

OECD Health Policy Studies

Addressing the Costs and Care for Long COVID

The Long Shadow of the Pandemic



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Please cite this publication as:

OECD (2026), *Addressing the Costs and Care for Long COVID: The Long Shadow of the Pandemic*, OECD Health Policy Studies, OECD Publishing, Paris, <https://doi.org/10.1787/87a0c171-en>.

ISBN 978-92-64-77466-7 (print)
ISBN 978-92-64-96728-1 (PDF)
ISBN 978-92-64-44626-7 (HTML)

OECD Health Policy Studies
ISSN 2074-3181 (print)
ISSN 2074-319X (online)

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Foreword

As an unforeseen consequence of the COVID-19 pandemic, long COVID remains a challenge for patients, healthcare professionals and health systems alike. The health impact of this syndrome of persisting symptoms is debilitating for patients and reduces their quality of life. The socio-economic impact of long COVID encompasses absence from education and the workplace, reduced productivity, unemployment, and premature exit from the workforce. There is a need to ensure health and social care systems provide an integrated and supportive response for patients living with long COVID, in order to minimise reductions in quality of life for patients and productivity of OECD economies.

This report estimates the projected disease burden of long COVID over the next decade, and the estimated economic impact on GDP for OECD and EU economies in terms of direct healthcare costs and the much larger indirect costs stemming from reduced productivity and employment. The policy survey reviews the initiatives and responses that are implemented or absent from EU and OECD countries, and the progress made in the recognition, diagnosis, management and support of patients living with long COVID. The report updates policymakers with the state of play on health policy for long COVID, five years after the COVID-19 pandemic began, and identifies remaining gaps for health systems to address. Failing to detect and respond to long COVID leads to personal suffering, job loss and a high economic burden.

This publication is part of the “Supporting long COVID patients: insights and action initiative (2024-2026)” of the European Commission, aimed at building consensus among EU countries on the key needs and priorities of patients, health systems, and societies in relation to long COVID. The OECD has published a previous report on *the Prevalence and Impact of Long COVID in the primary care population*, using data from the PaRIS initiative (<https://doi.org/10.1787/119b0e8f-en>).

Acknowledgements

This report was authored by the long COVID team at the Health Division of the OECD Directorate for Employment, Labour and Social Affairs. It was produced with the financial assistance of the European Union, as part of the “Supporting Long-COVID patients: insights and action” initiative.

Members of the Network of Expertise on Long COVID (NELC) of the European Commission from Austria, Belgium, Czechia, Finland, France, Germany, Luxembourg, the Netherlands, Poland, Slovenia and Sweden participated in the snapshot policy survey of countries in July 2025. This participation was facilitated by Stefan Schreck at DG SANTE of the European Commission. Australia, Canada, Korea, Norway and Switzerland participated in the survey via the OECD working party for Healthcare Quality and Outcomes (HCQO). Rym Ghouma contributed as an external consultant. The economic analysis benefitted from review and advice by Santiago Calvo Ramos of the European Commission. Tomaso Antonacci of long-COVID Belgium and Véronique Héon-Kiln of the German Federal Ministry of Health contributed to and reviewed the health policy section. The authors are grateful to Frederico Guanais, Francesca Colombo, Mark Pearson and Stefano Scarpetta for their technical input and review.

This report benefited from the advice and comments of delegates of the OECD Health Committee, with written input provided by Canada, Ireland, Japan, Luxembourg, the Netherlands and the United Kingdom, and by members of the Network of Expertise for Long COVID from the Netherlands and Sweden.

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Acronyms and abbreviations

CDC	Centers for Disease Control and Prevention
CFS	Chronic fatigue syndrome
GDP	Gross Domestic Product
ECDC	European Centre for Disease Prevention and Control
EU	European Union
ICD-10	International Classification of Diseases, tenth revision
ME	Myalgic encephalomyelitis
NASEM	National Academies of Sciences, Engineering and Medicine
NELC	Network of Expertise on Long COVID
NICE	National Institute for Health and Care Excellence
PAIS	Post-acute infection syndrome
PCC	Post COVID-19 condition
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2
WHO	World Health Organization

Executive summary

Long COVID – a post-acute infection syndrome characterised by persistent symptoms such as cognitive dysfunction (“brain fog”) and fatigue – continues to cast a long shadow more than five years after the pandemic struck, with its direct medical and indirect economic costs set to weigh heavily on EU and OECD economies through the next decade.

Long COVID imposes a heavy cost on health systems and economies

Long COVID affected around 75 million people, more than 5% of the OECD population on average, at the peak of the pandemic in 2021 with healthcare costs hitting USD 53 billion. Prevalence of long COVID and associated healthcare costs have fallen since the height of the pandemic but remain significant.

While prevalence of long COVID is projected to remain below 1% from 2025 to 2035 (affecting 0.6-1.0% of the OECD and EU population), the direct healthcare costs for tackling long COVID – even under conservative assumptions – will remain high: around USD 11 billion a year.

Additionally, the indirect economic costs of long COVID are set to far outweigh the associated healthcare costs from 2025 to 2035. Long COVID will continue to dent workforce participation and productivity at a time of modest economic growth and population ageing. These losses are rooted in illness-related absenteeism, presenteeism and people dropping out of the workforce. Studies suggest that long COVID leads to employment disruption in around one in five affected workers. That is equivalent to a 5-10% loss of labour input per affected individual during the first year of infection.

In total, **projected losses of 0.1-0.2% of GDP**, which assume low or moderate residual transmission of the virus leading to new cases of long COVID, could create a major drag on the economy amounting to **USD 135 billion per annum over the next decade**, comparable to the entire annual health budget of the Netherlands or Spain.

Spotlighting better care and reintegration into the workforce

This report shines a spotlight on ways to improve patients’ health and support their reintegration into the workforce to reduce economic losses.

Firstly, strengthening awareness, diagnosis, treatment, and organisation of the healthcare provided for patients with long COVID is vital:

- **Recognition, diagnosis, and care for long COVID** remains uneven across OECD and EU countries, which leads to suboptimal management of the condition. Training for healthcare professionals is a priority. Clinical guidelines that reflect patient expectations and lived experience make a real difference to their lives and prospects.
- **Longterm planning and vision** are lacking for long COVID. Few countries have adopted a long COVID strategy or plan. National initiatives are most advanced in Germany and the Netherlands.

- There is a **need to develop care pathways** for patients with long COVID. Only six countries (**Austria, Belgium, France, Germany, Luxembourg, and the Netherlands**) have formal, nationally defined care pathways. Clearer referral pathways and better-integrated guidelines have significant potential to improve care and provide valuable lessons to the broader people-centred care agenda.
- Valuable lessons from long COVID can be drawn to **improve preparedness for the next pandemic**. It highlights the need for timely surveillance, longitudinal patient follow-up, and integration of long-term consequences into pandemic response planning. Continued investment in research, data systems and multidisciplinary care models will improve support for affected patients and enhance preparedness and resilience in tackling future health crises.

Secondly, long COVID is not just a medical problem. It is equally a social and economic challenge. For now, the policy response to long COVID remains largely confined to the health sector. **Cross-sectoral co-ordination involving employment, education and social protection** is limited. The scope for better cross-sectoral co-ordination is significant.

While medical costs are generally covered by universal health coverage systems, social protection measures for patients with long COVID – particularly those with persistent work limitations – rely on formal assessments of the individual's functioning capacity. Adequate awareness of disability due to long COVID is therefore important to ensure equitable access to disability support. Strategic investment and planning are needed to strengthen social protection to support reintegration into the workforce and mitigate associated workforce losses.

Thirdly, **a co-ordinated and coherent approach to tackling long COVID** is crucial to help patients recover. Continued international collaboration is also essential to develop and refine evidence-based clinical guidelines, standard definitions and national care pathways that can reduce the social and economic burden of long COVID.

Overall, better care, co-ordination, planning, and pathways developed specifically for and with people affected by long COVID can steer patients back to good health and economic opportunities and help shorten the long shadow cast by the pandemic.

1 Long COVID is a lasting, burdensome consequence of the pandemic

1.1. Estimating the true burden of long COVID remains challenging

More than five years after the onset of the COVID-19 pandemic, widespread infection with SARS-CoV-2 has left millions of people worldwide living with lasting symptoms of long COVID. Long COVID is a multisystemic and complex condition that can persist for months or even years after the initial infection. Its biological mechanisms remain poorly understood (Box 1.1). Long COVID was first identified and named by patients themselves, whose advocacy and lived experience played a crucial role in shaping awareness and driving early research into the condition.

Measuring the global burden of long COVID is challenging. Estimates vary because of differences in study designs, follow-up periods, control group selection (for example, individuals testing negative for SARS-CoV-2 versus those with no known infection), baseline health assessments and definitions of what constitutes long COVID. Estimates are also influenced by evolving variants and subvariants, vaccine uptake, antiviral use and recurrent infections, all of which shape the likelihood of developing long COVID.

Box 1.1. What is known about the causes, symptoms and occurrence of long COVID?

Long COVID is a post-acute infection syndrome defined by the persistence or emergence of new symptoms three months after the initial COVID-19 illness (WHO, 2022^[1]). The underlying causes and mechanisms are not yet fully understood, although biomedical studies suggest that it is an inflammatory and immune-mediated condition, possibly linked to viral persistence. Essentially, patients who have experienced acute COVID-19 develop long-lasting or relapsing symptoms that may fluctuate over time, leading in some cases to significant disability.

Long COVID can affect nearly every organ system, including the cardiovascular, nervous, endocrine, immune, reproductive and gastrointestinal systems. Common manifestations include cognitive dysfunction (often referred to as “brain fog”), fatigue, dysautonomia (frequently presenting as postural orthostatic tachycardia syndrome) and post-exertional malaise. Current evidence suggests that long COVID is not a single disease but a cluster of related subtypes with potentially distinct risk factors – genetic, environmental or otherwise – and diverse biological mechanisms.

Among people with confirmed COVID-19 infection, the risk of developing long COVID is estimated at 5-15% (OECD, 2025^[2]; Subramanian et al., 2022^[3]; Ballering et al., 2022^[4]), depending on age, sex, underlying health status, vaccination, and the severity and timing of the infection. Albeit this risk has declined in more recent years with milder circulating variants of SARS-CoV-2 post-pandemic (de Bruijn

et al., 2025^[5]). Long COVID varies in duration: while some patients show gradual improvement, others experience prolonged or non-resolving symptoms lasting months or years. Current studies indicate that between 3% and 8% of the general adult population continue to live with long COVID (OECD, 2025^[2]), making it a condition with substantial implications for health systems and national economies.

1.2. Long COVID affects people, health systems and economies

Beyond its profound effects on individual health and daily living, long COVID has far-reaching implications for health systems and national economies. Many people experience marked declines in well-being, reporting limitations in work, social participation, caregiving and community engagement. Over three-quarters of those affected report a moderate or severe impact on overall quality of life (O' Mahony et al., 2022^[6]). The condition's frequent cognitive and physical symptoms can alter one's sense of identity and self, while stigma and disbelief – including from some healthcare professionals – further compound distress and isolation (McNabb et al., 2023^[7]; Mahbub Hossain et al., 2023^[8]).

Given its widespread and persistent nature, long COVID has placed additional strain on health systems. Patients often require ongoing care and multi-specialty consultations, adding to existing service pressures. In the United States, for instance, people with long COVID are significantly more likely to report unmet care needs – due to costs, provider shortages or difficulties scheduling appointments (Karpman, Zuckerman and Morriss, 2023^[9]). The absence of standardised diagnostic criteria, clinical pathways and treatment models also creates challenges for healthcare providers. Moreover, SARS-CoV-2 infection has contributed to a rising burden of non-communicable diseases, including cardiovascular disease and diabetes, amplifying system-wide pressures (Menges et al., 2021^[10]).

The socio-economic implications are similarly substantial. In addition to higher healthcare expenditure and disability-related costs, long COVID contributes to reduced labour participation, employment disruption and productivity loss, affecting not only individuals but also caregivers and employers. Evidence suggests that a significant proportion of those affected are unable to work or must reduce their working hours, with measurable consequences for economic output (Reuschke and Houston, 2022^[11]; Gandjour, 2023^[12]).

1.3. This report examines the socio-economic impact and policy responses to long COVID across OECD and EU Member countries

While current estimates of the economic impact of long COVID remain limited and fragmented, available evidence suggests that the cumulative consequences are considerable and likely to persist over time. Further research is required to better quantify these effects and support effective policy responses.

This report presents the OECD Secretariat's analysis of the anticipated socio-economic consequences of long COVID across OECD and EU Member countries over the next decade (Chapters 2 and 3). It also provides an overview of how countries currently define, recognise and manage long COVID within their health systems (Chapters 4, 5 and 6). The analysis examines differences in diagnostic criteria, clinical management and financing approaches; identifies good practices in integrated and patient-centred care; and highlights systemic challenges and priority areas for further action (Chapter 7). Finally, Chapter 8 outlines key policy options countries may consider to address this public health challenge, and draws lessons relevant to broader health-system strengthening efforts.

The findings are based on a dedicated microsimulation model developed for the quantitative analysis (Box 2.3), combined with qualitative insights from the 2025 OECD Long COVID Policy Mapping Survey, launched in July 2025 and complemented by desk research. Responses were received from health policymakers and experts in 11 EU countries through the Network of Expertise on Long COVID (NELC) –

Austria, Belgium, Czechia, Finland, France, Germany, Luxembourg, the Netherlands, Poland, Slovenia and Sweden – and from 5 additional OECD countries via the Healthcare Quality and Outcomes Working Party (Australia, Canada, Korea, Norway and Switzerland).

References

- Ballering, A. et al. (2022), “Persistence of somatic symptoms after COVID-19 in the Netherlands: an observational cohort study”, *The Lancet*, Vol. 400/10350, pp. 452-461, [https://doi.org/10.1016/s0140-6736\(22\)01214-4](https://doi.org/10.1016/s0140-6736(22)01214-4). [4]
- de Bruijn, S. et al. (2025), “Post-COVID-19 condition in individuals infected with SARS-CoV-2 in autumn 2023 in the Netherlands: a prospective cohort study with pre- and post-infection data”, *The Lancet Regional Health - Europe*, Vol. 59, p. 101472, <https://doi.org/10.1016/j.lanepe.2025.101472>. [5]
- Gandjour, A. (2023), “Long COVID: Costs for the German economy and health care and pension system”, *BMC Health Services Research*, Vol. 23/1, p. 641, <https://doi.org/10.1186/S12913-023-09601-6>. [12]
- Karpman, M., S. Zuckerman and S. Morriss (2023), “Health Care Access and Affordability Among US Adults Aged 18 to 64 Years With Self-reported Post–COVID-19 Condition”, *JAMA Network Open*, Vol. 6/4, pp. e237455-e237455, <https://doi.org/10.1001/jamanetworkopen.2023.7455>. [9]
- Mahbub Hossain, M. et al. (2023), “Living with “long COVID”: A systematic review and meta-synthesis of qualitative evidence”, *PloS one*, Vol. 18/2, <https://doi.org/10.1371/JOURNAL.PONE.0281884>. [8]
- McNabb, K. et al. (2023), ““It was almost like it’s set up for people to fail” A qualitative analysis of experiences and unmet supportive needs of people with Long COVID”, *BMC public health*, Vol. 23/1, <https://doi.org/10.1186/S12889-023-17033-4>. [7]
- Menges, D. et al. (2021), “Burden of post-COVID-19 syndrome and implications for healthcare service planning: A population-based cohort study”, *PloS one*, Vol. 16/7, <https://doi.org/10.1371/JOURNAL.PONE.0254523>. [10]
- O’ Mahony, L. et al. (2022), “Impact of Long COVID on health and quality of life”, *HRB Open Research*, Vol. 5, <https://doi.org/10.12688/HRBOPENRES.13516.1/DOI>. [6]
- OECD (2025), “The prevalence and impact of Long COVID in the primary care population: Findings from the OECD PaRIS survey”, OECD Publishing, Paris, <https://doi.org/10.1787/119b0e8f-en>. [2]
- Reuschke, D. and D. Houston (2022), “The impact of Long COVID on the UK workforce”, *Applied Economics Letters*, Vol. 30/18, pp. 2510-2514, <https://doi.org/10.1080/13504851.2022.2098239>. [11]
- Subramanian, A. et al. (2022), “Symptoms and risk factors for long COVID in non-hospitalized adults”, *Nature Medicine*, Vol. 28/8, pp. 1706-1714, <https://doi.org/10.1038/s41591-022-01909-w>. [3]
- WHO (2022), *Post COVID-19 condition (Long COVID)*, World Health Organization, <https://www.who.int/europe/news-room/fact-sheets/item/post-covid-19-condition>. [1]

2 Long COVID impacts health systems and the economies

This chapter provides an overview of existing evidence on the economic burden of long COVID, focussing on both direct medical costs and indirect costs linked to productivity losses, including absenteeism, reduced working hours and labour-market withdrawal. It then introduces the OECD microsimulation model developed to produce retrospective and prospective estimates of these costs across OECD and EU Member countries, drawing on the inputs identified through the literature review.

2.1. The economic impact of long COVID is substantial, and mainly stems from the indirect costs from reduced productivity and participation in the workforce

Although its clinical features are now better understood, the economic and social consequences of long COVID are only beginning to be systematically measured. This section reviews and synthesises the available empirical research and modelling analyses quantifying the socio-economic burden of long COVID. These sources will serve to feed certain parameters of the OECD model presented in the next section.

2.1.1. Long COVID generates substantial direct medical costs

Evidence from multiple countries shows that long COVID has become a persistent source of health-system demand and spending, extending well beyond the acute phase of infection. Rather than a short-lived recovery period, it generates continuing use of general practice, diagnostics, outpatient and hospital services.

In the United Kingdom, a linked-records study of over 280 000 adults with long COVID found that higher use of general practice, outpatient, inpatient and emergency care persisted or even increased during two years of follow-up compared with several matched control groups (Mu et al., 2024^[1]). Primary care data similarly show that consultation costs for adults with long COVID were around 40% higher than for COVID-19 patients without persistent symptoms – equivalent to about GBP 23 million in additional National Health Service spending in 2020-2021 (Tufts et al., 2023^[2]). These results confirm that long COVID imposes a structural, not transient, load on frontline services.

Comparable patterns emerge elsewhere. In the United States, analysis of 277 000 insurance claims by adults showed medical spending in the year after infection averaging USD 30 400, compared with USD 21 000 in matched controls – an incremental USD 9 400 per patient-year (+45%), driven mainly by hospital and outpatient care (Scott et al., 2024^[3]). In France, community-managed adults meeting the World Health Organization (WHO) definition of long COVID had sustained excess use of primary care, specialist consultations and laboratory tests for up to two years (Yang et al., 2025^[4]). Israeli data show 70-90% higher monthly healthcare costs among long COVID patients at 4-12 months, with inpatient spending nearly doubled (Wolff Sagy et al., 2023^[5]). Synthesising results from multiple OECD and EU countries, Łukomska et al. (2025^[6]) estimate direct medical costs of around GBP 3 000-3 500 or EUR 4 000-5 000 per affected patient per year (2-3 times higher than for comparable individuals without long COVID) and national totals already in the hundreds of millions of euros annually.

Beyond the overall rise in expenditure, the evidence reveals where the extra costs occur. Across OECD countries, hospital and specialist outpatient care account for roughly half to two-thirds of the total incremental spending, reflecting recurrent admissions and follow-up for cardiometabolic, respiratory and mental health complications. Primary care contributes about 20-30% – particularly among community-managed cases – while diagnostic tests, imaging and prescriptions represent the remaining 10-20%.

Together, these patterns show that long COVID imposes both a financial burden on hospital budgets and a sustained operational strain on general practice and diagnostic services, underscoring the need for co-ordinated responses across levels of care.

Across this evidence base, long COVID emerges as a chronic budgetary and capacity challenge for health systems, irrespective of financing model. Medical costs per patient typically rise by 40-100% relative to controls, and persist for 12-24 months. Direct healthcare spending absorbs scarce resources and underscores the need for integrated long-term management, rehabilitation and prevention strategies to mitigate its financial and service impacts.

2.1.2. The indirect costs of long COVID are a major burden for OECD and EU Member countries

The findings above only focus on the direct medical costs generated by long COVID, but this condition also has a much broader socio-economic toll that shapes labour markets, household incomes and public finances. A growing body of micro-level evidence shows that long COVID imposes a measurable drag on labour-market participation, working hours and earnings. Despite variation in study design, case definition and follow-up, the findings converge on a consistent conclusion: individuals affected by long COVID are significantly more likely to exit employment – temporarily or permanently – reduce their working hours, or experience sustained declines in work ability that translate into productivity losses, with significant economic consequences.

Early international evidence underscored the severe and prolonged impact of long COVID on work ability. In a global cohort of over 3 700 participants, Davis et al. found that nearly half had reduced work schedules or were unable to work seven months after infection, with fatigue and cognitive dysfunction cited as primary barriers to return. These early findings foreshadowed the employment and productivity losses later documented in national longitudinal studies (Davis et al., 2021^[7]).

Rigorous evidence from longitudinal population data in the United Kingdom confirms a sustained impact of long COVID on employment outcomes. Using linked administrative records that allow within-person comparisons, Ayoubkhani et al. reported that the odds of economic inactivity were 45% higher 30-40 weeks after infection and 34% higher 40-52 weeks after infection among individuals with long COVID, relative to their pre-infection status – equivalent to roughly 27 000 inactive working-age adults in mid-2022 (Ayoubkhani et al., 2024^[8]). Complementary panel analysis by Reuschke et al. similarly found an elevated risk of employment exit and episodes of zero-hours work (a proxy for extended sick leave) among individuals with symptoms lasting 29 weeks or more (Reuschke and Houston, 2022^[9]). When aggregated, these labour market disruptions represent a significant economic burden; the United Kingdom estimated that the annual national productivity loss from long COVID amounted to GBP 5.7 billion (Kwon et al., 2024^[10]). Evidence from smaller occupational cohorts, including co-produced online surveys (Ziauddeen et al., 2023^[11]) and healthcare worker panels (Grant et al., 2024^[12]), corroborates these patterns, documenting increased inactivity, recurrent sick leave and reduced hours, as well as the associated psychosocial and financial strain of prolonged illness.

Outside the United Kingdom, results are consistent. In Belgium, a national cohort survey (Smith et al., 2022^[13]) found that 14% of previously employed adults had not returned to work six months after infection. Analyses of US national surveys (Bonner and Ghouralal, 2024^[14]; Ford et al., 2025^[15]; Ford et al., 2023^[16]) further show a 1.4 times higher likelihood of sickness absenteeism and significant activity limitations among roughly one-fifth of adults with long COVID, with a three-fold higher risk of disability among those with comorbidities. Cohen and Rodgers likewise identify elevated rates of work-related disability and accommodation requests – particularly among women and minority groups (Cohen and Rodgers, 2024^[17]).

Complementing these survey-based findings, a recent nationwide administrative study of over 150 million US workers by Dennett et al. tracked labour-market outcomes through 2024 (Dennett et al., 2025^[18]). It found a 12.9% rise in health-related absences and a 13.1% increase in labour-force exits compared with pre-pandemic levels, confirming at scale that post-COVID health sequelae continue to depress labour supply. The study also revealed marked occupational differences, with absences and exits concentrated in the healthcare, education and service sectors, underscoring the unequal labour-market impact of long COVID across industries (Dennett et al., 2025^[18]).

Collectively, these studies suggest that long COVID leads to employment disruption in around one in five affected workers – equivalent to a 5-10% loss of labour input per affected individual during the first year after infection. Building on this evidence of reduced employment and working hours, a growing set of cost-of-illness studies using micro-level or bottom-up data have begun to monetise the productivity losses associated with long COVID, providing sharper estimates of their fiscal and societal magnitude (Box 2.1).

Box 2.1. Cost-of-illness studies have monetised the productivity losses associated with long COVID

In the United Kingdom, the Institute for Fiscal Studies estimated an average reduction of 2.4-2.5 hours worked per week and of GBP 65 per month (6%) in earnings, implying an aggregate annual loss of about GBP 1.5 billion at prevailing prevalence rates (Waters and Wernham, 2022^[19]). In Canada, Naik et al. employed validated valuation-of-lost-productivity questionnaires to capture both absenteeism and presenteeism over a two-year period, estimating an additional 99 hours of lost productivity per quarter and an annualised cost of CAD 13 700 (EUR 9 200) per worker (Naik et al., 2025^[20]).

A study in Japan applied the WHO Health and Work Performance Questionnaire in a 12-month cohort, finding annual productivity losses of USD 21 700 among individuals with persistent symptoms – more than double those who recovered. This highlights the steep economic gradient associated with symptom duration (Konishi et al., 2025^[21]). In Europe, Fischer, Reade and Schmal analysed objective productivity data from professional footballers, and identified a sustained 5% output deficit eight months after infection (EUR 3 700 per year), providing independent confirmation of persistent performance impairment in affected workers (Fischer, Reade and Schmal, 2022^[22]).

Across these diverse contexts, findings converge on 5-10% annual earnings losses per affected worker – a magnitude consistent with earlier evidence, now expressed in monetary terms. By converting reductions in hours or performance into currency values, the monetised studies add fiscal clarity, and extend coverage to presenteeism and unpaid work – dimensions often omitted from previous analyses, and which may further enlarge the socio-economic footprint of long COVID (Box 2.2).

While the direction of effect is remarkably aligned across countries, the breadth of reported magnitudes reflects methodological diversity rather than actual differences in impact. Differences in data sources, case definitions, follow-up duration and valuation methods – from administrative longitudinal panels to self-reported cross-sectional surveys – shape the comparability of results. Recognising these design contrasts is essential for interpreting existing estimates and harmonising future cost-of-illness assessments across countries.

Box 2.2. Presenteeism and unpaid work are the hidden productivity losses of long COVID

While sickness absence and employment exits are visible in administrative data, a large share of long COVID's productivity burden occurs below the radar of formal labour statistics. Two mechanisms – presenteeism and unpaid work impairment – capture this “hidden” component.

Presenteeism refers to reduced productivity while working. Individuals who remain employed but continue to experience fatigue, cognitive dysfunction or post-exertional malaise often perform below their usual capacity.

- In Japan, Konishi et al. (2025^[21]) found that presenteeism accounted for more than two-thirds of the total productivity cost among workers with persistent symptoms.
- The Canadian Naik et al. (2025^[23]) study likewise reported substantial self-assessed productivity loss during working hours, even among those not absent from work.

Traditional sickness-absence metrics fail to capture these within-work deficits, leading to systematic underestimation of the economic burden when only days off work are counted.

Unpaid work refers to the invisible economy. Long COVID also constrains unpaid domestic, caregiving and community work – activities essential to household welfare and indirectly to the formal economy. Naik et al. (2025^[23]) included these hours within the valuation-of-lost-productivity framework, valuing unpaid work at local replacement wages. Doing so increased total productivity losses by roughly 15-20%, underscoring the importance of incorporating non-market work in societal-perspective analyses.

These mechanisms have an important implication for policy. Because presenteeism and unpaid work are largely excluded from administrative datasets, productivity losses estimated from labour-force or employer data likely represent a conservative estimate. Incorporating validated instruments (e.g. valuation-of-lost-productivity questionnaires and the WHO Health and Work Performance Questionnaire) into national health and labour surveys would enable more accurate tracking of the true economic footprint of long COVID.

2.1.3. The true costs of long COVID are best measured in macroeconomic terms

While micro-level evidence has documented the medical and productivity costs of long COVID, national-level modelling shows how these individual impacts aggregate into a broader macroeconomic drag on growth, labour supply and fiscal stability. Across high-income countries (where the macro-level data are available), the message is consistent: persistent post-infection symptoms are not only a health challenge but also a structural brake on economic output.

In the United States, Cutler first estimated a total societal cost of USD 3.7 trillion (equivalent to around 17% of GDP), comprising USD 1 trillion in lost earnings (27%), USD 528 billion in medical spending (14%) and USD 2.2 trillion in quality-of-life and disability losses (59%) (Cutler, 2022a^[24]; Cutler, 2022b^[25]). More recent modelling by Bartsch et al. refines these projections using a population health-economic framework that integrates surveillance, labour and expenditure data. It estimates an annual burden of USD 218 billion in 2024, with 43% from medical care and 57% from productivity losses. Projected forward, cumulative costs between 2025 and 2050 could reach USD 7 trillion (0.3% of GDP per year), and exceed USD 10 trillion (0.5% of GDP) under higher-prevalence or slower-recovery scenarios (Bartsch et al., 2025^[26]).

In the United Kingdom, macroeconomic simulations by Cambridge Econometrics (2024) using the E3ME model¹ show a similar pattern. Long COVID is projected to reduce GDP by 0.05-0.10% annually by 2030 – equivalent to GBP 1.5-2.7 billion per year, depending on prevalence and recovery rates. The corresponding employment shortfall could reach over 300 000 jobs, while healthcare costs per person average GBP 3 300-5 000 per year. As elsewhere, the dominant macroeconomic channel is the sustained loss of labour supply, not direct medical spending (Cambridge Econometrics, 2024^[27]).

In Australia, the aggregate scale appears smaller but remains economically significant. The economic impact on the Australian economy was estimated to be USD 9.6 billion, or 0.5% of GDP, during the peak years of the pandemic 2020-2021 (Costantino et al., 2024^[28]). Angeles et al. estimate that the burden of long COVID in 2022 ranged between AUD 1.7 billion and AUD 6.3 billion, or 0.07-0.26% of GDP, with 25 000-100 000 working-age adults absent from the labour force in 2022 (Angeles et al., 2024^[29]).

These cross-country differences reflect variations in prevalence, data quality and labour-market resilience, but the direction of impact is uniform. Together, this evidence demonstrates that long COVID has evolved from a clinical condition into a macroeconomic headwind. Across all settings, indirect costs – lost work capacity, early exits and prolonged functioning limitation – account for the majority of the total burden. Addressing this drag will require sustained investments in rehabilitation, workplace accommodation and preventive measures that protect both population health and long-term economic growth. For governments, the question is no longer simply “What does long COVID cost the health system?” but rather “What is the cost of not restoring people’s capacity to work?”

A Nature review of the literature recognises the discrepancies in measures and methodologies used to estimate the economic burden of long COVID (Bansal, 2025^[30]). In the absence of a standardised approach, certain epidemiological and economic assumptions are required to account for the divergences in cases definitions, the inclusion criteria for economic impact components, valuation methods, and the timelines under study.

2.2. Estimating the socio-economic costs of long COVID in OECD and EU countries requires certain modelling assumptions

To propose an estimate of the costs of long COVID in OECD and EU countries, the OECD Secretariat developed a dynamic epidemiological-economic model to project the prevalence of long COVID and estimate its impact on healthcare costs, labour-force participation and GDP from 2020 to 2035. The model integrates COVID-19 mortality data from OECD Member countries covering the period 2020-2023 to establish baseline long COVID prevalence estimates. The detailed methodology and parameters used in the model are described below in Box 2.3.

Box 2.3. The OECD SPHeP framework: A tool to assess the medium- and long-term effects of top public health threats, including long COVID

The OECD SPHeP framework model is an advanced systems modelling tool for public health policy and strategic planning. The model is used to predict the health and economic outcomes of the population of a country or a region up to 2050. The framework was updated to model the health and the economic consequences of long COVID.

The model focussing on long COVID currently covers 42 countries. These countries include OECD Member States as well as EU27 countries not part of the OECD. For each of the 42 countries, the model uses demographic and risk factor characteristics by age and gender-specific population groups from international databases. These inputs are used to generate synthetic populations, in which each individual is assigned demographic characteristics and a risk factor profile – smoking and obesity. Epidemiological assumptions described in Section 2.2.1, were used to model the incidence, the severity and the duration of long COVID and its consequences on the quality of life.

For each year, a cross-sectional representation of the population can be obtained, to calculate health status indicators such as healthy life expectancy, disease prevalence and disability-adjusted life years using disability weights. Extra healthcare costs associated with long COVID are estimated based on a per-case annual cost using assumptions described in Section 2.2.2.

The labour market module uses estimates described in Section 2.2.3. to relate long COVID status and severity to the risk of absenteeism and employment. These changes in employment and productivity are estimated in number of full-time equivalent workers. The output of the labour market module is also the main input for calculating the impact on GDP. Consistent with the approach used in the OECD's long-term economic forecasting mode (Guillemette and Turner, 2017^[31]), and other established long-term models, such as the World Bank's long-term growth model, a Cobb-Douglas production function is used (Loayza and Pennings, 2022^[32]). In practical terms, the labour component of the working age population (i.e. those aged 15-74) is modified based on the change of full-time equivalent workers.

For more information on the OECD SPHeP Framework model, see the SPHeP-NCDs Technical Documentation, available at: <http://oecdpublichealthexplorer.org/ncd-doc>.

2.2.1. Epidemiological assumptions

The epidemiology of long COVID in terms of its incidence, duration and recovery is still evolving. Several research studies and surveys have reported on the prevalence and the severity of long COVID over time, which have been used to inform the model for predicting future trends in this condition. For modelling purposes and to account for uncertainties, the following epidemiological assumptions were made.

The prevalence of long COVID from 2020 to 2023 is derived from COVID-19 mortality data

The initial long COVID prevalence estimates are derived from reported COVID-19 mortality data across countries during 2020-2023, which serves as a proxy for COVID-19 infections and subsequent long COVID incidence. Case fatality ratios for COVID-19 were used to infer incidence of COVID-19 infections. Depending on the study population, the risk of developing long COVID among those with SARS-CoV-2 infection ranges from 5% to 15% in adults (Subramanian et al., 2022^[33]; Ballering et al., 2022^[34]; OECD, 2025^[35]; Perlis et al., 2023^[36]). Based on these estimates, in the model the baseline proportion of people infected by COVID-19 who developed long COVID was set at 10%.

The risk of developing long COVID decreases with successive variants of SARS-CoV-2

The risk of developing long COVID is lower with more recent omicron variants compared to the original wild type and alpha variants of SARS-CoV-2. This work assumes a decreasing risk of developing long COVID with successive variants over time, based on reported relative risks (Xie, Choi and Al-Aly, 2024^[37]).

The prevalence of long COVID remains constant after 2023

The conversion method using case fatality ratios could no longer be used to calculate long COVID cases after 2023, owing to the lack of a reliable data source on COVID-19 deaths reported by OECD and EU Member countries. Instead, the model produced two scenarios that assume a stable low or moderate COVID-19 incidence fixed at 5% and 10% respectively from 2024 onwards, to project long COVID prevalence from 2024 to 2035. These incidence levels are based on reported circulation of influenza virus (flu) affecting 3 to 11% of the population depending on the year (Tokars, Olsen and Reed, 2018^[38]). This fixed COVID-19 incidence and therefore fixed long COVID prevalence assumption is informed by the findings of two population surveys from the United States, which reported a stable 3.4% point prevalence of long COVID over time in 2022 (Adjaye-Gbewonyo et al., 2023^[39]) and again in 2024 (Selden, 2025^[40]).

The average duration of long COVID symptoms is set at two years

Few longitudinal cohort studies exist that report the duration of symptoms for patients living with long COVID. Nonetheless, a sizeable proportion can expect to recover within 6 months, while others who experience symptoms beyond 24 months are less likely to recover (RIVM, 2025^[41]; Ballouz et al., 2023^[42]) (Ballouz et al., 2023^[42]; Servier et al., 2023^[43]). An economic modelling survey from the United States fixed the duration at 1 year (Bartsch et al., 2025^[26]). The OECD model assumes an average duration of 2 years for all long COVID cases to account for this variation.

The severity of long COVID is weighted towards mild and moderate cases in the population

Long COVID varies in terms of symptoms and their severity. Owing to a lack of recognition and detection, mild cases are likely to be underestimated and widely under-reported, while moderate and severe cases are over-represented in research studies and surveys. The OECD model assumes the following distribution of long COVID cases by severity: mild (88%), moderate (11%) and severe (1%), based on estimates reported in previous modelling study (Zhu et al., 2024^[44]).

2.2.2. Direct healthcare costs assumptions

Healthcare costs are modelled as incremental expenses above baseline per capita health expenditures, differentiated by severity level. Severe cases are associated with a 67% increase in annual per capita healthcare costs (Wolff Sagy et al., 2023^[5]),² moderate cases with a 35% increase (Tufts et al., 2023^[2]; Mu et al., 2024^[1]), and mild cases with a 7% increase. These multipliers are applied to baseline healthcare expenditure data to calculate the total direct medical costs attributable to long COVID.

2.2.3. Labour-force and productivity assumptions

The model captures both workforce exit and productivity reduction among those who remain employed.

All long COVID cases have an initial minimum six-week absence from the workforce

Long COVID is defined as persistence of symptoms for at least 3 months following probable or confirmed COVID-19 illness. Due to persisting symptoms that may impair cognitive function and mental and physical health, the model assumes that all long COVID cases incur an initial period of absence from work of 6 weeks, regardless of their severity. This assumption is based on the average period of short-term sick leave afforded in OECD countries.

The risk of unemployment increases with severity of long COVID

Regarding workforce exit, 18% of severe long COVID cases (Stelson et al., 2023^[45]; Ziauddeen et al., 2022^[46]; Davis et al., 2021^[7]) and 14% of moderate long COVID cases (Venkatesh, 2024^[47]; Ayoubkhani et al., 2024^[8]; Smith et al., 2022^[13]; Dennett et al., 2025^[18]) are assumed to exit the labour force entirely, while mild cases are assumed to remain in the workforce.

For individuals who remain employed, the model incorporates two additional components of productivity loss, with a productivity reduction due to absenteeism and presenteeism ranging from 6% of total working time for mild cases to 50% for severe cases (Bonner and Ghouralal, 2024^[14]; Ayoubkhani et al., 2024^[8]; Davis et al., 2021^[7]; Dennett et al., 2025^[18]).

The combined effect of workforce exits and reduced productivity among remaining workers is then converted into full-time equivalent worker losses, providing a standardised metric for labour-force reduction.

The macroeconomic impact is estimated by translating labour-force losses into GDP effects

The reduction in available full-time equivalent worker numbers is applied to aggregate economic output measures, assuming a direct relationship between labour input and economic production. A human capital valuation method was used to measure productivity losses.

2.2.4. Sensitivity analyses

Three scenarios are considered to model the future circulation of SARS-CoV-2

To address uncertainty in possible dynamics of COVID-19 infections, three scenarios were developed. The baseline scenario assumes no new COVID-19 cases from 2024 onwards, resulting in a progressive decline of long COVID prevalence to zero by 2025, accounting for the 2-year disease duration assumption set in the model. The low residual transmission scenario assumes a 5% annual COVID-19 incidence rate from 2024 onwards, generating ongoing long COVID cases. The moderate residual transmission scenario assumes a 10% annual COVID-19 incidence rate from 2024 onwards, generating a higher ongoing long

COVID burden. These scenarios provide a range of plausible futures spanning best-case disease elimination to worst-case endemic circulation.

Variations on sick leave duration are included in the analysis

Given uncertainty in the appropriate sick leave parameter, this assumption was integrated to another sensitivity analysis. The default assumption is 6 weeks of sick leave, and a sensitivity range from 0 weeks (representing no formal sick leave) to 12 weeks was tested. This analysis examines how different sick leave policies or work accommodation practices affect the overall productivity loss estimates and economic impact projections.

Model outputs

Based on the above assumptions, the model generates annual estimates for 2020-2035 for long COVID prevalence, incremental direct healthcare costs, labour-force reductions and reductions in GDP. All outputs are provided for the baseline scenario and relevant sensitivity analysis variants, enabling comprehensive assessment of both central estimates and plausible ranges under alternative assumptions.

References

- Adjaye-Gbewonyo, D. et al. (2023), *Long COVID in Adults: United States, 2022*, Centers for Disease Control and Prevention, Atlanta, GA, <https://doi.org/10.15620/cdc:132417>. [39]
- Angeles, M. et al. (2024), "The economic burden of long COVID in Australia: more noise than signal?", *Medical Journal of Australia*, Vol. 221/S9, <https://doi.org/10.5694/mja2.52468>. [29]
- Ayoubkhani, D. et al. (2024), "Employment outcomes of people with Long Covid symptoms: community-based cohort study", *European Journal of Public Health*, Vol. 34/3, pp. 489-496, <https://doi.org/10.1093/eurpub/ckae034>. [8]
- Balasubramani, G. (ed.) (2024), "The association between prolonged SARS-CoV-2 symptoms and work outcomes", *PLOS ONE*, Vol. 19/7, p. e0300947, <https://doi.org/10.1371/journal.pone.0300947>. [47]
- Ballering, A. et al. (2022), "Persistence of somatic symptoms after COVID-19 in the Netherlands: an observational cohort study", *The Lancet*, Vol. 400/10350, pp. 452-461, [https://doi.org/10.1016/s0140-6736\(22\)01214-4](https://doi.org/10.1016/s0140-6736(22)01214-4). [34]
- Ballouz, T. et al. (2023), "Recovery and symptom trajectories up to two years after SARS-CoV-2 infection: population based, longitudinal cohort study", *BMJ*, p. e074425, <https://doi.org/10.1136/bmj-2022-074425>. [42]
- Bansal, A. (2025), "Economic burden of long COVID: macroeconomic, cost-of-illness and microeconomic impacts", *npj Primary Care Respiratory Medicine*, Vol. 35/1, p. 53, <https://doi.org/10.1038/s41533-025-00460-8>. [30]
- Bartsch, S. et al. (2025), "The Current and Future Burden of Long COVID in the United States", *The Journal of Infectious Diseases*, Vol. 231/6, pp. 1581-1590, <https://doi.org/10.1093/infdis/jiaf030>. [26]

- Bonner, C. and S. Ghouralal (2024), “Long COVID and Chronic Conditions in the US Workforce”, *Journal of Occupational & Environmental Medicine*, Vol. 66/3, pp. e80-e86, <https://doi.org/10.1097/jom.0000000000003026>. [14]
- Cambridge Econometrics (2024), “The Economic Burden of Long Covid in the UK”, *Cambridge Econometrics*, https://www.camecon.com/hubfs/145725293/The-Economic-Burden-of-Long-Covid-in-the-UK_Cambridge-Econometrics_V1.1_March2024.pdf. [27]
- Cohen, J. and Y. Rodgers (2024), “Long COVID Prevalence, Disability, and Accommodations: Analysis Across Demographic Groups”, *Journal of Occupational Rehabilitation*, Vol. 34/2, pp. 335-349, <https://doi.org/10.1007/s10926-024-10173-3>. [17]
- Costantino, V. et al. (2024), “The public health and economic burden of long COVID in Australia, 2022–24: a modelling study”, *Medical Journal of Australia*, Vol. 221/4, pp. 217-223, <https://doi.org/10.5694/mja2.52400>. [28]
- Cutler, D. (2022a), *The Costs of Long COVID*, American Medical Association, <https://doi.org/10.1001/jamahealthforum.2022.1809>. [24]
- Cutler, D. (2022b), *The Economic Cost of Long COVID: An Update*, Harvard Kennedy School, <https://www.hks.harvard.edu/centers/mrcbg/programs/growthpolicy/economic-cost-long-covid-update-david-cutler>. [25]
- Davis, H. et al. (2021), “Characterizing long COVID in an international cohort: 7 months of symptoms and their impact”, *eClinicalMedicine*, Vol. 38, <https://doi.org/10.1016/j.eclinm.2021.101019>. [7]
- Dennett, J. et al. (2025), “Enduring Outcomes of COVID-19 Work Absences on the US Labor Market”, *JAMA Network Open*, Vol. 8/10, p. e2536635, <https://doi.org/10.1001/jamanetworkopen.2025.36635>. [18]
- Fischer, K., J. Reade and W. Schmal (2022), “What cannot be cured must be endured: The long-lasting effect of a COVID-19 infection on workplace productivity: The long-lasting effect of a COVID-19 infection on productivity”, *Labour Economics*, Vol. 79, <https://doi.org/10.1016/j.labeco.2022.102281>. [22]
- Ford, N. et al. (2025), “Employment Status, Work Limitations, Cognitive Dysfunction, and Sickness Absenteeism Among US Adults With and Without Long COVID”, *American Journal of Industrial Medicine*, Vol. 68/10, pp. 909-919, <https://doi.org/10.1002/ajim.70014>. [15]
- Ford, N. et al. (2023), *Long COVID and Significant Activity Limitation Among Adults, by Age — United States, June 1–13, 2022, to June 7–19, 2023*, <https://www2.census.gov/programs-surveys/demo/technical-documentation/>. [16]
- Grant, A. et al. (2024), “Long COVID in healthcare workers: longitudinal mixed-methods study”, *Occupational Medicine*, Vol. 75/3-4, pp. 171-178, <https://doi.org/10.1093/occmed/kqae113>. [12]
- Guillemette, Y. and D. Turner (2017), “The fiscal projection framework in long-term scenarios”, *OECD Economics Department Working Papers*, No. 1440, OECD Publishing, Paris, <https://doi.org/10.1787/8eddfa18-en>. [31]
- Konishi, S. et al. (2025), “The relationship between long COVID, labor productivity, and socioeconomic losses in Japan: A cohort study”, *IJID Regions*, Vol. 14, <https://doi.org/10.1016/j.ijregi.2024.100495>. [21]

- Kwon, J. et al. (2024), “Impact of Long COVID on productivity and informal caregiving”, *The European Journal of Health Economics*, Vol. 25, pp. 1095–1115, <https://doi.org/10.1007/s10198-023-01653-z>. [10]
- Loayza, N. and S. Pennings (2022), *The Long Term Growth Model: Fundamentals, Extensions, and Applications*, World Bank Group, Washington. [32]
- Łukomska, E. et al. (2025), “Healthcare Resource Utilization (HCRU) and Direct Medical Costs Associated with Long COVID or Post-COVID-19 Conditions: Findings from a Literature Review”, *Journal of Market Access & Health Policy*, Vol. 13/1, p. 7, <https://doi.org/10.3390/jmahp13010007>. [6]
- Mu, Y. et al. (2024), “Healthcare utilisation of 282,080 individuals with long COVID over two years: a multiple matched control, longitudinal cohort analysis”, *Journal of the Royal Society of Medicine*, Vol. 117/11, pp. 369–381, <https://doi.org/10.1177/01410768241288345>. [1]
- Naik, H. et al. (2025), “Health-related adverse work outcomes associated with post COVID-19 condition: a cross-sectional study”, *BMJ Public Health*, Vol. 3/1, p. e001801, <https://doi.org/10.1136/bmjph-2024-001801>. [20]
- Naik, H. et al. (2025), “Work Productivity Loss in People Living With Long COVID Symptoms Over 2 Years From Infection”, *Journal of Occupational & Environmental Medicine*, Vol. 67/8, pp. 588–594, <https://doi.org/10.1097/jom.0000000000003440>. [23]
- OECD (2025), “The prevalence and impact of Long COVID in the primary care population: Findings from the OECD PaRIS survey”, OECD Publishing, Paris, <https://doi.org/10.1787/119b0e8f-en>. [35]
- Perlis, R. et al. (2023), “Association of Post–COVID-19 Condition Symptoms and Employment Status”, *JAMA Network Open*, Vol. 6/2, pp. e2256152–e2256152, <https://doi.org/10.1001/jamanetworkopen.2022.56152>. [36]
- Reuschke, D. and D. Houston (2022), “The impact of Long COVID on the UK workforce”, *Applied Economics Letters*, Vol. 30/18, pp. 2510–2514, <https://doi.org/10.1080/13504851.2022.2098239>. [9]
- RIVM (2025), *Post-covid*, <https://www.rivm.nl/gezondheidsonderzoek-covid-19/kwartaalonderzoek-volwassenen/post-covid>. [41]
- Scott, A. et al. (2024), “Substantial health and economic burden of COVID-19 during the year after acute illness among US adults at high risk of severe COVID-19”, *BMC Medicine*, Vol. 22/1, <https://doi.org/10.1186/s12916-023-03234-6>. [3]
- Selden, T. (2025), *Sources of Health Insurance among Adults with Long COVID: Estimates from the Medical Expenditure Panel Survey*, Agency for Healthcare Research and Quality. [40]
- Servier, C. et al. (2023), “Trajectories of the evolution of post-COVID-19 condition, up to two years after symptoms onset”, *International Journal of Infectious Diseases*, Vol. 133, pp. 67–74, <https://doi.org/10.1016/j.ijid.2023.05.007>. [43]
- Smith, P. et al. (2022), “Post COVID-19 condition and its physical, mental and social implications: protocol of a 2-year longitudinal cohort study in the Belgian adult population”, *Archives of Public Health*, Vol. 80/1, <https://doi.org/10.1186/s13690-022-00906-2>. [13]

- Stelson, E. et al. (2023), “Return-to-work with long COVID: An Episodic Disability and Total Worker Health® analysis”, *Social Science & Medicine*, Vol. 338, p. 116336, <https://doi.org/10.1016/j.socscimed.2023.116336>. [45]
- Subramanian, A. et al. (2022), “Symptoms and risk factors for long COVID in non-hospitalized adults”, *Nature Medicine*, Vol. 28/8, pp. 1706-1714, <https://doi.org/10.1038/s41591-022-01909-w>. [33]
- Sutcliffe, C. (ed.) (2022), “Characteristics and impact of Long Covid: Findings from an online survey”, *PLOS ONE*, Vol. 17/3, p. e0264331, <https://doi.org/10.1371/journal.pone.0264331>. [46]
- Tokars, J., S. Olsen and C. Reed (2018), “Seasonal Incidence of Symptomatic Influenza in the United States”, *Clinical Infectious Diseases*, Vol. 66/10, pp. 1511-1518, <https://doi.org/10.1093/cid/cix1060>. [38]
- Tufts, J. et al. (2023), “The cost of primary care consultations associated with long COVID in non-hospitalised adults: a retrospective cohort study using UK primary care data”, *BMC Primary Care*, Vol. 24/1, <https://doi.org/10.1186/s12875-023-02196-1>. [2]
- Waters, T. and T. Wernham (2022), *Long COVID and the labour market*, The Institute for Fiscal Studies, <https://doi.org/10.1920/BN.IFS.2022.BN0346>. [19]
- Wolff Sagy, Y. et al. (2023), “Estimating the economic burden of long-Covid: the additive cost of healthcare utilisation among COVID-19 recoverees in Israel”, *BMJ Global Health*, Vol. 8/7, <https://doi.org/10.1136/bmjgh-2023-012588>. [5]
- Xie, Y., T. Choi and Z. Al-Aly (2024), “Postacute Sequelae of SARS-CoV-2 Infection in the Pre-Delta, Delta, and Omicron Eras”, *New England Journal of Medicine*, Vol. 391/6, pp. 515-525, <https://doi.org/10.1056/NEJMoa2403211>. [37]
- Yang, J. et al. (2025), “Quantifying all-cause healthcare resource utilization and costs of children with mild-to-moderate long COVID in France”, *Journal of Medical Economics*, Vol. 28/1, pp. 1002-1013, <https://doi.org/10.1080/13696998.2025.2525002>. [4]
- Zhu, S. et al. (2024), “Modeling the burden of long COVID in California with quality adjusted life-years (QALYS)”, *Scientific Reports*, Vol. 14/1, p. 22663, <https://doi.org/10.1038/s41598-024-73160-x>. [44]
- Ziauddeen, N. et al. (2023), “Impact of long COVID-19 on work: a co-produced survey”, *The Lancet*, Vol. 402, p. S98, [https://doi.org/10.1016/s0140-6736\(23\)02157-8](https://doi.org/10.1016/s0140-6736(23)02157-8). [11]

Notes

¹ A macro-econometric model linking economic activity, labour markets and health-system spending developed by *Cambridge Econometrics*.

² This estimate is derived from a study in Israel with a substantial sample and the longest follow-up (up to 15 months post-infection) of severe (or hospitalised) cases.

3

In the next decade, long COVID could cost health systems 11 billion dollars annually and cut annual GDP by 0.2%

This chapter presents the estimated burden of long COVID on health systems and the economy. Drawing on results from an OECD microsimulation model, it details estimates of the past and projected prevalence of long COVID in the general population across OECD and EU Member countries, and its effects on health expenditure. The analysis also examines the wider economic implications of the disease, including its impact on labour markets.

3.1. Long COVID peaked during the pandemic, but is set to remain a prevalent condition in the post-pandemic years across OECD and EU countries

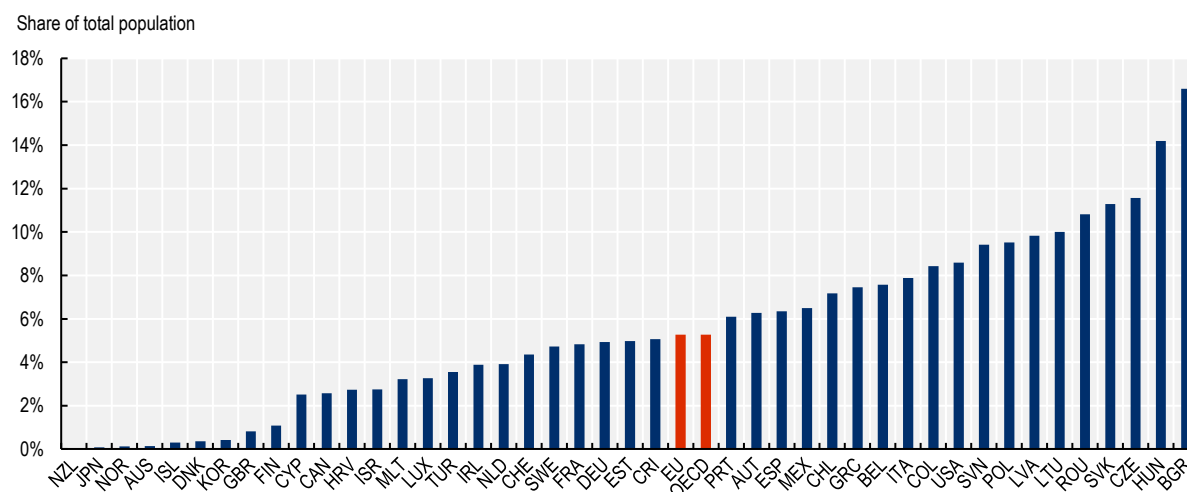
3.1.1. In 2021, prevalence of long COVID was estimated at 5.3% of the total population in OECD and EU countries

The estimated prevalence of long COVID across 42 countries in 2021 is presented in Figure 3.1, showing substantial variation in how widely the condition initially affected populations. The lowest prevalence rates were observed in New Zealand (0%), Japan (0.1%) and Norway (0.1%). These very low estimates reflect limited circulation and/or more effective management of COVID-19 cases and prevention of post-COVID conditions in these countries.

In contrast, the highest prevalence rates were recorded in Bulgaria (16.6%), Hungary (14.2%) and Czechia (11.6%). Based on their respective population sizes, this means that approximately 1.1 million people in Bulgaria, 1.4 million people in Hungary and 1.2 million people in Czechia lived with long COVID in 2021 in those countries. These figures indicate a particularly heavy burden in parts of Central and Eastern Europe.

Average prevalence rates were around 5.3% in 2021 across both EU and OECD countries. When applied to the total population across OECD countries, this translates to an estimated 75 million people affected by long COVID in 2021.

Figure 3.1. Prevalence of long COVID exceeded 5% in half of OECD and EU member countries in 2021



Note: Mortality data were not reported to WHO by KOR or JPN for 2021. GBR reported low numbers of deaths for 2020-2022, possibly due to the definition of COVID-19-related deaths used. As a result, prevalence is underestimated for these three countries.

Source: OECD SPHEP modelling.

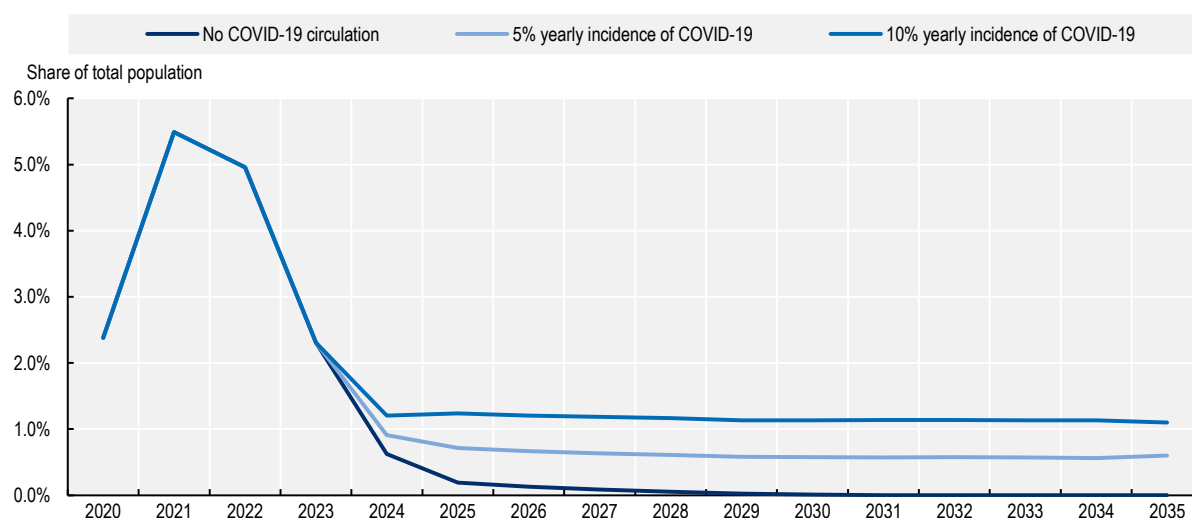
3.1.2. Depending on the future dynamics of COVID-19, long COVID prevalence could stabilise around 1% of the population in the coming years

Figure 3.2 shows the estimated prevalence of long COVID across OECD countries over time under three distinct scenarios (see Chapter 2, Section 2.2). Under the baseline scenario, the prevalence of long COVID peaks in 2021 and then declines steadily, reaching very low levels by 2026 and remaining close to zero for the remainder of the projection period. This scenario is considered the most conservative and, as such, is likely to underestimate the potential future burden of long COVID.

In contrast, the scenario that assumes a continued 5% incidence of COVID-19 beyond 2023 projects a higher residual prevalence of long COVID. Here, prevalence does not fall as sharply; instead, it stabilises at around 0.6% of the OECD population, fuelled by a continuous inflow of new cases each year. The scenario with a 10% continued COVID-19 incidence projects a starker picture, with long COVID prevalence remaining above 1% throughout the projected years.

Because the baseline scenario assumes no new cases after 2023, it provides the lowest and most optimistic (but unlikely) counter-factual scenario, suggesting that unless circulation of SARS-CoV-2 ceases, the burden of long COVID may persist at important levels for years into the future.

Figure 3.2. Long COVID prevalence peaked in 2021 but is expected to stabilise from 2024 onwards



Source: OECD SPHEP modelling.

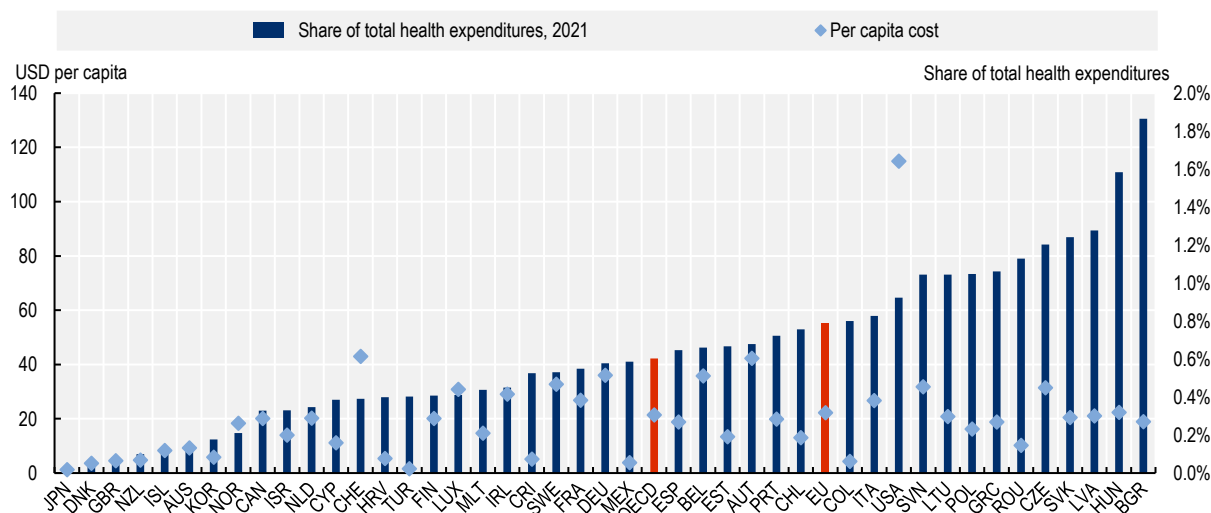
3.2. Long COVID accounted for about USD 53 billion in direct healthcare expenditure in 2021

Long COVID direct healthcare costs represented a relatively modest but non-negligible share of healthcare spending across most countries in 2021 when the prevalence peaked, with estimates ranging from near zero to approximately 1.9% of total health expenditures (Figure 3.3).

The highest burden in 2021 was observed in Bulgaria, where long COVID accounted for approximately 1.9% of total health expenditure. Hungary, Latvia and the Slovak Republic also had elevated spending levels, with long COVID representing between 1.2% and 1.6% of their total health budgets. The United States had one of the highest per capita costs at around USD 115 per capita, although this represents less than 1% of total health expenditure in 2021 due to the country's substantially larger overall health spending base. At the lower end of the spectrum, Japan, Denmark, the United Kingdom and New Zealand showed minimal impacts, with long COVID representing less than 0.1% of total health expenditure and per capita costs below USD 5.

Both OECD and EU averages show long COVID direct healthcare costs in 2021 representing approximately 0.6-0.8% of total health expenditure, with per capita costs around USD 22 for EU and USD 21 for OECD countries. Using the total OECD population, total healthcare costs across OECD countries in 2021 are estimated around USD 53 billion.

Figure 3.3. Long COVID direct healthcare costs in 2021 represented approximately 0.6-0.8% of total health expenditure



Note: Mortality data were not reported to WHO by KOR or JPN for 2021. GBR reported low numbers of deaths for 2020-2022. As a result, prevalence and therefore direct health expenditure is underestimated for these three countries.

Source: OECD SPHEP modelling.

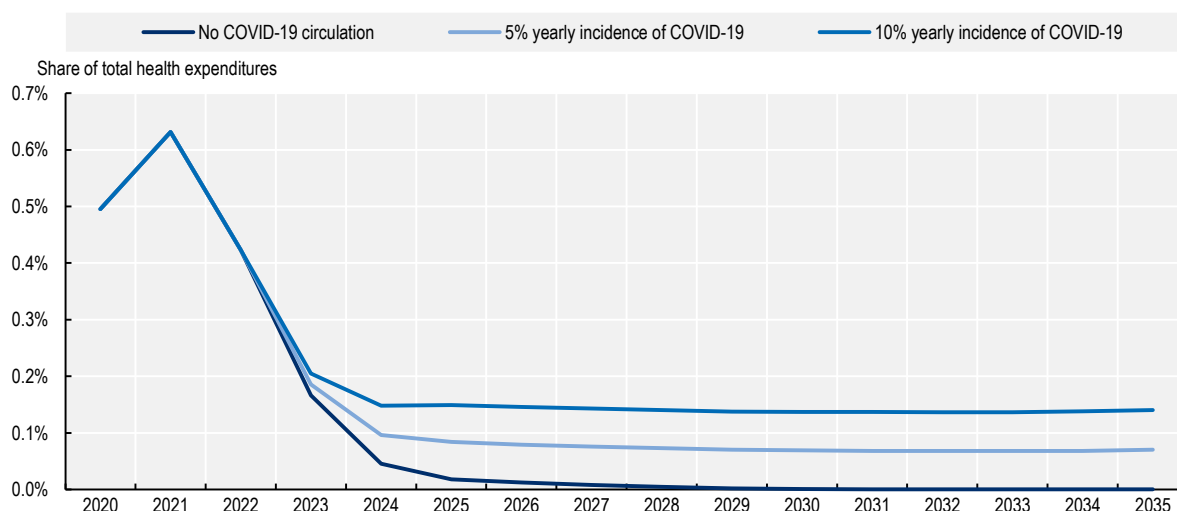
3.3. Long COVID could cost OECD health systems up to 11 billion dollars each year

The long-term direct healthcare costs were estimated under the scenarios presented in Chapter 2, Section 2.2. Figure 3.4 captures both the acute phase of the pandemic's impact on healthcare spending and various long-term projections based on different assumptions about the persistence of long COVID cases.

All three scenarios show a similar initial pattern, with long COVID costs rising sharply to peak at around 0.63% of direct healthcare expenditure in 2021 in OECD countries, reflecting the cumulative burden of infections during the pandemic's most intense period with particularly high COVID-19 incidence and virulent variants of the virus. Following this peak, all scenarios show a decline through 2022-2025 as the acute phase subsides and initial cases either resolve or stabilise. However, the trajectories diverge significantly after 2024, reflecting the different assumptions made about the long-term incidence of COVID-19.

Under the most conservative scenario (with no new long COVID cases from 2024), costs decline nearly to zero by 2027 and remain at essentially negligible levels through 2035, as long COVID cases fully resolve and new COVID-19 infections cease to contribute meaningfully to the healthcare burden. In contrast, the two scenarios incorporating residual long COVID cases show persistent costs stabilising at different plateaus: the low residual transmission scenario maintains costs at approximately 0.07% of total health expenditure, while the most pessimistic scenario stabilises at a higher level of around 0.14% of total health expenditure, which amounts to approximately USD 11 billion in total per year across OECD countries.

Figure 3.4. Long COVID could account for up to 0.14% of total health expenditure over the next decade in OECD countries



Source: OECD SPHEP modelling.

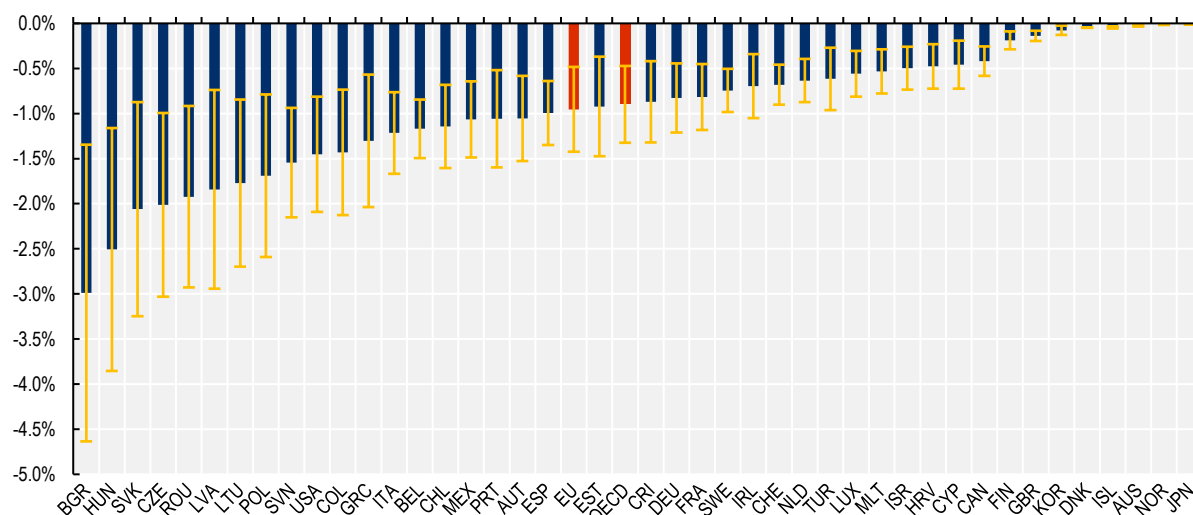
3.4. Long COVID led to an almost 1% reduction in labour force across OECD and EU Member countries in 2021

Figure 3.5 illustrates the impact of long COVID on labour-force reductions across EU and OECD Member countries in 2021, expressed as a percentage change from the baseline. The estimated reduction in effective labour-force capacity includes the combined effects of sick leave, workforce exits, absenteeism and presenteeism among individuals suffering from long COVID symptoms. For each country, the confidence intervals show a range for sick leave duration of 0-12 weeks, with a baseline of 6 weeks (see Chapter 2, Section 2.2).

The largest labour-force reductions are observed in Central and Eastern European countries (Bulgaria, Hungary and the Slovak Republic), where long COVID is estimated to have reduced effective labour capacity by approximately 2.1-3.0% in 2021. These countries show substantial negative impacts with relatively large uncertainties, indicating both significant disease burden and measurement challenges. At the opposite end of the spectrum, countries like Japan, Norway and Australia show the smallest impacts, with labour-force reductions of approximately 0.01-0.02%.

The OECD and EU averages both show labour-force reductions of approximately 1%. These benchmark figures indicate that across developed economies, long COVID had a measurable and economically meaningful impact on labour supply and productivity in 2021. The combination of workforce exits, sick leave and reduced productivity through absenteeism and presenteeism represents a significant macroeconomic shock, with implications for GDP growth, wage pressures and economic recovery in the post-acute phase of the pandemic.

Figure 3.5. Labour-force reductions due to long COVID were substantial in Eastern and Central European countries in 2021



Note: Mortality data were not reported to WHO by KOR or JPN for 2021. GBR reported low numbers of deaths for 2020-2022. As a result, prevalence and therefore labour force reduction is underestimated for these three countries.

Source: OECD SPHEP modelling.

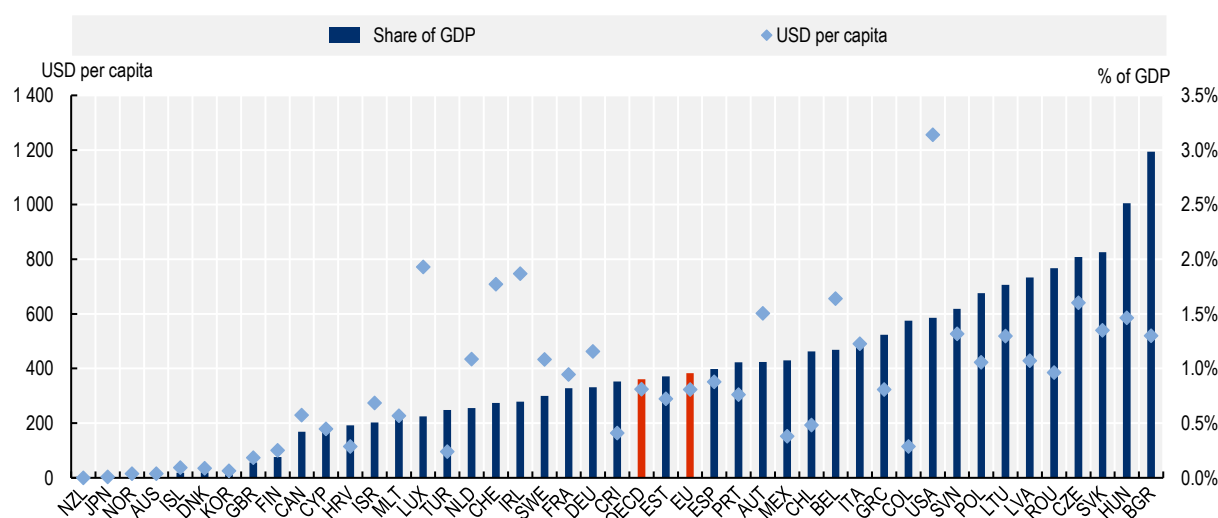
3.5. In 2021, long COVID cost EU and OECD economies over half a trillion dollars

Figure 3.6 shows how workforce disruptions from long COVID translated into macroeconomic costs in 2021, with substantial variation across nations reflecting differences in both labour-market impacts and underlying economic structures.

Mirroring the impact on the labour force, the highest GDP losses in percentage terms are observed in Bulgaria, Hungary and the Slovak Republic, where long COVID-related labour-force reductions are estimated to have cost approximately 2.1-3.0% of GDP in 2021. However, when measured in absolute per capita terms, the picture shifts somewhat: the United States shows the highest per capita GDP loss at approximately USD 1 256 per person in 2021. This discrepancy reflects the substantially higher US baseline GDP per capita levels. At the lower end of the spectrum, countries like Japan, Norway and Australia experienced relatively modest impacts, with GDP losses below 0.02% and per capita costs under USD 15, consistent with their smaller labour-force reductions.

The OECD and EU averages show GDP losses of approximately 0.9-1.0% in 2021, with per capita costs of around USD 323. Applied to the OECD total population, these losses translate into an economic loss of about USD 680 billion, which is 13 times higher than the estimated direct healthcare costs.

Figure 3.6. Long COVID led to a 1% GDP loss in 2021



Note: Mortality data were not reported to WHO by KOR or JPN for 2021. GBR reported low numbers of deaths for 2020-2022. As a result, prevalence and therefore productivity loss is underestimated for these three countries.

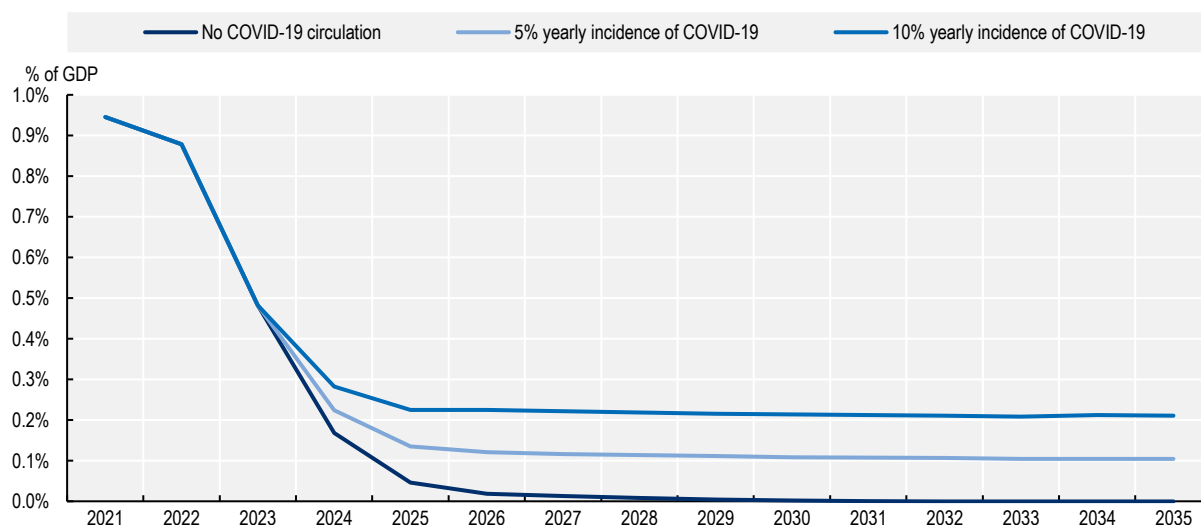
Source: OECD SPHEP modelling.

3.6. Long COVID could reduce GDP by up to 0.2% each year in OECD and EU economies

Figure 3.7 illustrates how long COVID could continue to represent a substantial burden on the economies of OECD and EU Member countries, from the initial COVID-19 pandemic years through various long-term recovery scenarios based on different assumptions about the persistence of labour-market effects. All three scenarios begin with similar initial conditions, showing GDP losses of approximately 0.9% in 2021, reflecting the acute impact of early long COVID cases on workforce capacity. All scenarios reflect the modelling assumptions of a lower, stable risk of COVID-19 infection in future, and a fixed duration of long COVID symptoms (see Chapter 2, Section 2.2). The losses decline sharply through 2022-2023 as the most severe phase of the pandemic recedes, dropping to around 0.3-0.4% by late 2023. However, the trajectories diverge significantly from 2024 onward, reflecting the variation in the persisting impact of long COVID on labour markets under different scenarios. The relative magnitude of OECD estimates is consistent with previous estimates on the impact on the Australian economy equivalent to 0.5% of GDP earlier in 2020-2021 (Costantino et al., 2024^[1]), declining to a lower impact of 0.26% of GDP later in 2022 (Angeles et al., 2024^[2]).

Under the baseline scenario (the most conservative), GDP losses decline nearly to zero by 2025-2026, and remain at essentially negligible levels (approximately 0.01%) through 2035. This suggests an assumption that long COVID cases largely resolve, affected workers return to pre-pandemic productivity levels, and new COVID-19 infections cease to generate significant economic drag. In contrast, the two scenarios incorporating residual long COVID effects show persistent GDP losses stabilising at different plateaus: the low residual transmission scenario maintains losses at approximately 0.1% of GDP each year, while the moderate residual transmission scenario stabilises at a higher level of around 0.2% of GDP through the 2030s. These estimates represent up to USD 135 billion in total annually across OECD countries, roughly equivalent to the annual health budget for Spain or the Netherlands. The sustained economic costs in these scenarios underscore the potential for long COVID to represent a lasting structural change to labour markets and economic productivity, rather than merely a temporary pandemic-era disruption.

Figure 3.7. Long COVID is likely to have a lasting impact on economies of EU and OECD Member countries



Source: OECD SPHEP modelling.

3.7. Overall, the socio-economic impact of long COVID is comparable to that of other major chronic conditions, and is likely to be underestimated

Although the macroeconomic losses associated with long COVID were most pronounced in 2021, its long-term economic impact remains significant and broadly comparable to other major chronic conditions. For instance, projections indicate that, even under realistic recovery scenarios, the level of sustained economic loss aligns closely with the national burden typically linked to multiple sclerosis (MS), estimated at 0.1-0.5% of GDP across OECD countries – around 0.3% in Italy (EUR 4.8 billion), 0.1% in France (EUR 2.7 billion) and 0.4% in the United States (USD 85.4 billion) (Bouleau et al., 2022^[3]; Bebo et al., 2022^[4]; Battaglia et al., 2022^[5]).

The estimated losses also approach the lower range of the economic burden of stroke, representing 0.3-0.4% of GDP in Europe (EUR 60 billion in 2017) and 0.5% in the United States (USD 103.5 billion in 2016) (Luengo-Fernandez et al., 2020^[6]; Girotra et al., 2020^[7]).

However, while chronic conditions such as stroke and MS generate most of their costs through healthcare spending and informal care, the continuing burden of long COVID arises mainly from reduced labour participation and productivity losses, reflecting a broader macroeconomic impact rather than medical expenditure alone. Overall, in proportional terms, the projected 0.1-0.2% GDP loss from long COVID places it among the most economically significant chronic conditions in OECD and EU Member countries.

Lastly, the estimates in this report probably understate the true burden of long COVID. The condition is likely to have wide-reaching consequences that are not yet fully understood. Beyond the core symptoms of long COVID, infection with SARS-CoV-2 increases the risk of developing a range of chronic conditions – including cardiovascular conditions, diabetes, neurological impairments and autoimmune disorders – which will add further pressure on health systems and increase costs in the years ahead. These effects may take considerable time to become fully visible. In addition, long COVID may affect children's development and educational attainment – factors not yet captured in current economic projections.

References

- Angeles, M. et al. (2024), “The economic burden of long COVID in Australia: more noise than signal?”, *Medical Journal of Australia*, Vol. 221/S9, <https://doi.org/10.5694/mja2.52468>. [2]
- Battaglia, M. et al. (2022), “Patients with multiple sclerosis: a burden and cost of illness study”, *Journal of Neurology*, Vol. 269/9, pp. 5127-5135, <https://doi.org/10.1007/s00415-022-11169-w>. [5]
- Bebo, B. et al. (2022), “The Economic Burden of Multiple Sclerosis in the United States: Estimate of Direct and Indirect Costs”, *Neurology*, Vol. 98/18, pp. E1810-E1817, <https://doi.org/10.1212/WNL.0000000000200150>. [4]
- Bouleau, A. et al. (2022), “The socioeconomic impact of multiple sclerosis in France: Results from the PETALS study”, *Multiple Sclerosis Journal - Experimental, Translational and Clinical*, Vol. 8/2, <https://doi.org/10.1177/20552173221093219>. [3]
- Costantino, V. et al. (2024), “The public health and economic burden of long COVID in Australia, 2022–24: a modelling study”, *Medical Journal of Australia*, Vol. 221/4, pp. 217-223, <https://doi.org/10.5694/mja2.52400>. [1]
- Girotra, T. et al. (2020), “A contemporary and comprehensive analysis of the costs of stroke in the United States”, *Journal of the Neurological Sciences*, Vol. 410, <https://doi.org/10.1016/j.jns.2019.116643>. [7]
- Luengo-Fernandez, R. et al. (2020), “Economic burden of stroke across Europe: A population-based cost analysis”, *European Stroke Journal*, Vol. 5/1, pp. 17-25, <https://doi.org/10.1177/2396987319883160>. [6]

4

Surveyed OECD countries have advanced initiatives for recognition and surveillance of long COVID, but progress remains uneven

This chapter summarises the various policy initiatives for long COVID in place across EU and OECD countries. It presents findings from 16 countries which responded to the OECD policy survey in 2025, outlining their initiatives to improve the recognition, diagnosis and management of long COVID at the clinical level and in the health and social care system. The summary provides an update on the progress and gaps in addressing long COVID as a novel health condition, including case definitions, diagnostic coding, surveillance and illness and disability benefits in place.

4.1. Agreeing on a standard definition of long COVID is a key step to understanding the burden caused by the condition

One of the challenges of long COVID is the non-specific and broad range of symptoms associated with the condition. These can include fatigue and post-exertional malaise; respiratory and cardiovascular symptoms such as shortness of breath and heart palpitations; and neurological and cognitive symptoms including dizziness, brain fog and memory impairment. The challenge is compounded by a lack of biomarkers or confirmatory diagnostic tests for long COVID, making the condition more complex to recognise and diagnose in healthcare systems. Its novel and non-specific nature have led to a varied recognition of long COVID as a medical diagnosis by healthcare professionals, professional medical associations and health and social welfare systems. As a result, differing diagnostic definitions also can lead to large differences among patients identified as having long COVID. For example, a 2025 study found that using five different definitions for long COVID yielded prevalence rates that varied by as much as 50% at six months following COVID-19 infection (Santé publique France, 2024^[1]).

There must be agreement on a standard definition of long COVID within each country in order to identify patients with the condition, assess the disease burden and develop the appropriate care pathways for patients. Several definitions have been commonly used by countries, with the goal of ensuring that patients with long COVID are included while avoiding inclusion of patients whose condition is not related to a previous SARS-CoV-2 infection. One key definition comes from WHO, which defines long COVID as the continuation or development of new symptoms within three months of a confirmed or suspected SARS-CoV-2 infection, with these symptoms lasting for at least two months with no other explanation (WHO, 2022^[2]).

Another similar definition from the **United Kingdom's** National Institute for Health and Care Excellence (NICE) is based on symptoms persisting for more than 12 weeks that are not explained by an alternative diagnosis (NICE, 2024^[3]). In the **United States**, the National Academies of Sciences, Engineering, and Medicine (NASEM) definition requires symptoms or manifestations to persist for at least three months after SARS-CoV-2 infection, and includes a list of potential symptoms and diagnosable conditions as well as important relevant features (NASEM, 2024^[4]) (see Box 4.1 on the **United States** response to long COVID). In describing the process of developing its definition, NASEM noted that it uses the terminology “long COVID” versus other options such as post-acute sequelae of COVID-19 for simplicity; it has defined long COVID as existing among a larger group of infection-associated chronic conditions; and it uses the term “disease state” to highlight the extent of severity and clinical impact of the condition (Ely, Brown and Fineberg, 2024^[5]). NASEM also reiterated that as more scientific research is undertaken and knowledge develops, the definition may be adapted.

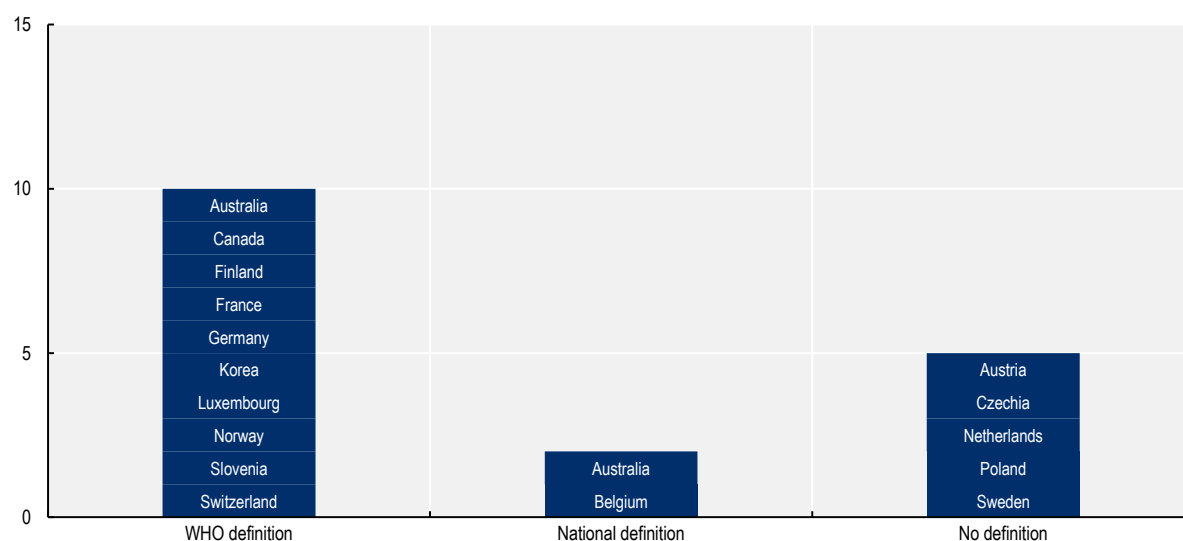
4.2. The majority of surveyed OECD countries use the WHO definition for long COVID in 2025

Of the 16 countries responding to the survey, 10 reported using the WHO definition of long COVID as standard practice by healthcare workers (Figure 4.1). **Belgium** uses the NICE and US Centers for Disease Control and Prevention (CDC) definitions in research, alongside its own definition used in national guidelines, which is based on symptoms persisting for more than four weeks after acute COVID-19 illness. **Germany** also uses the NICE definition in conjunction with the WHO definition. Five countries (**Austria**, **Czechia**, the **Netherlands**, **Poland** and **Sweden**) reported not having a standardised definition in use. **Japan** reported their Ministry of Health, Labour and Welfare adopted the WHO definition for long COVID.

In the 2024 report *Mapping long COVID across the EU: definitions, guidelines and surveillance systems in EU Member States*, a literature review yielded multiple different definitions of long COVID from national

ministry and health authority websites that commonly aligned with WHO or NICE definitions. The results of the 2025 OECD survey thus indicate an evolution over time, whereby the majority of countries now officially align with the WHO definition. In the **Netherlands**, **Poland** and **Sweden**, where no official long COVID definition has been set, the WHO definition is reported to be widely used in practice.

Figure 4.1. The majority of surveyed countries employ the WHO definition of long COVID



Note: Survey question: “Does your country currently use a standardised definition of long COVID?” In addition to its own national definition, Belgium uses the NICE and US CDC definitions for research and to guide care trajectories.

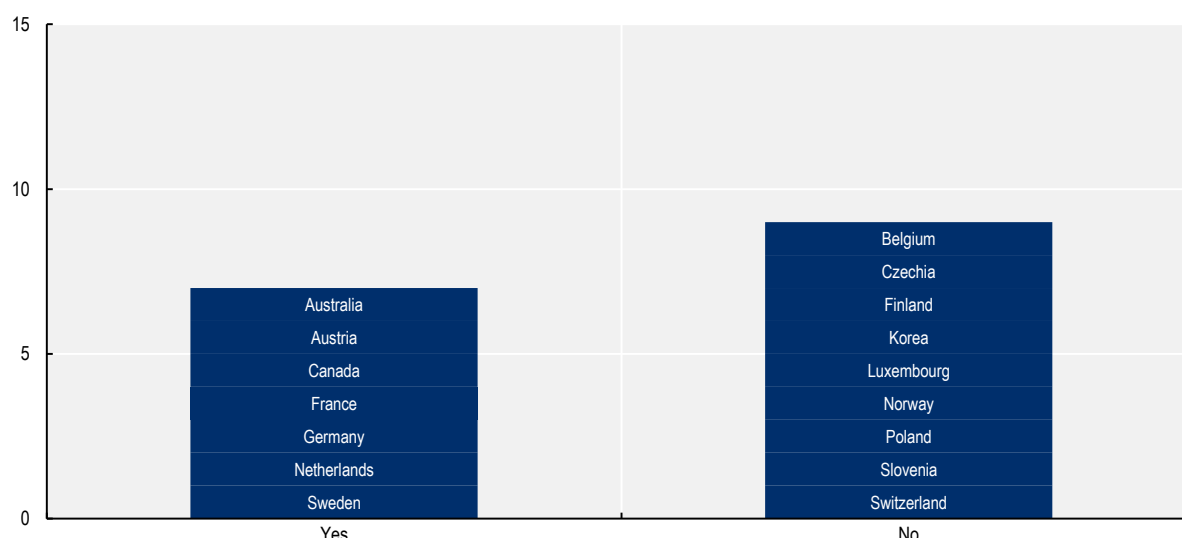
Source: 2025 OECD Long COVID Mapping Policy Survey.

4.3. Recognition of long COVID in children and adolescents is lacking in many countries

Long COVID affects children and adolescents as well as adults, although the exact prevalence is unknown. The WHO paediatric definition differs from the adult version in emphasising fatigue, altered smell and anxiety as three common symptoms, among others; it also highlights the impact on home, school and social life (WHO, 2023^[6]). Recognition of paediatric long COVID is critical for children and adolescents suffering from the condition to receive an appropriate diagnosis and access services, as the impact on their current and long-term well-being, as well as on their families, can be profound.

Seven countries (**Australia**, **Austria**, **Canada**, **France**, **Germany**, the **Netherlands** and **Sweden**) declared recognition of paediatric long COVID either in their national plans or in the form of specific paediatric recommendations or care clinics (Figure 4.2). The **Netherlands** (UMC Utrecht, 2025^[7]) and **Sweden** inaugurated paediatric clinics that combine actions on long COVID care, research and education. In Sweden, two outpatient clinics specialise in paediatric long COVID; in the **Netherlands** two post-COVID centres specialise in treatment of children. In **Sweden**, clinicians are informed about the impact of long COVID on children, with guidelines for rehabilitation including healthcare and special needs co-ordinators. In the United States, research on paediatric long COVID is part of the RECOVERY initiative (Box 4.1).

Figure 4.2. Most surveyed OECD countries lack recognition of paediatric long COVID



Note: Survey question: "Is there specific recognition/awareness of paediatric long COVID in your country?"

Source: 2025 OECD Long COVID Mapping Policy Survey.

In **Germany**, the Federal Ministry of Health is funding a programme for 2024-2028 under which a care network has been set up for young people affected by long COVID and diseases with similar clinical presentation, in order to provide care services that adequately cover the diverse symptoms of long COVID. **Canada** is generating paediatric insights from its Canadian Paediatric Surveillance Program, which launched a national study on the post COVID-19 condition in children between September 2022 and August 2024 to characterise cases of long COVID in children (Canadian Paediatric Society, 2024^[8]).

No country reported recognising paediatric acute-onset neuropsychiatric syndrome, which has been a major area of concern for child patients' associations (Long COVID Kids, 2022^[9]). This disease consists of brain inflammation following an infection (such as COVID-19, potentially) and can trigger a wide range of physical and mental health symptoms. Overall, in 2025, several initiatives have been created to advance paediatric research and support children affected by long COVID, but paediatric recognition is still lacking in the majority of countries.

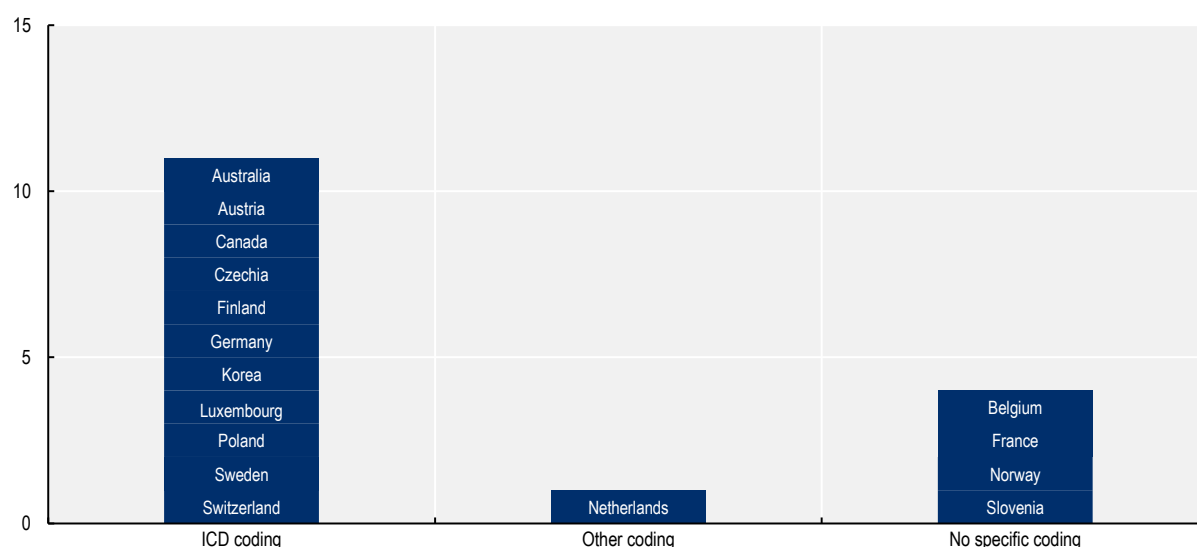
4.4. Eleven OECD countries reported using International Classification of Diseases diagnostic coding for long COVID

Regardless of their national definition, countries have various ways of recording whether a patient has symptoms of long COVID for clinical and medico-administrative purposes. This diagnostic coding is important for ensuring that patient encounters with the health system are recorded and made available for decision making by healthcare providers, and for provision of diagnostic and treatment services. Appropriate coding of long COVID can also help in assessing disease burden and providing insights into the care patterns, treatment and outcomes of patients at a population level. In addition, it formalises recognition of that condition by the health system and its actors.

Eleven countries reported using the International Classification of Disease, tenth revision (ICD-10) coding for long COVID, with the code U09.9 ("Post COVID-19 condition") the most common classification used (Figure 4.3). This diagnostic code is also used by countries including **Poland** that have not adopted a national definition for long COVID as described above. Four countries (**Belgium, France, Norway** and

Slovenia) reported not having specific diagnostic coding in place for the condition. **France** noted that coding for long COVID is complex, as most patients are cared for via outpatient consultations where disease coding is rarely performed, although patients treated in primary care may be given a code on a voluntary basis. In the past, ICD-10 code U10.9 (“Multisystem inflammatory syndrome associated with COVID-19”) has also been used in **France**. In the **Netherlands**, the International Classification of Primary Care code R83-04 is used, while coding for the condition does not take place in secondary or tertiary care. In **Australia**, in addition to ICD-10 codes, several codes in the health system designate outpatient consultations by patients with long COVID, depending both on whether the consultations were conducted by physicians or allied health professionals and on the care setting (IHACPA, 2025^[10]).

Figure 4.3. The majority of surveyed OECD countries use International Classification of Diseases coding for long COVID diagnosis



Notes: Survey question: “Does your country use a specific coding and classification for long COVID?”

Source: 2025 OECD Long COVID Mapping Policy Survey.

Regardless of what coding systems exist in a country, many patients may not in practice receive the diagnostic code for long COVID in their medical records. This is evidenced by surveillance data on long COVID based on disease coding, which have been shown to underestimate the number of cases considerably (communicated by national health agencies in **Finland** and **Sweden**). To be effective for both patient care and system-level surveillance, long COVID coding requires several key components beyond the existence of dedicated codes. These include awareness and clinical competency among healthcare workers to recognise and diagnose long COVID, functional national health data infrastructure, knowledge of the existence of dedicated diagnostic codes, and proficiency for health data recording.

4.5. Chronic fatigue syndrome and depressive disorder are often used as alternatives for diagnostic coding to long COVID

Patients and healthcare workers have often reported difficulties in obtaining and making a formal diagnosis of long COVID in their country. Other diagnoses associated with – or occurring as a consequence of – the condition can be easier to confer from a diagnostic coding and medico-administrative perspective in some countries. This may in part account for the currently under-reported disease burden of long COVID.

Alternative diagnostic coding can help patients living with long COVID access the health and social welfare services they need for their condition, albeit via a different route. However, alternative coding also contributes to underestimating the disease burden, and to a lack of awareness and recognition of the impact of long COVID on patients and society.

The main alternative diagnosis to formal long COVID diagnosis is myalgic encephalomyelitis (ME) or chronic fatigue syndrome (CFS) (reported by 11 countries), followed by depressive disorder (reported by nine countries) and dysautonomia (reported by seven countries). Diabetes or heart disease were noted as alternative diagnoses by 4-5 countries each. **Austria** reported that ICD-10 coding for long COVID and ME/CFS are often used to code for post-acute infection syndrome (PAIS) in patients – sometimes interchangeably throughout a patient’s care journey.

To report long COVID, the ICD-10 Clinical Modification Guideline on Post COVID-19 Condition instructs that alongside the code U09.9 (“Post COVID-19 condition”, unspecified), one or more codes should be used to indicate related specific symptoms or conditions (WHO, 2022^[11]). This dual coding practice was reported by three countries (**Canada, Germany and Poland**). The eleventh revision of the ICD provides a specific code for long COVID – *RA02 (Post COVID-19 condition)* – which serves as a link between symptoms or conditions that are listed and the COVID-19 aetiology (WHO, 2022^[12]).

4.6. Surveillance of long COVID cases is largely dependent on administrative data and research studies

In order to plan and fund programmes, initiatives and support for long COVID, countries must more accurately estimate and monitor the disease burden. Clinical definitions and coding methods are key processes helping countries in their surveillance efforts to quantify long COVID cases and provide reliable estimates of the health impact. As most countries lack reliable means of surveillance of the disease burden, many OECD countries resort to various methods to obtain recent estimates of long COVID case numbers. Many are reliant on medico-administrative or research data, which may underestimate or lack representativeness for the disease burden in the general population. These methods are also subject to issues related to awareness, appropriate diagnosis and coding, as described in Section 4.4.

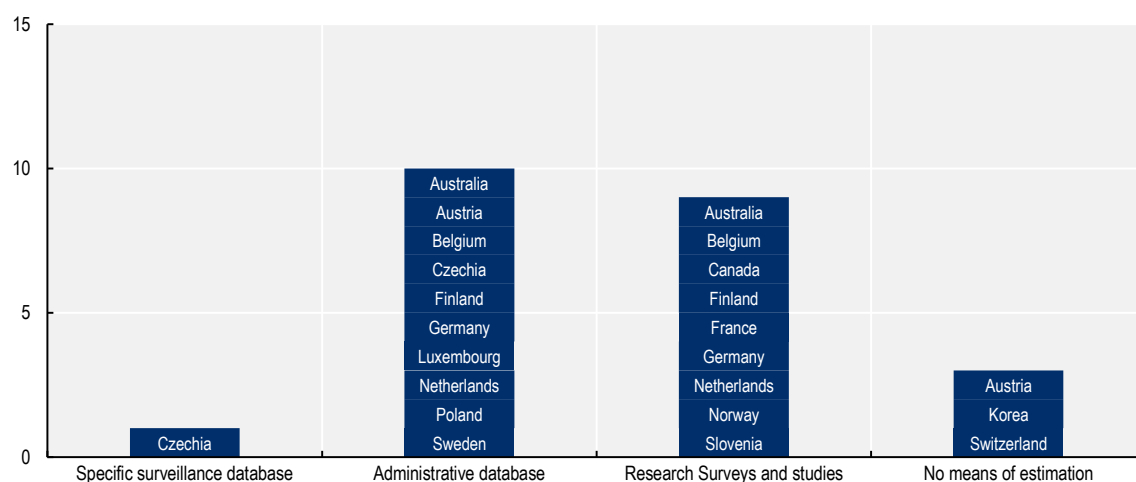
Only one countries (**Czechia**) reported a dedicated surveillance database for reporting cases of long COVID in 2025 (Figure 4.4). The country aims to achieve full population coverage by linking this registry to the country’s post-COVID expertise centres. **France** is considering implementing a self-reported case registry. In **Poland**, a patient registry is under construction as part of a project at the Medical Research Agency, but no national routine surveillance system is in place.

Ten countries (**Australia, Austria, Belgium, Czechia, Finland, Germany, Luxembourg, the Netherlands, Poland and Sweden**) use their administrative databases as data sources to estimate long COVID cases. However, in **Sweden**, for example, since the data come from hospitals and do not capture primary care codes, the majority of patients with long COVID are not counted. Similarly, in **Belgium**, only patients who are included in the specific care pathway for long COVID can be identified. The **Netherlands** used GP administrative data for estimating long COVID prevalence on a once-off basis, and identified barriers to registering long COVID patients (Simanowski et al., 2025^[13]). **Austria** has an administrative database based on the ICD-10 code U09.9 (“Post COVID-19 condition”), but it is not considered a reliable estimate of the number of long COVID cases.

Nine countries (**Australia, Belgium, Canada, Finland, France, Germany, the Netherlands, Norway and Slovenia**) estimate long COVID case numbers through surveys and research studies. In **France**, the most recent national study is from 2022 (Santé publique France, 2024^[1]), while **Canada** has conducted annual surveys between 2022 and 2026, to monitor the prevalence, severity, duration and impact of the condition (Government of Canada, 2023^[14]; Government of Canada, 2026^[15]). In the **Netherlands**, tracking of the

health status of patients with long COVID is possible via the Post-COVID Network, which is a research cohort of approximately 16 000 patients registered as of 2025 (ZonMw Netherlands, n.d.^[16]). Three countries (**Austria**, **Korea** and **Switzerland**) reported not having an existing way to estimate long COVID cases. The US CDC has reported regular estimates of long COVID prevalence using periodic household surveys, as a means of surveillance of long COVID in the population (Box 4.1). Additionally, **Ireland** conducted the FADA population survey to estimate the prevalence and health impact of long COVID in 2022 (Health Service Executive, 2024^[17]). **Japan** established two research cohorts of patients follow-up since 2021 and 2022 to survey for long COVID.

Figure 4.4. Most surveyed OECD countries monitor cases of long COVID through administrative databases or research surveys and studies



Note: Survey question: "Is there a dedicated registry or database that enables surveillance of cases of long COVID in your country? (Select all that apply)".

Source: 2025 OECD Long COVID Mapping Policy Survey.

Box 4.1. The United States has led on long COVID recognition, surveillance and research through the Researching COVID-19 to Enhance Recovery programme

The United States has been a leader in the response to long COVID, engaging multiple agencies to understand, monitor and address the condition. The *Health and Human Services Office for Long COVID Research and Practice* was created in 2023, on recommendation of the *National Research Action Plan on Long COVID* report, to co-ordinate efforts across 14 federal agencies (Federal Register, 2023^[18]).

In addressing long COVID, the US Department of Health and Human Services recognised the need for a robust definition to support clinical care, research and supportive services. It thus tasked NASEM to develop a long COVID definition through a rigorous, inclusive and multidisciplinary process (NASEM, 2024^[4]). A 16-member committee conducted an extensive literature review, and involved over 1 300 stakeholders in this process (Abene, 2024^[19]; Solve M.E., 2024^[20]). NASEM uses the terminology “long COVID” for simplicity and comprehensibility. It chose to define long COVID as existing among a larger group of infection-associated chronic conditions to highlight the extent of severity and the clinical impact of the condition (Ely, Brown and Fineberg, 2024^[5]).

The US CDC tracks long COVID prevalence through the household pulse surveys, with an updated estimate expected in 2026. Its estimates, based on survey data and information from electronic health records, facilitate segmenting of prevalence data by state and demographic groups, with results available through an interactive dashboard on its website (CDC, 2025^[21]). The CDC has also provided a broad suite of resources for healthcare professionals, with an emphasis on building awareness and understanding of the condition, and on information to support healthcare decision making and disability claims (CDC, 2025^[22]). Importantly, the CDC has taken an active role in promoting COVID-19 vaccination as a key prevention measure for long COVID.

The US National Institute of Health’s 2021 Researching COVID-19 to Enhance Recovery (RECOVER) programme had initial funding of USD 1.15 billion, including over USD 764 million for clinical research studies and USD 173 million for clinical trials (RECOVER, 2025^[23]). An additional USD 662 million was allocated to fund research studies from 2025 to 2029. RECOVER cohort studies have included nearly 90 000 participants, with trials aiming to understand the underlying causes and health impact of long COVID, as well as identifying and testing therapeutic interventions (NIH, 2024^[24]). Paediatric long COVID has been a priority for research: as part of the RECOVER programme, more than 15 000 children are participating in observational studies and clinical trials at more than 100 sites (RECOVER, 2025^[25]; VCU Health, 2024^[26]).

Long COVID has benefited from disability recognition in the United States, with government guidance confirming that it may qualify as a disability for government services if the condition substantially limits a major life activity (US Department of Health and Human Services; US Department of Justice, 2021^[27]). Similarly, employers must provide reasonable accommodations for employees with the condition, including modified work schedules, leave or remote work options; employees are protected from discrimination or retaliation based on this disability status.

Nonetheless, the longer-term trajectory in the United States around long COVID is not clear. While previously the US Food and Drug Administration recommended COVID-19 vaccines for anyone older than six months, the 2025 vaccine schedule was adjusted to support individual-based decision making (CDC, 2025^[28]; AAMC, 2025^[29]). Similarly, the *Office for Long COVID Research and Practice* is closing, and some grants under the RECOVER programme have been cancelled (Venkatesan, 2025^[30]).

Source: CDC, <https://www.cdc.gov/long-covid/index.html>; CDC, <https://www.cdc.gov/nchs/covid19/pulse/long-covid.htm>.

4.7. Financial protection against the medical costs of long COVID is mainly provided by universal healthcare systems

As shown in the first part of the report that provides an estimate of the socio-economic consequences of long COVID, patients with the condition incur additional healthcare costs. Direct medical costs can vary considerably owing to the care needs of patients – including diagnostic services; consultations; physical, occupational or speech therapy; and medications – as well as severity of the condition.

All countries responding to the 2025 policy survey have some coverage of healthcare costs for various services required by long COVID patients. However, coverage is usually not specific to long COVID, and the extent of protection varies. **Austria** noted that many patients affected by this condition often need more specialised care, and that visits to private healthcare institutions are not fully covered by public insurance. In the **Netherlands**, patients with long COVID needing physiotherapy must often rely on additional insurance coverage. In addition, while the **Netherlands** has multiple post-COVID centres of expertise where the costs for patient treatment are covered as part of ongoing research, there are waiting lists to access these centres. Based on the research findings, some of these services may be included in the health insurance package in the **Netherlands** in the future, which will increase access.

4.8. Sickness and disability coverage for long COVID generally falls under general social welfare rather than being specifically linked to the condition

Most countries responding to the 2025 policy survey noted that sick leave or disability benefits are generally not granted based on specific recognition or diagnosis of long COVID but rather based on general eligibility criteria for social welfare. For example, sick leave and disability allowances are based on a person's ability to work rather than the underlying illness in **Austria**; similarly, in **Australia**, the National Disability Insurance Scheme is based on having any significant disability. In **Finland**, sick leave and social welfare support are decided on an individual basis owing to the varied nature and symptoms of long COVID. In **France**, the list of long-term conditions that provide 100% coverage does not explicitly include long COVID. However, the national health insurance fund can grant 100% coverage for complex and costly non-listed conditions, based on justification from the primary care and specialist practitioners. Regardless, patients in **France** can still benefit from sick leave of six months with support for transportation. In **Poland**, both the diagnosis and health status are considered when determining eligibility for social welfare benefits.

Nevertheless, four countries (**Belgium**, **Germany**, **Luxembourg** and **Switzerland**) reported specifically funding sick leave for long COVID as a recognised illness. In **Luxembourg**, this initiative required dialogue and strong collaboration between healthcare providers, patients, Ministry of Health and Social Security, the Health Insurance Fund. In **Germany**, long COVID symptoms can be recognised as a disability, with some cases even recognised as an occupational illness (BMG Initiative Long COVID, n.d.^[31]) Furthermore, **Switzerland** reported that long COVID is formally recognised for disability benefits.

Most OECD countries surveyed in 2025 did not directly recognise a diagnosis of long COVID in the provisions of their social welfare systems but rather make decisions on support based on the impact on the patient's functioning capacity. In some cases, this is in line with the country's approach to social welfare eligibility, which does not base disability on a list of diagnosed conditions (such as **Australia** and **Austria**). In other cases such as in **France**, there is a list of conditions that automatically grant disability coverage (of which long COVID is not among them), but disability support can also be granted for other situations that cause significant impairment. Similarly, **Sweden** and the **Netherlands** reported that social security benefits for people living with long COVID are based on the impact on patients functioning capacity, rather than specifically linked to a diagnosis of long COVID.

With the support of the Ministry of Social Affairs and Employment in the **Netherlands**, guidelines are in development to improve occupational physicians' knowledge of long COVID symptoms and limitations to assist in a thorough disability assessment for patients with the condition applying for disability benefits. Similarly, the Dutch Employee Insurance Agency has organised training courses on long COVID for occupational physicians (Uitvoeringsinstituut Werknemersverzekeringen, 2025^[32]). Given that long COVID affects individuals differently, their social welfare needs may also vary, and available support should be assessed accordingly – particularly those who are highly impaired over the long term – to ensure they receive the recognition and financial support they need from social welfare systems.

References

- AAMC (2025), *Your fall 2025 vaccine guide*, <https://www.aamc.org/news/your-fall-2025-vaccine-guide>. [29]
- Abene, S. (2024), *New Definition of Long COVID Sets Course for Unified Care and Research*, <https://www.contagionlive.com/view/new-definition-of-long-covid-sets-course-for-unified-care-and-research>. [19]
- BMG Initiative Long COVID (n.d.), *Important information on Long COVID in the professional context*. [31]
- Canadian Paediatric Society (2024), *Canadian Paediatric Surveillance Program Results*. [8]
- CDC (2025), *CDC Immunization Schedule Adopts Individual-Based Decision-Making for COVID-19 and Standalone Vaccination for Chickenpox in Toddlers*, US Centers for Disease Control and Prevention, <https://www.hhs.gov/press-room/cdc-immunization-schedule-individual-decision-covid19-standalone-chickenpox-toddlers.html> (accessed on 16 October 2025). [28]
- CDC (2025), *Clinical Overview of Long COVID*, US Centers for Disease Control and Prevention, <https://www.cdc.gov/long-covid/hcp/clinical-overview/index.html> (accessed on 16 October 2025). [22]
- CDC (2025), *Tracking Long COVID*, US Centers for Disease Control and Prevention, <https://www.cdc.gov/long-covid/php/surveillance/index.html> (accessed on 16 October 2025). [21]
- Ely, E., L. Brown and H. Fineberg (2024), "Long Covid Defined", *New England Journal of Medicine*, Vol. 391/18, pp. 1746-1753, <https://doi.org/10.1056/nejmsb2408466>. [5]
- Federal Register (2023), *Establishment of the Office of Long COVID Research and Practice*, <https://www.federalregister.gov/documents/2023/08/01/2023-16251/establishment-of-the-office-of-long-covid-research-and-practice>. [18]
- Fineberg, H. et al. (eds.) (2024), *A Long COVID Definition: A Chronic, Systemic Disease State with Profound Consequences*, The National Academies Press, Washington, DC, <https://doi.org/10.17226/27768>. [4]
- Government of Canada (2026), *Canadian Community Health Survey - Annual Component (CCHS) 2026*, Canadian Community Health Survey - Annual Component (CCHS) 2026, <https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&Id=1581573> (accessed on 30 March 2026). [15]

- Government of Canada (2023), *Canadian COVID-19 Antibody and Health Survey (CCAHS)*, [14]
<https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&Id=1480441>.
- Health Service Executive; (2024), *HSE publishes findings of survey examining the long-term impact of acute COVID 19 disease*, [17]
<https://about.hse.ie/news/hse-publishes-findings-of-survey-examining-the-long-term-impact-of-acute-covid-19-disease/> (accessed on 9 February 2026).
- IHACPA (2025), *Tier 2 Non-Admitted Services Classification Version 9.1*. [10]
- Long COVID Kids (2022), *Are we facing a surge of Long Covid with Paediatric Acute-Onset Neuropsychiatric Syndrome (PANS)?*, [9]
<https://www.longcovidkids.org/post/what-is-paediatric-acute-onset-neuropsychiatric-syndrome-pans-and-how-is-it-treated#viewer-br25p>.
- NICE (2024), *COVID-19 rapid guideline: managing the long-term effects of COVID-19*, [3]
<https://www.nice.org.uk/guidance/NG188>.
- NIH (2024), *NIH to bolster RECOVER Long COVID research efforts through infusion of \$515 million*, [24]
<https://www.nih.gov/about-nih/who-we-are/nih-director/statements/nih-bolster-recover-long-covid-research-efforts-through-infusion-515-million> (accessed on 16 October 2025).
- RECOVER (2025), *About RECOVER Funding*, [23]
<https://recovercovid.org/funding> (accessed on 16 October 2025).
- RECOVER (2025), *Insights from RECOVER's pediatric study can inform future clinical trials*, [25]
<https://recovercovid.org/news/insights-recover-pediatric-study-can-inform-future-clinical-trials> (accessed on 16 October 2025).
- Santé publique France (2024), *Prévalence du COVID long dans la population adulte générale selon différentes définitions et selon les caractéristiques de l'infection et sociodémographique. Une enquête nationale par sondage aléatoire à l'automne 2022*, Santé publique France, [1]
<https://www.santepubliquefrance.fr/revues/articles-du-mois/2024/prevalence-du-covid-long-dans-la-population-adulte-generale-selon-differentes-definitions-et-selon-les-caracteristiques-de-l-infection-et-sociodemo> (accessed on 17 October 2025).
- Simanowski, J. et al. (2025), *Post-COVID-syndroom: diagnose en registratie in de huisartsenpraktijk*. [13]
- Solve M.E. (2024), *NASEM's Long Covid Definition Report: A First Step In Helping Patients, Researchers, and Public Health*, [20]
<https://solvecfs.org/nasems-long-covid-definition-report-a-first-step-in-helping-patients-researchers-and-public-health/>.
- Uitvoeringsinstituut Werknemersverzekeringen (2025), *EenVandaag besteedt aandacht aan long covid*, [32]
<https://www.uwv.nl/nl/persberichten/eenvandaag-besteedt-aandacht-aan-long-covid>.
- UMC Utrecht (2025), *UMC Utrecht starts pediatric Post-COVID center of expertise*, [7]
<https://research.umcutrecht.nl/news/umc-utrecht-starts-pediatric-post-covid-center-of-expertise/>.
- US Department of Health and Human Services; US Department of Justice (2021), *Guidance on "Long COVID" as a Disability Under the ADA, Section 504, and Section 1557*, [27]
https://archive.ada.gov/long_covid_joint_guidance.pdf.

- VCU Health (2024), *VCU-led research consortium identifies distinct long COVID symptoms in children and teens*, <https://www.vcuhealth.org/news/vcu-led-research-consortium-identifies-distinct-long-covid-symptoms-in-children-and-teens/> (accessed on October 16 2025). [26]
- Venkatesan, P. (2025), “US Government cuts funding for long COVID research”, *The Lancet Microbe*, Vol. 6/10, p. 101166, <https://doi.org/10.1016/j.lanmic.2025.101166>. [30]
- WHO (2023), *A clinical case definition for post COVID-19 condition in children and adolescents by expert consensus*, <https://www.who.int/publications/i/item/WHO-2019-nCoV-Post-COVID-19-condition-CA-Clinical-case-definition-2023-1>. [6]
- WHO (2022), *ICD-10-CM Official Guidelines for Coding and Reporting*, https://ahcc.decisionhealth.com/media/1748/icd-10-cm-fy2026_guidelines.pdf. [11]
- WHO (2022), *Post COVID-19 condition (Long COVID)*, World Health Organization, <https://www.who.int/europe/news-room/fact-sheets/item/post-covid-19-condition> (accessed on 4 November 2024). [2]
- WHO (2022), *RA02 Post COVID-19 condition*, World Health Organization, <https://icd.who.int/browse/2025-01/mms/en#2024855916>. [12]
- ZonMw Netherlands (n.d.), *Post-COVID: research programme, knowledge infrastructure and expertise network*, <https://www.zonmw.nl/nl/programma/post-covid-onderzoeksprogramma-kennisinfrastructuur-en-expertisenetwerk> (accessed on 22 October 2025). [16]

5

National strategies to address long COVID with dedicated funding are lacking

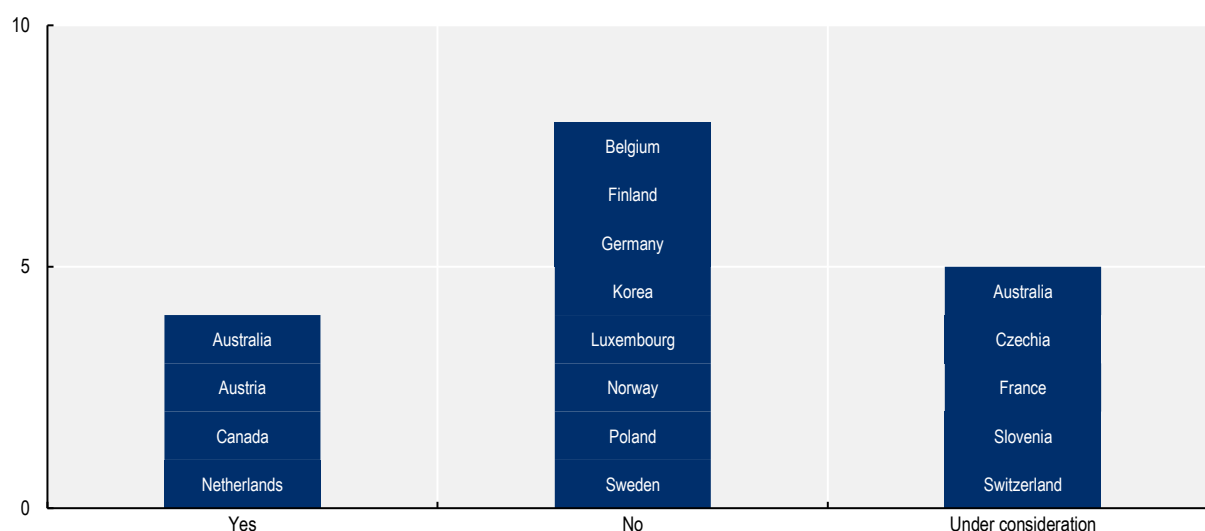
This chapter summarises the strategic planning and financial commitments to address long COVID at a national level in the health system, including national plans, dedicated health and research budgets, and involving patients in research. Two national initiatives from Germany and the Netherlands illustrate the efforts made to address long COVID by providing coordination and funding at national level and across different sectors to support research on and organisation of care for long COVID.

5.1. Few countries have a national plan or strategy in place to address long COVID

Given the prevalence of long COVID as a long-term condition with health, social and economic consequences for patients and the population as a whole (see Chapter 2), an overarching strategy is important for organisation of health and social welfare services and to identify research priorities.

In 2025, only four countries (**Australia, Austria, Canada** and the **Netherlands**) reported having a national plan or strategy to address the long-term consequences of long COVID (Figure 5.1). **Norway** and **Poland** both had national plans for rehabilitation of patients affected by SARS-CoV-2, but these were discontinued. As of 2025, development of a national plan or strategy is under consideration in **Czechia, France, Slovenia** and **Switzerland**. In **Australia**, the government is awaiting results from a national OUTPOST study under way to guide development of a new long COVID plan. **Switzerland** is considering a national strategy to improve the health situation of people with ME/CFS and long COVID, with a motion passed in the Federal Council and the National Council. In **Sweden**, while no national long COVID strategy is in place, the National Board of Health and Welfare is implementing both completed and ongoing government commissions aimed at supporting people with long COVID. **Germany** has managed to advance a comprehensive national policy initiative for long COVID (Box 5.1) and organise substantial social and economic support without an official national long COVID plan in place. **Japan** reported no national strategy dedicated specifically to long COVID.

Figure 5.1. Most surveyed countries do not have a national plan or strategy to address long COVID



Note: Survey question: "Is there a national plan or strategy in place to address the long-term consequences of long COVID?"

Source: 2025 OECD Long COVID Mapping Policy Survey.

Box 5.1. Germany and the Netherlands co-ordinate scientific research and support initiatives for long COVID at the national level

The German Federal Ministry of Health launched the BMG Long COVID Initiative in July 2023

The Ministry of Health launched two multi-year funding initiatives (2024-2028) for health services research on long COVID. Their scope includes clinical presentations of post-acute infection syndromes such as chronic fatigue syndrome (ME/CFS), as well as symptoms related to a COVID-19 vaccination. The first initiative “Research and strengthening of patient care for post-acute sequelae of COVID-19” includes 30 projects which focus on three main areas: integrated care, innovations, and epidemiology. The second is composed of four pilot projects for care of children and adolescents with long COVID and conditions with a similar cause or symptoms. The largest includes 43 institutions and 37 associated partners to build a nationwide healthcare network for post-acute infection syndromes, including biobanks.

- The innovation fund of the Federal Joint Committee (G-BA) dedicated 16 projects to adequate care for patients with post-viral syndromes, e.g. long COVID or chronic fatigue syndrome (ME/CFS)
- The Federal Joint Committee (G-BA) issued a long COVID directive in 2024 describing “clinical pathways” for the treatment of long COVID. Furthermore, in 2025 fee items to the outpatient sector fee schedule (EBM) were added.
- The German Respiratory Society, together with a number of other medical societies, published an S1 Clinical guideline. The clinical recommendations describe current long/Post-COVID symptoms, diagnostic approaches, and therapies based on current knowledge. A guideline for children and adolescents is currently being developed.
- Five long COVID Round Tables have connected experts from research, science, healthcare, health policy, patient advocacy groups and related fields to discuss current developments and recommendations on long COVID.
- Under the BMG Long COVID Initiative, a new alliance for post-infection syndromes was launched to enhance co-operation between the Federal Ministry of Health and the Federal Ministry of Research, Technology and Space. The ministry plans to fund further research projects and has announced a national decade against post-infection syndromes.
- The Federal Institute for Drugs and Medical Devices (BfArM) convened an expert group on long COVID Off-Label-Use to draft a list of medicines that can be recommended for off-label prescription and reimbursement for long COVID patients based on current evidence. Recommendations of the expert group were submitted to the Federal Joint Committee in October 2025. In addition, a “therapy compass” (recommendations for the use of authorised drugs for the treatment of long COVID-associated symptoms) has already been published.

The Netherlands leads co-ordinating efforts on long COVID policy between national and regional levels

A major ambition in the Netherlands has been to connect all stakeholders working on long COVID within a national network, to ensure sharing and implementation of guidelines and expertise.

- The Netherlands Health Council (*Gezondheidsraad*) advises the Minister of Health, Welfare and Sport on the impact of post-COVID conditions. It is currently preparing a new report for 2026 that re-examines scientific knowledge regarding the definition, prevalence, diagnosis and treatment methods of long COVID, in the context of other post-infectious syndromes.
- Guideline development takes place through the Dutch Association of Medical Specialists and the Dutch College of General Practitioners. Within the former, an expert team advises on the

interplay between post-COVID guidelines, post-COVID expertise centres and post-COVID-19 research at local, regional and national levels.

- Post-COVID Network Netherlands is a national collaborative network introduced in 2024, and funded independently by ZonMw (the Dutch Organisation for knowledge and innovation in health, healthcare and well-being), on behalf of the Ministry of Health. The Network's goal is to ensure that patients, scientists, healthcare professionals and social partners collaborate to co-ordinate research and patient care for long COVID, to promote use of all relevant knowledge.
- In 2024, ZonMw developed a research agenda under which researchers could submit grant applications within the post-COVID programme. The Dutch Association of Medical Specialists contributed to developing clinical priorities for the agenda, while a patient consultation was conducted to identify the most urgent treatment challenges for patients.

Sources: BMG Long COVID Initiative, <https://www.bmg-longcovid.de/en>.

Robert Koch Institute, <https://www.rki.de/EN/Topics/Infectious-diseases/Acute-respiratory-infections/COVID-19/Long-COVID/content-total.html>.

S1 Guideline Long-Post-COVID https://register.awmf.org/assets/guidelines/020-0271_S1_Long-Post-Covid_2025-08-verlaengert.pdf.

Ärzte- und Ärztinnenverband Long COVID, <https://long-covid-verband.de/>.

BMG Long COVID Initiative, <https://www.bmg-longcovid.de/en/discourse/long-covid-round-table>.

Charité Universitätsmedizin Berlin, https://cfc.charite.de/en/clinical_research/nksg.

Bundesinstitut für Arzneimittel und Medizinprodukte, https://www.bfarm.de/DE/Arzneimittel/Zulassung/Zulassungsrelevante-Themen/Expertengruppe-Long-COVID-Off-Label-Use/_node.html#therapiekompass.

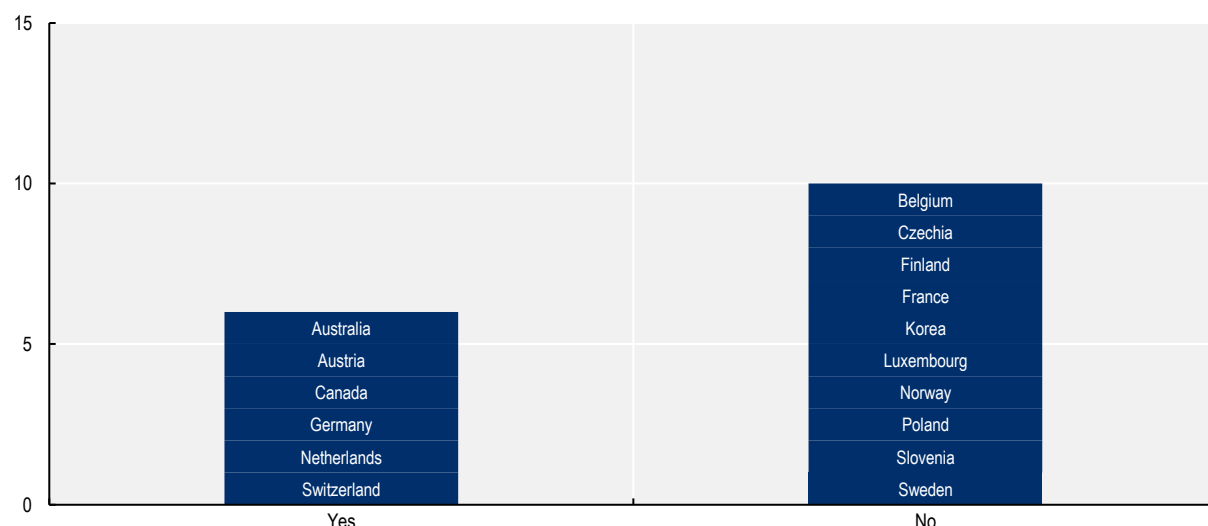
Gezondheidsraad <https://www.gezondheidsraad.nl/onderwerpen/z/zorg/alle-adviezen-over-zorg/post-covid>.

5.2. Interministerial management can ensure a broader range of support for addressing the social and economic consequences of long COVID

Most countries see long COVID as an issue that is handled solely within the health ministry. However, given the broad range of needs of patients with long COVID – including educational adaptations for children, economic support for those unable to work, reintegration into the workforce and social support – and the broad implications of the condition on society, such an approach has major limitations. A cross-sectoral approach that looks beyond the health ministry, and that reaches outside government to include other sectors such as employers and insurance providers, can provide for more holistic, comprehensive solutions to the challenges posed by long COVID.

Having a national plan – as in **Australia**, **Austria**, **Canada** and the **Netherlands** – appears to facilitate interministerial management, although a national plan is not a requirement for such an approach (as in the case of **Germany** and **Switzerland**) (Figure 5.2). In **Austria** the Ministries of Work, Education and Research were also involved in the creation of the Action Plan on PAIS (Bundesministerium für Soziales, Gesundheit, Pflege und Konsumentenschutz, 2024^[1]). In the **Netherlands**, in addition to managing healthcare services, the Ministry of Health, Welfare and Sport funds the organisation C-support, which supports people with long COVID in various areas, including income and work-related issues. The Ministry of Social Affairs and Employment in the **Netherlands** is also working to improve recognition of and assessment of disability for long COVID as described in (Chapter 4, Section 4.8). It has raised awareness among occupational health professionals, employers and colleagues to support work reintegration of people with long COVID. The Ministry of Education, Culture and Science is working towards offering a fully developed digital distance learning system to ensure education for groups in need, such as children with long COVID.

Figure 5.2. The majority of surveyed countries have not pursued a cross-sectoral approach to long COVID



Note: Survey question: “Are other government sectors outside of health addressing the long-term consequences of long COVID? (e.g. education, labour)”.

Source: 2025 OECD Long COVID Mapping Policy Survey.

In **Germany**, the Federal Ministry of Research, Technology and Space funds research initiatives related to long COVID and supports educational programmes for healthcare professionals and public awareness campaigns. In parallel, the Federal Ministry of Labour and Social Affairs develops policies and programmes to support reintegration of people affected by long COVID into the workforce, including flexible work arrangements and workplace accommodations, while the Federal Employment Agency provides vocational rehabilitation, retraining and job placement services tailored to the capacities of people with long COVID, and supports employers in adapting workplaces. In addition, the Federal Ministry for Education, Family Affairs, Senior Citizens, Women and Youth addresses the social and psychological impact of long COVID on families and vulnerable populations.

Nonetheless, in many cases, long COVID policies are still mainly siloed within the health system. Of the 16 countries responding to the survey, 10 reported not applying an interministerial approach in their response to long COVID issues. Among countries that do use this approach, such as **Canada**, involvement of other departments remains mainly limited to disability benefit programmes.

5.3. Scientific committees can inform evidenced-based policies for long COVID

During the COVID-19 pandemic, multiple national health authorities developed guidelines and recommendations to manage acute COVID-19 illness. However, the emergence of long COVID as a chronic condition with long-term effects and additional health and social consequences also requires evidence-based guidelines for management. In 2025, ten countries (**Australia, Austria, Canada, France, Germany, Luxembourg, the Netherlands, Norway, Slovenia and Sweden**) reported having a national scientific committee or institute to advise on long COVID evidence and policy (Figure 5.3). Six countries (**Belgium, Czechia, Finland, Korea, Poland and Switzerland**) reported not having such a committee, with countries such as **Poland** relying on existing bodies for advice as needed.

Figure 5.3. The majority of surveyed countries have a national scientific or research committee to advise on management of long COVID



Note: Survey question: “Does a national scientific committee or institute or something comparable exist to advise on long COVID evidence and policy?”

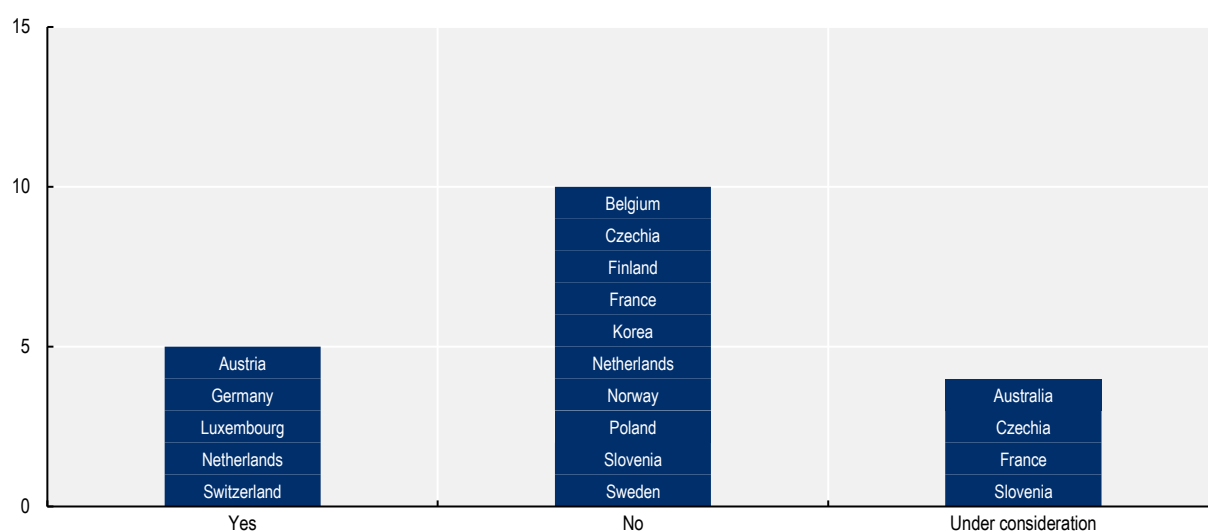
Source: 2025 OECD Long COVID Mapping Policy Survey.

Scientific and national advisory committees come in many different forms. In **Austria**, the advisory group focusses on PAIS, and a national reference centre for post-viral syndromes has been established. In **France**, a working group composed of physicians, patient representatives and researchers has been established by the Haute Autorité de Santé to advise on best practice approaches to definition, diagnosis and management (Haute Autorité de Santé, 2021^[2]). In **Slovenia**, a multidisciplinary body is preparing guidelines and clinical pathways, while in **Sweden**, the National Board of Health and Welfare has published guidelines to support healthcare workers. In **Australia**, the APPRISE Network leads research programmes to inform the country’s response on long COVID, while the COVID-19 Research Advisory Committee has provided guidance in diagnosis and treatment of long COVID. **Canada** established a Chief Science Advisor’s Task Force on Post-COVID-19 Condition, which has identified data gaps as well as recommendations on addressing the health and socio-economic impacts of long COVID (Office of the Chief Science Advisor of Canada, 2024^[3]). The Task Force set out a list of priority direct actions and health system-oriented actions, summarised the evidence base and provided updated epidemiological and economic estimates of long COVID, outlining best practices and listing available clinical trials in **Canada**. Nationally-led efforts on scientific co-ordination and health policymaking for long COVID have progressed in **Germany** and the **Netherlands** to date (Box 5.1).

5.4. No health funding is allocated specifically to long COVID management in most countries

Sustainable budgeting for long COVID care supports planning and allocation of healthcare resources for the management of patients living with long COVID as a chronic condition. Only five of the OECD countries surveyed (**Austria**, **Germany**, **Luxembourg**, the **Netherlands** and **Switzerland**) have a dedicated health budget allocated to long COVID management, while this is under consideration in four others (**Australia**, **Czechia**, **France** and **Slovenia**) (Figure 5.4). **Poland** used to have a dedicated budget for rehabilitation for long COVID, but this has been discontinued.

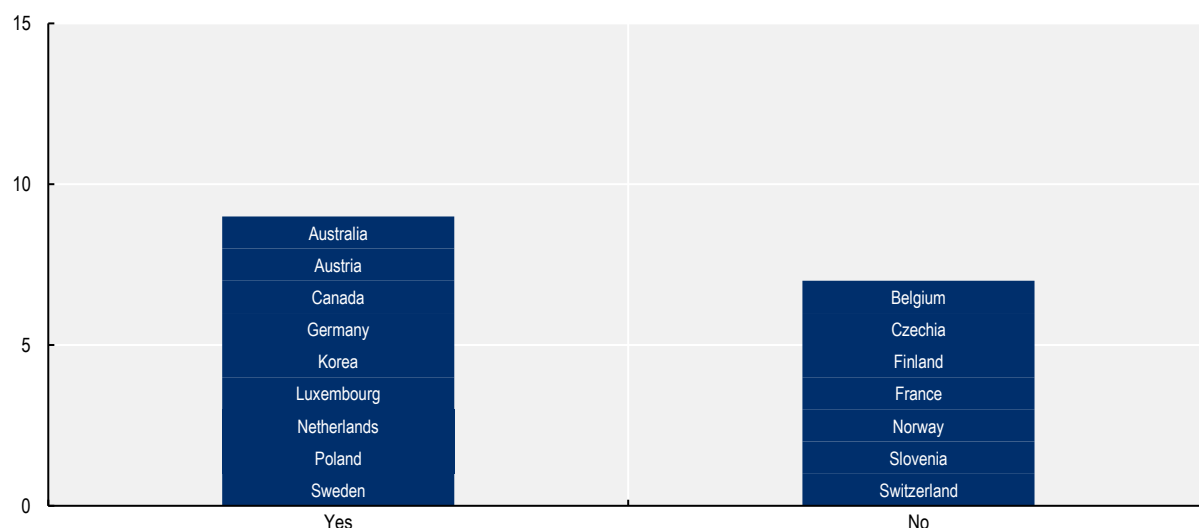
Figure 5.4. The majority of surveyed countries do not have a dedicated long COVID health budget



Note: Survey question: “Is there a specific health budget allocated toward long COVID management? (e.g. regarding acute care measures, pilots, rehabilitation...)”. In Canada funding is provided at provincial and territorial level and thus no response is included for the national level. Source: 2025 OECD Long COVID Mapping Policy Survey.

Countries have invested millions of euros in long COVID research. Nine countries (**Australia, Austria, Canada, Germany, Korea, Luxembourg, the Netherlands, Poland** and **Sweden**) reported having dedicated funding for long COVID research (Figure 5.5). The **Netherlands** has invested about EUR 41 million for 2023-2028, including on initiatives outlined in Box 5.1 above. **Australia** has invested AUD 50 million in long COVID, including on designing and evaluating clinical pathways and models of care, and generating new diagnostic and therapeutic approaches to improve outcomes. Similarly, **Korea** invested about USD 16 million during 2022-2025, while **Canada** invested CAD 20 million for 2023-2027. While **Sweden** reported funding of about EUR 4.5 million during 2021-2025, funding will be highly limited from 2026 onwards, with no further dedicated research grants for long COVID. In 2025, two countries (**France** and **Slovenia**) reported integrating long COVID research funding into their general health research budget. Between 2019 and 2024, the **United Kingdom** invested over GBP 57 million through the NIHR and UKRI into long COVID research, including clinical trials and rehabilitation studies. **Japan** reported two research cohort studies on long COVID with budget provided from the national research funding scheme.

Figure 5.5. The majority of surveyed OECD countries have dedicated funding for long COVID research



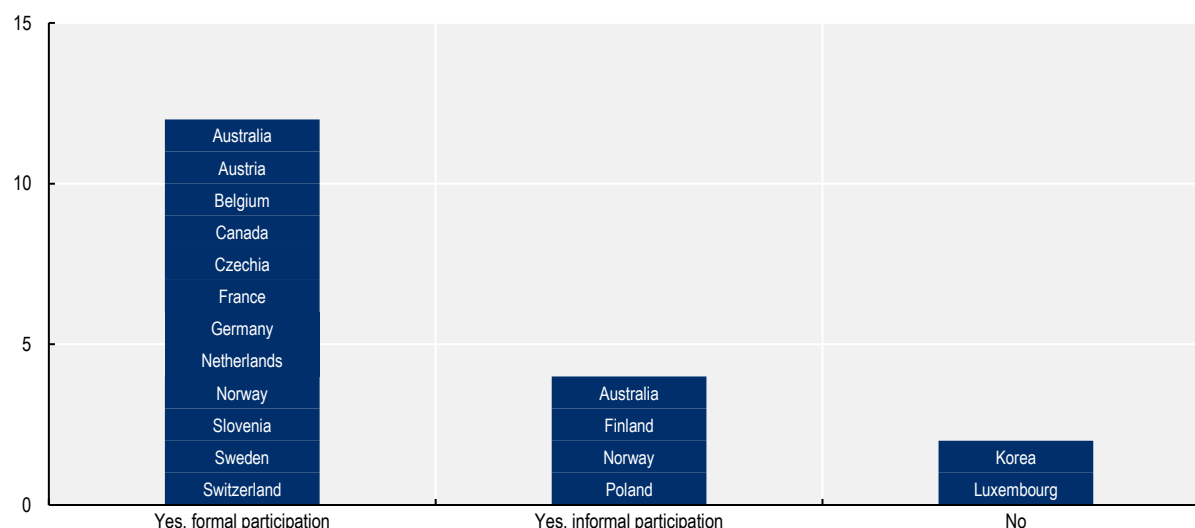
Note: Survey question: "Is there dedicated funding for research on long COVID at a national level?"

Source: 2025 OECD Long COVID Mapping Policy Survey.

5.5. Engagement of people living with long COVID is key for aligning research priorities, resources and services with patient needs

Substantial patient engagement is necessary for any initiatives on long COVID to ensure that research and policymaking are aligned with the actual needs of patients living with the condition, to support improvements in their quality of life. Overall management of the condition has been hindered – first by a lack of recognition of its existence by the medical community, and subsequently by underestimation of its prevalence and impact across all sectors of society. Several patient associations have been established for long COVID, which actively provide support to members and can advise and provide relevant lived experience of the condition to inform health policymakers. Eleven OECD countries reported that their long COVID national initiatives benefited from formal participation of patients (Figure 5.6).

Figure 5.6. Most surveyed countries have involved patients affected by long COVID in related policy initiatives



Note: Survey question: "Have any of the long COVID initiatives benefited from consultation or participation of patients or patient associations?"
Source: 2025 OECD Long COVID Mapping Policy Survey.

Poland considered the voices of patients and patient organisations (such as the Patient Rights Ombudsman) during the creation of its rehabilitation programme; however there is no permanent, formalised representation of long COVID patient associations in national decision making processes. **Germany** encourages patient participation in all funded research projects of its Federal Ministry of Health, and patient representatives also attend the Federal Ministry of Health's Round Table meetings (Box 5.1). In the **Netherlands**, several patient associations have joined forces in the PAIS Alliance, which encompasses other post-acute infection syndromes including long COVID (Alliantie, 2023^[4]).

The perspectives of the public and people with lived experience were also critical in the development and dissemination of the **Canadian** Guidelines for Post-COVID-19 Condition. Patient representatives were included in each working group, and feedback on the steps from a public panel and comment periods was also incorporated (CAN-PCC, 2025^[5]). Patients were also co-designers of resources developed to communicate and increase accessibility, dissemination and implementation of the recommendations.

Patients can be included in many ways in national initiatives, including via input on research priorities; participation in research studies, guideline development and communication; and development of care pathways, among others. For long COVID, where many patients have felt unheard or unrecognised and many questions remain, including patient voices is crucial for aligning research priorities, resources and services with patient need.

References

- Alliantie, P. (2023), *PAIS*, <https://paisalliantie.nl/>. [4]
- Bundesministerium für Soziales, Gesundheit, Pflege und Konsumentenschutz (2024), *Aktionsplan zu postakuten Infektionssyndromen*, https://broschuerenservice.sozialministerium.gv.at/Home/Download?publicationId=842&attachmentName=Aktionsplan_zu_postakuten_Infektionssyndromen.pdf. [1]
- CAN-PCC (2025), *Our Approach*, Canadian Guidelines for Post-COVID-19 Condition (CAN-PCC), <https://canpcc.ca/our-approach/>. [5]
- Haute Autorité de Santé (2021), *Symptômes prolongés suite à une Covid-19 de l'adulte - Diagnostic et prise en charge*, https://www.has-sante.fr/jcms/p_3237041/fr/symptomes-prolonges-suite-a-une-covid-19-de-l-adulte-diagnostic-et-prise-en-charge (accessed on 22 October 2025). [2]
- Office of the Chief Science Advisor of Canada (2024), *Dealing with the fallout: Post-COVID Condition and its continued impact on individuals and society*, <https://science.ised-isde.canada.ca/site/science/en/office-chief-science-advisor/initiatives-covid-19/dealing-fallout-post-covid-condition-and-its-continued-impact-individuals-and-society>. [3]

6 Most countries have developed clinical guidelines for effective management of long COVID, however few have official care pathways

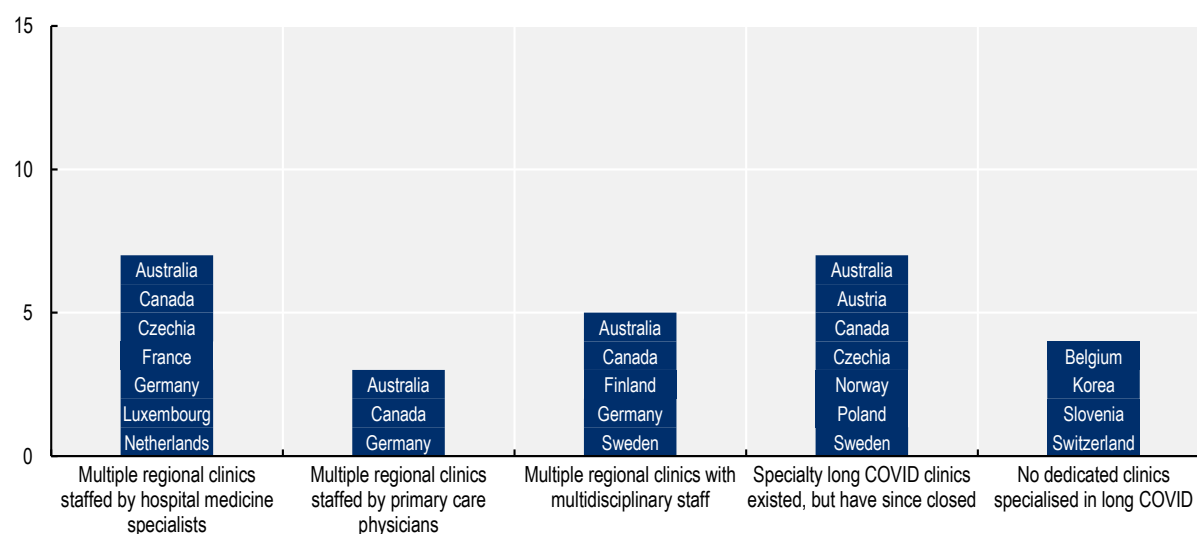
This chapter summarises the policy initiatives to support healthcare workers in order to improve the clinical management of patients living with long COVID. The focus is on the development and publication of clinical guidelines, pharmacotherapy recommendations, and training for healthcare workers. The chapter also provides an overview of the organisation of care for long COVID in 2025, and the existence or absence of care pathways.

6.1. Most countries developed specialised long COVID clinics during the pandemic, but some have since adapted their approach

Depending on the organisation of a healthcare system, the model of care for long COVID may involve a combination of health sectors to include primary care, regional specialised clinics and a national referral centre. These clinics and referral pathways require funding and co-ordination within the healthcare system. The majority of surveyed OECD countries reported use of designated specialised clinics to organise care for patients affected by long COVID (**Australia, Canada, Czechia, Finland, France, Germany, Luxembourg, the Netherlands and Sweden**) (Figure 6.1). Most of these specialised clinics are organised at the regional level and are staffed by either multidisciplinary teams (where patients have access to different healthcare professionals to manage their needs), hospital medicine specialists or primary care providers. As a small country, **Luxembourg** reported having one national centre with multidisciplinary personnel for long COVID.

The **Netherlands** established its post-COVID centres of expertise with a dual mission: to provide high-quality care and to accelerate the acquisition of knowledge and experience (Erasmus MC, 2024^[1]). The centres were not established to treat all patients with long COVID in the **Netherlands** in the short term, but to acquire and concentrate knowledge and experience quickly, and then to share this with hospitals, primary care and other healthcare providers. The intention is that effective treatments will later be covered by and implemented within the regular healthcare system.

Figure 6.1. Countries mostly depend on a variety of specialised clinics to care for patients affected by long COVID, but these have since closed in several countries



Note: Survey question: "Has the health authority designated specialised clinics to provide care for long COVID in your country?"

Source: 2025 OECD Long COVID Mapping Policy Survey.

As of 2025, seven countries (**Australia, Austria, Canada, Czechia, Norway, Poland and Sweden**) declared that at least some of these clinics had closed, owing to either referral to generic healthcare pathways or a lack of funding. In some cases, there has been a shift to referring patients under the broader clinical umbrella of PAIS. **Austria** plans to open specialised clinics or contact points to manage patients affected more generally by PAIS. **France** reported that dedicated funding for long COVID centres housed within existing hospitals was being renewed to varying degrees and tended not to be maintained over time. As of 2025, **Norway** and **Poland** have discontinued their established specialised clinics, and patients are

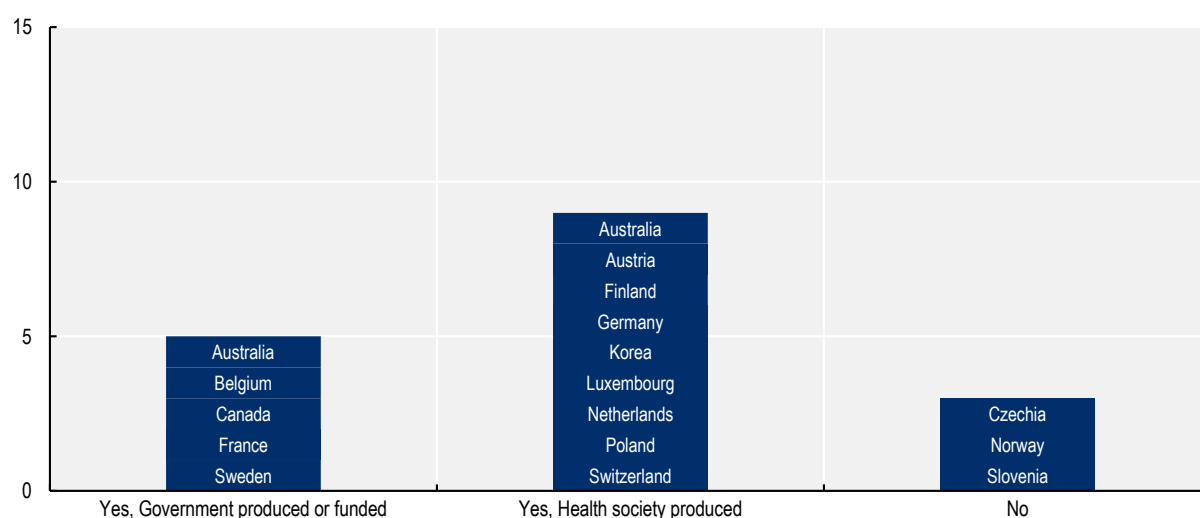
now managed in general medical clinics. Four countries (**Belgium, Korea, Slovenia and Switzerland**) reported not having specialised long COVID structures to provide care (Figure 6.1). Additionally, **Japan** reported some clinics that provide tailored care combining symptom-based medical treatment and psychological support, based on national guidelines.

The availability of and funding for specialised clinics for care of long COVID represent a changing situation. Overall, despite 12 of the 16 responding countries reporting that specialised clinics for long COVID were in place at some point during COVID-19 pandemic, by 2025 seven countries had reported closure of these clinics owing to either referral to generic healthcare pathways or a lack of funding.

6.2. Clinical guidelines promote standardised and evidence-based care

Clinical guidelines for long COVID can ensure standardised case definitions, diagnostic criteria and treatment recommendations that are evidence-based and developed through expert consensus and literature review. The 2024 report *Mapping long COVID across the EU: definitions, guidelines and surveillance systems in EU Member States* found that guidelines for diagnosis and/or treatment of long COVID were available in 21 of the 34 countries examined. Common elements found across the guidelines included use of a multidisciplinary approach, ensuring a central role for primary care and the importance of rehabilitation. However, the target group for the guidelines, referral processes and specific symptoms addressed differed between guidelines. Among the 16 countries responding to the 2025 survey on long COVID, all but three (**Czechia, Norway and Slovenia**) reported having national clinical guidelines, although these are in development in **Slovenia** (Figure 6.2). Nine countries reported that the guidelines were produced by health societies, while five countries noted that they were developed or funded by the government. Similarly, in the **United Kingdom**, guidelines and recommendations were produced by NICE (Box 6.1). In **Japan** the Ministry of Health, Labour and Welfare published symptom-based clinical guidelines for long COVID.

Figure 6.2. The majority of surveyed countries have clinical guidelines for long COVID



Note: Survey question: "Are there clinical guidelines for long COVID in your country?"

Source: 2025 OECD Long COVID Mapping Policy Survey.

Box 6.1. The United Kingdom has been proactive in developing guidelines and resources for long COVID

The United Kingdom's NICE developed a case definition for long COVID that is still in partial use by a few countries, such as Germany and Belgium (see Chapter 4, Section 4.1). In addition to the NICE definition, long COVID management guidelines were developed by NICE, the Royal College of General Practitioners and the Scottish Intercollegiate Guidelines Network in 2020, and were updated in 2024. The guidelines support identification and diagnosis of long COVID, multidisciplinary rehabilitation, proactive follow-up and monitoring, integrated care pathways, and self-management (NICE, 2024^[2]).

In addition, NHS England published guidance on care pathways for adults and children, which was last updated in December 2023 (NHS England, 2023^[3]). NHS England worked in partnership with the British Society of Physical and Rehabilitation Medicine to establish the International Post COVID-19 and Post Infection Conditions Society to facilitate the ongoing sharing of best practice to support people affected by long COVID (BSPRM, n.d.^[4]).

In 2021, 90 long COVID clinics were established in England, alongside clinics in Scotland and Wales, to offer multidisciplinary care, diagnostic assessments and rehabilitation (Darbyshire et al., 2024^[5]). However, a slowdown in referrals and funding cuts as a result of financial sustainability pressures have led to closure of a number of these clinics, with patients increasingly referred back to primary care for case management. For example, NHS North East London closed its long COVID clinics as of April 2025, while keeping referral routes to specialists available and supporting patient self-care (NHS North East London, 2025^[6]). Although 13 paediatric long COVID clinics were established in 2021, only 8 of these are expected to remain open, as of 2025 (Long COVID Kids, 2025^[7]).

The United Kingdom has also invested heavily in long COVID research, providing funding of more than GBP 57 million, with four trials ongoing as of 2025 (UK Parliament, 2025^[8]). Funding is allocated to understanding long COVID disease mechanisms, symptoms and testing of treatments, as well as understanding whether NHS services such as long COVID clinics were effective and how to support patients in their own recovery (NIHR, 2022^[9]). Furthermore, in July 2025, the National Institute of Health and Care Research announced a new funding opportunity for repurposing pharmaceutical or other interventions for the treatment of PAIS, including long COVID (ME Research, 2025^[10]).

Sources: NHS, <https://www.nhs.uk/conditions/long-covid/>; NICE, <https://www.nice.org.uk/guidance/ng188/chapter/5-Management>.

One common challenge in developing guidelines for long COVID, however, is the low level of evidence or low certainty regarding many interventions. This highlights the need for regular updating of guidelines as additional knowledge emerges: the **Netherlands** is doing this for the current guidelines that were developed in 2022 (Tweede Kamer, 2025^[11]), as is **Korea** (Seo et al., 2024^[12]). **Canada** developed and updated over 100 evidence-based clinical guidelines for long COVID, for healthcare professionals, policymakers and the public (CAN-PCC, 2025^[13]).

One area where there is a robust evidence base is the protective effect of COVID-19 vaccination against developing long COVID. Several robust research studies have demonstrated this preventive effect, and a systematic review by the European Centre for Disease Prevention and Control has estimated that COVID-19 vaccination reduces the risk of long COVID by almost 30%. However, implementation and communication of this evidence base into health policy have been limited in OECD countries, with few listing long COVID prevention as a benefit of COVID-19 vaccination (Box 6.2). A lower risk of COVID-19 infection and of developing long COVID due to the milder omicron SARS-CoV-2 variant in the post-pandemic era reduces the cost-effectiveness and likely uptake of pursuing a strategy of COVID-19 vaccination of the wider population.

Box 6.2. Prevention of long COVID can be promoted as a key benefit of COVID-19 vaccination policy

SARS-CoV-2 infection is the necessary precursor to developing long COVID. COVID-19 vaccination protects against SARS-CoV-2 infection – particularly against the risk of severe infections. However, in the post-pandemic era, promotion of COVID-19 vaccination has become increasingly challenging, due to lower risk of SARS-CoV-2 infection and reduced severity of COVID-19 illness in the omicron era.

In addition to reducing the risk of severe COVID-19 illness, COVID-19 vaccination has been consistently associated with lowered risk of developing disabling and debilitating long COVID (Watanabe et al., 2023^[14]; Ceban et al., 2023^[15]; Edwards and Hamilton, 2023^[16]; Català et al., 2024^[17]). The European Centre for Disease Prevention and Control systematic review of published evidence reported that full COVID-19 vaccination prior to SARS-CoV-2 infection could reduce the risk of long COVID by 27% in the adult population, compared to no vaccination.

Although this reduction in risk may seem modest, at a population level, the health benefits to patients and cost savings to healthcare systems in terms of prevented long COVID cases could be substantial in terms of absolute numbers. This preventive benefit against long COVID, in both health and economic terms, therefore, warrants consideration in national COVID-19 vaccine policy recommendations. Policymakers must account for likely population uptake and cost-effectiveness of the strategy when deciding whom to recommend for COVID-19 vaccination. The WHO lists vaccination, in addition to other hygiene measures as a preventive measure against developing long COVID, while the US CDC lists this benefit for those considering COVID-19 vaccination.

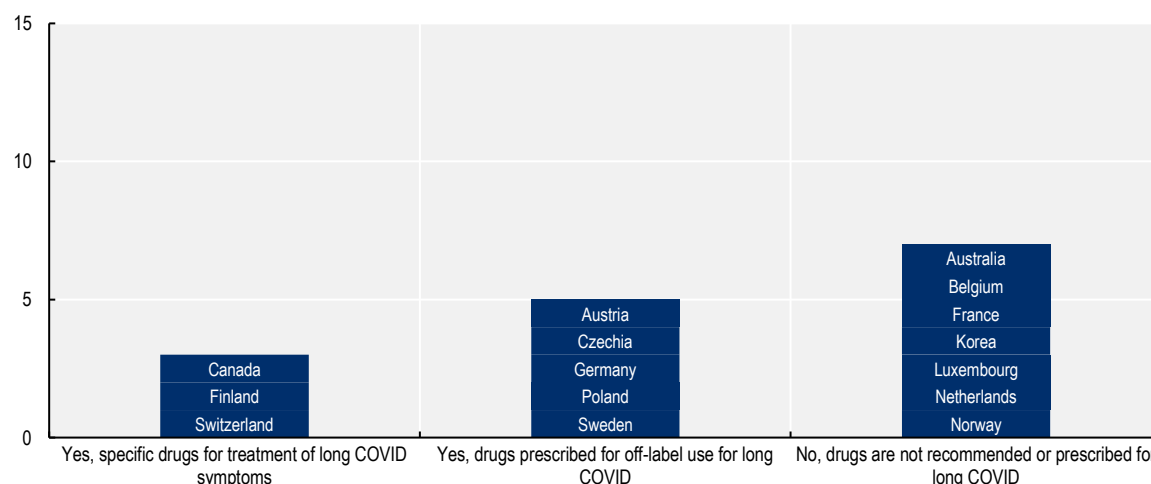
Source: ECDC (2025), Does COVID-19 vaccination reduce the risk and duration of post COVID-19 condition? <https://www.ecdc.europa.eu/en/publications-data/does-covid-19-vaccination-reduce-risk-and-duration-post-covid-19-condition>; CDC (2025), Staying Up to Date with COVID-19 Vaccines, <https://www.cdc.gov/covid/vaccines/stay-up-to-date.html>; WHO (2025), Post COVID-19 condition, [https://www.who.int/news-room/fact-sheets/detail/post-covid-19-condition-\(long-covid\)](https://www.who.int/news-room/fact-sheets/detail/post-covid-19-condition-(long-covid)).

6.3. Half of countries include pharmacotherapy in long COVID guidelines

The evidence base for pharmaceutical treatment of long COVID is currently limited. Some existing medications are used off-label as treatment options to address certain pathophysiological consequences of long COVID, while others are known to provide symptomatic benefits to patients when prescribed appropriately. National pharmacotherapy recommendations can help to inform healthcare workers about how to treat patients affected by long COVID safely and effectively.

Three countries (**Canada, Finland and Switzerland**) have guidelines recommending pharmacotherapy for treatment of long COVID symptoms (Figure 6.3). **Canada's** guidelines team produced over 30 evidence-based clinical recommendations related to pharmacotherapy, classified by populations targeted and drug class (CAN-PCC, 2025^[13]). A further five countries (**Austria, Czechia, Germany, Poland and Sweden**) recommend prescribing certain drugs on an off-label basis to address some of the underlying biological mechanisms responsible for long COVID. In **Austria**, the national reference centre has published an off-label recommendation drug list for PAIS. **Germany's** therapy compass provides an overview of options for drugs that can help treat various symptoms associated with long COVID (Federal Ministry of Health, 2024^[18]), and is working on development of off-label use of medications in long COVID treatment (Chapter 5, Box 5.1). Countries can also refer to existing recommendations on validated treatments for sequelae or comorbidities that patients affected by long COVID usually present. **Japan's** symptom-based clinical guidelines do not specify pharmacotherapy strategies, including off-label drug use.

Figure 6.3. Few surveyed OECD countries have guidelines recommending pharmacotherapy for long COVID



Note: Survey question: "Do clinical guidelines recommend prescribing pharmacotherapy for treatment of long COVID?"
Slovenia did not answer the question.

Source: 2025 OECD Long COVID Mapping Policy Survey.

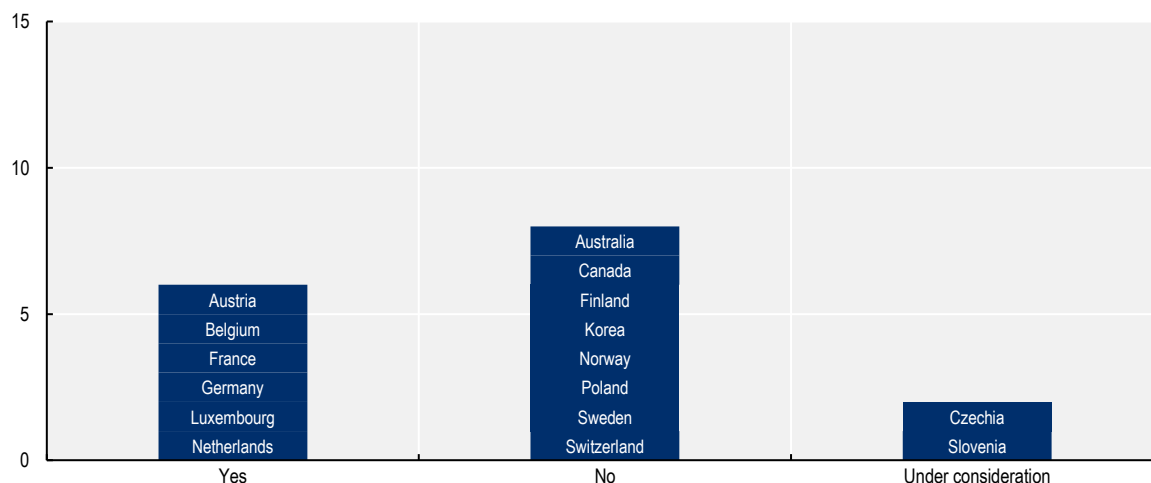
6.4. Official care pathways for long COVID exist in less than half of countries

Care pathways are structured plans that outline the main steps in the care of patients with a specific clinical problem. They are helpful in managing complex conditions such as long COVID, where symptoms vary widely between patients, and care can involve a range of different medical specialties.

Six countries (**Austria**, **Belgium**, **France**, **Germany**, **Luxembourg** and the **Netherlands**) reported having an official care pathway for long COVID patients (Figure 6.4). Expansion of the current pathway is under way in **Austria** as per the recommendations of the country's Action Plan. In **France**, while recommendations for the model of care pathway exist, no official structure is operationally in place to co-ordinate the care accordingly. In the case of the **Australia** and **Canada**, care pathways were developed at the regional level, aligned with the organisation of the healthcare system. In the **Netherlands**, a national care pathway was recently launched (Post-COVID Network, 2026^[19]), and will be updated regularly and co-ordinated within the Post-COVID Network Netherlands. Within the post-COVID expertise centres, selected patients are treated according to a care pathway designed within these centres (UMCNL, 2026^[20]). Similarly, **Ireland**'s long COVID model of care, launched in 2021 and centred on primary care, community rehabilitation and specialised clinics, was undergoing revision as of December 2024 to ensure it best meets the needs of patients (Health Service Executive, 2024^[21]).

Half of the countries responding to the 2025 survey do not yet have a long COVID care pathway. In **Poland**, such a pathway existed under the former post-COVID rehabilitation programme. However, referrals to relevant specialists are currently based on individual decision making of the primary care physician. Similarly, in **Sweden**, primary care is the main designated provider of care for patients with long COVID, although this is challenged by substantial knowledge gaps among primary care providers.

Figure 6.4. The majority of surveyed countries lack an official care pathway for patients with long COVID



Note: Survey question: "Is there currently an official care pathway for long COVID patients in your country?"

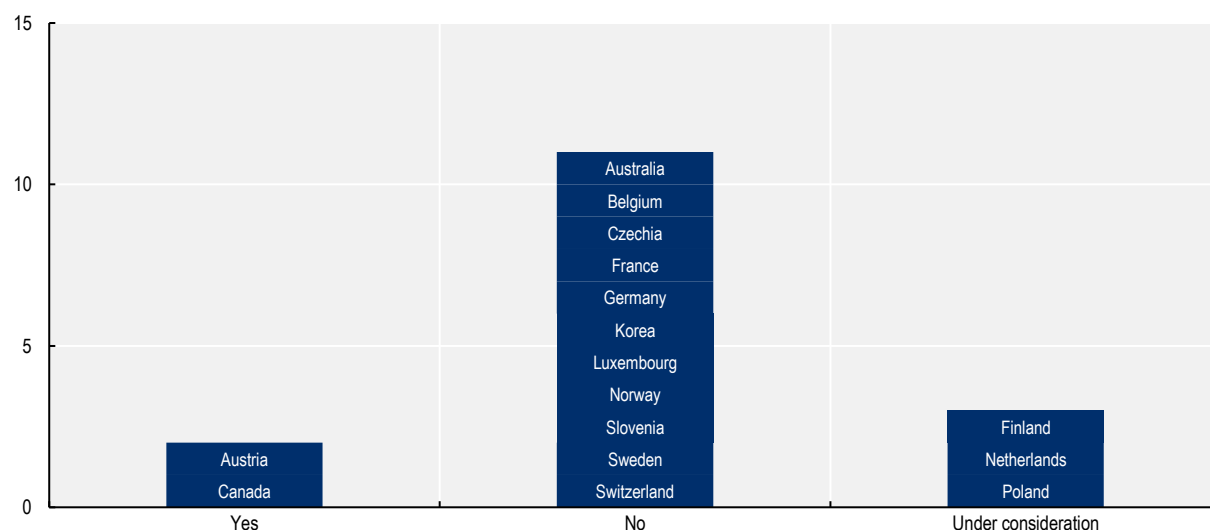
Source: 2025 OECD Long COVID Mapping Policy Survey.

6.5. Training on long COVID for healthcare workers is lacking in most countries

As noted in Chapter 4, Section 4.4, in order for healthcare workers to be able to recognise and code long COVID accurately, there is a need for awareness and validation of the condition among healthcare professionals, to create understanding of how it presents clinically and what follow-up diagnostic investigations and treatments should be offered to patients. This is particularly the case as the pathophysiological mechanisms of the condition are not yet fully elucidated, and there is no known curative treatment for long COVID. As such, healthcare workers can feel unsure of how to manage the condition to assist patients in achieving the best possible quality of life. Training that acknowledges uncertainties while building clinical competency to diagnose, communicate and care for patients currently living with long COVID is thus essential.

Only **Austria** and **Canada** reported having national training initiatives for long COVID (Figure 6.5). In **Austria**, a national reference centre for post viral syndromes was inaugurated in 2024, which is hosting training events for healthcare workers and insurance professionals involved in PAIS treatment (Bundesministerium Arbeit, Soziales, Gesundheit, Pflege und Konsumentenschutz, 2024^[22]). In **Canada**, as part of the Knowledge Mobilization project's efforts, the Canadian Guidelines for Post-COVID-19 Condition team produced a series of training resources for healthcare workers, including options that qualify for continuing medical education credits (CAN-PCC, 2025^[23]).

Figure 6.5. Training on long COVID for healthcare workers is lacking in almost all surveyed OECD countries



Note: Survey question: "Is there specific long COVID training for healthcare workers?"

Source: 2025 OECD Long COVID Mapping Policy Survey.

Other countries have some training in specific areas. For example, in the **Netherlands**, occupational therapists are offered specific training on long COVID, and the C-support organisation offers publicly available training aimed at primary care physicians, as well as occupational and medical insurance physicians and social care nurses, among others (C-Support, 2021^[24]). In **Germany**, training opportunities are available from organisations such as the PAIS CARE training series offered by the PAIS CARE Network (Charité – Universitätsmedizin Berlin, 2025^[25]). In some parts of **Australia**, healthcare workers can specialise in post-infective fatigue syndrome, which covers long COVID. Nonetheless, many OECD countries – including **Belgium**, **Korea**, **Norway** and **Sweden** – lack dedicated opportunities for long COVID training for healthcare workers. Similarly, in **Slovenia** and **Poland**, general educational activities such as webinars or conferences may include issues related to long COVID but it is not discussed as the main topic.

Training healthcare workers can validate the experience of millions of people living with long COVID across the EU and other OECD countries, and is crucial for recognition and appropriate management of the condition. To address the unmet need for greater awareness of and tools to manage long COVID, the OECD – in partnership with the WHO Regional Office for Europe and WHO Academy – is developing an online training course on long COVID aimed at primary care professionals, freely accessible to healthcare professionals across the world (Box 6.3).

Box 6.3. The WHO Academy will host an online long COVID training course for healthcare workers

One of the main actions of the long COVID initiative of the European Commission is to develop training for healthcare professionals and support guideline development. The need for both healthcare worker training and evidence-based clinical guidelines on long COVID remain top priorities in the 2025 OECD policy mapping survey.

The WHO Regional Office for Europe and the OECD, in collaboration with the WHO Academy, are developing a pilot training course on long COVID essentials. The online course aims to develop the following competencies for healthcare workers by explaining:

- the epidemiology and pathophysiology of long COVID
- how best to make and communicate a preliminary diagnosis of long COVID to patients
- how to select clinical assessments for patients with suspected long COVID

The course is aimed at a primary care audience, but may be taken by other healthcare workers in different sectors of the healthcare system. The learning objectives and topics covered were chosen and validated by a steering committee of long COVID clinicians, therapists, patient experts and policymakers from 12 OECD countries. This pilot aims to provide healthcare workers with foundational knowledge and confidence to recognise, communicate with and manage patients living with long COVID they may encounter in clinical practice. Central to the course design is the ethos that training should be informed by the experience and expertise of both healthcare workers and patients who have lived with and worked with this condition, in order to provide evidence-based and patient-centred care. Further modules may be developed on specific topics related to long COVID in the future.

References

- BSPRM (n.d.), *The International Post Covid and Post Infection Conditions Society*, [4]
<https://www.ipicsociety.org.uk/>.
- Bundesministerium Arbeit, Soziales, Gesundheit, Pflege und Konsumentenschutz (2024), [22]
Nationales Referenzzentrum für postvirale Syndrome eingerichtet,
<https://www.sozialministerium.gv.at/Services/Aktuelles/Archiv-2024/postvirale-syndrome.html>.
- CAN-PCC (2025), *Canadian Guidelines for Post COVID-19 Condition*, <https://can-pcc.remap.org/>. [13]
- CAN-PCC (2025), *Resources for Healthcare Professionals*, Canadian Guidelines for Post COVID-19 Condition, <https://canpcc.ca/resources/#tab-content-ov>. [23]
- Català, M. et al. (2024), “The effectiveness of COVID-19 vaccines to prevent long COVID symptoms: staggered cohort study of data from the UK, Spain, and Estonia”, *The Lancet Respiratory Medicine*, Vol. 12/3, pp. 225-236, [https://doi.org/10.1016/S2213-2600\(23\)00414-9](https://doi.org/10.1016/S2213-2600(23)00414-9). [17]

- Ceban, F. et al. (2023), “COVID-19 vaccination for the prevention and treatment of long COVID: A systematic review and meta-analysis”, *Brain, Behavior, and Immunity*, Vol. 111, pp. 211-229, <https://doi.org/10.1016/j.bbi.2023.03.022>. [15]
- Charité – Universitätsmedizin Berlin (2025), *PAIS Care Fortbildungen und Wissentransfer*, https://pcn.charite.de/pais_fortbildungen. [25]
- C-Support (2021), *Trainings and webinars*, <https://en.c-support.nu/trainingen-en-webinars/>. [24]
- Darbyshire, J. et al. (2024), “Improving quality in adult long covid services: Findings from the LOCOMOTION quality improvement collaborative”, *Clinical Medicine*, Vol. 24/5, p. 100237, <https://doi.org/10.1016/j.clinme.2024.100237>. [5]
- Edwards, F. and F. Hamilton (2023), “Impact of covid-19 vaccination on long covid”, *BMJ Medicine*, Vol. 2/1, p. e000470, <https://doi.org/10.1136/bmjmed-2022-000470>. [16]
- Erasmus MC (2024), *Expertisecentrum voor Post-COVID*, <https://www.erasmusmc.nl/nl-nl/patientenzorg/centra/post-covid#38b8fa93-d346-44dd-a3c7-985273a8c076>. [1]
- Federal Ministry of Health (2024), *Publication of Treatment Compass*, <https://www.bmg-longcovid.de/en/timeline/publication-of-treatment-compass>. [18]
- Health Service Executive; (2024), *HSE publishes findings of survey examining the long-term impact of acute COVID 19 disease*, <https://about.hse.ie/news/hse-publishes-findings-of-survey-examining-the-long-term-impact-of-acute-covid-19-disease/> (accessed on 9 February 2026). [21]
- Long COVID Kids (2025), *Vital Long Covid Clinics Closing Across the UK Despite Ongoing Need, New Research Warns*, <https://www.longcovidkids.org/post/disabled-discharged-and-disappearing-from-view>. [7]
- ME Research (2025), *NIHR announce a funding opportunity for research into the treatment and management of post-acute infection syndromes, including long COVID and ME/CFS*, <https://www.mereseach.org.uk/nihr-announce-a-funding-opportunity-for-research-into-the-treatment-and-management-of-post-acute-infection-syndromes-including-long-covid-and-me-cfs/>. [10]
- NHS England (2023), *Commissioning guidance for Post COVID services for adults, children, and young people*, <https://www.england.nhs.uk/publication/national-commissioning-guidance-for-post-covid-services/>. [3]
- NHS North East London (2025), *Long COVID service update - February 2025*, <https://northeastlondon.icb.nhs.uk/health-services/service-updates/long-covid-service-update-february-2025/>. [6]
- NICE (2024), *COVID-19 rapid guideline: managing the long-term effects of COVID-19*, <https://www.nice.org.uk/guidance/NG188>. [2]
- NIHR (2022), *Researching long COVID: addressing a new global health challenge*, <https://evidence.nihr.ac.uk/collection/researching-long-covid-addressing-a-new-global-health-challenge/>. [9]
- Post-COVID Network, N. (2026), *Eerste publicatie Integrale Handreiking post-COVID*, <https://kennis.c-support.nu/eerste-publicatie-integrale-handreiking-post-covid/>. [19]

- Seo, J. et al. (2024), “Updated Clinical Practice Guidelines for the Diagnosis and Management of Long COVID”, *Infection & Chemotherapy*, Vol. 56/1, p. 122, <https://doi.org/10.3947/ic.2024.0024>. [12]
- Tweede Kamer (2025), *Response to the Committee’s request for a speedy submission of a progress letter for post-infectious diseases (including post-covid)*, https://www.tweedekamer.nl/kamerstukken/brieven_regering/detail?id=2025Z20819&did=2025D49041. [11]
- UK Parliament (2025), *Long Covid: Research*, <https://questions-statements.parliament.uk/written-questions/detail/2025-05-19/HL7612>. [8]
- UMCNL (2026), *Post-COVID expertisecentra: informatie voor patiënten*, UMCNL, <https://www.umcnl.nl/projecten/post-covid-expertisecentra-informatie-voor-patienten/> (accessed on 27 February 2026). [20]
- Watanabe, A. et al. (2023), “Protective effect of COVID-19 vaccination against long COVID syndrome: A systematic review and meta-analysis”, *Vaccine*, Vol. 41/11, pp. 1783-1790, <https://doi.org/10.1016/j.vaccine.2023.02.008>. [14]

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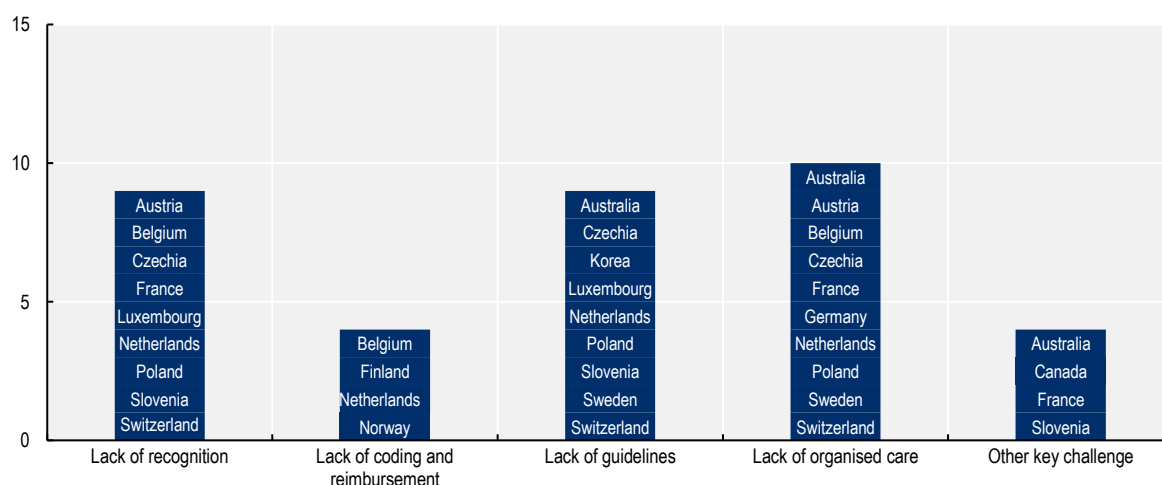
Countries face challenges in addressing long COVID and need to strengthen their policy response across health and social care systems

This chapter identifies the persisting challenges facing health care systems in addressing long COVID, and reports on the common priorities that countries have identified through the OECD policy survey. The chapter summarises the progress made in addressing long COVID to date across the surveyed OECD and EU countries, and what gaps remain to be addressed in order to improve the coordination and organisation of care for patients living with long COVID.

7.1. Countries face multiple challenges in addressing the burden of long COVID

OECD countries reported multiple clinical, administrative and logistical challenges in responding to a question about the burden of long COVID in their health systems (Figure 7.1). Lack of recognition of the condition and a lack of clear clinical guidelines at the national level were highlighted as the main challenges faced by nine countries. Ten countries cited the lack of an organised model of care as a key challenge for responding to and managing long COVID in the health system. **Poland**, for example, highlighted the lack of standardised management protocols, leading to fragmented care and unequal access to specialists for long COVID. In addition, a lack of dedicated funding for research was noted as a challenge in **Sweden** and **Poland**.

Figure 7.1. Surveyed OECD countries reported multiple clinical, administrative and logistical challenges in addressing the burden of long COVID in their health systems



Note: Survey question: "What are the current key challenges faced in responding to long COVID at national level in 2025? (Select all that apply)".
Source: 2025 OECD Long COVID Mapping Policy Survey.

As reported in Chapter 5, Section 5.1, four countries (**Australia**, **Austria**, **Canada** and the **Netherlands**) have developed a national strategy or plan; however, implementation and operationalisation at the regional or local level can be impeded by a lack of resource allocation and recognition of long COVID as a medical condition across health and social welfare systems. The **Netherlands** reported that implementing and making accessible the recently launched national care pathway remains a challenge, especially in primary care.

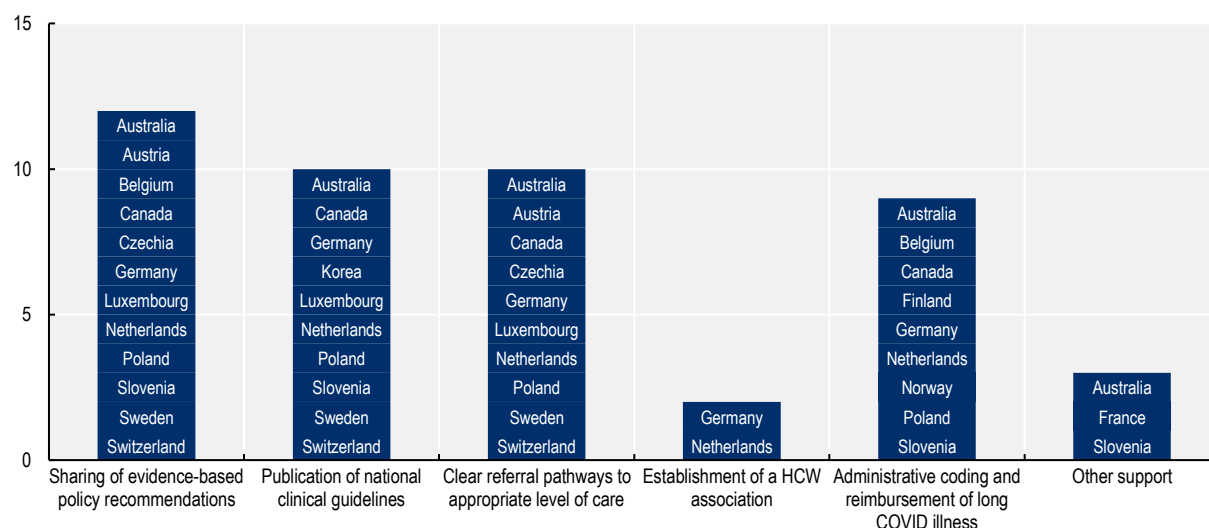
Four countries (**Australia**, **Canada**, **France** and **Slovenia**) identified additional key challenges to addressing the long-term effects of long COVID. In **France**, community-based care and networks for managing complex care lack sufficient human and financial resources. Organising a community-based network in each geographical area is also challenging due to demographic heterogeneity and differences in priorities and implementation on the ground within these networks. In the meantime, various healthcare bodies have created their own clinical guidelines through their clinics. **Slovenia** highlighted challenges with obtaining sick leave and the absence of financial support for younger patients without social insurance. **Australia** pinpointed the lack of a unified response spearheaded by government, including clear clinical guidelines.

Overall, the responses indicate that lack of recognition, clear management guidelines and organised care pathways for long COVID at the national level are the key challenges that remain in 2025. At the same time, operationalisation of such plans via engagement of primary care providers in different communities requires tailored approaches. To address this challenge, **Canada** developed the Canadian Guidelines for Post COVID-19 Condition to help healthcare professionals, public health officials, policymakers, and people with long COVID and their caregivers make informed decisions about long COVID (CAN-PCC, 2025^[1]). In parallel, however, the provinces and territories have scope to adapt the guidelines to their specific circumstances, based on the needs and resources available.

7.2. Countries need national clinical guidelines, clear referral pathways and evidenced-based policy recommendations

Almost all OECD countries identified multiple policy areas in which they could benefit from support (Figure 7.2). Interest in sharing evidence-based recommendations and policies, including effective therapies and care models, was reported by 12 countries. In addition, ten countries reported a high need for national evidence-based clinical guidelines and clear referral pathways. **Australia** pointed to the need for additional government support for trials on long COVID management and interventions, while **Canada** noted the need for additional information on government financial support for people with long COVID. Both **Slovenia** and **Poland** highlighted the need for support in training healthcare workers, with **Poland** noting the importance of connecting the healthcare workforce to the latest research developments on long COVID. The establishment of medical or healthcare professional associations was not seen as a particular need, possibly because a number of countries already have a national scientific committee or institute able to advise on long COVID evidence and policy (see Chapter 5, Section 5.3).

Figure 7.2. Surveyed countries need support in multiple policy areas to address the challenges posed by long COVID effectively



Note: Survey question: "What forms of support or collaboration would be most beneficial to address long COVID? (Select all that apply)".
Source: 2025 OECD Long COVID Mapping Policy Survey.

7.3. Notable progress on long COVID recognition and research has been made, but work remains to improve responses at the national level

This report provides an update on the status of long COVID initiatives under way in OECD countries in 2025, five years after the COVID-19 pandemic began. As a new and emerging condition, long COVID poses a double challenge to health systems in the need both for a scientific evidence base to inform effective clinical management and health policies, and for adaptation or reorganisation of healthcare resources to incorporate this condition into existing services.

Since 2022, considerable progress has been made in official recognition and diagnosis of this condition, through national health policy and adaptation of international definitions. The majority of countries rely on the WHO definition, although recognition of paediatric long COVID is still lacking in many countries. Appropriate coding of long COVID in health systems can also help in assessing the disease burden and providing insights into the care patterns, treatment and outcomes of patients at a population level. While most countries rely on ICD-10 coding, practices are inconsistent owing to the diagnostic challenges of long COVID, a lack of awareness of the condition among clinicians and a lack of availability of relevant diagnostic codes. As such, ME/CFS and depressive disorder are often conferred as alternative diagnoses for reporting purposes. This, combined with the lack of a reliable surveillance system in most OECD countries, further complicates monitoring of the disease burden of long COVID. As associated healthcare costs are usually covered by general universal healthcare provisions, several countries reported that patients sometimes seek private services to meet their specific long COVID care needs. Similarly, most countries do not have specific sick leave or disability provisions allocated for a long COVID diagnosis, meaning that people unable to work due to the condition must navigate complex and unclear eligibility processes to receive support, and often face financial vulnerability.

At the national level, only 4 of the 16 surveyed countries have a national plan in place to address the long-term health and social consequences of long COVID. For most countries, the issue of long COVID remains limited to the health ministry, although a few have taken a broader intersectoral approach, involving education, social welfare and scientific ministries – as well as labour and insurance groups – in developing relevant policies, services and support. In most countries, a scientific committee or advisory group has been established to provide evidenced-based policy or clinical recommendations, with many countries ensuring formal participation of patients in these processes. While a number of countries have funded long COVID research, few have health budgets specifically dedicated to the condition. Furthermore, in the context of budgetary constraints, financial commitments to long COVID initiatives face uncertainty in the medium to long term.

Organisation of care for long COVID employs a mixed approach across countries, reliant on both primary and specialist care. Most countries have organised some level of long COVID specialised clinics at the regional or national level. Since 2022, countries have made substantive progress in consensus and guidelines for the clinical management of long COVID. Almost all OECD countries surveyed have national recommendations or clinical guidelines available to support healthcare professionals and patients facing a long COVID diagnosis. Given that no specific treatment for the condition currently exists, pharmacotherapy recommendations are lacking in most countries, although prescription of off-label medicines to treat symptoms is used in some places. Very few countries report training of healthcare workers on long COVID, highlighting the opportunity to benefit from the OECD/WHO initiative to develop a long COVID training course freely available to healthcare workers globally.

As it stands in 2025, progress has been made across OECD countries in adopting the WHO definition as a consensus for diagnosis, using ICD-10 coding in health systems, and improving the knowledge base through scientific advisory committees and dedicated research funding for long COVID. Nonetheless, there remain ongoing challenges for surveillance of cases, organisation of care and availability of treatment guidelines. Finally, recognition and support for patients outside the health system, especially for children

with long COVID and patients with reduced work capacity, are lacking. Continued international collaboration to support the development of evidenced-based policies, clinical guidelines and care pathways at the national level will help reduce the economic and social burden of long COVID both for individual patients and for OECD countries.

References

- CAN-PCC (2025), *Resources for Healthcare Professionals*, Canadian Guidelines for Post COVID-19 Condition, <https://canpcc.ca/resources/#tab-content-ov>. [1]

8

Effective long COVID response requires a co-ordinated approach encompassing prevention, harmonisation of practice and people-centred models of care

The economic, social and health consequences of long COVID on patients and health systems are substantial and set to remain, and therefore require a comprehensive policy approach to mitigate their impact. This chapter explores the strategic levers to improve the response and coordination of health and social care systems to long COVID, by focusing on delivery of patient-centred and integrated healthcare. The policy options set out how the example of long COVID makes the case for building resilient and patient-centred health systems, capable of adapting to and absorbing the burden of future health threats which may arise in the population.

8.1. The economic costs of long COVID to OECD and EU societies are substantial, and are likely to remain so in the coming decade

Based on the OECD's analysis, long COVID affected about 5.3% of the total population across OECD and EU countries in 2021, equivalent to roughly 75 million people. The estimated burden varied sharply, ranging from almost no cases in New Zealand and Japan to around a 16% prevalence in some Eastern and Central European countries. Looking ahead, projections suggest that – depending on the ongoing incidence of COVID-19 – long COVID prevalence could stabilise at around 0.6-1.0% of the OECD population until 2035, unless virus circulation ceases entirely. In 2021, the condition imposed substantial costs on health systems – about USD 53 billion across OECD countries, representing around 0.6-0.8% of total health expenditure (approximately USD 21 per capita). While these costs are expected to decline after the acute pandemic phase, even conservative projections indicate that this condition might cost up to USD 11 billion annually in continued healthcare expenses under pessimistic long-term scenarios.

Long COVID also had a significant macroeconomic impact, reducing OECD countries' effective labour force by roughly 0.9% in 2021. This reduction in workforce participation and productivity translated into GDP losses averaging around 0.9-1.0% across OECD economies – equivalent to USD 680 billion in 2021. Projections to 2035 show that while GDP losses may fall to negligible levels under optimistic assumptions, more realistic scenarios predict persistent yearly losses of 0.1-0.2% of GDP, corresponding to USD 68-135 billion annually across OECD countries.

These findings suggest that long COVID is likely to continue to represent a structural drag on productivity and growth in OECD economies throughout the coming decade; it therefore requires serious and comprehensive policy attention.

8.2. Notable progress on long COVID recognition and research has been made, but work remains to improve responses at the national level

With the number of patients suffering long-term effects from long COVID and the COVID-19 virus in circulation via new and mutating waves, the policy challenges of dealing with the condition from a health and social perspective are here to stay. Furthermore, in the context of long COVID as one of several PAIS, which have been persistent and problematic for many years, approaches to address long COVID effectively have much broader application. This is reflected in the recent update in the Netherlands Parliament on the response to PAIS (including long COVID) (Government of the Netherlands, 2025^[1]).

The policy mapping survey described in Chapters 4-7 provides an update on the status of long COVID initiatives under way in OECD countries in 2025, five years after the COVID-19 pandemic began. As a new and emerging condition, long COVID posed a double challenge to health systems in the need for both a scientific evidence base to inform effective clinical management and health policies, and the need for adaptation or reorganisation of healthcare resources to incorporate this condition into existing services.

As it stands in 2025, progress has been made across OECD countries in adopting the WHO definition as a consensus for diagnosis, using ICD-10 coding in health systems, and improving the knowledge base through scientific advisory committees and dedicated research funding for long COVID. Nonetheless, there remain ongoing challenges for surveillance of cases, organisation of care and availability of treatment guidelines. Finally, recognition and support for patients outside the health system – especially for children with long COVID and patients with reduced work capacity – are lacking in 2025. Continued international collaboration to support the development of evidenced-based policies, clinical guidelines and care pathways at the national level will help to reduce the economic and social burden of long COVID both for individual patients and for OECD Member countries. Research from the United Kingdom found that flexibility at work is key for long COVID support, with recommendations including flexible working hours, working from home, and developing a supportive workplace culture (Kwon et al., 2024^[2]).

8.3. The long COVID response requires a co-ordinated health policy encompassing prevention, harmonisation of practice and people-centred models of care

Addressing these challenges requires a co-ordinated policy response underpinned by robust prevention strategies, harmonised definitions and data, investment in people-centred care, and continued recognition and support for those affected. Key policy recommendations informed by the mapping survey and evolving evidence base on long COVID include the following.

8.3.1. More efforts should be made to prevent long COVID through COVID-19 vaccination and non-pharmaceutical interventions

Maintaining a strong focus on prevention is critical, as SARS-CoV-2 infection is the necessary precursor to long COVID, and remains preventable. This includes continued promotion of COVID-19 vaccination for those at highest risk of severe COVID-19 and of developing long COVID, early treatment of acute COVID-19, and public health measures to reduce viral transmission. Evidence indicates that vaccination not only lowers the risk of infection but also reduces the likelihood of developing long COVID among those infected (Chapter 6, Box 6.2). However, policymakers need to consider likely population uptake and cost-effectiveness of their vaccination strategy in deciding whom to continue recommending COVID-19 vaccination for, in the era of lower risk of COVID-19. Surveillance systems should continue to monitor COVID-19 transmission, given the limited current understanding of post-pandemic epidemiological patterns in OECD and EU Member countries. Notably, the impact of persistence of SARS-CoV-2 virus in individuals with long COVID, which may facilitate mutational processes.

8.3.2. Harmonising implementation of standard definitions and disease coding for long COVID would strengthen countries' responses

As shown in Chapters 4-7, differences in national approaches to defining and measuring long COVID impede understanding of the disease burden across countries, comparative research and policy analysis. OECD and EU Member countries should prioritise alignment on a standardised definition of long COVID such as the widely used WHO definition, although the definition may need to adapt over time with deepening knowledge of the condition. Furthermore, harmonisation of standard ICD disease coding for long COVID would enable aggregation, robust analysis and evidence-based decision making.

In addition, most countries lack robust, usable data on long COVID, limiting the ability to estimate burdens accurately and develop effective policy interventions. Countries should prioritise collection and reporting of high-quality national data on long COVID to inform policy responses. Investment and alignment in national and cross-country monitoring (whether via surveys, administrative data analyses or surveillance registries) is needed to track prevalence, risk groups and intervention outcomes.

8.3.3. Health systems should expand people-centred care pathways

Specialised care pathways, including innovative multidisciplinary models of care, can improve the timeliness and accuracy of diagnosis and effective management of long COVID for patients. This includes training – particularly for primary care professionals – to increase awareness and recognition of the condition. It also requires clinical guidelines, personalised care planning to optimise symptom management, and the repurposing of existing treatment options alongside ongoing research into condition-specific therapies. Researchers and clinicians must work collaboratively to deepen understanding of the condition, and of potential therapies and treatment approaches to improve outcomes and healthcare experiences of patients.

8.3.4. Recognition and support to patients remains a key pillar in addressing long COVID

Long COVID can severely disrupt employment and financial stability for individuals affected by mild and severe forms, while also disrupting education for children with the condition. Policymakers should facilitate access to sick leave and social benefits for long COVID patients who need it based on their functioning capacity, including disability benefits for those severely impaired in the long term, with transparent assessment processes. Employers should also be made aware of the challenges, and should make support available for workers with long COVID – including through workplace accommodations that can help individuals stay in the labour market. Education systems should also adapt and provide options that can support learning and development among children with long COVID.

8.3.5. Research funding should be maintained and the research agenda informed by patients

Few countries have cross-sectoral national programmes for long COVID; such initiatives are vital for supporting research and care development, and for addressing the broad health, social and economic needs of patients. Funding must continue to be mobilised at the national and regional levels, and needs to include co-creation and direct input from patient communities.

8.3.6. International collaboration in sharing health initiatives has great potential, which remains mostly untapped

Countries largely navigated the challenges of long COVID on their own until the EU long COVID project launched. Through this initiative, the need for sharing of evidence-based policies, clinical guidelines, good practices, effective interventions and care organisation systems for long COVID has become even more evident. A continued mechanism to exchange knowledge and align on research priorities across OECD countries should be developed to support continued progress in managing long COVID.

8.4. Addressing long COVID is also an opportunity to advance the resilience and people centredness agendas in EU and OECD health systems

Long COVID is one among a series of PAISs, which together pose a major burden on the health and well-being of people. Long COVID and other PAISs are not receding, yet there are worrying signs of decreased political and financial attention to the topic. Sustained momentum is necessary, as addressing these conditions benefits both immediate patient-centred agendas and long-term preparedness for future pandemic scenarios.

8.4.1. Long COVID is a striking reminder of the importance of the people-centred agenda and the role that patient organisations can play

Long COVID provides a unique lens through which to examine how health systems can better embed people-centredness into their core functioning. It is a striking reminder of why people-centredness must remain a cornerstone of health systems.

Three interrelated features of long COVID make it a particularly compelling case for strengthening people-centred health systems. First, since its emergence, the voices of patients have been instrumental in mobilising the scientific and policy community around this new condition (Box 8.1). Patients play a crucial role as partners in the health system – not only through self-management and shared decision making in their own care, but also through advocacy and public engagement. A range of patient-led initiatives have shaped research agendas, improved access to care and fostered recognition of long COVID across health systems – from the Patient-Led Research Collaborative and Long COVID Europe to Long COVID Support, Long COVID Physio, and other grassroots organisations. Their collective action has helped secure funding,

inform policy and co-design tools to support those living with the condition. This demonstrates the power of lived experience in driving health-system responsiveness and reform.

Box 8.1. Patients have shaped long COVID like no other disease before

The history of long COVID has been shaped to a great extent by patients themselves. In March 2020, as the COVID-19 pandemic began to unfold globally, individuals with infection-associated chronic conditions warned of the likely emergence of long-term illness following SARS-CoV-2 infection. The first widely read personal account of non-recovery from acute COVID-19 appeared in the *New York Times* in April 2020, written by American journalist Fiona Lowenstein. Around the same time, patients began to self-organise, coined the term “long COVID” and conducted the first known survey – later formally published – documenting the wide range of symptoms experienced by those affected.

Progress on long COVID in terms of awareness, research priorities, care practices and support benefits tremendously from national and cross-border organised patient advocacy efforts, such as the following:

- Long COVID Alliance is a the United States-based coalition of patient, clinician and advocacy groups providing centralised tools and directories for long COVID patients (including a clinic locator, disability and insurance guides, and mental health resources). Its key impact is improving access to care and information through patient-led advocacy and curated support materials, with notable success in helping secure USD 1.15 billion in funding from the National Institutes of Health for long COVID research.
- Patient-Led Research Collaborative is an international team of people living with long COVID and related conditions who lead research, registry development and advocacy efforts. Their work includes a patient-designed registry, global surveys and policy engagement. Notable successes include publishing one of the first large-scale international long COVID symptom-cohort studies (3 762 participants over seven months) and having their work cited by major organisations and guidelines.
- Long COVID Europe is a pan-European network of national long COVID patient associations led by individuals with lived experience, dedicated to promoting awareness, co-ordinating advocacy and advancing patient-centred research across Europe. A significant achievement includes leading a co-ordinated call for a EUR 500 million EU emergency fund to support biomedical research and policy action on long COVID.
- The COVID-19 Longhailer Advocacy Project is a the United States-based non-profit organisation led by and for individuals living with long COVID, dedicated to advancing recognition, research, resources and equity in care for long COVID and infection-associated chronic conditions. Prominent successes include the development of a comprehensive educational guide on long COVID and active advocacy for broad adoption of the 2024 NASEM definition of long COVID, aligning clinical, research and policy frameworks.
- Long COVID Support is a registered UK charity led by people with long COVID, providing national peer support, advocacy and evidence-based resources to improve care and awareness. It is notable for establishing one of the largest global patient support networks, and for influencing UK health policy and service development.
- Long COVID Physio is a global, patient-led association founded by physiotherapists living with long COVID, providing multilingual education, peer support and advocacy to improve rehabilitation practices. Its successes include influencing international physiotherapy guidelines, partnering with the Chartered Society of Physiotherapy, and reaching audiences in over 100 countries through its resources and podcast.

Source: New York Times (2020), <https://www.nytimes.com/2020/04/13/opinion/coronavirus-recovery.html>.

The second feature is that long COVID reveals the need for a patient-centred approach to care design and service delivery – an area where systems have often struggled. Drawing on the OECD Framework for People-Centred Health Systems (OECD, 2021^[3]), the management of long COVID in OECD countries can be examined through five key dimensions.

- **Voice:** Patients should have a formal role in governance and policy processes. While some countries such as Germany and the Netherlands have integrated patient representatives in decision making, many people with long COVID have had to create their own advocacy channels (Box 8.1).
- **Choice:** Ensuring that people can access a range of providers without financial or logistical barriers remains essential. Although many OECD countries offer public coverage for long COVID-related consultations and therapies, out-of-pocket costs and unmet demand often limit effective choice. Enhancing awareness and diagnostic capacity at the primary care level is critical to enable informed choice of care and timely referral.
- **Co-production:** Patients must be informed participants in their own care, yet many report misdiagnoses or ineffective guidance, such as advice leading to post-exertional malaise. Greater effort is needed to provide reliable information, connect patients to social supports, and involve representatives in developing care pathways and educational resources.
- **Integration:** Co-ordinated and seamless care pathways supported by robust digital infrastructures are vital. Consistent coding, shared electronic records and clear referral protocols can foster continuity and improve transitions between levels of care. Access to a focal point of co-ordination – such as a general practitioner or specialised clinic – is particularly important for effective management of long COVID.
- **Respectfulness:** Every patient deserves to be heard and treated with dignity. Many people with long COVID have faced disbelief or stigma, highlighting persistent cultural and informational gaps. Broader recognition of the condition's diverse manifestations is essential to rebuild trust and embed empathy in clinical practice.

Finally, long COVID underscores the need to continue improving how systems measure both the experience and the outcomes of care. Traditional performance metrics have focussed on longevity and biomedical outcomes, but recent policy developments have reinforced the importance of measuring how well people live – their quality of life, well-being and functioning.

A people-centred perspective puts individuals at the heart of health-system assessments that consider how effectively services respond to their needs and experiences across the entire care journey. Patient-reported measures, such as those collected through the OECD PaRIS survey, provide a crucial lens to evaluate performance from the patient's perspective. In the case of long COVID, PaRIS results indicate worse patient-reported outcomes and worse experiences of health among patients with the condition (Box 8.2).

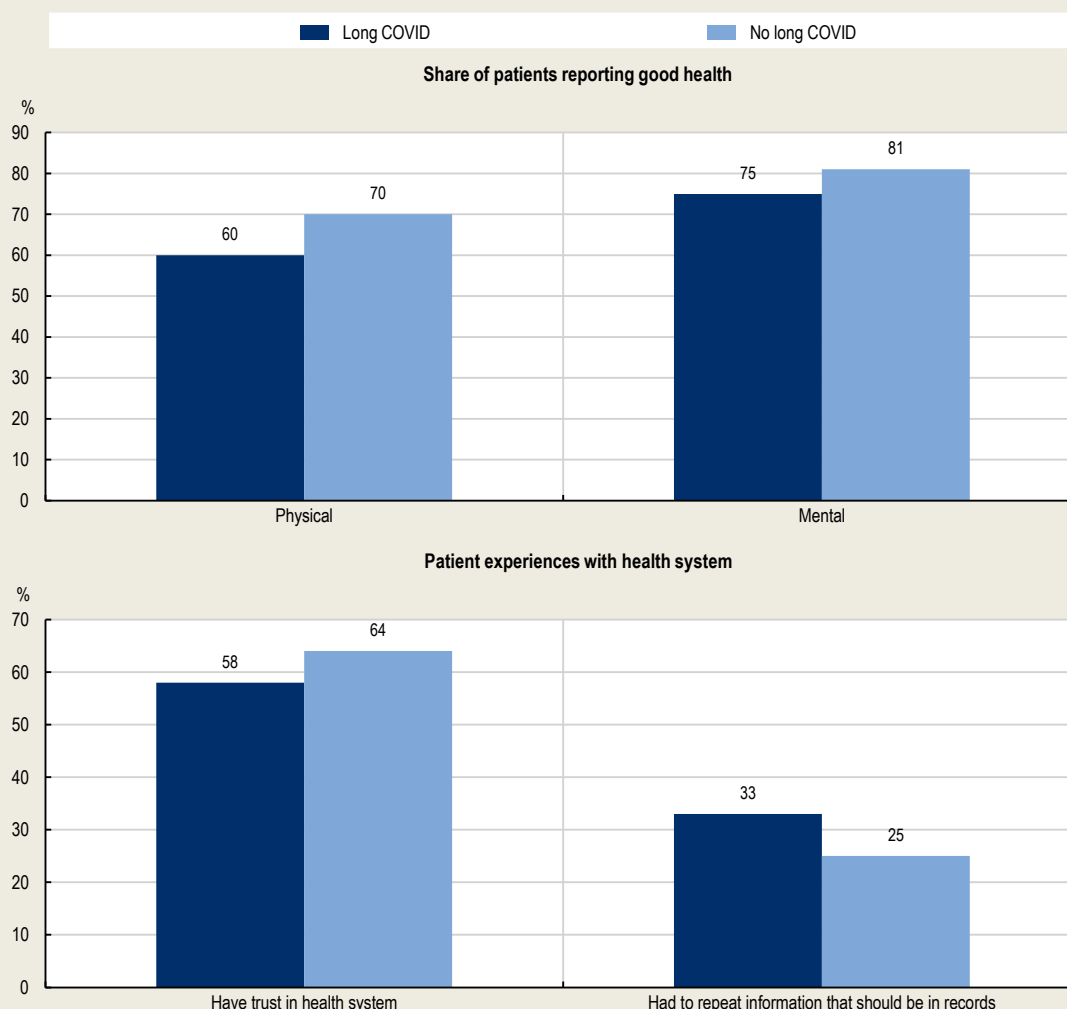
Long COVID thus stands as both a test and an opportunity – urging systems to renew their commitment to person-centredness and to translate the lessons of this condition into lasting improvements for all patients.

Box 8.2. The PaRIS survey revealed worse physical and mental health patient-reported outcomes for patients with long COVID

The WHO case definition of long COVID lists three of the most common symptoms specifically, of which fatigue is the first. Indeed, the OECD PaRIS survey found that long COVID patients have double the rates of severe fatigue of other primary care users (20% versus 10%). Concerningly, however, the PaRIS survey also revealed worse physical and mental health patient-reported outcomes for patients with long COVID. A significantly lower share of long COVID patients (75%) rated their mental health as “good” (compared to 81% among patients without long COVID). Similarly, for physical health, only 60% of long

COVID patients rated their physical health as “good” compared to 70% of those without long COVID (Figure 8.1). On average, the reported physical health scores fell in the “fair” category as opposed to the “good” category more often for patients with long COVID than for those without the condition.

Figure 8.1. Patient-reported outcomes and care experiences are worse for patients with long COVID



Source: OECD (2025^[41]), “The prevalence and impact of Long COVID in the primary care population: Findings from the OECD PaRIS survey”, <https://doi.org/10.1787/119b0e8f-en>.

The OECD’s PaRIS survey results also showed that patients with long COVID report worse experiences with the health system: one-third reported that they had to repeat information that should be in their medical records (compared to one-quarter of patients without long COVID). This may be linked to a lack of awareness of long COVID among primary care physicians or a lack of consistent coding practices for long COVID (as identified in Section 4.4). In addition, fewer long COVID patients reported trust in the healthcare system (58%) than primary care users without long COVID (64%, Figure 8.1). Lower levels of trust may relate to past experiences with the health system, including lack of recognition and understanding of long COVID, delays in diagnosis, and poorly organised care systems and pathways for treatment of the condition.

8.4.2. Addressing long COVID contributes to fostering health-system resilience

The COVID-19 pandemic exposed deep vulnerabilities in health systems, underscoring the urgent need to strengthen their resilience – not only the ability to absorb shocks but also the ability to adapt, recover and transform, while maintaining essential services across all areas of care (OECD, 2023^[5]).

The unanticipated emergence of long COVID added new pressure at a moment when systems were still managing the acute COVID-19 crisis. Responding to the complex, long-term needs of affected patients placed additional strain on service capacity, workforce and co-ordination, testing health systems' ability to continue to meet people's needs and expectations even under concurrent stress. This experience vividly illustrates the OECD concept of resilience as the capacity to anticipate, absorb and adapt to shocks without compromising core service delivery (OECD, 2023^[5]).

Learning from the long COVID experience is therefore critical to strengthening preparedness for future pandemics. The COVID-19 response revealed that long-term consequences of infection were often neglected in the early stages, and risked being overlooked as the pandemic entered the post-acute recovery phase. In any future pandemic, or in the event of the emergence of a new or more virulent SARS-CoV-2 variant, attention to potential long-term sequelae must be anticipated and integrated into planning from the start of the acute response.

Availability of accurate and timely surveillance data facilitates more informed health policymaking. Health systems should establish systematic follow-up mechanisms for patients from the outset of any new infectious outbreak. This includes registry- or cohort-based surveillance or surveys of infected populations across the spectrum of disease severity, tracking symptoms, functioning outcomes, employment status and overall well-being compared with pre-infection levels. Such longitudinal data are essential to detect new PAISs early and to guide effective prevention, rehabilitation and support policies.

Equally importantly, investments made in long COVID research – including advances in understanding the biological mechanisms of PAISs, in the development of diagnostic aids and effective treatment pathways, and in designing supportive care models – create a foundation for faster and more co-ordinated responses to future health threats. Building on these lessons can help policymakers to avoid leaving new patient groups in prolonged uncertainty, and may reduce the time lag between clinical recognition and policy or research action in future crises.

Long COVID is a prime example that highlights the importance of integrated, multidisciplinary and sustained care models that link primary care, specialist services, rehabilitation and social support. These are precisely the attributes of resilient and agile health systems. By strengthening these capacities now, countries can enhance both their preparedness and their day-to-day ability to care for people with complex, long-term conditions – included those that arise unexpectedly in the population.

Understanding and responding proactively to long COVID thus foster resilience in a tangible way. It would be inexcusable not to learn from this experience, using it to build stronger, more agile health systems for the future.

References

- Government of the Netherlands (2025), *Response to the Committee's request for a speedy submission of a progress letter for post-infectious diseases (including post-covid)*, Letter No. 2238, https://www.tweedekamer.nl/kamerstukken/brieven_regering/detail?id=2025Z20819&did=2025D49041 (accessed on 26 February 2026). [1]
- Kwon, J. et al. (2024), "Impact of Long COVID on productivity and informal caregiving", *The European Journal of Health Economics*, Vol. 25, pp. 1095–1115, <https://doi.org/10.1007/s10198-023-01653-z>. [2]
- OECD (2025), "The prevalence and impact of Long COVID in the primary care population: Findings from the OECD PaRIS survey", OECD Publishing, Paris, <https://doi.org/10.1787/119b0e8f-en>. [4]
- OECD (2023), *Ready for the Next Crisis? Investing in Health System Resilience*, OECD Health Policy Studies, OECD Publishing, Paris, <https://doi.org/10.1787/1e53cf80-en>. [5]
- OECD (2021), *Health for the People, by the People: Building People-centred Health Systems*, OECD Health Policy Studies, OECD Publishing, Paris, <https://doi.org/10.1787/c259e79a-en>. [3]

Addressing the Costs and Care for Long COVID

The Long Shadow of the Pandemic

Long COVID is a post-acute infection syndrome characterised by the persistence of symptoms following a COVID-19 illness. This novel and complex condition has a debilitating and often disabling impact on patients and remains a challenge for healthcare professionals and health systems to adapt to. This report estimates the economic impact of long COVID across OECD countries from both direct healthcare costs and more significantly indirect costs related to reduced productivity and workforce exit. The report summarises national initiatives and priorities for defining, recognising and managing long COVID. The policies required to provide integrated care for long COVID contribute to building resilient and people-centered health systems for any future health threats.



Funded by
the European Union



PRINT ISBN 978-92-64-77466-7
PDF ISBN 978-92-64-96728-1



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