

Workforce Wellness Risk Forecast Report

# Protecting the Workforce & Corporate Productivity

Preparing employers for the Fall 2023 contagious illness season to anticipate likely workforce disruptions.

Fall 2023



# About this Report

This specialized forecast delivers comprehensive insights into potential health risks that can affect workforce productivity across industries and sectors. These reports provide employers with a science-based risk forecast to help them better prepare for and mitigate potential productivity disruptions resulting from the forecasted incidence of contagious illnesses in the US, UK, and Canada.

Working in conjunction with [Conor Browne](#), one of the most talented biorisk experts in the world, this report serves as a critical tool to help employers get a glimpse into the multi-faceted illness environment we may be facing this fall. RAISONANCE believes employers of all sizes need an evidence-based way to anticipate biorisks that can threaten their employees' health, as well as their companies' productivity and profitability.

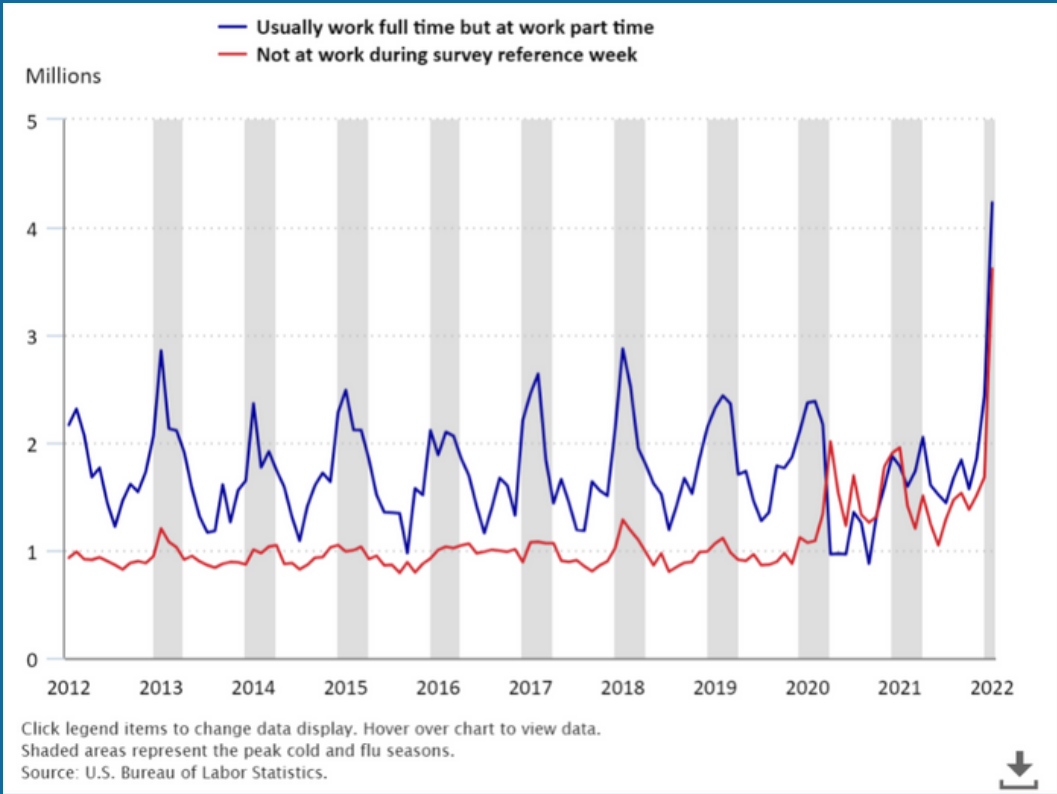


This report cites several specific trends that could create a very challenging environment for employers through the remainder of 2023. These insights are especially critical to employers in categories whose workforce must be on-site, such as **construction, healthcare, first responders, manufacturing, mining, warehousing**, and the like.

# Background

According to the US Bureau of Labor Statistics, about “7.8 million workers missed work in January 2022 because they had an illness, injury, or medical problem or appointment, up from 3.7 million in January 2021. About 4.2 million who usually work full-time worked part-time because of an illness, injury, or medical problem or appointment, up from 1.8 million in January 2021.”

**Employed people who missed work because they had an illness, injury, or medical problem or appointment, January 2012 - January 2022**

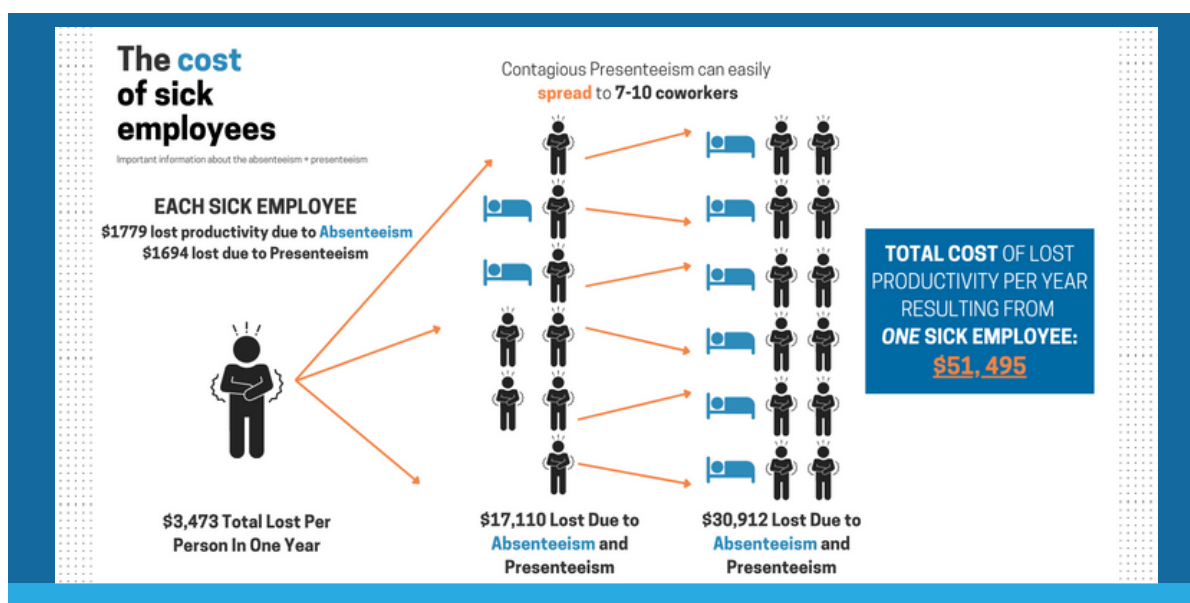


# The Cost of Absenteeism and Presenteeism

Absenteeism and presenteeism can have major impacts on a company's ability to operate effectively, and to overall profitability. Absenteeism occurs when employees are unable to come into work due to illness or injury, while presenteeism is when individuals come in despite being unwell – meaning they are less productive and pose a higher risk of potentially spreading their illness to other employees.

In addition to workforce productivity disruptions, the cumulative financial costs of absenteeism and presenteeism are meaningful. An individual employee that inadvertently transmits infectious illness to co-workers can have a dramatic, ripple effect on other personnel. In some cases those infected will stay home. In other cases they may come to work and, while working at less than 100% productivity themselves, infect even more personnel.

Absenteeism alone costs U.S. companies an estimated \$225.8 billion annually, according to the Centers for Disease Control and Prevention (CDC). This figure represents direct costs such as wages paid to absent employees, high-cost replacement workers, and administrative costs of managing absenteeism. On the other hand, presenteeism is also extremely costly. A Harvard Business Review study suggests that presenteeism can cost U.S. companies up to \$150 billion per year. Presenteeism costs include decreased productivity, low morale among other employees, and the potential health risk of communicable disease spread. The relentless toll of these costs can substantially erode a company's profit margin, emphasizing the necessity for effective health and risk management strategies in the workforce.



# Key Insights from the Fall 2023 Workforce Wellness Risk Forecast Report

The report notes the emergence of a new sub-lineage of Omicron, EG.5.1, which will drive a new wave of COVID-19 infections. This wave began at the start of August and will likely peak in early to mid-September in the US, UK, and Canada; it will be similar in magnitude to the 2022 – 2023 winter waves experienced in both countries.



In addition, a 2nd generation sub-lineage of BA.2 has been detected in Denmark and Israel. While case numbers are currently very small, the large number of mutations present in this sub-lineage and the fact it has been detected in two distinct geographic locations raise the possibility that this sub-lineage may cause a new global wave of infections.

As is now typical during a wave of COVID-19 infection, healthcare systems will be placed under extreme pressure; this will lead to treatment delays for all medical problems, thus increasing workforce absences due to illness or injury unrelated to COVID-19.

Increased levels of ill-health across the US, UK, and Canadian populations from a combination of Influenza, RSV, COVID-19, Group A Strep, Adenovirus and a handful of other infectious diseases will increase levels of staff absences. The attendant serious complications of COVID -19 will lead to temporary disability and possible early retirement for a small, but significant, section of the workforce, being particularly prominent in those aged 50 and over.

Severe cases of Long COVID (LC) will continue to accumulate, creating a new group of individuals who are physically unable to work. Moderate to low severity LC cases will also accumulate, adding to the growing group of individuals with LC, currently numbered at around 25 million in the US alone.

The majority of adults infected with COVID-19 during this period will be suffering their third SARS-CoV-2 infection. This will significantly elevate risks and rates of LC, since multiple infections is an established risk factor for its development. In general, widespread staff absences combined with personnel working at less than full productivity from increasingly common conditions like brain fog will adversely affect productivity across the board.

**Neurocognitive dysfunction ('Brain Fog') will adversely affect the job performance of approximately 25% of those individuals who are infected with SARS-CoV-2.**

Brain fog can last for several weeks after all other symptoms of acute COVID-19 illness resolve, and thus will negatively impact individual productivity long after an individual returns to work after a COVID-19 absence. This symptom is particularly deleterious in individuals whose work involves a high degree of multitasking, and in those who perform highly skilled tasks.

These workforce shortages will also cause some supply chain problems, including for some medications, specifically oral formulations of common broad-spectrum antibiotics. Other medications, such as short-acting bronchodilators for asthma and COPD, are also likely to have supply chain interruptions.

The immune dysregulation effect of COVID-19 will lead to significant winter waves of RSV and Strep A in children. This may lead to a small but significant number of temporary school closures, and parents requiring time off work to care for sick children. These diseases are likely to occur at similar rates as 2022.

It is likely that the 2023 - 2024 flu season will result in similar levels of illness and absences as was seen last year, with a weekly hospitalization rate in the US, and UK somewhere in the region of 9 / 100,000 people.

It is also possible that localized outbreaks of measles may occur, especially in densely populated urban areas. London, UK is at particular risk for this, due to historically low MMR (Measles, Mumps, Rubella) vaccination rates.

# Executive Summary

The emergence of a new sub-lineage of Omicron, EG.5.1, has begun to drive a wave of COVID-19 infections. This wave began at the start of August and will likely peak in early to mid-September in the US, UK and Canada. It will be of a similar magnitude to the 2022 – 2023 winter waves experienced in both countries.

A newly-discovered sub-lineage of BA.2 has the potential to cause a global wave of infections, if it begins to transmit effectively in the global population.

A tailored XBB monovalent mRNA booster vaccine will be made available in late fall, but population uptake is likely to be low; this will lead to an average increase in duration of illness for those people who contract COVID-19 and have chosen not to receive the booster.

As is now typical during a wave of COVID-19 infection, healthcare systems will be placed under extreme pressure; this will lead to treatment delays for all medical problems, thus increasing workforce absences due to illness or injury. Rates of infectious disease in children will reach a very high level, similar to that seen in the winter of 2022 – 2023.

Increased levels of ill-health across the US, UK, and Canadian populations from COVID-19 and other infectious diseases will increase levels of staff absences, and serious complications of COVID-19 will lead to temporary disability and possible early retirement for a small, but significant, section of the workforce, being particularly prominent in those aged 50 and over.

Severe cases of Long COVID (LC) will continue to accumulate, leaving this cadre of individuals unable to work. General workforce shortages will cause some supply chain problems, including for some medications, and, in general, widespread staff absences and prevalence of brain fog amongst employees will adversely affect productivity. This will also adversely affect national security, by degrading force readiness.

## Anticipated COVID-19 Infection Rate in the US and UK

A new sub-lineage of SARS-CoV-2 has recently been designated a Variant Under Monitoring (VUM) by the WHO. This sub-lineage – EG.5.1 – is an immune-evasive descendant of the current XBB dominant strain. The likely dominance of this new sub-lineage will create a wave of infection that will likely peak in early to mid-September at approximately 20,000 hospital admissions per week in the US, and 4,000 hospital admissions per week in the UK.

Since only between 1-2% of COVID-19 cases require hospitalization (mostly adults past retirement age), this translates to weekly cases of approximately 1 million adults and 250,000 adults per week in the US and UK respectively. This rate is roughly equivalent to the 2022 / 2023 winter rate in both the US and UK.



## Predicted effects of vaccination and non-pharmaceutical interventions

Following current trends and availability restrictions, it is likely that fewer than 50% of those eligible will avail themselves of the opportunity to receive a booster vaccination. This may well increase both average duration of illness amongst those infected in this wave and may also increase hospitalization rates. Waning of natural immunity may well increase this further.

The lack of non-pharmaceutical interventions (NPIs) in place in both the US and UK (especially respirator use, which is being actively discouraged by many businesses), guarantees unfettered transmission of the SARS-CoV-2 virus in both countries.



## Healthcare and Workforce Effects

**Healthcare systems will be placed under extreme pressure for four reasons:**

1. Healthcare staff absences will increase, therefore reducing healthcare capacity.
2. Emergency Departments will receive a significantly increased number of frail, elderly patients with acute COVID-19 disease.
3. Emergency Departments will also receive a significantly increased number of patients presenting with acute myocardial infarction, acute cerebrovascular accident, deep vein thrombosis, pulmonary embolism, and new-onset diabetes – all established complications of SARS-CoV-2 infection. All of the above complications will present at higher rates than 2022.
4. Emergency Departments will also receive an increased number of pediatric patients presenting with moderate to severe cases of bronchiolitis and pneumonia caused by RSV infection, in addition to an increased number of cases of invasive Group A strep and scarlet fever.



Since healthcare systems will be placed under extreme pressure, it will be more difficult for individuals to receive prompt care for any acute or chronic medical condition or injury, thus leading to a higher-than-normal level of staff absences.

The majority of adults infected during this period will be suffering their third SARS-CoV-2 infection. This will significantly elevate risks for complications of infection as listed above. This will also elevate rates of LC, since multiple infections is an established risk factor for its development.

## Healthcare and Workforce Effects

The immune dysregulation effect of COVID-19 will lead to significant winter waves of RSV and Strep A in children. This may lead to a small but significant number of temporary school closures, and parents requiring time off work to care for sick children. These diseases are likely to occur at similar rates as 2022.

Also as a result of immune dysregulation from SARS-CoV-2 infection, it is likely that the 2023 - 2024 flu season will result in similar levels of illness and absences as was seen last year, with a weekly hospitalisation rate in both the US and the UK somewhere in the region of 9 / 100.000 people.

It is possible that localised outbreaks of measles may occur, especially in densely populated urban areas. London, UK is at particular risk for this, due to historically low MMR (Measles, Mumps, Rubella) vaccination rates.

Medication shortages in both the US and UK are likely, specifically oral formulations of common broad-spectrum antibiotics. Other medications, such as short-acting bronchodilators for asthma and COPD, are also likely to have supply chain interruptions.

Neurocognitive dysfunction ('Brain Fog') will adversely affect the job performance of approximately 25% of those individuals who are infected with SARS-CoV-2. Brain fog can last for several weeks after all other symptoms of acute COVID-19 illness resolve, and thus will negatively impact individual productivity long after an individual returns to work after a COVID-19 absence. This symptom is particularly deleterious in individuals whose work involves a high degree of multitasking, and in those who perform highly skilled tasks.



## Societal risks

A moderate degree of supply chain disruption is likely. This will be most apparent in Just In Time (JIT) logistics systems.

Since approximately 17% of individuals with LC are still not recovered at two years following diagnosis, the number of individuals permanently disabled by the condition and hence unable to work will inexorably rise. This will have two main negative effects on the workforce. First, general levels of those unable to work due to disability will rise (this will continue every year until an effective treatment for LC is developed), and second, attrition amongst highly skilled cadres of workers will begin to have noticeable effects: commercial airline pilots, CEOs, offshore workers etc.

General workforce shortages will force some businesses to hire candidates for new positions who are not as well-qualified and/or experienced as would otherwise be desirable. This will have a negative effect on productivity.

National security could be adversely impacted; a combination of acute illness from COVID-19, other infectious diseases, and lingering COVID-19 symptoms (especially fatigue and neurocognitive dysfunction) will negatively affect force readiness.



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## Available Mitigations

Workforce disruption due to illness from COVID-19 and other infectious diseases transmitted via the respiratory route can be reduced by the installation of HEPA air filtration equipment in all work premises. HEPA is a proven technology that significantly reduces the transmission of airborne pathogens in indoor environments.

Encouraging all employees to test or screen for COVID-19 and other infectious diseases transmitted via the respiratory route and to stay at home if unwell prevents outbreaks of disease in places of work. This minimizes disruption caused by avoidable staff absences.

Encouraging uptake of the fall COVID-19 booster vaccine is a highly effective method for ensuring employees do not become severely ill from COVID-19; the same is true of the influenza vaccine. Employees with children should ensure that their children are fully up to date on their childhood vaccination schedule, as this reduces the likelihood of parents having to take time off work to care for sick children.

Using a system like FCV Sentinel to proactively monitor workforce wellness in real time can greatly decrease the amount of contagious illness being brought into the workplace. This tool can also provide management with an early warning to make staffing adjustments as far in advance as possible.

# About The Principal Author, Conor Browne

The principal author of this Forecast Report was Conor Browne, based in Belfast, Northern Ireland. Mr. Browne is an experienced biorisk consultant specializing in COVID-19 business continuity, forecasting, and analysis. He is completing a PhD in Political Science, specialising in the geopolitical effects of biological risks, and has earned Master's degrees in Security Studies, with a concentration in biological security, as well as in Medical Ethics.



## About FCV Sentinel

To support its enterprise clients, RAisonance watches the increasing workforce wellness threat indicators very closely. To support its enterprise client base, RAisonance developed FCV Sentinel, an AI-powered employee health tracking and reporting solution.

Expressly designed to mitigate biorisk-based threats to productivity, FCV Sentinel helps employers stay efficient and profitable even in the most challenging health-risk conditions. To learn more about FCV Sentinel visit our [wellness website](#).

## About RAisonance, Inc.

Mr. Browne's work was commissioned by RAisonance, Inc., a family of Artificial Intelligence / Machine Learning companies headquartered in the Denver Tech Center. RAisonance focuses on diagnostic indications and wellness solutions using the analysis of Forced Cough Vocalization as the input. It has designed the world's first AI/ML 100% digital diagnostic SaMD testing platform using forced cough vocalizations to diagnose COVID-19, Tuberculosis, and dozens more respiratory conditions using a mobile app as the user interface. For further information about RAisonance, contact our sales team at [Sales@RAisonance.ai](mailto:Sales@RAisonance.ai) or contact our leadership at:

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