Office for National Statistics

Statistical bulletin

Deaths involving COVID-19 by vaccination status, England: deaths occurring between 1 January and 31 October 2021

Age-standardised and age-specific mortality rates for deaths involving COVID-19 by vaccination status; deaths occurring between 1 January and 31 October 2021 in England.

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Release date:
20 December 2021

Next release:
To be announced

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1 . Main points

- The monthly age-standardised mortality rates (ASMRs) for deaths involving COVID-19 have been consistently lower for people who had received a second dose at least 21 days ago, compared with unvaccinated people. This is the case for all age groups.

- The age-adjusted risk of deaths involving COVID-19 for people who had received a second dose at least 21 days ago compared with unvaccinated individuals varied from 99% lower (in February) to 78% lower (in October); this could be caused by various factors, such as changes in the composition of the group, changes in background COVID-19 infection rates, changing levels of immunity from prior infection, changing dominant variants, seasonal changes in mortality rates and vaccine waning.

- The ASMRs calculated for specific months highlight changes over time, however they can become less meaningful if the population in a particular vaccination status group becomes very small, and less representative of the general population. Therefore we present the overall figure, which is less affected by composition effects, and the monthly figures over time, to show the changes over the year.

- Over the whole period (1 January to 31 October 2021), the age-adjusted risk of deaths involving COVID-19 was 96% lower in people who had received a second dose at least 21 days ago compared with unvaccinated people.

- The age-adjusted rates are not equivalent to measures of vaccine effectiveness; they account for differences in age structure and population size but there may be other differences between the groups, particularly underlying health, which affect the mortality rates.

- Changes in non-COVID-19 mortality by vaccination status are largely driven by the changing composition of the vaccination status groups because of the prioritisation of clinically extremely vulnerable and people with underlying health conditions, and differences in timing of vaccination among people who were eligible.

2 . Methods

Comparing mortality across coronavirus (COVID-19) vaccination status is challenging because the size and age structure of vaccinated and unvaccinated populations changes over time, because of vaccinations being offered according to priority groups set out by the Joint Committee on Vaccination and Immunisation (JCVI). To account for these differences, we calculated age-standardised mortality rates (ASMRs). However, the vaccination roll-out was also prioritised by health status of individuals, with the extremely clinically vulnerable and those with underlying health conditions being vaccinated earlier than other people in their age group. In addition, frontline health and social care workers, who could have a higher occupational risk, were also prioritised for vaccination. These factors influence the ASMRs and are particularly apparent for the non-COVID-19 mortality rates. The ASMRs are also affected by changes over time such as in infection levels, different dominant variants, differing level of immunity from prior infection and seasonal mortality.

ASMRs are therefore not equivalent to measures of vaccine effectiveness, which are reported on the COVID-19 insights tool. The ASMRs give the age-adjusted risk of death for the people in the different vaccination status groups. Estimating vaccine effectiveness is challenging when vaccination status is not allocated at random, as factors that vary between the vaccination status groups and over time need to be accounted for to determine the causal impact of vaccines on mortality. Nonetheless, the ASMRs give a simple, fast measure of how mortality rates vary by vaccination status, and can indicate that vaccines are likely to be protective against COVID-19 mortality. But the impact of other factors on the rates and how these vary with time must be considered when interpreting the ASMRs. We will continue to provide updates and additional analysis of deaths by vaccination status as the situation evolves.

The rates in this release are calculated using the Public Health Data Asset (PHDA) dataset. This is a dataset containing people who reside in England who could be linked to the 2011 Census and the General Practice Extraction Service (GPES) Data for Pandemic Planning and Research (GDPPR). The data used in this analysis covers approximately 79% of people aged 10 years and over living in England. This means the unvaccinated population does not need to be estimated from an unknown total population, therefore rates are more accurate (see Measuring the data).

The vaccination status is split by dose and time since vaccination, to allow for the increase in protection in the first few weeks after vaccination. The vaccination status is one of:

- unvaccinated
- received only the first dose, less than 21 days ago
- received only the first dose, at least 21 days ago
- received the second dose, less than 21 days ago
- received the second dose, at least 21 days ago

We use the dates of death occurrences, rather than registrations, to calculate mortality rates by vaccination status, because the vaccination statuses of the living population can change notably between the dates that the deaths occurred and when they were registered. We do not take into account when someone was infected as this is not always possible to determine and is not possible when looking at all-cause or non-COVID-19 deaths.

In this publication and the accompanying reference tables we provide updated whole period ASMRs, to provide an overview for 2021 to date, accounting for the time spent in each vaccination state. We also report monthly ASMRs, which show the changes in the rates at different points in the year and provide age breakdowns of these rates. We discuss the factors which could explain the changes in the rates over time.

3 . Age-standardised mortality rates by vaccination status over the whole period

The age-standardised mortality rates (ASMRs) for deaths involving coronavirus (COVID-19), non-COVID-19 deaths and deaths from all causes by vaccination status group for all available weeks in 2021 are shown in Table 1. These ASMRs are calculated in person-years at risk to account for the different time people spent in each vaccination state in the period. Counts of deaths and the number of person-years at risk used to calculate these rates are provided in the reference tables.

Table 1: The age-standardised mortality rate (ASMR) for deaths involving COVID-19 was 96% lower for people who received the second dose at least 21 days ago compared to unvaccinated people between 1 January and 31 October

ASMRs per 100,000 person-years by vaccination status, England, deaths occurring between 1 January and 31 October 2021

Vaccination status	Deaths involving COVID-19	Non-COVID-19 deaths	All deaths
Unvaccinated	938.9 (928.5, 949.3)	1501.8 (1488.9, 1514.6)	2440.7 (2424.2, 2457.2)
Received only the first dose, less than 21 days ago	186 (180.1, 191.9)	609.3 (598.7, 619.8)	795.2 (783.1, 807.3)
Received only the first dose, at least 21 days ago	116.5 (113.8, 119.3)	1115.7 (1106.5, 1124.8)	1232.2 (1222.6, 1241.8)
Received the second dose, less than 21 days ago	7.3 (6.2, 8.3)	464.3 (455.5, 473.1)	471.6 (462.7, 480.4)
Received the second dose, at least 21 days ago	33.6 (32.8, 34.4)	816.9 (802, 831.8)	850.5 (835.6, 865.5)

Source: Office for National Statistics, Public Health Data Asset, National Immunisation Management Service

Notes

1. Age-standardised mortality rates per 100,000 person-years, standardised to the 2013 European Standard Population using five-year age groups from those aged 10 years and over. “Person-years” take into account both the number of people and the amount of time spent in each vaccination status.

2. These figures represent death occurrences; there can be a delay between the date a death occurred and the date a death was registered. See Impact of registration delays on mortality statistics in England and Wales.

3. 95% confidence intervals are given. Where the total number of deaths is less than 100, Dobson’s method is used, otherwise the normal approximation is used. Non-overlapping confidence intervals denote a statistically significant difference in ASMR.

4. Age is defined at the beginning of each month.

The overall ASMR for deaths involving COVID-19 between 1 January and 31 October 2021 was 96% lower in people who had received a second dose at least 21 days prior compared with unvaccinated people, which corresponds to a 28 times higher mortality rate for unvaccinated people. In our previous publication, which covered 2 January to 24 September, the ASMR for deaths involving COVID-19 was 97% lower, which corresponds to a 32 times higher mortality rate for unvaccinated people.

The all-cause ASMRs for the year-to-date were lower in the first three weeks after a vaccine dose than in subsequent weeks after that dose. This could be because of a "healthy vaccinee effect" where people who are ill (either due to COVID-19 or another relevant illness) are likely to delay vaccination. Therefore, the people who have been recently vaccinated are, in the short term, in better health than the general population. The same is true for deaths involving COVID-19 after the second dose. This is likely because the healthy vaccinee effect where people who know or suspect they have COVID-19 delay vaccination until recovered, has a bigger effect here than the difference in protection offered by the vaccine within and following the first three weeks after vaccination.

As the ASMRs are calculated over a period during which the underlying mortality rates are changing, it is relevant where the majority of the person-years fall in this period for the different vaccination status groups. The ASMRs calculated for specific months highlight changes over time, however they can become less meaningful if the population in a particular vaccination status group becomes very small, and less representative of the general population. Therefore we present the overall figure, which is less affected by composition effects, and the monthly figures over time, to show the changes over the year.

4 . Monthly age-standardised mortality rates by vaccination status, deaths involving COVID-19

Figure 1: Monthly age-standardised mortality rates (ASMRs) for deaths involving COVID-19 are consistently lower for people who had the second dose at least 21 days ago than unvaccinated people

ASMRs calculated for each month in 2021, by vaccine status, total and by age-group, for deaths involving COVID-19, England, deaths occurring between 1 January and 31 October 2021

Notes:

1. ASMRs per 100,000 person-years, standardised to the 2013 European Standard Population using five-year age groups from those aged 10 years and over. "Person-years" take into account both the number of people and the amount of time spent in each vaccination status.

2. 95% confidence intervals are indicated by the shaded regions. Where the total number of deaths is less than 100, Dobson's method is used, otherwise the normal approximation is used. Non-overlapping confidence intervals denote a statistically significant difference in ASMR.

3. Rates for all ages are not calculated where the total number of deaths is less than 10. Rates for age breakdowns are not calculated where the total number of deaths is less than 3.

4. Age is defined on the first day of each month.

5. The month in which people in each age group first became eligible for vaccination is indicated on the plots, both for people with underlying health conditions and the general population (for the 80 to 89 years and 90 years and over age groups, this is December 2020). Within some age groups, there can be differences in the start of vaccination by age. Some people were vaccinated before the indicated months if they are frontline health and social care workers or people who are clinically extremely vulnerable.

6. Different scales are used for the age-breakdown plots to allow trends of the mortality rates for the different vaccination status groups within the age groups to be compared.

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As shown in Figure 1, the overall monthly age-standardised mortality rates (ASMRs) for deaths involving coronavirus (COVID-19) for people who had received two vaccination doses at least 21 days ago were lower than those for people who have received one dose at least 21 days ago or are unvaccinated in every week of the period. The monthly ASMRs for people who had received only one dose at least 21 days ago were lower than the ASMRs for people who were unvaccinated in most months, but were higher than those for people who had received two vaccination doses at least 21 days ago.

The ASMRs for deaths involving COVID-19 varied substantially over the period, largely following changes in COVID-19 infection rates. Towards the beginning of 2021, COVID-19 infection rates were high, resulting in high ASMRs for deaths involving COVID-19 for unvaccinated people, and, to a lesser extent, for people who had received their first dose. During the late spring and early summer, the ASMRs for deaths involving COVID-19 were low for all vaccination statuses, because infection rates were low. In July, as the COVID-19 infection rates again rose to high levels, the ASMRs for deaths involving COVID-19 increased in all groups, but not to the levels seen previously earlier in the year.

In recent months, people who had received two doses remained at much lower risk of death involving COVID-19 than unvaccinated people, but the relative risk was lower than in the second wave. This could be caused by various factors including the changing underlying COVID-19 infection rate, changing levels of immunity from prior infection, changing dominant variants and the changing composition of the groups. More information on factors driving changes of ASMRs by vaccination status over time is provided in our blog.

For all age groups, the rate of deaths involving COVID-19 was lowest in people who received the second vaccination at least 21 days ago throughout the year (Figure 1) and mortality rates increased with age. For people aged 70 years or over, the rate of deaths involving COVID-19 showed similar patterns as the ASMRs for the whole population, with higher mortality rates in February (following the second wave of infections), followed by another, lower peak in mortality rates following the third wave in July. For younger people the death rates in unvaccinated people were roughly similar in the second and third waves.

Differences in the risk of death involving COVID-19 between vaccination statuses, and changes over time, may not solely be because of the effect of the vaccine on reducing the risk of COVID-19 death. Characteristics other than age, such as health status, level of deprivation, and ethnicity, may vary between the vaccination groups, and over time as people move groups, because of the selective roll-out of the vaccination programme and differences in uptake. As these characteristics can influence mortality rates, they may explain some of the differences in mortality between the groups. Published studies have calculated vaccine effectiveness using observational methods, taking into account known differences in characteristics of vaccinated and unvaccinated people. All three vaccines administered in the UK have reported vaccine effectiveness against mortality of over 90%. However, the differences in these characteristics may result in differences in non-COVID-19 mortality.

5 . Monthly age-standardised mortality rates by vaccination status, non-COVID-19 deaths

If the vaccination programme had been rolled out at random, we would expect little difference in non-coronavirus (COVID-19) mortality between the vaccinated and unvaccinated. However, the non-COVID-19 age-standardised mortality rates (ASMRs) shown in Figure 2 (and all-cause ASMRs, included in the reference tables) highlight differences in non-COVID-19 mortality between people with different vaccination status, and these differences are changing over time.

Characteristics other than age, such as health status, level of deprivation, and ethnicity, may vary between the vaccination groups, and over time as people move groups, because of the selective roll-out of the vaccination programme and differences in uptake. These characteristics can influence mortality rates, especially from causes other than COVID-19. We expect to see a large effect because of health status in particular because of the prioritisation of the clinically extremely vulnerable and those with underlying health conditions for vaccination.

Figure 2: Mortality rates for non-COVID-19 deaths for people who received a second vaccination dose at least 21 days ago are lower than for unvaccinated people for all age groups

Age-standardised mortality rates (ASMRs) calculated for each month in 2021, by vaccine status, total and by age-group, for non-COVID-19 deaths, England, deaths occurring between 1 January and 31 October 2021

Notes:

1. Age-specific mortality rates per 100,000 person-years, age-standardised within age groups to the European Standard Population 2013. “Person-years” take into account both the number of people and the amount of time spent in each vaccination status.

2. 95% confidence intervals are indicated by the shaded regions. Where the total number of deaths is less than 100, Dobson’s method is used, otherwise the normal approximation is used. Non-overlapping confidence intervals denote a statistically significant difference in ASMR.

3. Rates are not calculated where the total number of deaths is less than 3.

4. Age is defined on the first day of each month.

5. The month in which people in each age group first became eligible for vaccination is indicated on the plots, both for people with underlying health conditions and the general population (for the 80 to 89 years and 90 years and over age groups, this is December 2020). Within some age groups, there can be differences in the start of vaccination by age. Some people were vaccinated before the indicated months if they are frontline health and social care workers or people who are clinically extremely vulnerable.

6. Different scales are used for the age-breakdown plots to allow trends of the mortality rates for the different vaccination status groups within the age groups to be compared.

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Data from Figure 2 shows sharp rises in non-COVID-19 mortality first in the unvaccinated, then in each vaccination group in turn as people passed through the groups. The rise was particularly pronounced for people who received the first dose at least 21 days ago. The age-specific non-COVID-19 mortality rates also show similar trends occurring in each age group. The rises were more pronounced for older age groups and occurred later in the year for younger age groups, who were vaccinated later. The month in which people in each age group first became eligible for vaccination is indicated on the plots. In recent weeks, the rates for all vaccination status groups apart from those who received the first dose at least 21 days ago were similar.

The differences in non-COVID-19 mortality rates by vaccination status reflect changes in the composition of the groups. The rises in non-COVID-19 mortality in the each of the vaccination status groups occurred when the population left in that vaccination status group is very small and consists of those people who did not receive the vaccine when eligible. This small population has poorer health than the general population. Therefore, this rise is not linked to the vaccination, but is driven by changes in the composition of the group. For instance, Figure 3 (middle figure) shows the percentage of the population in the 70 to 79 years age group belonging to each vaccination status group over time, along with the age-specific mortality rate (top figure). As the population in each vaccination status group decreased sharply, the percentage of the group who were in poor health increased sharply, then gradually dropped. These changes follow the trend of the sharp rises seen in the age-specific and age-standardised mortality rates.

One potential reason for the increased percentage of people in poorer health who had had just one vaccination dose after most people have had their second dose, could be because people who are in ill health or have planned surgery may delay their second vaccine. Therefore, the people who remain in the first vaccination group after most have moved on would have higher mortality rates. As deaths occurred in those most at risk, the mortality rate then decreased. In addition, those who received the vaccine later, could have done so because of ill health or concern about a comorbidity, and therefore also display higher mortality rates.

Figure 3: The peaks in age-standardised mortality rates (ASMRs) coincide with where the population becomes very small in that group, and has poorer health

Non-COVID-19 ASMR for the 70 to 79 years age group, with plots of the percentage of the population in each group and the percentage in very poor health, 1 January to 31 October 2021, England

Notes:

1. Age-specific mortality rates per 100,000 person-years, age-standardised within age groups to the European Standard Population 2013. “Person-years” take into account both the number of people and the amount of time spent in each vaccination status.

2. 95% confidence intervals are indicated by the shaded regions. Where the total number of deaths is less than 100, Dobson’s method is used, otherwise the normal approximation is used. Non-overlapping confidence intervals denote a statistically significant difference in ASMR.

3. Rates are not calculated where the total number of deaths is less than 3.

4. Age is defined on the first day of each month.

5. Health status is defined as “very poor” where either the number of recorded hospital episodes since 1 January 2020 is 12 or more or the number of comorbidities is 2 or more; 13% of 70- to 79-year-olds were in the “very poor” health group.

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In the younger age groups, the changes in non-COVID-19 mortality rates are likely to reflect the effect of prioritisation of people who were clinically vulnerable. For the 18 to 39 years age group, we see lower COVID-19 mortality among people who had received their second dose 21 days or more ago compared to unvaccinated people (Figure 1). We observe higher non-COVID-19 mortality at the beginning of the period in this group for people who had received their first dose 21 days or more ago. It then decreased as the general population became eligible for vaccination. The same pattern is observed later in the year, for people who had received their second dose 21 days or more ago. Figure 4 shows the age-specific mortality rates for 18 to 39-year-olds (standardised within the age group) for non-COVID-19 deaths, for all people and for people with different health status (determined by the number of hospitalisations since 1 January 2020 and the number of comorbidities defined by QCOVID diagnosed between 1 January 2010 and 1 January 2020).

Stratifying by health status shows that people in poorer health had higher risk of mortality regardless of their vaccination status. Within health status, there was no longer a statistically significant difference between the second dose vaccination status group and unvaccinated for most weeks. There is also a much-reduced difference, or no statistically significant difference between the first vaccination status group and unvaccinated. This indicates that the increased risk of non-COVID-19 mortality was likely because of people in poorer health aged 18 to 39 years had been vaccinated first, and therefore were over-represented in the 21 days or more after second dose group until more people had received the vaccine.

Figure 4: The higher non-COVID-19 mortality rate for 18 to 39-year-olds who had received a second dose is likely to be explained by the prioritisation of the clinically vulnerable for vaccination

Age-standardised mortality rates (ASMRs) for the 18 to 39 years age group by vaccination status and health status, monthly from 1 January to 31 October 2021, England

Notes:

1. Age-specific mortality rates per 100,000 person-years, age-standardised within age groups to the European Standard Population 2013. “Person-years” take into account both the number of people and the amount of time spent in each vaccination status.

2. Office for National Statistics (ONS) figures for deaths that occurred between 1 January and 31 October.

3. 95% confidence intervals are indicated by the shaded regions. Where the total number of deaths is less than 100, Dobson’s method is used, otherwise the normal approximation is used. Non-overlapping confidence intervals denote a statistically significant difference in ASMR.

4. Rates for all ages are not calculated where the total number of deaths is fewer than 10. Rates for age breakdowns are not calculated where the total number of deaths is fewer than three.

5. Age is defined on the first day of each month.

6. Health status is defined as ”good” where the number of recorded hospital episodes since 1 January 2020 is fewer than 3 and the number of comorbidities recorded from 1 January 2010 to 1 January 2020 is 0, “poor” if the number of hospital episodes is fewer than 12 and the number of comorbidities is fewer than 2, and “very poor” in all other cases. The percentages of 18- to 39-year-olds in our dataset with “very poor”, “poor”, and “good” health are 6.4%, 5.3% and 88.4% respectively.

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The analysis of the non-COVID-19 ASMRs show that the changing composition of the groups of people in the different vaccination statuses can have a large effect on mortality, thereby limiting the insights that can be gained from these comparisons. However, the monthly ASMRs for deaths involving COVID-19 are consistently lower for those who had the second dose at least 21 days ago compared to those who are unvaccinated, demonstrating the effect that the vaccine is having on reducing COVID-19 mortality. We will continue to publish updates and analysis on deaths by vaccination status.

6 . Deaths by vaccination status data

Deaths by vaccination status, England
Dataset | Released 9 December 2021
Weekly and 28-day age-standardised mortality rates and age-specific rates for deaths involving COVID-19 and all deaths by vaccination status.

7 . Glossary

Age-standardised mortality rates

Age-standardised mortality rates (ASMRs) are used to allow comparisons between populations that may contain different proportions of people of different ages. The 2013 European Standard Population is used to standardise rates. In this bulletin, the ASMRs are calculated for each week and for the whole period from 1 January to 31 October 2021. For more information see Section 8: Measuring the data.

Coronaviruses

The World Health Organization (WHO) defines coronaviruses as "a large family of viruses that are known to cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS)". Between 2001 and 2018, there were 12 deaths in England and Wales because of a coronavirus infection, with a further 13 deaths mentioning the virus as a contributory factor on the death certificate.

Coronavirus (COVID-19)

COVID-19 refers to the "coronavirus disease 2019" and is a disease that can affect the lungs and airways. It is caused by a type of coronavirus. Further information is available from the WHO.

Statistical significance

The term "significant" refers to statistically significant changes or differences. Significance has been determined using the 95% confidence intervals, where instances of non-overlapping confidence intervals between estimates indicate the difference is unlikely to have arisen from random fluctuation.

95% confidence intervals

A confidence interval is a measure of the uncertainty around a specific estimate. If a confidence interval is 95%, it is expected that the interval will contain the true value on 95 occasions if repeated 100 times. As intervals around estimates widen, the level of uncertainty about where the true value lies increases. The size of the interval around the estimate is strongly related to the number of deaths, prevalence of health states and the size of the underlying population. At a national level, the overall level of error will be small compared with the error associated with a local area or a specific age and sex breakdown. More information is available on our uncertainty pages.

Deaths involving COVID-19

For this analysis we define a death as involving COVID-19 if either of the ICD-10 codes U07.1 (COVID-19, virus identified) or U07.2 (COVID-19, virus not identified) is mentioned on the death certificate. In contrast to the definition used in the weekly deaths release, deaths where the ICD-10 code U09.9 (post-COVID-19 condition, where the acute COVID-19 had ended before the condition immediately causing death occurred) is mentioned on the death certificate and neither of the other two COVID-19 codes are mentioned are not included. This is because they are likely to be the result of an infection caught a long time previously, and therefore not linked to the vaccination status of the person at date of death. Deaths involving U10.9 (multisystem inflammatory syndrome associated with COVID-19) where U07.1 or U07.2 are mentioned are also excluded. This is a rare complication affecting children, and there are no such deaths in our dataset for the data released in Deaths involving COVID-19 by vaccination status, England: deaths occurring between 2 January and 24 September 2021.

8 . Measuring the data

Methodological information on the calculation of age-standardised mortality rates (ASMRs) can be found in our accompanying Methodology article.

Data sources

ASMRs are created using the Public Health Data Asset (PHDA), a linked dataset combining the 2011 Census, the General Practice Extraction Service (GPES) data for coronavirus (COVID-19) pandemic planning and research, and the Hospital Episode Statistics (HES). We linked vaccination data from the National Immunisation Management Service (NIMS) to the PHDA based on NHS number.

The PHDA dataset contains a subset of the population and allows for analyses to be carried out that require a known living population with known characteristics (such as for ASMRs by vaccination status) and the use of variables such as health conditions and census characteristics.

9 . Strengths and limitations

Provisional data are used

Provisional death registrations and death occurrences data are used in this bulletin. This enables timely analysis to be completed to monitor mortality trends. However, as the data for 2021 are provisional, they are subject to change.

Use of death occurrences rather than registrations

This publication uses death occurrences registered up to 10 November 2021, rather than death registrations. More deaths may be registered at later dates because of registration delays, leading to an increase in the death occurrences. This is especially true for more recent deaths.

Data coverage

The data are for England only, as vaccinations data for Wales is not yet available and the Public Health Data Asset (PHDA) covers England only.

The PHDA dataset was used in order to calculate the age-standardised mortality rates (ASMRs) by vaccination status. One of the main strengths of the linked PHDA is that it combines a rich set of demographic and socio-economic factors from the 2011 Census and 2019 Patient Register with pre-existing conditions based on clinical records. This unique dataset was linked to the data from the National Immunisation Management Service (NIMS) to allow us to analyse how ASMRs differ by vaccination status.

The PHDA contains data on approximately 79% of the population of England aged 10 years and over and includes 85.8% of all deaths of residents in England that occurred between 1 January 2021 and 31 October 2021 as published in the Monthly Mortality Analysis dataset, which includes all ages and deaths registered by 7 November 2021.

The PHDA data contains lower proportions of deaths for the younger age groups because of migration since the 2011 Census. The proportion of deaths of unvaccinated people included in the PHDA is slightly lower than for vaccinated people, because younger people are more likely to be unvaccinated and unlinked people (who would be classed as unvaccinated) are not included in the PHDA. The NIMS data in our dataset covers the period up to 21 November 2021; however, there may be some additional lag in reporting the data.

Acknowledgement

We would like to thank Dr. James Doidge, Senior Statistician at Intensive Care National Audit & Research Centre (ICNARC), for assisting in the interpretation.

10 . Related links

Weekly COVID-19 age-standardised mortality rates by vaccination status, England: methodology
Methodology | Released 13 September 2021
Detailed quality and methodology information for coronavirus (COVID-19) age-standardised mortality rates by vaccination status, initially published for Weeks 1 to 25 2021 in "Deaths involving COVID-19 by vaccination status and vaccine manufacturer, England: deaths occurring between 2 Jan and 2 July 2021".

Coronavirus (COVID-19) latest insights
Interactive tool | Updated regularly
A live roundup of the latest data and trends about the coronavirus (COVID-19) pandemic from the ONS and other sources.

Deaths registered weekly in England and Wales
Bulletin | Released 14 December 2021
Provisional counts of the number of deaths registered in England and Wales, including deaths involving the coronavirus (COVID-19) pandemic, by age, sex and region, in the latest weeks for which data are available.

Coronavirus and vaccination rates in people aged 70 years and over by socio-demographic characteristic, England: 8 December 2020 to 9 May 2021
Bulletin | Released 7 June 2021
First and second dose COVID-19 vaccination rates among people aged 70 years and older who live in England, both in private households and communal establishments. Includes estimates by socio-demographic factor such as ethnic group, religious group, and those identified as disabled.

Coronavirus (COVID-19) Infection Survey, UK
Bulletin | Released 10 December 2021
Estimates for England, Wales, Northern Ireland and Scotland. This survey is being delivered in partnership with University of Oxford, University of Manchester, Public Health England and Wellcome Trust. This study is jointly led by the ONS and the Department for Health and Social Care (DHSC) working with the University of Oxford and Lighthouse laboratory to collect and test samples.