)*.

As indicated above, a target of a 50% reduction in premature mortality from NCDs by 2050, with a baseline of 2010, could be considered for the WHO European Region. This would require a 1.72% annual reduction and a regional target of 9% or lower for premature mortality from NCDs by 2050. A target of a 50% reduction in avoidable mortality from NCDs could also be considered, with 26 countries with high-quality data achieving annual rates of reduction of 1.7% or more for both preventable and treatable deaths from NCDs.

Conclusion

This report gives a sobering update of NCD trends in the WHO European Region as we head into the Fourth High-Level Meeting of the United Nations General Assembly on NCDs (Fig. 9). Although the WHO European Region as a whole is not on track to achieve the agreed targets, some progress has been made, giving grounds for hope: while no single country has achieved all the GMF targets, each of them has been met by at least a handful of countries.

Most importantly, 10 countries have achieved a 25% reduction in premature mortality from NCDs since 2010, ahead of the 2025 deadline. These countries demonstrate that, with strong leadership, achieving ambitious targets is possible: if concerted action is taken to step up both prevention and control of NCDs, and if action is taken to address both cancers and CVD, by implementing comprehensive evidence-informed policies to reduce multiple risk factors across the life-course and strengthen the health systems response to NCDs. While primary health care is the cornerstone of health systems, strengthening the health systems response to NCDs across the full continuum of care is vital: from prevention and health promotion, through primary, secondary and tertiary care, to rehabilitation and palliative services, while remaining ever vigilant to ensure person-centred care.

Fig. 9. Overview of findings

We must work collectively to create an upward convergence in NCD outcomes, reducing the burden and reducing inequalities *(36)*. To succeed in this, we need to address the social, commercial, environmental and digital determinants of NCDs *(56–63)*. This requires a multisectoral whole-of-society and whole-of-government approach, and civil society needs to be strengthened and actively involved through a co-creation process. Responding to the complex needs of individuals and systems requires comprehensive and integrated approaches that put people at the centre of the process.

Strengthening NCD prevention and control is also a prerequisite for achieving universal health coverage (UHC). NCDs and mental health issues are the main cause

of ill health, and disaggregation of the UHC service coverage index shows that the NCD subindex has both the lowest values and the lowest rates of improvement *(64)*. In addition, catastrophic health spending is driven by out-of-pocket payments for outpatient medicines and medical products, mostly for NCDs, other chronic diseases and dental care. Therefore, to achieve UHC, NCD prevention and control measures must be strengthened. Decisive action is needed in order to reduce avoidable mortality and close the gap between years lived in good health and years lived without.

The year 2025 presents an opportunity to learn from the permacrisis and to craft a WHO European Region response to NCDs that takes into account the rising megatrends. The Fourth High-Level Meeting of the United Nations General Assembly in September 2025 is a prime opportunity to transform our approach, redoubling efforts to ensure a whole-of-government and whole-of-society approach to addressing the burden of NCDs. The development of EPW2 also offers a unique opportunity to reimagine the WHO European Region's response to NCDs – to include action on climate change, demographic shifts and commercial determinants of health, while putting the right to health and health equity at the core of the NCD response. Tackling NCDs and the drivers of ill health, living and ageing in good physical and mental health, addressing climate change, devising the health systems of the future and maximizing health security have been identified as the priorities for action in EPW2. Achieving progress towards these priorities and our common goals will require collective action, innovation, renewed political will, and increased implementation and enforcement of effective policies. This report provides valuable insights that will help countries and stakeholders to reflect and learn both from the past and from one another to inform actions going forward to 2030 and beyond.

References[7]

1. Global health estimates: leading causes of death and disability [website]. Geneva: World Health Organization; 2024 (https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-leading-causes-of-death).
2. WHO COVID-19 dashboard [website]. Geneva: World Health Organization; 2025 (https://data.who.int/dashboards/covid19/cases).
3. Brauer M, Roth GA, Aravkin AY, Zheng P, Abate KH, Abate YH et al. Global burden and strength of evidence for 88 risk factors in 204 countries and 811 subnational locations, 1990–2021: a systematic analysis for the Global Burden of Disease Study 2021. Lancet. 2024;403(10440):2162–203 (https://doi.org/10.1016/S0140-6736(24)00933-4).
4. Nugent R, Bertram MY, Jan S, Niessen LW, Sassi F, Jamison DT et al. Investing in non-communicable disease prevention and management to advance the Sustainable Development Goals. Lancet. 2018;391(10134):2029–35 (https://doi.org/10.1016/S0140-6736(18)30667-6).
5. Bloom DE, Cafiero ET, Jané-Llopis E, Abrahams-Gessel S, Bloom LR, Fathima S et al. The global economic burden of noncommunicable diseases. Geneva: World Economic Forum; 2011 (https://www3.weforum.org/docs/WEF_Harvard_HE_GlobalEconomicBurdenNonCommunicableDiseases_2011.pdf).
6. Financing global health 2023: the future of health financing in the post-pandemic era. Seattle (WA): Institute for Health Metrics and Evaluation; 2024 (https://www.healthdata.org/sites/default/files/2024-05/FGH_2023_Accessible_Digital_Version_with_Translations_2024.05.13.pdf).
7. NCD trends report 2025. Copenhagen: WHO Regional Office for Europe; [in press].
8. Developing the second European Programme of Work [website]. Copenhagen: WHO Regional Office for Europe; 2025 (https://www.who.int/europe/activities/developing-the-second-european-programme-of-work).
9. NCD Global Monitoring Framework. Geneva: World Health Organization; 2011 (https://www.who.int/publications/i/item/ncd-surveillance-global-monitoring-framework).
10. Tackling NCDs: "best buys" and other recommended interventions for the prevention and control of noncommunicable disease. Geneva: World Health Organization; 2017 (https://iris.who.int/handle/10665/259232). Licence: CC BY-NC-SA 3.0 IGO.
11. European Programme of Work 2020–2025: united action for better health. Copenhagen: WHO Regional Office for Europe; 2021 (https://iris.who.int/handle/10665/339209). Licence: CC BY-NC-SA 3.0 IGO.
12. Monitoring noncommunicable disease commitments in Europe: theme in focus: progress monitor indicators. Copenhagen: WHO Regional Office for Europe; 2017 (https://iris.who.int/handle/10665/345832).
13. Monitoring noncommunicable disease commitments in Europe 2021: are we on track to reach targets 10 years after the Moscow Declaration and First United Nations High-Level Meeting? Copenhagen: WHO Regional Office for Europe; 2021 (https://iris.who.int/handle/10665/350457). Licence: CC BY-NC-SA 3.0 IGO.
14. The WHO Global Monitoring Framework on noncommunicable diseases: progress towards achieving the targets for the WHO European Region: background paper for the WHO European meeting of national NCD directors and programme managers, Moscow, Russian Federation, 8–9 June 2017. Copenhagen: WHO Regional Office for Europe; 2017 (https://iris.who.int/handle/10665/350453). Licence: CC BY-NC-SA 3.0 IGO.
15. Preventable and treatable mortality statistics [website]. Luxembourg: Eurostat; 2024 (https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Preventable_and_treatable_mortality_statistics).

7 All references were accessed on 30 April 2025.

16. Avoidable mortality: OECD/Eurostat lists of preventable and treatable causes of death (January 2022 version). Paris: Organisation for Economic Co-operation and Development/Luxembourg: Eurostat; 2022 (https://www.oecd.org/content/dam/oecd/en/data/datasets/oecd-health-statistics/avoidable-mortality-2019-joint-oecd-eurostat-list-preventable-treatable-causes-of-death.pdf).

17. Avoidable mortality in England and Wales statistical bulletins [website]. Newport: Office for National Statistics; 2025 (https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/causesofdeath/bulletins/avoidablemortalityinenglandandwales/previousReleases).

18. Mackenbach JP, Bouvier-Colle MH, Jougla E. "Avoidable" mortality and health services: a review of aggregate data studies. J Epidemiol Community Health. 1990;44(2):106–11 (https://doi.org/10.1136/jech.44.2.106).

19. Kosherbayeva L, Akhtayeva N, Tolganbayeva K, Samambayeva A. Trends in avoidable mortality in Kazakhstan from 2015 to 2021. Int J Health Policy Manag. 2024;13:7919 (https://doi.org/10.34172/ijhpm.2024.7919).

20. Global Health Expenditure Database [online database]. Geneva: World Health Organization; 2025 (https://apps.who.int/nha/database/ViewData/Indicators/en).

21. Action plan for the prevention and control of noncommunicable diseases in the WHO European Region. Copenhagen: WHO Regional Office for Europe; 2016 (https://iris.who.int/handle/10665/341522).

22. Xu X, Shi Z, Zhou L, Lin J, Atlantis E, Chen X et al. Impact of COVID-19 on risks and deaths of non-communicable diseases in the Western Pacific region. Lancet Reg Health West Pac. 2023;43:100795 (https://doi.org/10.1016/j.lanwpc.2023.100795).

23. Khan Y, Verhaeghe N, Devleesschauwer B, Cavillot L, Gadeyne S, Pauwels NS et al. Impact of the COVID-19 pandemic on delayed care of cardiovascular diseases in Europe: a systematic review. Lancet. 2023;402 Suppl 1:S61 (https://doi.org/10.1016/S0140-6736(23)02117-7).

24. Underlying conditions and the higher risk for severe COVID-19. Atlanta (GA): Centers for Disease Control and Prevention; 2024 (https://www.cdc.gov/covid/hcp/clinical-care/underlying-conditions.html).

25. Mental health and COVID-19: early evidence of the pandemic's impact: scientific brief, 2 March 2022. Geneva: World Health Organization; 2022 (https://iris.who.int/handle/10665/352189). Licence: CC BY-NC-SA 3.0 IGO.

26. State of the climate 2024: update for COP29. Geneva: World Meteorological Organization; 2024 (https://library.wmo.int/records/item/69075-state-of-the-climate-2024).

27. Seventy-fourth Regional Committee for Europe: Copenhagen, 29–31 October 2024: health emergency preparedness, response and resilience in the WHO European Region 2024–2029: a new regional strategy and action plan (Preparedness 2.0). Copenhagen: WHO Regional Office for Europe; 2024 (EUR/RC74/9; https://iris.who.int/handle/10665/378414).

28. Seventy-fourth Regional Committee for Europe: Copenhagen, 29–31 October 2024: framework for resilient and sustainable health systems in the WHO European Region 2025–2030. Copenhagen: WHO Regional Office for Europe; 2024 (EUR/RC74/10; https://iris.who.int/handle/10665/378418).

29. Azzopardi Muscat N, Kluge HHP. A framework for resilient and sustainable health systems in the European Region. Lancet Reg Health Eur. 2025;49:101199 (https://doi.org/10.1016/j.lanepe.2024.101199).

30. Noncommunicable diseases: risk factors and conditions [website]. Global Health Observatory. Geneva: World Health Organization; 2021 (https://www.who.int/data/gho/data/themes/topics/noncommunicable-diseases-risk-factors).

31. WHO global air quality guidelines: particulate matter ($PM_{2.5}$ and PM_{10}), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/345329). Licence: CC BY-NC-SA 3.0 IGO.

32. Special Initiative on NCDs and Innovation [website]. Copenhagen: WHO Regional Office for Europe; 2025 (https://www.who.int/europe/teams/special-initiative-on-ncds-and-innovation/about-us).

33. A draft comprehensive global monitoring framework, including indicators, and a set of voluntary global targets for the prevention and control of noncommunicable diseases. Geneva: World Health Organization; 2012 (A/NCD/INF./1; https://apps.who.int/gb/ncds/pdf/a_ncd_inf1-en.pdf).

34. Norheim OF, Chang AY, Bolongaita S, Barraza-Lloréns M, Fawole A, Gebremedhin LT et al. Halving premature death and improving quality of life at all ages: cross-country analyses of past trends and future directions. Lancet. 2024;404(10470):2437–46 (https://doi.org/10.1016/S0140-6736(24)02417-6).

35. Jamison DT, Summers LH, Chang AY, Karlsson O, Mao W, Norheim OF et al. Global health 2050: the path to halving premature death by mid-century. Lancet. 2024;404(10462):1561–614 (https://doi.org/10.1016/S0140-6736(24)01439-9).

36. Healthy, prosperous lives for all: the European health equity status report. Copenhagen: WHO Regional Office for Europe; 2019 (https://iris.who.int/handle/10665/326879). Licence: CC BY-NC-SA 3.0 IGO.

37. Electronic nicotine and non-nicotine delivery systems: a brief. Copenhagen: WHO Regional Office for Europe; 2020 (https://iris.who.int/handle/10665/350474).

38. WHO report on the global tobacco epidemic 2021: addressing new and emerging products. Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/343287). Licence: CC BY-NC-SA 3.0 IGO.

39. Monitoring and restricting digital marketing of unhealthy products to children and adolescents: report based on the expert meeting on monitoring of digital marketing of unhealthy products to children and adolescents: Moscow, Russian Federation, June 2018. Copenhagen: WHO Regional Office for Europe; 2019 (https://iris.who.int/handle/10665/346585).

40. Gender and noncommunicable diseases in Europe: analysis of STEPS data. Copenhagen: WHO Regional Office for Europe; 2020 (https://iris.who.int/handle/10665/337471). Licence: CC BY-NC-SA 3.0 IGO.

41. Strategy on women's health and well-being in the WHO European Region. Copenhagen: WHO Regional Office for Europe; 2016 (https://iris.who.int/handle/10665/348974).

42. Strategy on the health and well-being of men in the WHO European Region: better health through a gender approach. Copenhagen: WHO Regional Office for Europe; 2018 (https://iris.who.int/handle/10665/329686).

43. Loffreda G, Arakelyan S, Bou-Orm I, Holmer H, Allen LN, Witter S et al. Barriers and opportunities for WHO "best buys" non-communicable disease policy adoption and implementation from a political economy perspective: a complexity systematic review. Int J Health Policy Manag. 2024;13:7989 (https://doi.org/10.34172/ijhpm.2023.7989).

44. Galea G, Ekberg A, Ciobanu A, Corbex M, Farrington J, Ferreira-Borges C et al. Quick buys for prevention and control of noncommunicable diseases. Lancet Reg Health Eur. 2025;101281 (https://doi.org/10.1016/j.lanepe.2025.101281).

45. Building a public health innovation ecosystem in the WHO European Region: meeting report, 11–12 March 2024, Copenhagen. Copenhagen: WHO Regional Office for Europe; 2024 (https://iris.who.int/handle/10665/377521). Licence: CC BY-NC-SA 3.0 IGO.

46. Seventy-fourth Regional Committee for Europe: Copenhagen, 29–31 October 2024: harnessing innovation for public health in the WHO European Region 2025–2030: preparing for a new strategy. Copenhagen: WHO Regional Office for Europe; 2024 (EUR/RC74/14; https://iris.who.int/handle/10665/378451).

47. Poore J, Nemecek T. Reducing food's environmental impacts through producers and consumers. Science. 2018;360(6392):987–92 (https://doi.org/10.1126/science.aaq0216).

48. Karliner J, Slotterback S, Boyd R, Ashby B, Steele K. Health care's climate footprint: how the health sector contributes to the global climate crisis and opportunities for action. Brussels: Health Care Without Harm/London: ARUP; 2019 (https://global.noharm.org/resources/health-care-climate-footprint-report).

49. Livingston G, Huntley J, Liu KY, Costafreda SG, Selbæk G, Alladi S et al. Dementia prevention, intervention, and care: 2024 report of the Lancet standing Commission. Lancet. 2024;404(10452):572–628 (https://doi.org/10.1016/S0140-6736(24)01296-0).

50. von der Leyen, U. Mission letter to Olivér Várhelyi, 17 September 2024. Brussels: European Commission; 2024 (https://commission.europa.eu/document/b1817a1b-e62e-4949-bbb8-ebf29b54c8bd_en).

51. EU4Health programme 2021–2027: a vision for a healthier European Union. Brussels: European Commission; 2024 (https://health.ec.europa.eu/funding/eu4health-programme-2021-2027-vision-healthier-european-union_en).

52. JA PreventNCD [website]. Oslo: JA PreventNCD; 2025 (https://preventncd.eu/).

53. JACARDI – Joint action on cardiovascular diseases and diabetes [website]. Rome: JACARDI; 2025 (https://jacardi.eu/).

54. Draghi M, D'Aprile P, Rouch P, Yiangou J. The Draghi report on EU competitiveness. Brussels: European Commission; 2024 (https://commission.europa.eu/topics/strengthening-european-competitiveness/eu-competitiveness-looking-ahead_en).

55. McKee M, de Ruijter A, Hervey T. Health, the missing chapter in the Draghi report on Europe's future. Lancet Reg Health Eur. 2024;48:101150 (https://doi.org/10.1016/j.lanepe.2024.101150).

56. Compendium of WHO and other UN guidance in health and environment, 2024 update. Geneva: World Health Organization; 2024 (https://iris.who.int/handle/10665/378095). Licence: CC BY-NC-SA 3.0 IGO.

57. Commercial determinants of noncommunicable diseases in the WHO European Region. Copenhagen: WHO Regional Office for Europe; 2024 (https://iris.who.int/handle/10665/376957). Licence: CC BY-NC-SA 3.0 IGO.

58. Addressing health determinants in a digital age: project report. Copenhagen: WHO Regional Office for Europe; 2024 (https://iris.who.int/handle/10665/379646). Licence: CC BY-NC-SA 3.0 IGO.

59. Kickbusch I, Piselli D, Agrawal A, Balicer R, Banner O, Adelhardt M et al. The Lancet and Financial Times Commission on governing health futures 2030: growing up in a digital world. Lancet. 2021;398(10312):1727–76 (https://doi.org/10.1016/S0140-6736(21)01824-9).

60. Moscow DIGITAL4NCD Conference Statement: WHO European Conference on Tackling Noncommunicable Diseases through Digital Solutions. Moscow, Russian Federation, 14–15 December 2021. Copenhagen: WHO Regional Office for Europe; 2021 (https://www.who.int/europe/publications/moscow-digital4ncd-conference-statement).

61. Sixth Ministerial Conference on Environment and Health, Ostrava, Czech Republic, 13–15 June 2017: Declaration of the Sixth Ministerial Conference on Environment and Health. Copenhagen: WHO Regional Office for Europe; 2017 (https://iris.who.int/handle/10665/347444).

62. A healthy environment in the WHO European Region: why it matters and what steps we can take to improve health. Copenhagen: WHO Regional Office for Europe; 2023 (https://iris.who.int/handle/10665/368160). Licence: CC BY-NC-SA 3.0 IGO.

63. Protecting health through ambient air quality management: a resource package for the WHO European Region. Copenhagen: WHO Regional Office for Europe; 2023 (https://iris.who.int/handle/10665/366687). Licence: CC BY-NC-SA 3.0 IGO.

64. Tracking universal health coverage: 2023 global monitoring report. Geneva: World Health Organization and International Bank for Reconstruction and Development/World Bank; 2023 (https://iris.who.int/handle/10665/374059). Licence: CC BY-NC-SA 3.0 IGO.

Annex 1
Methodology

Abbreviations

CPL	cost of productivity loss	**ICD**	International Classification of Diseases
CRD	chronic respiratory disease	**NCD**	noncommunicable disease
CVD	cardiovascular disease	**OECD**	Organisation for Economic Co-operation and Development
EAP	European Action Plan	**PI**	progress monitor indicator
EPW	European Programme of Work	**SDG**	Sustainable Development Goal
GDP	gross domestic product	**SII**	slope index of inequality
GMF	Global Monitoring Framework	**YPLL**	years of potential life lost
HPV	human papillomavirus		

Outcome indicators

The first group of indicators used in the report is a selection of noncommunicable disease (NCD)-related outcome indicators that are defined in the Sustainable Development Goal (SDG) framework *(1)* and the Global Monitoring Framework (GMF) *(2)*. These usually have timebound, quantifiable targets. They include outcome indicators of premature NCD mortality, which are calculated using official cause-of-death and population data reported to WHO *(3)*. These indicators also include the prevalence of key NCD-related behavioural and biological risk factors, which are estimated by WHO in consultation with Member States following agreed practices and are then disseminated through the Global Health Observatory *(4)*.

In accordance with the 5-by-5 approach for NCDs adopted in 2018,[1] this report includes progress towards endorsed goals in the areas of mental health, using suicide mortality as headline indicator, and air pollution. This expansion underlines the growing recognition of mental health and environmental determinants as critical components of the global NCD agenda.

These indicators are supplemented with additional relevant outcome indicators for preventable and treatable mortality from NCDs and, more narrowly, preventable mortality from cancers. This is a new set of indicators developed by the WHO Regional Office for Europe that uses an internationally accepted list of causes of death derived by Eurostat and the Organisation for Economic Co-operation and Development (OECD), but which includes only NCD-related causes of death. Timebound, quantifiable targets have not yet been established for these indicators.

1 The 5-by-5 approach focuses on five key disease groups (CVDs, cancers, CRDs, diabetes and mental disorders) and five major risk factors (tobacco use, alcohol use, unhealthy diet, physical inactivity and air pollution). It was adopted at the United Nations Third High-Level Meeting on NCDs in 2018 *(5)*.

Progress monitor indicators

The second group of indicators consists of 22 progress monitor indicators (PIs). These are process indicators for country adoption of recommended NCD policies and capacities in key areas of surveillance and governance, demand reduction measures for tobacco control, alcohol use and unhealthy diets, improvement of physical activity awareness, NCD management in health systems, and cancer prevention. The initial 19 PIs were agreed at the Second High-Level Meeting of the United Nations General Assembly in 2014 *(6)*. These indicators were revised following release of the updated WHO best buys in 2023 *(7)*. The revisions included removal of several diet-related indicators, modification of one indicator, and introduction of four others. Indicators were also added for essential medicines and technologies for chronic respiratory disease (CRD) and human papillomavirus (HPV) vaccination. Data for PIs are collected and collated every second year, primarily through the NCD Country Capacity Survey *(8)*. Exceptions are: (i) indicators on tobacco, which are collected as part of WHO global tobacco reporting *(9)*; (ii) indicators on alcohol, which are collected through the Global Survey on Progress on SDG health target 3.5 *(10)*; (iii) mortality, which is calculated from the latest mortality data received from countries; and (iv) breastmilk substitutes, which are retrieved from the report *Marketing of breast-milk substitutes: national adoption of the International Code, status report 2024 (11)*.

Achievement of PIs by country is additionally disseminated through dedicated publications *(12–14)*, which contain detailed metadata including criteria on full and partial indicator achievement. Most PIs can be either fully or partly achieved. The PI score was calculated by assigning one point for each fully achieved indicator and 0.5 points for each partly achieved indicator. An average PI score was calculated for each country, ranging from 0% to 100%, and a score was calculated for the WHO European Region as the average of country scores for each year.

Indicators used in the assessment are given in Table A1.1 organized according to framework, type of indicator and source. Also included are GMF targets for 2025, and where revised, for 2030; pertinent SDG targets for 2030; their quantification level; yearly rate of change needed to reach the target in the respective timeframe; and sources.

Table A1.1. Indicators used in the report and agreed target quantification, by framework, type of indicator and source

FRAMEWORK AND CATEGORY	INDICATOR AND TARGET QUANTIFICATION (2010 baseline, unless otherwise stated)	Minimum yearly rate of change needed to reach target	Source
Outcome indicators (GMF and SDG)			
NCD-related mortality			
Premature mortality	Unconditional probability of dying between ages 30–69 from four main NCD causes – cardiovascular disease (CVD), cancers, CRD and diabetes. GMF *(2)* and European Programme of Work (EPW) *(15)* targets are 25% reduction between 2010 and 2025. Those are aligned with the EAP target, which then calls for a reduction by one third between 2010 and 2030 *(16)*. SDG target 3.4.1 calls for its reduction by one third between 2015 and 2030 *(1)* (time period of 15 years).	1.98% for 2010 baseline (EPW, EAP and GMF) or 2.63% for 2015 baseline (SDG)	Calculations based on *(3)*
Mortality from suicide	Age-standardized mortality rate from suicide. Comprehensive Mental Health Action Plan 2013–2030 has a target of one third reduction rate of suicide between 2015 and 2030, aligned with SDGs *(17)*. EPW target is 15% reduction.	2.63%	Calculations based on *(3)*
NCD-related risk factors			
Alcohol consumption	Total (recorded and unrecorded) alcohol consumption per capita among persons aged 15 years and older within a calendar year (in litres (L) of pure alcohol). Initial GMF and EPW targets have been increased from 10% reduction by 2025 to 20% between 2010 and 2030 *(2)*. This is also SDG indicator 3.5.2 *(1)*. Data for years 2021 and 2022 are preliminary and shown only for groups of countries.	1.11%	*(4)*
Tobacco use	Age-standardized prevalence of current tobacco use among the population aged 15 years and older. GMF target is 30% reduction by 2025 *(2)*. This is also EPW and SDG indicator 3.a.1 *(1)*.	2.35%	*(4)*
Insufficient physical activity	Age-standardized prevalence of insufficient physical activity among the population aged 15 and older. Initial GMF target was 10% reduction between 2010 and 2025 *(2)*; this has been revised to 15% between 2010 and 2030 *(18,19)*.	0.7%	
Raised blood pressure	Age-standardized prevalence of raised blood pressure among persons aged 18 and over (defined as systolic blood pressure ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg). GMF target is 25% reduction by 2025 *(2)*. This is also an EPW indicator. Data for persons aged 30–79 are used instead of ages 18+ as more up-to-date data are available (up to 2019).	1.98%	*(4)*
Obesity	Age-standardized prevalence of obesity in persons aged 18 and over (defined as body mass index ≥30 kg/m^2). GMF target is no increase in obesity by 2025 *(2)*. This is also an EPW indicator.	0%	*(4)*
Diabetes	Age-standardized prevalence of diabetes in persons aged 18 and over. GMF target is no increase in diabetes by 2025 *(2)*.	0%	*(4)*
Air pollution	Ambient air pollution.		*(4)*

Table A1.1. Contd.

FRAMEWORK AND CATEGORY	INDICATOR AND TARGET QUANTIFICATION (2010 baseline, unless otherwise stated)	Minimum yearly rate of change needed to reach target	Source
PIs			
Surveillance and governance	1. Set timebound NCD targets and indicators according to WHO guidance 2. Availability of a functional system for generating reliable cause-specific mortality data on a routine basis 3. STEPS survey or a comprehensive health examination survey every five years 4. Having an operational multisectoral national strategy/action plan that integrates the major NCDs and their shared risk factors		*(13,14)*
Risk factors – tobacco	5a. Reduce affordability of tobacco products by increasing tobacco excise taxes 5b. Create by law completely smokefree environments in all indoor workplaces, public places and public transport 5c. Warn people of the dangers of tobacco and tobacco smoke through effective health warnings and mass media campaigns 5d. Ban all forms of tobacco advertising, promotion and sponsorship 5e. Implement mass media campaigns that educate the public about the harms of smoking/tobacco use and secondhand smoke		*(13,14)*
Risk factors – alcohol	6a. Regulations over commercial and public availability of alcohol 6b. Comprehensive restrictions or bans on alcohol advertising and promotions 6c. Pricing policies such as excise tax increases on alcoholic beverages		*(13,14)*
Risk factors – unhealthy diet	7a. Reformulation of policies for healthier food and beverage products (e.g. elimination of *trans*-fatty acids and/or reduction of saturated fats, free sugars and/or sodium) 7b. Front-of-pack labelling as part of comprehensive nutrition labelling policies for facilitating consumers' understanding and choice of food for healthy diets 7c. Public food procurement and service policies for healthy diets (e.g. to reduce the intake of free sugars, sodium and unhealthy fats, and to increase the consumption of legumes, wholegrains, fruits and vegetables) 7d. Behaviour change communication and mass media campaign for healthy diets (e.g. to reduce the intake of energy, free sugars, sodium and unhealthy fats, and to increase the consumption of legumes, wholegrains, fruits and vegetables) 7e. WHO set of recommendations on marketing of foods and nonalcoholic beverages to children 7f. Legislation/regulations fully implementing the International Code of Marketing of Breast-milk Substitutes		*(13,14)*
Risk factors – physical activity	8. Implement at least one recent national public awareness programme on physical activity		*(13,14)*
NCD management	9. Evidence-based national guidelines/protocols/standards for the management of major NCDs through a primary care approach, recognized/approved by government or competent authorities		*(13,14)*
Health system NCD resource delivery	10. Essential medicines and technologies for CRDs		*(20)*
Cancer prevention	11. HPV vaccination programme		*(20)*

Analytical approach

Avoidable (preventable and treatable) mortality from NCDs

Avoidable mortality refers to deaths that could have been avoided through timely and effective health-care interventions, including prevention, early detection and appropriate treatment. It is widely used as an indicator of the quality and accessibility of health-care systems *(21–25)*.

Avoidable mortality from NCDs, which can be further disaggregated into preventable and treatable mortality, is assessed by new indicators developed by the WHO Regional Office for Europe and disseminated for the first time in this report. They build on previously developed, widely used and internationally agreed indicators of preventable and treatable causes of death, which were endorsed by Eurostat (and hence by European Union Member States) and by the OECD *(22)*. The reported indicators are a subset of the agreed Eurostat/OECD list, where causes of death are limited to NCD causes (International Classification of Diseases (ICD) chapters II–XIV) and standardized to the WHO Standard European population with age limits 0–74 years. They can be used as indicators of effectiveness of NCD prevention and treatment policies and systems, respectively. Preventable mortality from cancers is a subset of preventable mortality from NCDs, where the cause of death is one of the cancers (ICD chapter II).

If a death from an NCD (for instance, cervical cancer) can be both prevented and averted through the health system, it is reported under preventable causes, as the disease can be prevented in the first place. Notable exceptions are causes where there is no strong evidence that either prevention or treatment predominates, in which case a 50%–50% allocation is used (examples include diabetes mellitus; aortic aneurysm; hypertensive, ischaemic heart and cerebrovascular diseases; and other atherosclerosis).

As most deaths from CVD are included in avoidable deaths and are evenly split between preventable and treatable causes, the share of preventable deaths from CVDs is very close to 50% by definition. For this reason, preventable mortality from CVDs – in contrast to preventable mortality from cancers – is not calculated. However, if it is of interest, it can be calculated as 50% of CVD deaths.

Avoidable mortality indicators can only be reliably calculated if the cause-of-death data submitted to WHO are at the level of individual ICD-10 codes. This calculation is not possible if an earlier version of ICD (ICD-8 or 9) or aggregated lists, such as the Mortality Tabulation List, are used. Therefore, the calculation of these indicators was not possible for Albania, the Russian Federation, Turkmenistan and Ukraine.

Cost of productivity loss

To quantify the economic impact of preventable and treatable mortality from NCDs, the cost of productivity loss (CPL) was calculated for the age group 30–74 years *(26,27)*. CPL was calculated by multiplying years of potential life lost (YPLL) *(28)* by cause between the ages of 30 and 74 by gross domestic product (GDP) per capita in US dollars. YPLL was calculated using official cause-of-death and population data reported to WHO *(3)*, while GDP data were obtained from the World Bank *(29)*. Three groups of causes of death were selected for the analysis: (i) preventable mortality from NCDs; (ii) preventable cancer mortality; and (iii) treatable mortality from NCDs.

The following indicators were calculated for each Member State to provide an overview of the economic burden associated with NCDs:

- Absolute CPL in US dollars
- Proportion of CPL compared to GDP per capita in US dollars.

Calculation of avoidable mortality from NCDs was not possible for Albania, the Russian Federation, Turkmenistan and Ukraine. In these cases, YPLL was approximated using data from countries with similar levels of CVD and cancer mortality; CPL was then calculated using the approximated YPLL and reported GDP for the four countries.

Country groups

Regional averages of mortality and risk factor indicators tend to mask the heterogeneity that exists across the 53 Member States of the WHO European Region. Therefore, to facilitate comparisons, countries were also grouped following the WHO European Health for All database system *(30)*:

- **EU14** – countries that were part of the European Union prior to 2004: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Ireland, Luxembourg, Netherlands (Kingdom of the), Portugal, Spain, Sweden
- **EU13** – countries that became members after 2004: Bulgaria, Croatia, Cyprus, Czechia, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia
- **CIS** – members and associate members of the Commonwealth of Independent States: Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Republic of Moldova (suspended participation), Russian Federation, Tajikistan, Turkmenistan (associate member), Uzbekistan.

Following the same methodological approach as in the Health for All database system, population-weighted averages were calculated for the WHO European Region and country groups, if data for any given year were available for at least half the countries.

Progress towards timebound targets

In accordance with the European Action Plan (EAP) *(16)* and WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013–2020 *(31)*, the year 2010 serves as the baseline for premature mortality and risk factor assessment. To assess progress towards the targets, the following analytical approach was chosen:

(1) available data were plotted as a line chart;

(2) the target line – starting at the value of available data in baseline year (2010 for GMF and EAP, 2015 for SDG) and interpolated to the value needed to reach target in end year (2025 for most GMF and EPW indicators, and 2030 for premature mortality), as specified in Table A1.1 – was then added to the plot;

(3) the minimum average yearly rate of change needed to reach the target was calculated (values per indicator are given in Table A1.1); and

(4) the distance between the latest available data point and the target line was calculated and compared to the minimum yearly rate of change required to reach the target (step 3 above).

Current progress was assessed by measuring the distance or difference between the latest available data value and the target line. If the latest available data are *lower* than the target line, this indicates that the country or country group is on track to reach the target. If the latest available data are *higher* than the target value, this indicates that the country or country group is not on track to reach the target. The ratio of the distance between the latest observed value and the target value to the yearly rate of change needed to reach the target was used to quantify time lag in years. This analytical approach made it possible not only to assess if a country or country group was on track to reach the target, but also to quantify by how much a country or country group was either off track or ahead of target, according to the latest available data.

For PIs, the approach adopted in WHO's *Monitoring noncommunicable disease commitments in Europe (32)* was used. Briefly, regional assessment included the percentage of countries fully, partly or not at all achieving specific indicators. Country progress was assessed by level of achievement of individual indicators and summarized according to percentage of indicators partly or fully met by country. Detailed criteria of full and partial achievement for all PIs are given in WHO's NCD progress monitors *(13,14)*. It should be noted that criteria for selected PIs changed between 2017 and 2019, and then again between 2021 and 2023, to reflect updating of the WHO best buys *(7,33)*, limiting comparability over time.

Assessment of inequalities

Inequalities were systematically assessed using a modified slope index of inequality (SII) approach. SII is an absolute measure of inequality for cross-sectional data that

represents the difference in predicted values of an indicator between the minimal and maximal rank. SII was calculated using the following approach (Fig. A1.1):

(1) Indicator values were sorted in increasing order and plotted on the *y*-axis.

(2) For each value, normalized rank was calculated by dividing the country rank of the indicator value by the total number of countries (*n*), resulting in *x* values between 0 and 1, which are then plotted on the *x*-axis.

(3) A linear regression model $y(x)$ was fitted using indicator values on the *y*-axis, with normalized ranks on the *x*-axis.

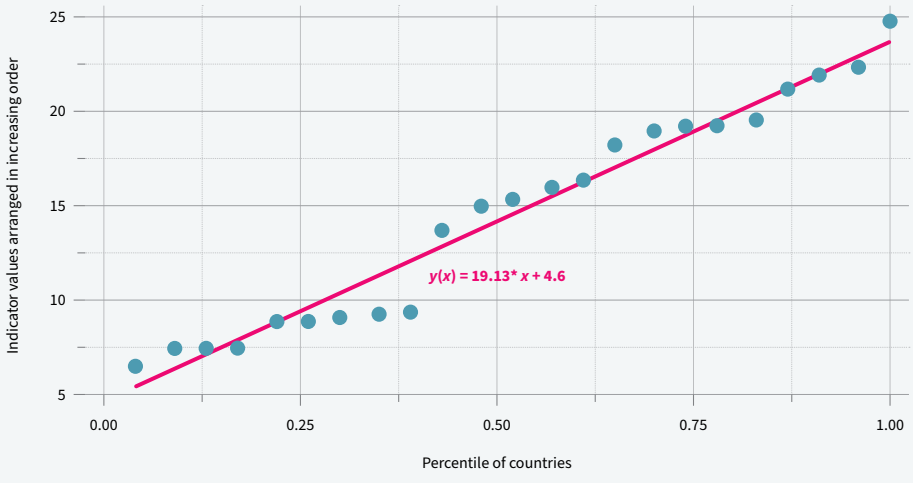
(4) SII was calculated as the difference between predicted values for *y*-values of 1 and 0; SII = $y(1)–y(0)$, where $y(0)$ is the predicted value for the (hypothetical) country with the lowest value of the health indicator (rank 0), and $y(1)$ is the predicted value for the country with the highest value of the health indicator (rank *n*). In the example in Fig. A1.1, SII is 19.13.

If there is no inequality between countries and all have the same value for the indicator, the SII equals 0. Higher absolute values of SII indicate greater inequality and represent the absolute difference between countries with the lowest and highest indicator values. Since SII considers all data points, it is less affected by outliers, which may arise from small numbers in either the numerator or the denominator.

Systematic assessment of inequalities was performed by calculating and comparing SII in baseline and last available year for all countries with available data. In accordance with Table A1.1, the baseline year was either 2010 or 2015. For changes occurring during the coronavirus pandemic, inequalities were assessed by comparing SII in years 2019 and 2021.

Welch's *t*-test was used to compare the slopes between two regression models – for example, at different points in time (e.g. baseline and last available year). Results with a *p*-value of less than 0.05 were considered statistically significant.

Fig. A1.1. Example of an SII calculation



References to Annex 1[2]

1. Transforming our world: the 2030 Agenda for Sustainable Development. New York: United Nations; 2015 (A/RES/70/1; https://undocs.org/A/RES/70/1).
2. Noncommunicable Diseases Global Monitoring Framework: indicator definitions and specifications. Geneva: World Health Organization; 2014 (https://www.who.int/publications/m/item/noncommunicable-diseases-global-monitoring-framework-indicator-definitions-and-specifications).
3. WHO mortality database [online database]. Geneva: World Health Organization; 2021 (https://www.who.int/data/data-collection-tools/who-mortality-database).
4. Noncommunicable diseases: risk factors and conditions [website]. Global Health Observatory. Geneva: World Health Organization; 2021 (https://www.who.int/data/gho/data/themes/topics/noncommunicable-diseases-risk-factors).
5. Political Declaration of the Third High-Level Meeting of the General Assembly on the prevention and control of non-communicable diseases. New York: United Nations; 2018 (A/RES/73/2; https://digitallibrary.un.org/record/1648984?ln=en&v=pdf).
6. Outcome document of the High-Level Meeting of the General Assembly on the comprehensive review and assessment of the progress achieved in the prevention and control of non-communicable diseases. New York: United Nations; 2014 (A /RES/68/300; https://digitallibrary.un.org/record/777809?ln=ru&v=pdf).
7. Tackling NCDs: best buys and other recommended interventions for the prevention and control of noncommunicable diseases, 2nd edition. Geneva: World Health Organization; 2024 (https://iris.who.int/handle/10665/376624). Licence: CC BY-NC-SA 3.0 IGO.
8. NCD country capacity survey [website]. Geneva: World Health Organization; 2021 (https://www.who.int/teams/ncds/surveillance/monitoring-capacity/ncdccs).
9. WHO report on the global tobacco epidemic 2021: addressing new and emerging products. Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/343287). Licence: CC BY-NC-SA 3.0 IGO.
10. Global survey on progress on SDG health target 3.5. Geneva: World Health Organization; 2019 (https://cdn.who.int/media/docs/default-source/alcohol/monitoring/survey-health3-5-2019.pdf).
11. Marketing of breast-milk substitutes: national implementation of the International Code, status report 2024. Geneva: World Health Organization/New York (NY): United Nations Children's Fund/International Baby Foods Action Network; 2024 (https://iris.who.int/handle/10665/376854). Licence: CC BY-NC-SA 3.0 IGO.
12. Monitoring capacity and response [website]. Geneva: World Health Organization; 2025 (https://www.who.int/teams/ncds/surveillance/monitoring-capacity).
13. Noncommunicable diseases: progress monitor 2020. Geneva: World Health Organization; 2020 (https://iris.who.int/handle/10665/330805). Licence: CC BY-NC-SA 3.0 IGO.
14. Noncommunicable diseases: progress monitor 2022. Geneva: World Health Organization; 2022 (https://iris.who.int/handle/10665/353048). Licence: CC BY-NC-SA 3.0 IGO.
15. European Programme of Work 2020–2025: united action for better health. Copenhagen: WHO Regional Office for Europe; 2021 (https://iris.who.int/handle/10665/339209). Licence: CC BY-NC-SA 3.0 IGO.
16. Action plan for the prevention and control of noncommunicable diseases in the WHO European Region. Copenhagen: WHO Regional Office for Europe; 2016 (https://iris.who.int/handle/10665/341522).

2 All references were accessed on 16 June 2025.

17. Comprehensive mental health action plan 2013–2030. Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/345301). Licence: CC BY-NC-SA 3.0 IGO.

18. Global action plan on physical activity 2018–2030: more active people for a healthier world. Geneva: World Health Organization; 2018 (https://iris.who.int/handle/10665/272722). Licence: CC BY-NC-SA 3.0 IGO.

19. Strain T, Flaxman S, Guthold R, Semenova E, Cowan M, Riley LM et al. National, regional, and global trends in insufficient physical activity among adults from 2000 to 2022: a pooled analysis of 507 population-based surveys with 5.7 million participants. Lancet Glob Health. 2024;12(8):e1232–e1243 (https://doi.org/10.1016/S2214-109X(24)00150-5).

20. Noncommunicable diseases: progress monitor 2025. Geneva: World Health Organization; 2025 (https://iris.who.int/handle/10665/381602). Licence: CC BY-NC-SA 3.0 IGO.

21. Preventable and treatable mortality statistics [website]. March 2024. Luxembourg: Eurostat; 2024 (https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Preventable_and_treatable_mortality_statistics).

22. Avoidable mortality: OECD/Eurostat lists of preventable and treatable causes of death (January 2022 version). Paris: Organisation for Economic Co-operation and Development/Luxembourg: Eurostat; 2022 (https://www.oecd.org/content/dam/oecd/en/data/datasets/oecd-health-statistics/avoidable-mortality-2019-joint-oecd-eurostat-list-preventable-treatable-causes-of-death.pdf).

23. Avoidable mortality in England and Wales statistical bulletins [website]. Newport: Office for National Statistics; 2025 (https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/causesofdeath/bulletins/avoidablemortalityinenglandandwales/previousReleases).

24. Mackenbach JP, Bouvier-Colle MH, Jougla E. "Avoidable" mortality and health services: a review of aggregate data studies. J Epidemiol Community Health. 1990;44(2):106–11 (https://doi.org/10.1136/jech.44.2.106).

25. Kosherbayeva L, Akhtayeva N, Tolganbayeva K, Samambayeva A. Trends in avoidable mortality in Kazakhstan from 2015 to 2021. Int J Health Policy Manag. 2024;13:7919 (https://doi.org/10.34172/ijhpm.2024.7919).

26. Rumisha SF, George J, Bwana VM, Mboera LEG. Years of potential life lost and productivity costs due to premature mortality from six priority diseases in Tanzania, 2006–2015. PLoS One. 2020;15(6):e0234300 (https://doi.org/10.1371/journal.pone.0234300).

27. Altangerel P, Damdinbazar O, Borgilchuluun U, Batbayar D, Erdenebat B, Purevdorj T et al. An exploration of productivity costs and years of potential life lost: understanding the impact of premature mortality from injury in Mongolia. Health Serv Insights. 2023;16:11786329231212295 (https://doi.org/10.1177/11786329231212295).

28. Gardner JW, Sanborn JS. Years of potential life lost (YPLL): what does it measure? Epidemiol. 1990;1(4):322–9 (https://doi.org/10.1097/00001648-199007000-00012).

29. GDP per capita (current US$) [website]. Washington (DC): World Bank; 2024 (https://data.worldbank.org/indicator/NY.GDP.PCAP.CD).

30. European Health for All database (HFA-DB) [online database]. Copenhagen: WHO Regional Office for Europe; 2021 (https://gateway.euro.who.int/en/datasets/european-health-for-all-database/).

31. Global action plan for the prevention and control of noncommunicable diseases 2013–2020. Geneva: World Health Organization; 2013 (https://iris.who.int/handle/10665/94384).

32. Monitoring noncommunicable disease commitments in Europe: theme in focus: progress monitor indicators. Copenhagen: WHO Regional Office for Europe; 2017 (https://iris.who.int/handle/10665/345832).

33. Tackling NCDs: "best buys" and other recommended interventions for the prevention and control of noncommunicable disease. Geneva: World Health Organization; 2017 (https://iris.who.int/handle/10665/259232). Licence: CC BY-NC-SA 3.0 IGO.

The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

Member States

Albania
Andorra
Armenia
Austria
Azerbaijan
Belarus
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czechia
Denmark
Estonia
Finland
France
Georgia
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Luxembourg
Malta
Monaco
Montenegro
Netherlands (Kingdom of the)
North Macedonia
Norway
Poland
Portugal
Republic of Moldova
Romania
Russian Federation
San Marino
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Tajikistan
Türkiye
Turkmenistan
Ukraine
United Kingdom
Uzbekistan

Document number

WHO/EURO:2025-12445-52219-80271 (PDF)

World Health Organization, Regional Office for Europe

UN City, Marmorvej 51, DK-2100 Copenhagen Ø, Denmark
Tel.: +45 45 33 70 00, Fax: +45 45 33 70 01
Email: eurocontact@who.int
Website: www.who.int/europe