TECHNICAL BRIEF

Investing in Effective, Inclusive and Resilient Health and Social Care Systems in Europe

July 2021
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The working paper is printed in this form to communicate the result of an analytical work with the objective of generating further discussions on the issue.

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Executive summary

The Covid-19 pandemic has put European healthcare systems at the forefront of everyday social and economic life. When healthcare facilities got overburdened with an unprecedentedly high influx of Covid-19 patients, the majority of Europeans had to adapt to new living conditions under lockdown, altering the face of European cities and regions beyond recognition. Saving healthcare systems from collapse became one of the primary objectives across regions and countries.

Yet, already before the pandemic, Europeans healthcare systems were facing intensifying long-standing structural weaknesses related to population ageing, changing lifestyles and environmental degradation. In particular, the growing prevalence of non-communicable diseases (NCDs) and multimorbidity in recent decades have been threatening the progress achieved in terms of life expectancy gains. Healthcare systems were also becoming increasingly unsustainable financially as populations required more services overall, yet public budgets remained constrained.

The Covid-19 pandemic has also uncovered and further intensified significant inequalities in terms of resources and access to healthcare that existed between and within European countries. Many vulnerable social groups and persons with support needs still cannot access adequate healthcare services and, as a consequence, suffer worse health outcomes and lower quality of life. Growing gaps in healthcare assets, both physical and human, among different European geographies continue to reinforce the phenomenon of medical and social support deserts and threaten social cohesion.

Because of these underlying trends, Covid-19 has affected European populations unequally, or in a syndemic pattern, across different countries as two categories of disease – Covid-19 and various NDCs – were found to cluster within social groups according to patterns of inequality, exacerbating the adverse effects of each disease. Covid-19 brought was more destructive for those who were already underserved in terms of access and quality of healthcare.

This technical brief argues that a more integrated approach to healthcare investments would increase the effectiveness, inclusiveness and resilience of European healthcare systems. Five areas of investment could help simultaneously tackle different facets of the intensifying challenges facing European healthcare systems. In particular:

- **Multidisciplinary provision of primary healthcare** in local health centres with a focus on person-centred care and disease prevention, promoting healthier and more environmentally sustainable behaviours. Such centres are less expensive to build and operate than hospitals or clinics and can therefore ensure more financially sustainable and inclusive access, being sensitive to the individual patient’s background or location.

- **Community-based long-term care and support** that is integrated with primary healthcare and can enable care-receivers to lead more independent and happier lives. In addition, such services would enable many informal carers, who are typically women, to (re-)join the labour market or to be able to access higher income employment opportunities.
Hospitals that are smarter, more flexible, more inclusive, greener, more climate resilient and primarily focussed on specialised care for acute conditions.

Digitalisation of healthcare as well as more investments in health surveillance and research, while carefully preserving the right to privacy and making up for any unintended effects of technological applications in health.

Increased support to ensure availability of health and social care workforces with the right skills and in the right places, as they continue to form the backbone of European health and social care systems.

Well integrated healthcare systems based on the principles of well-being, solidarity and sustainability would allow more Europeans to enjoy longer and healthier lives, both today and in the future. However, needed investments will only yield the desired outcomes if they are accompanied by changes in modern lifestyles and are better aligned with the Earth’s natural systems and limited resources, while at the same time ensuring that no individual or territory is left behind.

1. Introduction

All European countries have been negatively affected, albeit unequally, by the Covid-19 pandemic in terms of loss of human life, economic recession and social distress. The current pandemic has demonstrated that the ability of healthcare systems to provide continuous care and deal with unexpected events matters not only for health outcomes, but also for social interactions, people’s general well-being and the economy as a whole, from local restaurants to global supply chains. Even more tellingly, in many European countries, social distancing policies have become, at least in part, dependent on key health statistics such as hospital occupancy rates, which citizens have started following closely in the news.

All across Europe, healthcare systems were caught off guard by an unprecedented influx of patients and new safety requirements. Most facilities lacked the protective equipment and the absorptive capacity to provide the necessary services and limit further propagation of the virus. Europeans with frail health, especially those living in residential long-term care facilities, suffered particularly high infection, mortality and morbidity rates. At the same time, patients with other health problems than Covid-19 often failed to access continuous care or diagnostic procedures, which may have significant repercussions on European health in the long term. Worryingly, important socioeconomic inequalities in terms of access to healthcare and health outcomes have been uncovered or deepened, sometimes exacerbated by the pandemic.

Large amounts of emergency funds were mobilized to ensure that European healthcare systems continue to carry out their functions without collapsing. In the months following the Covid-19 outbreak, European Union (EU) countries have come up with fiscal stimulus packages of estimated 8% of GDP, mostly to boost healthcare capacity and support employment (European Commission, 2021). The Council of Europe Development Bank (CEB) participated in this effort by supporting its member states with targeted emergency financing, beyond the continuous investments in the healthcare sector over the past decades (Box 1).

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1 Health, as defined by WHO 1948 Constitution, is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.
Box 1: The CEB’s investment in health care and Covid response

The CEB provides the means for financing various types of projects in the sectors of health and long-term care, most notably involving the construction, renovation and modernisation of infrastructure such as hospitals, neighbourhood health care centres (including those specialised in providing assistance to vulnerable populations), university hospitals or centres specialising in health care for the elderly and the disabled. From 2005 to 2020, the CEB provided €5.8 billion in financing for healthcare systems, representing around 12.6% of approved loans.

From the start of the Covid-19 crisis in 2020, the CEB rapidly stepped up its support for member states dealing with the health emergency. As a result, in 2020, the Bank approved loans worth €3.1 billion to finance Covid-19 response measures over 21 operations in 18 countries, mostly to support their health sectors. The financing was earmarked to cover expenditures for acquiring medical equipment and consumables under emergency procedures, for rehabilitating and transforming spaces into medical units, for supporting civil protection entities and for mobilising additional expertise. This effort also affected the share of CEB lending for Europe’s health sector, which accounted for over 47% of total loan approvals in 2020.

Ensuring healthy lives and well-being through access to high quality healthcare for all is prerequisite for social progress and one of the Sustainable Development Goals. Yet, much more remains to be done to respond to the growing demand for healthcare and the multiple complex challenges facing European healthcare systems. The European population is ageing and increasingly suffers from non-communicable diseases that will require targeted solutions to safeguard the progress made in ensuring longer, more independent and healthier lives for all. In addition, access to healthcare is not equally distributed across European territories and societies, often underserving those most in need. And the quality of the healthcare provided maybe unequal too.

This already fragile situation is likely to face more frequent and severe health emergencies in the future, including due to the health impacts of accelerating climate change and environmental degradation. Extreme weather events, growing levels of air, water and soil pollution, and the emergence of new and wider spread of existing communicable diseases will continue to strain European healthcare system with growing frequency and intensity. At the same time – the health sector in various countries and regions continue to suffer from decades of budgetary constraints, sometimes combined with inefficient allocation and use of scarce resources.

This technical brief explores the growing challenges facing European healthcare systems that predated and were exacerbated by the current crisis, as well as those uncovered by the Covid-19 pandemic itself. It then puts forward a number of possible investment solutions. Section 2 discusses the factors behind the growing demand for healthcare in general, and the unaddressed needs of more vulnerable groups in particular. Section 3 gives an overview of the different levels of health resources available at national and regional level in Europe and how these may influence health outcomes and the capacity of healthcare systems to deal with shocks. Section 4 then identifies investment opportunities in different areas of healthcare systems, and the investment and other actions needed to improve their integration. The final section provides a number of conclusions and recommendations.
2. Increasing need for more socially inclusive healthcare in Europe
2.1 Growing demand for health and healthcare prior to Covid-19

Healthcare needs had been growing in Europe well before the Covid-19 crisis. The increased life expectancy of European citizens has generated greater needs for health and long-term care services as growing longevity is not always accompanied by improvements in health and quality of life (Cristea et al., 2020). Average life expectancy in the EU stands at 84 years for women and 78 years for men; however, both sexes can expect to live only 64 years of healthy, disability-free life (Eurostat, 2020). In addition, life expectancy gains have been slowing down or stagnating in recent years and have actually fallen in many European countries, which has worsened as a result of the Covid-19 crisis, suggesting that current healthcare systems may be reaching the limit of their effectiveness.

Figure 1. Life expectancy (2019 or latest year available) and healthy life years

Note: Healthy life years, also called disability-free life expectancy, is defined as the number of years that a person is expected to continue to live in a healthy condition.
Sources: Own representation based on data from Eurostat for life expectancy and Eurostat for healthy life years (2019)

The effectiveness of healthcare systems is important to ensure good health and longevity. In general, at aggregate level, differences in life expectancy across European countries are closely associated with access to healthcare and perceived healthcare quality, the two main indicators used to compare healthcare quality across countries, amongst other factors. Many Europeans still cannot access essential health services, even though timely access to affordable, preventive and curative healthcare of good quality is enshrined in the Charter of Fundamental Rights and is one of the 20 principles of the European Pillar of Social Rights. As shown in Figure 2, lack of access to essential health services is particularly pronounced in Eastern Europe in general and the Western Balkans in particular – countries that also have the lowest life expectancy in Europe. A recent study reported that 65% of Germans but only 17% of Romanians had visited a specialist in the previous 12 months (OECD, 2019a). This can be even more acute for specific groups as persons with disabilities. And this situation is exacerbated by out-of-pocket payments charged for health services, which reach one third of total health spending in some countries or even higher as in the case of the Western Balkans and Caucasus (OECD and EU, 2020). The perceived healthcare quality is also higher in Northern and Western Europe and lower in Eastern and Southern countries.
Europeans also increasingly suffer from non-communicable diseases, which have in recent history replaced infectious diseases as the main cause of mortality, morbidity and lower quality of life. The leading causes of death in Europe are cardiovascular diseases (3.9 million deaths in wider Europe and over 1.8 million in the EU) and cancer (1.9 million in the wider European region and 1.3 million people in the EU), together accounting for two thirds of total deaths. Respiratory diseases, Alzheimer’s, dementia and diabetes are responsible for another 15% of annual deaths. In addition, increasing numbers of Europeans suffer from several simultaneous chronic conditions, or multi-morbidity. The risk increases with age, and multi-morbidity affects two thirds of people over 65 (Palmer et al., 2018).

Eastern European countries, including the Balkans, are proportionally more affected by cardiovascular diseases, while Western Europe is having to deal with increasing cancer rates. The incidence rate of cancer more than doubled between 1990 and 2016 both in the EU and in the non-EU Balkan countries, where it remains twice as low, although this is partly due to detection failures (WHO, 2021). Both groups of diseases have one thing in common – their development and evolution largely depends on unhealthy behaviours, lifestyle factors, and living and working conditions. Tobacco and alcohol consumption alone are responsible for 40% of cancers, a proportion that rises to 60% if diet, exercise and body weight patterns are added to the equation (WHO, 2021). The same factors cause heart diseases, 80% of which could be prevented through behavioural choices (WHO, 2021). In the EU, out of 4.6 million annual deaths, 1 million (which in turn represents two thirds of all deaths under 75 years) could be avoided through better health and primary care actions (Eurostat, 2019). An estimated 275,000 productive life years are lost each year due to premature mortality in the Western Balkan countries, with 80% attributable to non-communicable diseases (Omic and Thiebaud, 2020).

In addition to personal behaviours, environmental factors also play a significant role in determining the state of health in Europe. Recent estimates suggest that one in every eight deaths in Europe can be linked to air, noise and water pollution, and to extreme weather conditions caused by climate change (EEA, 2019). The burden of environmental diseases is particularly pronounced in the Balkan countries: the percentage of deaths linked to environmental factors stands at 27% in Bosnia and Herzegovina and 23% in Albania (EEA, 2019). Air pollution has also been found to worsen the morbidity and mortality levels of Covid-19 patients (Wu et al. 2020; Ogen, 2020).
Environmental factors also affect population health in less direct ways. The emergence of 70% of new infectious diseases in recent decades, including Covid-19, has been facilitated by biodiversity loss, destruction of natural habitats by human activities and the unregulated or unlawful handling of wild species. Because of the continuous climate change and the global socioeconomic trends related to urbanisation, population growth, travel and trade, the world will be increasingly confronted by outbreaks of fast-spreading infectious diseases (Group of Chief Scientific Advisors to the European Commission et al., 2020). At least 1483 epidemic events in 172 countries were identified between 2011 and 2018. These can be caused by bacteria such as plague and cholera (in around 50% of cases); viruses such as Covid-19, Ebola and HIV (in 25-40% of cases); prions; protozoa such as malaria and toxoplasmosis; fungi; and helminths (Global Preparedness Monitoring Board, 2019). The acceleration of environmental degradation and climate change means that healthcare systems will have to adapt to new challenges that are increasingly difficult to predict and plan for.

Despite these challenges, and in addition to the considerations of people’s well-being, increasing the number of healthy life years and strengthening healthcare systems are prerequisites for sustaining European economies and welfare systems. Healthcare plays a determinant role in economic development by supporting a more productive workforce that remains active for longer periods of time (see Bloom et al., 2019; Jack, 2011). This is especially relevant in all ageing European societies with shrinking labour forces and continuously growing age-dependency ratios. Better health can also alleviate fiscal pressures resulting from welfare payments related to chronic illnesses, occasional sick leave or earlier retirement, which are significant considerations at a time of increasing public debts and deficits. Healthcare in itself is also a labour-intensive industry that generates local jobs across all levels of skills and geographies – in the EU, around 15 million people, representing 7% of all jobs, work in health occupations (Eurostat, 2020).

2.2 Loss of life and health caused by Covid-19

The recent Covid-19 pandemic has emerged as an unprecedented crisis with considerable consequences for human health and life as well as economic and social development. This has overstretched already struggling healthcare systems all across Europe. Since the first patient was identified, over 55 million Europeans have been confirmed as having contracted Covid-19 at end-June 2021 (Statista, 2021). Spain, Italy and Germany have all reported over 3.7 million cases while the number in France stood at 5.7 million (European Centre for Disease Prevention and Control, 2021). Hundreds of thousands of people have died suffering from Covid-19: almost 127 thousand in Italy, 111 thousand in France, 90 thousand in Germany and 80 thousand in Spain (European Centre for Disease Prevention and Control, 2021). The global cost of foregone GDP related to crisis management measures and loss of life and health could amount to €8.5 trillion or more over the period 2020-2021 (Economist, 2021) in addition to job destruction and rising inequalities.

Overall, excess deaths, which measure the deviation from the expected level of mortality in relation to previous years, reached 450 thousand people in the EU from March to November 2020 (Eurostat, 2021). Excess mortality numbers are more telling than recorded Covid-19 deaths since countries may not record Covid-19 deaths in the same way or may not have the same testing capacity to identify the causes of death. Excess mortality rates also capture deaths that may have been indirectly caused by the Covid-19 pandemic. In particular, hospital attendance for various emergency conditions such as strokes and heart attacks have fallen significantly across Europe, for various reasons, including but not limited to the fear of getting infected (Expert Panel on Effective Ways of Investing in Health, 2020). During the first lockdown in Paris, cardiac arrests diagnosed outside of hospitals doubled (Marinjon et al., 2020). In Germany emergency admissions went down by 30%, whereas in Italy emergency
admissions for myocardial infarction dropped by around 50% and pediatric admissions by approximately 80% (De Rosa, Spaccarotella et al. 2020; Lazzerini et al., 2020). As a result, complication and fatality rates have been rising.

**Covid-19 will also have long-term consequences on European health and healthcare.** On the one hand, a significant number of former Covid-19 patients suffer from various symptoms long after being diagnosed. Since the virus can trigger long-lasting changes in the human immune system, around 10% of people experience “long Covid”, which includes symptoms such as fatigue, shortness of breath, joint pain, and chest pain, after having shed the virus (Greenhalgh et al., 2020; Alwan 2020). One in three Covid-19 patients may also suffer from neurological or psychiatric conditions within six months of infection (Taquet et al., 2021). On the other hand, many non-emergency procedures and treatments have been postponed in Europe during the long periods of confinement and hospital saturation. The extent and effects of these decisions are still uncertain, but they have probably affected thousands of Europeans. As an indication, during the weeks of spring lockdown, diagnosed cancers dropped by 25% in the Netherlands (IKNL, 2021) and by 35 to 50% in France (Santi and Pineau, 2020). Long-term treatment plans, including chemotherapy, were also cancelled or postponed (Sharpless, 2020). Deferred diagnostic and treatment will inevitably cause a further decline in health and life expectancy for the affected patients.

### 2.3 Inequality in health conditions and health access uncovered by Covid-19

**While the Covid-19 pandemic had a profound impact on the life of all Europeans, some groups have been more affected than others.** On average, all adults have a similar probability of contracting the virus, but face different rates of hospitalisation and death based on their individual characteristics. Data suggests that in selected European countries less than 2.5% of deaths have concerned people younger than 65 years old with no prior health conditions (Ioannidis et al., 2020). Hospitalisation and death rates increase sharply with age. In Europe, half of all Covid-19 related deaths were amongst people aged over 80 and 90% of deaths amongst those over 60 (OECD and EU, 2020). In addition, several pre-existing health comorbidities significantly increase the risk of complications and mortality, in particular cardiovascular (such as hypertension, heart failure and coronary artery disease) and chronic respiratory, renal and liver diseases, diabetes, cancer, dementia and obesity (Sanyaolu et al., 2020; Harrison et al, 2020). And for the residents who died in LTC facilities, it was the combination of their individual characteristics and the huge challenges of containing Covid spread in residential institutions as infection rates in LTC institutions were far higher than in the general population (ECDC, 2020).

**This unequal distribution of outcomes has uncovered larger patterns of inequality within European societies.** A clear socio-economic gradient associated with the spread and consequences of the virus has emerged across different countries. Data on the current crisis in Sweden, for example, suggests that lower individual income and education levels and the fact of being an immigrant are associated with much higher mortality from Covid-19 (Drefahl et al. 2020). In fact, the differences are so pronounced that some authors have requalified the Covid-19 crisis from a pandemic to a syndemic, a term initially used to better understand the relationship between HIV and noxious social conditions that are associated with substance use, poor health and violence (Horton 2020; Singer, 2009).

First and foremost, **the underlying chronic health conditions that interact synergistically with Covid-19 tend to be concentrated within socio-economically disadvantaged social groups and geographies.** They arise as a consequence of inequalities related to living and working conditions and behaviours, broadly known as social determinants of health, and include (un-)/under-) employment and housing conditions as well as access to essential goods, services and information (Bambra et al., 2020). The particular factors that influence physical health can be related to increased levels of stress, a less
balanced and nutritious diet, exposure to extreme temperatures, mould and air pollution in poor quality housing, and insufficient access to healthcare. For example, it has been shown that social determinants influence the prevalence of cardiovascular diseases (Khaing et al., 2017). Obesity, which further aggravates many health conditions as well as Covid-19 outcomes, is also associated with lower income, often due to the consumption of more processed foods and less physical activity (Salmasi and Celidoni, 2017; Evans et al., 2012). Socioeconomically disadvantaged individuals also suffer from higher multimorbidity rates (Palmer et al., 2018). These groups, who suffer typically from poor health and therefore tend to require more health services, also face most difficulties in accessing healthcare. The unmet needs of low-income households across the EU are five times higher than those of high-income households (OECD and EU, 2020).

**Inequalities were also striking for people with disabilities** throughout the Covid 19 crisis. Examples include situations such as stopping services for them and their needs, preventing them from going to work as they are considered to be vulnerable, thus affecting their mental health and reinforcing their dependence on their families due to the loss in wage (Inclusion Europe, 2020).

In addition, **individuals from disadvantaged socio-economic backgrounds have a higher probability of getting infected with Covid-19 or any other communicable disease.** The majority of low paying occupations – including factory workers, supermarket staff, deliverers, transport drivers, cleaners – cannot work from home during lockdowns or without social interactions and are therefore at a much higher risk of contagion. Only 3% of the jobs in the lowest paying wage quintile are tele-workable as opposed to 74% in the highest paying quintile (Milasi et al., 2020). Workers in irregular employment, especially those that have no access to paid sick leave, may spread the disease more widely to others (Expert Panel on effective ways of Investing in Health, 2020). More disadvantaged families may also live in smaller, overcrowded homes with limited space for self-isolation if one family member gets infected. Finally, more disadvantaged families may not be able to afford sufficient personal protective equipment, which can add up to significant expenditure amounts for large families.

More generally, **research on disasters suggests that the most vulnerable social groups are always disproportionately affected by major shocks,** both immediately and in the long term as other consequences emerge. For instance, people from disadvantaged backgrounds are more likely to suffer from Covid-19 and have lower financial and social capital to deal with it, resulting in potentially more pronounced negative consequences on their employment and income. In addition, vulnerable groups will suffer more from the economic impact of lockdowns, school closures and other restrictions, which will in turn worsen their health outcomes even further. It is also likely that, as income and employment support measures are gradually eliminated across Europe, lower income families and the under-employed will be hardest hit.

**There are also geographic inequalities in the ways different locations have been affected by and able to deal with Covid-19.** At the macro level, some countries and regions were hit faster because they harboured centres of international travel, had a high population density or presented populations at higher risk (e.g. higher average age). Their ability to cope with increasing numbers of patients was dependent on existing structures and supplies within the healthcare system. Strikingly, the worse-off areas within cities or regions suffered the most. In France, excess mortality rates were 30% higher in poorer municipalities than elsewhere (Brandily et al., 2020). Minority communities across Europe were also badly affected. For example, Somali immigrants form only 0.5% of the Swedish population, yet they accounted for 5% of total Covid-19 cases in the initial stages of the pandemic (Yaya et al., 2020). Roma communities in Eastern Europe have also been disproportionately affected (Matache & Bhabha, 2020).
Finally, the pandemic uncovered profound gender differences in both the health and socioeconomic consequences of lockdowns. The male population was hit harder in terms of mortality and morbidity related to Covid-19: males are three times more likely to require intensive hospital care than females (Peckham et al., 2020). In most countries and contexts, males have shorter life expectancy than females due to a higher prevalence of chronic health conditions including cardiovascular diseases and diabetes that interact with Covid-19, as stated above. These are associated with gendered behaviours such as smoking and drinking, delayed healthcare seeking, and lower immune response (Baker et al., 2020). Some men are particularly vulnerable, including men of ethnic minorities, the homeless or prisoners. While females are less likely to suffer from Covid-19 in terms of health, they have been much harder hit by its economic consequences. Women carry a higher workload in times of emergency, including care-taking and home-schooling responsibilities in addition to their paid work. A large proportion of women occupy essential non-teleworkable jobs, including health workers, cashiers and cleaners’ positions, which are difficult to reconcile with additional burdens at home, low paying, and increase the risk of contagion. This and other factors have contributed to a much higher job loss rate among female workers as a result of the pandemic (European Parliament, 2021). Job creation fuelled by the recovery, including through the impact of the implementation of recovery plans across European countries, is unlikely to make up for this divergence.

3. Unequal and insufficient resources within European healthcare systems

3.1 Unmet financing needs

As a result of the growing needs and inequalities in terms of access to health, governments across the world are spending increasing amounts on their health sectors. Over the past decades, long term growth of total health expenditure in developed countries has continuously exceeded real GDP growth (Jakovljevic et al., 2019). These levels will reach unprecedented peaks in 2020 and 2021 as governments invest in an attempt to accommodate the surge in Covid-19 patients within their healthcare systems and to adapt their systems to meet future challenges.

Before the Covid-19 crisis, the EU spent an average of around 10% of its GDP on healthcare, varying from 5% in Romania to over 11% in Germany, France and Sweden (Eurostat, 2021). Governments account for the majority of the funding in Europe, having spent on average 7% of GDP on healthcare in 2018 (Eurostat, 2021). In many countries (such as Austria, Belgium, Germany and many Eastern European countries), this proportion had remained stable or slowly increased in the previous decade, but some countries have seen a significant reduction in government spending on health in recent years. This has affected primarily those that were strongly affected by the financial crisis of 2008, where health expenditure is now below the EU average (see Figure 3). In Ireland, Greece, Portugal, Spain and Italy, for example, government spending on health decreased significantly between 2008 and 2019 (Eurostat, 2021).

Figure 3. General government expenditure on health (% of GDP) in selected countries

<table>
<thead>
<tr>
<th>General government expenditure on health</th>
<th>2009/2010 (the peak spending levels)</th>
<th>2018/2019 (most recent data available)</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ireland</td>
<td>7.9% (2009)</td>
<td>5% (2018)</td>
<td>-2.9%</td>
</tr>
<tr>
<td>Greece</td>
<td>6.9% (2010)</td>
<td>5.3% (2019)</td>
<td>-1.6%</td>
</tr>
<tr>
<td>Portugal</td>
<td>8% (2009)</td>
<td>6.6% (2019)</td>
<td>-1.4%</td>
</tr>
<tr>
<td>Spain</td>
<td>6.8% (2010)</td>
<td>6.1% (2019)</td>
<td>-0.7%</td>
</tr>
<tr>
<td>Italy</td>
<td>7.4% (2010)</td>
<td>6.8% (2019)</td>
<td>-0.6%</td>
</tr>
<tr>
<td>EU</td>
<td>7.3% (2009)</td>
<td>7% (2018)</td>
<td>-0.3%</td>
</tr>
</tbody>
</table>

Source: Eurostat, COFOG
Health financing across Europe is divided among several categories. In general, European healthcare systems remain focused on episodic and acute care, which does not meet the demands of the epidemiological transition towards an increasing prevalence of multimorbidity for a growing proportion of lifespan (Palmer et al., 2018). In many European countries, the largest share of spending goes to financing hospitals, followed by outpatient services and medical products, appliances and equipment. Only a small proportion goes to public health services.

**Figure 4. Composition of total general government expenditure on health (% of GDP, 2019)**

Source: Eurostat

In terms of investment trends, in the business-as-usual scenario, health spending will keep increasing in the coming decade, possibly without the expected gains in life expectancy or number of healthy years. In 2019, the OECD projected that health spending per capita will grow by 2.7% annually until 2030 in developed countries, largely outpacing GDP growth—figures that will likely be revised upwards following the Covid-19 pandemic (OECD, 2019a). These trends will be driven by the increasing prevalence of non-communicable diseases, growing life expectancy and technological advancements. Population ageing influences healthcare expenditure directly through care provided and indirectly, for example, through the purchase of more expensive medical technology needed to treat multi-comorbidity patients (de Meijer et al., 2013). In addition, the cost of end-of-life care is very high and increasing, easily adding up to the medical consumption of an entire lifetime (Jakovljevic et al., 2019), with mean values reaching over €40 thousand per person in Denmark, Netherlands and Germany (French et al., 2017). Taken together, these trends suggest that any marginal increase in life expectancy is becoming more expensive under the current healthcare systems. Finally, if European health systems remain unprepared for future health crises, high amounts of emergency funding will be needed, as demonstrated by the Covid-19 crisis.

### 3.2 Unequal availability of health infrastructure

Multiple factors, including historical reasons, differing economic development paths and health spending patterns, affect the varying levels of health capital stock across European countries. This includes buildings such as hospitals, clinics and medicalised long-term care institutions, as well as medical vehicles and equipment and information technology. Recent estimates suggest that the health capital stock in the EU ranges from well under €500 per capita in Bulgaria, Lithuania, Poland, Romania and Greece to over €5000 per capita in Denmark, Austria, Germany and Luxembourg. Even though these figures are not adjusted to the infrastructure quality or the price levels in each country, the
differences are astounding. As an example, while Germany’s price-adjusted GDP per capita² is over twice as high as that of Bulgaria, Germany’s health capital stock per capita is over 20 times as high (Figure 5).

**Figure 5. Health capital stock per capita in euros (2015)**

Notwithstanding the fact that not all capital stock can be comparable nor yields the same health outcomes, persisting inequalities suggest that some systems chronically lack capacity and/or access to new technologies. In 2018, the EU member states spent around 0.4% of GDP on health infrastructure, representing 6% of health spending for the year. Investment levels vary between countries: in 2018, Belgium and Austria invested at least three times more in their health capital formation than Cyprus and Hungary (OECD, 2020c). In general, countries that have higher levels of health capital stock tend also to continue investing more.

**Figure 6. Gross fixed capital formation³ in the healthcare sector as a share of GDP, 2018 or latest year available**

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² Based on Eurostat’s Purchasing power adjusted GDP per capita

³ Gross fixed capital formation in the healthcare sector is measured by the total value of the fixed assets that health providers have acquired during the accounting period (less the value of the disposals of assets) and that are used repeatedly or continuously for more than one year in the production of health services. The breakdown by assets includes infrastructure (e.g. hospitals, clinics, etc.), machinery and equipment (including diagnostic and surgical machinery, ambulances, and ICT equipment), as well as software and databases.
Despite significant investments in resources over past decades, the investment gap in European health and long-term care infrastructure remains considerable due to the impact of population ageing, the need to respond to evolving and increasing long-term support needs, lifestyle choices and the large share of infrastructure in need of renovation to meet modern standards, energy efficiency requirements and the need to increase resilience to climate change. Indeed, it has been estimated that investment levels should increase by at least a half to address growing social and environmental needs (Holzner and Grieson, 2018). Before Covid-19, it was estimated that the health investment shortfall in the EU was between €20 and €70 billion per year, or a total of €260 to €910 billion over the period 2018-2030 (Fransen et al., 2018). Considering the effects of Covid-19, current estimates have risen to €70 billion per year for healthcare and a further €70 billion per year for long-term care (Creel et al., 2020). In the Western Balkans, the health systems remain fragile with persisting low investment levels in social infrastructure, including health, despite the low existing stock and poor quality of the infrastructure. (OECD, 2020a).

3.3 Uneven distribution of healthcare staff

In terms of medical staff, the absolute numbers of health personnel have been increasing in Europe, but significant shortages persist in certain countries and regions within countries. For example, at national level, Greece, Austria and Portugal have the highest numbers of physicians per capita in Europe, whereas the numbers in Albania, Turkey and Poland are several times lower (Eurostat, 2020). The numbers of nurses vary even more: from two to five per thousand population in Turkey, Greece, North Macedonia, Bulgaria and Latvia to over 14 in Iceland, Finland, Denmark, Switzerland and Norway. Figure 7 suggests that European countries can be classified in four clusters: those that have high numbers of both doctors and nurses (such as Norway and Germany); those that have high numbers of doctors, but lower numbers of nurses (such as Austria and Lithuania); those that have low numbers of both (Turkey and Poland) and the rest in the ‘middle’ (France, Belgium and many countries in Eastern Europe).

Figure 7. Nurses and doctors per one thousand inhabitants

Source: Own representation based on OECD data, all European countries with available data, for year 2019 or latest available
In part, the differences in availability of medical staff can be explained by migration patterns across countries and across regions within countries. In particular, substantial differences in salary levels result in migration flows of doctors and other medical personnel from the European South to the North (Figure 8). Foreign-born doctors represent 47% in Switzerland, 30% in Sweden and over 20% in Norway and Germany – countries which already have the highest rates of doctors per capita. In many Eastern and Southern European countries this proportion stands at below 5%. What is more, in Germany, Luxembourg and Switzerland, over 80% of the increase in the total number of doctors in the past year is attributable to immigration alone and the trend is very similar for nurses (OECD, 2019a). In addition to the loss of skilled health workers, there are severe fiscal implications as returns to government-funded medical education in “source” countries are effectively realized in the “destination” countries.

Regional level data shows that some countries have high levels of healthcare staff (most notably in Scandinavia) and others (Eastern and South Eastern European countries) lower levels, which are in both cases equally distributed across regions. In other countries, such as France, Spain and Italy, some regions are much more underserved than others (Figure 8). In general, as medical personnel tends to concentrate in more developed, urban areas that house large hospitals, the poorer and more sparsely populated regions across all countries may suffer from medical desertification. Indeed, more than half of the total number of physicians in the majority of EU Member States are employed by hospitals and this proportion has been increasing in the past decade (Eurostat, 2020). The numbers are particularly high in France (83%), Denmark (74%), Estonia (69%), Lithuania (67%) and Malta (65%) (Eurostat, 2020). Lack of medical personnel in rural areas, which often have higher proportions of elderly inhabitants, posed particular challenges during the pandemic, especially in terms of reducing access to timely vaccination.

**Figure 8. Health workers across European regions as % of the employed (Q4 2019) and net doctor migration (2018)**

Source: Eurostat and European Council of Foreign Relations (2020)
4. What healthcare infrastructure for the future?

Bearing in mind the complex and interacting challenges that European societies are faced with, including population ageing, climate change, raise in non-communicable diseases and growing inequalities, this section discusses several areas within the health and social care systems where increased investment may provide solutions. They include primary healthcare; long-term care; smarter, more flexible, more resilient and greener hospitals; digital technologies; and medical research and surveillance.

4.1 Multidisciplinary provision of primary healthcare

Primary healthcare is central to a well-functioning healthcare system as it provides the first level of contact for the population with preventative, curative and rehabilitative services as defined in the Alma-Ata Declaration. In addition to general practitioners, paediatricians and family doctors, primary care is delivered by nurses, physiotherapists, nutritionists, psychologists, community health workers, midwives and pharmacists. Based in close proximity to their clients, primary care providers ensure outpatient treatment of common diseases and chronic conditions, educate and support populations on preventative measures and the impact of lifestyle choices on health, and make ‘steering’ decisions on further secondary or hospital care (OECD, 2016). A key advantage of primary care is that it enables the building of long-term relationships based on trust between patients and health workers as well as ensuring continuity of care and adherence to treatments tailored to specific, evolving needs.

In general, increased coverage by effective primary care is associated with better use of healthcare resources at system level. For example, over one fourth of all hospital emergency visits in the EU happen only because a primary care alternative is not available or accessible (van den Berg et al., 2016). Primary care also serves as a gatekeeper to the higher levels of care, referring cases that need more complex treatment to the appropriate specialists. In addition, effective primary care can contribute to more effective management of existing chronic conditions, thereby reducing complications and the demand for expensive hospitalisations.

More importantly, primary healthcare plays a crucial role in preventing poor health in the first place, yet preventative care⁴ and public health services remain poorly financed across Europe, representing less than 3% of healthcare spending, or €82 per inhabitant per year compared to €780 for inpatient curative and rehabilitative care (Eurostat, 2020). Yet, public health and preventative measures can be extremely effective in fighting many chronic health conditions: for example, mortality rates associated with cardiovascular diseases could fall by between 50% and 75% in developed countries (WHO, 2020). Targeting the main causes of morbidity can improve health outcomes and reduce public spending, allowing ageing populations to enjoy more healthy years as a result. Highly cost-effective actions provided by public health professionals include those aimed at reducing tobacco, alcohol and salt consumption and encouraging physical exercise (WHO, 2017).

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⁴ ‘Preventive care’ means any measure that aims to avoid or reduce the number or the severity of injuries and diseases, their sequelae and complications. It includes interventions for both individual and collective consumption.
Primary healthcare professionals are also key actors in delivering health responses related to climate change and environmental degradation. In terms of mitigation measures, promoting healthier, more sustainable diets or green modes of transport based on physical exercise can be beneficial for both human health and the environment. In terms of adaptation to climate change or response to environmental-related health impacts, primary healthcare will have to respond to increasing demands related to severe climatic events, such as surveillance of and assistance to vulnerable populations during heatwaves, treatment of respiratory diseases related to air pollution or responses to other localised environment-related health impacts, such as the accidental contamination of water resources.

During the current Covid-19 crisis, primary healthcare has been instrumental in ensuring the continuity of healthcare and rolling out different crisis management solutions, such as the treatment of less severe or discharged Covid-19 patients, testing, contact tracing and vaccination. Community and home care are particularly important for frailer patients with chronic conditions who may not feel comfortable attending large medical facilities due to the risk of infection or for whom it is not advisable to visit large medical facilities. The role of certain primary care professionals has also been expanded; for example, in many countries, pharmacists have been allowed to renew prescription medicines for chronic conditions, perform rapid tests, administer vaccines and even deliver oxygen.

In general, Europeans have good access to primary healthcare and public health services, but there is room for improvement by increasing services available across all regions, especially for more disadvantaged groups that already suffer from poorer health or may be at higher risk of exposure during pandemic events, as discussed above. As an indication, more vulnerable groups, such as those living in remote areas, ethnic minorities or people with low incomes, tend to go to emergency departments more often than average in cases when primary care would have been sufficient (van den Berg et al., 2016). Lack of access to primary care and the higher likelihood of out-of-pocket payments in primary care centres compared to emergency departments are among the main reasons for these trends (Berchet, 2015; Purdy and Huntley, 2013).

In addition, the ways in which primary care is delivered in Europe are evolving and need additional investments. One growing trend in Europe that may generate benefits is the progressive replacement of solo primary care practices with health centres housing multiple types of professionals. A general practitioner or a community health worker generally acts as a case manager, designing different
pathways through the healthcare system for each patient, based on their needs. In Germany, the case manager refers also to social workers. There are many advantages to creating such multidisciplinary centres, in particular in underserved regions where access to healthcare is limited, at least for some social groups. Group practice allows for increased collaboration between different specialists and services, enabling a person-centred approach to healthcare and better integration across services. Collaborative work across specialisations is especially relevant for the growing numbers of multi-morbidity patients. Further integrating these centres with other levels of healthcare services, including acute and long-term care, can facilitate timely and coordinated provision of care. As these centres are less costly to build and operate than hospitals or clinics, they can be established in less densely populated areas. In addition, due to mutualisation of costs and economies of scale, multidisciplinary centres may also acquire better medical equipment and more adapted and welcoming infrastructure. Ideally, they should include a range of strategies to support integrated approaches with local organisations, local services, professionals, as well as policy makers in a continuous process to work together towards healthier communities. This includes mental health centres, social services and public health workers.

**Multidisciplinary primary care centres have proved to deliver the best healthcare outcomes and patient satisfaction, both in general and during pandemics.** In some countries, multidisciplinary primary care centres were established as a result of Covid-19, in close coordination with local hospitals. Some of these centres were primarily targeted to the underserved communities that were most affected by Covid-19, yet had less access to healthcare. Examples in France include the deployment of mobile healthcare facilities in the poorest areas of the greater Paris region and multilingual information and testing campaigns targeted to homeless and migrant populations (OECD and EU, 2020).

**Box 2: Examples of CEB support to primary care in Europe**

The CEB has provided financing for the strengthening of Bosnia and Herzegovina’s primary health care based on the “family medicine model” that can address the population’s current needs. The objective was to finance the refurbishing and equipping of family medicine facilities. The project involved rebuilding and rehabilitating 425 primary health care facilities – locally called ambulantes – and equipping a further 399 ones with standard sets of medical equipment. Successful implementation of the project allowed the operationalisation of a number of strategic goals featured in the country’s Primary Health Care Development Strategy. Project results have created the necessary prerequisites for the development of family medicine in BiH including: Improved access to quality health care across both entities, enhanced efficiency of the healthcare system through the introduction of the Family Medicine model, and an enhanced policy formulation process through the development and implementation of a sector performance monitoring and evaluation system.

The CEB also supported Rabobank’s “Social Impact Loan” instrument, which provides concessional funding to, inter alia, Dutch not-for-profit service providers operating in the social sector. Targeted sectors of activity include medical and social care providers (such as general practitioners, dental care, mental health and addiction centres), especially those catering to vulnerable populations in areas with high health risks. One project financed through CEB funds included the renovation and extension of a health care centre located in Overvecht, an underprivileged district of the city of Utrecht. The new health care facility is owned and managed by a local NGO, which promotes a holistic approach to health and well-being within communities, combining different social and health services under the same roof. The needs of each patient are addressed from different angles and beyond physical health, favouring patients’ long-term well-being and socio-economic integration, while also reducing the need for and costs associated with curative care.
4.2 Community based long-term care

Long-term care consists of different services that promote independence and well-being for individuals with support needs. Both medical and social services, and their interaction, improve health outcomes and quality of life. Individuals of any age may require some level of long-term care and support depending on their level of autonomy and to a certain degree health. The demand rises sharply with age and the accumulation of comorbidities. Over 20% of Europeans aged 75 to 79 require long-term care, and the proportion rises to 40% for those aged over 85. As Europeans age – the share of people aged 80 years or above is projected to increase from 5.8% to 14.6% between 2019 and 2100 – long-term care will become a cornerstone of European economies and societies (Eurostat, 2021). In the business-as-usual scenario, public long-term care expenditures are projected to increase by 70% by 2060 and by 150% if all EU member states meet equal coverage and costs.

Long-term care systems in Europe are even more varied than healthcare systems in general because they depend on deep-rooted traditions and cultural preferences, in addition to the legacy of political choices. In some contexts, caring for long-term care beneficiaries falls almost exclusively on family members, while in others a wide spectrum of options is available for individuals with support needs. In addition, the services are funded and provided by different actors including governments, non-profit organisations, charities and private sector entities. Such complexities make it difficult to compare the level of coverage and quality of services across European countries and regions, but it is generally agreed that long-term care provision is more developed and formalised in Northern and Western Europe and largely relies on informal (e.g. family) care in the Southern and Eastern European countries.

Levels of public healthcare expenditure on long-term care offer a glimpse on the stark differences between countries. On average, EU countries spend over 16% of their healthcare budget on long-term healthcare, ranging from 1% or less in Bulgaria, Slovak Republic and Bosnia and Herzegovina to over 25% in Denmark, the Netherlands, Sweden and Norway (Eurostat, 2021). In most countries, the highest share of spending goes to in-patient long-term care provided in hospitals and residential facilities. In Finland, Denmark and Malta, a clear public policy priority is given to home-based provision.

Figure 10. Long-term care health expenditure as a share of total healthcare expenditure by type, 2018

![Graph showing long-term care expenditure by type in different European countries, 2018.]

Source: Eurostat
Informal provision remains a central pillar for meeting long-term care needs in Europe — around 80% of long-term care in the EU is provided informally by women in their middle age (Eurocarers, 2017). This can have enormous implications on gender disparities as regards employment, salary and overall income levels, and economic security. As an example, in Serbia only 3% of the elderly population with long-term needs rely on outsourced care paid for either by the state or their own private means (Hirose and Czepulis-Rutkowska, 2016). Another important element is that relying on informal provision also has significant implications on the quality of the care provided; in particular for those with more complex support needs as “informal provision” is also often provided by undeclared workers.

However, over-reliance on informal care comes for both the persons with support needs and at a cost for caregivers, mostly women, who on average across European countries are less likely to be officially employed and tend to report lower levels of well-being than the general population. The burden of informal care therefore generates a steep opportunity cost in terms of both societal welfare and economic growth — and also in terms of gender inequalities as regards access to work and income distribution. (Cicarelli and Van Soest, 2018; Verbatel et al., 2017). In addition, informal settings may also pose risks in terms of quality of care, which becomes a “private matter” between the caregiver and the receiver (European Commission, 2018a) with concerns directly related to the receiver’s need for support, including medical assistance. This model of care is also reaching its limits as demand for care increases while the informal supply is bound to decrease due to growing female participation in the labour market, increasing numbers of single households, and workforce mobility within and across countries (European Commission, 2018a).

The quality of structures dedicated to long term facilities, their functional aspects or ability to integrate the latest technology is also a concern. Large segregating long-term facilities are increasingly criticised for not being able to meet the individual support needs of the service beneficiaries. Upgrades and improvements to HVAC (heating, ventilation and air conditioning) to enhance infection prevention and control are often needed. Safety for both residents and long-term care workers can also be unsatisfactory when, for instance, lacking extended fire sprinkler systems. In addition, design and materials used are often not state of the art particularly as they face new challenges linked with climate change (e.g. longer and more severe heatwaves) or future pandemics (structures allowing for proper isolation of people). As such, more and more attention focuses on the need to build alternative community-based long-term care solutions\(^5\), which are – along with well trained staff – key ingredients to helping people with support needs to live independently and have a good quality of life.

Yet, the availability of formal care services remains limited in many European countries. For example, fewer than two formal long-term carers for 100 thousand population aged over 65 are available in Portugal, Slovak Republic and Hungary compared to 12 or more in Sweden and Switzerland (OECD, 2021). These workers, over 90% female, are often employed at relatively uncompetitive wages, on precarious contracts and with limited opportunities for vocational training (OECD, 2021). According to recent data, the average wage of social services workers in EU is 21% less than the average national hourly earnings (Eurofound, 2021). Therefore, investing in formal care workers and their well-being will remain a necessity to ensure that all persons with support needs have access to the long-term support they need, as well as to reduce the burden on informal carers. In addition, residential long-term care facilities are also underdeveloped in CEB member countries: under one bed per 100 individuals over 65 years is available in Turkey and Greece, seven times less than in Sweden, the Netherlands and Luxembourg (Figure 10).

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5 This shift to community-based services is generally called de-institutionalisation.
The quality of structures dedicated to long-term facilities is also a concern, particularly as they face new challenges linked with climate change (e.g. longer and more severe heatwaves) or future pandemics (structures allowing for proper isolation). In addition to availability and affordability challenges, the Covid-19 crisis has uncovered serious shortcomings in terms of safety and quality of care, especially within residential facilities. Half of the European Covid-19 deaths have occurred in nursing homes that lacked protective equipment and were generally unprepared to deal with a sanitary crisis of such a scale. The virus was often spread by long-term care workers, many of whom are employed on precarious, multi-institutional contracts with limited access to paid sick leave. At the same time, residents were obliged to follow strict confinement rules for many months, with repercussions on physical activity, mental health, well-being and sometimes lower quality of care due to staff shortages (UN, 2020, Palmer et al., 2020). More generally, estimates suggest that 40% of admissions to hospital from long-term care facilities could be avoided by improving prevention, safety practices and workforce training (OECD, 2020b).

However, residential care remains an important element of the long-term care system, particularly for individuals with severe needs, many of whom could not afford a sufficient level of home care (Muir, 2017). Whilst more investment is needed in home care, other community-based innovative residential care solutions are developing (EASPD, 2020). For instance, initiatives which evolve around home-like settings for groups of older adults including different social and medical services. Such institutions, based on the concept of “a village”, already operate in Hogeway in the Netherlands, Village
Emanuele in Italy and Dax in France. They contain different types of self-catering accommodation and local amenities such as a café, a hairdresser’s and a farm. Since the villages are attached to a town or a city, the residents can participate in normal community life and benefit from other local services. The care is provided not only by employees, but also by large numbers of volunteers who increase social interactions and reduce care costs. These examples provide a more ‘enabling’ environment for the residents, including more integration with local communities and the natural surroundings. Similarly, benefits of intergenerational retirement homes and other solutions that help mitigating the risk of isolation of the elderly from the rest of the population are promising solutions.

**Figure 12. Alzheimer Village in Dax, France**

![Alzheimer Village in Dax, France](image)

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**Box 3: Examples of CEB support to long-term care in Europe**

The CEB has been investing in the long-term care sector since 1997. In the past decade, the CEB has provided loans of €850 million to finance, among other things, vital services to people with disabilities and those of all ages who are experiencing day-to-day difficulties. Among these projects, the CEB co-financed different investments in the social care sector in the Madrid Region. In Spain, long-term services have traditionally been provided by family members, but an ageing population and changing family structures have put a strain on this model. In 2017, the Spanish authorities passed a law guaranteeing the right to long-term care services, funded through taxes but subject to means testing with the objective of increasing public coverage for long-term care services. Such services, provided in day-care centres, care homes and social apartments, include activities aimed at improving the welfare and quality of life of the elderly, encouraging their personal autonomy and providing remote assistance solutions, personal and personalised support. The Alzheimer Centre of the Queen Sofia Foundation, one sub-project financed by the CEB, groups together in one place three essential working areas on Alzheimer’s disease: a Research Unit; a Training Centre specialised in senile dementia; and a Healthcare Centre which includes a long-term residence for 156 patients, a day-care centre for 40 patients and a weekend family respite centre for 20 patients. Carrying out different activities under one roof allows for more innovation and efficiency in care and enables each patient to access the appropriate level of care.
4.3 Smarter, more flexible, more climate resilient and greener hospitals

Hospitals remain a key pillar in any effective healthcare system, housing large quantities of specialised staff and equipment to save lives. However, the traditional hospital model of providing all types of different services, including inpatient, outpatient, diagnostic and consultation, is no longer adapted to evolving healthcare needs and constrained public healthcare budgets. Today hospitals are becoming one pillar in the whole health ecosystem, which includes primary care providers including health promotion and disease prevention, rehabilitation and long-term care facilities, pharmacies, and services delivered within communities and in the patient’s home. As discussed in previous sections, this decentralised approach makes it possible to reduce the pressure on hospital emergency rooms and to improve public health in general, thus lowering hospitalisation needs and associated costs. The role of hospitals is thus increasingly centred primarily around specialised treatments for acute conditions, including complex surgery, severe trauma and other types of intensive care, in addition to ensuring sufficient safety and level of operations needed in emergency situations.

As new technologies evolve, many types of devices and equipment are becoming increasingly portable, which enables hospital staff to perform different, personalised procedures and diagnostics at the patient’s bedside instead of moving patients within hospital buildings. Various innovative technologies such as robotics, nanotechnology and 3D printing will enable hospital staff to be more precise and efficient and to provide a higher quality of care. Even though such technologies are currently rather costly, their wider deployment could also contribute to shortening hospital stays by enabling better and more advanced post-release community and home care as needed.

Modern hospital buildings will become a central pillar for urban development. Broader smart and resilient urban and territorial plans can enable fluid circulation of people and information between different pillars of health and social infrastructure and account for climate-related and other environmental impacts. As key elements of these plans, hospital buildings can contribute to promoting healthier and sustainable lifestyles as well as reducing health inequalities. Hospitals will also have to adopt climate change adaptation and mitigation measures (such as greening of buildings, use of photovoltaics, energy efficiency features, shaded and unsealed recreational areas, green procurement, use of sustainable and nutritious food, reduce food waste and use of plastics where possible, etc) to protect its vulnerable patients and limit its own impact on the environment.

In recent decades, hospital facilities have experienced the impact of optimisation and budgetary cuts aimed at reducing capacity levels to what is strictly necessary under normal operating circumstances (see, for example, Schwierz 2016). A number of European countries for which data is available, including Germany, France, Italy and Spain, displayed over 75% average hospital occupancy rates before Covid-19 hit (OECD and EC, 2020). While efficiency gains should not be demonised per se, full optimisation of hospitals may significantly reduce their capacity to absorb shocks when the flows of patients increase rapidly, such as in the Covid crisis or during a heatwave (Expert Panel on Effective Ways of Investing in Health, 2020). During the peak of the first wave in spring 2020, Covid patients occupied an equivalent of 80% of pre-crisis intensive care beds in Italy, and 65% in Belgium, Ireland and France (OECD and EC, 2020).

Spare capacity can be created without necessarily enlarging hospital buildings, but, instead, by optimising certain areas and making them more flexible and polyvalent. For example, by redirecting outpatient care towards clinics and primary healthcare, large waiting areas within hospitals could be transformed into flexible, adaptable spaces. Similarly, the ability to move equipment to a
patient’s room instead of having dedicated rooms for equipment could free up some capacity. In addition, hospital walls will be increasingly pushed out to communities and homes. During the Covid crisis, many Europeans were hospitalised at home to make space for more urgent patients. The “hospital at home” model is suitable for certain groups of patients, such as those suffering from neuromuscular diseases, respiratory infections and individuals whose condition has already been stabilised in the traditional hospital setting (Vianello, Savoia et al. 2013). New technologies that can be easily used by patients and their caregivers, telemedicine and more portable complex equipment can enable a more patient-centred approach to treatment at home and free up space in hospitals for emergency care.

4.4 Digitalisation of healthcare, surveillance and research

The process of healthcare digitalisation across different areas of the sector has experienced a real boost during the Covid-19 pandemic. Healthcare digitalisation, also known as e-health and m-health, combines medical knowledge with IT solutions, including telemedicine, mobile health apps, artificial intelligence, robotics and big data, among others. Primary healthcare has been particularly affected as Europeans, 81% of whom had never used online health services prior to the pandemic, have become much more open to using digital health (Eurobarometer, 2017). In Norway, online consultations with general practitioners went from 5% before the March 2020 lockdown to 60% soon afterwards (OECD and EC, 2020). Similarly, the number of hours of video consultations in Germany increased two thousand-fold in the second quarter of 2020 compared to the year before (MedTechEurope, 2021).

Europe still lacks the adequate means for tapping the full potential of e-health despite the significant digitalisation progress achieved during the Covid-19 pandemic, including changes in national legislation and in the modalities for reimbursement of digital consultations. Current digital infrastructure, including hardware and software, is often outdated and inoperable, hindering wide-scale adoption of modern applications and system integration (European Commission, 2018b).

Even though e-health cannot replace in-person consultations and examinations, it offers many advantages as a complement to traditional care. For example, e-consultations can facilitate access to different medical professionals for people living in remote areas or with travel difficulties due to disabilities, financial costs or work engagements. Telemedicine also offers opportunities for increased cooperation between different medical professions. For example, a community health worker or general practitioner could connect to a specialised doctor while examining a patient and make joint decisions together, ensuring better care, better use of health resources and time savings for the patient. In a sanitary crisis, digital consultations help ensure continuity of care while preserving patients and healthcare professionals from risks of contagion. Similarly, health apps (m-health), can be useful for self-management of care and encouraging healthy behaviours.

In addition, digitalisation of healthcare today offers opportunities for medical professionals to spend more time with their patients. Instead of looking at the screen and typing notes, doctors could wear a microphone and use natural language processing technology for filling in the records. Similarly, computer vision will assist doctors in analysing and interpreting X-ray images for better decision making (McKinsey, 2020). Scheduling of patient appointments and staff working hours using digital technologies will also facilitate better time management and improve overall system efficiency. In hospitals, digital technologies could ensure better flows of resources and staff. However, care must be taken that digital solutions do not miss out on those persons that need them the most. Digital exclusion needs to be tackled, vulnerable people need to be empowered and digital health literacy needs to go hand in hand with digital innovations (WHO, 2018).
Another untapped resource provided by health digitalisation is the management of medical data within systems and the exploitation of growing amounts of available medical data and information worldwide. Health systems produce 30% of global stored data, but 80% of it remains untapped due to fragmentation of different health institutions (DigitalEurope, 2020; Kong, 2019). The amounts of data are bound to increase further due to the continuous shift towards paperless ways of working and increasing use of Internet of Things (IoT) technologies, notably in hospitals. The integration of data through electronic medical records across different levels of care, including primary, secondary and long-term, could allow better health monitoring and decision making between healthcare professionals at individual patient level and enable powerful research at population level. Information thus gathered on different health conditions, allergies, treatments, medications and patient experience can be used to evaluate and benchmark healthcare outcomes, as is already the case in Portugal (OECD and EU, 2016). In addition, well integrated data systems can help identify and monitor high-risk groups during a healthcare crisis such as Covid-19. Privacy of data is hereby of utmost importance and needs to be fully part in any integrated management data system.

The Covid-19 pandemic has shed light on deficiencies within European infectious disease surveillance systems. European countries collect different types of data within their health systems, including clinical, laboratory and sentinel surveillance⁶ systems. However, this data is often fragmented, not comparable across jurisdictions and of varying quality. The European Centre for Disease Prevention and Control (ECDC) was founded in 2004 as a response to the SARS epidemic with a mission to identify and assess the threat of infectious diseases by collecting standardised data across the European Union through a common information system. However, these systems proved insufficient for delivering reliable data on Covid to enable timely planning, control and management of the pandemic. For instance, the data on Covid cases and deaths was not comparable across countries and the systems also failed to ensure sufficient contact tracing and testing capacity.

Effective collection and use of epidemiological data across countries will therefore become a crucial element of a well-functioning healthcare system as communicable diseases are expected to grow in number and intensity over the coming decades due to climate change, environmental degradation and mass international people movements (linked in part to globalised value chains, but with a number of other determinants whose evolution is not easy to predict in a post-Covid world). Comprehensive syndromic surveillance for acute respiratory infections and better interoperability of data systems would help to identify and localise infectious clusters early on, while at the same time providing realistic estimations of the spread, severity and risk factors of the disease (Ammon, 2020). Innovative solutions based on healthcare digitalisation as well as big data and artificial intelligence would reinforce surveillance both locally and internationally. These data could be then complemented with climatic, socio-economic and financial indicators to better respond to different needs within each community. All countries in Europe, not only the EU member states, should reinforce their systems and cooperate closely in these endeavours as communicable pathogens spread fast across borders, addressing data protection and privacy issues.

In addition, reinforcing research capacity in Europe would also contribute to better medical preparedness for future health crises. Rapid biomedical response, which includes diagnostics, vaccines and treatments, is a key element in the successful management of fast spreading communicable

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⁶ Monitoring of rate of occurrence of specific conditions to assess the stability or change in health levels of a population. It is also the study of disease rates in a specific cohort such as in a geographic area or population subgroup to estimate trends in a larger population. (From Last, Dictionary of Epidemiology, 2d ed)
diseases. The levels of research and development spending on health before the Covid crisis were very unequal across Europe, ranging from very low to none in some countries such as Latvia, Lithuania, Iceland, Cyprus and Malta to 0.5% of GDP in Switzerland and 0.4% in the Netherlands and Norway (Figure 12). The European Union provides research funding through its Horizon Europe programme, but the majority of the funds go to member states with already strong medical research infrastructure (Gallo et al., 2020). In addition, there is a lack of health R&D coordination across countries, which hinders cooperation, multidisciplinary approaches, knowledge synergies and spillovers. Better knowledge on the psycho-social responses to the crisis should also be considered.

**Figure 13. Health R&D spending as % of GDP**

Source: Eurostat
Box 4: Examples of CEB support to medical research in Europe

In France, the CEB part-financed the renovation of the Institut Pasteur de Lille, a major medical, research and scientific centre in the Hauts-de-France region with both international recognition and local action/impact. The Institut Pasteur de Lille carries out research, prevention and health education activities and develops innovative solutions and treatments for various health conditions. It houses six multidisciplinary research teams and three centres for health prevention, nutrition and vaccination to fight cardiovascular, infectious, parasitic, inflammatory, metabolic diseases as well as cancer and diabetes. The funds provided by the CEB financed the comprehensive rehabilitation of the facilities to enhance the functionality, technical coherence, and appearance of the campus.

In Lyon, through its loan to a financial intermediary (Banque Populaire et Caisse d’Épargne), the CEB also contributed to the construction of the Bioaster Institute, the only technology research institute dedicated to health in France, which focuses on bringing technology solutions to the four fields of applied microbiology: diagnostics, vaccines, antimicrobials, and microbiota. Bioaster is part of the health innovation hub, Accinov, a unique hub in Europe designed for biotech companies developing breakthrough technologies and innovative products and services.

The CEB is also co-financing the strengthening of research capabilities in Estonia as part of its Covid-19 emergency loan to the Estonian Government. In particular, the loan supports thematic research and development on the Covid-19 virus by equipping the biosafety level 3 laboratory at the University of Tartu Institute of Biomedicine and Translational Medicine. The financing is used to purchase needed equipment, to establish relevant operational procedures, to acquire the appropriate authorisations and to train the personnel.

Source: Eurostat

4.5 Healthcare workforce with the right skills

The significant transformations within the current healthcare systems in Europe will require more investments in and support for the healthcare workforce. In many European countries there is a severe chronic shortage of healthcare professionals, such as doctors, healthcare assistants and in particular nurses (European Commission, 2020). As discussed in Section 3.3, some territories in Europe are particularly lacking in healthcare workforce, which exacerbates healthcare inequalities and leads to less resilient healthcare systems overall, as evidenced by the Covid-19 crisis. Bringing healthcare services, be it primary or long-term care, closer to all communities requires more equal distribution of healthcare staff across regions by employing well designed incentives to attract and maintain relevant talent where it is most needed.

In addition, European healthcare systems must equip their staff with relevant skills for the future to ensure the necessary transition from fragmented care focused on diseases to a more integrated and holistic approach. Healthcare professionals will need strong transversal skills, including communication, socio-cultural sensitivity and problem-solving skills to ensure individualised, patient-centred care that combines prevention, treatment and consideration for socioeconomic factors. Teamwork will also become more important to develop effective multidisciplinary care plans, and to foster information exchange and collaboration across different professions. All healthcare professionals should also be trained to provide lifestyle advice accounting for links between environmental degradation and health as part of any individual healthcare plan.
The mix of healthcare staff in terms of different professions and specialisations is also important to ensure that all individuals can access advice and care corresponding to their needs while also ensuring resource efficiency. Many healthcare professionals feel under-skilled or over-skilled for the tasks that they are carrying out, resulting in a skills mismatch that is higher among doctors and nurses than other high skill occupations (OECD, 2016). Over three quarters of doctors and nurses feel that they are over-skilled in their job, which suggests that more community-based healthcare workers with lower levels of education could step in to relieve the pressure while at the same time reducing the unit cost of care (OECD, 2018). To that end, updating regulatory frameworks to adapt to technological change and new skills as well as factoring in longer-term epidemiological and demographic projections in health education and human resource planning should be more frequent and mainstreamed.

Finally, sufficient digital skills constitute one of the key elements for successful implementation of various e-health solutions and technological advancements. Currently, over two thirds of health professionals in Europe still do not use digital technologies due to knowledge gaps, while IT specialists account for only a negligible share of the healthcare workforce. Traditional curricula for medical education in Europe often fail to equip healthcare professionals with very basic digital skills and are not sufficiently supplemented by lifelong learning (Li et al., 2019). Yet, digital technologies are vital for better system integration across different levels of healthcare to ensure better information flows, communication and shared decision making.

5. Conclusions

The Covid-19 pandemic has clearly shown that health is at the heart of social development, wellbeing and economic progress. It has also put the spotlight on the fragility of Europe’s healthcare systems and emphasised the importance of increasing their resilience to future emergencies. In recent decades, Europeans have been enjoying increasing life expectancy and access to medical innovations among others thanks to strong healthcare systems with the shared objective of universal access. When the healthcare systems became overburdened with an unprecedentedly high influx of Covid-19 patients, the majority of Europeans had to adapt to new living conditions under lockdown, altering the face of European cities and regions beyond recognition.

European healthcare systems were already faced with mounting challenges related to population ageing, widening inequalities and changing behaviours even before Covid-19 hit. In Europe, health is increasingly affected by lifestyle and environmental factors that threaten years, if not decades, of achievements in terms of health outcomes. As European societies age and increasingly adopt less healthy diets and sedentary lifestyles, the prevalence of non-communicable diseases and avoidable mortality is growing. Environmental degradation, including air, soil and water pollution, as well as extreme weather events and other climate change manifestations, already have a sizeable negative effect on health, which will likely intensify and diversify in the future – including through rising mental health impacts.

In addition, many European healthcare systems have been struggling to provide equal access to health for all while achieving long-term financial sustainability. Most vulnerable social groups, including people from disadvantaged socioeconomic backgrounds, foreign-born individuals and those living in remote areas or less developed regions, still suffer from insufficient access to healthcare due to long waiting time for accessing medical care, unaffordable out-of-pocket-payments, language barriers or lack of healthcare facilities in the vicinity. Individuals that require long-term care may be particularly underserved, especially in systems with low levels of formal affordable care options, which often constrains official employment opportunities for caregivers, the majority of whom are female family members.
Healthcare systems are also becoming increasingly unsustainable financially as populations require more services overall, yet public budgets remain constrained.

Growing gaps in healthcare assets, both physical and human, among different European geographies reinforce the phenomenon of medical deserts and threaten social cohesion. The diversity of European healthcare systems, their historical development, financing and traditions do not enable straightforward comparisons regarding their overall effectiveness or ability to deal with health crises. However, some countries and regions within countries clearly lack resources in terms of infrastructure and health staff to cater for the growing needs of their populations. In turn, areas with already high levels of resources tend to keep investing more and attract more health sector workers due to better working conditions, which reinforces inequalities even further.

These issues have been reflected in the ways Covid-19 affected European populations, following a syndemic pattern across different countries. People from disadvantaged socio-economic backgrounds have suffered much higher rates of infection, complications and mortality as they tend to occupy high contact jobs and live in overcrowded housing, thus increasing the risk of becoming infected, while at the same time having worse pre-existing health outcomes and insufficient access to healthcare. Older people, especially those living in residential long-term care facilities, were also much more likely to develop a severe form of Covid-19. Europeans with known frail health conditions and those that missed their timely diagnosis have forgone important treatments and tests as healthcare systems redirected resources towards dealing with the health emergency.

The probability of experiencing other health crises, in addition to the structural strain on the healthcare systems, continues to rise. New pathogens are likely to emerge and spread as a result of the loss of biodiversity related to human activity. Climate warming may bring disease-spreading insects from the tropical climates towards Europe. Extreme weather events, which are already happening with unprecedented frequency and intensity in many European countries, will impact the health of many Europeans at the same time, overcrowding hospital emergency rooms. To compound the problem, these events can also severely undermine the functioning and integrity of our healthcare systems, calling for increased attention to making them climate resilient.

This technical brief argues that a more integrated approach towards healthcare investments can and should be supported by international financial institutions such as the CEB. Healthcare resources must be adapted to deal with the growing pressure of ageing populations and the growing prevalence of non-communicable diseases, while at the same time considering the threats posed by rising inequalities and by climate change and environmental degradation. In particular, focusing on five specific areas of investment may help to simultaneously tackle different facets of these challenges.

First of all, primary healthcare should become the focal point of every functioning healthcare system in Europe. Community health workers and primary care professionals, especially when working in multidisciplinary teams, are the best placed to build relationships based on trust and to respond to individual needs by designing effective pathways towards better health and life quality through the use of available health and social resources. Multidisciplinary primary healthcare centres are less expensive to build and run than hospitals or clinics and can therefore ensure more financially sustainable and inclusive access, regardless of a patient’s background or location. Public health measures and preventative healthcare are particularly important as individuals can be accompanied towards healthier and more environmentally sustainable lifestyles, treating the root causes of subpar health outcomes and facilitating better use of natural and financial resources.
Second, **long-term care is emerging as a major health challenge as ever-increasing numbers of Europeans require care and support for their daily routines.** As family structures and female labour participation are evolving, more formal services are already needed today to enable more women to join the labour market. While typical residential care facilities have shown their limitations, even more so during the Covid-19 pandemic, community-based services that are integrated with primary healthcare can enable care-receivers to lead more autonomous and happier lives for longer periods of time. Such services also limit propagation of communicable diseases such as Covid-19. For less intensive needs, such services tend to be less expensive to operate than residential care and are thus more affordable. Residential care remains an important pillar of the long-term care system, particularly for high-need patients, but could be delivered in home-like, community-based settings that favour independent living, social inclusion and socialisation.

Third, **healthcare systems would benefit from smarter, more flexible, more inclusive climate resilient and greener hospitals that are primarily focused on specialised care** for acute conditions. The pandemic has clearly shown the limits of hospital-centred healthcare provision as many hospitals around Europe were not able to accommodate all Covid-19 and other patients in need. Instead, community-based healthcare services that are accessible for all would lead to improvements in general population health and reduce the need for hospitalisations and emergency room visits in the first place. In addition, as hospital equipment becomes more portable, hospital layouts can be rethought to allow for more flexibility and modularity, especially if some of the patients can be hospitalised in their own homes. Such a system would also limit the spread of infectious diseases such as Covid-19 and enable better resource management. New hospital buildings should also be more integrated within territorial planning and include green features for better climate change adaptation and mitigation.

Fourth, **tapping the full potential of healthcare digitalisation, making better use of data and encouraging more medical research is all paramount** to making healthcare systems more efficient and resilient. The use of digital technologies for healthcare delivery have been adopted at an unprecedented pace by medical professionals and patients alike, ensuring continuity of care, at least to some extent, for millions of Europeans. However, the real potential of healthcare digitalisation remains untapped. For example, ensuring effective data sharing through electronic medical records between and across different levels of care, including primary, secondary and long-term, could provide real system integration and result in better health outcomes and more targeted use of resources at each stage of service provision, should the risk of digital exclusion be mitigated. In addition, more investments are needed in European public health surveillance systems and medical and psycho-social research capabilities to deal with existing health challenges and boost preparedness for future health crises.

Finally, **all European countries and regions should develop capacity to attract and retain adequate levels of healthcare workforce equipped with the right skillsets.** More integrated, patient-centred care delivered by multidisciplinary teams requires various core skills that should be better incorporated in education and lifelong learning curricula. The healthcare workforce also lacks support in obtaining sufficient digital skills that will form the backbone of successful digital healthcare.

Regardless of the importance of building a truly inclusive and resilient healthcare system, **improvements in European health outcomes can only be ensured if modern lifestyles are better aligned with the Earth’s natural systems and limited resources, while at the same time ensuring that no individual or territory is left behind.** Assessment of the environmental and health impacts of different socioeconomic policies and investments would promote more sustainable ways of living and consuming, thereby reducing the probability of new pandemics and avoidable poor health. By adopting a better integrated approach to healthcare systems based on well-being, solidarity and sustainability, more Europeans could enjoy longer and healthier lives, both today and in the future.
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