



# LONG COVID STATUS REPORT

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# Executive Summary

- Long COVID is a multisystemic condition characterised by persistent symptoms from COVID-19.
- Large research study found functional impairment of Long COVID to be *"worse than in patients who had a stroke"* and *"comparable to patients with Parkinson's disease"*. Health related quality of life (HRQoL) was found to be worse than *"patients with advanced/metastatic cancers"* (Walker et al., 2023).
- In his testimony to the US Senate Committee, Dr. Ziyad Al-Aly underscored that the *"burden of disease and disability from Long COVID is on a par with the burden of cancer and heart disease"* (Addressing Long COVID, 2024).

## Prevalence

- Periodic national surveillance ended in 2023. The last ONS data (March 2024) - for England and Scotland only - shows 2 million people (including over 111,000 children) have Long COVID.
- Of those 2 million, more than a third have had it for over 2 years, and many now over 4 years.
- Long COVID is an ongoing risk, with 178,000 new cases during the 16 weeks of the ONS CIS survey 23/24.

## Economic Impact

Focusing on the 381,000 in England and Scotland with Long COVID "impacted a lot" (ONS, March 2024):

- Long COVID added at least 63,000 (8.4%) – 87,000 (11.6%) to the 749,000 rise in economic inactivity due to ill health at Feb 2023, and 8.6% to 12% to the 725,000 rise at Nov 2024 (Long COVID Support, 2025).
- £11.2 billion lost health related Quality of Life in one year (Treasury Green Book values at 20/21 prices).
- £5.7 billion lost income from infection to February 2023 - cumulative total.(Kwon et al, 2023).
- £4.8 billion cost of informal caregiving from infection to February 2023 - cumulative total. (Kwon et al, 2023).
- Long COVID healthcare costs are 2.5 times pre-pandemic costs at over £700 per person per year, and 1.5-2.0 times since the start of pandemic against matched patients without Long COVID. (Mu Y et al, 2024).

## Healthcare

- In 2022, NHS England established 90 adult and 14 children Long COVID services, although these are no longer centrally commissioned. No services were centrally commissioned in the devolved nations but some individual health authorities implemented their own services. There is no standard model of service.
- Some services are being closed, scaled back, or merged with other local clinics.
- NICE guidelines on Long COVID have not kept pace with emerging evidence.
- Research to identify best practice in clinical management and health service design is urgently needed.

## Research

- There have been no dedicated NIHR funding calls for Long COVID across clinical, educational and work impacts, since November 2020 and March 2021 (each for £20m). There is now a body of evidence sufficient to design urgently needed clinical treatment trials, if funding was provided (Altmann & Pagel, 2023).

## Prevention

- Preventing infection with the SARS-CoV-2 virus is the most effective way to avoid Long COVID. Prevention tools include improving indoor air quality and masking, especially in high risk settings such as healthcare (Al-Aly et al., 2024).
- Severity of acute COVID-19 is a known risk factor for Long COVID. Latest Covid-19 guidance limits free access to vaccinations and antivirals, overlooking their potential to reduce Long COVID (Greenhalgh et al., 2024).

## Inequalities

- Long COVID has both exacerbated pre-existing inequalities and created a new cohort of disabled people (Long COVID Groups, 2025).

# Epidemiology

**Estimates of Long COVID prevalence** in the UK vary, and periodic national surveillance ended in 2023. The most recent data show:

ONS, March 2024:

- 2 million people in England and Scotland have Long COVID, with 1.5 million having their activities “adversely affected” and 381,000 “limited a lot.”
- Over a third have had it for over 2 years, with many from 2020 now suffering for over 4 years.
- Long COVID is an ongoing risk, with 178,000 new cases during the 16 weeks of the survey 23/24.

GP Patient Survey for NHS England, 2024:

- 4.6% prevalence, corresponding to a figure of approximately 2.5 million people aged 16+ in England (ONS, 2025).
- A further 9.4% of respondents were unsure whether or not they have Long COVID.

Data from periodic ONS Infection Surveys show that the prevalence of Long COVID has risen steadily since 2021 (ONS 2022; ONS 2023; ONS 2024). Although the likelihood of developing Long COVID has decreased and is now estimated to be a few percent per individual, ongoing waves of COVID-19 mean that even this small percentage results in thousands of new cases and can occur in those who have previously recovered from Covid (Altmann & Pagel, 2024). That some people do not recover is not unexpected, as many infection-associated chronic conditions and illnesses (IACCIs) and post-acute infection syndromes (PAIS) are known to persist for years (Patcai, 2022).

**Burden of Disease and Disability** - in his testimony to the US Senate Committee, Dr. Ziyad Al-Aly underscored that the “*burden of disease and disability from Long COVID is on a par with the burden of cancer and heart disease*” ((Addressing Long COVID, 2024). A large research study found functional impairment of Long COVID to be “*worse than in patients who had a stroke*” and “*comparable to patients with Parkinson’s disease*”. Health related quality of life (HRQoL) was found to be worse than “*patients with advanced/metastatic cancers*” (Walker et al., 2023).

**Reinfection** has been shown to increase the risk of Long COVID, with a greater risk seen in individuals who have been infected more than once. Reinfection can also lead to a worsening of symptoms in those who already have Long COVID (Al-Aly et al., 2024).

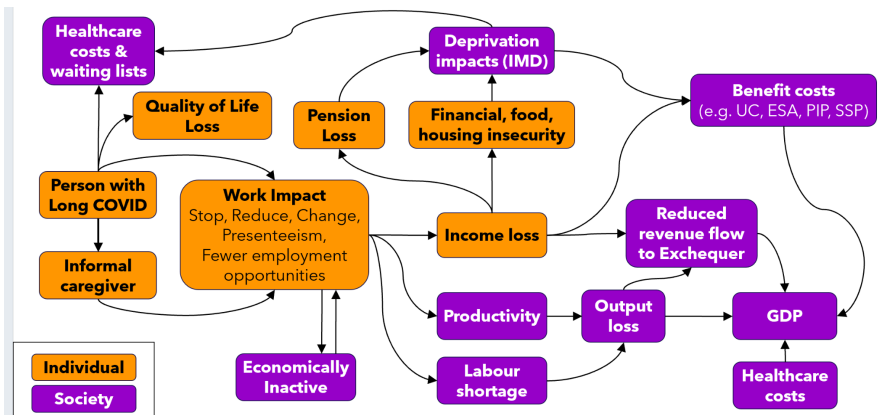
Long COVID can affect individuals of all ages, from children to older adults, and occurs across diverse racial, ethnic, and gender groups, regardless of pre-existing health status, but the incidence is notably higher among women, those aged 35-69, people with a pre-existing health condition and those with a more severe acute Covid-19 illness (Al-Aly et al., 2024).

**Other risks** - COVID-19 increases the risk of developing other conditions, such as cardiovascular issues including heart disease and stroke (Xie et al., 2022), and diabetes (Wong et al., 2023).

# Economic impacts

Long COVID has a significant impact on individuals, families, employment and national economies - including increasing economic inactivity. The model shows key impacts and most feedback loops.

This section excludes the impacts of COVID infections increasing the risks of other conditions (e.g. heart attack, stroke).



**Cognitive deficits (“brain fog”)** - The UK Defence Medical Services studied serving personnel with Long COVID. The deficits found were comparable to intoxication at the **UK drink driving limit or having aged 10 years**. This has significant implications for people’s ability to work at their pre-COVID level.

**Economically inactive due to ill health** numbers had increased since the start of the pandemic by 749,000 in February 2023. The increase had fallen slightly to 725,000 in November 2024. The LOCOMOTION study looked in depth at the financial and work impact for Long COVID Clinic patients from August 2022 to February 2023. They found that 28.2% had stopped paid work. These patients are representative of the ONS “impacted a lot” group. The findings show that the **ONS “impacted a lot” aged 16-64 (223,000 UK people at March 2023) added at least 63,000 (8.4%) of the 749,000 increase** in economic inactivity at February 2023.

**Quality Adjusted Life Year (QALY)** - The Treasury Green Book provides a valuation for one QALY of £70,000 at 20/21 prices. Long COVID’s QALY score (0.50) is worse than the UK healthy population (0.92), breast cancer (0.83), COPD (0.68), or heart failure (0.60). The **value of QALYs lost is £11.2Bn (at 20/21 prices)** in just one year for the ONS “Impacted a lot” group (381,000 people at 6th March 2024 in England and Scotland).

**Income Loss** from the 1st year of Long COVID was £337 (18.5%) on average per person per month, rising to £853 (41.5%) after 2 years. The average hides the impact for individuals. Some will have dropped to no income (e.g. zero hours contracts, employer’s sick pay finishing).

ONS “Impacted a lot” group 381,000 UK people at February 2023		
LOCOMOTION	Cumulative from infection	Monthly Average
Income Loss	£5,700 m	£277 m
Informal Caregiving	£4,800 m	£218 m
<b>Total</b>	<b>£10,500 m</b>	<b>£495 m</b>

**Informal caregiving** by family used the 2023 market rate of £20 per hour as a proxy for the financial impact (e.g. reducing working hours to provide care).

**Healthcare Costs** are increased across all NHS services. Long COVID cases drive multiple tests and referrals into NHS waiting lists at both diagnosis and on an ongoing basis. Mu Y et al. used patient data from January 2018 to January 2023. Long COVID patients cost over £700 per person per year, 2.5 times their pre-pandemic costs and 1.5-2.0 times pandemic costs of matched patients without Long COVID.

**The impacts above exclude two other ONS Long COVID groups**, a total of 890,000 people in England and Scotland at March 2024. They are very poorly studied and little data exists. Work impact is likely to be reduced hours and/or productivity, changes in job and/or responsibilities, presenteeism, and reasonable adjustments.

**Economic Analysis** The lack of robust and recent impact data is highlighted in most economic analyses. The Economist’s Long COVID Impact report for the UK estimated a £12.2Bn GDP loss for 2024. The report understates the impact as costs for quality of life, health care and informal caregiving were excluded.

**Appendix A** includes more information and the references. Each impact assessment in the appendix is written so they can be read individually allowing people to focus on their area of interest.

# Healthcare and the NHS

Long COVID care differs significantly both within and across healthcare systems.

**Treatment and management** - With little to no evidence from randomised clinical trials (RCTs) to guide treatment decisions, symptom management relies on approaches used for similar conditions (Al-Aly et al., 2024). While thousands of academic studies offer guidance on this, many healthcare providers remain uncertain about how to assess, manage and treat the condition (Al-Aly et al., 2024).

**The NICE guidelines** on Long COVID, first published in 2021 as living guidelines with updates every three months, were recently reclassified as traditional guidelines without consultation. The rationale is unclear, and they have not kept pace with emerging evidence, hindering care.

Many patients have gone undiagnosed, faced skepticism, received inadequate evaluations, or been given inappropriate treatments. Some describe their experience as "medical gaslighting." (Greenhalgh et al., 2024)

**Specialist Long COVID services** - Where best practice is followed, care adheres to a tiered model based on symptom severity, with milder cases managed in primary care and more severe cases referred to specialised Long COVID services (Greenhalgh et al., 2024).

In 2022, NHS England established 90 adult and 14 children Long COVID services. These services were centrally funded by the Department for Health and Social Care (DHSC), with detailed commissioning guidelines provided by NHS England (NHS England, 2023). In 2024, commissioning and funding shifted to regional Integrated Care Boards (NHS England, 2024). While services were not centrally commissioned in Scotland, Wales, and Northern Ireland, some individual health authorities implemented their own services.

Our investigation indicates that, without secured funding and oversight to ensure ICBs allocate resources as intended, only 34 services may remain operational in England by April 2025. Many specialist Long COVID services fail to meet NHS commissioning guidelines, resulting in inadequate care. Some services, labeled as "specialist," consist solely of short courses on symptom management or provide access to support groups, with little to no opportunity for consultations with physicians or healthcare professionals. (LCS & LCK, 2025).

There is no standard model of service. Research to identify best practice in clinical management and health service design is urgently needed.

**A vicious cycle of under-reporting** has emerged. Limited or unsatisfactory specialist services discourage GP referrals and, as a result, stop using the designated codes to record Long COVID cases. This reduces reported cases, falsely suggesting low demand for these services (Greenhalgh et al., 2024).

## Research

**Funding calls** - The NIHR launched two dedicated Long COVID funding calls of £20m each in November 2020 and March 2021 but has provided no dedicated funding since (NIHR, 2021). Unlike acute Covid-19, the drive to find effective treatment for Long COVID lacks urgency and investment.

**Research for treatments** - The misconception that it's "too early" for randomised controlled trials (RCTs) due to a lack of agreed biomarkers or outcome measures overlooks the existing body of evidence on physiological mechanisms. This body of evidence is sufficient for RCT design to identify urgently needed treatments if funding were available (Altmann & Pagel, 2023).

**Diverse subtypes** - Long COVID is increasingly viewed as an umbrella term for diverse subtypes, each with unique risk factors and responses to treatment. Effective management and treatment will require tailored approaches based on symptom clusters and physiological markers (Altmann & Pagel, 2023).

## Prevention

**Vaccines** - UK Covid-19 policy relies on vaccination, but JCVI guidance overlooks Long COVID risks. Free access is limited, leaving many unprotected. A meta-analysis of 620,221 participants found two vaccine doses reduce Long COVID risk by 36.9%, and three doses by 68.7% (Chow et al., 2024). For those with Long COVID, vaccination has mixed effects but helps prevent reinfections and is recommended for most. Updated protein-based vaccines may offer further benefits (Greenhalgh et al., 2024).

**Antivirals** - Since severe Covid-19 increases Long COVID risk, antivirals may help by reducing initial illness severity. Observational studies support this, but controlled trials remain limited. Again, UK Covid-19 policy means access remains limited (Greenhalgh et al., 2024).

**Air filtration and masks** - Preventing Covid-19 infection is the most effective way to avoid Long COVID. In high-risk settings, especially healthcare, weak safety measures increase transmission. Improving air quality, enforcing mask mandates, and routine testing reduce Covid-19 spread (Greenhalgh et al., 2024). NHS staff absences remain above pre-Covid levels, and mirror hospital Covid cases and overall prevalence in the population (Palmer & Rolewicz, 2023).

## Inequalities

**Creating inequalities** - A significant proportion of those living with Long COVID have been disabled by the condition, rendering them unable to work or engage in their usual routines.

**Exacerbating inequalities** - Healthcare disparities limit access to care, driven by barriers like sex, age, immigration status, digital literacy, language, disabilities, and health-seeking behavior. Geographical disparities worsen the issue - more deprived areas, despite higher Long COVID rates, remain underserved (Long COVID Groups, 2025).

## Pandemic Preparedness

Post-viral syndromes are well-documented, with SARS-CoV-1 and MERS causing long-term health complications (Long COVID Groups, 2025). Long COVID should have been anticipated. Future pandemic planning must account for post-viral syndromes, particularly given the risk of another bat-derived coronavirus (Altmann & Pagel, 2023).

## Patient Advocacy

The lack of clinical understanding and limited specialised care has fueled the rise of online communities, which have become essential for support, information sharing, advocacy, and research. Through these communities and social media, patient groups have played a crucial role in raising awareness of Long COVID since the start of the pandemic. As Professor Brightling noted at the UK-Covid Inquiry, *“Patients really got together as one voice to advocate for what we now know as Long COVID, defining it and forming charities in the early months of 2020.”* To this day, patients remain at the forefront, driving progress, shaping research, advocating for better clinical care, and pushing for policy changes to improve recognition, healthcare and support for Long COVID (Long COVID Groups, 2025).

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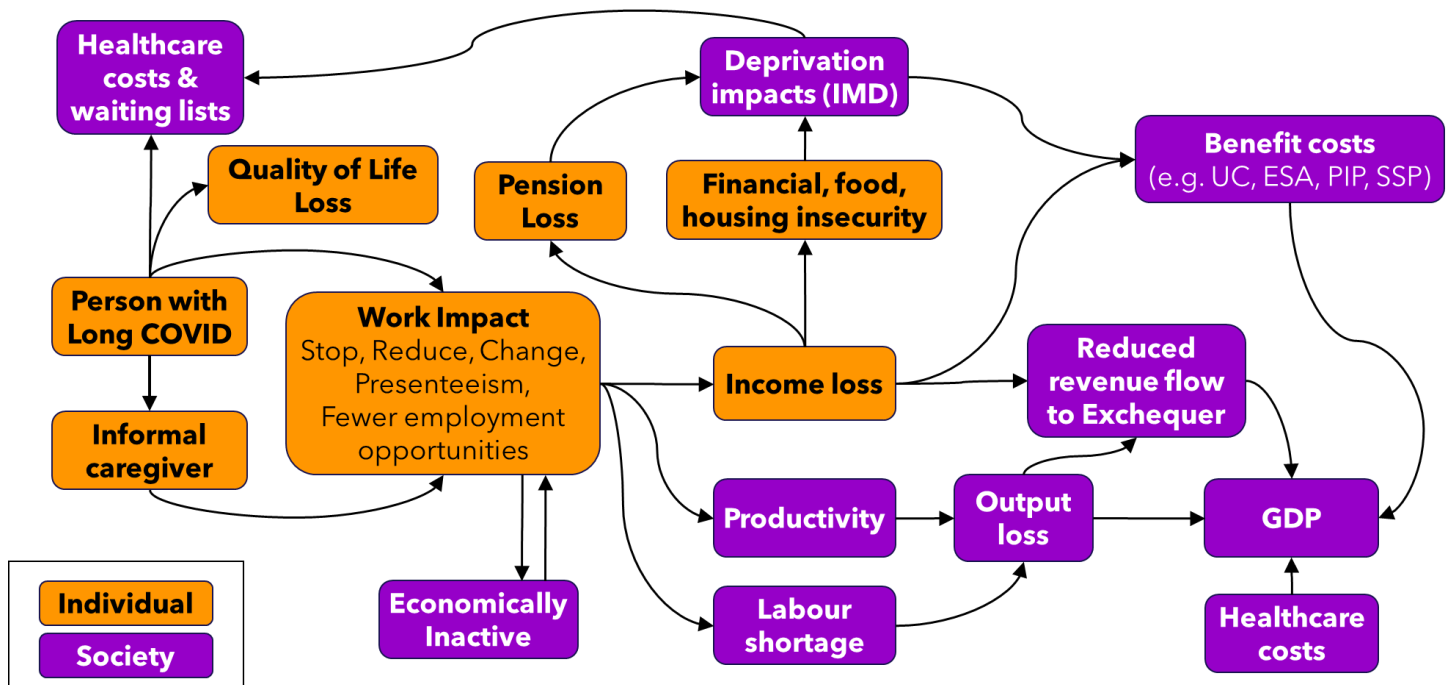
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# Appendix A - Economic impacts

Long COVID has a significant impact on individuals, families, employment and national economies - including increasing economic inactivity. The model shows key impacts and most feedback loops.



All the impact assessments exclude the impacts from COVID infections increasing the risks of other conditions (e.g. heart attack, stroke, diabetes).

Each impact assessment is written so they can be read individually. This occasionally means some information will be repeated in different assessments. The two exceptions are:

- information below on Winter CIS which applies to all impact assessments.
- Income Loss and Informal Caregiving as they are closely linked to the individual and family impact of Long COVID.

## ONS Winter CIS 2023/24 - Must read information about impact of unknown durations on results

The ONS asked survey respondents “Would you describe yourself as having 'Long COVID'? That is, you are still experiencing symptoms more than 4 weeks after you first had the coronavirus (COVID-19), that are not explained by something else?”.

Respondents were asked to give a specific date or the month their symptoms started so symptom duration could be calculated. Approximately 1/3 of the respondents were not able to give a start date. We are not aware of any further investigations into why people could not give a start date.

Respondents who did not give a start date were excluded from any ONS results where a specific duration is mentioned (e.g. > 12 weeks) and are recorded as “unknown”. They are included in the results for “any duration”. The table shows the duration results at the end of the survey - 6th March 2024.

Duration.	Self-reported long COVID	self-reported long COVID #
4 to 11 weeks	7.89%	120,490
12 to 51 weeks	9.61%	146,791
52 to 103 weeks	12.04%	184,043
104 to 155 weeks	13.85%	211,606
156 weeks and over	21.05%	321,638
Duration unknown	35.56%	543,404
<b>Grand Total</b>	<b>100.00%</b>	<b>1,527,974</b>

For example, “self-reported Long COVID of any duration, in England and Scotland” (2 million people) includes the unknown durations. “self-reported Long COVID of at least 12 weeks, in England and Scotland

(1.140 million people) excludes people with a duration of less than 12 weeks **AND the unknown durations**. Most of the unknown durations are likely to have a symptom duration of more than 12 weeks.

**In the impact assessments we usually use the ONS results which exclude the unknowns. While this understates the problem, it does give us a lower bound estimate.** This means we are confident that the actual number will be higher, but the data does not allow us to know how much higher. We present these as “at least X”. This gives very substantial cover for additional exclusions which reduce the upper bound estimate.

**Cognitive deficits (“brain fog”)** - The UK Defence Medical Services studied serving personnel with Long COVID. The deficits found were comparable to intoxication at the **UK drink driving limit or having aged 10 years**<sup>1</sup>. This has significant implications for people’s ability to work at their pre-COVID level.

The UK Defence Medical Services researched serving personnel (SP) who had recovered from COVID, either in hospital or in the community, but had ongoing symptoms for 12+ weeks. SPs are generally fitter, younger and have less background medical problems than the general population. Their three most common symptoms were breathlessness (61%), fatigue (54%) and cognitive impairment (47%).

One systematic review<sup>2</sup> (Panagea et al, 2024) assessed 516 studies with 36 meeting the inclusion criteria.

Cognitive function (Panagea et al)	% of patients impaired
Executive functions: Task switching	5% - 21%
Memory: verbal learning and recall tests	10.5% - 26.8%
Memory: visual memory	8% - 15.2%
Memory: delayed recall	10% - 26.98%
Naming ability: noun retrieval ability	9% - 16%

**Task switching** allows a person to rapidly and efficiently adapt to different situations by unconsciously shifting attention. Task switching deficits are often seen in other diseases such as Parkinson’s disease.

**Economically inactive due to ill health** numbers had increased since the start of the pandemic by 749,000 in February 2023. The increase had fallen slightly to 725,000 in November 2024. The LOCOMOTION study looked in depth at the financial and work impact for Long COVID Clinic patients from August 2022 to February 2023. They found that 28.2% had stopped paid work. These patients are representative of the ONS “impacted a lot” group. The findings show that the **ONS “impacted a lot” aged 16-64 (223,000 UK people at March 2023) added at least 63,000 (8.4%) of the 749,000 increase** in economic inactivity at February 2023.

Population surveys (e.g. ONS Labour Force) do not allow Long COVID to be specifically recorded as a disease or condition. People may just tick symptoms from the presented lists or possibly type information in the “Other” box in the survey. The 2024 NHS England GP Patient Survey<sup>3</sup> asked about Long COVID prevalence, but only asked for general impact across all Long Term Conditions or disabilities. **These examples highlight ongoing, fundamental surveillance failures around Long COVID’s impact on health and work.**

One paper from the NIHR<sup>4</sup> funded LOCOMOTION programme, Kwon et al<sup>5</sup>, looked at the financial and work impact for Long COVID Clinic patients from August 2022 to February 2023.

<sup>1</sup> [Comprehensive clinical assessment identifies specific neurocognitive deficits in working-age patients with long-COVID | PLOS ONE](#), Holdsworth et al, June 2022

<sup>2</sup> [Neurocognitive Impairment in Long COVID: A Systematic Review | Archives of Clinical Neuropsychology | Oxford Academic](#), Panagea et al, June 2024

<sup>3</sup> [NHS England \(2024\) GP Survey of England](#) (accessed 9 February 2025).

<sup>4</sup> National Institute of Health Research

<sup>5</sup> [Impact of Long COVID on productivity and informal caregiving | The European Journal of Health Economics](#), Kwon et al, December 23

The study measured the the patient’s Quality of Life using the gold-standard EQ-5D-5L<sup>6</sup> which scores best health as 1, and death as 0. The UK healthy population scores 0.92. Long COVID clinic patients scored 0.5 on average. 68% of the patient scores were in the range 0.8 to 0.2 with the remaining scores heavily skewed to below 0.2.

On this basis we believe that Long COVID clinic patients are very likely to be representative of the ONS Long COVID “impacted a lot” (223,000 excluding 85,000 unknown durations, at 6th March 2024).

Kwon et al gave a very detailed breakdown of people’s responses about Long COVID’s impact on their ability to work and included retirement status and unpaid work. The table below gives the details for paid work only.

<b>LOCOMOTION findings extrapolated to ONS March 2024 “Impacted a lot” Age-16-64 (223,000 plus 85,000 unknown durations)</b>	<b>Impact %</b>	<b>People exc. Unknown duration</b>	<b>People inc. Unknown duration</b>	<b>Economically Inactive</b>
No longer engaged in paid work and no work income	16.7%	37,321	51,436	Yes
No longer engaged in paid work but receiving paid work income (e.g. sick pay, permanent health insurance)	11.5%	25,700	35,420	Yes
Reduced paid work hours	23.5%	52,517	72,380	No

**28.2% of patients were economically inactive.** In total, 51.7% of patients had stopped paid work or reduced hours. Only 27% returned to working their pre-Long COVID hours. 3% had increased working hours but there was no information on the size of the increase in the data. Other studies show similar impacts. The BMA<sup>7</sup> found that 18% of doctors with Long COVID were unable to work.

Economic inactivity is measured continuously. Long COVID data is only available for Winter periods - in the ONS 2023/24 survey the data was collected over 16 weeks ending March 6th 2024. The table below shows how we matched economic inactivity data to Long COVID data.

<b>Date</b>	<b>Economically Inactive UK - Age 16-64 (ONS<sup>8</sup>) “Long-Term Sick”</b>	<b>Increase since Dec 2019</b>	<b>Long COVID Cases England &amp; Scotland - Age 16-64 (ONS CIS 23/24<sup>9</sup> at March 6th 2024)</b>
Oct-Dec 2019	2,077,000	0	0
Feb-Apr 2024	2,826,000	749,000	Impacted <ul style="list-style-type: none"> <li>• “a lot” = 223,000 exc. 85,000 unknowns</li> <li>• “a little” = 492,000 exc. 352,000 unknowns</li> <li>• “not at all” = 269,000 exc. 106,000 unknowns</li> </ul>
Sep-Nov 2024	2,801,000	724,000	No surveillance

Applying the Kwon et al findings shows that the **ONS “impacted a lot” aged 16-64 (223,000 UK people at March 2023) added at least 63,000 (8.4%) of the 749,000 increase** in economic inactivity at February 2023.

If the 85,000 unknowns are included then ONS “Impacted a lot” added 87,000 (11.6%) of the 749,000 increase.

<sup>6</sup> [EQ-5D-5L | EuroQol](#)

<sup>7</sup> [Over-exposed and under-protected: the long-term impact of COVID-19 on doctors](#), BMA, July 2023, accessed 9 Feb 2025

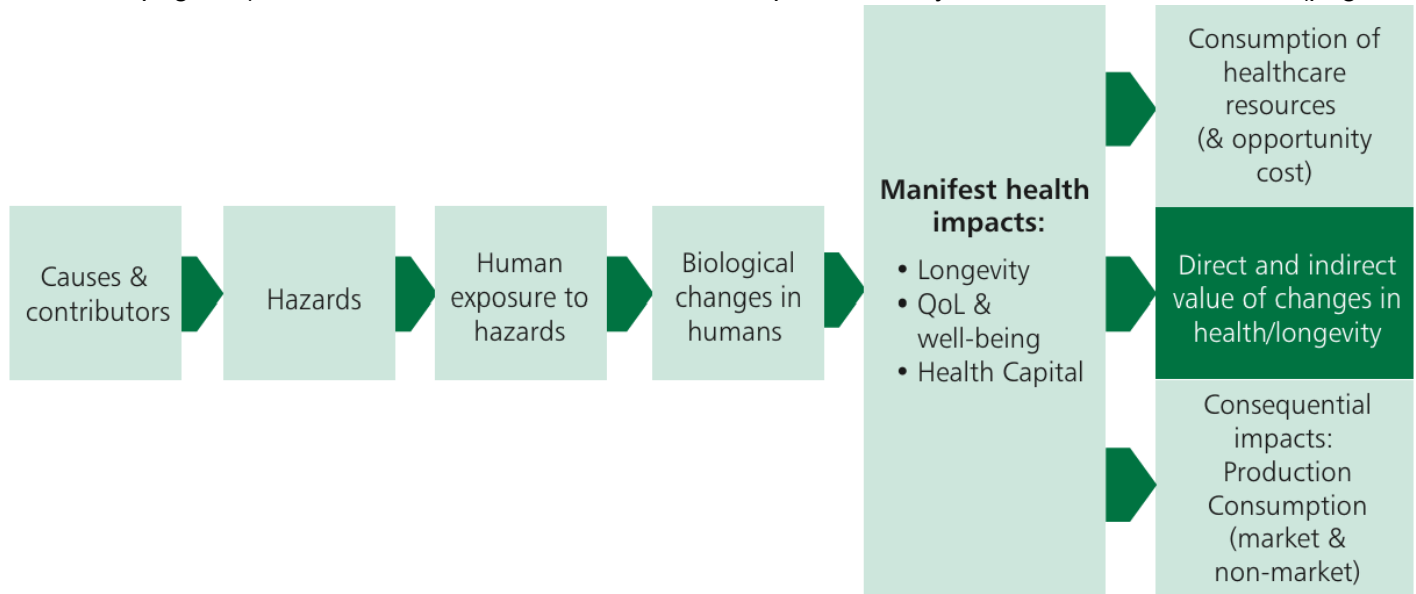
<sup>8</sup> [INAC01 NSA: Economic inactivity by reason \(not seasonally adjusted\) - ONS](#), released 21st Jan 2025

<sup>9</sup> [Self-reported Long COVID. England and Scotland - Office for National Statistics](#), released 30 May 2024.

**Quality of Life measured by Quality Adjusted Life Year (QALY)** - The Treasury Green Book<sup>10</sup> provides a valuation for one QALY of £70,000 at 20/21 prices. Long COVID's QALY score (0.50)<sup>11</sup> is worse than the UK healthy population (0.92), breast cancer (0.83), COPD (0.68), or heart failure (0.60). The **value of QALYs lost is £11.2Bn (at 20/21 prices)** in just one year for the ONS "Impacted a lot" group (381,000 people at 6th March 2024 in England and Scotland).

This impact assessment gives an order of magnitude estimate for the value of the Quality of Life lost to Long COVID for the ONS "Impacted a lot" group (381,000 people at 6th March 2024 in England and Scotland) - including the 85,000 people with unknown durations in that group.

The value calculation uses the method detailed in the Treasury Green Book, which covers guidance on how to appraise and evaluate policies, projects and programmes (see *Measuring health-related quality of life and QALYs* on page 86). The Green Book also describes the Impact Pathway for Life and Health effects (page 85).



This Quality Adjusted Life Year (QALY) impact assessment is within the "Direct and Indirect value of changes in health longevity". The Green Book gives one QALY a value of £70,000 at 20/21 prices.

Quality of Life is measured using the gold-standard EQ-5D-5L<sup>12</sup> which scores best health as 1, and death as 0. The UK healthy population scores 0.92. Long COVID clinic patients scored an average of 0.5. 68% of the patient scores were in the range 0.8 to 0.2 with the remaining scores heavily skewed to below 0.2.

The impact calculation for 1 full year of lost Quality of Life is straight forward.

**381,000 people x (healthy population QALY score 0.92 - Long COVID QALY score 0.5) x £75,000 = £11.2B at 20/21 prices (undiscounted).**

This assessment calculates only the QALYs lost to Long COVID for 1 year to give an order of magnitude assessment.

Calculating QALYs lost from infection to a point in time (e.g. ONS survey date) is more complex as it requires data on when Long COVID symptoms first started for each individual, or the distribution of start dates across the population so partial years can be accounted for. Also the value of a QALY is discounted annually at the health rate of 1.5%, declining after 30 years.

<sup>10</sup> [The Green Book: appraisal and evaluation in central government - GOV.UK](#), last updated May 2024

<sup>11</sup> [National Evaluation of Long COVID Service Outcomes](#), Sivan et al, October 2023

<sup>12</sup> [EQ-5D-5L | EuroQol](#)

**Income Loss** From the 1st year of Long COVID was £337 (18.5%) on average per person per month, rising to £853 (41.5%) after 2 years. The average hides the impact for individuals. Some will have dropped to no income (e.g. zero hours contracts, employer’s sick pay finishing).

**Informal caregiving** by family used the 2023 market rate of £20 per hour as a proxy for the financial impact (e.g. reducing working hours to provide care).

ONS “Impacted a lot” group 381,000 UK people at February 2023		
LOCOMOTION	Cumulative from infection	Monthly Average
Income Loss	£5,700 m	£277 m
Informal Caregiving	£4,800 m	£218 m
Total	£10,500 m	£495 m

The LOCOMOTION study (Kwon et al)<sup>13</sup> looked in depth at the financial and work impact for Long COVID Clinic patients from August 2022 to February 2023. This work gives an excellent picture of the impact on the individual, their family, and in some cases their close social network.

Due to the timing of data collection the study data was matched with the ONS Winter CIS 22/23 data. Extrapolating this data to some point in 2025 is possible but far outside the scope of this report. It’s a complex forecasting problem, and would require funding for either academics, consultants or the Civil Service to complete.

The study measured Long COVID clinic patient’s Quality of Life using the gold-standard EQ-5D-5L<sup>14</sup> which scores best health as 1, and death as 0. The UK healthy population scores 0.92. Long COVID clinic patients scored 0.5 on average. 68% of the patient scores were in the range 0.8 to 0.2 with the remaining scores heavily skewed to below 0.2.

On this basis we believe that Long COVID clinic patients are very likely to be representative of the ONS Long COVID “impacted a lot” (381,000 at 5th March 2023).

Income loss was valued using the hourly wage, assuming constant hours and 4 working weeks per month (human capital method). Informal caregiving was valued by assuming individuals would purchase private care at the average hourly cost of £20 (proxy goods method).

Kwon et al gave a very detailed breakdown of people’s responses about Long COVID’s impact on their ability to work and included retirement status and unpaid work. The table (right) gives the details for paid work only.

LOCOMOTION findings extrapolated to ONS March 2023 “Impacted a lot” (381,000)	Impact %
No longer engaged in paid work and no work income	16.7%
No longer engaged in paid work but receiving paid work income (e.g. sick pay, permanent health insurance)	11.5%
Reduced paid work hours	23.5%

**In total, 51.7% of patients had stopped paid work or reduced hours.**

**Only 27% returned to working their pre-Long COVID hours.** 3% had increased working hours but there was no information on the size of the increase in the data.

Other studies show similar impacts. For example, the BMA<sup>15</sup> found that impacts for doctors with Long COVID included:

- **18% of doctors with Long COVID were unable to work.**
- **Doctors on long-term sick and not working rose from 1% to 18%**

<sup>13</sup> [Impact of Long COVID on productivity and informal caregiving](#), Kwon et al, December 23

<sup>14</sup> [EQ-5D-5L | EuroQol](#)

<sup>15</sup> [Over-exposed and under-protected: the long-term impact of COVID-19 on doctors](#), BMA, July 2023, accessed 9 Feb 2025

As Long COVID duration increased then so did monthly income lost. However, this is a complex picture with many interacting factors.

Employers can offer full sick pay for a period of time, often up to one year. The COVID-19 Furlough scheme was also in place for some of this period.

The NHS introduced an exemption to Trusts HR absence policies in September 2020 and it was withdrawn on 7th July 2022. During the exemption any COVID related illness, including Long COVID, meant staff were kept on full pay. Once it was withdrawn, sick pay reverted to full pay for six months, then half pay for six months (depending on length of service). At some point in that timeline, the HR process for dismissal due to ill-health would start. Reasonable adjustments can be difficult to agree with Trusts, and in some NHS jobs are impossible due to their nature. Some staff choose early retirement.

Long COVID Duration at February 2023	Average monthly income lost per person
< 1 year	£337 (18.5%)
1 - 2 years	£496 (24.1%)
> 2 years	£853 (41.5%)

The exemption timing means that many NHS staff would be entering into dismissal or half pay situations in the period January-February 2023.

Employment Sector - per person	Aggregate income loss	Average monthly income loss
Health and education sectors	£13,864	£1,000
Financial, ICT, and professional services	£10,300	£792
Other industries	£9,341	£761

Kwon et al investigated variations between employment sectors. Health and education sectors income loss was significantly higher. Both these sectors suffered higher COVID infection rates compared to the general population.

It's particularly striking that healthcare workers lost so much more income despite the protections offered by the NHS' COVID-19 Exemption.

The Royal College of Nursing in their Module 3 Opening Statement to the COVID-19 Inquiry stated "The most recent available ONS statistics [March 2024] estimate that 4.14% of staff working in health care and 5.07% of staff working in social care reported having symptoms of Covid more than 12 weeks after contracting it, compared to 2.7% in the wider population. Support for these staff members needs to continue and the impact of Long COVID in terms of increased long-term absence needs to be factored into workforce planning."

NHS England Chief Executive, Amanda Pritchard, in her Oral Evidence to the COVID-19 inquiry on 11 November 2024 stated that:

"Q...My question is, is NHS England collecting data now on the number of healthcare workers, both clinical and non-clinical, who are absent from work due to Long COVID?"

Amanda Prithcard: "So the simple answer to your question, I'm afraid, is "no". But there is a process which is currently underway to re-procure the electronic staff record system which I think does give us a chance to look at the sickness coding that is embedded in that system. They've committed, the team who are doing it, which is led by the BSA, but in partnership with NHS England and many others, to have wide stakeholder involvement in that process. So, again, speaking personally, rather than on behalf of the organisation, I think that is a very good and important opportunity for us to look at making sure we have got that coding in place."

Another factor in HR absence policies are the algorithms used to manage absence. A common one is the Bradford factor, which is coded into many HR systems. It's used to drive or influence decisions on HR action. It's used extensively in both commercial and public organisations, including the NHS.

The Bradford Factor calculation is “S<sup>2</sup>\*D” where  
 S is the total number of separate absences  
 D indicates the total number of days of absence.

Individuals	Bradford Factor Calculation	Bradford Factor Score
A has two 10-day absences.	2x2(S <sup>2</sup> ) * 20(D)	80
B, with Long COVID, has a 5-day absence for a COVID infection and then fifteen 1-day absences over 12 months due to Long COVID.	16x16(S <sup>2</sup> ) * 20(D)	5,120

Typically, a Bradford score over 200 points means a written warning can be given, over 400 a final written warning, over 600 means that dismissal procedures can start. Different organisations may have slightly different thresholds but the principle holds. As you can see from the calculation people with Long COVID will rapidly get to incredibly high Bradford scores compared to the rest of the workforce.

Many HR policies have the standard model of “you get sick, you get treatment, you get well enough for a phased return to work (typically 4 weeks), you return full time”. This makes Long COVID as an episodic / fluctuating disease, difficult to manage in the workplace for many employers. As a result, it can accelerate loss of income and/or informal caregiving costs. People on zero hour contracts or in precarious employment can rapidly get to zero income, in some cases almost overnight.

The combination of these and other factors may mean that the average income lost for new Long COVID cases after February 2023 is significantly greater than we’ve seen in the period March 2020 to February 2023.

### Income Loss and informal caregiving costs from COVID infection date February 2023.

Applying the research findings to the ONS “impacted a lot” population (381,000 people at March 2023) gives:

Infection date to Feb 23	Total (Bn)	Monthly average (m)
<b>Income Loss</b>	<b>£5.7Bn</b> (95% CI <sup>16</sup> : £3.8Bn to £7.6Bn)	<b>£277.7m</b> (95% CI: £196.3m to £359.2m)
<b>Informal Caregiving</b>	<b>£4.8Bn</b> (95% CI: £2.6Bn to £7.0Bn)	<b>£218.2m</b> (95% CI: £122.4m to £314.2m)

Kwon et al identified comparisons between productivity loss for other diseases. For example, early breast cancer cases in the UK had an annual cost of productivity loss estimated at £141.4 million (£168.5 million in 2022 prices) of which £105m was long term work absence.<sup>17</sup>

**Healthcare Costs** are increased across all NHS services. Long COVID cases drive multiple tests and referrals into NHS waiting lists at both diagnosis and on an ongoing basis. Mu Y et al. used patient data from January 2018 to January 2023. Long COVID patients cost over £700 per person per year, 2.5 times their pre-pandemic costs and 1.5-2.0 times pandemic costs of matched patients without Long COVID.

One of the major issues in understanding Long COVID prevalence, healthcare costs, and impact is the clinical coding of Long COVID in Electronic Health Records (EHR). We often experience pushback on Long COVID due to the low numbers of clinical coding vs. self reported Long COVID (e.g. ONS surveys).

<sup>16</sup> CI = Confidence interval

<sup>17</sup> [Societal costs of chemotherapy in the UK: an incidence-based cost-of-illness model for early breast cancer | BMJ Open](#), Parsekar



Walker et al<sup>18</sup> analysed 58 million adults in English Primary Care EHR between February 2020 and May 2021. They found only 23,273 Long COVID cases. They found huge variation in clinical coding practices:

- 26.7% of GP practices had never used the codes.
- GP practices on one software platform (EMIS) coded 2.6 times more patients than the other (TPP).
- GP practices in London coded 2.7 times more patients than the East of England.
- Most strikingly female staff coded 1.9 times more patients than male staff.

Henderson et al<sup>19</sup> analysed 19 million adults in English Primary Care EHR, from November 2020 - January 2023. The EHR data came from one software platform (TPP) used by approximately 40% of GPs. They found only 55,465 people with Long COVID over the study period, which included 20,025 diagnosis codes and 35,440 codes for further assessment. Their conclusion was “using EHR diagnostic or referral codes unfortunately has major limitations in identifying and ascertaining true cases and timing of Long COVID.”

There are clearly major issues with clinical coding. Other factors are also at play. Some NHS services do not accept referrals for Long COVID patients. So there is an incentive for GPs to not code Long COVID to ensure their patients can get to the necessary services. In some cases, limited or unsatisfactory specialist services discourage GP referrals and, as a result, GPs stop using the designated codes to record Long COVID cases. This reduces reported cases, falsely suggesting low demand for these services (Greenhalgh).

These systemic coding issues drive up both NHS costs and the length of time for patients to get appropriate and effective care due to mis-diagnosis, late or even no diagnosis. There are also risks for patient harm with critical data about patients missing from EHR. All of these factors contribute to increased financial and work impact as the right care is not in place at the right time.

Lin Ly et al found that between in the 12 months after diagnosis between Nov 2020 and Jan 2023, **Long COVID patients were 8 times more likely to use healthcare resource and cost over £1,000 more** than the non-Long COVID control group<sup>20</sup>.

Mu Y et al<sup>21</sup> used complex analysis of diagnostic codes and referral assessment codes to identify Long COVID patients as the clinical coding was insufficient. The data was from January 2018 to January 2023 to allow pre-pandemic comparison. **Long COVID patients cost over £700 per person per year, 2.5 times pre-pandemic costs and 1.5-2.0 times pandemic costs** of matched patients without Long COVID.

Most strikingly individuals with Long COVID had, when compared to all other control groups had the:

- highest hospitalisation rates over two years
- highest GP consultations per person per year
- highest outpatient appointments
- highest Emergency Department attendance

The only neutral result identified was the duration of In-Patient stay where there was no significant difference.

Every COVID wave will bring more Long COVID cases driving increased cost, increased load on GPs and other services and increases in waiting lists. During the 16 weeks of the ONS CIS survey 23/24 there were 178,000 new cases of Long COVID.

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<sup>18</sup> [Clinical coding of Long COVID in English primary care: a federated analysis of 58 million patient records in situ using OpenSAFELY](https://doi.org/10.3399/BJGP.2021.0301), Walker et al, 2021, DOI: <https://doi.org/10.3399/BJGP.2021.0301>

<sup>19</sup> [Clinical coding of Long COVID in primary care 2020–2023 in a cohort of 19 million adults: an OpenSAFELY analysis - ScienceDirect](https://doi.org/10.1136/bmj-2023-074444), Henderson et al, 2024

<sup>20</sup> Lin LY, et al (2024). Healthcare utilisation in people with Long COVID: an OpenSAFELY cohort study. *BMC Med*, 22, 255. DOI: [10.1186/s12916-024-03477-x](https://doi.org/10.1186/s12916-024-03477-x)

<sup>21</sup> Mu Y et al, 2024, *Healthcare Utilisation of 282,080 Individuals with Long COVID Over Two Years: A Multiple Matched Control Cohort Analysis* J R Soc Med. Nov 1;117(11):369–81. DOI [10.1177/01410768241288345](https://doi.org/10.1177/01410768241288345)

## Long COVID - ONS “Impacted a little” and “impacted not at all” (England and Scotland, ONS CIS data, 6th March 2023)

The two other groups, “impacted a little” (844,000) and “impacted not at all” (376,000), are very poorly studied and little data exists. Work impact is likely to be reduced productivity, reduced working, presenteeism, reasonable adjustments, changes in job and/or responsibilities. These 890,000 people are a “known unknown” extra impact.

How and why people with Long COVID move between the impacted “a lot”, “a little”, “not at all” groups is an area that is very poorly understood - especially the impact on staying in work.

**Economic Analysis** The lack of robust and recent impact data is highlighted in most economic analyses. The Economist’s Long COVID Impact report for the UK estimated a £12.2Bn GDP loss for 2024. The report understates the impact as costs for quality of life, health care and informal caregiving were excluded.

The lack of robust and recent impact data is highlighted by most economic analyses.

The result is that economists are often using data from early in the pandemic and are making assumptions around the characteristics of Long COVID. The lack of research funding for Long COVID means the flow of new research is getting smaller over time which is also a contributing factor. This is driving an “unvirtuous circle”.

The COVID-19 Inquiry has repeatedly identified that little or no economic impact assessments have been done by the UK government or Agencies during the pandemic period in the Inquiry’s scope.

Most available research funding today is aimed at the clinical aspects. However some funding needs to be aimed at understanding the financial and work impacts, or providing the high quality data for others to do such research. As an example, the ONS CIS is cited in almost every economic analysis we see both in the UK and internationally. Often it has been central to the assumptions that are being made in the economic analysis.

The challenge is that without effective cost-benefit assessments for Long COVID, funding will continue to decrease for these aspects:

- clinical research and services;
- public health initiatives such as surveillance and preventing new cases of Long COVID;
- providing appropriate benefits for the people with Long COVID whose symptoms restrict their ability to work or prevent them from working. These benefits need to address the episodic nature and variable symptom severity that is characteristic of Long COVID
- getting people with Long COVID back into the workplace and keeping them there in an effective and sustainable way which does not result in Long COVID “crashes”.

Another significant risk is the lack of input from clinicians and people with Long COVID. Every economics analysis paper reviewed so far has made 1 or more incorrect assumptions about aspects of Long COVID which leads to either over- or under- estimates of the economic impact.

The Economist's 2024 Long COVID report<sup>22</sup> included the UK and other countries.

For the UK, their modelling calculated the GDP impact as \$15.5Bn / £12.2Bn<sup>23</sup> at April 2024 prices.

The report understates the impact as costs for quality of life, health care and informal caregiving are excluded. They also made an assumption that people who reduce hours do so for only 6 months which is not supported by other data.

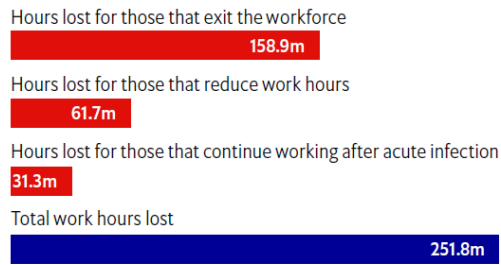
A 2024 EU labour market and economic impact assessment<sup>24</sup> estimated an output loss of 0.1-0.2% in 2021 and 0.2-0.3% in 2022. The paper estimated the prevalence of Long COVID cases at around 1.7% of the EU population in 2021 and 2.9% in 2022.

In contrast, an OECD health working paper<sup>25</sup>, published in June 2024, used 10% to 30% as an estimate of the possible range of Long COVID prevalence. This was all based on research papers published in 2020 to 2022. This overstates the prevalence which means their analysis is significantly overstating some of the impact.

Our view is that economic analysis teams should include clinicians who are experts in Long COVID, and people with Long COVID so that the lived experience helps inform the economic analysis. The UK National Institute of Health Research (NIHR) views Public & Patient involvement (PPI) as essential for high quality research. The same principles should apply to economic analysis.

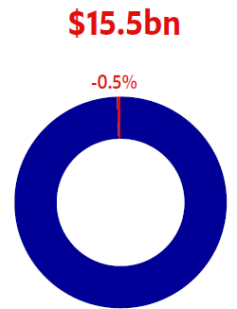
Figure 2: Estimating the workforce impact<sup>‡</sup>

Work hours lost due to long Covid



Economist impact calculation  
<sup>‡</sup> For more information, see Appendix A: Methodology

GDP loss due to long Covid



<sup>22</sup> [An incomplete picture: understanding the burden of Long COVID - Economist Impact](#), April 2024

<sup>23</sup> Exchange rate used was 1.2693 from [April 2024 HMRC currency exchange monthly rates - GOV.UK](#)

<sup>24</sup> [Long COVID: A Tentative Assessment of its Impact on Labour Market Participation and Potential Economic Effects in the EU - European Commission](#), January 2024

<sup>25</sup> [The impacts of Long COVID across OECD countries | OECD](#), Gonzalez et al, June 2024