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SCIENTIFIC BRIEF »

Long Covid and Its Implications

KEY FINDINGS

- Long Covid is a new syndrome and is not yet fully characterized. Reported symptoms range from severe fatigue, cognitive dysfunction, gastrointestinal and musculoskeletal conditions to pulmonary and cardiovascular diseases. The impact on health and quality of life can be severe.
- Chronic impacts of Covid-19 can occur among previously healthy individuals, across all age groups, including children.
- Preventing the risk of Covid-19 infection will effectively prevent the risk of long Covid. This necessitates implementation of multilayered infection control measures, including among the public and in workplaces.
- Systemic tracking and investigation of long Covid is lacking and needs to be established to better characterize the condition, support those impacted by it, and reduce the risk of long-term disability.
- Impacts of long Covid emphasize the need for full and optimal protections for nurses and other essential workers.

INTRODUCTION

The current pandemic has spread throughout the world, resulting in over 171 million confirmed infections and more than 3.5 million deaths, which is likely underreported.[1] However, many countries are only just beginning to realize the toll and long-term consequences of Covid-19. New, reoccurring, and lingering health effects after initial infection with the coronavirus, SARS-CoV-2, have been reported.

Colloquially known as "long Covid" or "long hauler syndrome," this condition refers to symptoms that can persist for several weeks or months following initial infection. It can affect most major organ systems including respiratory, cardiovascular, metabolic, musculoskeletal, pulmonary, gastrointestinal, nervous, and regulatory processes.[2]

Officially referred to as Post-Acute Sequelae of SARS-CoV-2 infection (PASC), long Covid is a new syndrome and is not yet fully characterized. For instance, a recent preprint from the Post-Hospitalization Covid-19 study (PHOSP-COVID), a national consortium of researchers and clinicians in the U.K. investigating long-term impacts of Covid-19, found little relationship between severity of acute illness (degrees of organ damage) and severity of PASC among 1,077 long Covid patients.[3] Not only can we not assume a correspondence between the severity of acute Covid and PASC but also PASC is not predicated on the severity of symptoms or

disease. Whatever the severity, the impact of long Covid on health and quality of life is substantial. Commonly reported symptoms include fatigue, anxiety, cognitive dysfunction or brain fog, chest pain, dysphagia, loss of smell or taste, tinnitus, dizziness, abdominal pain, cardiac dysrhythmias, joint or muscle pain, respiratory and heart failure.[4, 5]

Long Covid Can Occur Among Previously Healthy Individuals Who Had Mild or Asymptomatic Infections

Asymptomatic or pre-symptomatic infections have played a significant role in the spread of SARS-CoV-2, the virus that causes the disease Covid-19. Studies indicate that approximately half of all transmission events are from cases that have no symptoms at the time of transmission.[6, 7] Approximately 30 percent of Covid-19 cases are asymptomatic.[8] Studies indicate that asymptomatic and mild cases, however, often do not escape disease, with many later developing new, persistent symptoms not initially present.

For instance, a survey of patients in a post-acute Covid-19 clinic in France found that more than one quarter of patients with initially mild symptoms developed new neurological symptoms, such as sensory disturbances, swallowing and cognitive neurological disorders, after initial infection.[9] An analysis of 1,407 electronic health records of individuals in California found that nearly a third of Covid patients who were initially asymptomatic at the time of SARS-CoV-2 testing reported long-term symptoms at day 61 or later.[10] Another study found that more than one-third of long-Covid patients reported difficulties performing basic daily tasks and only one in three patients had resumed unrestricted work activity.[11]

The health impacts of long Covid can be profound. A large study examined long-term health impacts in over 73,000 individuals with Covid-19 who used Veterans Health Administration services and nearly five million individuals who did not have Covid-19. Researchers found that individuals who had Covid and were not hospitalized reported excess negative health impacts compared to controls over at least six months that affected nearly every organ and regulatory system.[2]

Similarly, an international survey of 3,762 long-Covid individuals from 56 countries reported prolonged multisystem involvement and significant disability. Individual symptom trajectory was quantified over time for seven months, identifying a total of 205 symptoms in 10 organ systems. Researchers found that 21 percent of patients were still experiencing severe symptoms beyond six months after initial infection. Most frequently reported symptoms after month six were fatigue, post-exertional malaise, and cognitive dysfunction, which occurred across all age groups, from 18 – 39-year-olds to those 70 years of age and older. Exercise, physical, or mental activity and stress triggered relapses in more than 85 percent; nearly 69 percent reported reduced workload or not working due to health conditions.[12]

There are also reports of Covid survivors who developed new-onset psychosis, with no personal or family history of psychiatric illness, and who may also be at an increased risk of suicidal behavior. These patients developed new neuropsychiatric symptoms, including delirium, restlessness, and auditory hallucinations weeks following a mild Covid infection.[13-15] A recently published study from the University of Oxford examined neurological and psychiatric outcomes in patients in the six months following a Covid-19 diagnosis. Among 236,379 patients who had been diagnosed with Covid-19, one in three patients experienced a psychiatric or neurological illness six months post-infection, with 12.8 percent receiving their first such diagnosis.[16]

Current studies on long Covid among mild or asymptomatic infections likely do not capture the true scope and scale of its impacts. Individuals who never developed symptoms are likely unaware of their infection due to insufficient surveillance testing in the United States and other countries, allowing their infections to escape detection.

Chronic Sequelae Following Covid-19 Have Been Reported Among Children

Children can become infected with SARS-CoV-2 and are infected at approximately the same rate as adults.[17] Children of all ages can transmit the virus and are linked in transmission chains with household members and with other children outside their households.[18, 19] Many children, however, may be asymptomatic or too mildly infected to register as positive on some diagnostic tests, thus limiting case detection of children.[17, 20, 21]

Like adults, children can also develop long-term health complications. One study looking at a cohort of pediatric patients with a positive Covid test found that two-thirds reported at least one persisting symptom between 60 and 120 days after an initial Covid diagnosis.[22] Researchers noted, "An important and unexpected finding is that children with an asymptomatic or paucisymptomatic Covid-19 developed chronic, persisting symptoms."

Similarly, a survey of 510 children with long Covid in the U.S. and U.K., collected between February 13, 2021, and March 6, 2021, found that children experienced a constellation of symptoms including fatigue, headaches, skin rashes, abdominal pain, and muscle and joint pain. Researchers also found that 61 percent had trouble concentrating, 46 percent had difficulty remembering information, and 32 percent had difficulty finding the right words when speaking.[23]

There have also been reports of children who were diagnosed with Multisystem Inflammatory Syndrome in Children (MIS-C) and later developed long Covid.[24, 25] MIS-C is a severe and sometimes fatal pediatric inflammatory syndrome that can develop without warning weeks after Covid-19 infection among healthy children.[26] Both MIS-C and long Covid are independent of acute illness severity, making it difficult to diagnose.

It is important to note that Covid-19 susceptibility varies among children. Disproportionate infections and deaths among children reflect the same racial and ethnic disparities that have affected adults throughout the pandemic. As of June 9, 2021, at least 367 children have died of Covid-19 in the U.S.; of these, 60 percent are Black and/or Hispanic/Latinx children.[27] The majority of MIS-C cases have also been among Hispanic/Latinx (33 percent) and Black (30 percent) children compared to white children (28 percent).[28] By contrast, just 25 percent of children in the United States are Hispanic/Latinx, 14 percent are Black, and 50 percent are white. Thus, children of color are at increased risk of long Covid impacts.[29]

Racial Disparities in Impacts of Covid-19

People of color, immigrant, and other underserved populations are disproportionately impacted by long Covid as they have borne the heaviest burden of the pandemic. For instance, Black people are 1.1 times more likely to contract the virus and 2.9 times more likely to be hospitalized compared to white, non-Hispanic people. Likewise, Hispanic/Latinx people are two times more likely to contract the virus and three times more likely to be hospitalized compared to white people.[30] Many vulnerable populations have less access to health care and, in turn, also experience medical gaslighting and epistemic injustice, further deepening health disparities related to Covid-19 and long Covid.

In addition, racial disparities are observed in vaccination rates, which will make existing health disparities in the impacts of Covid-19 more severe. As of June 12, 2021, the CDC reported that just 8.7 percent of those who received a Covid-19 vaccine were Black and only 13.6 percent were Hispanic/Latinx, while nearly two-thirds were white (62.5 percent).[31] Failure to track long Covid will result in even more disproportionate impacts upon underserved communities that have already inequitably borne the burden of the pandemic.

Nurses and Other Essential Workers Who Have Borne Workplace Exposures Due to Insufficient Protections are Also Subject to the Long-Term Consequences of Covid-19

Nurses and other essential workers continue to face high risks of contracting Covid-19 on the job due to lack of protections from employers. Specifically, the lack of optimal workplace protections for nurses and other health care workers have resulted in a high number of preventable infections and deaths. The utter failure of employers to provide the necessary personal protective equipment (PPE), coupled with the failure of public health and safety agencies, is the primary reason for their infections and deaths. Remarking on the high rate of infections among health care workers in the United States, Dr. Anthony Fauci, Director of the National Institute of Allergy and Infectious Diseases, confirmed that the lack of PPE was a key reason of health care worker infections: "During the critical times when there were shortages was when people had to use whatever was available to them…I'm sure that increased the risk of getting infected among health care providers."[32] These infections put nurses and other essential workers at higher risk for long Covid following initial infection.

In the United States where surveillance testing has been deficient, more than 33 million people have been infected with SARS-CoV-2 as of June 12, 2021.[33] As such, there is likely an untold number of people undiagnosed with long Covid due to the lack of testing and contact tracing, the high number of asymptomatic cases,[34] and the lack of reliable antibody tests.[35] However, it is clear that, among those who are tested, workers employed in health care consistently constitute the greatest percentage of positive cases by occupation in the U.S. and around the world. In Italy, 20 percent of all health care workers responding to the Covid-19 pandemic were infected,[36] while a survey of nurses in Spain found a staggering 32 percent of nurses who were tested for Covid-19 were positive.[37]

A study comparing Covid-19 rates among U.S. health care workers to rates among those working outside of health care found higher rates among health care workers, with 7.3 percent of health care workers testing positive compared to 0.4 percent of non–health care workers.[38] Moreover, it found that, among health care workers, nurses had both the highest rate of infections and the highest number of infections.[38] Specifically, nurses constituted 63 percent of cases, with rates of infection among nurses at 11.1 percent compared to rates of infection of 1.8 percent in attending physicians and 3.1 percent in residents and nonattending physicians.[38] The high rates of infection among nurses compared to other health care workers may also relate to the nature of their work. Registered nurses tend to interact with patients more intimately and for longer periods of time than most other health care workers.[38] Additionally, they frequently perform or participate in high-risk procedures and treatments — especially with Covid-19 patients, who may require cardiopulmonary resuscitation, intubation, extubation, and other high-risk procedures and treatments.

Despite nurses being on the frontlines of the pandemic, local, state, and federal governments have also failed to track and report data on Covid-19 infections and deaths. When it became clear in early 2020 that there was no systematic tracking of nurse and health care worker deaths from Covid-19, National Nurses United began doing its own tracking.[39] As of June 11, 2021, at least 3,902 health care workers have died from Covid-19 since the start of the pandemic, including at least 406 registered nurses. Over the past 13 months, there has been an average of 293 health care workers, including an average of 31 registered nurses, dying from Covid-19 each month. This is an average of almost ten health care worker deaths, including more than one registered nurse, dying from Covid-19 every single day.

In addition, racial disparities in infection rates are present among nurses and other essential workers. For instance, of the 314 registered nurses who had died of Covid-19 at the time of analysis, 170 (54 percent) were nurses of color, reflecting the broader disproportionate impact of Covid-19 on communities of color in the United States. Just under one quarter (24 percent) of registered nurses in the U.S. are people of color.[40] Similar studies have also found that Black and Hispanic/Latinx essential workers are overrepresented in Covid-19 cases, hospitalizations, and deaths.[41, 42] These disparities among nurses and other essential workers of color adds to their heightened vulnerability to the risk of long Covid following initial infection.

Accompanying this high risk of Covid infection is the risk of long Covid. There is no systematic tracking of long Covid among nurses, other essential workers, or patients in the United States. Other countries have begun to track long Covid rates. For example, the Office for National Statistics recently reported that at least 122,000 health care workers in the U.K. suffer from long Covid, more than any other occupational group.[43] But this is likely a conservative estimate and may grow, as there are no laboratory tests or treatment for this condition.

Haverall et al. investigated Covid-related long-term symptoms among healthy health care workers, aged 33 to 56, in Sweden from April 2020 to January 2021. They found that just over one in ten health care workers who had initial mild illness were still coping with at least one moderate to severe symptom eight months later, which negatively affected their work and/or personal lives.[44]

Another study of health care workers with a documented Covid-19 infection found that 45 percent reported persistent symptoms and 32 percent reported struggling to cope three to four months following infection.[45] A case report of a previously healthy 26-year-old emergency department nurse in California reported development of postural orthostatic tachycardia syndrome (POTS) several months after symptom onset, despite no pre-existing symptoms of autonomic impairment.[46] This case report is not an anomaly as a growing number of previously healthy individuals with long Covid have also reported experiencing POTS-like symptoms, such as brain fog, tachycardia, exercise intolerance, and severe chronic fatigue.[47, 48]

Implications of Long Covid: The Need for Systematic Tracking and Investigation of Long Covid

The exact pathology of PASC or long Covid is, at this point, poorly understood. Coupled with the complexity and multifaceted nature of this condition, the true toll of chronic sequelae of Covid-19 on patients, nurses, and other health care workers is unknown. Currently, there are significant research gaps on long Covid, hampered in part by the lack of testing and monitoring of long Covid patients.

A comprehensive and robust national strategy is urgently needed to respond to the growing number of long Covid patients. Widespread tracking and monitoring of long Covid patients is necessary to better understand the condition, improve outcomes, and reduce the risk of long-term disability.

Implications of Long Covid: The Need for Treatment that is Free at the Point of Service and Disability and Workers Compensation Protections

The failure of both government and employers to respond to the Covid-19 pandemic and protect nurses and other essential workers has led to significant Covid-19 infection rates in the United States and around the world. Given such high infection rates, those impacted by Covid-19 should have access to health care, free at the point of service, including both workers and the public. Because long Covid as a syndrome is not fully defined and is characterized by non-specific symptoms, casting a wide net to identify

the breadth of those impacted, while ensuring widespread access to health care and disability protections, is paramount. Guaranteeing free health care, presumptive eligibility for workers' compensation, and disability protections for long Covid patients would provide support and long-term solutions in an equitable manner.

Long Covid patients should receive all care without copayments or deductibles whether or not they have health insurance. In addition, this care must be widely accessible. The ability to receive free, accessible, and adequate medical or social support should also not be predicated on a laboratory confirmation of Covid-19. Employers and government should also provide additional measures to mitigate against the effects of Covid-19 exposure and the effects of being called on to provide essential pandemic work. These include paid sick and quarantine leave, presumptive workers' compensation eligibility, disability benefits, and an essential worker pay differential.

Implications of Long Covid: The Need to Fully Protect Nurses and Other Essential Workers

Preventing the transmission of Covid-19 must also remain a goal of public health agencies, governments, and employers in the United States. Even asymptomatic and mild infections can result in long Covid that disrupts individuals' personal and work lives. Protection of nurses and other essential workers is fundamental to limiting the spread of Covid-19. If more and more health care workers suffer from long Covid, the impact on safe patient care and worker safety will be disastrous. Preventing the risk of Covid-19 infection will effectively prevent the risk of long Covid.

Multilayered public health measures, including universal masking, physical distancing, vaccines, optimal protections for nurses and other essential workers, and surveillance testing remain critical, irrespective of vaccination status.

The high rate of transmission from asymptomatic and pre-symptomatic cases necessitates routine testing and contact tracing, and the isolation of cases and contacts, to effectively detect and prevent further transmission.

While Covid-19 vaccines are an important and essential component to reducing the spread of the virus, we cannot rely on vaccines alone to stop transmission of Covid-19. Covid-19 vaccines are effective at preventing severe disease, hospitalizations, and deaths, but no vaccine is 100 percent effective. There remain many unanswered questions about Covid-19 vaccines, including how long protection will last, what protection against mild and asymptomatic cases looks like, and how effective vaccines will be against variants of concern that are or may become resistant to vaccines. More transmissible variants that may be or may become resistant to vaccines make measures to reduce and stop transmission of Covid important to maintain even as vaccine roll out continues.

Health care employers must implement the fullest protections, including isolating both possible and confirmed Covid-19 cases in negative pressure rooms, providing optimal protective personal protective equipment (PPE), and safe staffing, in order to ensure that health care workers maintain their right to a safe and healthy workplace. Equally important, if nurses contract the virus and experience long Covid, it should be presumed to be work-related. Employers should be obliged to provide monetary compensation through presumptive workers' compensation eligibility and paid precautionary leave. Given that long Covid encompasses a multitude of symptoms for an unknown duration of time, reasonable accommodations should also be provided to nurses and other health care workers.

Strong workplace protections are needed for nurses and all essential workers to prevent infection and the long-term impacts of Covid-19 and to combat the Covid-19 pandemic.

FURTHER RESOURCES

National Nurses United's Covid-19 Resources Webpage
https://www.nationalnursesunited.org/covid-19

Covid Testing and Screening in Health Care Settings
https://www.nationalnursesunited.org/sites/default/files/nnu/documents/0621_Covid19_IssueBrief_TestingScreening.pdf

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