POLICY BRIEF

Eurofound

Promoting social cohesion and convergence

COVID-19: A turning point for upward convergence in health and healthcare in the EU?

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Introduction

The COVID-19 pandemic has moved population health closer to the centre of EU social policy. In Europe, the right to health is recognised by the European Social Charter, and the European Pillar of Social Rights in Principle 16 mentions 'the right to timely access to affordable, preventive and curative healthcare of good quality'. Nevertheless, the EU has played a secondary role in ensuring the health needs of Europeans are met.

The primary responsibility for organising and delivering health services and medical care rests with the Member States. For this reason, there are great variations in the scope and structure of healthcare systems across countries. EU health policies aim to complement national policies and to integrate the health protection of citizens in all actions initiated at European level. The outbreak of the COVID-19 pandemic, however, highlighted the need for more coordination within the EU when a health crisis strikes; it also laid bare the need for more resilient health systems and to be better prepared for future pandemics. The EU aims to address these challenges by establishing a European Health Union.

In this context, it is relevant to investigate to what extent Member States have made progress in terms of health and healthcare outcomes, as well as health expenditures and delivery, and whether a levelling up across the EU in these areas is evident from the data – in other words, whether there has been upward convergence.

The policy brief aims first to assess whether there was upward convergence in several dimensions of health and healthcare in the EU over the period 2008–2019. For this exercise, a series of indicators is analysed, relating to health outcomes, access to healthcare, government expenditures on health and healthcare delivery. These measures are selected from the Social Scoreboard, which monitors the performance of Member States in relation to the European Pillar of Social Rights, and from the European Core Health Indicators (ECHI), developed to create a sustainable health-monitoring system that supports the EU Health Strategy.

The upward convergence analysis then moves to focus on the health fallouts of the COVID-19 outbreak and on the mitigating measures adopted at EU and national levels. The pace of and disparities in the vaccination rollouts across EU Member States are compared to those of the United States and Organisation for Economic Co-operation and Development (OECD) countries.

Policy context

Until 2019, the EU was considered an engine of convergence in many socioeconomic areas but not in the area of health. The COVID-19 pandemic changed the game dramatically: the European Commission has undertaken unprecedented initiatives aimed at strengthening the EU's role in protecting the health of its citizens and improving the resilience of Europe's health systems.
On 16 September 2020, in her State of the Union address, European Commission President Ursula von der Leyen announced the Commission's intention 'to build a stronger European Health Union'.

Drawing on the early lessons from the COVID-19 pandemic (the need for EU coordination, common risk assessments and data pooling), the Commission put forward a set of proposals to reinforce Europe's health framework in view of the current and future health crises. The first proposal aims to revamp the regulations for serious cross-border threats to health by developing an EU preparedness plan, strengthening surveillance and stepping up data reporting of national health systems indicators.

The second initiative intends to reinforce Europe's health agencies. The European Centre for Disease Prevention and Control (ECDC) and the European Medicines Agency (EMA) will be equipped with stronger mandates – for example, with the setting up of an EU Health Task Force. A new EU agency for biomedical preparedness, the Health Emergency Preparedness and Response Authority (HERA), is also planned.

These initiatives will be funded through the EU4Health programme for 2021–2027, which will channel investments to EU countries, health organisations and non-governmental organisations (NGOs). With a budget of €5.3 billion, EU4Health is the fourth and largest of the EU health programmes since their inception in 2003.

Building a European Health Union will strengthen the EU policy response in an area where it traditionally had limited competences. According to the Flash Eurobarometer 494 from 2021, nearly three-quarters of respondents agree that the EU should have more competences to deal with crises such as the COVID-19 pandemic, and a quarter think the EU should prioritise the development of a European health policy.

The current health crisis is a historical opportunity for EU leaders to rethink the role of public health within the Union, leading to closer cooperation between the EU and its Member States. Despite the coordination failures at the beginning of the crisis that delayed action, the EU managed to adapt in an area that had been a national responsibility. By taking centralised action, it provided emergency support for the delivery of medicines, vaccines and protective equipment to all Member States. It gave proof of solidarity with global partners, the EU being the world's leading provider of vaccine doses and one of the biggest donors of the global vaccine initiative COVAX. It also stepped up its role as a key strategic actor within the World Health Organization (WHO). Through these massive efforts, the EU strengthened its position at the international negotiating table, seeking to become a more assertive voice in future health emergencies.

The EU missed an opportunity to create a European Health Community in 1952, when, in front of representatives of European states, Robert Schuman proposed that Europe should present a common front against diseases. His words are more relevant today than ever: 'in the fight against suffering, one should no longer make a distinction between nationalities. The pooling of resources intended to prevent disease, to relieve the sick or the infirm is likely to increase the moral and physical well-being of all our peoples'.

Key findings

- Between 2008 and 2019, health outcomes in the EU improved overall. This positive trend was accompanied by declining disparities across the Member States, where countries that were initially the poorest performers made faster progress.
- The gross domestic product (GDP) of Member States correlated with the health of their citizens, meaning that richer countries had better health outcomes. But GDP also played a meaningful role in the process where poor-performing countries caught up with better performers. Increases in GDP accelerated gains in life expectancy and slowed down increases in infant mortality and unmet medical needs.
- Government expenditures on health, which are highly dependent on GDP, grew by almost a third in the EU during the 12 years. However, disparities in how much Member States allocated to health also increased, especially during the Great Recession (2008–2013).
- On a positive note, countries that had relatively modest health expenditures in 2008 (mainly from central and eastern Europe) expanded their healthcare spending substantially, helping them to catch up with the top EU spenders. Increases in GDP per capita helped to accelerate this process. While longer healthy life years slowed the growth rate of health expenditures, so too did higher unemployment rates.
- In terms of health services delivery, the number of practising doctors and nurses grew steadily in the EU between 2008 and 2019, but medical staff shortages continued to be an issue. Disparities across the Member States in relation to the supply of medical personnel widened, partly due to the migration of healthcare professionals. Countries with scarcities in healthcare staff saw their situation deteriorate further. Hospital bed capacity declined continuously over 2008–2019, driven by cutbacks in 24 Member States, while disparities across countries steadily widened.
- The COVID-19 pandemic affected countries differently in terms of intensity and time frame, leading to large disparities at points when the pandemic reached its peaks. Life expectancy at birth fell significantly in 2020 (the largest fall in EU history), and the disproportionate impact of the crisis on Member States caused them to diverge on this indicator.
- The COVID-19 mitigation strategies adopted by Member States relied heavily on non-pharmaceutical interventions (NPIs) that varied across countries in intensity, strictness, number and time frame. Despite this diversity and the severity of the infection waves, disparities between Member States remained constant, which suggests the need for a potential coordinated exit strategy across Europe to achieve faster progress in controlling the pandemic.
- Vaccination rollout had a rocky start in the EU, which lagged behind the United States and the OECD. Furthermore, as the vaccination programmes advanced, discrepancies between Member States widened, from countries with high vaccination rates to those with a larger hesitant population. From May until mid-June 2021, the EU surpassed both the United States and the OECD in the number of daily vaccines administered per million people, while keeping disparities at comparable levels. During the summer of 2021, a general downward trend in the vaccination pace emerged across most EU countries.

Exploring the evidence

Analysing upward convergence in health and healthcare

Measuring health and healthcare

The analysis in this policy brief has two parts. The first examines upward convergence in health outcomes and healthcare in the EU over 2008–2019. Trends in population health are investigated using four indicators: life expectancy at birth, self-perceived health, infant mortality and unmet medical needs. The analysis goes on to look at the impact of GDP on convergence in health and healthcare spending across the EU. It also addresses convergence in healthcare delivery using three indicators: the supply of physicians, the supply of nurses and the bed capacity of hospitals.

The second part focuses on the COVID-19 pandemic, examining how Member States have diverged in infections, death rates and life expectancy at birth since the beginning of 2020. It then analyses the responses of the EU and the Member States to the health crisis in terms of NPIs and vaccination rollouts. Finally, it compares the trends and disparities in vaccination programmes between EU countries, the United States and the OECD.

Measuring upward convergence

Eurofound defines upward convergence in any given indicator as an improvement in the performance of Member States on that indicator, moving towards a policy target, accompanied by a reduction in the disparities among them. Improvement in the selected indicators is measured through the change in the average at EU27 level. The unweighted average is used in order to give each country the same representation and importance in determining the overall trend.

Convergence or divergence patterns across countries are measured using the standard deviation – a statistical measure of dispersion – of the indicator. A decrease in the standard deviation over time indicates convergence (also called sigma-convergence). An additional measure of convergence (beta-convergence) captures whether Member States with initially low performance levels are catching up by advancing their performance faster than better-performing countries. When structural characteristics of the Member State influence this catch-up process (by accelerating it or slowing it down), 'conditional beta-convergence' takes place.

From the last global crisis to the current one

Health outcomes improved and disparities decreased

Life expectancy at birth

Several indicators can describe the health status of a population, such as life expectancy, mortality rates, and the incidence of mental and physical illnesses. Among these, life span expected at birth occupies a central place, measuring the average number of years a person can expect to live, based on age-specific death rates. Since the start of the Great Recession (in 2008) up to 2019, EU citizens' lives lengthened on average by almost two years and a-half years (from 78 years in 2008 to around 80.5 in 2019). Disparities between Member States also narrowed in this period, as Figure 1.a illustrates. Additionally, the countries that initially had the lowest life expectancy at birth (such as the Baltic states) experienced the strongest improvements (Figure 1.b).

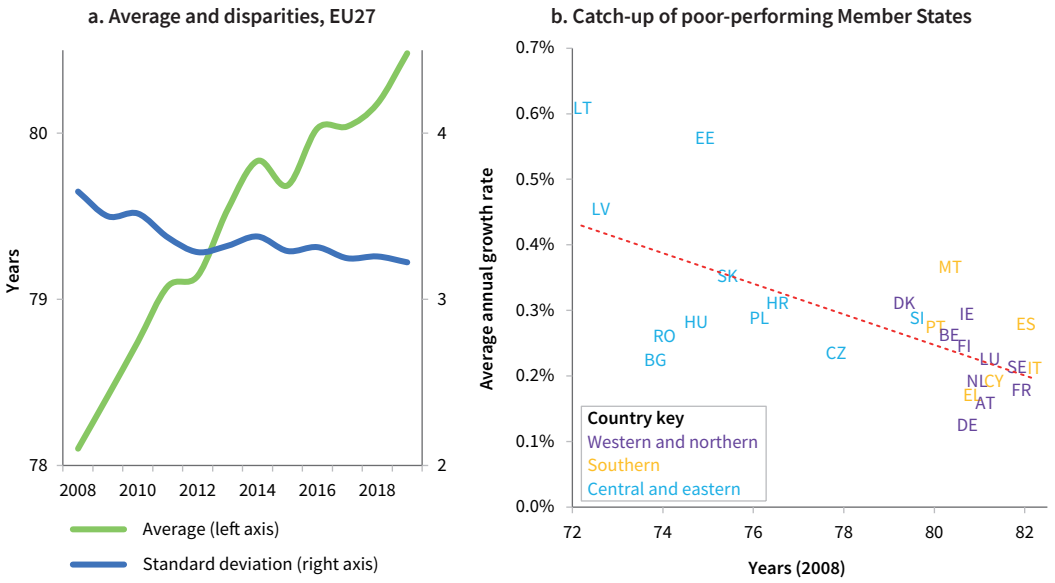
A geographical dimension is evident in this catch-up process: Member States from central and eastern Europe (except Slovenia) were all below the EU average in 2008 and generally registered larger gains in life expectancy compared to countries from the rest of the EU.

Self-perceived health

Alongside the objective measure of life expectancy, a subjective assessment of health can complement the picture of convergence in health outcomes. For this, it is useful to look at the self-reported health status of the EU population.

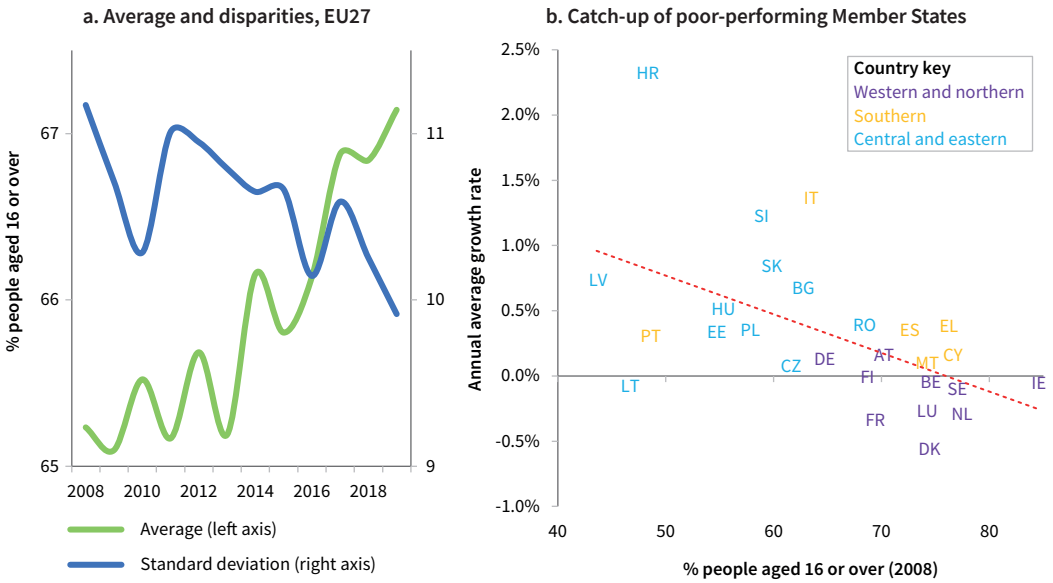
In line with life expectancy, the share of Europeans who perceive their health to be good or very good increased throughout the decade, from 65% in 2008 to 67% in 2019, while disparities across countries declined (Figure 2.a).

Figure 1: Convergence in life expectancy at birth, 2008–2019



Source: *Eurostat; authors' calculations*

Figure 2: Convergence in self-perceived health, 2008–2019



Note: *The percentage of people aged 16 and over who report that their health is good or very good. In cases of missing data (HR: 2008 and 2009), values are assumed to be constant with the following year.*
Source: *Eurostat; authors' calculations*

In terms of country dynamics, once again, fewer people in central and eastern Europe assessed their health as good in 2008, compared to the EU average (Figure 2.b). But, over the 12 years, the strongest upturns in self-perceived health occurred in these countries (except in Lithuania, where the percentage dropped), driving up the EU average. At the opposite end, people from most Member States in western and northern Europe, although positive about their health status in 2008, were less so by 2019.

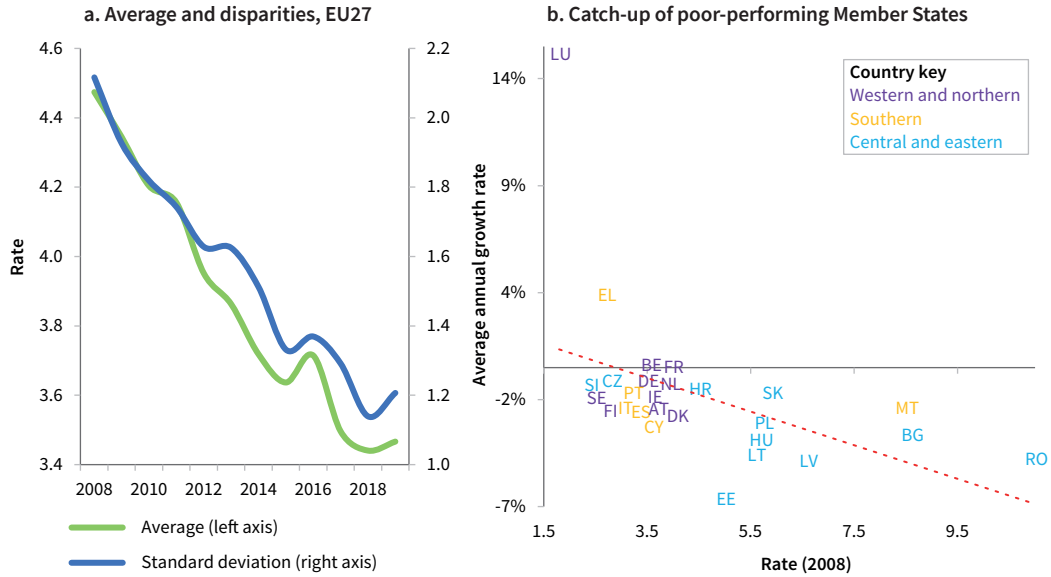
Infant mortality

Another important marker of the overall health of a society is the infant mortality rate, which measures the number of deaths of children under one year of age per 1,000 live births.

The average infant mortality rate within the EU decreased significantly, from 4.5% in 2008 to 3.5% in 2019, while disparities across Member States also declined (Figure 3.a).

Almost all EU countries made notable progress in reducing the number of deaths per live births, with the exceptions of Luxembourg and Greece – where the rate rose by 3 percentage points and 1 percentage point, respectively. Reductions in infant mortality rates were particularly substantial in central and eastern Europe (Figure 3.b). While many had rates above the EU average in 2008, these Member States achieved the largest reductions, which meant they converged towards the top performers.

Figure 3: Convergence in infant mortality rate, 2008–2019



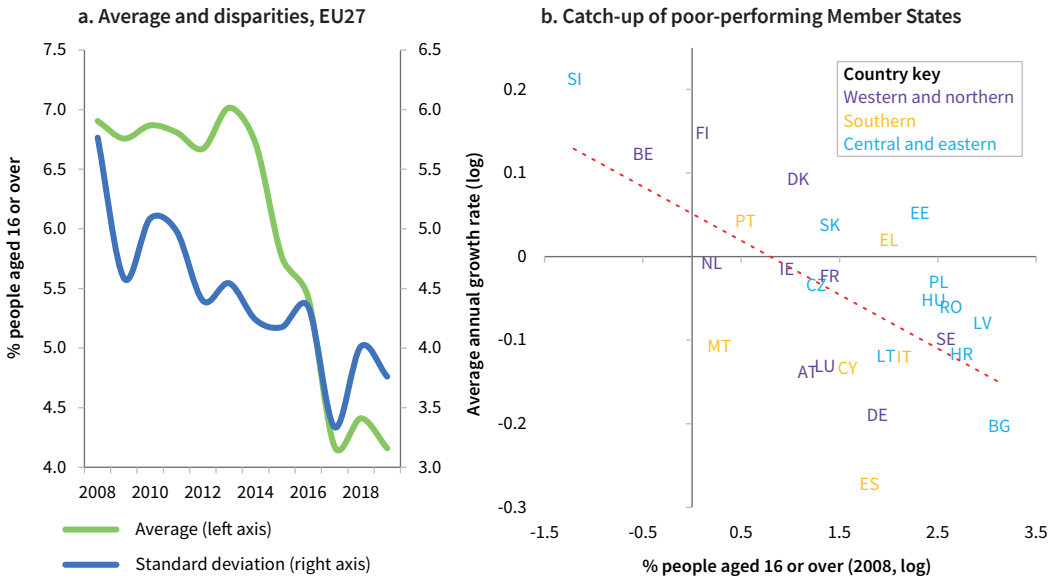
Source: *Eurostat; authors' calculations*

Unmet needs for medical care

The health of a population is affected by how accessible, available and acceptable healthcare services are. From this perspective, it is instructive to look at the share of the population who report that they were unable to receive medical treatment when they needed it. This indicator captures unmet needs for medical examination and care, for any reason – ranging from high costs and travel distance to not knowing a good specialist or having a fear of hospitals – in the 12 months prior to the survey.

Reaching a peak in 2013, unmet medical needs declined overall in the EU, by almost 40%, from 6.9% in 2008 to 4.2% in 2019. This was coupled with narrowing disparities across the Member States (Figure 4.a). However, the percentage of EU citizens reporting these needs rose substantially in eight countries over the period, three of which had the lowest prevalence of unmet medical needs in 2008: Slovenia, Belgium and Finland (Figure 4.b). On the other hand, the countries that lagged behind in 2008 made impressive gains, particularly Bulgaria, where the share dropped from 22.4% to 2.4% in 2019. These developments enabled countries that were behind to catch up with those in the forefront, leading to convergence in the EU.

Figure 4: Convergence in unmet needs for medical examination and care, 2008–2019



Note: *In cases of missing data (HR: 2008 and 2009), values are assumed to be constant with the following year.*
Source: *Eurostat; authors' calculations*

National wealth linked to better health and convergence

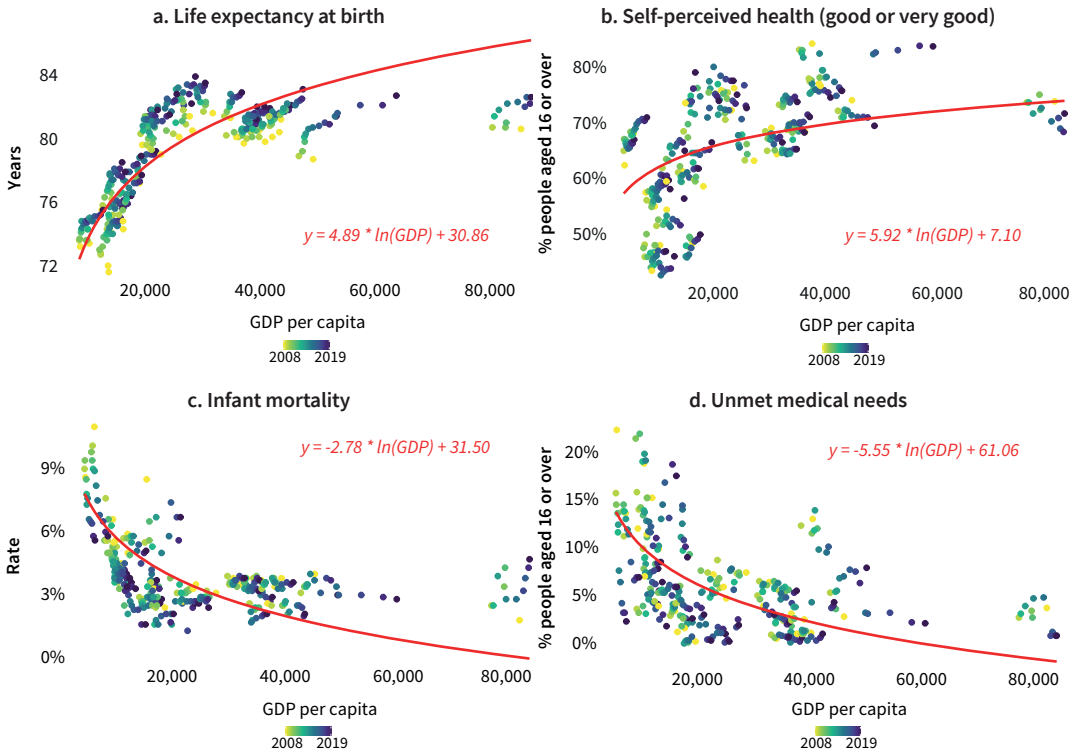
The 2008–2019 period was marked by mixed economic developments that affected Member States unevenly: a double-dip recession from 2008 until 2013 for most countries, followed by economic recovery. Is a country's economic performance connected to the health of its citizens?

Multiple studies show a strong link between GDP and life expectancy. For example, the Preston curve indicates that individuals born in richer countries can expect to live longer than those born in poorer countries. In the same vein, there is a significant relationship between GDP per capita and the health indicators analysed above. Figure 5 plots these annual indicators for each Member State over the period 2008–2019 (on the vertical axis) against the GDP of the countries in the respective year (on the horizontal axis).

The increasing trends of the dots in Figure 5.a and 5.b, and decreasing trends in Figure 5.c and 5.d, show how much better the health outcomes are for countries with a higher GDP. More specifically, the regression lines reveal that, if a country is twice as rich as another, individuals have a higher life expectancy at birth (by almost 5 years), a larger share of people perceive their health to be good or very good (by around 6 percentage points), the infant mortality rate is lower (by 2.8 percentage points) and a smaller share of people report unmet medical needs (by 5.6 percentage points).

But GDP is connected not only to the health performance of a country; it also has an impact on how fast the poor-performing countries are catching up with the frontrunners. In order to illustrate this, we regress the annual growth rates of the health indicators against the values in the previous year and the GDP in the current year. In line with the results presented above,

Figure 5: Impact of GDP per capita (in euro) on health indicators, EU27, 2008–2019



Note: *The regression coefficients are statistically significant at the 0.1% level and are estimated on the natural logarithm of GDP per capita. The analysis was performed on a panel of the 27 Member States across 12 years.*
Source: *Eurostat; authors' calculations*

Table 1 confirms that Member States that lagged behind in the four health indicators in 2008 made substantially better progress than the top EU performers (and, conversely, that the frontrunners slowed down – first row), and that GDP played a meaningful role in this catch-up process (second row).

More precisely, there is a negative relationship between the value of the health indicators in the previous year and the size of the annual change in the following year; hence, a country with an indicator larger by 1% has a slower growth rate of around -0.3% for life expectancy at birth, self-perceived health and unmet

Table 1: Determinants of annual growth in health indicators, EU27, 2008–2019

	Life expectancy at birth	Self-perceived health (good or very good)	Infant mortality	Unmet medical needs
Health indicator (year t-1)	-0.26***	-0.33***	-0.74***	-0.26***
GDP per capita	0.01***	0.03	-0.61***	-0.83**

Note: *The regression coefficients are statistically significant at the 0.1% (***) and 1% (**) levels and are estimated on the natural logarithm of the variables. The analysis was performed on a panel of the 27 Member States across 12 years.*
Source: *Eurostat; authors' calculations*

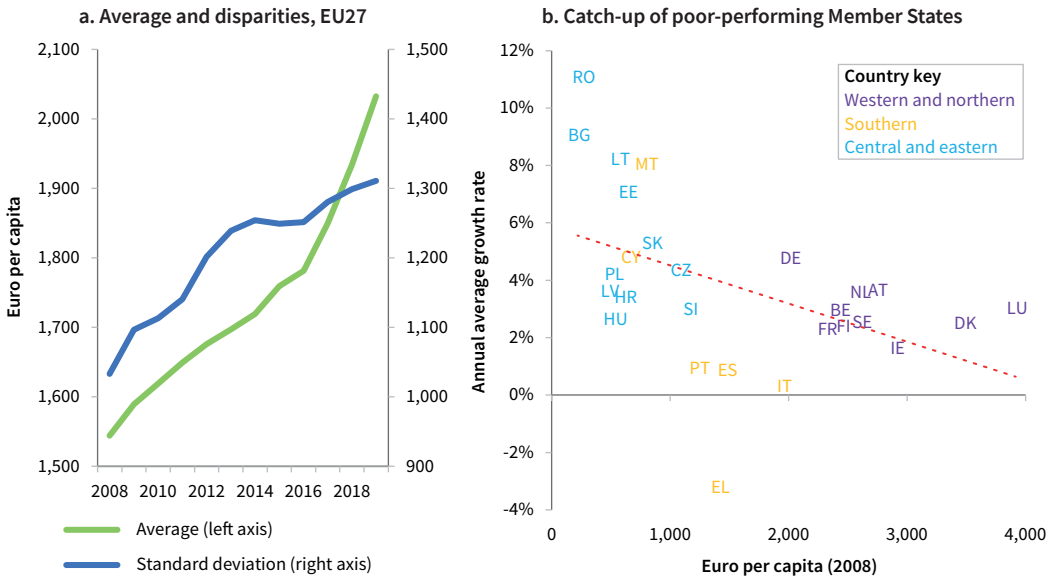
medical needs, and -0.7% for infant mortality. GDP impacts the speed of these annual growth rates in the following manner: an increase of 1% in GDP per capita results in a faster increase in life expectancy at birth (by 0.01%) and a slower rise in infant mortality (by -0.6%) and unmet medical needs (by -0.8%). However, the wealth of a country does not impact how rapidly the share of people with good self-perceived health rises (indicated by the absence of a statistically significant relationship).

Low spenders on healthcare caught up with the rest of the EU

High spending on healthcare is a prerequisite for a well-functioning healthcare sector (provided there are no flaws in the healthcare markets that lead to unnecessary care or inflated prices). Expenditures on healthcare per capita rose by almost a third in the EU between 2008 and 2019, but Member States increasingly diverged on how much they allocated to health (Figure 6.a). It was particularly during the Great Recession (2008–2013) that disparities between countries widened, and growth in health expenditures decelerated compared to the previous and following years.

The reason for these developments stems from the strong link between GDP and government expenditures on healthcare. Data for the 27 Member States across the 12 years show that there is a high correlation between the two indicators. This means that rich Member States from western and northern Europe were typically those that spent the most on healthcare and, conversely, that the countries hardest hit by the Great Recession (particularly the southern European Member States) cut their healthcare spending (Figure 6.b). Member States from central and eastern Europe, although having relatively modest expenditure at the beginning of the period, expanded their healthcare spending substantially: Romania, Bulgaria, Lithuania and Estonia had annual growth rates of at least 7%. This means that they reduced the gap with the EU frontrunners (Luxembourg, Denmark and Ireland), which maintained a relatively stable growth rate of less than 3% per year.

Figure 6: Convergence in government expenditures on health, 2008–2019



Source: *Eurostat; authors' calculations*

Large variations occurred not only in the level of health expenditures across Member States but also in the annual growth rates in spending. The percentage change in health spending from one year to another is dependent on a wide range of factors that impact convergence in the EU. Table 2 shows how a small increase in a number of demographic, social and economic indicators (keeping the rest constant) directly influenced the growth in health expenditures (the regression coefficients reflect the positive or negative relationships and the extent of the impacts).

Two model specifications are presented. In Model 1, Row 1 confirms that countries with lower expenditures in the previous year caught up with the top EU spenders through a higher growth rate (the relationship is negative). Row 2 indicates that a 1% increase in GDP per capita sped up the rise in health spending by about 0.4%. Having a population living longer in good health slowed down the growth rate of government expenditures by -0.27% (Row 3), while a rise in unemployment led to a reduction of 0.06% (Row 4).

Model 2 includes two additional factors: population ageing (the share of elderly people in the total population) and technological progress (proxied through the share of employment in knowledge-intensive activities). These factors did not have a statistically significant relationship with the pace of growth in health spending, indicating that they do not affect it.

Member States diverged in health delivery

The supply of medical staff and the bed capacity of hospitals are important factors in assessing the accessibility of health services and the efficiency of their delivery. These indicators need, however, to be interpreted with caution, since countries apply different measurement techniques, which potentially leads to underestimations or overestimations. Furthermore, the average densities in a country do not provide a full picture of the resources available in remote and sparsely populated areas.

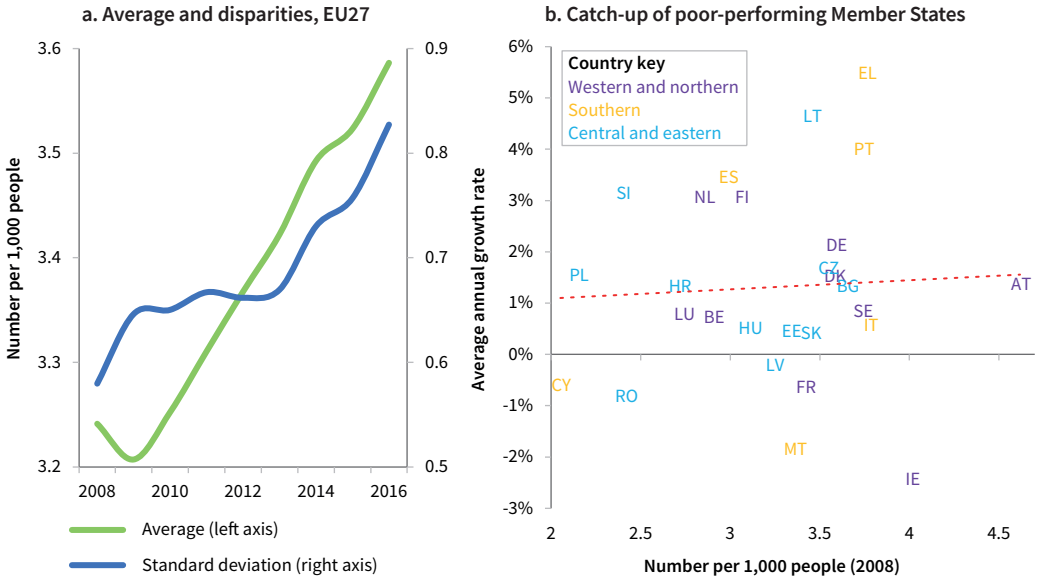
Proper access to healthcare depends on the availability of doctors and nurses across the entire territory of a country. The WHO estimates that at least 2.5 medical staff (physicians, nurses and midwives) per 1,000 people are needed to provide adequate coverage for primary care interventions (WHO, 2006) – a threshold that all EU countries exceed on average. The number of practising physicians does not seem to correlate with the GDP of a country, but there is a positive relationship between the number of nurses and GDP per capita.

Table 2: Determinants of annual growth in health expenditures per capita, EU27, 2008–2019

	Indicators	Model 1	Model 2
1.	Health expenditures per capita (year t-1)	-0.28***	-0.29***
2.	GDP per capita	0.41***	0.36***
3.	Healthy life years	-0.27**	-0.28**
4.	Unemployment rate	-0.06***	-0.07***
5.	Elderly population (% of total population)		0.06
6.	Knowledge-intensive activities (% of total employment)		0.04

Note: *The regression coefficients are statistically significant at the 0.1% (***) and 1% (**) levels and are estimated on the natural logarithms of the variables. The analysis was performed on a panel of the 27 Member States across 12 years.*
Source: *Eurostat; authors' calculations*

Figure 7: Convergence in the supply of physicians, 2008–2016



Note: *In cases of missing data (BG: 2016, MT: 2016, RO: 2014 and 2015), values are assumed to be constant with the previous or following years.*
Source: *WHO and OECD country data; authors' calculations*

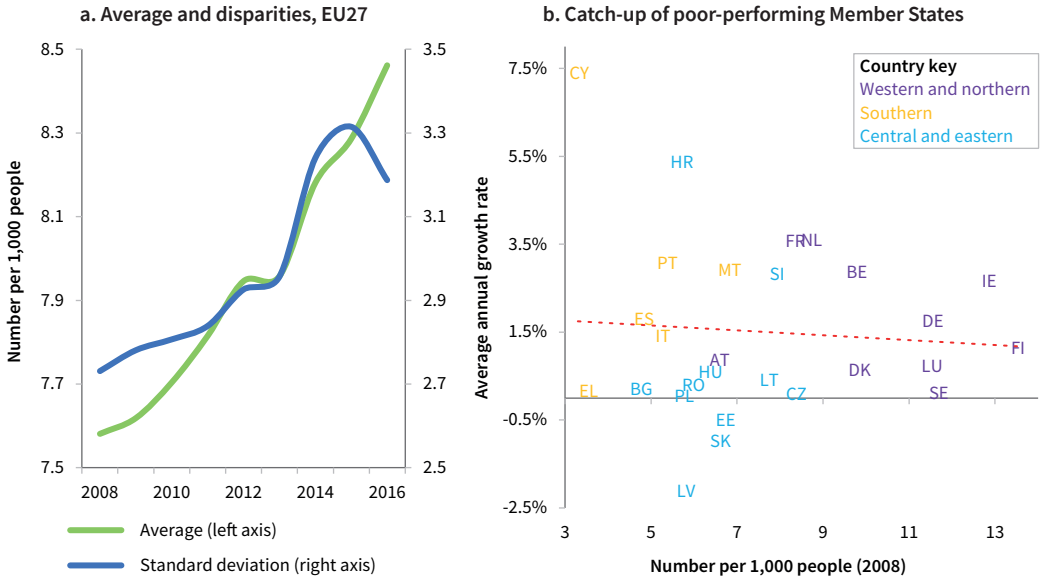
Supply of physicians

Between 2008 and 2016 (the year of the latest available data), the number of physicians (generalist and specialist practitioners) grew steadily in the EU, but the increase was modest – from 3.2 to almost 3.6 physicians per 1,000 people (Figure 7.a). At Member State level, countries that led in terms of healthcare headcount, such as Greece, Portugal and Lithuania, recorded the highest growth in staff numbers (more than 4% per year), while Cyprus and Romania, which have the smallest healthcare workforces, saw their situations deteriorate further (Figure 7.b). These developments deepened existing disparities between countries (particularly after the Great Recession) and hindered the ability of poor-performing countries to catch up with the rest of the EU. The country dynamics are partly explained by the migration of healthcare professionals from central and eastern European countries to the other Member States, leading to labour shortages in healthcare in the former (Eurofound, 2013).

Supply of nurses and midwives

Nurses and healthcare assistants are essential for the day-to-day care of patients in hospitals and long-term care institutions. They greatly outnumber physicians in the EU (in 2016, there were 8.5 nurses and midwives per 1,000 people versus 3.6 doctors), and their number grew by 12% between 2008 and 2016 (Figure 8.a). Nevertheless, there are long-term shortages of nurses that are exacerbated by our ageing societies (Eurofound, 2014). The rising demand for nurses has been addressed by some Member States through recruitment abroad (OECD, 2019). However, for the sending countries (particularly central and eastern European countries, where wages are lower), this outflux aggravated existing scarcities (Eurofound, 2020). These developments are shown in Figure 8.b, which depicts western and northern countries (that had the highest number of nurses and midwives in 2008) recording larger staff rises compared to already struggling central and eastern Member States. As a consequence, disparities between Member States continued to widen.

Figure 8: Convergence in the supply of nurses and midwives, 2008–2016



Note: *In cases of missing data (BG: 2016, FI: 2015, LU: 2008, MT: 2016, NL: 2009–2013, RO: 2014 and 2015), values are assumed to be constant with the previous or following years, or are imputed as averages of the closest years.*
Source: *WHO and OECD country data; authors' calculations*

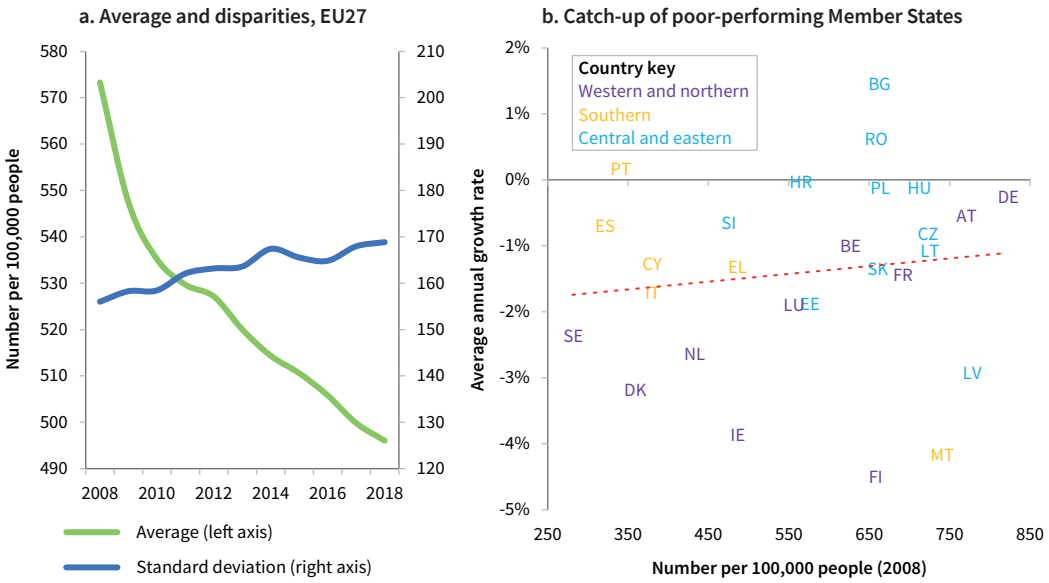
Hospital bed capacity

Given the shortages in medical staff and increasing costs of in-patient care, the capacity of hospital beds plays a crucial role in strategic hospital planning. Determining the optimal number of beds is complex, however, since too few beds can lead to surgery cancellations, delays in emergency admissions and early discharges, while too many can inflate costs and lead to stagnant capital (Ravaghi et al, 2020). In addition, patient needs, demographic and technological changes, models of care, national policies and other contextual factors need to be considered when assessing the proper number of hospital beds.

The EU experienced a continuous decline in hospital bed capacity from 2008 to 2018. The number of available beds dropped by 13%, from 573 to 496 per 100,000 people, while disparities across countries widened steadily (Figure 9.a). The decreasing trend, which has been signalled by the European Observatory on Health Systems and Policies since 2004, was driven by cutbacks in 24 Member States (Figure 9.b). The reductions were particularly large in countries with already low numbers of beds, as in southern and northern Europe. By contrast, countries with the highest numbers of beds recorded negligible cuts or even increases, triggering diverging trends in the EU.

Importantly, examining hospital bed capacity needs to take account of the availability of human and physical resources and access to primary care. For example, Romania was among the few countries that increased the number of hospital beds but was also among the few that experienced a shortfall in medical practitioners (due to emigration).

Figure 9: Convergence in hospital bed capacity, 2008–2018



Note: *In cases of missing data, values are imputed as averages of the closest year (DK: 2012) or are assumed to be constant with the previous year (DE: 2018).*
Source: *Eurostat; authors' calculations*

Summary

Over 2008–2019, there was an overall improvement in the health status of the EU population and an increase in health expenditures across Member States, particularly in countries from central and eastern Europe, which caught up with the rest of the EU. On the other hand, southern European countries, which were adversely affected by the Great Recession, recorded the most modest rises in health spending; Greece even experienced a decline. The trends in health delivery were also less positive, marked by growing divergences between Member States that increased the gap between the east and the west of the EU.

Impact of COVID-19

The COVID-19 pandemic caused, and continues to inflict, immense human suffering, pushing EU health systems to their limits. Eurofound research shows that, between March and July 2020, more than 20% of people in the EU who needed a medical examination or treatment did not receive it, mainly because health services were overwhelmed by the pandemic (Eurofound, 2021a). In terms of policy measures, as part of building a European Health Union, the new EU health security framework will require Member States to step up their reporting of health systems indicators, such as the number of medically trained staff, the availability of hospital beds and intensive care capacity.

This section looks first at the effect of the pandemic on life expectancy and examines convergence patterns in infections and deaths from COVID-19. It then shifts the analysis to the mitigating measures adopted by the EU and national governments to contain the virus's spread, both NPIs and vaccination rollouts. Finally, it compares how the vaccination programmes advanced and converged across countries in the EU, the United States and the OECD.

Very uneven health fallouts across Member States

Life expectancy at birth

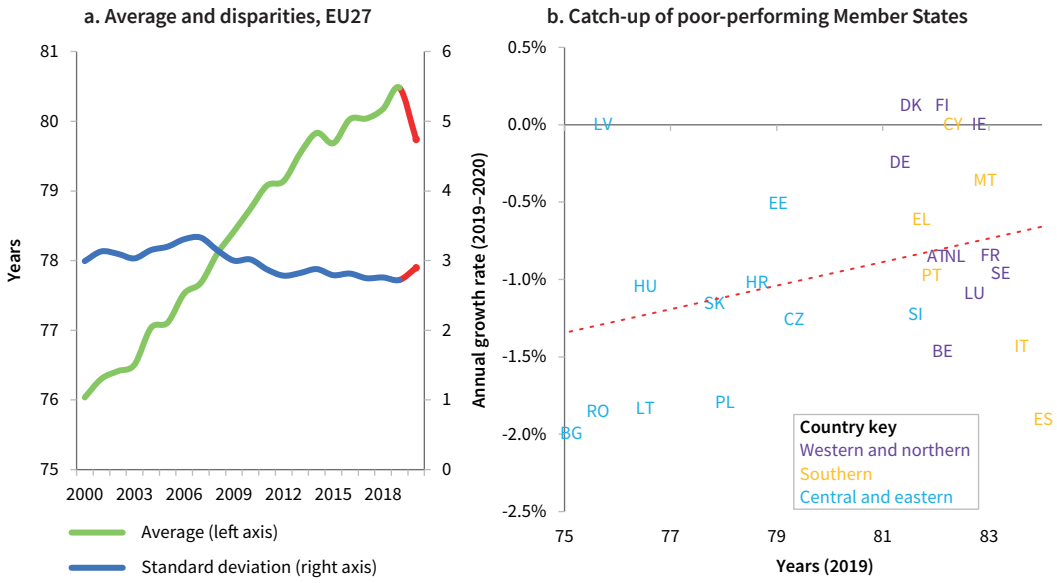
Life expectancy at birth fell significantly in 2020, the largest fall in EU history, by -0.92%, based on available data. This has been exceeded, at country level, only by Portugal in 1961, Germany in 1991, Lithuania in 1993 and Estonia in 1994 (all below -2%). Between 2019 and 2020, life expectancy dropped from 80.48 years (the highest ever reached) to 79.74 (Figure 10.a). Furthermore, disparities among EU countries had not increased so dramatically since 1994 (by 6.5%).

This downward divergent trend was caused by the extremely disproportionate impact of the pandemic across Member States (Figure 10.b): life expectancy grew moderately in Finland and Denmark, remained unchanged in Cyprus and Latvia, and shrank in the remaining 22 countries (no data were available for Ireland). The largest drops were recorded not only in the most severely hit Member States, with traditionally high life spans (Spain, Italy and Belgium), but first and foremost in central and eastern European countries that were already well below the EU average in 2019: Bulgaria, Romania, Lithuania and Poland.

Infections and deaths from COVID-19

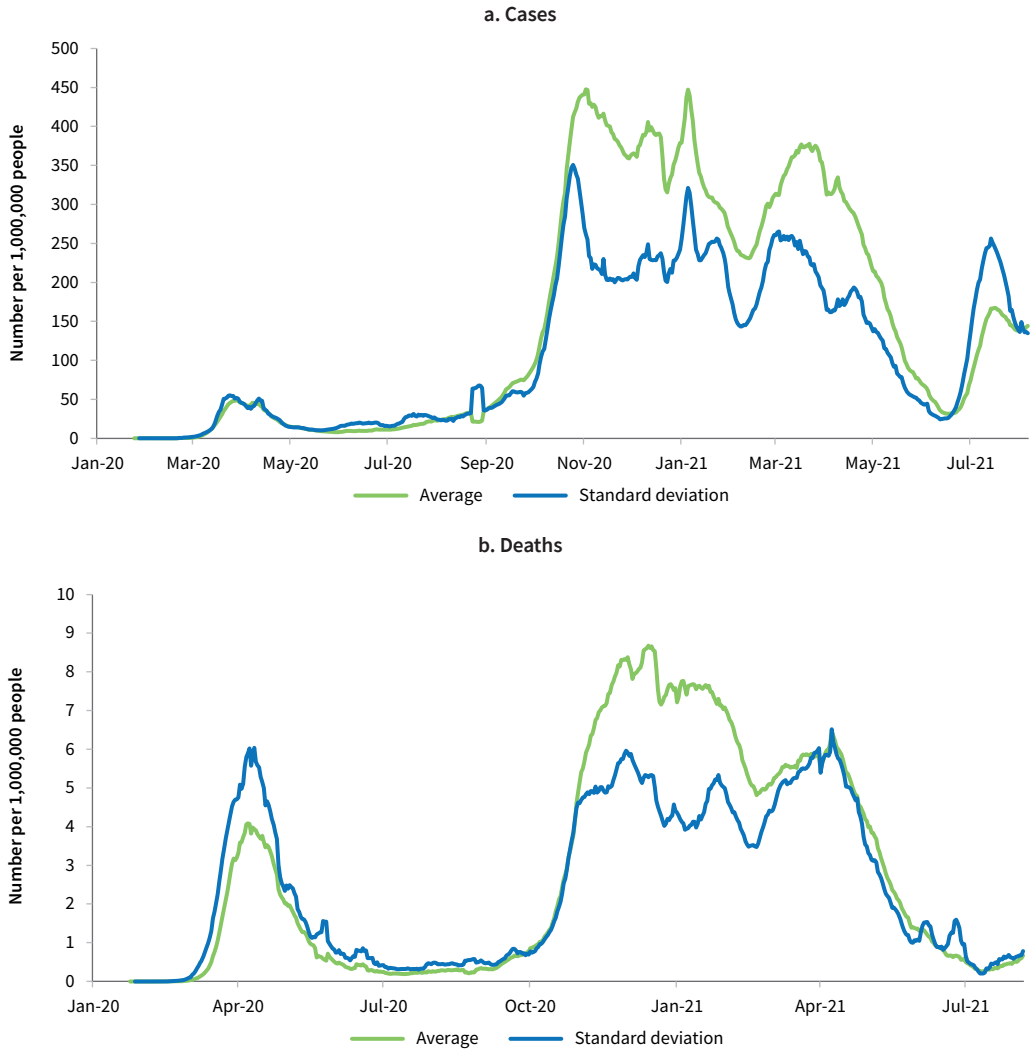
Life expectancy at birth is estimated based on current mortality rates, and the death and infection tolls of COVID-19 were extremely high in the EU. From the start of 2020 until 11 August 2021 (the date of the latest available data), there were 35 million cases of infection and 747,000 deaths, according to the daily data reported by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University in the United States. The death toll may be even higher, given the different measuring techniques applied by countries, the late processing of death certificates and

Figure 10: Convergence in life expectancy at birth, 2019–2020



Note: *In cases of missing data (HR: 2000, LV: 2000 and 2001, IE: 2020), values are assumed to be constant with the previous or following years.*
Source: *Eurostat; authors' calculations*

Figure 11: COVID-19 – new cases and deaths per million, EU27, January 2020–11 August 2021



Note: *Smoothed data presented as a seven-day rolling average.*
Source: *Johns Hopkins University CSSE COVID-19 data; authors' calculations*

the lack of treatment of other diseases during the pandemic. The highly uneven impact of the COVID-19 crisis on both infection and mortality rates across countries is visible from the large disparities recorded in the spring and autumn of 2020, in the winter of 2020–2021 and in the summer of 2021, when the pandemic reached its peaks (Figure 11).

The highest incidences of COVID-19 cases and deaths were registered at different points in time from country to country and with varying intensity (Figure 12). In spring 2020, Belgium, France, Italy and Spain suffered the most fatalities, more than 10 daily deaths per million people. In autumn 2020, there was a second sharp increase in most Member States, particularly in Bulgaria, Croatia, Czechia and Slovenia. Slovakia was severely hit in winter 2020–2021, and Hungary and Portugal in spring 2021. Finland had the lowest number of fatalities throughout the pandemic.

Figure 12: COVID-19 – New cases and deaths per million by Member State, January 2020 – 11 August 2021

Note: *Smoothed data presented as a seven-day rolling average. Negative values correct previous overestimations by countries.*
Source: *Johns Hopkins University CSSE COVID-19 data; authors' calculations*

Patterns in the number of new infections per million people also differ across countries, with large spikes in autumn for Belgium and Czechia; in winter 2020–2021 and spring 2021 for Estonia, Portugal and Ireland; and, more recently, in summer 2021 for Cyprus, the Netherlands, Spain and Malta.

Harmonised interventions, but divergent vaccination rollouts

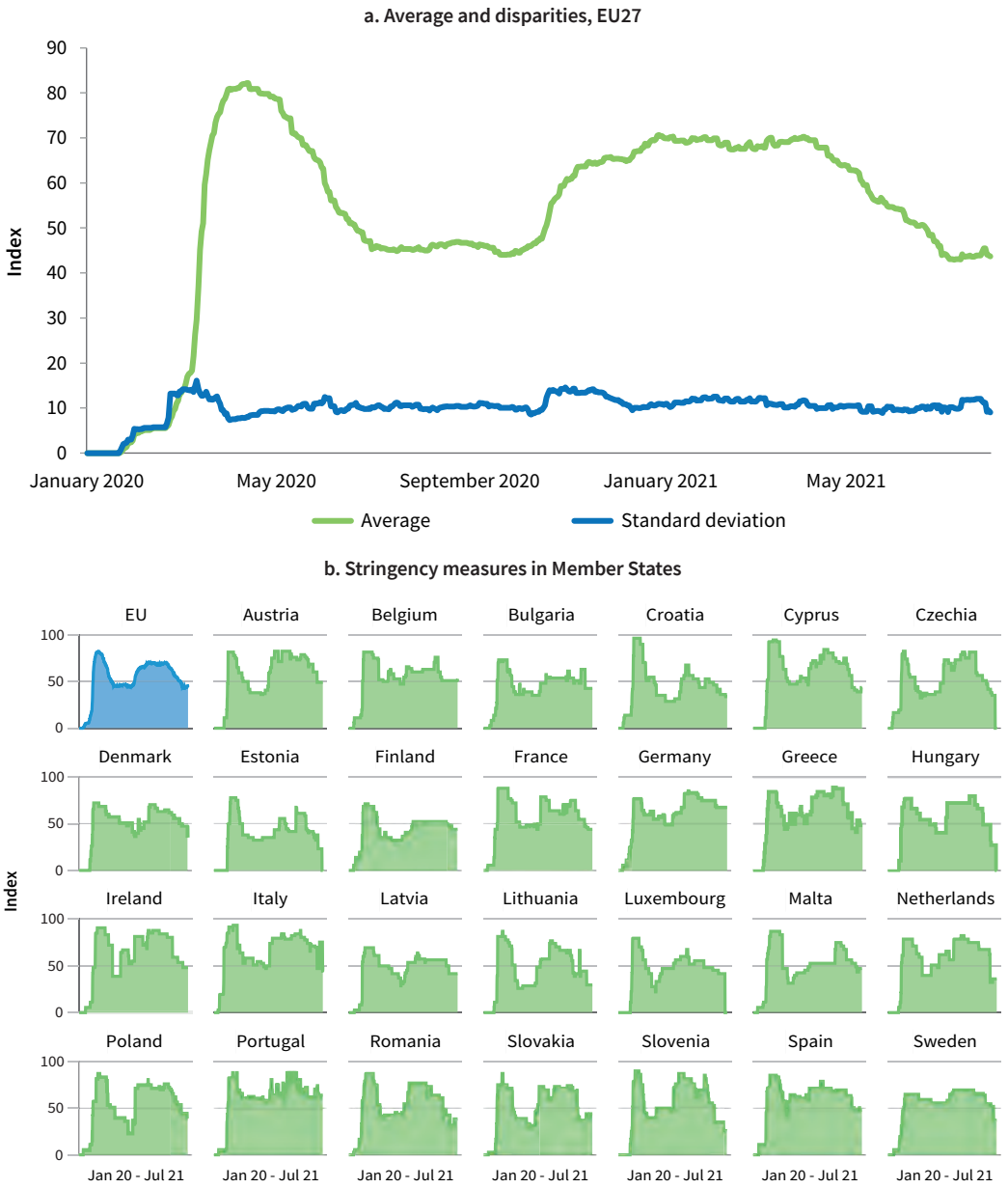
Government interventions

The COVID-19 mitigation strategies adopted by governments are based mainly on social distancing measures and healthcare system reinforcement. It is currently difficult to assess hospital reinforcement measures in the EU (in terms of staff, equipment or medical products), but it is possible to analyse the effect of the immediate NPIs employed by Member States on slowing down infection rates and relieving healthcare systems.

These mitigating measures varied in intensity, strictness, number and time frame across the Member States. The Stringency Index developed by the University of Oxford, illustrated in Figure 13.b, reflects these differences, from the first reaction by Italy in March 2020 to the more relaxed measures in most countries on 1 August 2021 (the date of the latest available data for the majority of the Member States).

However, when looking at EU level (Figure 13.a), it is clear that disparities between the Member States remained almost constant, despite the different infection waves and despite the diverse NPIs adopted by countries. This suggests the need for a possible coordinated exit strategy across Europe in order to achieve faster progress in controlling the pandemic. A study by Ruktanonchai et al (2020) illustrates this by using mobility data from smartphones to estimate movements across Europe before and after the implementation of NPIs. It shows that, if countries do not coordinate their measures when they relax lockdown, resurgence of the disease occurs sooner.

Figure 13: COVID-19 – convergence in Stringency Index, January 2020–1 August 2021



Note: *The Stringency Index does not reflect the effectiveness of a country's response to the crisis nor the mobility patterns of the population. For 1 August, the latest available data were used for LU: 19 July, CZ: 22 July, EE: 26 July, HU: 27 July.*
Source: *Oxford COVID-19 Government Response Tracker; authors' calculations*

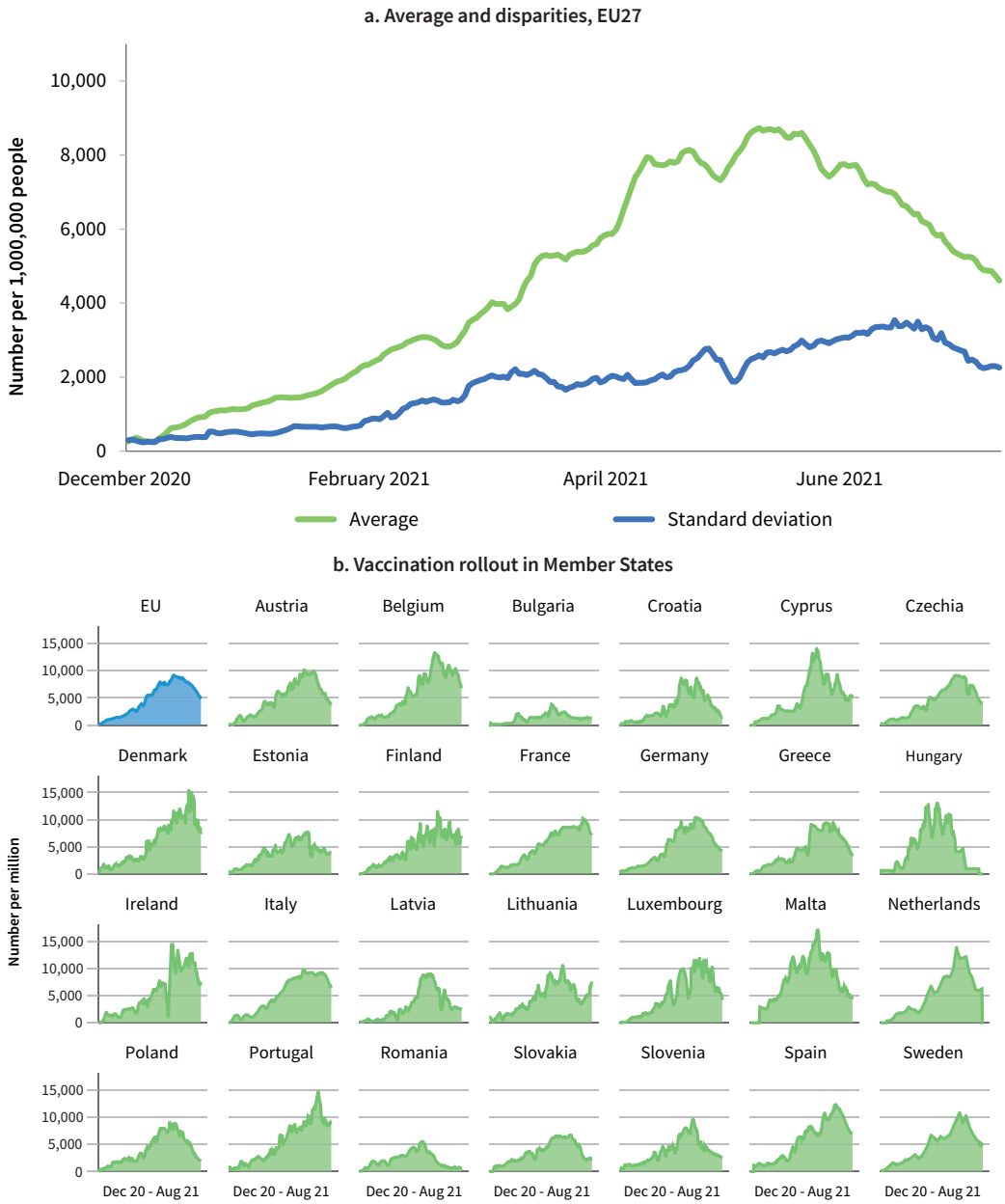
Vaccination programmes

Besides these containment measures, the most promising approach for curbing the pandemic, vigorously pursued by the EU (and all countries across the globe), is through vaccination programmes. As the vaccination rollout advanced in the EU, the gaps between countries widened until mid-July 2021, after

which the divergent trend started to decrease (Figure 14.a). A stepping up of the vaccination rate in most countries during the first weeks of April, May and June 2021 slightly reduced disparities across Member States.

By 10 August 2021, the average number of new vaccinations recorded daily at EU level was approximately 4,600 per million people, declining steadily from 9 June when it reached its peak at 8,700 per million people. Many

Figure 14: COVID-19 – new daily vaccinations, 28 December 2020–10 August 2021



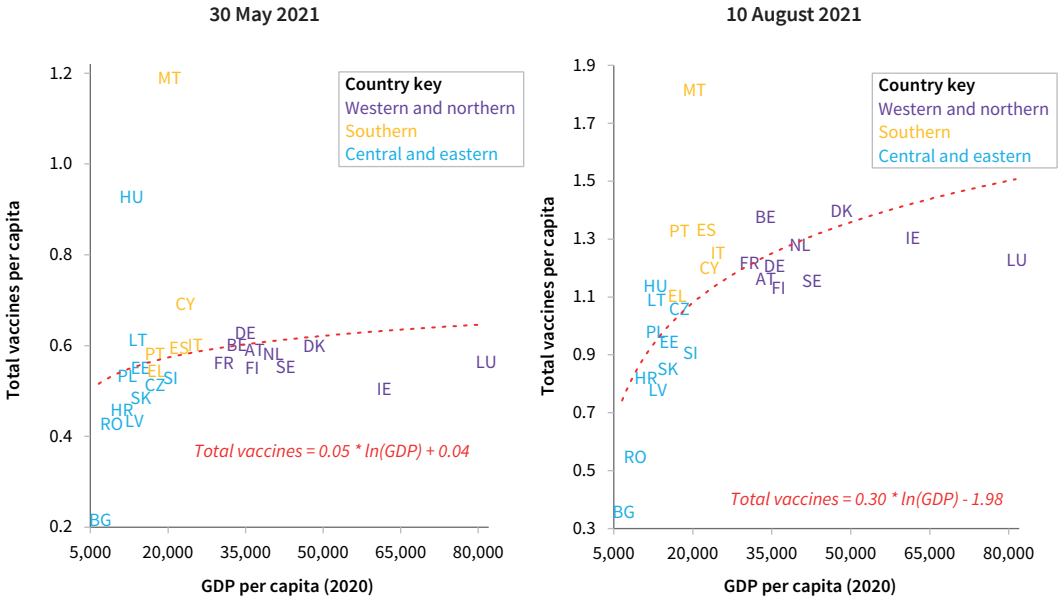
Note: *Smoothed data presented as a seven-day rolling average. For 10 August, the latest available data were used for HU: 1 August, and NL: 8 August.*
Source: *Mathieu et al (2021); authors' calculations*

factors, related to the geography of a country and its population and healthcare systems, impact vaccine delivery. Malta – a country with a small population and that is geographically compact – had administered the most doses (Figure 14.b). At the opposite end, in Romania and Bulgaria, vaccine hesitancy held down the number of doses to fewer than 700 and 1,400 per million people, respectively, on 10 August.

Even before the pandemic, vaccination rates against other infections varied significantly across Member States, depending on the budget of a country, its infrastructure, public choice, socioeconomic status, trust in the healthcare profession and other factors (European Observatory on Health Systems and Policies, 2018). Generally, rich countries are expected to be more adequately prepared during a significant infectious disease outbreak. In 2019, the Global Health Security Index assessed healthcare systems worldwide for preparedness in case of a pandemic. In the EU ranking, 7 of the 10 best-prepared countries were from western and northern Europe, while the central and eastern European Member States lagged behind.

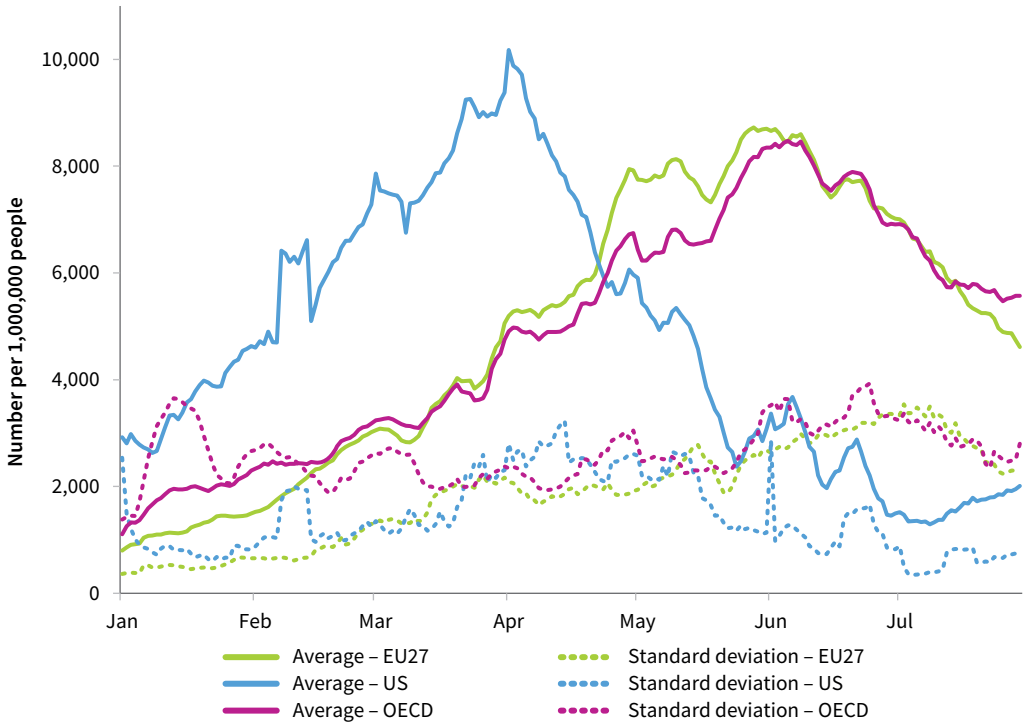
During the COVID-19 pandemic, GDP did not prove to be a significant factor impacting the vaccination rollout in the first months of 2021. Figure 15.a shows that, by 30 May 2021, richer countries had administered almost the same number of doses as Member States with lower GDP per capita. However, by 10 August 2021, differences between countries in the east and the west of Europe widened, hindering the catching-up process (Figure 15.b). These developments are most probably due to the higher incidence of vaccine hesitancy in central and eastern Europe, as illustrated by the Eurofound survey carried out in April 2021 (Eurofound, 2021b) and by the Flash Eurobarometer survey conducted at the end of May 2021 (European Commission, 2021).

Figure 15: COVID-19 – total vaccines administered by GDP per capita (in euro), EU27, 30 May and 10 August 2021



Note: *For 30 May, the latest available data were used for EL, FI and LU: 29 May; for 10 August, the latest available data were used for HU: 1 August, and NL: 8 August. The regression coefficient of GDP per capita for 10 August is statistically significant at the 0.1% level.*
Source: *Mathieu et al (2021) and Eurostat; authors' calculations*

Figure 16: COVID-19 – new daily vaccinations in the EU27, United States and OECD, 13 January 2021–10 August 2021



Note: *Smoothed data presented as a seven-day rolling average. For 10 August, the latest available data were used for Hungary: 1 August, Iceland: 6 August, Chile and Netherlands: 8 August, Colombia: 9 August.*
Source: *Mathieu et al (2021); authors' calculations*

Proof that the EU managed to provide its Member States with vaccines relatively evenly (despite the early problems with supply) is also visible when comparing the vaccination rollout with that of the United States and of OECD countries. Such a comparison needs, however, to account for several political and economic factors. For example, the United States has a federal government with a centralised budget, enabling it to move faster in a coordinated way. In the EU, many health-related decisions are taken at Member State level, which slowed down negotiations and agreement on the shared procurement of vaccines. In addition, the EU exported a larger proportion of its European-produced coronavirus vaccines (becoming the world's leading provider of doses), while the United States privileged vaccine delivery to its internal market.

The comparison with the OECD, although challenging given the large array of country specificities, is relevant in ensuring a global comparison with other developed nations (albeit five EU countries are not members of the OECD).

As Figure 16 illustrates, in the first quarter of 2021, the EU fell behind the United States on the distribution of COVID-19 vaccines, with almost a third of the daily doses administered by the United States per million people. The OECD also performed better, thanks mainly to Israel (the world leader in vaccination rollout), but also to Chile, the United Kingdom and the United States. At the beginning of May, the situation reversed – the EU became the leader in the vaccination efforts. This was caused by a significant drop in the average vaccination rate in the United States starting from mid-April.

Soon after, a continuous fall also occurred in the EU and the OECD, while the vaccination pace started to pick up in the United States from the second half of July. As far as disparities between countries are concerned, at the beginning of the pandemic, they were much larger within the OECD, given that members spread across five continents.

By 10 August, discrepancies in the EU and the OECD were at comparable levels. In the United States, the general downturn in vaccination rates narrowed disparities across its component states.

Policy pointers

- The COVID-19 pandemic has highlighted that the EU lacked adequate tools to deal with the most severe public health crisis that it has ever experienced. As a consequence, the EU has laid the foundation for a European Health Union to boost its preparedness for future health crises. In order to make a fundamental and lasting difference, the EU should build the Health Union on meaningful elements that provide a democratic and scientific means to reach consensus. A deeper coordination at EU level (while keeping the subsidiarity principle in mind) could improve the quality and resilience of healthcare services in Europe, thereby driving convergence in health and healthcare indicators. The ongoing Conference on the Future of Europe is a timely and welcome opportunity for EU citizens to have their say on Europe's health priorities, until the conference reaches its conclusions in spring 2022.
- In 2020, the European Commission made country-specific recommendations to the Member States on enhancing the resilience of their health systems. As part of its agenda to revamp the European Semester, the Commission could incorporate elements of the European Health Union into this yearly cycle of policy coordination, for example by including the national health indicators to be reported on a regular basis by the Member States. Data on the needs and resources available at local and regional levels could be used to take more centralised decisions in response to cross-border health emergencies. They would also help in assessing the healthcare capacities of Member States in different areas, such as labour shortages aggravated by the asymmetric flow of highly qualified staff across EU countries.
- The crisis exposed, more than ever before, the structural inequalities in healthcare capacities, with major variations across Member States. According to the European Pillar of Social Rights, every person has the right to timely access to affordable, preventive and curative healthcare of good quality. During critical moments of the pandemic, scarce intensive care resources presented healthcare professionals with the moral dilemma of prioritising patients for care, while certain regions and

socioeconomic groups were chronically underserviced. The United Nations Sustainable Development Goal 3 aspires to achieve universal health coverage and to provide access to safe and effective medicines and vaccines for all. Meeting this target means increasing healthcare capacities and addressing the fragmented population coverage (for example, through digitalised services), so that no one is left behind, during a crisis and in its aftermath.

Resources

All Eurofound publications are available online at www.eurofound.europa.eu

Eurofound topic 'Promoting social cohesion and convergence': http://eurofound.link/socialcohesionconvergence

Eurofound topic 'COVID-19': http://eurofound.link/covid19

Eurofound topic 'Care': https://www.eurofound.europa.eu/topic/care

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The impact of COVID-19 has moved public health up the EU social policy agenda. As the EU directs its efforts towards establishing a European Health Union to guard against future health crises, this policy brief examines the extent to which the EU achieved upward convergence in terms of health and healthcare outcomes, as well as health expenditures and delivery, prior to the pandemic. It also examines convergence patterns in infections and deaths from COVID-19 and in the mitigating measures adopted by the EU and national governments.

The findings indicate that, from 2008 to 2019, the health of EU citizens improved overall, and Member States converged in health outcomes, but disparities in government expenditures and delivery of health services continued to widen. Against this background, the COVID-19 pandemic caused further divergence, with death and infection tolls varying greatly across countries. The policy brief stresses that a European Health Union would ideally not only reinforce the crisis preparedness of the EU but also ultimately enable convergence in health and healthcare indicators across its Member States.

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