

Partnership for Health System Sustainability and Resilience

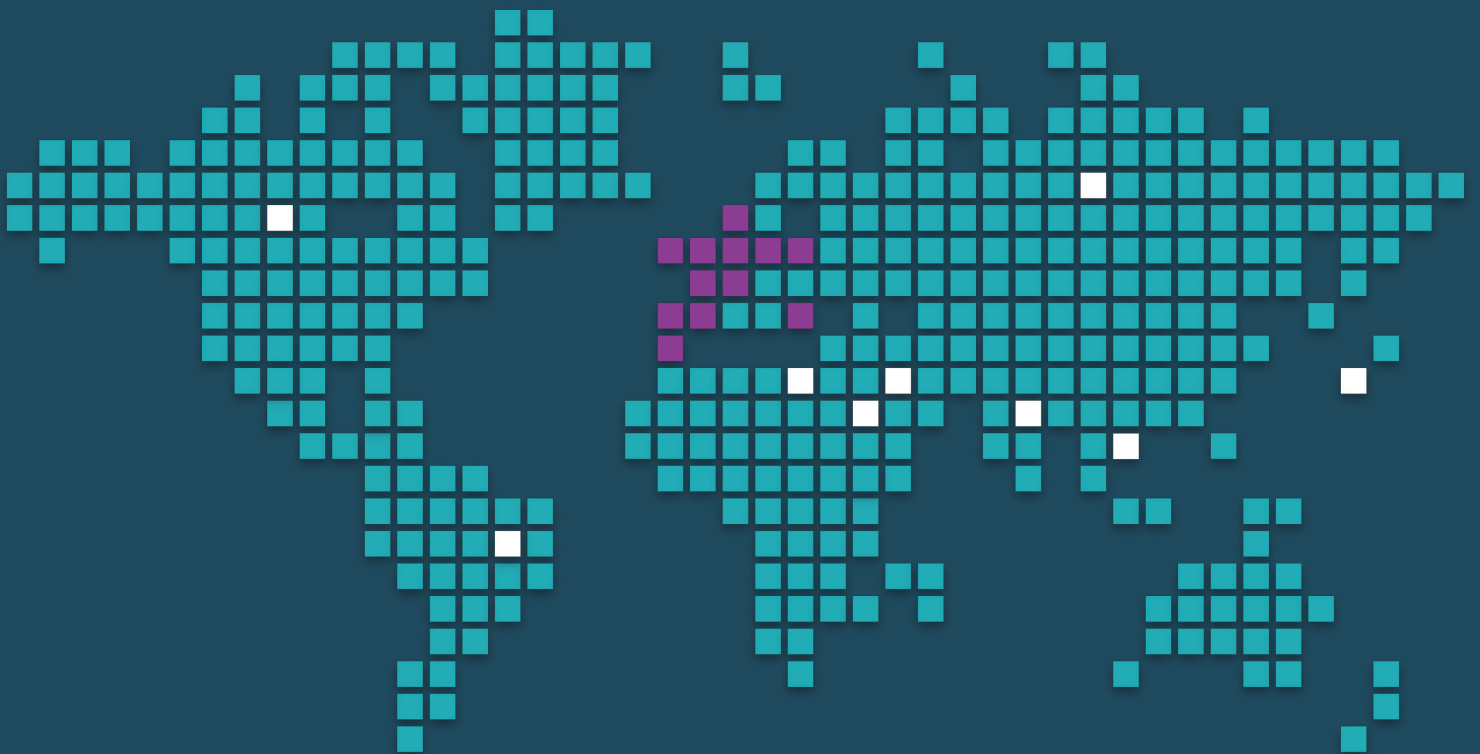


EUROPEAN UNION

PHSSR EU EXPERT ADVISORY GROUP REPORT

A Stitch in Time: Early Intervention to Tackle Europe's NCD Crisis

EU policy solutions towards more sustainable and resilient health systems



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PHSSR EU EXPERT ADVISORY GROUP

Recognising the increasingly important role that the European Union (EU) is playing in supporting Member State health systems, including in supporting recovery since the COVID-19 pandemic, the Partnership for Health System Sustainability and Resilience (PHSSR) has established an **EU Expert Advisory Group** to make recommendations to the EU institutions on how they can improve the sustainability and resilience of health systems across the region. The members of the group are leading experts in health policy in Europe, including senior policymakers, academics, clinicians, economists, and patient representatives.

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This report has been developed in the context of the Partnership for Health System Sustainability and Resilience (PHSSR). The PHSSR is a non-profit, global collaboration between academic, non-governmental, life sciences, healthcare, and business organisations with a unified goal to improve global health by building more sustainable and resilient health systems for the future.

More information about the PHSSR can be found in the Annexe and at www.phssr.org

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Foreword



Health systems in Europe have long been focused on treating illnesses rather than preventing them. This is most evident when it comes to non-communicable diseases (NCDs), the leading cause of premature death in the European Union (EU), accounting for about 80% of the disease burden and overall health expenditure.^{1,2}

This is a ticking time bomb for the EU. The lives lost, soaring costs, and declining productivity caused by NCDs represent one of the biggest collective socioeconomic challenges to European countries over the next years alongside other pressing concerns such as climate change, conflict, and economic instability. NCDs are also fundamentally an equity issue. They are both a cause and consequence of poverty and the major disparities in disease burden and patient outcomes observed across EU countries and socioeconomic groups.

While the COVID-19 pandemic exacerbated the poor health outcomes and experiences of people living with NCDs – including health service backlogs and delays in non-emergency medical care – it also shone a light on challenges and gaps in health systems that existed well before COVID took hold. Indeed, were health systems not already straining to cope under the pressure posed by rising numbers of patients with chronic conditions, driven in part by Europe’s rapidly growing ageing population³, they would have been better equipped to deal with the pandemic in the first place.

Despite this bleak picture, there is significant cause for hope. It is estimated that 80% of NCDs are preventable⁴ and that most premature deaths could be avoided or delayed through earlier and better prevention and health interventions.⁵ By shifting health spending and clinical practice towards prevention and early detection of chronic diseases, the EU has the potential to build health systems that are better prepared to address current needs and face future crises.

The Partnership for Health System Sustainability and Resilience (PHSSR) EU Expert Advisory Group was convened in 2023 to consider how the EU could further support Member States’ health system resilience and sustainability. Given the pressing nature of the challenges posed to population health and health systems, the group decided to focus its first efforts on making policy recommendations to enhance prevention and early detection of NCDs.

We are honoured to chair the PHSSR EU Expert Advisory Group. Together, we have an important opportunity to transform our approach to healthcare, embracing disease prevention and early detection as core principles of robust health systems, towards a healthier and more sustainable future for Europeans.

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Executive summary



NCDs account for over 90% of deaths in the EU and an economic loss of 2% of gross domestic product

More than a third of all people aged 16 years and older in the EU have at least one long-standing self-reported illness or health problem.⁶ In 2017, the Global Burden of Disease and Injury study estimated that NCDs accounted for over 90% of deaths in the EU⁷ and, in 2019, at least 25% of national health spending was dedicated to the major NCDs.⁸ Furthermore, an economic loss of 2% of the gross domestic product of the EU was suffered as a result of cardiovascular disease, cancer, chronic respiratory disease, and type 2 diabetes.⁹

The statistics speak for themselves and, as such, NCDs pose an urgent and major challenge to health systems in the EU.¹⁰ Despite the trend of a rising disease burden, EU health systems retain a predominant emphasis on treatment rather than prevention. The EU average for investment in preventive care stood at 2.8% of total health expenditure in 2018¹¹, which is associated with the rising healthcare and societal costs observed across the region from serious illness, disability, and death.¹² People with NCDs who do not receive adequate and timely care compound the burden on health systems, necessitating costly treatments.^{13,14}

But there is hope. Evidence demonstrates that prioritising disease prevention and intervening at an early stage is more cost-effective, generating a significant return on investment.^{15,16} Drawing on the extensive work of the PHSSR globally and across EU countries to date, as well as their own professional perspectives, the members of the PHSSR EU Expert Advisory Group were clear that in order to contribute to health system sustainability and resilience, the EU should extend and enhance its efforts to address prevention and early detection of NCDs.

Taking into account existing EU initiatives such as the Healthier Together – EU NCD initiative, Europe’s Beating Cancer Plan, the EU4Health programme and the European Health Data Space (EHDS), the group discussed and agreed on recommended interventions across the PHSSR’s research domains – health system governance, financing, workforce, medicines and technology, health service delivery, population health, and environmental sustainability – that would support the EU in achieving the greatest possible health system impact.

The PHSSR EU Expert Advisory Group calls on the EU institutions to implement a number of key recommendations, including the following:

- 1. Increase and ensure sustainable, dedicated EU investment in prevention and early detection of NCDs under the next Multiannual Financial Framework.**
- 2. Improve available data on NCDs, including by tasking an existing EU agency to carry out surveillance of NCDs across the Union.**
- 3. Ensure the implementation of the European Health Data Space includes data infrastructure to enable successful prediction and detection of NCDs.**
- 4. Undertake comprehensive evaluations of prevention and early detection interventions to inform EU and Member State policymaking.**
- 5. Update the 2012 Action Plan for the EU Health Workforce and improve incentives for healthcare professionals to specialise in public health and health data science.**
- 6. Align the EU air quality standards with the WHO Air Quality Guidelines, incorporating robust monitoring and enforcement mechanisms.**
- 7. Create action plans addressing NCDs with a high and preventable burden, such as cardiovascular diseases, taking into account common risk factors across NCDs.**

NCDs IN THE EU

A mounting challenge
calling for earlier
intervention through
policy action



1. Non-communicable diseases pose a significant challenge to EU health systems

Non-communicable diseases are diseases that tend to be of long duration and are the result of a combination of genetic, physiological, environmental and behavioural factors.¹⁷ More than a third of all people aged 16 years and older in the EU have at least one long-standing self-reported illness or health problem.¹⁸ As such, NCDs pose an urgent and significant challenge to health systems in the EU.¹⁹ NCDs include cardiovascular diseases, diabetes, chronic respiratory diseases, kidney diseases, mental health conditions (as a category of NCDs as well as a contributor to other NCDs), neurological disorders, or cancer, for example.

In 2017, the Global Burden of Disease and Injury study estimated that NCDs accounted for over 90% of deaths in the EU.²⁰ In 2019, at least 25% of national health spending was dedicated to the major NCDs and an economic loss of 2% of the gross domestic product in the EU was suffered as a result of cardiovascular disease, cancer, chronic respiratory disease, and type 2 diabetes.²¹ Figure 1 below presents an overview of the mortality rates in EU Member States associated with NCDs in 2019.

Figure 1: Percentage of mortality associated with NCDs in the EU in 2019²²



The high healthcare morbidity and mortality due to NCDs are exacerbated by modifiable risk factors including unhealthy diet, physical inactivity, exposure to tobacco smoke, harmful use of alcohol²³, air pollution, and climate change, as well as factors that are not modifiable such as age, gender and genetics. NCDs are closely co-morbid, with many patients suffering from two or more chronic conditions, compounding the burden on both individuals and health systems. The prevalence of NCDs in the EU is expected to grow, particularly due to population ageing.²⁴

2. Current emphasis on treatment rather than prevention

This trend is underpinned by EU health systems' predominant emphasis on treatment rather than prevention (the EU average for investment in preventive care stood at 2.8% of total health expenditure in 2018²⁵), which is associated with the rising healthcare and societal costs observed across the region from serious illness, disability, and death.²⁶

People with NCDs who do not receive adequate and timely care compound the burden on health systems, necessitating costly treatments.^{27,28}

Evidence demonstrates that intervening at an early stage and prioritising disease prevention is more cost-effective, generating a significant return on investment^{29,30}, compared to treating advanced-stage NCDs³¹, which can be a lot more invasive, including surgeries, chemotherapy, radiation therapy, dialysis, and targeted therapies for cancer.

Studies have shown that early-diagnosed cancer treatment leads to a higher chance of survival (for example, more than half of people with lung cancer survive their disease for 5 years or more when diagnosed at stage I compared with only 3% of those diagnosed at stage IV³²) and is two to four times less expensive compared to treating cancer in advanced stages.^{33,34}

In addition, there are significant inequalities between poorer and better-off populations with respect to the prevalence of NCDs, health outcomes and mortality. Inequalities are often attributed to risk factors such as low education levels, poor access to high-quality health services, physical inactivity, poor nutrition, and obesity.^{35,36}

The predominant emphasis on treatment rather than prevention is associated with rising healthcare and societal costs

3. Prevention starts early

The prevention of NCDs is multifaceted and complex – it can be broken down into primary, secondary and tertiary prevention measures. Each of these categories is subject to multiple, at times conflicting, interpretations.³⁷

In general, primary prevention aims to lower the prevalence of NCDs by reducing or eliminating the associated modifiable risk factors, such as tobacco use, harmful alcohol use, physical inactivity, and unhealthy diets. Secondary prevention incorporates early detection and timely treatment to prevent complications and reduce disease progression. This includes screening and diagnostic tests, lifestyle interventions, and medication management.³⁸

Should an NCD remain undetected at an early stage, tertiary prevention ultimately entails managing and preventing further complications of the disease to reduce its severity and impact on quality of life and life expectancy. This includes rehabilitation, palliative care, and end-of-life care.³⁹

Early interventions outside the health system and the healthcare delivery system, such as those related to social determinants of health (SDH), are crucial to complement prevention efforts within the health system. Prevention begins in early life with interventions such as good childhood nutrition, education, poverty alleviation, and access to good housing.

4. The need for an investment mindset

This report calls for EU action to support Member State health systems in enhancing prevention and treatment of NCDs, in tandem with action in other sectors. This will deliver substantial benefits as part of broad and long-term shifts required to build a healthier society, but it requires an investment mindset that views health not as a mere cost driver but as a growth asset.

The burden of NCDs in the EU demands a comprehensive shift towards **chronic disease prevention and early detection**

Promoting better health through prevention and early intervention has far-reaching economic benefits. Healthier populations are more productive and contribute to overall economic growth, particularly given the high burden of NCDs in the working-age population.^{40,41} By prioritising prevention, the EU can create a virtuous cycle of improved health, economic prosperity, and sustainable development.

The burden of NCDs in the EU demands a comprehensive shift towards chronic disease prevention and early detection. By re-orienting health systems, investing in prevention programmes, and using data to inform earlier and improved intervention, Europe can effectively address the challenges posed by NCDs, create healthier populations, and establish sustainable health systems.

The EU has been continuously increasing its role and investment in healthcare in recent years, which was further boosted by the impact of the COVID-19 pandemic. Cancer has been a high political priority in the current EU political cycle (2019–2024) resulting in the creation of Europe's Beating Cancer Plan (EBCP).⁴² The EU4Health programme⁴³ is supported by a multi-year EUR 5.3bn investment aiming to improve public health in the EU and make the Union better prepared to cope with future health crises. Most recently, the EU has established the Healthier Together NCD Initiative⁴⁴ to tackle the leading causes of premature deaths.

These initiatives are still in their early stages and significant work remains to be done to realise their full potential. This report serves as a reminder of the urgent challenge NCDs represent and aims to provide helpful direction and focus to ensure that EU efforts are effectively targeted and can realise the greatest possible gains.

PHSSR EU EXPERT
ADVISORY GROUP
RECOMMENDATIONS
TO THE EU INSTITUTIONS



The members of the PHSSR EU Expert Advisory Group applied the PHSSR research framework⁴⁵ to discuss and agree on the following high-impact recommendations to the EU institutions to further the prevention and early detection of NCDs across EU Member States. Specific attention was given to recommendations that can feasibly be implemented by the EU given its current competences and available resources, and to priorities that are either not well addressed by existing policy programmes or where it is deemed that further action is needed.

A. IMPROVE THE AVAILABILITY AND ACCURACY OF DATA ON NCDs

PHSSR DOMAIN: POPULATION HEALTH

The introduction of effective interventions to tackle NCDs early must be informed by a robust analysis of disease prevalence, outcomes, trends and risk factors, leveraging data from across all EU Member States. Unfortunately, surveillance capacity and methodology vary greatly across countries in Europe.⁴⁶

By bolstering capacity at the EU level, a common centralised repository of NCD data could emerge that allows decision-makers to take full advantage of the power of big data⁴⁷, including from new public health infrastructure tools like the CONSTANCES Cohort⁴⁸ in France. Researchers and healthcare professionals would be able to analyse multiple risk factors and outcomes, including Patient Reported Outcome Measures (PROMs), and intervention effects. This would provide a better-defined, global picture of NCDs in the EU, facilitating the development of highly effective prevention and early detection strategies.

Surveillance **capacity and methodology** vary greatly across Europe

The European Commission is well placed to initiate and facilitate dialogue between Eurostat, the World Health Organization (WHO) and the Organisation for Economic Co-operation and Development (OECD), all of which collect data on NCDs, in order to strengthen and intensify cooperation and establish a uniform system of data collection. In addition, the European Commission should engage with and empower local authorities to collect and feed data into central repositories such as Eurostat.

Additionally, to be able to collect national data on health status, health care use, health determinants, and socioeconomic background variables in a standardised way, a harmonised system of conducting the European Health Interview Survey⁴⁹ across Member States is required.

The EU has shown great ambition in its efforts to establish a European Health Data Space (EHDS) that guarantees data quality and interoperability, with vast potential to support prevention and early detection of NCDs.

To maximise the availability of health data in this context, the EHDS should be established in a way which facilitates the secondary use of health data while empowering individuals to decide whether they wish to allow the use of their health information.^{50,51} Implementing an opt-out mechanism is a solution that can build trust between healthcare providers, researchers, and the public. When individuals feel they have control over their data, they are more likely to support health research and data-sharing initiatives.⁵²

Recommendations

- A.1** Mandate an existing EU agency, such as the European Centre for Disease Prevention and Control (ECDC)⁵³ or the European Commission's Joint Research Centre⁵⁴, to be responsible at the EU level for surveillance of the prevalence and incidence of NCDs and associated health outcomes, including patient-reported outcomes, across all EU Member States.

- A.2 Establish a uniform system of obtaining and reporting relevant data on the burden of NCDs, associated risk factors and patient-reported outcomes across the EU, facilitating coordination between Eurostat, WHO and the OECD, together with Member States, including a harmonised approach to conducting European health surveys and healthcare services user surveys.

B. EVIDENCE GENERATION AND EVALUATION OF INTERVENTIONS

PHSSR DOMAIN: POPULATION HEALTH

One of the key means the EU has at its disposal to improve primary prevention of NCDs is its role in regulating the EU internal market. Through its competence in this area, the EU has implemented various measures to regulate tobacco and alcohol use, as well as regulate the marketing of food products to help improve the diet of EU citizens.

The Tobacco Products Directive (2014/40/EU)⁵⁵ for instance lays down rules governing the manufacture, presentation, and sale of tobacco and related products, and various measures have been implemented to regulate alcohol, including taxation, advertising restrictions, and labelling requirements.⁵⁶

Likewise, the EU has undertaken actions to encourage healthier diets and promote good nutrition, including regulations requiring nutrition declarations on pre-packaged foods and food-based dietary guidelines.⁵⁷ As it is estimated that in the EU over 950,000 deaths (one out of five) were attributable to unhealthy diets⁵⁸, mainly cardiovascular diseases and cancers, future harmonised mandatory front-of-pack nutrition labelling rules and restrictions on the marketing of unhealthy foods could be important to empower consumers to make informed and healthy food choices and to promote healthy and balanced diets such as the Mediterranean diet.⁵⁹

There exists little in the way of a knowledge base around the effectiveness and cost-effectiveness of prevention and early detection initiatives. Interventions are often introduced by a range of different actors and institutions, be they at local, regional or national level, without a robust collective evidence base. The EU has taken steps in some specific areas to evaluate the clinical effectiveness of individual health treatments and technologies via its recent Health Technology Assessment Regulation.⁶⁰ EU-funded projects are generating evidence, for example, to improve the cost-effectiveness of cancer screening programmes.^{61,62}

It is important to **assess the overall effectiveness of health interventions**

With respect to prevention and early detection, it is important to assess the overall effectiveness of health interventions (e.g. early diagnosis programmes) on target populations and shifts in disease patterns over time, considering not only interventions' health and economic impacts but also their operational and implementation considerations. An EU agency such as the European Centre for Disease Prevention and Control (ECDC) may be able to play an important role in providing these comprehensive and systematic evaluations of evidence to support decisions on the implementation of specific prevention and early detection interventions.

The European Commission and Member States should be able to deploy such evaluations to support the joint development of indicators for the effective implementation of interventions in prevention and early detection of NCDs. Indicators, such as the percentage of individuals effectively screened for NCDs or the proportion of people with access to screening programmes, should particularly focus on at-risk groups that suffer from the largest share of the disease burden. This, in turn, would reduce the burden on Member States' own resources and promote equity, whilst enabling them to assess their own performance, identify gaps in provision and plan for new interventions.

Recommendations

- B.1** Review the implementation and impact of existing regulatory measures in the areas of tobacco use, alcohol consumption and food marketing on the burden of NCDs and update or adopt new measures to address major gaps and limitations.
 - B.1.1** Develop a harmonised, mandatory and highly visible EU front-of-pack nutrition labelling scheme to empower consumers to make informed and healthy food choices.
 - B.1.2** Adopt legally binding rules protecting children from exposure to all forms of cross-border marketing of unhealthy food and beverage products.
 - B.1.3** Explore options to prevent selling of unhealthy foods via vending machines in schools.
- B.2** Task an existing EU agency such as the ECDC to undertake, in cooperation with Member States, comprehensive and systematic evaluations of evidence to support decisions on the implementation of specific prevention and early detection interventions, including the consideration of health, economic and operational dimensions.
- B.3** Develop a set of indicators in collaboration with Member States, disaggregated for specific at-risk groups where appropriate, on the cost-effective implementation of NCD prevention and early detection interventions, enabling Member States to monitor progress and identify gaps and funding needs. The indicators should consider socioeconomic factors and address health inequalities.
- B.4** Collect Member State best practice prevention and early detection strategies targeted at the most vulnerable populations to inform policy decisions at EU and Member State level.

C. ACTION ON ENVIRONMENTAL SUSTAINABILITY TO REDUCE THE BURDEN OF NCDs

PHSSR DOMAIN: ENVIRONMENTAL SUSTAINABILITY

The relationship between environmental sustainability and health systems is deeply reciprocal.⁶³ On the one hand, health systems, through their operations, infrastructure and resource utilisation, contribute to around 5.2% of greenhouse gases worldwide, with far-reaching implications on air and water quality, climate change and biodiversity loss.^{64,65} On the other hand, the risks posed by climate change, including heat-related illnesses and increased mortality rates⁶⁶ are creating ever greater burdens on health systems, particularly from NCDs.⁶⁷

With the EU's 2030 Climate and Energy Framework⁶⁸ and ambition to become climate neutral by 2050⁶⁹, prevention and earlier identification of NCDs have the win-win potential to reduce carbon emissions and healthcare resource utilisation while improving patient outcomes. Detecting kidney disease early to prevent the need for kidney dialysis is a clear example of the available opportunity given that it consumes around 75,000 litres of water a year per patient and over 900,000 tonnes of mainly plastic waste.^{70,71}

Particular attention should also be drawn to air pollution which is the second leading cause of death from NCDs⁷², including Chronic Obstructive Pulmonary Disease (COPD), asthma, lung cancer and cardiovascular disease, hypertension and kidney diseases. While many of these closely linked conditions are influenced by genetics, they can be further aggravated, or indeed induced, by poor air quality and air pollution.

The WHO has been working for many years to introduce universal mitigation measures against climate and environmental degradation. In 2021, it announced the adoption of a comprehensive set of air quality guidelines that provide a scientifically sound foundation for practical action to further

protect clean air, and thus work towards reducing the prevalence of chronic respiratory diseases and other NCDs. EU institutions and Member States have the opportunity to build on this WHO effort and translate the existing guidelines into actionable, enforceable limits on the concentration of pollutants and irritants which can be emitted into Europe's air. Clean air is the most public of public goods.⁷³

It should be noted that while the EU's recent Pharmaceutical Strategy⁷⁴ acknowledges the need to reduce carbon emissions throughout the lifecycle of medicines, no specific initiatives have been introduced to decarbonise the healthcare pathway as a whole.

The EU and its Member States should consider the implementation of measures to transition to more sustainable healthcare solutions, including prevention and early detection, without compromising patient care or health system efficiency. As part of the European Green Deal⁷⁵, the EU has recently launched initiatives to improve the environmental performance of public buildings, which although not specific to health, includes hospitals which are often highly energy intensive.

The relationship between environmental sustainability and health systems is deeply reciprocal

Recommendations

- C.1** Adopt WHO air quality standards and mitigation measures against climate and environmental degradation within EU air quality legislation and ensure supporting policies contribute to the reduction of NCDs by establishing robust monitoring and enforcement mechanisms that drive local implementation.
- C.2** Provide technical support and funding via the Just Transition Fund to support Member States in complying with environmental standards that promote public health. Apply a particular emphasis to initiatives impacting populations of lower socioeconomic status and minorities who tend to live in densely populated urban areas with higher environmental risk and who are typically exposed to higher levels of pollution in their workplaces.
- C.3** Create a joint expert group between the WHO, OECD, the European Commission's DG SANTE, DG ENV, DG CLIMA and Member States to identify initiatives to reduce emissions and waste produced by health systems and introduce a programme to fund implementation studies and initiatives in this area, as well as share Member State best practices.
- C.4** Taking into account the "One Health" approach⁷⁶, ensure the environmental performance of health systems is supported by relevant EU legislative and regulatory initiatives, including those regulating the energy and indoor climate performance of public buildings, such as hospitals and health centres, green public procurement and manufacturing of medical products. Regulations on public buildings should also apply to private-sector healthcare institutions such as private hospitals.

D. HEALTH SYSTEM GOVERNANCE TO SUPPORT NCD PREVENTION & EARLY DETECTION

PHSSR DOMAIN: GOVERNANCE

For the 2022–2027 programming period, the European Commission has developed the Healthier Together Initiative⁷⁷ – an EU-wide guidance document to tackle the major problems posed by NCDs, by "identifying and implementing effective policies and actions to reduce the burden of major NCDs on health systems, and improve citizens' health and well-being". This initiative calls for a holistic and coordinated approach to prevention and care and advocates for better knowledge and data, screening and early detection, diagnosis and treatment management, and the improvement of quality of life for patients.

While the Healthier Together Initiative focuses on several major NCDs, including cardiovascular disease, diabetes, chronic respiratory disease, mental health and neurological disorders, it does not address other leading causes of preventable mortality and healthcare resource utilisation, for example, chronic kidney disease, which costs health systems EUR 140 billion every year – higher than the annual expenditure on cancer or diabetes.^{78,79} The Healthier Together Initiative has also been complemented by the Member States’ Joint Action on “Prevention of NCDs – Cardiovascular diseases and diabetes” and relevant Action Grants financed under the EU4Health Programme.⁸⁰

Europe’s Beating Cancer Plan should serve as the inspiration for targeted and detailed initiatives for other major NCDs

To date, cancer is the only NCD to have been prioritised by the EU in its policy agenda. Europe’s Beating Cancer Plan (EBCP), a flagship programme launched in 2021 together with the Horizon Europe Mission on Cancer, takes a full life-cycle approach to addressing cancer including specific prevention strategies on the basis of key risk factors.^{81,82}

The EBCP is a laudable achievement in EU public health policymaking. Full and adequate implementation of this strategy would see tobacco consumption across the continent fall to near zero (<5% by 2040), >90% vaccination rates against cancers caused by infections for at-risk groups, increased rates of early detection through improved access to quality diagnostics and screening, and improved quality of life for cancer patients and survivors.⁸³ Part of the preventive measures set out in the EBCP will positively impact other NCDs as well, though tailored approaches are still needed to address the burden of each individual NCD.

While the Healthier Together Initiative aims at minimising the burden of NCDs on health systems and improving outcomes for patients, there is an opportunity to increase its ambition level through sustained political leadership in EU health policy. The EBCP should serve as the inspiration for targeted and detailed initiatives for other major NCDs, many of which share common risk factors, and which should in turn inspire the implementation of national policy plans.

Recommendations

D.1 Develop the EU Healthier Together Initiative on NCDs further into a framework similar to Europe’s Beating Cancer Plan, drawing on its most impactful elements with concrete indicators, deadlines, benchmarks and funding. Extend the initiative to include kidney and liver diseases and create action plans to address specific NCDs with a high and preventable burden, such as CVD, diabetes and CKD, whilst taking into account common risk factors. EU-level action plans for specific NCDs should include:

- D.1.1** Investing in a full pathway approach, similar to the EBCP framework, including increased investment into research and innovation in accordance with the level of disease burden.
- D.1.2** Improving the organisation and harmonisation of prevention and early detection initiatives including:
 - Strengthening public health interventions, e.g. smoking reduction.
 - Increasing cost-effective screening for disease clusters such as CVD, CKD and diabetes, with the EU’s cancer screening recommendations serving as a potential model to introduce EU guidelines for screening of other NCDs.
 - Conducting lung health checks both early on and later in life.
 - Boosting research into accurate, affordable and acceptable screening procedures.
 - Increasing the use of digital applications and telemedicine for screening.

Case Study: Development of a comprehensive prevention strategy for CKD in France⁸⁴

NEPHROLOR, a regional network in the Lorraine area of France, has developed a comprehensive strategy for preventing and managing CKD, slowing the progression of the illness to end-stage kidney disease, and, when necessary, providing access to blood dialysis technology or arranging and carrying out kidney transplants.

This initiative was developed with the goal of implementing a holistic approach to CKD treatment. Some of its key components include prevention and patient education programmes, early diagnosis and treatment measures, online patient monitoring, thorough data collection and sharing, and quality/satisfaction evaluation questionnaires.

E. IMPLEMENTATION OF INNOVATIVE TECHNOLOGIES AND DIGITAL SOLUTIONS

PHSSR DOMAIN: MEDICINES AND TECHNOLOGY

Innovative technologies and digital solutions offer extensive opportunities to enhance prevention and early detection. There is scope for much greater collaboration between the EU institutions and Member States to identify and implement impactful, digitally driven solutions that support comprehensive and personalised approaches to NCD prevention and early detection (see Box).

Examples of digital solutions to NCD prevention and early detection

Mobile applications that support people when quitting tobacco with information based on behavioural insights.⁸⁵

Artificial Intelligence (AI)-enabled medical software to better detect lung nodules on medical images.

An online platform using AI-based automation to improve efficiency and effectiveness of NCD screening programmes.

A fundamental enabler to deploying such technologies is the existence of appropriate digital health and data infrastructure. Despite the benefits offered, efficient health IT infrastructure is a rarity in many countries, and interoperability of digital health systems is a particular challenge.

Enhancing interoperability across health systems and health IT infrastructures is crucial

A harmonised framework that allows secure health data access and management, including common standards for data exchange, can ensure that health information can be seamlessly and safely shared and accessed across different health systems and platforms. This includes connecting disease registries for NCDs and enabling the use of Real-World Evidence (RWE) and AI to predict and detect NCDs and help identify patterns and risk factors associated with NCDs.

Currently fragmented national and local rules also create privacy and data protection challenges, especially related to conditions on data processing for scientific research purposes. Some Member States retain cross-border data transfer restrictions. In this regard, there are areas in which the EU General Data Protection Regulation (GDPR) should be clarified to address existing challenges, including those related to patient consent, national-level interpretation and secondary use of data.⁸⁶

Furthermore, enhancing interoperability across health systems and health IT infrastructures is crucial to facilitate the integration of digital tools and solutions, such as mobile health applications

and remote monitoring devices, which can empower individuals to actively participate in their own healthcare and enable prevention and early detection of NCDs.⁸⁷

The EU has recognised the importance of focused action in these areas through the upcoming European Health Data Space Regulation, which emphasises the need for appropriate infrastructure, uniform data access, and improved interoperability.

Through collaboration between Member States to exchange best practices, establish new targets and ensure the implementation of relevant regulations, Europe can leverage the power of digital solutions to improve healthcare outcomes, reduce healthcare costs, and create a healthier population.

Recommendations

- E.1** Establish relevant targets around the implementation of specific digital solutions that support prevention and early detection of NCDs, in collaboration with Member States and building on Europe's Digital Decade digital targets for 2030⁸⁸.
- E.2** Ensure the implementation of the upcoming European Health Data Space Regulation:
 - E.2.1** Establishes uniform health data access and management, including a common standard for data exchange, complemented by a more harmonised application of the EU GDPR.
 - E.2.2** Improves interoperability between health systems and health IT infrastructures.
 - E.2.3** Provides sufficient earmarked funding to Member States in the next Multiannual Financial Framework to set up the appropriate infrastructure to connect disease registries and enable the use of Real-World Evidence and AI to predict and detect NCDs.
 - E.2.4** Encourages Member States to include relevant and appropriate socioeconomic data in their electronic health records, while respecting individuals' data privacy rights, to enable prevention and early detection interventions that drive health equity.
 - E.2.5** Includes an opt-out mechanism for secondary use of data, striking a balance between the need to obtain an optimal quantity of representative unbiased datasets to inform public health research with the need to protect the privacy of data subjects.

Case Study: Digitalisation in Estonia towards disease prevention and early detection^{89,90}

The Estonian Genome Centre was established as a first step to enable personalised medicine in Estonia. A 5-year programme for the Implementation of Personalised Medicine in Estonia, launched in 2019, aims to create the basis for using genetic data more extensively in clinical practice, e.g. for personalised genetic risk-based prevention. Expected outcomes of the programme include:

- Enabling the combination of genomic and health data in the national health information system to provide personal risk calculations for selected complex diseases.
- Applying clinical decision support systems to automatically visualise the disease risks and provide suggestions that could be used to reduce this risk towards disease prevention or improved, personalised patient treatments.
- Providing a sustainable framework for the implementation of a personalised approach in future national screening and prevention programmes.

F. AN EU HEALTHCARE WORKFORCE AND INNOVATION STRATEGY

PHSSR DOMAIN: WORKFORCE

The work of the PHSSR globally has highlighted that the healthcare workforce is essential to the sustainability and resilience of health systems. However, there are major challenges arising from the current state of the workforce across the EU. The European Commission has estimated that there is a shortage of around 1 million healthcare workers across the EU.⁹¹ There is also a substantial inequality between EU countries as a result of the “brain drain” of doctors and nurses who move to countries with better working conditions and pay, leaving other countries with shortages.

Meanwhile, poor working conditions⁹² and instances of poor mental health and “burnout” have become increasingly common⁹³, resulting in large numbers of workers leaving the sector and a wave of recent strikes across Europe. In addition, the healthcare workforce is becoming increasingly scarce due to the ageing of the current healthcare professional population and increasing challenges with attracting and retaining young professionals.⁹⁴

Without a workforce that is sufficient in numbers, geographically equitable in its distribution, highly motivated, with the appropriate skills and remunerated accordingly, a health system will not be sustainable or resilient. Moreover, as healthcare needs evolve due to factors such as ageing populations and the rising burden of NCDs, the demand for a robust healthcare workforce increases. Continuous and specialised education of the workforce is needed to meet new or emerging threats to the health status of the population, including increasingly complex and comorbid patients.

Strengthening primary and multi-disciplinary care is of utmost importance

There are categories of health professionals particularly involved in driving prevention and early detection of NCDs that require specific support:

- Strengthening primary care as well as integrated and multi-disciplinary care is of utmost importance in this regard. This will also contribute to relieving the burden on specialists and thus make health systems more sustainable and resilient.
- Public health professionals are vital to the planning and implementation of prevention initiatives, yet incentives to specialise in this particular field are poor.
- The vast possibilities created by the proliferation of data mean health data scientists have the potential to significantly increase our capability to analyse healthcare challenges and identify and deliver more effective responses. The challenge is to attract this group into the public sector given the high demand for their skills in the private sector and the associated remuneration.

In 2012, the European Commission developed an Action Plan for the EU Health Workforce⁹⁵ which proposed action under four key strategies: improve workforce planning, anticipate skills needs, recruitment and retention, and international ethical recruitment. Subsequent EU Joint Actions have demonstrated important progress on health workforce planning⁹⁶ and a new programme called HEROES was launched in February 2023 with funding of EUR 8 million.⁹⁷

Recommendations

- F.1** Develop a future-fit EU healthcare workforce strategy, specifically with prevention and early detection of NCDs in mind, updating the Action Plan for the EU Health Workforce from 2012. Goals of the strategy should include:
- F.1.1** Ensuring sufficient numbers of healthcare workers, especially primary care physicians.
 - F.1.2** Improving the fair distribution of healthcare workers across EU countries.
 - F.1.3** Improving work-based quality of life for healthcare professionals.

- F.1.4 Reaching defined targets for training on NCD prevention, early detection and digital literacy.
- F.1.5 Increasing the availability of the skills required to meet evolving healthcare delivery needs, including providing opportunities for inter-specialty training.
- F.2 Work with EU Member States, including, where necessary, providing funding, to support their efforts to strengthen the incentives for:
 - F.2.1 Healthcare professionals to specialise in public health.
 - F.2.2 Health data scientists to work in public sector healthcare institutions.

Case study: Skill mix in Poland⁹⁸

The current shortage of medical personnel in Poland can be attributed to a number of factors, including ineffective human resource management, a mismatch between employment structures and the services provided, planning deficiencies in the education system, and underfunding of healthcare training.

In response, the healthcare system strives to handle this issue by assigning new competences to selected groups of medical professionals – e.g. nurses, physiotherapists – who are skilled in professional patient care in areas previously occupied by physicians. The change in the organisation of patient care also encourages development of new professions supporting the process of providing services, e.g. patient care coordinator.

Efforts to improve the quality of patient care and clinical outcomes often involve optimising the mix of skills in healthcare. This is driven by rising costs of highly qualified personnel like doctors and nurses. Achieving the optimal skill mix is challenging due to hierarchical employee systems and professional silos.

The mixing/overlapping of competences can lead to the creation of new roles and professions, such as physician assistants, healthcare coordinators, and expanded roles for nurses, paramedics, radiologists, and public health researchers.

G. INVESTMENT IN PREVENTION AND EARLY DETECTION OF NCDS

PHSSR DOMAIN: FINANCING

Prevention and early detection of NCDs, with the exception of a few interventions such as vaccination, will typically delay the onset of disease rather than eliminate it entirely. As a consequence, it may not necessarily be cost-saving but it will be cost-effective, delivering more efficient healthcare to the population and alleviating health system pressures for a similar or lower amount of resources.

The EU average disease prevention spending of 2.8% is insufficient. The OECD states that there has historically been an under-investment in prevention in Europe and advocates that as much as 20% of the EU4Health programme budget should be allocated to health promotion and disease prevention.⁹⁹ Healthcare spending in the EU needs to be re-oriented towards prevention and early diagnosis and the EU should consider how it can facilitate this outcome. Investment should also be carefully targeted towards at-risk populations who suffer disproportionately from poor health outcomes and are responsible for a majority of healthcare resource utilisation.

Currently, data on prevention spending across the EU is poor and less granular with, for instance, inconsistent definitions of prevention and early diagnosis, making comparisons and scaling up of best practices across countries difficult. In addition, recent data is confounded by spending on

prevention interventions associated with the COVID-19 pandemic such as testing and vaccination. While this spending was important in tackling the pandemic, it will not sufficiently address the major, long-term challenge of the growing burden of NCDs.

EU Member States should seek to secure sustainable sources of funding for prevention and early detection of NCDs, invested on a continual basis, beyond ad-hoc projects.

The EU average disease prevention spending of 2.8% is insufficient

There have also been challenges related to the effective coordination of EU financing, with funding coming from many different EU institutional sources and programmes. In health policy, this has been a particular issue as responsibilities for the different components of the EU health agenda are segmented across different Directorate-Generals of the European Commission.

For example, the Directorate-Generals responsible for Health and Food Safety (DG SANTE), Research and Innovation (DG RTD), International Partnerships (DG INTPA), European Neighbourhood Policy and Enlargement Negotiations (DG NEAR) and European Civil Protection and Humanitarian Aid Operations (DG ECHO) have all been involved in the EU's response to COVID-19. For the period 2014–2020, the Directorate-General for Regional and Urban Policy (DG REGIO)'s cohesion policy contributed to planned health sector investments of around EUR 24 billion, dedicated to improving access to services and developing specialised health infrastructure and capacities to reduce health inequalities.¹⁰⁰ The different mandates and priorities of DGs can lead to misalignment and resolving conflicts may at times require senior leadership direction or mediation.¹⁰¹

Recent initiatives such as Europe's Beating Cancer Plan, which aims to reduce the cancer burden in the EU, and the Horizon Europe Mission on Cancer, which aims to accelerate the development of new cancer treatments and improve cancer prevention and care, have sought to address this issue of coordination.

As part of a joint governance structure, the Commission's DG SANTE and DG RTD created a joint subgroup on cancer under the Steering Group for Health Promotion and Disease Prevention to facilitate dialogue with Member States and set up a stakeholder contact group under the Commission's Health Policy Platform to consult external stakeholders on aspects related to the EBCP and the Cancer Mission.¹⁰² These examples may provide models to draw from in coordinating investment in prevention and early detection of NCDs.

Tools exist to help policymakers target investment more effectively, including the WHO's list of "best buys", which are primarily aimed at low and middle-income countries (perhaps highlighting the need for a European equivalent) and recommended evidence-based interventions for the prevention and control of NCDs.¹⁰³

Recommendations

- G.1** Increase and ensure sustainable, dedicated EU investment in prevention and early detection of NCDs under the next Multiannual Financial Framework and through a continued and more ambitious EU4Health programme.
- G.2** Collect and publish high-quality data on Member States' investment in prevention and early detection initiatives and their impact, based on clear definitions agreed by the European Commission and Member States, and distinguishing between primary, secondary and tertiary interventions, enabling benchmarking across countries.

- G.3** Drive a shift in investment towards prevention and early detection, particularly targeting at-risk populations, by using the European Semester process to give country-specific recommendations on allocating specific funding to finance measures for prevention and early detection of NCDs.
- G.4** Improve the coordination and alignment of EU health investment across programmes managed by different EU directorates and stakeholders, potentially using the EBCP and Cancer Mission as models.

CONCLUSION



The toll that non-communicable diseases are taking on European society and health systems is staggering. Yet much of the ill health and premature mortality is avoidable, as well as the substantial and accumulating economic burden through lost productivity and spiralling healthcare costs.

While not all these challenges can be met by health systems alone, there is no doubt that there is an urgent need for a significant shift in health system focus away from treatment of late-stage disease to more cost-effective prevention and early detection to improve health system sustainability and resilience.

With expanded capabilities in health policy and increased funding, the EU has an important role to play in improving the health of citizens across the EU. It has undertaken ambitious and effective initiatives in the field of prevention and early detection of some NCDs and should be encouraged to drive through their implementation whilst seeking to take further bold action where gaps and opportunities exist.

In an increasingly interconnected world and an evolving union, the EU has the capacity to make a difference where other actors are unable to by leveraging its resources, its legislative and regulatory competences and its capacity to drive multistakeholder collaboration across borders. Its role in helping to tackle the COVID-19 pandemic clearly demonstrated its relevance and capacity for impact.

This report identifies many areas of opportunity for the EU to capitalise on its work to date and go further and faster to promote good health among EU citizens. Our health systems are a key plank of the European Health Union and our European way of life, and we must protect them now and for future generations.



The PHSSR and its research

COVID-19 exposed vulnerabilities in health systems worldwide. Far from being a near miss for health systems, its impact has accelerated the development of accumulating stresses that are reaching crisis proportions in many countries.

Launched in 2020, the PHSSR¹⁰⁴ is a non-profit, multi-sector, global collaboration between the London School of Economics (LSE), the WHO Foundation, the World Economic Forum, AstraZeneca, KPMG, Philips, the Center for Asia-Pacific Resilience and Innovation (CAPRI), Honeywell and additional organisations at the regional and national levels, motivated by a shared commitment to strengthen health systems and improve population health. The PHSSR receives financial support from AstraZeneca, KPMG and Philips.

The PHSSR's primary objective is to study and support the development of health systems that are sustainable and resilient, capable of withstanding long-term stresses and crises, namely pandemics, natural disasters and conflicts, amongst others. It provides research tools and resources, facilitates collaboration and knowledge exchange among countries, and serves as a platform to disseminate breakthrough insights and foster their implementation.

The PHSSR has engaged in research with academic institutions from 20 countries worldwide, including ten EU Member States, to develop reports on country health systems.¹⁰⁵ Country-level research conducted on behalf of the PHSSR is based on an assessment framework developed by LSE in collaboration with experts in each country, encompassing seven domains: health system governance, financing, workforce, medicines and technology, health service delivery, population health, and environmental sustainability.

The PHSSR summary report of 2023¹⁰⁶ sheds light on the impact of non-communicable diseases. It highlights a concerning trend observed in several EU countries, where a low percentage of total healthcare investment is allocated to preventive care, despite the high prevalence of chronic diseases among their populations and resource utilisation across their health systems. The summary report highlighted key recommendations, including increasing investments in primary care and health promotion activities, fostering greater participation in secondary prevention programmes, improving access to diagnostics, and promoting collaboration among healthcare services, health insurance funds, and patient organisations.

Building upon the findings, insights, and strategies outlined in the PHSSR country reports, this report expands the PHSSR's focus to the EU level, examining how the EU can support the sustainability and resilience of Member States' health systems, particularly by reinforcing prevention and early detection of NCDs. In light of its important role in health policy, the EU can contribute to the robustness of Member States' health systems and significantly improve the well-being of the many European citizens suffering from NCDs, as well as the welfare of their families and of society overall.

Methodology

Members of the PHSSR EU Expert Advisory Group were selected and invited to form the group based on their leading expertise in and representation across the entire EU health policy continuum, bringing important perspectives as senior policymakers, academics, clinicians, economists and patient representatives from institutions such as the European Commission, European Parliament, WHO and OECD, as well as Civil Society.

The group participated in three workshops to define the topic of the policy report and discuss and align on the report's consensus recommendations. To select the topic of this report, a first workshop of the advisory group was conducted where some of the current most pressing challenges EU Member States' health systems face were identified. The different challenges were prioritised by the group based on EU salience (potential interventions are within the EU's competences, are relevant to Member States and address existing EU health policy gaps) and impact on patients in the EU (potential interventions can lead to improved health outcomes and reduced health and care disparities).

As a result of this process, prevention and early detection of NCDs was identified as the consensus topic for this report. The secretariat of the group produced the first draft of the report based on desk research, existing findings from global PHSSR research, including country reports from ten EU Member States, and individual interviews conducted with members of the Expert Advisory Group. Two further individual interviews were carried out with external experts to gather additional insights on the interplay between NCD prevention and environmental considerations.

Advisers provided three rounds of written comments to the secretariat on the draft text before a final workshop to validate the report. Where there were differences of opinion within the PHSSR EU Expert Advisory Group, the Co-Chairs guided the group towards a consensus view on the final content of the report, which all members of the PHSSR EU Expert Advisory Group reviewed and approved.

The policy recommendations in this report are grounded in the PHSSR research framework developed by the LSE¹⁰⁷ and based on their potential impact and implementation feasibility in consideration of the EU's competences in health policy and operational capacity.

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