Office for National Statistics

Statistical bulletin

Coronavirus (COVID-19) Infection Survey, characteristics of people testing positive for COVID-19, UK: 16 November 2022

Characteristicsof people testing positive for COVID-19 from the Coronavirus (COVID-19) Infection Survey. Thissurveyis delivered in partnership with University of Oxford, University of Manchester,UK Health Security Agency (UKHSA)andWellcomeTrust, working with the University of Oxfordand partner laboratories tocollect and test samples.

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Next release:
To be announced

Notice

14 December 2022

Our most recent Coronavirus Infection Survey, characteristics of people testing positive for COVID-19 release was published 14 December 2022 at 9.30am as a dataset-only release, which can be found on our accompanying dataset page.

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1 . Main points

- The latest estimated rate of coronavirus (COVID-19) reinfections on 28 October 2022 was 42.8 per 100,000 participant days at risk (95% confidence interval: 42.0 to 43.6).
- Of all identified reinfections, 93.4% occurred during the period when the Omicron variants were dominant.
- People who had their second or third vaccination 90 days or more previously remained more likely to be reinfected than people who had their third vaccination 14 to 89 days previously.
- People who reported symptoms within 35 days of their first infection were less likely to be reinfected than those who did not.
- The risk of reinfection was higher for those who had a lower viral load (higher cycle threshold (Ct) value) at their first infection and for those in younger age groups.

About this bulletin

In this bulletin, we present the latest analysis on COVID-19 reinfections and risk factors associated with COVID-19 reinfection. This is part of our series of analysis on the characteristics of people testing positive for COVID-19.

More about coronavirus

- Find the latest on coronavirus (COVID-19) in the UK.
- Explore the latest coronavirus data and analysis from the ONS and other sources.
- View all coronavirus data.

More information on our reinfections analysis is available in Coronavirus (COVID-19) Infection Survey, characteristics of people testing positive for COVID-19, UK: 19 October 2022. The technical article on reinfections provides a more detailed explanation of the methods used and full details of the up-to-date definition used to identify a reinfection in this analysis can be found in Section 5: Measuring the data.

2 . Risk factors associated with coronavirus (COVID-19) reinfections, UK

This analysis continues to include data from 2 July 2020 as in our previous bulletins published before 19 October 2022, but now focuses on the risk of coronavirus (COVID-19) reinfection during the period when the Omicron BA.4 and BA.5 variants were dominant which is from 16 June 2022 onwards. The data show:

- people who reported symptoms within 35 days of their first infection were less likely to be reinfected than those who did not
- people who had their second or third vaccination 90 days or more previously remained more likely to be reinfected than people who had their third vaccination 14 to 89 days previously
- people who had their fourth vaccination 14 days or more previously were more likely to be reinfected than people who had their third vaccination 14 to 89 days previously

Figure 1: People who reported symptoms within 35 days of their first COVID-19 infection were less likely to be reinfected than those who did not

Coronavirus reinfection hazard ratios for characteristics included in the model, UK, 16 June to 28 October 2022

Notes:

1. These estimates include first reinfections only (that is, second infections).

2. A hazard ratio of greater than 1 indicates more risk in the specified group compared with the reference group, and a hazard ratio of less than 1 indicates less risk.

3. The hazard ratio for deprivation shows how a 10-unit increase in deprivation score, where 1 represents most deprived and 100 represents least deprived, affects the likelihood of testing positive for COVID-19.

4. Although included in the model, the effect of cycle threshold (Ct) values and age are not presented in this figure but are included in Tables 2b and 2c of our Coronavirus (COVID-19) Infection Survey, characteristics of people testing positive for COVID-19, UK: dataset, respectively.

5. This analysis continues to include data from 2 July 2020 as in our bulletins published before 19 October 2022, but now focuses on the risk of COVID-19 reinfection during the period when the Omicron BA.4 and BA.5 variants were dominant, from 16 June 2022 onwards.

Download the data

.xlsx

3 . Coronavirus (COVID-19) Infection Survey data

Coronavirus (COVID-19) Infection Survey, characteristics of people testing positive for COVID-19, UK
Dataset | Released 16 November 2022
Characteristics of people testing positive for coronavirus (COVID-19) taken from the COVID-19 Infection Survey.

4 . Glossary

Confidence interval

A confidence interval gives an indication of the degree of uncertainty of an estimate, showing the precision of a sample estimate. The 95% confidence intervals are calculated so that if we repeated the study many times, 95% of the time the true unknown value would lie between the lower and upper confidence limits. A wider interval indicates more uncertainty in the estimate. Overlapping confidence intervals indicate that there may not be a true difference between two estimates.

Cycle threshold (Ct) values

The strength of a positive coronavirus (COVID-19) test is determined by how quickly the virus is detected, measured by a cycle threshold (Ct) value. The lower the Ct value, the higher the viral load and stronger the positive test. Positive results with a high Ct value can be seen in the early stages of infection when virus levels are rising, or late in the infection, when the risk of transmission is low.

Deprivation

Deprivation is based on an index of multiple deprivation (IMD) (PDF, 2.18MB) score or equivalent scoring method for the devolved administrations, from 1, which represents most deprived up to 100, which represents least deprived. The hazard or odds ratio shows how a 10-unit increase in deprivation score, which is equivalent to 10 percentiles or 1 decile, affects the likelihood of testing positive for COVID-19.

Hazard ratio

A measure of how often a particular event happens in one group compared with how often it happens in another group, over time. When a characteristic (for example, being male) has a hazard ratio of one, this means that there is neither an increase nor a decrease in the risk of reinfection compared with a reference category (for example, being female).

Participant days at risk

The risk of reinfection varies from person to person, depending on when they were first infected. People who were first infected in the early part of the survey have had more opportunity to become reinfected compared with someone who has experienced their first infection more recently. Therefore, this analysis uses "participant days at risk" to determine the number of reinfections.

For more information, see our methodology page on statistical uncertainty.

5 . Measuring the data

More information on measuring the data is available in the Coronavirus (COVID-19) Infection Survey statistical bulletin.

Our methodology article provides further information around the survey design, how we process data and how data are analysed.

Coronavirus (COVID-19) reinfections analysis

All estimates of COVID-19 reinfections in this release are unweighted. The sample for this analysis includes only those who have tested positive for COVID-19 on a swab test, and so there is no known population of which weighted estimates could be representative.

Since the bulletin published 30 March 2022, we have updated our definition of a reinfection to reflect the shorter time between reinfections that have occurred during the period when most infections were with the Omicron variants, compared with earlier variants.

A reinfection was identified in this analysis if any one of the following three conditions were met.

For time since previous infection and number of negative tests, if there is either:

- a positive test 120 days or more after an initial first positive test and following one or more negative tests
- a positive test 90 days or more after an initial first positive test and following two or more negative tests, or, for positive tests on or after 20 December 2021 when Omicron became the main variant, following one or more negative tests
- a positive test 60 days or more after an initial first positive test and following three or more negative tests
- a positive test after an initial first positive test and following four or more negative tests

For high viral load:

Where both the first positive test and subsequent positive test have a high viral load, or there has been an increase in viral load between first positive test and subsequent positive tests.

For evidence of different variant types:

Where there is evidence, based on either genetic sequencing data or gene positivity from the polymerase chain reaction (PCR) swab test, that the variant differs between positive tests.

6 . Related links

Coronavirus (COVID-19) Infection Survey, UK
Bulletin | Updated weekly
Estimates for England, Wales, Northern Ireland and Scotland.

Coronavirus (COVID-19) Infection Survey: antibody data for the UK
Bulletin | Updated monthly
Antibody data, by UK country and age, from the Coronavirus (COVID-19) Infection Survey.

Coronavirus (COVID-19) Infection Survey technical article: analysis of reinfections of COVID-19: June 2021
Technical article | Released 29 June 2021
Data about reinfections from the Coronavirus (COVID-19) Infection Survey.

COVID-19 Infection Survey: methods and further information
Methodology article | Updated 5 August 2022
Information on the methods used to collect the data, process it, and calculate the statistics produced from the COVID-19 Infection Survey.

Coronavirus (COVID-19) Infection Survey QMI
Methodology article | Updated 8 August 2022
Quality and Methodology Information for the Coronavirus (COVID-19) Infection Survey (CIS), detailing the strengths and limitations of the data, methods used, and data uses and users.

7 . Cite this statistical bulletin

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