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Employer Costs from Respiratory Infections

CONTRACT RESEARCH REPORT
DECEMBER 2024

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ohe.org

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OFFICE OF HEALTH ECONOMICS
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Corresponding Author:
Amanda Cole
acole@ohe.org

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Executive Summary

Background

A healthy and productive workforce has long been recognised as a critical pillar of a strong and robust economy. The impact of poor health on business costs and productivity has been studied across multiple conditions and recognised as a key policy issue (Schultz and Edington, 2007; Department for Work and Pensions and Department of Health and Social Care, 2024b). In contrast to more chronic conditions, the direct impacts of respiratory infections (such as influenza, COVID-19 and RSV) tend to be self-limiting and shorter in nature, and therefore their impact is often overlooked and poorly measured. Due to their high prevalence – concentrated over winter months – respiratory infections have a considerable impact, both in terms of direct medical costs (around £86 million each year in the UK) but also to businesses and the economy at large (Meier et al., 2020). Respiratory infections account for one-third of all sick days in working populations (Wormer et al., 2017). Impacts on businesses go beyond employee absences: research has shown that productivity losses of people working while ill may be greater than the absence impact (Hemp, 2004; IPPR, 2024).

While several studies consider the impact of various respiratory infections on businesses, a number of gaps remain. First, most do not appropriately capture the emergence and ongoing impact of COVID-19. Second, most consider a specific type of respiratory infection rather than the aggregate impact of respiratory infections on businesses. Third, most focus on absenteeism only and therefore underestimate the costs that may be driven by on-the-job productivity losses (presenteeism). Fourth, existing estimates use wage as a proxy for productivity, which is often sub-optimal. Finally, there is a lack of UK-specific data and analyses that consider how impacts may differ by industry.

We report the results of a survey designed to address these gaps. Data were collected on 2,910 adults from a UK panel by YouGov plc between 11th and 24th October 2023.

Key findings

Respiratory infections pose a substantial burden on employees, businesses, and the economy. Employees, on average, are impacted by respiratory infections for over an entire working week throughout the year (5.2 days). 1.1 of these days are taken as absence. The remainder of those days are impacted as presenteeism days (4.1 days), during which productivity drops by 32%.

The cost to the employer, per employee, in terms of productivity loss due to absenteeism and presenteeism is estimated at £852 per year, contributing to an annual national economic cost of £44 billion in the UK. These costs may be exacerbated during high transmission periods, particularly in industries reliant on face-to-face interactions.

Costs are likely to vary significantly across industries, influenced by workplace factors such as availability of remote work, workforce demographics, and operational requirements. This report finds that women are disproportionally impacted by respiratory infection in terms of absenteeism and presenteeism compared to men.

Policy Implications

Preventative measures — including vaccination, hand washing, mask-wearing and social distancing — have the potential to deliver significant returns on investment (ROI) for employers. With most working-aged adults ineligible for NHS-provided respiratory vaccinations, workplace vaccination programs could reduce the burden imposed by respiratory infections on employers, as they have demonstrated effectiveness in mitigating absenteeism and presenteeism (Verelst et al., 2021; Hansen, Zimmerman and van de Mortel, 2018), and survey respondents reported high openness to uptake. Such programs could particularly benefit industries that are disproportionately affected by

absenteeism and presenteeism caused by respiratory infections, and contribute to broader efforts to boost economic productivity.

This study also highlights disproportionately higher days impacted by respiratory infection for women compared to men. Workplace vaccination programmes may therefore offer a solution to not only improve overall workforce health, but as a potential tool to address health inequity within the workforce.

The high cumulative cost of respiratory infections to businesses indicates the critical role employers could play in mitigating their impact through health-focused workplace initiatives. Vaccination programs, supported by favourable policy frameworks, could represent a practical and impactful solution. Supportive government policies to incentivise employer-led vaccination programs could include tax exemptions and support for occupational health services. These initiatives align with national priorities to improve workforce health, reduce economic inactivity, and address health equity.

By prioritising workforce health, businesses can enhance productivity, retain talent, and contribute to the UK's economic growth. Policymakers must recognise this link and act to support employer-driven health interventions.

1 Introduction

1.1 Who bears the burden of respiratory infections?

As the most common illness in human beings, respiratory infections affect everyone's lives in many different ways (Fendrick et al., 2003). Individuals bear the burden of work, school and social interruptions as well as the mental and physical health and well-being challenges that may ensue. In contrast to more chronic conditions, the direct impacts tend to be self-limiting and shorter in nature and are therefore often overlooked and poorly measured. Where data are collected, for example by the Royal College of GPs, the strong seasonality and broad spectrum of contributing viruses is clear, which includes influenza, SARS-CoV-2 (which causes COVID-19), and RSV (RCGP, 2024). Likewise, rates of pneumonia infections also tend to be higher in winter months—as do pneumonia-related emergency room admissions (UK Health Security Agency, 2024c; b).

Due to their high prevalence, respiratory infections have a considerable impact on health systems, as thousands of people each year contract infections and book GP appointments, receive prescriptions, and are admitted to hospitals. Indeed, it is estimated that direct medical costs associated with acute respiratory illnesses between 2001 and 2009 amounted to £86 million each year in the UK (Meier et al., 2020). This figure is likely to be even higher when considering COVID-19's impact on health systems post-2020. Influenza alone is considered to have a moderate-to-severe effect on routine healthcare services, as A&E admissions increase by over 27,000 each month during flu season and NHS workers simultaneously deal with staff absences and an increased number of patients (Romanelli et al., 2023). Similarly, Respiratory Syncytial virus (RSV) was found to cause 487,247 GP appointments and 17,799 hospitalizations per average season (Fleming et al., 2015). And more, each year, as people fall ill with respiratory infections, a number of patients—with viral illnesses—are prescribed antibiotics, serving to impose an unnecessary and risky cost to healthcare systems (Meier et al., 2020)..

COVID-19 called everyone's attention to the impact that respiratory infections can have beyond their direct medical costs, with entire economies being brought to a standstill. But even outside of a pandemic, these respiratory illnesses are likely to impose a major burden on businesses and the economy at large due to their prevalence and infection rates among working populations. Yet, vaccines for respiratory infections are not generally provided by the NHS for working-age individuals unless they have underlying conditions (NHS, 2024b; c; a). It is therefore important to get a better handle on the nature of that burden and how it manifests, to inform appropriate action.

1.2 Recognition of the need to support workforce health

In recent years, there has been a significant push by the UK government to promote worker wellbeing and occupational health initiatives. These initiatives have been implemented in the context of stagnating economic growth since the financial crisis, along with slowed labour productivity growth (Harari, 2024). Indeed, small- and medium-sized companies in the UK lag behind their G7 peers in productivity, and British output per worker trails similar economies like the U.S., Germany, and France

(Hill and Fray, 2023). Though the COVID-19 pandemic had a significant short-term effect on productivity growth, the growth rate has returned to the trend rate, suggesting that the pre-pandemic weaknesses in the UK economy persist (Office for National Statistics, 2024e). Furthermore, economic inactivity in Britain is at its highest since 2012, with 20. million people out of work and not looking for a job at the start of 2024 (Powell, 2024); 2.8 million of whom are out of work due to ill health—the highest on record (His Majesty's Treasury, 2024). This is additionally compounded by Britain's ageing population; as people are living longer, the NHS is under additional pressure to care for an older population, along with a sicker working-age population (Stevenson and Mutebi, 2024).

With these challenges in mind, the UK government has prioritised the health of British workers in various policy measures focused on addressing worklessness and improving occupational health services. These include the Labour Market Advisory Board and "Back to Work" Plan (Department for Work and Pensions, 2024a; b), as well as various occupational health initiatives, including the establishment of the Occupational Health Taskforce, investments in occupational health projects, and consultations on tax incentives for businesses providing occupational health services and on increasing employer uptake of these services (Department for Work and Pensions and Department of Health and Social Care, 2024b; a; HM Treasury and HM Revenue & Customs, 2023; Department for Work and Pensions, 2023). These initiatives mirror policies already in place in countries like Japan, France, Germany, Italy, and Finland, which require that employers provide occupational health services to their employees (OECD, 2022; InfoFinland, 2024).

These policies demonstrate the UK government's recognition that worker well-being is important. However, they are focused mostly on long-term ill health, even though 80% of absences are short-term (Acas, 2012). Recent reports estimate that illness overall costs UK businesses over £100 billion each year due to staff absenteeism (missing work) and presenteeism (working at a lower productivity level due to illness) as well as staff being forced completely out of work (Royal Society for Public Health, 2024). Furthermore, the cost of worker ill-health to businesses has increased by £30 billion since 2018, with £25 billion of this being attributable to employees working while being ill, as UK workers are among the most likely to work while ill (IPPR, 2024). Short-term absences are likely driving a significant proportion of these costs.

Due to their high prevalence, seasonality and transmissibility, respiratory infections, in particular, are likely to affect a large number of employees at the same time, resulting in significant disruptions to business. In addressing the impact of respiratory infections on businesses and the UK overall, the government has published recommendations specifically related to respiratory infections in the workplace, having issued guidance on how to reduce their spread and support employee vaccination against COVID-19 (UK Health Security Agency, 2022, 2024a). Trade organizations and think tanks have shown support for worker well-being initiatives, including those related to preventing respiratory infections in the workplace. For instance, the Confederation of British Industry (CBI), noting the impact of worker ill health on the economy, published a report showing that the government could boost the economy by £2.65 billion by providing tax incentives for businesses supporting employee health, such as tax exemptions for vaccinations (CBI, 2024). Likewise, the International Longevity Centre (ILC) similarly recommended that the UK government provide tax incentives to businesses that want to vaccinate their employees (ILC UK, 2024). Overall, however, there remains a significant policy gap in specifically targeting and easing the negative impact of short-term illnesses—including respiratory infections—on businesses.

1.3 What do we know of the business burden of respiratory infections?

As aforementioned, worker ill-health is driving significant losses to the UK economy and its businesses through lost productivity, with absenteeism and presenteeism costing businesses over £100 billion each year (Royal Society for Public Health, 2024). Presenteeism, in particular, has been the primary driver of ill health's increased costs to businesses in recent years (IPPR, 2024).

Respiratory infections are a significant aspect of these costs; acute respiratory infections have been estimated to account for one-third of all sick days in working populations (Wormer et al., 2017). Additionally, it is estimated that in the United States, up to 75% of the overall economic cost of acute respiratory infections is driven by lost productivity among workers (Palmer et al., 2010). Further, A UK-specific survey examining the prevalence of symptoms associated with respiratory infections and their impact found that 1 in 6 people reported that they thought they had a respiratory infection within the 28 days prior to completing the questionnaire, and 1 in 24 people reported taking off at least one day from work or school (Office for National Statistics, 2023c).

Research suggests that influenza and influenza-like illnesses result in approximately two to three sick days per episode, with the average duration of severe symptoms being three days (Zumofen, Frimpter and Hansen, 2022; Rousculp et al., 2010). A study examining the effects of flexible sick leave policies found that almost 72% of workers who contracted influenza-like illnesses reported working with severe symptoms—on average for 1.3 days (Rousculp et al., 2010). A study comparing influenza infections to non-influenza acute respiratory infections reported that a typical full-time employee who has contracted influenza loses, on average, 3.5 to 5 workdays—due to both presenteeism and absenteeism—after symptom onset, while an employee with a non-influenza acute respiratory infection could expect 3 days, on average (Wormer et al., 2017).

However, research suggests that non-influenza-related viral respiratory tract infections (VRTIs) have a similarly large impact on businesses. One study conducted telephone surveys among adults to estimate the economic burden of these infections in the United States, finding that 72% of adults reported having a non-influenza VRTI, and these adults had, on average, 2.5 episodes each year (Fendrick et al., 2003). Owing only to absenteeism, over 70 million workdays are missed each year in the United States due to these infections, resulting in $8 billion in losses (Fendrick et al., 2003). Additionally, the common cold alone has been found to cause 8.7 lost work hours per episode per employee in the United States—with 2.8 of these hours being lost due to absenteeism and 5.9 (i.e. just over two-thirds) being on-the-job productivity losses (Bramley, Lerner and Sarnes, 2002). Extrapolated to the entire United States, it is estimated that lost productivity as a result of the common cold costs the U.S. $25 billion, wherein $16.6 billion of this loss is attributed to presenteeism, $8 billion is attributed to absenteeism, and $230 million is attributed to caregiver absenteeism (Bramley, Lerner and Sarnes, 2002). Considering COVID-19, the impact of respiratory infections on employers becomes more significant. Indeed, in the United States, 70% of COVID-19 cases are among the working population, and sick leave wages alone have cost U.S. employers $16.7 billion (Sell et al., 2024).

While businesses and policymakers are likely concerned about the various conditions that are keeping people out of work and reducing productivity, it is particularly relevant to understand the

costs associated with respiratory infections because they impose a significant burden on medical systems, businesses, and the economy at large, but also because there is a known way of reducing the impact of respiratory infections through vaccination programs.

1.4 The need for a better understanding of employer costs

While several studies analyse the impact of various respiratory infections on employers, there are several gaps to be addressed before the business effects of these illnesses are fully understood.

First, there are very few studies that examine the effect of COVID-19 on worker productivity, and those that do exist use data from the height of the pandemic (i.e. 2020) (Yang et al., 2024; Faramarzi et al., 2021). These studies might, therefore, have higher estimates of days lost to absenteeism due to COVID-19 because of quarantine protocols, increased symptom severity (due to the unavailability of vaccines), etc. As such, how COVID-19 affects businesses in a post-pandemic world is still not well understood. Given COVID-19's prevalence, this is a significant gap in the literature that ought to be filled to fully understand how respiratory infections as a whole affect businesses. Additionally, studies that consider respiratory infections before 2020 are missing the impact of COVID-19, which is now a substantial contributor to the overall level of infections.

Furthermore, much of the literature discussing respiratory infections' effects on employers focuses only on specific illnesses rather than on respiratory infections in the aggregate. Thus, the overall impact of acute respiratory infections on businesses is still not well understood.

Additionally, losses incurred due to presenteeism are difficult to measure, so much of the research in this field focuses solely on absenteeism, likely resulting in underestimations of the burden of these infections on employers. As such, these estimates are missing any costs driven by on-the-job productivity losses, which are likely to be significant (Hemp, 2004). Furthermore, most existing estimates are unlikely to be capturing the full burden of respiratory infections on businesses, as they rely on wages as proxies for worker productivity, which would generate an underestimation of costs given that productivity has grown faster than median wages over the past half-century (LSE, 2021). In addition, many of these estimations tend to exclude further relevant costs such as those associated with transmission and staff turnover.

Research on the impact of these infections is global in nature, which is helpful in understanding the impact of presenteeism and absenteeism in various countries. However, attitudes towards work and being absent from work are influenced by culture, and workers in specific countries — the UK, for instance — are more inclined to work while ill than those in other countries (IPPR, 2024). Thus, the effects of presenteeism will be more pronounced in some countries than others, so it is important for businesses to understand how respiratory infections affect them within the context of the countries in which they operate.

It is also important to note that the impacts of respiratory infections on employers will differ depending on characteristics that are specific to individual businesses and their workforce. For instance, workers in specific industries might be more likely to take time off work than those in other industries, depending on the nature of work or the ability to work from home, or symptoms might

have a higher impact on work performance in certain careers than others. Similarly, some industries or working environments might be associated with higher risks of transmission. Therefore, the "average" may not apply to all industries, some of which may be more or less impacted, or impacted in different ways. As such, it is important for employers to understand how these infections may be affecting them so that they can consider interventions that are best suited to helping them mitigate these effects.

In summary, several important gaps in the literature estimating the burden of respiratory infections on employers exist: there are limited studies including COVID-19, few consider the impact of respiratory infections on aggregate, cost estimates generally focus solely on absenteeism and thus exclude the impact of presenteeism, and existing estimates use wage as a sub-optimal proxy for productivity. Furthermore, there is a need to understand the UK-specific impact, and how this might differ across industries. This paper addresses these gaps in order to help employers better understand how respiratory infections might be affecting their business.

2 Survey methodology

This study utilises data collected by YouGov plc. The survey was conducted through an online survey with members of YouGov Plc's UK panel, which consists of over 2.5 million individuals who have agreed to participate in surveys. Panellists were randomly selected via email invitations that included a generic survey link. When a panellist clicked the link, they were directed to the survey most relevant to them based on the sample definition and quotas (e.g., "GB adult population" or "GB adult females"). The final responding sample was collected based on a representative sample of the UK in terms of age and gender.

Data were collected on 3156 adults between 11th - 24th October 2023. Respondents were excluded if they answered 'don't know' to the key absenteeism and presenteeism variables of interest. To exclude potentially unreliable estimates, we excluded respondents who answered that they had over 10 respiratory infections during the year or that they had taken over 50 days of absence. The final sample size was 2,910.

2.1 Estimating the size of the problem

We used the survey data to produce descriptive estimates on absenteeism, presenteeism and staff turnover. The key survey questions and variables are summarised below.

TABLE 1 KEY ABSENTEEISM, PRESENTEEISM, PRODUCTIVITY AND TURNOVER STATISTICS

Variable	Key survey question	Detail
Severity		
Average number of respiratory infections	"For the following question, by 'respiratory infection' we mean illnesses like coughs/ colds, COVID-19, Flu, and pneumonia. We are excluding long COVID. Approximately, how many times have you suffered a respiratory infection, excluding long covid, in the last 12 months (i.e. since October 2022)? (Please provide an answer option between 0 and 50)."	Produced for all respondents
Average length of infection	"Approximately how many days in total were you affected by respiratory infection(s) in the last 12 months (i.e. since October 2022)? (Please provide an answer option between 1 and 365 days)", divided by the number of infections above.	Calculated for those indicating 1 or more respiratory infection
Annual number of impacted workdays per respiratory infection	"Approximately how many days in total were you affected by respiratory infection(s) in the last 12 months (i.e. since October 2022)? (Please provide an answer option between 1 and 365 days)"	Calculated for those indicating 1 or more respiratory infection The percentage of days absenteeism and presenteeism was applied to the total number of infection days, for impacted workdays.
	As a sub-question, respondents were asked about the percentage of days during a respiratory infection where they were absent at work, and present at work (WFH and F2F).	
Impacted Days		
Average impacted days	"Approximately how many days in total were you affected by respiratory infection(s) in the last 12 months (i.e. since October 2022)? (Please provide an answer option between 1 and 365 days)"	0 impacted days imputed if 0 infections were reported.
Number of absenteeism days	Affected days multiplied by the % days absenteeism	Calculated for all respondents

Number of WFH presenteeism days	Affected days multiplied by the % days work-from-home presenteeism	Calculated for all respondents
Number of F2F presenteeism days	Affected days multiplied by the % days face-to-face presenteeism	Calculated for all respondents
Total impacted days	Sum of the 3 figures above	Calculated for all respondents
Additional productivity and retention statistics		
% productivity achieved on a presenteeism day	"When you were working while unwell due to your respiratory infection(s), how productive did you feel?"	100%, 80%, 60%, 40% and 20% provided as options.
Proportion of lost hours in a presenteeism day	Inverse proportion of the survey question above.	
Number of workdays lost due to presenteeism	Proportion above multiplied by the total number of presenteeism days.	Calculated for all respondents
Turnover rate (%)	You previously said that you intentionally left a job, or planned to leave a job in the year-long period of October 2022 - September 2023...To what extent, if at all, was this due to a respiratory infection/ illness (e.g. long covid)?	Those who answered at least somewhat due to respiratory infection

WFH: Work-from-home; F2F: face-to-face

2.2 Cost calculations (cost to the employer)

We present our estimate of costs as the average annual cost to the employer per employee due to respiratory infections.

We calculate costs separately as both productivity costs and labour costs. Labour costs are calculated using hourly wage estimates from the Office of National Statistics (ONS) by industry and region (2024b). Productivity costs are calculated using Gross Value Added (GVA) estimates by industry and region (Office for National Statistics, 2024d, c; a).

These represent two distinct but sometimes overlapping aspects of absenteeism and presenteeism costs. Labour costs refer to the direct financial impact of wages paid to absent employees. In contrast, productivity costs reflect the value of output lost due to absence, representing an indirect cost.

For presenteeism, there is overlap in the use of these two types of costs. Labour costs capture lost productivity during a presenteeism day by reflecting wages paid to employees during lost productive time. Using GVA calculates productivity costs based on the value of the unproductive hours of work. Combining labour costs and GVA measures would double count the cost of the number of unproductive hours, as both approaches represent the same underlying impact in different ways.

In the case of absenteeism, labour costs and productivity costs can represent separate impacts (wages paid for the absence as well as the lost output). However, this distinction depends on high-level assumptions about how the employer manages the absence, such as whether the work is reassigned, delayed, or not completed at all.

For this reason, we present labour and productivity (GVA) cost estimates separately to ensure clarity and avoid double counting.

All cost estimates are generated based on the number of hours attributed to absenteeism and presenteeism, and 7.5 hours assumed in a working day. For absenteeism, the number of hours lost is calculated based on the number of absenteeism days reported in the survey. For presenteeism, the number of hours lost is calculated based on the average number of reported presenteeism days,

combined with the percentage loss of productivity during a presenteeism day. The productivity percentage loss is directly applied to presenteeism working hours.

In Table 2 we summarise the key costs that we present, and how these are calculated. Presenteeism costs are calculated separately for work-from-home (WFH) presenteeism hours and face-to-face (F2F) presenteeism hours, however, baseline productivity impacts on presenteeism days are assumed to be the same regardless of virtual or face-to-face working.

TABLE 2 DESCRIPTION OF COST CALCULATIONS

Type of cost	Labour cost	Productivity cost
Absenteeism	The number of hours lost due to absence multiplied by the average wage.	The number of hours lost due to absence multiplied by average GVA.
Presenteeism	The number of productive hours lost due to presenteeism multiplied by the average wage.	The number of productive hours lost due to presenteeism multiplied by average GVA.
Total	Summary of above costs	Summary of above costs.

We frame the costs to the employer in three ways:

1. Per employee: These are calculated as annual average costs per employee, based on the average annual number of days of absenteeism and presenteeism per employee.
2. Per 100-employee business: These are calculated as an illustrative example of the average annual costs to an employer for a 100-person business, calculated by multiplying the per employee costs by 100.
3. National: These are an indicative national estimate of the costs being incurred across all UK employers annually through employee absenteeism and presenteeism, informed by employee average survey estimates. The estimate is provided by multiplying the per employee costs by an estimate of the working population in the UK. This estimate was derived through regional estimates of the size of the working-age population (Office for National Statistics, 2023b) combined with regional estimates of the employment rate (Office for National Statistics, 2023a).

Finally, we present an indication of the cost of staff turnover. Staff turnover is attributed to respiratory infection wherever respondents stated that leaving a job in the last 12 months was at least 'somewhat' related to respiratory infection. These costs are presented as costs to the employer only. The average cost of staff turnover is taken from an Oxford Economics (2014) report to be £30,681, inflated to 2022 prices (£25,181 in 2014) (Oxford Economics, 2014). This estimate is a combination of lost wages and lost capital income. The expected staff turnover utilises the expected reported proportion of staff intentionally leaving from survey data. The anticipated impact on turnover was low due to the self-correcting and short-term nature of most respiratory infections but was included in the survey to compare with staff turnover impacts from other diseases (e.g. mental health, musculoskeletal conditions). Long COVID was considered in the survey question on the impact of staff turnover, although it was excluded from the absenteeism and presenteeism section of the questionnaire.

3 Results

3.1 Estimating the size of the problem

Incidence and severity

Table 3 shows the overall respiratory infection incidence rate in our sample. On average, each employee experienced about one respiratory infection (1.07) per year, which includes those in the sample who reported no infections (which represented just over half the sample). The maximum recorded was 10 infections in a single year for an individual, illustrating significant variability.

For those who report at least one respiratory infection, the average duration of illness is 6.8 days, with an average of 5.3 days impacting their work. Put into context, this means that each time an employee is ill with a respiratory infection, their work is impacted on average for just over an entire working week. This can create substantial disruptions, especially if multiple employees are impacted at once.

TABLE 3 INCIDENCE AND SEVERITY OF INFECTIONS IN THE SAMPLE

	Mean	Min	Max	Standard deviation	Count
How many respiratory infections	1.07	0	10	1.49	2910
Average length of respiratory infection	6.78	0	150	8.94	1494
Average impacted workdays per infection	5.32	0	127.5	7.39	1494

Summarising days impacted for the business

Figure 1 presents the average number of days impacted annually by respiratory infections per employee across the sample, including those who reported no infections. On average, respiratory infections impacted 5.2 workdays per person annually. This figure breaks down into three main components:

- Absenteeism: 1.1 days per employee were attributed to absenteeism, where employees missed work entirely due to illness.
- F2F Presenteeism: Employees worked in person while ill for an average of 2.3 days, indicating instances where illness did not prevent physical attendance but likely affected productivity.

- WFH Presenteeism: An additional 1.9 days on average were spent working from home while unwell, showing that remote employees often continue to work through illness.

There is notable variability around these averages, as indicated by high standard deviations (see Table 4). This variation highlights that some individuals experience significantly more days impacted by illness, whether through absenteeism or presenteeism. The highest reported figure indicates that an individual was impacted to some degree by a respiratory infection throughout the entire year, while others report minimal or no work impact.

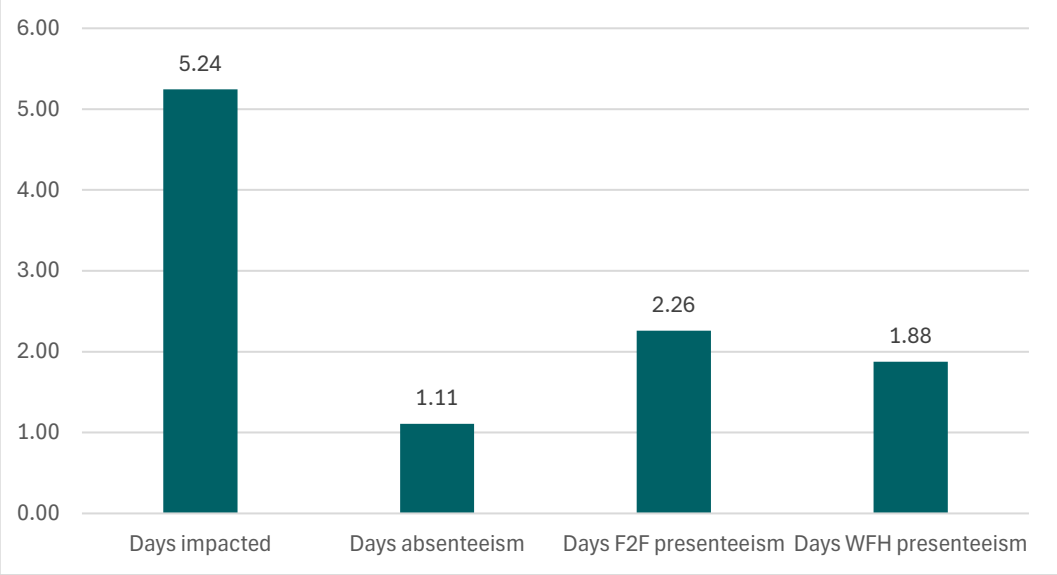


FIGURE 1 TOTAL DAYS IMPACT FOR THE BUSINESS

TABLE 4 TOTAL DAYS IMPACT FOR THE BUSINESS, FURTHER DESCRIPTIVE STATISTICS

	Mean	Min	Max	Standard deviation	Count
Days impacted	5.24	0	365	13.68	2910
Days absenteeism	1.11	0	40	3.20	2910
Days F2F presenteeism	2.26	0	365	11.02	2910
Days WFH presenteeism	1.88	0	182.5	7.03	2910

Productivity during a presenteeism day

Figure 2 illustrates the responses to the survey question regarding productivity levels on workdays impacted by respiratory infections. The majority of the sample reported a decrease in productivity due to illness. Only 12% of respondents indicated they were able to complete their normal hours to the usual standard, highlighting the significant impact that respiratory infections can have on work performance.

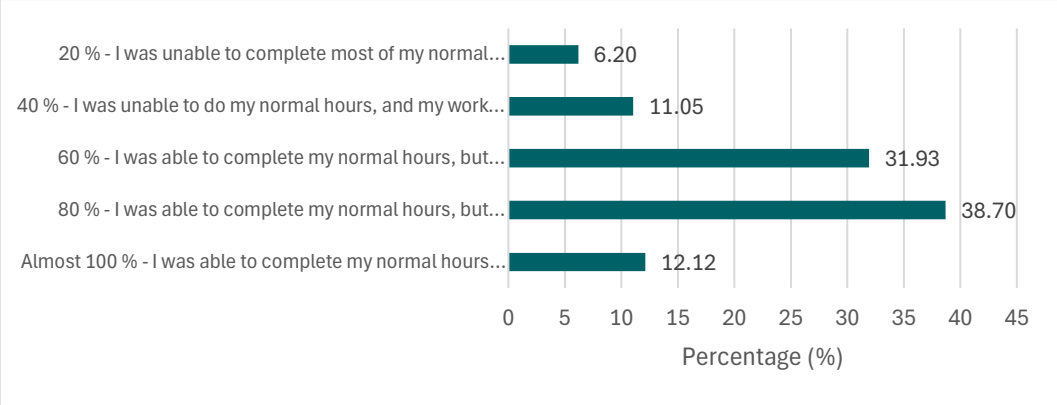


FIGURE 2 PERCENTAGE OF PRODUCTIVITY ACHIEVED ON SICKNESS DAYS

Table 5 reframes the previous survey question by illustrating the percentage of the working day reported as lost productivity during a sickness day. On average, employees lost 32% of their productivity during a day impacted by respiratory illness, compared to a normal workday with no illness.

When applied to the number of days reported as presenteeism, estimates suggest that 0.62 days are lost due to WFH presenteeism per respondent, and 0.64 days are lost due to F2F presenteeism. Estimated productive days lost were calculated per survey respondent, and there was a small amount of missing data on the productivity survey question (table 5) compared to the results in Table 4.

The maximum estimate of days lost due to F2F presenteeism (100.8 days) and the variation in estimates, is also much higher than that due to WFH presenteeism (73 days). These figures indicate that more productivity may be lost due to F2F presenteeism than WFH presenteeism in more severe cases, highlighting the greater challenge of maintaining productivity when working physically while ill.

TABLE 5 LOST PRODUCTIVITY DUE TO PRESENTEEISM

Variable	Mean	Min	Max	Standard deviation	Count
Lost productivity (%) on ill days	32.10%	0	0.8	20.74%	1,403
Days lost due to WFH presenteeism	0.63	0	73	2.72	2,901
Days lost due to F2F presenteeism	0.64	0	100.8	3.46	2,903

Staff turnover

As the final element of the workforce metrics collected in the survey, 1.7% of the sample reported that they had recently left or intended to leave the workforce and that this was at least somewhat due to respiratory infection (Table 6).

TABLE 6 STAFF TURNOVER DUE TO RESPIRATORY INFECTION

Variable	Percentage	Count
Staff turnover due to respiratory infection	1.70%	2,890

3.3 Additional survey insights

Age and gender differences in days impacted by respiratory infection

Interestingly, the number of days reported as absenteeism and presenteeism for the respondents in our sample were lower across the board for individuals aged 55+, compared to those in all age categories under the age of 55 (Figure 3). This is despite respiratory infections being more common in older employees (Akhtar et al., 2021). Older employees may have more flexible work arrangements or may feel a stronger sense of responsibility to avoid taking time off. These attitudinal differences are supported in some literature, which shows that older survey respondents give disproportionately positive health assessments (Idler, 1993).

The highest age category in terms of the total days impacted was 35-44, followed by 25-34. Younger age categories may have increased exposure to infections, for example, due to the presence of young children in the household attending school or nursery, where infections are often transmitted. Older employees may also be more likely to work in certain industries where workplace absence and presenteeism are less supported. These observed differences should be interpreted with caution as they are not statistically significant at the 95% confidence level (see Appendix Figure 1).

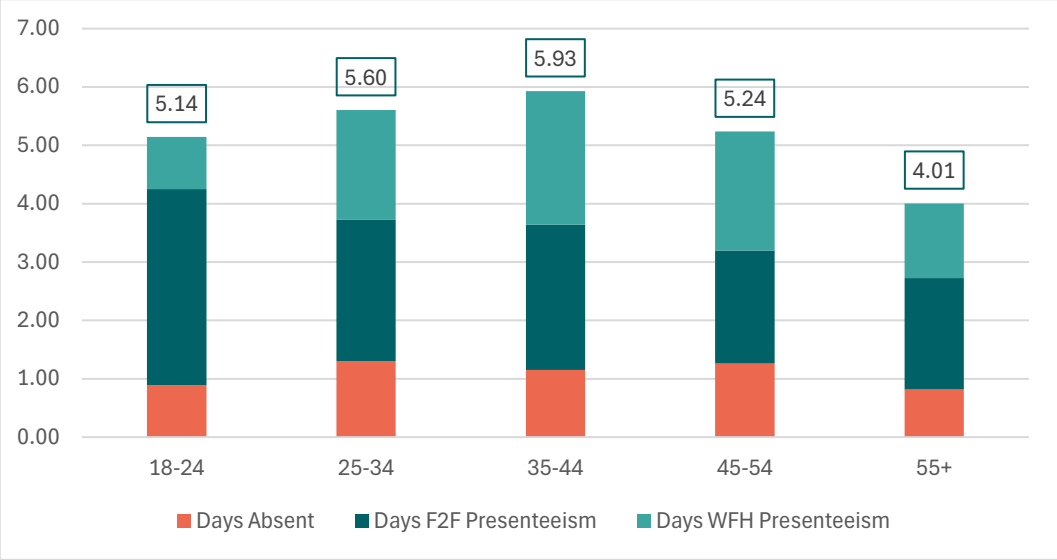


FIGURE 3 TOTAL DAYS IMPACT FOR THE BUSINESS, BY AGE

Notes: Differences in mean days impacted by age categories are not statistically significant (see Appendix Figure 1 for group *means including 95% confidence intervals).*

The number of days reported as absenteeism and presenteeism were notably higher for females in our sample, compared to males. This difference is statistically significant at the 95% confidence level (see Appendix Figure 2). This finding is supported by previous research which highlights the disproportionate impact of workplace absenteeism and presenteeism due to illness for women (Office for National Statistics, 2023d; Bryan, Bryce and Roberts, 2022). This gender disparity highlights the possibility that individuals with greater caregiving responsibilities, particularly for children, may face increased impacts from respiratory infections.

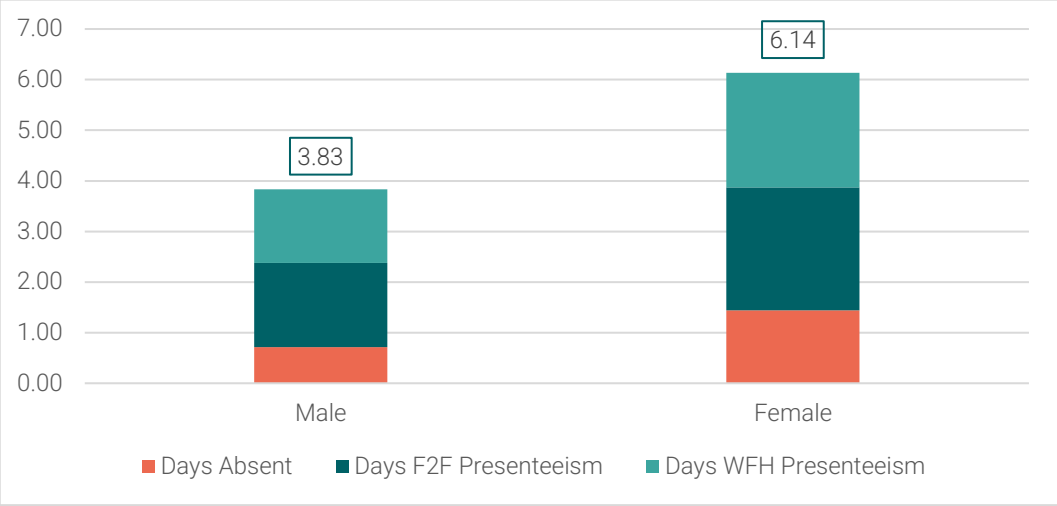


FIGURE 4 TOTAL DAYS IMPACT FOR THE BUSINESS, BY GENDER

Notes: Gender differences in mean days impacted are statistically significant (see Appendix Figure 2 for differences in group *means including 95% confidence intervals)*

Figure 5 shows the variation in these figures by industry. Retail and repair of motor vehicles, public admin and defence, and real estate reported the highest absenteeism and presenteeism overall. Accommodation and food services, and transport and storage were among the lowest. These observed differences in means are not statistically significant across industry groups at the 95% confidence level (see Appendix Figure 3).

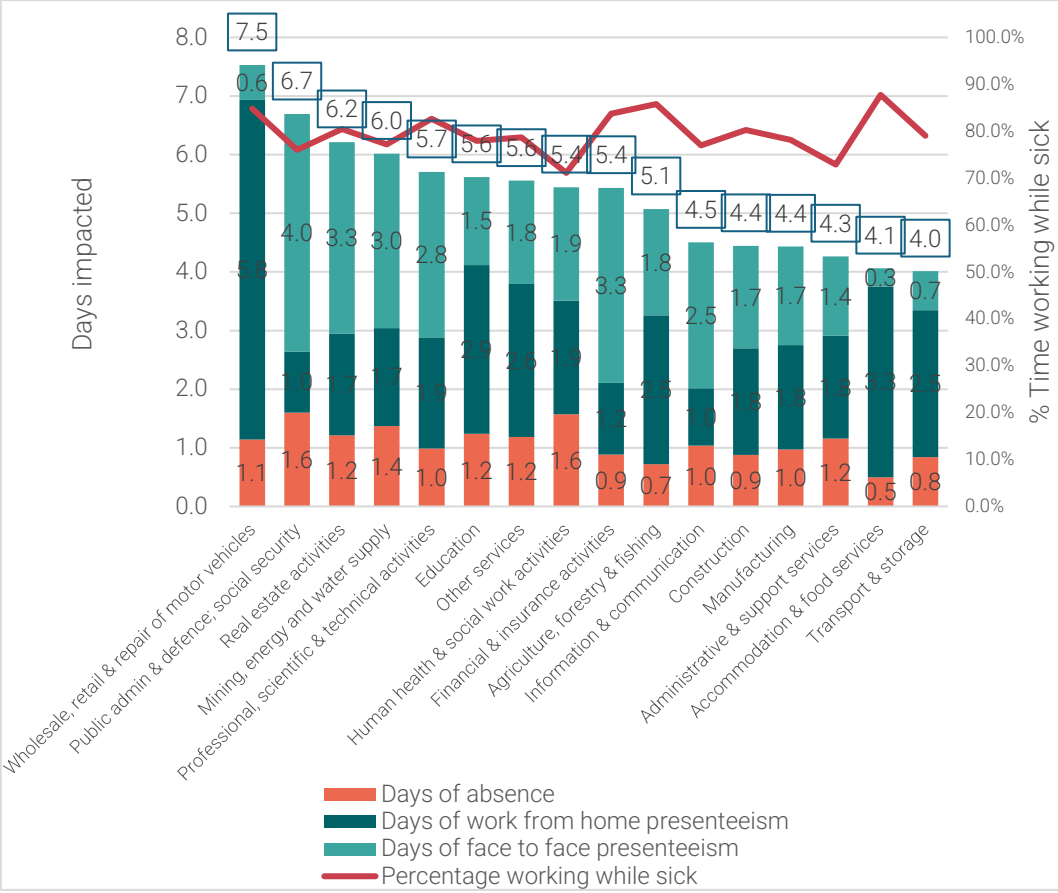


FIGURE 5 TOTAL DAYS IMPACT FOR THE BUSINESS, BY INDUSTRY

Notes: Industry differences in mean days impacted are not statistically significant (see Appendix Figure 3 for group means including 95% confidence intervals). The sample size for agriculture, forestry and fishing sample size is relatively small, and therefore, it is difficult to extract reliable conclusions.

Table 7 examines additional characteristics of each industry that may help explain the differences observed above. Industries such as transport and storage, and accommodation and food services, which generally report some of the lowest levels of presenteeism, tend not to support working from home. In contrast, industries like financial and insurance services, and public administration and defence, tend to exhibit higher levels of absolute presenteeism, where a larger proportion of respondents report the ability to work from home to some extent.

Generally, industries which are more likely to report some temporary cover are also industries where a high proportion of employees never work from home. Education, and accommodation and food services are the industries that report the highest levels of coverage during employee absences. Education tends to report relatively higher levels of absence compared to accommodation and food

services, which may reflect differences in job security across these sectors. While roles in education often involve coverage during absences, in the food services industry, where temporary or agency workers are more common, employees may simply be replaced rather than having their work covered.

While it is interesting to explore these differences across broad industry categories, these distinctions may not fully capture the nuances of workplace environments. The wholesale, retail, and repair of motor vehicles industry stands out as an outlier, reporting the highest levels of WFH presenteeism, even though a relatively high proportion of respondents indicate they never work from home.

TABLE 7 ADDITIONAL INDUSTRY-LEVEL FIGURES

	% Reporting some temporary cover	% Never work from home	% Over 55	% Female
Education	31.30%	60.19%	17.25%	65.59%
Accommodation & food services	30.77%	81.71%	20.61%	47.20%
Wholesale, retail & repair of motor vehicles	26.83%	79.55%	22.56%	47.47%
Transport & storage	23.64%	73.14%	29.14%	25.32%
Human health & social work activities	23.31%	57.63%	20.50%	71.30%
Other services	17.92%	58.97%	23.17%	53.78%
Administrative & support services	17.65%	36.09%	11.11%	73.08%
Agriculture, forestry & fishing	16.67%	45.16%	16.13%	42.31%
Financial & insurance activities	16.42%	12.93%	12.84%	50.00%
Information & communication	13.64%	15.53%	13.12%	34.03%
Construction	10.84%	44.95%	23.62%	36.97%
Manufacturing	9.09%	60.63%	23.35%	28.93%
Public admin & defence; social security	8.70%	22.92%	21.65%	52.46%
Professional, scientific & technical activities	7.41%	21.20%	13.39%	44.34%
Mining, energy and water supply	7.14%	22.41%	13.56%	36.54%
Real estate activities	4.35%	32.79%	16.92%	51.79%

Notes: the percentage working while ill is the number of days presenteeism as a percentage of the total days presenteeismand absenteeism. The sample size for agriculture, forestry and fishing sample size is relatively small, and therefore it is difficult to extract robust conclusions. Cells are shaded with darker colours to represent higher percentages and lighter colours for lower percentages, enhancing visual clarity.

Which areas of work are most affected?

Figure 66 highlights the key areas of work which are impacted during a presenteeism day. The highest aspects of work relate to the error rate, quality, creativity, decision making and communication (between 26% and 29% reporting this occurs). These areas are crucial to overall productivity and efficiency, and their decline can lead to a noticeable decrease in work performance and outcomes. On the other hand, the lowest recorded impacts are related to regulatory compliance and health and safety risks (9%). These impacts are likely to be job-specific, suggesting that roles with fewer direct responsibilities in these areas may experience less disruption during absenteeism and presenteeism.

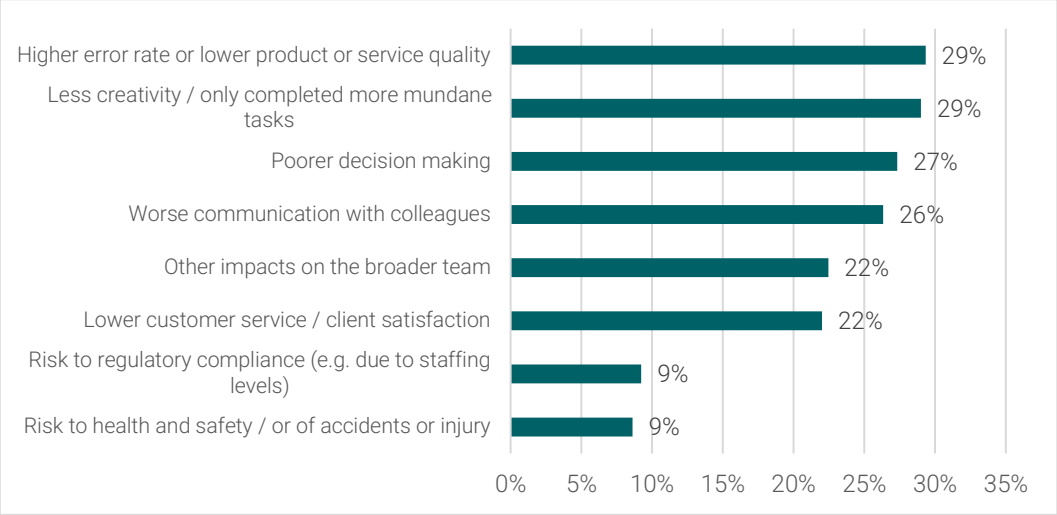


FIGURE 66 AREAS OF WORK MOST AFFECTED

Notes: areas of work most affected are based on responses for the whole sample, regardless of whether they report respiratory infections.

Are employees positive about workplace vaccination?

Figure 7 presents industry-level data on workplace vaccination, showing generally positive attitudes across sectors, with only 7% to 20% of respondents viewing it negatively. Additionally, between 32% and 65% of employees in each industry indicated they would be likely to take up a vaccine if offered at work.

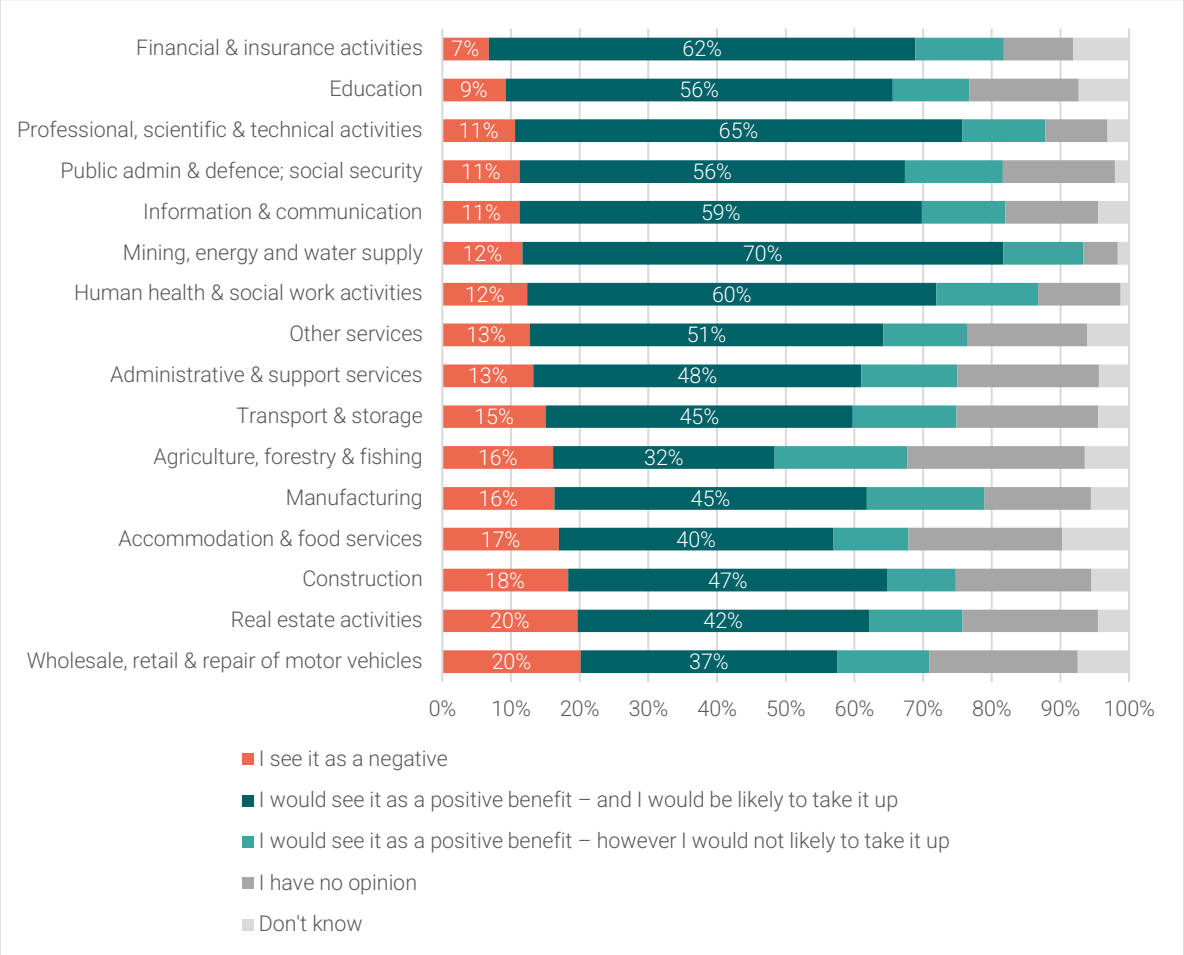


FIGURE 7 PERCEPTION OF BENEFITS OF WORKPLACE VACCINATION

3.2 Quantifying the cost to employers

Finally, we translate the survey findings into estimates of the cost to employers of the two key measures of workplace engagement: absenteeism and presenteeism. Both of these costs can be expressed as either labour costs or productivity costs.

Table 8 provides estimates for the average costs to a business, presented per employee, for a business with 100 employees, and as a national estimate. These are the main results, which focus on productivity costs (rather than labour costs).

The average productivity cost per employee amounts to £851.85, which translates to £85,184.50 for a 100-person business and a national cost of £44 billion annually. Presenteeism estimates make up a larger share of this cost at £464.15 per employee compared to £387.70 per employee for absenteeism.

TABLE 8 TOTAL PRODUCTIVITY COSTS

	Per employee	Per 100-employee business	National
Total	**£851.85**	**£85,184.50**	**£43,513,903,831.08**
Absenteeism	£387.70	£38,769.96	£19,804,452,623.34
Presenteeism	£464.15	£46,414.54	£23,709,451,207.74

Additionally, Table 9 shows costs presented as labour costs, which estimates costs based on national wage estimates, as opposed to GVA. Productivity costs and labour costs are presented separately for the avoidance of double counting cost figures, in particular for presenteeism.

Productivity costs are 1.95 times higher than labour costs in terms of impact on the overall economy, reflecting the differences in GVA compared to average wages. National estimates assume that the work is not covered during an employee absence.

TABLE 9 TOTAL LABOUR COSTS

	Per employee	Per 100-employee business	National
Total	**£435.81**	**£43,580.70**	**£22,261,871,783.06**
Absenteeism	£198.35	£19,834.85	£10,132,030,137.90
Presenteeism	£237.46	£23,745.85	£12,129,841,645.15

For a 100-employee business, where the staff turnover rate is 1.7%, the estimated staff turnover cost due to respiratory infection would be £52,157.03 in overall productivity costs (across both wage costs and capital income costs).

Industry case studies

We now explore industry case studies of costs, utilising general assumptions and the information gained from the survey.

For each case study, we use benchmark (survey) estimates for the following key variables which impact costs:

- Estimated average all-in wage cost per employee (gross, £ nominal)
- Average days of respiratory infection (RI) absence per employee per annum

- Average days of RI presenteeism per employee per annum

The following variables are assumed in the case studies to illustrate the impact:

- Sick pay
  - Statutory/greater/none
  - Expected proportion of absence covered by policy
  - Proportion of wage paid when policy applies
- Cover
  - Proportion of absence covered through staff overtime
  - Proportion of absence covered by an external replacement
  - Overtime wage premium (%) (labour cost method only)
  - External replacement cost premium (%) (labour cost method only)

Average costs for absenteeism and presenteeism for each industry are calculated as described in Table 3. Sick pay and cover adjustments apply only to estimated labour costs. For sick pay, this will replace the average wage cost multiplied by the number of hours absent. For cover, an additional labour cost is added reflecting the number of hours covered through either overtime or external replacement, multiplied by average wages for that industry, adjusted for the cost premium of the paid cover.

Case study 1: Human health and social work activities

The first example highlights the impact of respiratory illness in the human health and social work sector. In this industry, 57.6% of employees in our survey report they never work from home, reflecting the in-person nature of their roles. Additionally, 23.3% report that some temporary coverage is generally provided during absences, which is relatively high compared to other industries. Despite this support, 71.1% of employees in this sector still work while sick—a lower rate than in many other industries, yet still significant given the demands of healthcare roles.

This example underscores the challenges faced by frontline health and social work professionals who may feel compelled to work while unwell, balancing patient care responsibilities with their own health.

The following assumptions are provided over the key wage, absence, presenteeism, sick pay and cover adjustments:

TABLE 10 HUMAN HEALTH AND SOCIAL WORK ACTIVITIES CASE STUDY INPUTS

Input	Value	Source
Labour cost per hour (earnings), per employee,	£22.58	(Office for National Statistics, 2024b)

Productivity per hour gross value add (GVA), per employee	£31.89	(Office for National Statistics, 2024a; c; d)
Average days of RI absence per employee per annum (#)	1.56	Survey
Average days of RI presenteeism per employee per annum (#)	3.87	Survey
Sick pay	Occupational sick pay (full wages) assumed for 100% of the illness, assuming short illness	Assumption
Proportion of absence covered through staff overtime	50%	Assumption
Proportion of absence covered by an external replacement	50%	Assumption
Overtime wage premium	We assume a wage premium of 1.2 for overtime work by internal staff.	Assumption
External replacement cost premium	We assume a slightly higher wage premium for external staff of 1.5	Assumption

Under the above assumptions, the estimated labour cost per employee absence would be £624.75. The total labour cost of employee presenteeism would be £216.59. Productivity costs of absence per employee could reach £375.56, though there would be no productivity cost assuming the work would be fully covered to the same level of productivity. The productivity cost of presenteeism would be £305.97.

These figures represent the average annual cost impacts to the employer. However, the annual average may mask the more concentrated impact and costs experienced by organisations during periods of high transmission. This could pose a particular risk in health and social work activities, where over two-thirds of the workforce continues to work while sick in face-to-face environments.

Case study 2: Finance and insurance activities

This example focuses on the finance and insurance industry, where employees typically have greater flexibility to work from home but often face limited coverage for absences for respiratory infection (16.42% reporting some cover made available). In this industry, a low proportion report never working from home (12.93%) reducing the need for in-person presence. However, a significant proportion still work while sick (83.7%), likely due to the absence of adequate support systems when they are unwell.

Compared to other sectors, employees in finance and insurance are among those most likely to work through illness, reflecting pressures that persist despite the option to work from home. This example highlights the possibility that, even in industries with flexible work-from-home arrangements, limited coverage and job expectations can drive employees to prioritize work over health, revealing nuanced

impacts of workplace structure on employee well-being and highlighting the potential cost to employees of poorer decision-making while presenteeism occurs.

The following assumptions are provided over the key wage, absence, presenteeism, sick pay and cover adjustments:

TABLE 11FINANCE AND INSURANCE ACTIVITIES CASE STUDY INPUTS

Input	Value	Source
Labour cost per hour (earnings), per employee,	£38.06	(Office for National Statistics, 2024b
Productivity per hour gross value add (GVA), per employee	£103.91	(Office for National Statistics, 2024a; c; d)
Average days of RI absence per employee per annum (#)	0.88	Survey
Average days of RI presenteeism per employee per annum (#)	4.52	Survey
Sick pay	We assume that 100% of wages would be covered for a short illness	Assumption
Proportion of absence covered through staff overtime	We assume that 100% of absence would be covered by internal staff.	Assumption
Proportion of absence covered by an external replacement	We assume that 0% of absence would be covered by an external replacement	Assumption
Overtime wage premium	We assume a wage premium 1, i.e. that employees would be expected to work longer hours to cover the absence, without additional official overtime wages.	Assumption
External replacement cost premium	n/a	Assumption

Under the above assumptions, the estimated labour cost of absence per employee would be £502.42. The total labour cost of employee presenteeism would be £401.47. The lower labour costs for absence compared to healthcare workers reflects the assumptions made over unpaid overtime hours by internal employees to cover the absence. Productivity costs of absence per employee could reach £685.83, though there would be no productivity cost assuming the work were to be fully covered to the same level of productivity. The productivity cost of presenteeism would be £1,096.05.

These figures largely reflect higher wages paid to staff in the financial services sector. Minimal additional paid overtime costs are assumed to impact labour costs for the employer.

Case study 3: Accommodation and food services

The final example illustrates a workplace in accommodation and food services. This example was chosen to highlight an industry where employees often experience less job security, including when they are sick. The accommodation and food services sector is characterised by variable hours, limited remote work options, and a need for cover in the instance of absences. In our sample, a high proportion (81.71%) report they are unable to work from home, and a high proportion work while ill due to limited support systems (87.8%). A high proportion report some cover being provided while they are ill compared to other industries (30.77%).

Focusing on this industry underscores the challenges faced by employees in roles with less flexibility and support, providing insight into how job security and absence costs are interconnected in high-contact service sectors. Furthermore, the highest rate of poverty is seen for accommodation and food services workers, highlighting added individual pressures faced by these employees to work while ill (Sissons, Green and Lee, 2018).

The following assumptions are provided over the key wage, absence, presenteeism, sick pay and cover adjustments:

TABLE 12 ACCOMMODATION AND FOOD SERVICES CASE STUDY INPUTS

Input	Value	Source
Labour cost per hour (earnings), per employee,	£15.29	(Office for National Statistics, 2024b
Productivity per hour gross value add (GVA), per employee	£25.21	(Office for National Statistics, 2024a; c; d)
Average days of RI absence per employee per annum (#)	0.50	Survey
Average days of RI presenteeism per employee per annum (#)	3.56	Survey
Sick pay	We assume that statutory sick pay would be provided, for 80% of the sickness, with no sick pay provided for the remaining 20%.	Assumption
Proportion of absence covered through staff overtime	We assume some degree of the absence would be covered by additional hours provided by other staff (20%).	Assumption
Proportion of absence covered by an external replacement	We assume the remaining absence would be covered by external replacement, for example agency staff (80%).	Assumption
Overtime wage premium	For the additional hours worked by internal staff, we assume an overtime wage	Assumption

	premium of 1 (no additional pay provided)	
External replacement cost premium	For the external replacement, such as agency staff, we assume they would be paid a higher wage premium of 1.2.	Assumption

Under the above assumptions, the estimated labour cost due to employee absence is £68.28 per employee, annually. The labour cost of presenteeism would be £119.36 per employee. Productivity costs of absence per employee could reach £94.53, though there would be no productivity cost assuming the work would be fully covered to the same level of productivity. The productivity cost of presenteeism would be £196.75.

The lower labour cost estimates provided for this case study reflect both the lower wages paid and more restricted sick pay provided. This is despite the higher assumed likelihood of the work requiring external replacement costs, with slightly higher assumed wages for the replacement staff.

4 Discussion

4.1 Survey data implications

On average, employees in the sample are impacted by respiratory infections for over an entire working week throughout the year (5.2 days). 1.1 of these days is taken as absence, and for the remainder of those days taken as presenteeism (4.1 days), employees on average are 32% less productive. These averages, however, mask significant variation, with more severe cases or individuals more frequently impacted by respiratory infections experiencing even greater productivity losses.

In terms of costs, these average figures translate to average productivity losses per employee of £852, with £388 due to absenteeism and £464 due to presenteeism, placing a significant financial burden on companies managing respiratory infections. Nationally, these estimates account for a cost of over £44 billion a year to UK employers. These estimates assume an average infection duration per employee, but longer-lasting infections could further amplify the overall productivity impact and associated costs, as productivity costs may escalate with prolonged absence and presenteeism durations. Furthermore, these annual estimates mask the potential concentrated impact of respiratory infections to a business during periods of high transmission, where industries which are required to operate in a face-to-face environment may be particularly susceptible to these costs, and where the cumulative effect of multiple, simultaneous staff absences (or low productivity presenteeism) could have a major impact on business operations and output.

The report highlights industry-specific differences in absenteeism and presenteeism from respiratory infections and the impacts on productivity and overall costs during impacted days. The report also suggests workplace characteristics that may influence the relative amounts of absence and presenteeism an employer may see. Factors such as availability of cover, and remote work options may mitigate or exacerbate the costs to the employer, both in terms of the labour costs and wider productivity losses during these days. It is important to note that the data collected in the survey were representative across the whole UK population, but the survey estimates for each industry are not necessarily based on a representative sample of the populations *within* each industry. Though the differences identified across industry categories are not statistically significant, the findings of this report demonstrate important variation across industries in how employees respond to respiratory infections in the workplace. Future research should explore these differences further using data from a larger sample size across industries to better detect subtle variations in the number of impacted days.

The survey highlights generally positive attitudes towards workplace vaccination across all industries, with only 7% to 20% of respondents viewing it negatively. There were also high levels of reported openness to uptake; between 32% and 65% of employees within each industry category indicated they would take it up if offered.

While in our sample the annual average incidence rate was just over one infection per year, this does not capture the timing or prevalence among employees of a given business, and subsequent impact on business operations. If several employees were to experience infections simultaneously (which is to be expected due to the seasonality of respiratory infections as well as their infectious nature), it could pose substantial disruptions to business operations, particularly in high-contact industries or

during peak seasons. This effect is likely to be unique to respiratory infections, in contrast to more chronic diseases whose impact is likely to be less volatile. There is therefore likely in practice to be a "tipping point" level of absence before which businesses can muddle through, and beyond which there could be a high risk to business-critical operations. The level of this tipping point would vary greatly by industry and business characteristics but should be a key consideration to employers when considering the risks and costs that respiratory infections pose, and the case for investing in any mitigating actions.

An obvious limitation of this survey type of research is the role of recall, with respondents asked to consider infections (and the impact of those) over the last 12 months. As the survey was completed in October, and the peak infection rate is likely to have been 8 or 9 months prior (in January or February), respondents may have found it challenging to recall and – given the recency of summer months – could have under-reported the infections and impacts. A better approach would be for more prospective and detailed live data collection or a survey that is repeated at multiple time points throughout the year, asking respondents to report on a shorter time period. This could be done at a business-level, or through ongoing targeted surveys at the national level, such as that undertaken by the ONS conducted between May and June 2023 (Office for National Statistics, 2023c).

Another potential limitation is that the survey is necessarily a snapshot in time. Because influenza strains can be more or less aggressive in certain years (Chen et al., 2022), it is likely that a change in the severity of the strain could result in different cost estimates. Additionally, during the period that respondents were being asked to consider (2022 to 2023), infection rates from COVID-19 may have been different to what they look like now, and working practices were (and continue to be) evolving, in response to changes in the workplace practices during and since the pandemic. Therefore, the overall findings may look different if the survey were to be repeated this year or next. In particular, practices and policies around working from home continue to change, impacting the likely level and impact of presenteeism for some industries.

A recent report from Robertson Cooper highlighted that not all forms of working while ill are inherently negative. They distinguish pragmatic presence—when people are performing close to their full capacity while recovering—and therapeutic presence—when people are performing well below their full capacity but gaining some benefit from working—from presenteeism, which they note is always dysfunctional (Roberston Cooper, 2023). From this perspective, employers ought to understand if it is a functional or dysfunctional presence that is occurring in their workplace. This is especially relevant when considering the rise of remote working; with employees given the option to work from home, they might be more inclined to work remotely while ill than take a day of sick leave. With this shift, employers have an interest in themselves considering whether any advantages are being generated in employees working while ill, so as to reduce the costs associated with true presenteeism.

4.2 Health in the workplace and the role of the employer

With the UK predicted to be the worst-performing G7 economy in 2025 (Fitzgerald, 2024), British policymakers have highlighted economic growth as a priority (Department for Business & Trade, 2024). Indeed, the government has recognized the link between worker ill health and economic stagnation, having implemented several initiatives to establish a healthier workforce with the goal of improving the UK's economic competitiveness. This report has shown that respiratory infections

have a considerable impact beyond their direct medical costs, with these illnesses resulting in billion-pound losses to businesses each year. As such, efforts to mitigate the spread of respiratory infections could be directly aligned with the goals of improving workforce health and increasing the UK's economic output at large.

Outside of the UK, there has been an international emphasis on the role of preventative medicine in improving economic growth, as stagnation has been a problem afflicting much of Europe (The European House - Ambrosetti, 2024). A recent report published by the International Federation of Pharmaceutical Manufacturers & Associations (IFPMA) (2024) discussed how preventative healthcare measures are important for economic growth, emphasizing the role prevention can play in reducing future burdens to healthcare systems and increasing worker productivity. They highlight vaccination as a powerful tool to achieve these objectives; adult immunisation programs return 19 times their initial investment and help to keep an ageing workforce healthy (The European House - Ambrosetti, 2024). This is particularly relevant in the discussion of respiratory infections, as vaccines for RSV, influenza, and COVID-19 effectively reduce the spread of these illnesses, yet in the UK, people aged 18-64 are not eligible for respiratory vaccinations on the NHS without an underlying condition.

This report provides further evidence demonstrating the role that preventative healthcare could play in promoting economic productivity. Given that respiratory infections cost the UK economy £44 billion each year and that immunisation programs are effective in preventing people from contracting respiratory infections, vaccines could help policymakers and employers reduce inactivity and business losses. In particular, there is space for employer-provided vaccination programs, seeing that most working-age people cannot receive NHS-provided respiratory vaccines, and employers themselves acutely feel the impact of respiratory infections through the costs associated with absenteeism and presenteeism—as well as transmission and staff turnover. Research has shown that workplace vaccination programs reduce absenteeism and can be cost-saving, especially in years with aggressive flu strains (Hansen, Zimmerman and van de Mortel, 2018; Verelst et al., 2021).

With the significant costs that respiratory infections impose upon businesses, it is likely that employers who implement workplace vaccination programs will have positive returns on investment (ROI). This report estimates that the cost of respiratory infections to employers is £852 per employee, which points to the potential for the large returns that an effective preventative measure—like vaccination—could generate for businesses. These positive effects are more likely to be observed in some industries than others. As this report's industry breakdown highlighted, the sectors with the most significant presenteeism and absenteeism costs due to respiratory infections are wholesale, retail and repair of motor vehicles; public administration, defence and social security; and real estate activities. Employers in these industries are likely to observe the most tangible benefits from work-provided vaccination. Across all industries, however, employers should have an interest in better understanding how respiratory infections affect them individually, as workplace culture, demographics, and other enterprise-specific characteristics could all play a role in causing some businesses to incur greater costs than others; understanding their individual burdens will allow employers to assess how to best address respiratory infections in their places of work.

Beyond the benefits afforded to employers, work-provided immunisation could have larger societal implications. Because respiratory infections are seasonal and infectious, they have the potential to sideline entire businesses; if these are businesses upon which people heavily rely—like

transportation—these infections could have much greater costs than just those incurred by employers.

Additionally, some of the data in this study indicate a potential health inequality between the impact of respiratory infections across genders. Such a disparity could stem from increased transmission due to caregiving responsibilities, or underlying health inequity. Workplace vaccination programs therefore offer a solution to not only improve overall workforce health but act as a potential tool to address workplace health challenges if these disproportionately affect women.

Adult vaccination is likely to become an even more important tool for employers and policymakers when considering the UK's ageing workforce. Indeed, by 2031, 23% of the UK's workforce is predicted to be over 55, and older age brings about increased risks from infections like influenza, RSV, and pneumococcal pneumonia (Global Coalition on Aging, 2024). As such, this population of older workers might be more likely to impose a larger burden on employers through their absenteeism and presenteeism; employers could reduce these costs by providing workplace vaccination programs. And more, this demographic transition is likely to place the NHS under increased pressure, as an ageing population means people using the healthcare system more frequently and for a longer duration of their lives. Employer-provided immunisation programs could reduce this burden through the actual provision of vaccines and by preventing further complications that could result in A&E admissions and GP visits.

Additionally, workplace vaccination programs could directly align with the UK's recent initiatives to reduce economic inactivity due to worker ill health. Seeing that almost half of the UK's workforce does not have access to workplace health support — including flu vaccinations — policy support for employer-provided immunisation could help address this gap (Department for Work and Pensions and Department of Health and Social Care, 2024b). Furthermore, this provides an opportunity to address health equity concerns, as lower socioeconomic statuses are associated with higher burdens of infectious diseases, such as influenza, and they are at an increased risk of incomplete vaccination (Mamelund, Shelley-Egan and Rogeberg, 2021; Ayorinde et al., 2023). Thus, workplace vaccination programs could provide a mechanism by which workers with lower socioeconomic status could more easily access vaccines, thereby reducing the future burden of respiratory infections on these groups, which would help alleviate this health equity concern.

Thus, while this report has focused on the impact that respiratory infections have on employers, the potential for workplace vaccination programs to keep the British workforce healthy, reduce the burden imposed upon the NHS, and tackle health disparities suggests that policymakers could also have a stake in promoting employer-provided immunisations. Currently, if an employer delivers vaccinations in the office and pays for them, or if an employer provides a voucher that can be used in a pharmacy, these are exempt trivial benefits so long as the cost is under £50 per person (Bishop Fleming, 2023). However, if employees pay for vaccines themselves and are reimbursed, this would be a taxable payment subject to both income tax and national insurance from the employer and employee (Bishop Fleming, 2023). We propose that policymakers should, first, consider raising the £50 limit, as most vaccines for respiratory infections do not fall under this amount (Boots Pharmacy, 2024c, b; a), or they could consider deeming all respiratory vaccinations trivial benefits irrespective of price. Furthermore, the government could use tax rules to incentivise the provision of vaccines, such as by introducing a statutory tax exemption for employer provision of adult vaccinations. Additionally, policymakers should continue their support for occupational health services. Specifically, the

government should focus on encouraging and supporting businesses—particularly large businesses—to budget for and provide either in-house or contracted occupational health vaccinations against various respiratory infections through onsite clinics, as there is generally less uptake of voucher-based services (NIHR, 2023).

5 Conclusion

The burden of respiratory infections is felt by all of us. For most, they represent an inconvenience that can interrupt our normal, including work-related, activities but are soon overcome when we start to feel well again. However, the data presented in this report serves to illustrate that – cumulatively – respiratory infections impose major costs to individual businesses and the economy at large. This impact is felt not only through work missed but critically through being less productive while at work, which accounts for over half (approximately 54%) of the total cost of respiratory infections.

Impact on individual businesses is likely to vary significantly, and our data supports this. In considering the return on investment for any mitigating action – such as vaccination – it is important to consider some of these differences, which vary not only by industry but by specific business composition and workplace policies and practices.

The role of the employer in supporting workforce health is evolving. Beyond the return on investment from preventative measures to avoid respiratory infections and their impact, the case for businesses to prioritise and invest in workforce health and wellbeing more generally is becoming clearer, particularly in the context of ongoing challenges to hiring and retaining talented and productive staff. Importantly, the results of this study suggest that workplace initiatives such as vaccination programmes would be likely to be received positively. While these data have focussed on the cost to employers, the impact on the economy at large should not be ignored. We contend that policymakers should recognise the importance of workforce health in contributing to economic growth and UK competitiveness, and to deploy policies that incentivise businesses to support that goal via better prevention of respiratory infections.

References

Acas, 2012. *Managing attendance and employee turnover*.

Akhtar, A., Hassali, M.A.A., Ali, I., Iqbal, M.S. and Khan, A.H., 2021. Respiratory-tract infections among geriatrics: prevalence and factors associated with the treatment outcomes. *Ther Adv Respir Dis.* 10.1177/1753466620971141.

Ayorinde, A., Ghosh, I., Ali, I., Zahair, I., Olarewaju, O., Singh, M., Meehan, E., Anjorin, S.S., Rotheram, S., Barr, B., McCarthy, N. and Oyebode, O., 2023. Health inequalities in infectious diseases: a systematic overview of reviews. *BMJ Open*, 13(4), p.e067429. 10.1136/bmjopen-2022-067429.

Bishop Fleming, 2023. *Tax emption for employee flu vaccinations*. [online] Bishop Fleming. Available at: https://www.bishopfleming.co.uk/insights/tax-emption-employee-flu-vaccinations [Accessed 12 Nov. 2024].

Boots Pharmacy, 2024a. *COVID-19 Vaccination Service*. [online] Available at: https://www.boots.com/online/pharmacy-services/covid-19-vaccination-service [Accessed 19 Nov. 2024].

Boots Pharmacy, 2024b. *Pneumococcal Vaccination Service*. [online] Available at: https://www.boots.ie/vaccinations/pneumococcal-vaccination-service [Accessed 19 Nov. 2024].

Boots Pharmacy, 2024c. *Respiratory Syncytial Virus Vaccination*. [online] Available at: https://www.boots.com/healthhub/a-z-services/respiratory-syncytial-virus-service?msockid=1a9c4100c6a96a070e6f5413c7366ba0 [Accessed 19 Nov. 2024].

Bramley, T.J., Lerner, D. and Sarnes, M., 2002. Productivity Losses Related to the Common Cold. *Journal of Occupational and Environmental Medicine*, 44(9), p.822.

Bryan, M.L., Bryce, A.M. and Roberts, J., 2022. Dysfunctional presenteeism: Effects of physical and mental health on work performance. *The Manchester School*, 90(4), pp.409–438. 10.1111/manc.12402.

CBI, 2024. *Government can boost economy by £2.65bn with employee health tax incentives*. [online] CBI. Available at: https://www.cbi.org.uk/media-centre/articles/government-can-boost-economy-by-265bn-with-employee-health-tax-incentives/ [Accessed 4 Nov. 2024].

Chen, Z., Bancej, C., Lee, L. and Champredon, D., 2022. Antigenic drift and epidemiological severity of seasonal influenza in Canada. *Scientific Reports*, 12(1), p.15625. 10.1038/s41598-022-19996-7.

Department for Business & Trade, 2024. *Invest 2035: the UK's modern industrial strategy*. [online] GOV.UK. Available at: https://www.gov.uk/government/consultations/invest-2035-the-uks-modern-industrial-strategy/invest-2035-the-uks-modern-industrial-strategy [Accessed 8 Nov. 2024].

Department for Work and Pensions, 2023. *Occupational Health: Working Better*. [online] GOV.UK. Available at: https://www.gov.uk/government/consultations/occupational-health-working-better [Accessed 4 Nov. 2024].

Department for Work and Pensions, 2024a. *Back to Work Plan will help drive economic growth in every region*. [online] GOV.UK. Available at: https://www.gov.uk/government/news/back-to-work-plan-will-help-drive-economic-growth-in-every-region [Accessed 1 Nov. 2024].

Department for Work and Pensions, 2024b. *Government action to tackle the 'greatest employment challenge for a generation'*. [online] GOV.UK. Available at: https://www.gov.uk/government/news/government-action-to-tackle-the-greatest-employment-challenge-for-a-generation [Accessed 1 Nov. 2024].

Department for Work and Pensions and Department of Health and Social Care, 2024a. *£1.5 Million investment to improve in-work health services as part of government drive to tackle inactivity*. [online] GOV.UK. Available at: https://www.gov.uk/government/news/ai-to-help-keep-people-in-work-through-15-million-investment-in-occupational-health [Accessed 4 Nov. 2024].

Department for Work and Pensions and Department of Health and Social Care, 2024b. *New Occupational Health Taskforce to tackle in-work sickness and drive down inactivity*. [online] GOV.UK. Available at:

https://www.gov.uk/government/news/new-occupational-health-taskforce-to-tackle-in-work-sickness-and-drive-down-inactivity [Accessed 1 Nov. 2024].

Faramarzi, A., Javan-Noughabi, J., Tabatabaee, S.S., Najafpoor, A.A. and Rezapour, A., 2021. The lost productivity cost of absenteeism due to COVID-19 in health care workers in Iran: a case study in the hospitals of Mashhad University of Medical Sciences. *BMC Health Services Research*, 21(1), p.1169. 10.1186/s12913-021-07200-x.

Fendrick, A.M., Monto, A.S., Nightengale, B. and Sarnes, M., 2003. The Economic Burden of Non–Influenza-Related Viral Respiratory Tract Infection in the United States. *Archives of Internal Medicine*, 163(4), pp.487–494. 10.1001/archinte.163.4.487.

Fitzgerald, J., 2024. *UK will be worst-performing G7 economy in 2025, OECD forecasts*. [online] POLITICO. Available at: https://www.politico.eu/article/uk-will-be-worst-performing-g7-economy-in-2025-oecd-forecasts/ [Accessed 8 Nov. 2024].

Fleming, D.M., Taylor, R.J., Lustig, R.L., Schuck-Paim, C., Haguinet, F., Webb, D.J., Logie, J., Matias, G. and Taylor, S., 2015. Modelling estimates of the burden of Respiratory Syncytial virus infection in adults and the elderly in the United Kingdom. *BMC Infectious Diseases*, 15, p.443. 10.1186/s12879-015-1218-z.

Global Coalition on Aging, 2024. *The Value of Prevention: Unlocking Benefit & Engaging the Multi-Generational Workforce*. [online] Available at: https://globalcoalitiononaging.com/wp-content/uploads/2024/10/GCOA_EmployeePreventiveHealth_Report_20241008.pdf [Accessed 11 Nov. 2024].

Hansen, S., Zimmerman, P.-A. and van de Mortel, T.F., 2018. Infectious illness prevention and control methods and their effectiveness in non-health workplaces: an integrated literature review. *Journal of Infection Prevention*, 19(5), pp.212–218. 10.1177/1757177418772184.

Harari, D., 2024. *Low growth: The economy's biggest challenge*. [online] UK Parliament. Available at: https://commonslibrary.parliament.uk/low-growth-the-economys-biggest-challenge/ [Accessed 1 Nov. 2024].

Hemp, P., 2004. *Presenteeism: At Work—But Out of It*. [online] Harvard Business Review. Available at: https://hbr.org/2004/10/presenteeism-at-work-but-out-of-it [Accessed 11 Nov. 2024].

Hill, A. and Fray, K., 2023. Why productivity is so weak at UK companies. *Financial Times*. [online] 25 Jul. Available at: https://www.ft.com/content/eddeb6bc-e469-4177-a2fa-21e9e80ab97e [Accessed 4 Dec. 2024].

His Majesty's Treasury, 2024. *Autumn Budget 2024: Fixing the Foundations to Deliver Change*. [Budget Report] Available at: https://assets.publishing.service.gov.uk/media/672232d010b0d582ee8c4905/Autumn_Budget_2024__web_accessible_.pdf [Accessed 4 Nov. 2024].

HM Treasury and HM Revenue & Customs, 2023. *Tax incentives for occupational health: Consultation*. [online] GOV.UK. Available at: https://www.gov.uk/government/consultations/joint-hmt-hmrc-consultation-on-tax-incentives-for-occupational-health/tax-incentives-for-occupational-health-consultation [Accessed 4 Nov. 2024].

Idler, E.L., 1993. Age Differences in Self-Assessments of Health: Age Changes, Cohort Differences, or Survivorship? *Journal of Gerontology*, 48(6), pp.S289–S300. 10.1093/geronj/48.6.S289.

ILC UK, 2024. Plea to help employers invest in workforce health. *ILC UK*. Available at: https://ilcuk.org.uk/tax-incentives-for-vaccines/ [Accessed 4 Nov. 2024].

InfoFinland, 2024. *Occupational health and illness*. [online] InfoFinland. Available at: https://www.infofinland.fi/en/work-and-enterprise/during-employment/occupational-health-and-illness [Accessed 8 Nov. 2024].

IPPR, 2024. *Revealed: Hidden annual cost of employee sickness is up £30 billion since 2018*. [online] IPPR. Available at: https://www.ippr.org/media-office/revealed-hidden-annual-cost-of-employee-sickness-is-up-30-billion-since-2018 [Accessed 30 Oct. 2024].

LSE, 2021. *Wages of typical UK employee have become decoupled from productivity*. [online] London School of Economics and Political Science. Available at: https://www.lse.ac.uk/News/Latest-news-from-LSE/2021/k-November-21/Wages-of-typical-UK-employee-have-become-decoupled-from-productivity.aspx [Accessed 11 Nov. 2024].

Mamelund, S.-E., Shelley-Egan, C. and Rogeberg, O., 2021. The association between socioeconomic status and pandemic influenza: Systematic review and meta-analysis. *PLoS ONE*, 16(9), p.e0244346. 10.1371/journal.pone.0244346.

Meier, G.C., Watkins, J., McEwan, P. and Pockett, R.D., 2020. Resource use and direct medical costs of acute respiratory illness in the UK based on linked primary and secondary care records from 2001 to 2009. *PLoS ONE*, 15(8), p.e0236472. 10.1371/journal.pone.0236472.

NHS, 2024a. *COVID-19 vaccine*. [online] nhs.uk. Available at: https://www.nhs.uk/vaccinations/covid-19-vaccine/ [Accessed 20 Nov. 2024].

NHS, 2024b. *Flu vaccine*. [online] nhs.uk. Available at: https://www.nhs.uk/vaccinations/flu-vaccine/ [Accessed 18 Nov. 2024].

NHS, 2024c. *RSV vaccine*. [online] nhs.uk. Available at: https://www.nhs.uk/vaccinations/rsv-vaccine/ [Accessed 18 Nov. 2024].

NIHR, 2023. *23/84 Health and health inequality impacts of voucher and benefit uptake*. [online] Available at: https://www.nihr.ac.uk/2384-health-and-health-inequality-impacts-voucher-and-benefit-uptake [Accessed 12 Nov. 2024].

OECD, 2022. *Promoting Health and Well-being at Work*. OECD Health Policy Studies. [online] Paris. Available at: https://www.oecd.org/en/publications/promoting-health-and-well-being-at-work_e179b2a5-en/full-report.html [Accessed 6 Nov. 2024].

Office for National Statistics, 2023a. *Labour market in the regions of the UK: August 2022*. [online] Available at: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/regionallabourmarket/august2022 [Accessed 22 Nov. 2024].

Office for National Statistics, 2023b. *Population estimates for England and Wales: mid-2022*. [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/populationestimatesforenglandandwales/mid2022 [Accessed 22 Nov. 2024].

Office for National Statistics, 2023c. *Prevalence of symptoms and impact of respiratory infections, UK*. [online] Office for National Statistics. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/prevalenceofsymptomsandimpactofrespiratoryinfectionsuk/10july2023#toc [Accessed 11 Nov. 2024].

Office for National Statistics, 2023d. *Sickness absence in the UK labour market*. [online] Available at: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/articles/sicknessabsenceinthelabourmarket/2022 [Accessed 18 Nov. 2024].

Office for National Statistics, 2024a. *Annual regional labour productivity*. [online] Office for National Statistics. Available at: https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/datasets/annualregionallabourproductivity [Accessed 22 Nov. 2024].

Office for National Statistics, 2024b. *Earnings and hours worked, UK region by industry by two-digit SIC: ASHE Table 5*. [online] Available at: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/regionbyindustry2digitsicashetable5 [Accessed 22 Nov. 2024].

Office for National Statistics, 2024c. *Output per hour worked, UK*. [online] Office for National Statistics. Available at: https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/datasets/outputperhourworkeduk [Accessed 22 Nov. 2024].

Office for National Statistics, 2024d. *Output per job, UK*. [online] Office for National Statistics. Available at: https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/datasets/outputperjobuk [Accessed 22 Nov. 2024].

Office for National Statistics, 2024e. *Productivity flash estimate and overview*. [online] Office for National Statistics. Available at: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/articles/ukproductivityintroduction/julytoseptember2024andapriltojune2024 [Accessed 4 Dec. 2024].

Oxford Economics, 2014. *The Cost of Brain Drain: Understanding the Financial Impact of Staff Turnover*. [online] Available at: https://www.oxfordeconomics.com/wp-content/uploads/2023/05/cost-brain-drain-report.pdf [Accessed 18 Nov. 2024].

Palmer, L.A., Rousculp, M.D., Johnston, S.S., Mahadevia, P.J. and Nichol, K.L., 2010. Effect of influenza-like illness and other wintertime respiratory illnesses on worker productivity: The child and household influenza-illness and employee function (CHIEF) study. *Vaccine*, 28(31), pp.5049–5056. 10.1016/j.vaccine.2010.05.011.

Powell, A., 2024. *Economic update: Inactivity due to illness reaches record*. [online] UK Parliament. Available at: https://commonslibrary.parliament.uk/economic-update-inactivity-due-to-illness-reaches-record/ [Accessed 1 Nov. 2024].

RCGP, 2024. *Virology Dashboard*. [online] RCGP and UKHSA Virology Dashboard. Available at: https://orchid.phc.ox.ac.uk/surveillance/clinical-informatics/virology-dashboard [Accessed 11 Nov. 2024].

Roberston Cooper, 2023. *Seeing Presenteeism Differently: Revealing the Good, the Bad and the Misunderstood*. [online] Available at: https://www.robertsoncooper.com/wp-content/uploads/2023/10/Seeing-Presenteeism-Differently-Robertson-Cooper.pdf [Accessed 12 Nov. 2024].

Romanelli, R.J., Cabling, M., Marciniak-Nuqui, Z., Marjanovic, S., Morris, S., Dufresne, E. and Yerushalmi, E., 2023. The Societal and Indirect Economic Burden of Seasonal Influenza in the United Kingdom. *Rand Health Quarterly*, 10(4), p.2.

Rousculp, M.D., Johnston, S.S., Palmer, L.A., Chu, B.-C., Mahadevia, P.J. and Nichol, K.L., 2010. Attending Work While Sick: Implication of Flexible Sick Leave Policies. *Journal of Occupational and Environmental Medicine*, 52(10), p.1009. 10.1097/JOM.0b013e3181f43844.

Royal Society for Public Health, 2024. *A Better Way of Doing Business: Securing the right to a healthy workplace*. [online] Available at: https://www.rsph.org.uk/about-us/news/workplace-health-report-universal-right-healthy-workplace.html [Accessed 4 Nov. 2024].

Schultz, A.B. and Edington, D.W., 2007. Employee Health and Presenteeism: A Systematic Review. *Journal of Occupational Rehabilitation*, 17(3), pp.547–579. 10.1007/s10926-007-9096-x.

Sell, H., Schaible, K., Gouveia-Pisano, J.A., Yehoshua, A., Malhotra, D., Di Fusco, M., Cha-Silva, A.S., Andersen, K.M., Nicholls, L., Landi, S.N., Rolland, C. and Judy, J., 2024. Economic burden of COVID-19 for employers and employees in the United States. *Journal of Medical Economics*, 27(1), pp.267–278. 10.1080/13696998.2024.2309835.

Sissons, P., Green, A.E. and Lee, N., 2018. Linking the Sectoral Employment Structure and Household Poverty in the United Kingdom. *Work, Employment and Society*, 32(6), pp.1078–1098. 10.1177/0950017017722939.

Stevenson, E. and Mutebi, N., 2024. *Healthy ageing and care for older populations*. [online] UK Parliament. Available at: https://post.parliament.uk/healthy-ageing-and-care-for-older-populations/ [Accessed 4 Nov. 2024].

The European House - Ambrosetti, 2024. *The value of prevention for economic growth and the sustainability of healthcare, social care and welfare systems*. [White Paper] Available at: https://www.ifpma.org/blog/publications/the-value-of-prevention-for-economic-growth-and-the-sustainability-of-healthcare-social-care-and-welfare-systems-the-european-house-ambrosetti/ [Accessed 8 Nov. 2024].

UK Health Security Agency, 2022. *Reducing the spread of respiratory infections, including COVID-19, in the workplace*. [online] GOV.UK. Available at: https://www.gov.uk/guidance/reducing-the-spread-of-respiratory-infections-including-covid-19-in-the-workplace [Accessed 4 Nov. 2024].

UK Health Security Agency, 2024a. *COVID-19 vaccination: guide for employers*. [online] GOV.UK. Available at: https://www.gov.uk/government/publications/covid-19-vaccination-guide-for-employers/covid-19-vaccination-guide-for-employers [Accessed 4 Nov. 2024].

UK Health Security Agency, 2024b. *Mycoplasma pneumoniae surveillance in England and Wales, January 2019 to March 2024.* [online] GOV.UK. Available at: https://www.gov.uk/government/publications/mycoplasma-pneumoniae-surveillance-january-2019-to-march-2024/mycoplasma-pneumoniae-surveillance-in-england-and-wales-january-2019-to-march-2024 [Accessed 20 Nov. 2024].

UK Health Security Agency, 2024c. *Surveillance of influenza and other seasonal respiratory viruses in the UK, winter 2023 to 2024.* [online] GOV.UK. Available at: https://www.gov.uk/government/statistics/surveillance-of-influenza-and-other-seasonal-respiratory-viruses-in-the-uk-winter-2023-to-2024/surveillance-of-influenza-and-other-seasonal-respiratory-viruses-in-the-uk-winter-2023-to-2024 [Accessed 20 Nov. 2024].

Verelst, F., Beutels, P., Hens, N. and Willem, L., 2021. Workplace influenza vaccination to reduce employee absenteeism: An economic analysis from the employers' perspective. *Vaccine*, 39(14), pp.2005–2015. 10.1016/j.vaccine.2021.02.020.

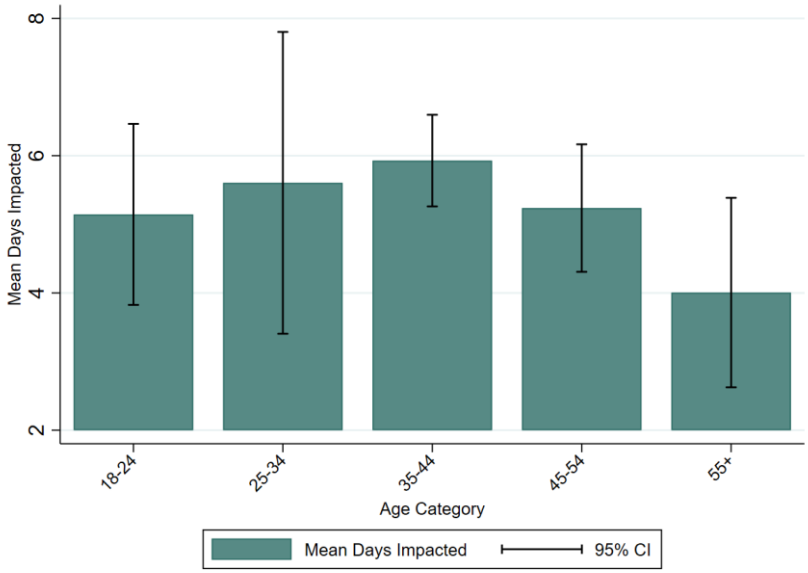
Wormer, J.J.V., King, J.P., Gajewski, A., McLean, H.Q. and Belongia, E.A., 2017. Influenza and Workplace Productivity Loss in Working Adults. *Journal of occupational and environmental medicine*, 59(12), p.1135. 10.1097/JOM.0000000000001120.

Yang, J., Rai, K.K., Seif, M., Volkman, H.R., Ren, J., Schmetz, A., Gowman, H., Massey, L., Pather, S. and Nguyen, J.L., 2024. COVID-19-Related Work Absenteeism and Associated Lost Productivity Cost in Germany: A Population-Based Study. *Journal of Occupational and Environmental Medicine*, 66(6), p.514. 10.1097/JOM.0000000000003093.

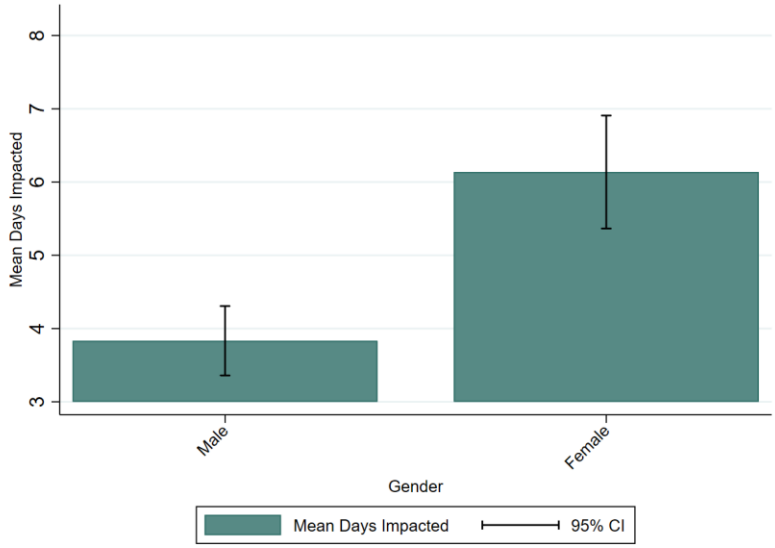
Zumofen, M.-H.B., Frimpter, J. and Hansen, S.A., 2022. Impact of Influenza and Influenza-Like Illness on Work Productivity Outcomes: A Systematic Literature Review. *Pharmacoeconomics*, 41(3), p.253. 10.1007/s40273-022-01224-9.

Appendix

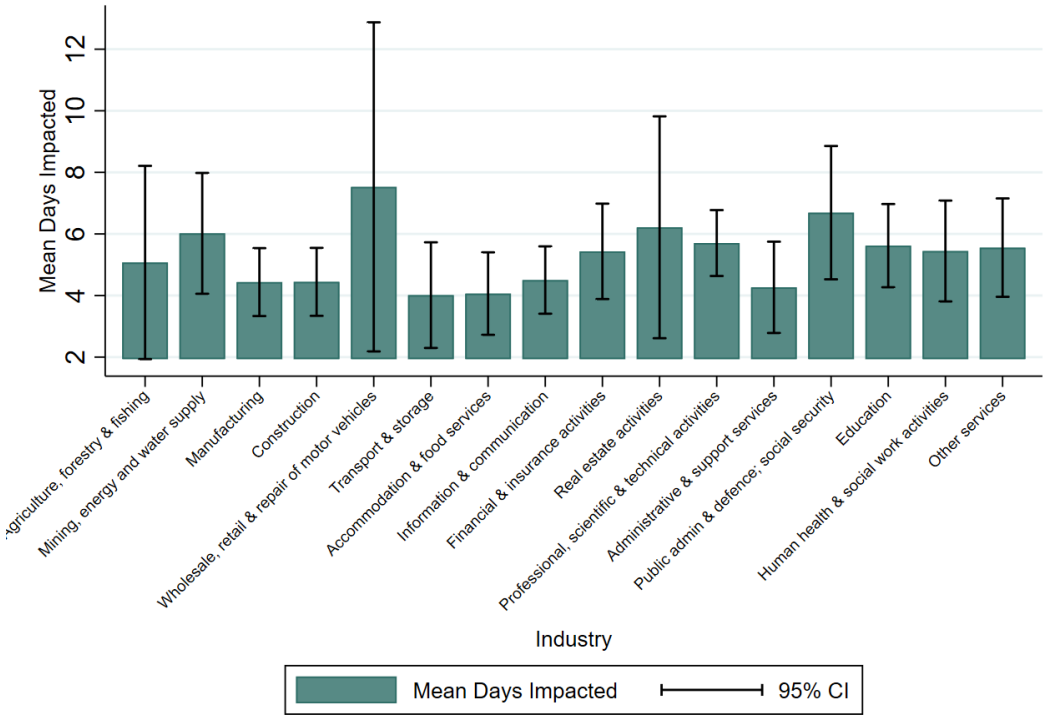
APPENDIX FIGURE 1: AGE DIFFERENCES IN MEAN DAYS IMPACTED, INCLUDING 95% CI



APPENDIX FIGURE 2: GENDER DIFFERENCES IN MEAN DAYS IMPACTED, INCLUDING 95% CI



APPENDIX FIGURE 3: INDUSTRY DIFFERENCES IN MEAN DAYS IMPACTED, INCLUDING 95% CI



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