



**SHINING A LIGHT
ON LONG COVID:**

An Analysis of Workers'
Compensation Data



ABOUT NYSIF

The New York State Insurance Fund

(“NYSIF”) is the largest workers’ compensation insurer in New York State. NYSIF’s mission is to guarantee the availability of workers’ compensation at the lowest possible cost to New York employers while maintaining a solvent fund. Since its inception in 1914, NYSIF has fulfilled this mission by competing with other carriers to ensure a fair marketplace while serving as a guaranteed source of coverage for employers who cannot secure coverage elsewhere.

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Of the mysteries surrounding Covid-19, perhaps the most confounding is Long Covid. While many people who get sick with Covid-19 recover quickly, others have an inexplicable mix of physical and neurological symptoms that persist longer, return, or never go away.¹ What causes Long Covid? Is there a way to prevent it? Who is vulnerable? What is its impact? These are fundamental questions to which there are no definitive answers.²

Yet, some facts are crystallizing.

First, Long Covid is an emerging threat to public health with ongoing, cascading, and yet-unclear implications for employers, households, individuals, and the economy.³ Indeed, with each passing day, the number of people affected by Long Covid grows,⁴ and with it, the need to understand the condition and its effects.

Second, reliable data is lacking, which, together with the subjective and wide-ranging nature of symptoms across numerous organ systems, makes defining, diagnosing, and researching Long Covid a formidable challenge.⁵

This report seeks to leverage NYSIF's data⁶ to contribute to the broader research on Long Covid. It analyzes the more than 3,000 established⁷ Covid-19 workers' compensation claims NYSIF received between January 1, 2020, and March 31, 2022, to ascertain:

1. How many claimants developed Long Covid
2. The most common symptoms they suffered
3. Claimants' experience getting back to everyday work life, and
4. How Long Covid has affected various claimant groups, including women, older adults, those hospitalized for their initial infection, those with comorbidities, and essential workers



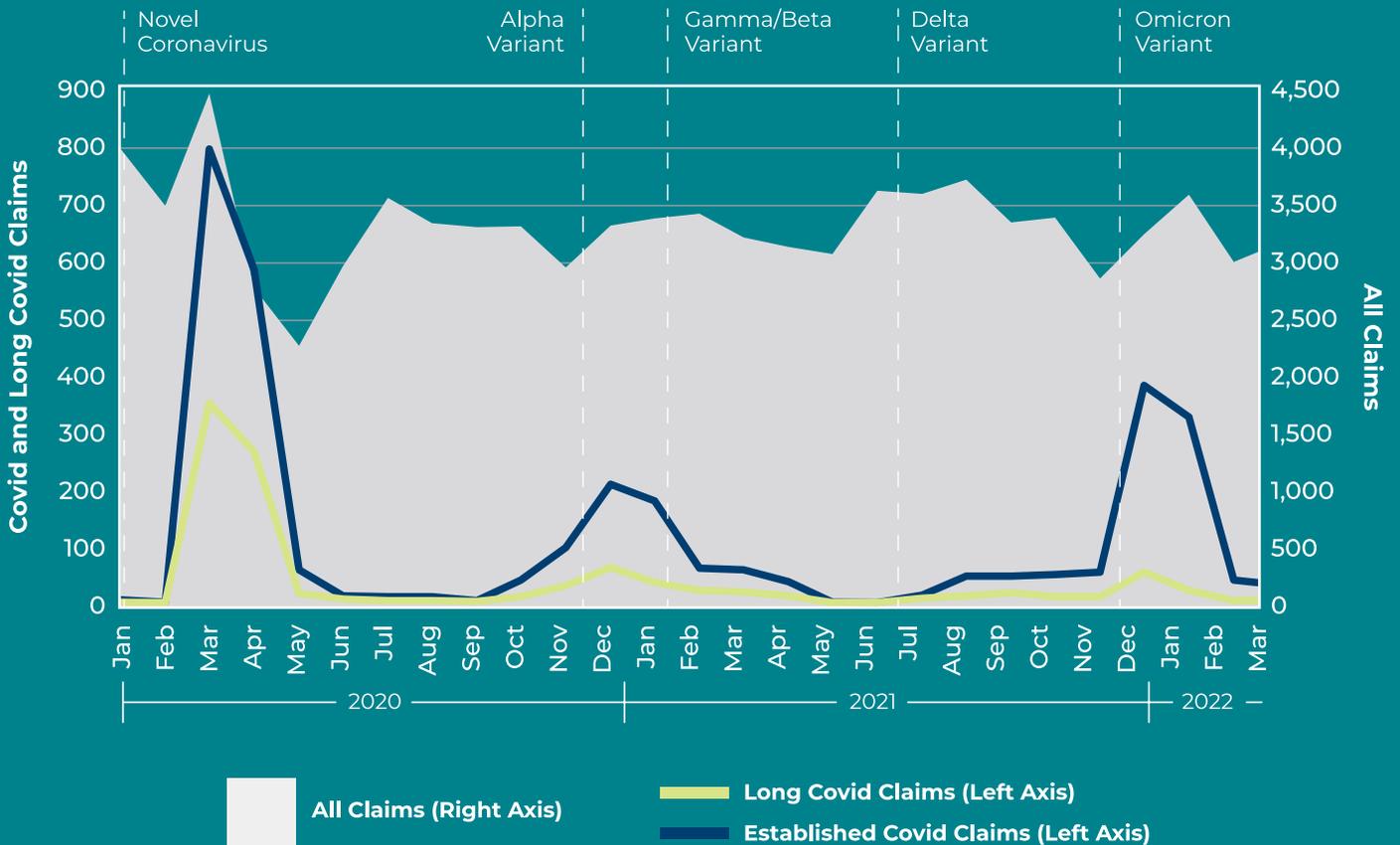
The report finds that:

- Almost one-third of all claimants, 31% or 977, suffered or are suffering from Long Covid, though the percentage has fallen sharply over time, inversely correlating with increased vaccination rates.
- The percentage of Long Covid among female workers (37%) was 11% higher than in male workers (26%).
- Approximately 18% of claimants with Long Covid—about 5% of Covid-19 claimants—have been unable to return to work for more than one year, with most claimants in this group under 60 years of age.
- Forty percent of claimants with Long Covid returned to work within 60 days of infection while still receiving medical treatment for Covid-19.
- Adults over 60 with Long Covid experienced significant difficulty returning to regular work life, with their challenges intensifying with age.
- Nearly all claimants with comorbidities or those hospitalized for their initial infection experienced Long Covid.
- Essential workers may have Long Covid rates higher than the data suggests, creating a blind spot for policymakers.

If broadly reflective, these findings begin to fill information gaps about the labor market, including an underappreciated reason for the many unfilled jobs and the declining labor participation rate since the emergence of the pandemic.⁸ They also highlight the emerging challenges that employees of all ages and employers across all sectors face as a growing number of people return to work while still reeling from the effects of Covid-19. Finally, the findings feature a condition affecting millions of Americans, potentially stigmatizing them in their personal and professional lives,⁹ causing mental health issues, and subjecting them to skepticism and medical uncertainty, including for eligibility for Social Security Disability Insurance.¹⁰

This report is the first in a series that NYSIF plans to publish on Long Covid. The series aims to leverage data NYSIF collects in the ordinary course of business as a workers' compensation insurer to help enhance researchers' and policymakers' understanding of this complex condition. We hope the information will assist experts in considering possible policy solutions to help Covid survivors cope with and manage long-term symptoms.

Figure 1: Workers' compensation claims by accident/exposure date



It is helpful to consider the report’s findings in the context of NYSIF’s overall claims picture. From January 2020 through March 2022, NYSIF received 89,107 workers’ compensation claims, of which 5,798 related to Covid-19. Of those Covid-19 claims, NYSIF provided coverage for 3,139 (“established claims”), with most of the remaining claims yet to meet the coverage guidelines of the Workers’ Compensation Board (“WCB”), the adjudicator of claims.

Of the 3,139 established claims, 977 involve Long Covid, according to criteria defined in further detail that follows. As Figure 1 illustrates, the established Covid-19 claims track the emergence of the novel coronavirus and surges associated with its variants. The proportion of Long Covid cases to established Covid-19 cases was the highest during the initial phase of the pandemic.

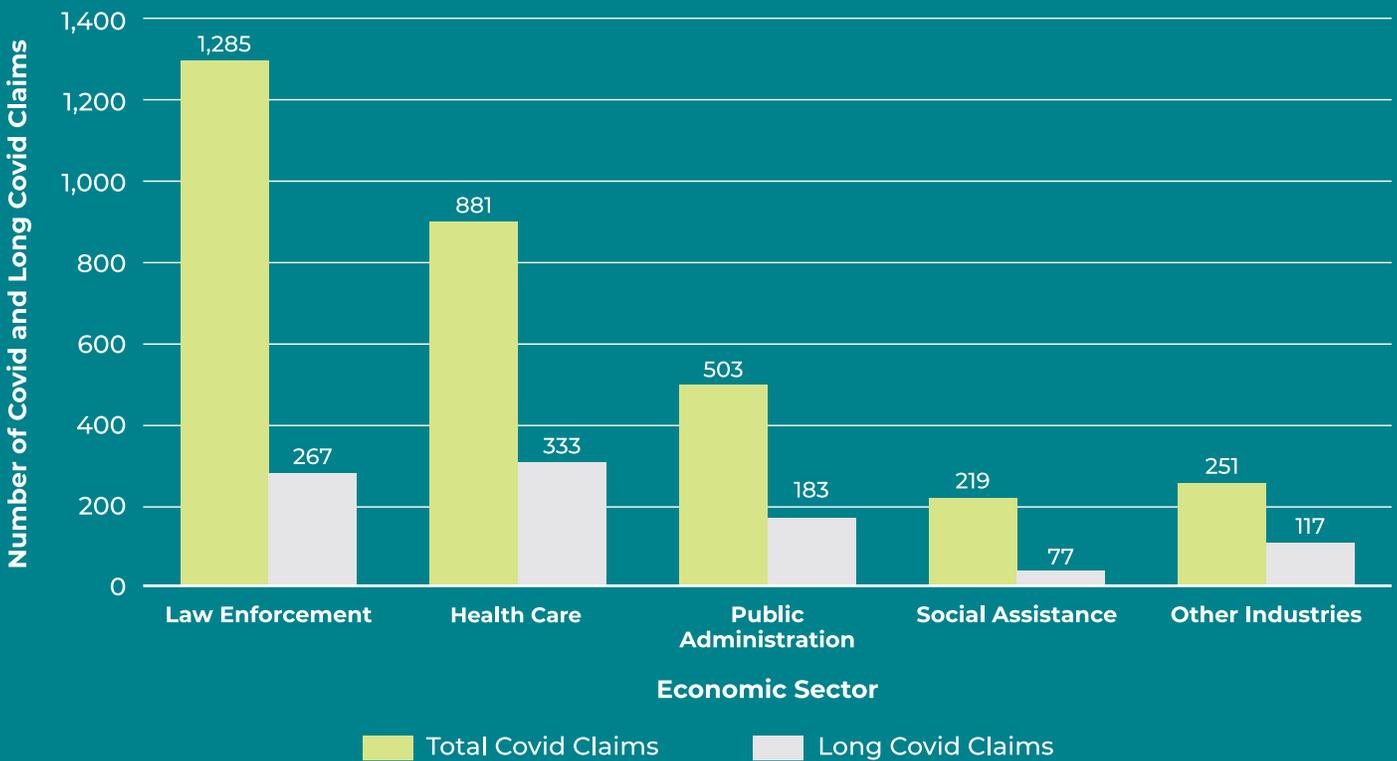
Almost half of the established Covid-19 claims, 46%, were submitted by the end of May 2020, the end of the initial wave. As Figure 1 shows, the subsequent variant surges had fewer associated claims, possibly due to the peculiarities of the variants, shortened quarantine periods (which would reduce the necessity to file a claim), or vaccination rates. Fifty-three percent of established Covid claimants were male and 47% were female. The average age of claimants was 44.2 years, ranging from 19 to 88. By contrast, 65% of all workers’ compensation claimants during the relevant time were male and 35% were female. The average age was 40, ranging from 13 to 92 years.

The report categorizes 83% of Covid-19 claimants as essential workers, and 17% as nonessential. Essential workers are defined as those with occupations in health care, law enforcement, security services, and direct patient or consumer care. Covid-19 claimants included workers from every sector of the economy across all geographies of New York State and employed by businesses of all sizes. People without Social Security numbers and lower-income workers were represented. Sadly, 99 Covid-19 claimants died, 83 of whom, or 84%, were infected in 2020.

NYSIF's established Covid claims and Long Covid claims fell into five broad economic sectors, as set forth in Figure 2: (1) law enforcement, which encompassed police,

correctional, and parole services; (2) health care, including services provided by general hospitals, nursing homes, clinics, medical and dental practices, home care agencies, and emergency medical providers; (3) public administration, including state and municipal government services such as the operation of courts, fire districts, and secure psychiatric hospitals; (4) social assistance, including services such as residential supports and services provided to individuals with mental illness or developmental disabilities; and (5) other sectors where no one industry experienced a substantial number of claims, including manufacturing, construction, education, restaurants, and grocery and other retail merchants.

Figure 2: Covid and Long Covid claims by economic sector



Described as “the pandemic after the pandemic,”¹¹ Long Covid is a complex syndrome that affects a subset of people infected with SARS-CoV-2,¹² causing them to experience new, returning, or ongoing symptoms for weeks after their initial Covid infection.¹³ Long Covid can occur in people regardless of the acuteness of their initial infection and can manifest even in asymptomatic patients.¹⁴ Some may have Long Covid and not know it, while others may not link their symptoms to Covid, causing the condition to be undiagnosed, misdiagnosed, or even dismissed.¹⁵

Long Covid is associated with multiple organ systems, tissue damage, and wide-ranging symptoms with various causes that patients often experience simultaneously.¹⁶ The symptoms can vary in terms of duration, type and severity, and include headaches, neurological or cognitive problems, chronic pain, palpitations, shortness of breath, fatigue, depression, and anxiety.¹⁷ Given the symptoms’ potentially debilitating effects, the Biden Administration has organized a government-wide response to address Long Covid,¹⁸ and federal agencies now recognize the condition as a disability under the Americans with Disabilities Act of 1990.¹⁹

The pathophysiology of Long Covid remains unclear. However, new studies point to various possible causes. These include the virus causing injury to one or more organs,²⁰ reservoirs of the virus lingering in the body after infection,²¹ the production of antibodies triggering an autoimmune response,²² the level of coronavirus ribonucleic acid (“RNA”) in the blood early in the infection,²³ and the formation of microclots in blood vessels blocking blood flow.²⁴

Other studies suggest that damage to the vagus nerve of the central nervous system may cause the condition²⁵ or that the virus could disrupt the immune system, reviving previously harbored viruses, such as Epstein-Barr.²⁶ Given the complexity of Long Covid, and the number of ways the virus may attack the body, the causes are not mutually exclusive.²⁷

Beyond the potential causes, Long Covid’s magnitude, risk factors, and effects remain far from understood. There is no test to diagnose Long Covid and no known treatment, though research is underway.²⁸ How many people have Long Covid? Are survivors with comorbidities like Type 2 diabetes, obesity, and hypertension more likely to suffer from Long Covid? Do vaccines prevent Long Covid? What are the effects on the workforce and the personal and professional lives of those afflicted? Experts are conducting necessary research worldwide to piece together answers to these and other essential questions.

CHALLENGES WITH LONG COVID

- No diagnostic test
- Wide-ranging symptoms with multiple causes
- Variable duration of illness, and type and severity of symptoms
- No known treatments
- Data shortages

3 DRILLING DOWN: CONTENDING WITH VARYING DEFINITIONS

For researchers, a significant impediment to understanding Long Covid is the lack of an official definition.²⁹ Various domestic and global health authorities define the term differently, including the Centers for Disease Control and Prevention (“CDC”), the National Institutes of Health (“NIH”), and the World Health Organization (“WHO”). Coming together around a single definition will be critical. But for this report, we sharpen our focus on a single similarity across these definitions.

Specifically, while each health authority applies a different threshold for the number of days a patient must feel sick to have Long Covid, the definitions appear anchored to one specific element—patient symptoms.

This report also ties Long Covid to claimant symptoms using these definitions as a guide. But to enhance reliability, it links the presence of the condition to two corroborating components:

1. Lost time from work of 60 days or more, meaning the symptoms were severe enough that they impacted the injured worker’s ability to return to work, or
2. Treatment duration of 60 days or more, meaning the symptoms were severe enough to cause the injured worker to receive longer-term medical care.

For the CDC, Long Covid occurs when symptoms persist more than four weeks, which the agency believes provides “a rough approximation of effects” of Covid-19 that arise beyond the acute period.³⁰ The NIH considers Long Covid to occur when symptoms “last for many months or longer after an initial COVID-19 diagnosis.”³¹ For our definition, we look to the WHO, which deems Long Covid as occurring when symptoms last for at least two months after they appear.³²

The report does not assume that every claimant who lost 60 days or more of work or received 60 days or more of medical treatment suffers from Long Covid. Indeed, some may have been afraid to return to daily life or found the pandemic a convenient time to retire. Others may not have produced a positive Covid-19 result. To decrease the possibility of overcounting, the report limits its analysis to established claims—those NYSIF accepted or that were determined through the WCB, the adjudicator of claims, to have a positive Covid-19 test and workplace exposure.³³

While the claimants identified as having Long Covid meet NYSIF’s definition of the condition, for the purposes of this report, any individual diagnosis must be based on medical interviews, be physician determined, and rely on Long Covid diagnostic expertise. As part of its future work, NYSIF intends to facilitate physician-led interviews with a subset of its Long Covid claimants to understand their specific symptoms and individualized needs.

3

DRILLING DOWN: CONTENDING WITH VARYING DEFINITIONS (CONTINUED)

The mixed methodology outlined above has several unique advantages.

First, the two components—lost time and treatment duration—complement each other, capturing injured workers who did not return to work within 60 days due to their symptoms and those who returned but required continuing medical treatment. Second, it does not hinge on self-reported symptoms but on verified medical and employment records. Third, by limiting the analysis to established claims, the methodology benefits from the rigor of an adversarial process inherent in workers' compensation insurance, lending credibility to the data.

The methodology also has limitations.

It misses claimants who went back to work and experienced symptoms without seeking medical treatment, as may be the case for some essential workers in our data set (see page 18) and many Covid-19 survivors generally. Capturing this cohort is challenging but should be prioritized for future research.

In addition, NYSIF only has the baseline health or comorbidity data for a subset of injured workers, not all. NYSIF plans to amplify this information for future work. For now, however, the treatment duration data is valuable because, in each case, a physician has linked the rendered treatment to the original Covid claim, enhancing data reliability.

An inherent bias in workers' compensation data is the subjective nature of complaints, which in the ordinary course may be explored through an independent medical evaluation. However, the long-established workers' compensation claims process never contemplated a pandemic, let alone one where a segment of patients may experience highly subjective and wide-ranging symptoms over the long term or where an underlying infection may not cause any initial symptoms or even yield a positive test result.

LONG COVID CLAIMS ARE:

- **Established workers' compensation claims**
- **Determined to be COVID-19 associated**
- **Where claimant:**
 - a. missed 60 days or more of work, or
 - b. received 60 days or more of medical treatment

A further limitation may be the 60-day threshold. Although grounded in the foundational definitions of the WHO, CDC, and NIH, any methodology tied to a specific number of days for experienced symptoms arguably could be viewed as arbitrary. Such a threshold may also identify a claimant as experiencing Long Covid, for example, due to a follow-up medical visit after the threshold date, even if symptoms had previously resolved. Our future work will seek to address these challenges.

While not optimal, the methodology described above reflects the challenges of defining a complex condition with many symptoms that affect multiple organ systems simultaneously and can be confused with other diseases. Nevertheless, it is a valuable proxy for studying Long Covid, allowing experts to understand the impact of Long Covid on the population more concretely.

Regardless of the definition chosen or the methodology applied, the number of people suffering from Long Covid is far too big to ignore—and growing.³⁴

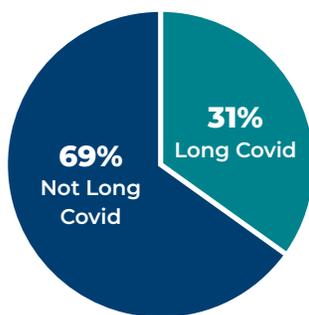
4 THE FINDINGS: SHEDDING LIGHT ON LONG COVID

NYSIF's Covid-19 claims data is a rich source of information to enhance understanding of Long Covid. Leveraging this data, NYSIF seeks to comprehend (1) the incidence of Long Covid in the claimant population, (2) the most common symptoms suffered, (3) the experience of claimants in returning to everyday work life, and (4) how various groups fared during the pandemic, including women, older adults, those hospitalized for their initial infection, those with comorbidities, and essential workers. Below, we detail the findings.

1. NEARLY ONE-THIRD OF COVID-19 CLAIMANTS HAVE LONG COVID, BUT THE RATE HAS DECLINED DRAMATICALLY OVER TIME

Of the 3,139 Covid-19 workers' compensation claims, 977, or 31% (Figure 3), meet NYSIF's definition of Long Covid. As Figure 4 illustrates, 12.6% of claimants fit the description solely because of their length of treatment, while 10.7% do so only due to lost time from work. The remaining 7.8% meet both prongs of our Long Covid definition.

Figure 3: Nearly one-third of workers' compensation claimants have Long Covid



Not everyone experiences Long Covid symptoms equally. Some claimants may meet the established criteria but recover relatively quickly while others may experience symptoms over a longer time frame. To understand this dynamic, this report analyzes the length of reported claimant symptoms. As Figure 5 illustrates, 71% of claimants identified as experiencing Long Covid suffered symptoms that required treatment or kept them out of work for six months or more.

Figure 4: Medical treatment is the prevailing factor for Long Covid

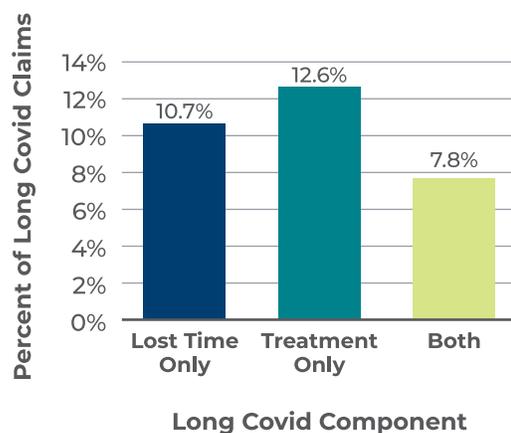
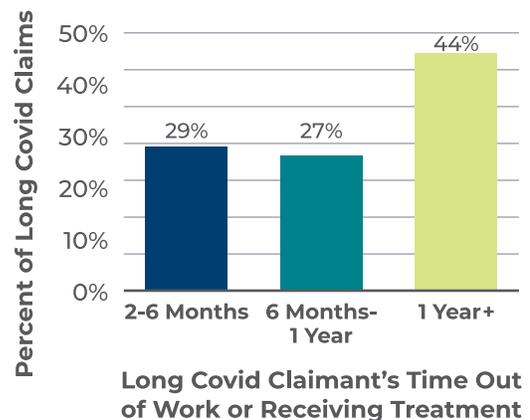


Figure 5: Most Long Covid claimants are out of work or receive medical treatment for more than six months



4 THE FINDINGS: SHEDDING LIGHT ON LONG COVID (CONTINUED)

Although the number of claimants with Long Covid is substantial, the proportion of Long Covid claims per 1,000 workers' compensation claims has decreased sharply (Figure 6). The proportion of Long Covid to overall Covid-19 claims has likewise dropped over time from 44% in March 2020 to 8% in March of 2022 (Figure 7). While the decline appears inversely correlated with the increasing vaccination

rate in New York State, the reasons for the drop are not entirely apparent. The reduction may be due to a confluence of factors, including, as noted, increasing vaccinations or other infection-derived immunity, available therapeutics, milder variant strains, or protective measures implemented in workplaces as the economy reopened.

Figure 6: Long Covid claims per 1,000 workers' compensation claims filed

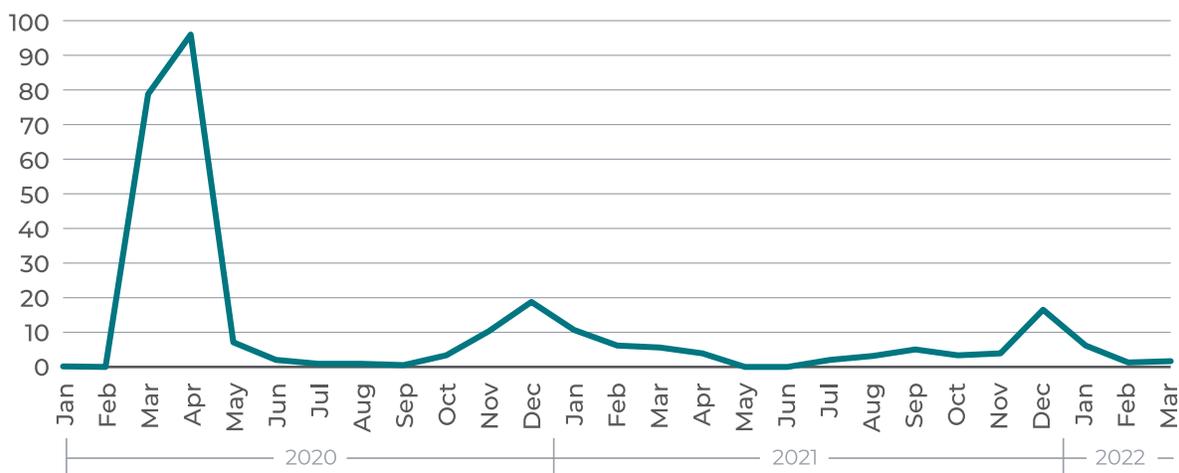
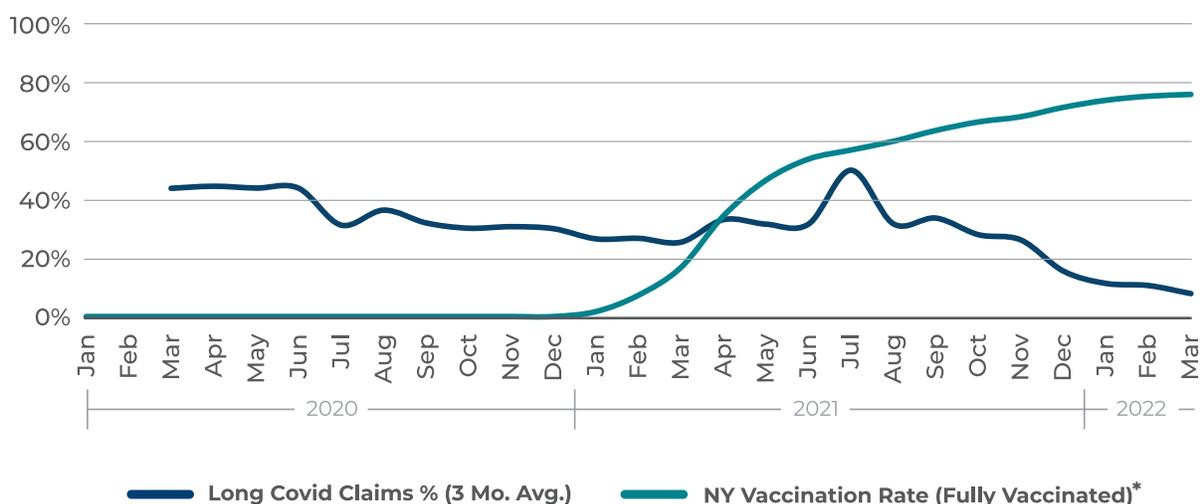


Figure 7: The proportion of Long Covid has declined



*NYS vaccination data obtained from the CDC: COVID-19 Vaccination Trends in the United States, National and Jurisdictional, <https://data.cdc.gov/Vaccinations/COVID-19-Vaccination-Trends-in-the-United-States-N/rh2h-3yt2>.

4 THE FINDINGS: SHEDDING LIGHT ON LONG COVID (CONTINUED)

The falling rate is encouraging. Further studies will be necessary to understand the drop in the proportion of Long Covid. Nevertheless, these findings support prior research that a reduced frequency and severity of Covid-19 infections may be lowering the prospect of Long Covid in the overall population.

Estimates on the incidence of Long Covid vary, partly due to the lack of a consensus definition

and insufficient data. Compounding these challenges, patients in many parts of the world increasingly rely on at-home testing, whose results they tend not to transmit to health authorities. Due to a combination of these factors, the CDC, NIH, and WHO prevalence estimates diverge. NYSIF's Long Covid proportion appears to be within the range noted by other studies.³⁵

2. WOMEN WERE MORE LIKELY TO EXPERIENCE LONG COVID THAN MEN

A hallmark of Long Covid is that it affects people differently. When it comes to prevalence, this characteristic also seems to carry across genders. In NYSIF's Covid-19 claimant population, 37% of female claimants have Long Covid compared to 26% of male claimants. This finding is consistent with other studies that indicate a higher incidence of Long Covid among women than men.³⁶

While the cause of the greater prevalence among women is unclear and the subject of numerous studies, the effect of the finding is important. As they consider solutions, policymakers will need to remain mindful of the ways and the magnitude to which the condition might affect women, particularly lower-income and single mothers, who are often the sole wage earners in a household. Providing health care support and facilitating a return to work could make a big difference in their lives and promote the aims of health equity.



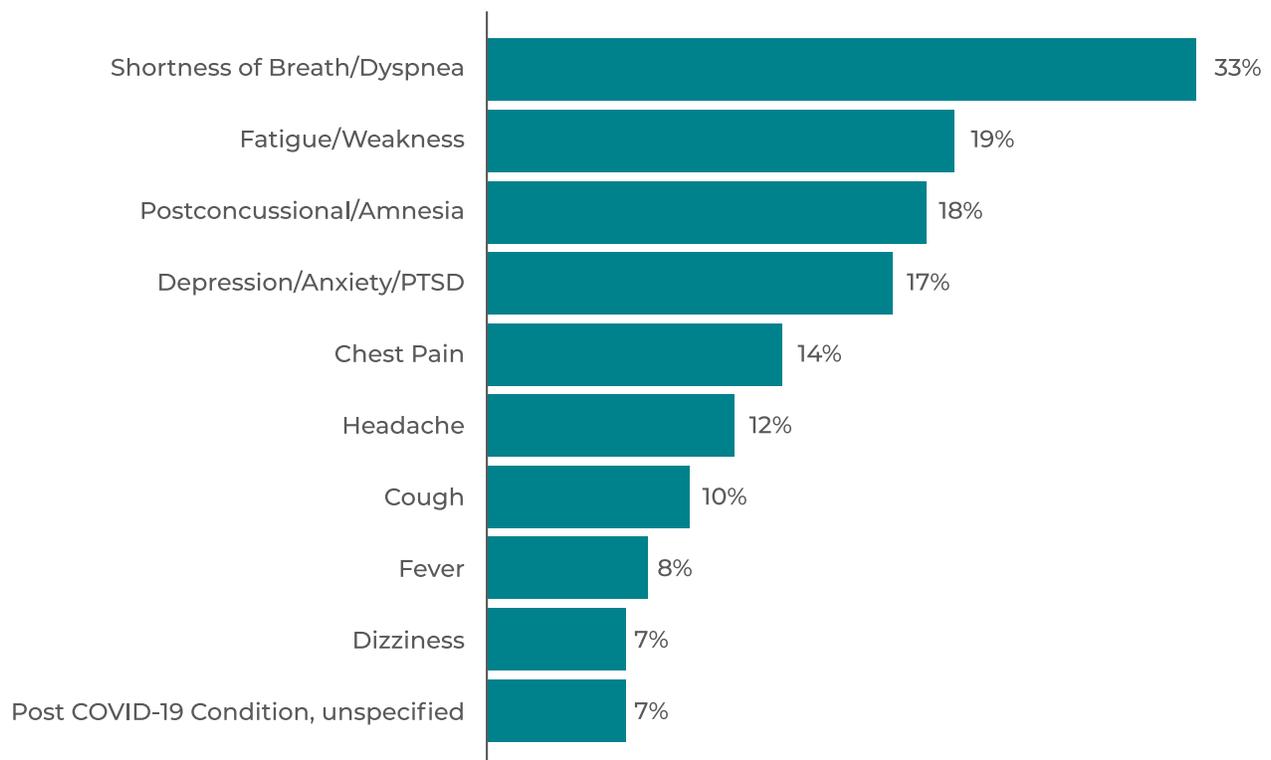
4 THE FINDINGS: SHEDDING LIGHT ON LONG COVID (CONTINUED)

3. THE TOP 10 SYMPTOMS CAN BE HIGHLY DISRUPTIVE

Understanding Long Covid's symptoms is fundamental to helping those who suffer from the condition. Yet, given the sheer number of symptoms and organ systems involved, doing so is very challenging. This report seeks to identify the 10 most common Long Covid-associated symptoms in claimants with Long Covid by analyzing International Classification of Diseases ("ICD") medical billing codes developed by the WHO and submitted periodically on medical bills.

The data reveals wide-ranging symptoms involving multiple organ systems, including the respiratory, circulatory, and nervous systems, and more generalized symptoms, such as fever. Figure 8 illustrates the top 10 most common symptoms, including, most predominantly, shortness of breath, fatigue and weakness, depression, anxiety, and symptoms associated with thinking and remembering. Future work will determine how many claimants suffer multiple symptoms and consider patients' pre-pandemic comorbidity information to rule out symptoms related to other ailments.

Figure 8: Share of top 10 Long Covid symptoms



4 THE FINDINGS: SHEDDING LIGHT ON LONG COVID (CONTINUED)

There are inherent limitations to ICD codes, which are primarily used for billing purposes. Therefore, some symptoms linked to Long Covid, such as loss of taste or smell, may not be represented in the data collected. In addition, mild symptoms that might not impact a physician's billing may be overlooked and, therefore, be under-represented in ICD data. To supplement the report's findings, NYSIF plans to conduct targeted physician-led interviews with a segment of its Long Covid claimants to better understand the nature of their symptoms.

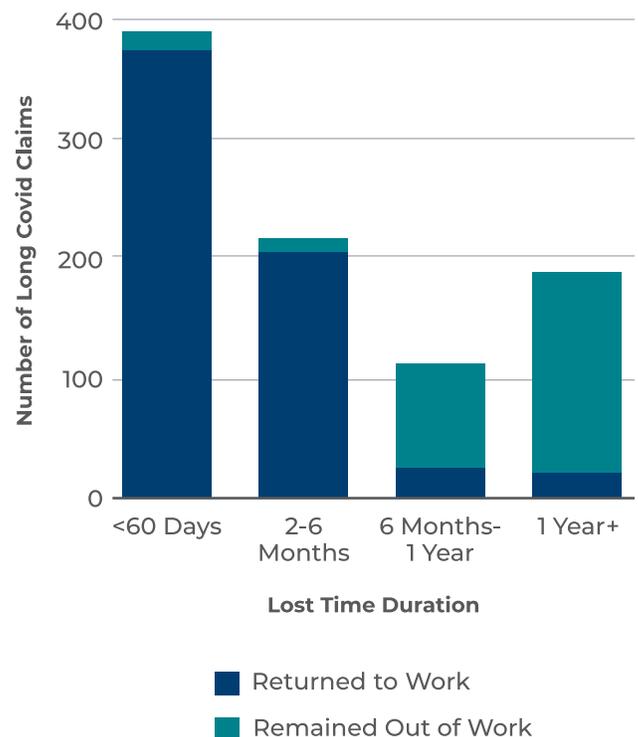
NYSIF's review of ICD codes yielded a further important observation. In October 2021, the WHO's newly developed ICD code (U09.9 Post Covid-19 condition, unspecified) for Long Covid took effect.³⁷ However, since this time, physicians have designated only 30 of NYSIF's Long Covid claims with the new ICD code, suggesting physicians may be underutilizing the code. NYSIF intends to conduct outreach with physicians to alert them of the availability of the code. Doing so will help patients, possibly by making them eligible for Social Security disability benefits, and assist researchers in understanding the condition better.

4. LONG COVID HAS HARMED THE WORKFORCE

One of the most important yet poorly understood aspects of Long Covid is how it has affected the workforce, particularly as employees miss time from work or return with symptoms requiring medical treatment. According to NYSIF data, 18% of injured workers with Long Covid—5% of all Covid-19 claimants—have not returned to work in more than one year after they contracted Covid. Seventy-eight percent of these injured workers are under 60 years of age.

The implications are far-reaching. Those who cannot return to work lose their income and employer-provided health insurance, and, as Figure 9 shows, the longer a claimant stays out of work, the less likely they are to return. Indeed, of the 269 Long Covid claimants who have not returned to work, 62%, or 166, have been out of work for more than one year. Being inexplicably sick and not working over a long span can stigmatize patients and be highly disruptive to their family and professional lives.³⁸

Figure 9: Return to work becomes unlikely with extended lost time durations



4 THE FINDINGS: SHEDDING LIGHT ON LONG COVID (CONTINUED)

Those who return to work face their own challenges. According to NYSIF data, 40% of claimants with Long Covid returned to work within 60 days while still receiving medical treatment. (Figure 10). Suffering from symptoms at work presents challenges for employees who may not be as productive as they once were or seek reduced hours and other accommodations, creating frustration as employees reintegrate into their jobs.

Figure 10: Two in five Long Covid claimants return to work while continuing medical treatment

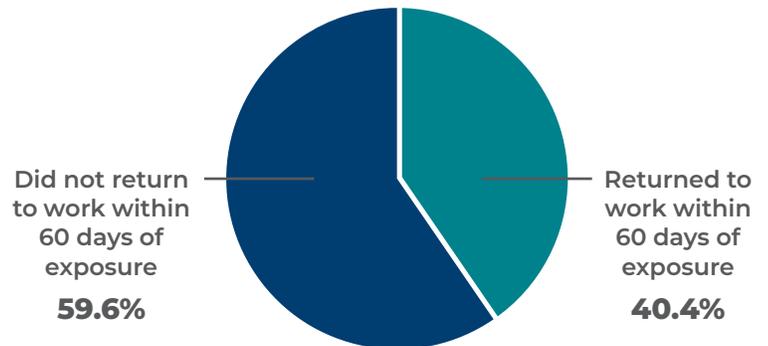
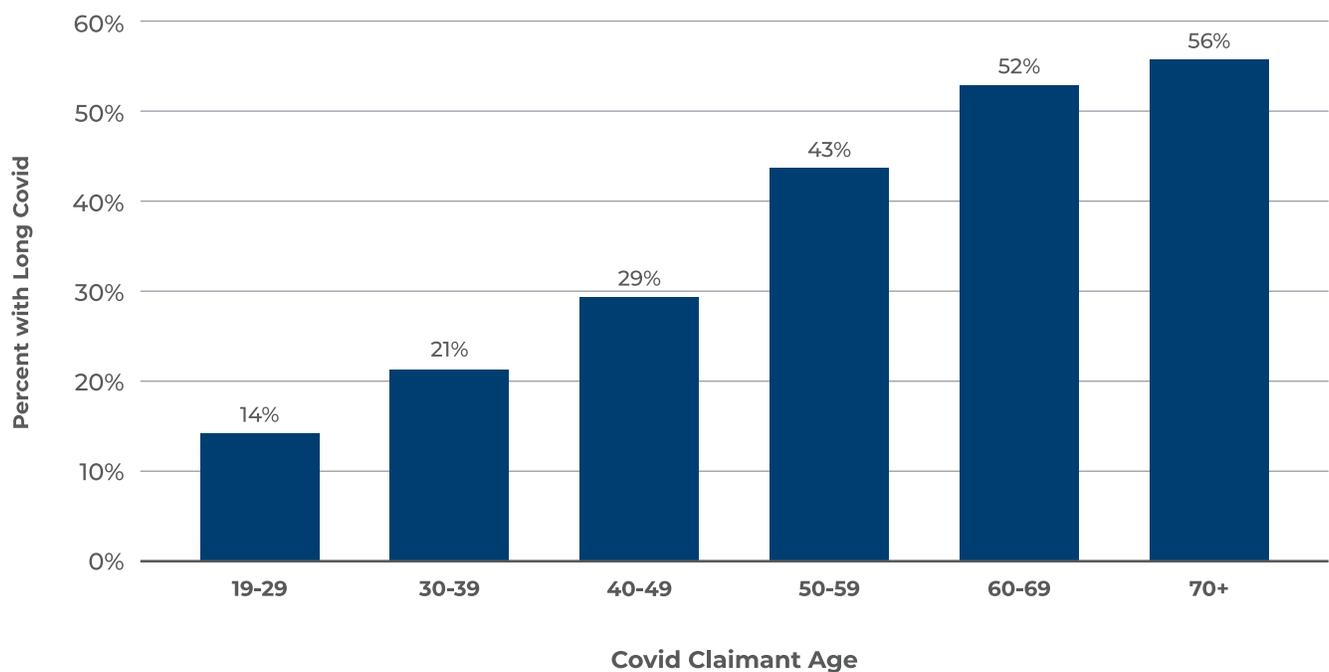


Figure 11: Incidence of Long Covid increases with age

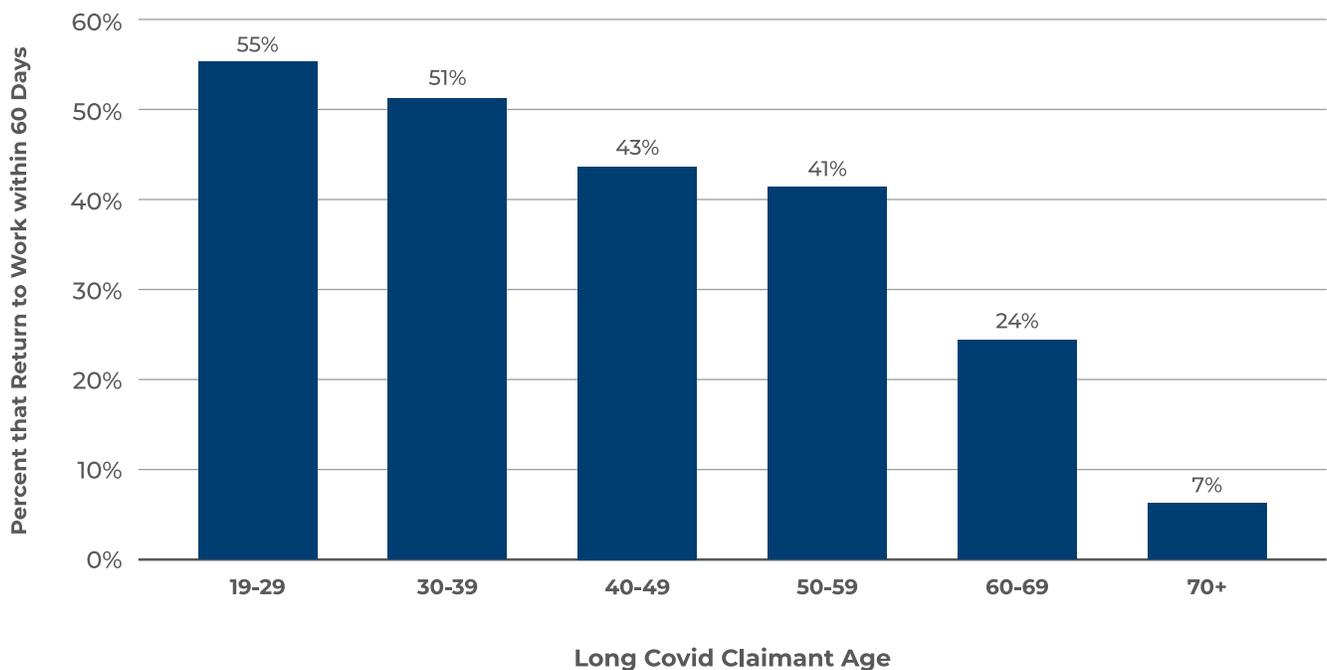


4 THE FINDINGS: SHEDDING LIGHT ON LONG COVID (CONTINUED)

People over 60, in whom Long Covid is already difficult to recognize,³⁹ are experiencing particular difficulty getting back to everyday work life. As Figure 11 illustrates, they have the highest incidence of Long Covid in NYSIF's Covid-19 claimant population and, according to Figure 12, are the least likely to return to work within 60 days.

But age may not be the only factor. Comorbidity rates are higher in older adults, and Covid-19 tends to be more severe for them than for younger patients. In its future work, NYSIF intends to undertake a more in-depth multivariate analysis to isolate any compounding and exacerbating factors that may be at play in these trends.

Figure 12: Older Long Covid claimants are less likely to return to work within 60 days



The report's findings have implications for the broader labor market and the economy. They highlight Long Covid as an underappreciated yet important reason for the many unfilled jobs and declining labor participation rate in the economy,⁴⁰ and they presage a possible

reduction in productivity as employers feel the strains of an increasingly sick workforce. It will be up to policymakers to understand these challenges and craft solutions to help struggling employees and employers.

4 THE FINDINGS: SHEDDING LIGHT ON LONG COVID (CONTINUED)

5. CLAIMANTS WITH COMORBIDITIES OR HOSPITALIZED FOR COVID-19 HAVE A HIGH RISK OF LONG COVID

In some Covid-19 patients, symptoms are so severe that patients require hospitalization. While only 37 NYSIF claimants needed hospitalization, data reveals that 33 (89%) of them now meet the criteria for Long Covid. NYSIF has comorbidity data for 22 of the hospitalized Covid claimants, with the majority having multiple comorbidities. Consistent with other studies, these data points seem to suggest that severity of infection may be a significant risk factor for Long Covid.

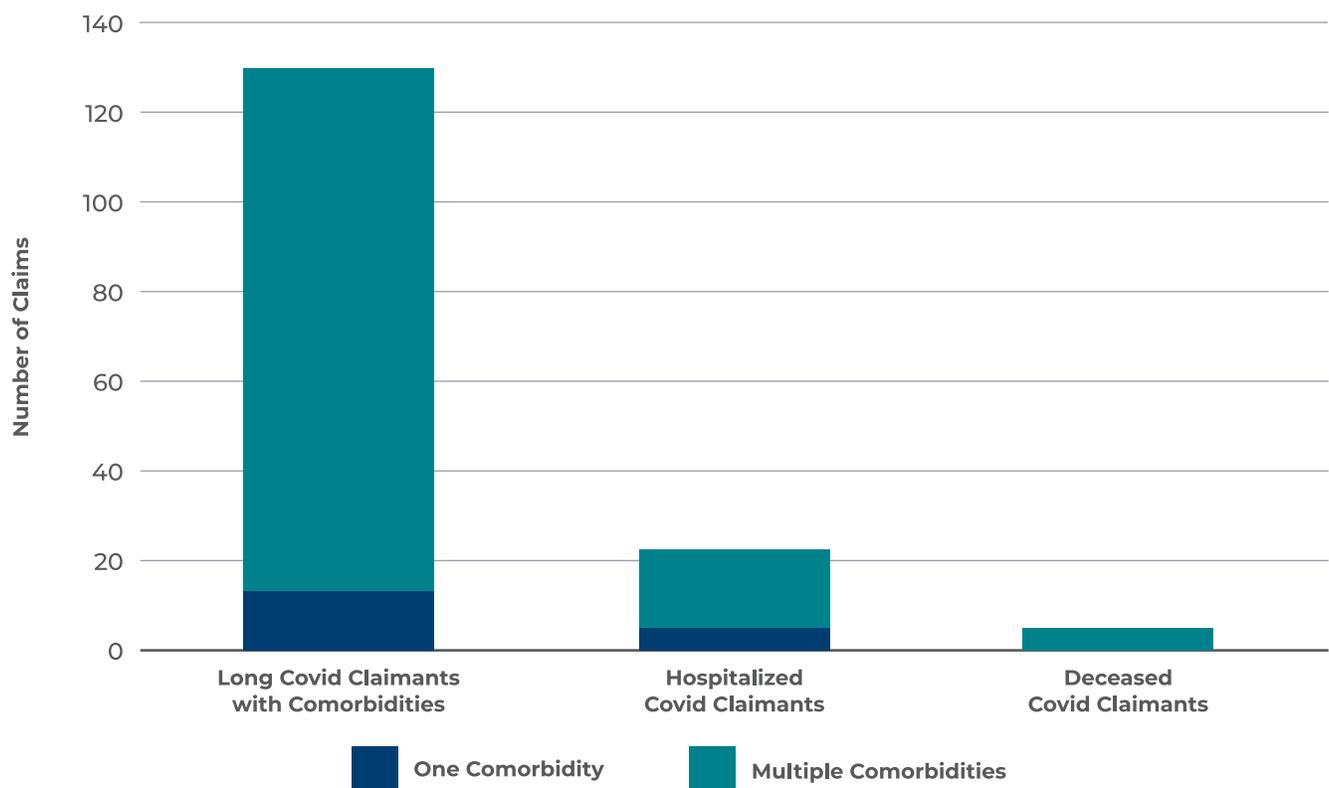
Yet acuteness of infection is not the only risk factor, as the data bears out. The vast majority of Covid-19 claimants did not require

hospitalization, yet 30% meet the criteria for having Long Covid.

In addition, only 3% of claimants identified as suffering from Long Covid were hospitalized for their initial infection. These statistics indicate that while the severity of Covid-19 may be a significant risk factor, those with milder symptoms or no symptoms are not immune from it and, depending on other risk factors, may well experience Long Covid.⁴¹

In this regard, analyzing claimant comorbidity data is instructive. This report examines 144 Covid-19 claims for which comorbidity data was available. It finds that 131, or 91%, met the report's criteria for Long Covid. The report also reveals that hospitalization and death rates spike dramatically for people with more than one comorbidity (Figure 13).

Figure 13: Comorbidities in Covid claimants



4

THE FINDINGS: SHEDDING LIGHT ON LONG COVID (CONTINUED)

As noted in Table 1, the top five comorbidities associated with the examined claims were chronic pulmonary disease, hypertension,

cardiac arrhythmia, obesity, and depression. NYSIF plans to expand its data set on claimant comorbidity for further study.

Table 1: Top 5 comorbidities identified

Top 5 Comorbidities	Claim Count*	% of Claims*
Chronic Pulmonary Disease	44	34%
Hypertension	31	24%
Cardiac Arrhythmias	28	21%
Obesity	27	21%
Depression	26	20%

*Claim count exceeds the number of claimants with comorbidities and percentage of claims exceeds 100% because some claimants reported multiple symptoms

6. ESSENTIAL WORKERS COULD BE A BLIND SPOT FOR POLICYMAKERS

Our report defines essential workers as those with occupations in health care, law enforcement, security services, and direct patient or consumer care. Over 83% of NYSIF's Covid-19 claims were made by essential workers, with 46% of all essential worker claims filed in the novel coronavirus wave. Twenty-nine percent of essential workers with established Covid claims had Long Covid compared to 44% of other workers.

It is not clear why the proportion of claims with Covid that go on to have Long Covid are lower for these workers. It may be because essential workers might not have been able to stay home from work beyond the required quarantine period. Another possibility may be that nurses and physicians self-treated their symptoms. If so, Long Covid rates, particularly for hospital workers, may appear lower than they are. NYSIF intends to dig deeper to learn about essential workers' experience with Long Covid.

5 FUTURE WORK

Equally as important as this report's insights are the questions it raises. NYSIF intends to tackle many of those questions in subsequent analyses. We will continue to explore the impact of Long Covid on claimants based on additional health and social factors, including vaccination status, comorbidities, health inequities, and essential worker status. NYSIF will conduct much of this work in partnership with academic institutions, government agencies, and nonprofit organizations.

But NYSIF's future work extends beyond research. As a workers' compensation insurer whose public purpose is enshrined in statute, NYSIF is uniquely positioned to help workers suffering from Long Covid today, many of whom may be most in need of support. In this regard, NYSIF will work to enhance understanding of

the condition among employers, employees, policymakers, and the medical community. We will also help and encourage physicians to keep up with Long Covid research and urge them to consider using the new Long Covid ICD code where appropriate.

Long Covid is certainly not the first post-viral condition; it is part of a broader network of chronic diseases, such as chronic fatigue syndrome, encephalomyelitis, and fibromyalgia, that arguably have not received adequate attention or research funding.⁴² If they had, researchers might have understood much more about Long Covid than they do today.⁴³ But the attention Long Covid receives now will help researchers understand similar chronic diseases, including those yet to manifest, continuing to pay dividends over the horizon.⁴⁴

6 CONCLUSION

Long Covid is a public health crisis emerging from the Covid-19 pandemic. Like a pebble thrown into a pond, its impact ripples across all aspects of life in ways not yet fully understood. This paper seeks to shed light on Long Covid, including its effects on Covid-19 survivors,

their employers, the labor market, and the economy. We hope this study helps health care authorities and policymakers better understand the condition and allows them to consider intelligent policy solutions designed to help those in need.

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APPENDIX: THE WORKERS' COMPENSATION CLAIMS PROCESS

In New York State, most employers are required to carry workers' compensation insurance, which they may do through a private insurance carrier, by self-insuring, or through NYSIF.⁴⁵ Workers' compensation insurance provides medical treatment for work-related illness and injuries, wage replacement benefits if a work-related illness or injury prevents an employee from working, permanency benefits, or a death benefit payable to an employee's survivors if the employee is fatally injured while working.⁴⁶

To receive workers' compensation benefits, the employee who experienced an injury or illness ("injured worker") or, in the event of a job-related death, their survivors, must provide notice to their employer within 30 days of the injury or illness⁴⁷ and file a claim with the WCB within two years.⁴⁸ If the employer's workers' compensation insurer accepts the claim, it will provide the injured worker with benefits as applicable.

While the workers' compensation system is a "no-fault" system,⁴⁹ the insurer may challenge or "controvert" the claims on grounds such as the timeliness of the notice or claim, employer/employee relationship, or causal relationship.⁵⁰ In the latter case, the insurer or employer may require that the injured worker undergo an independent medical examination ("IME") by a medical professional authorized by the WCB.

Controverted matters are adjudicated by the WCB by formal hearing before a Workers' Compensation Law Judge.⁵¹ Disputes within a claim can be resolved through means of informal or formal resolution. Either party may challenge the judge's decision to a panel of three members of the WCB, and if the panel does not reach a unanimous decision, the losing party has the right to have the decision reviewed by all members of the WCB.⁵² In the case of a non-unanimous decision, a party may request review by the full WCB, which is at the discretion of the WCB,⁵³ and may simultaneously seek judicial review of a WCB determination in the Third Judicial Department of the New York State Supreme Court, Appellate Division.⁵⁴

When the workers' compensation insurer accepts a claim, or when a worker prevails on a controverted claim, the insurer will pay for the worker's medical care, which may include medical, surgical, dental, or optometry services received from providers authorized by the WCB as well as medically necessary drugs and devices.⁵⁵ The insurer will also pay the worker lost wages if the injury or illness kept the worker from working for more than seven days or if the worker's pay was reduced because they began working fewer hours.

The amount of lost wages paid is based on the worker's average weekly wage for the previous year and the degree of their temporary disability, but cannot be less than \$150.00 per week or more than an amount set forth in statute, updated each year (currently at \$1,125.46).⁵⁶ If the worker died due to a job-related injury or illness, the insurer will provide weekly cash benefits to the surviving spouse and/or dependents, generally amounting to two-thirds of the deceased worker's average weekly wage, and cover funeral expenses up to \$12,500 in certain counties and \$10,500 in others.⁵⁷

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- ⁶ NYSIF is the largest workers' compensation carrier in New York State and thus has access to a rich body of data about workplace injuries. See Appendix A for additional detail about the workers' compensation system and the claims process.
- ⁷ Established claims are those on which NYSIF provides coverage and pays benefits. Non-established claims are primarily those where there is no medical evidence of infection or where claimants have otherwise not moved forward with their claim.
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- ¹⁰ Christopher Rowland, *Covid long-haulers face grueling fights for disability benefits*, The Washington Post (March 8, 2022), <https://www.washingtonpost.com/business/2022/03/08/long-covid-disability-benefits/>.
- ¹¹ *Supra*, note 2.
- ¹² Covid-19 is the syndrome that occurs when a person is infected with the virus SARS-CoV-2.
- ¹³ *Supra*, note 1.
- ¹⁴ FAIR Health, *Patients Diagnosed with Post-COVID Conditions: An Analysis of Private Healthcare Claims Using the Official ICD-10 Diagnostic Code* (May 18, 2022), <https://s3.amazonaws.com/media2.fairhealth.org/whitepaper/asset/Patients%20Diagnosed%20with%20Post-COVID%20Conditions%20-%20A%20FAIR%20Health%20White%20Paper.pdf>; see also, Pam Belluck, *Over 75 Percent of Long Covid Patients Were Not Hospitalized for Initial Illness, Study Finds*, New York Times (May 18, 2022), <https://www.nytimes.com/2022/05/18/health/long-covid-hospitalization.html>.
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- ¹⁸ Joseph R. Biden, President, Executive Office of the President, *Addressing the Long-Term Effects of COVID-19, Memorandum for the Heads of Executive Departments and Agencies* (April 8, 2022), <https://www.federalregister.gov/documents/2022/04/08/2022-07756/addressing-the-long-term-effects-of-covid-19>.
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- ³⁰ CDC, *Post-COVID Conditions: Overview for Healthcare Providers* (July 9, 2021), <https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/post-covid-conditions.html>.
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⁴³ *Id.*

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⁴⁵ WCB, *Employers – Workers’ Compensation Insurance*, <http://www.wcb.ny.gov/content/main/Employers/workers-compensation-insurance.jsp>; Workers’ Compensation Law (WCL) § 10. In addition to offering workers’ compensation to private employers, NYSIF also administers claims for New York State employees.

⁴⁶ WCL § 16.

⁴⁷ WCL § 18.

⁴⁸ WCL § 28.

⁴⁹ WCL § 10(1).

⁵⁰ Section 300.38 of Title 12 of the New York Codes, Rules and Regulations (“NYCRR”).

⁵¹ 12 NYCRR §§ 300.4 and 300.5.

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