



JAMA Forum

The Costs of Long COVID

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More than 6 million people have died from COVID-19 worldwide, including nearly 1 million in the US.¹ But mortality is not the only adverse consequence of COVID-19. Many survivors suffer long-term impairment, officially termed *postacute sequelae of SARS-CoV-2 infection* and commonly called *long COVID*.

Long COVID—typically defined as symptoms lasting more than 30 days after acute COVID infection—has received some public attention, but it is not nearly as intense as it is for acute COVID-19 infection. Support groups are devoted to the condition, and Congress has allocated more than \$1 billion to the National Institutes of Health to study it. But the relatively meager attention that has been paid to long COVID is unfortunate because its health and economic consequences are likely to be every bit as substantial as those due to acute illness.

People who have more severe COVID-19 are more likely to experience long COVID, but severe acute disease is not a prerequisite. Long COVID has been found in people with only mild initial illness. The most common symptom of long COVID is fatigue.² More severe cases involve damage to a [variety of organ systems](#) (the lungs, heart, nervous system, kidneys, and liver have all been implicated), along with mental health impairment. Researchers have hypothesized that physiological pathways may involve direct consequences of the viral infection along with inflammatory or autoimmune responses.

Because many prevalence estimates are based on convenience samples of members of COVID-19 support groups or people who had severe acute disease, the population prevalence of long COVID is not entirely known.³ British population data suggest that 22% to 38% of people with the infection will have at least 1 COVID-19 symptom 12 weeks after initial symptom onset, and 12% to 17% will have 3 or more symptoms.²

Rates this high translate to an enormous number of people with long COVID. The US Centers for Disease Control and Prevention [estimates](#) that as of May 5, 2022, the US has had roughly 81 million cases of COVID-19 and 994 187 COVID deaths. Even the lower-end estimate of 12% of people with 3 or more symptoms of long COVID implies that 9.6 million people in the US may have developed long COVID—roughly 10 times the number of COVID-19 deaths. It is not known how long people with long COVID will be symptomatic, but [recovery in the first year of long COVID](#) for affected individuals may be very slow.⁴

Reduced health is not the only consequence of long COVID. People with the condition work and earn less than they would have otherwise. [One survey found](#) that 44% of people with long COVID were out of the labor force and 51% worked fewer hours.⁵ In the economy as a whole, [more than 1 million people](#) may be out of the workforce at any given time because of long COVID.⁶

This reduction in labor supply is a direct earning loss. If 1 million people are out of the labor force because of long COVID, the lost income would be more than \$50 billion annually. People out of the workforce because of long COVID disproportionately [worked in service jobs](#), including health care, social care, and retail.⁷ The widely noted shortage of workers in these sectors is driving up both wages and prices. Part of the recent surge in inflation in the US may thus be related to long COVID.

People who are no longer able to work may also apply for Social Security Disability Insurance. To date, there has been no sustained increase in [disability insurance applications](#) since the onset of COVID-19. This is good news, though it bears watching as disability centers continue reopening from their COVID-19 shutdowns.

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Increased medical spending is another consequence of long COVID. The medical costs for treating long COVID have not been estimated, but costs have been estimated for similar conditions. If treatment of long COVID is similar to treatment of myalgic encephalomyelitis (chronic fatigue syndrome), these estimated costs could be about \$9000 per person annually.⁸

In an October 2020 analysis, we estimated⁹ the then-nascent COVID-19 pandemic might result in \$2.6 trillion of cost as a result of long COVID. Unfortunately, our estimate seems very much on target.

The massive cost of long COVID has several policy implications. Investing in treatments for long COVID is obviously a high priority. According to a recent report from the Rockefeller Foundation, progress to date has been “achingly slow” and that needs to change.¹⁰ Experimenting with ways to make employment easier for people with long-term complications is also a high priority. People with chronic fatigue may be better able to work at home or with frequent breaks than they can with a time-delimited office day and a long commute. By speeding up the transition to telework, enhanced employment opportunities for those with long COVID may be possible.

In addition, the economic cost of long COVID reinforces the value of comprehensive actions to prevent and treat new infections. Mask mandates are unpopular in many areas and a substantial share of the public resists being vaccinated—though each action should still be encouraged. But additional progress might also be made through expanding rapid COVID-19 test capability, global surveillance to detect new SARS-CoV-2 variants, and immediate action should any such variants be detected. Such measures have associated costs, but no matter how large these costs are, they pale compared with the potential benefits.

ARTICLE INFORMATION

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