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Data and analysis from Census 2021

Coronavirus (COVID-19) latest insights: Vaccines

27 March 2023

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Coronavirus (COVID-19) vaccination

Over 15 million people aged 50 years and over have received an autumn booster in England as of 20 March 2023. Around six months after the start of the autumn booster rollout, the majority of those in the oldest age groups last received a dose of a COVID-19 vaccine three to six months ago now. Adults aged 50 to 54 years are most likely to have received a vaccine in the last three months.

Over 9 in 10 people aged 12 years and over in the UK had received one dose of a COVID-19 vaccine, nearly 9 in 10 had received two doses and around 7 in 10 had received three or more doses by the end of August 2022.

Rates for unvaccinated adults were higher for Black Caribbean, Black African and White Other ethnic groups. Rates were also higher for those living in deprived areas, who have never worked or are long-term unemployed, who are limited a lot by a disability, who identify as Muslim or as having an "Other Religion", or who are male (October 2022).

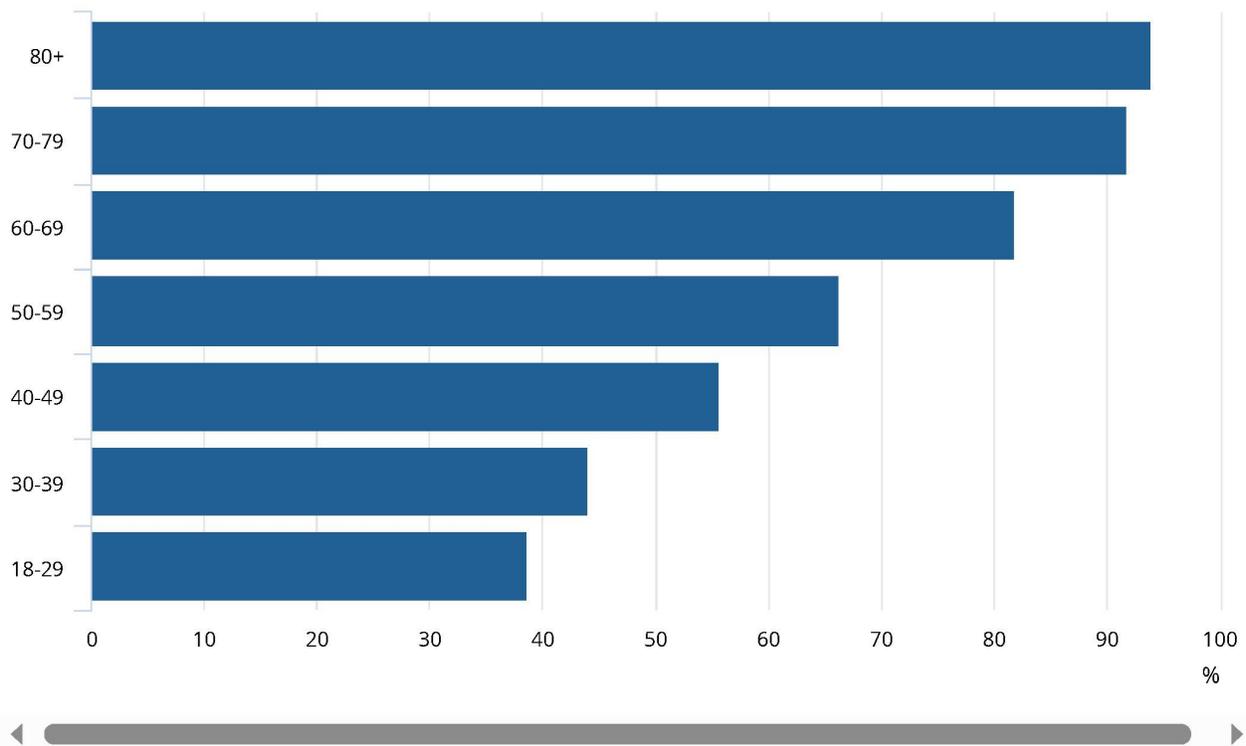
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Vaccine uptake by demographic

The number of eligible individuals with three vaccinations who continue to their fourth vaccination is higher in older age groups

Proportions of eligible people aged 18 years and over who have received four vaccinations, by age range, England, 8 December 2020 to 2 March 2023



Source: Death registrations and Census 2021 from the Office for National Statistics, National Immunisation Management Service, Hospital Episode Statistics and General Practice Extraction Service data for Pandemic Planning and Research

Among people aged 18 years and over, 75.8% had received at least three COVID-19 vaccinations as of 2 March 2023. Of those who had received three doses and were eligible, 77.7% had continued to their fourth vaccination.

The continuation from third to fourth dose of the COVID-19 vaccine was highest among individuals aged 80 years and over (94.0%) and those aged between 70 and 79 years (91.9%). Younger age groups had lower continuation, with less than half of eligible individuals aged 18 to 29 years (38.6%) and 30 to 39 years (44.1%) receiving their fourth dose.

Vaccination data are produced using linked data from Deaths registrations and Census 2021, National Immunisation Management Service, Hospital Episode Statistics, and General Practise Extraction Service data for Pandemic Planning and Research. Data may differ from weekly administrative vaccination data published by NHS England.

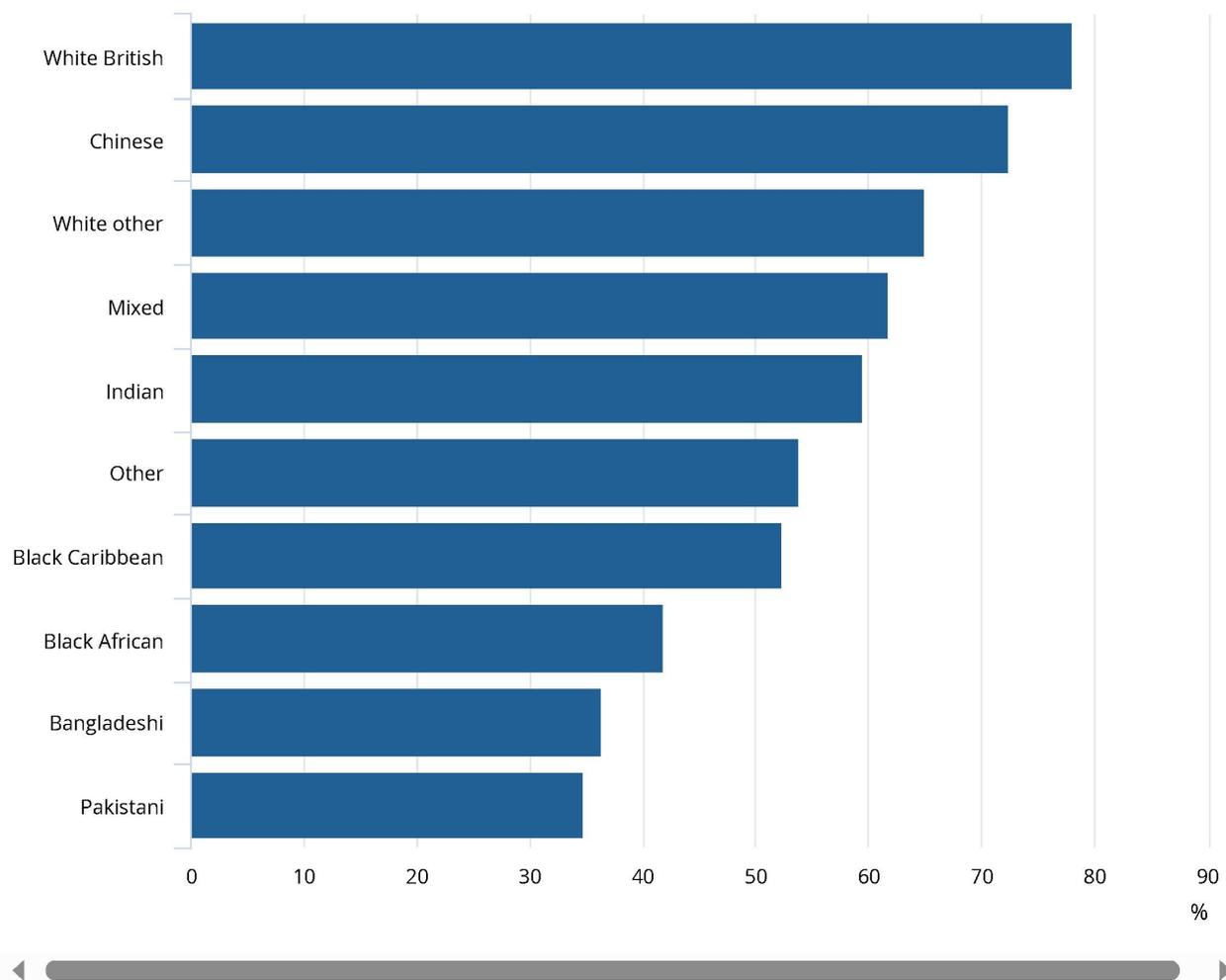
Last updated: 27 March 2023

Read more about this in our [Coronavirus and vaccination rates in adults by socio-demographic characteristic and occupation, England: December 2020 to March 2023](https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthinequalities/bulletins/coronavirusandvaccinationratesinadultsbysociodemographiccharacteristicandoccupationengland/december2020tomarch2023) bulletin (<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthinequalities/bulletins/coronavirusandvaccinationratesinadultsbysociodemographiccharacteristicandoccupationengland/december2020tomarch2023>)

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The White British ethnic group had the highest fourth vaccination coverage, among eligible individuals with three doses

Age-standardised proportion of eligible people aged 18 years and over who had received four vaccinations, by ethnic group, England, 8 December 2020 to 2 March 2023



Source: Death registrations and Census 2021 from the Office for National Statistics, National Immunisation Management Service, Hospital Episode Statistics and General Practice Extraction Service data for Pandemic Planning and Research

The White British ethnic group had the highest rate of continuation from third to fourth dose of the COVID-19 vaccine (78.1%) among eligible adults. This was followed closely by people identifying as Chinese (72.4%) and White other (65.0%).

The ethnic groups with the lowest proportion of people continuing to a fourth vaccination were Pakistani (34.8%), Bangladeshi (36.3%), and Black African (41.8%).

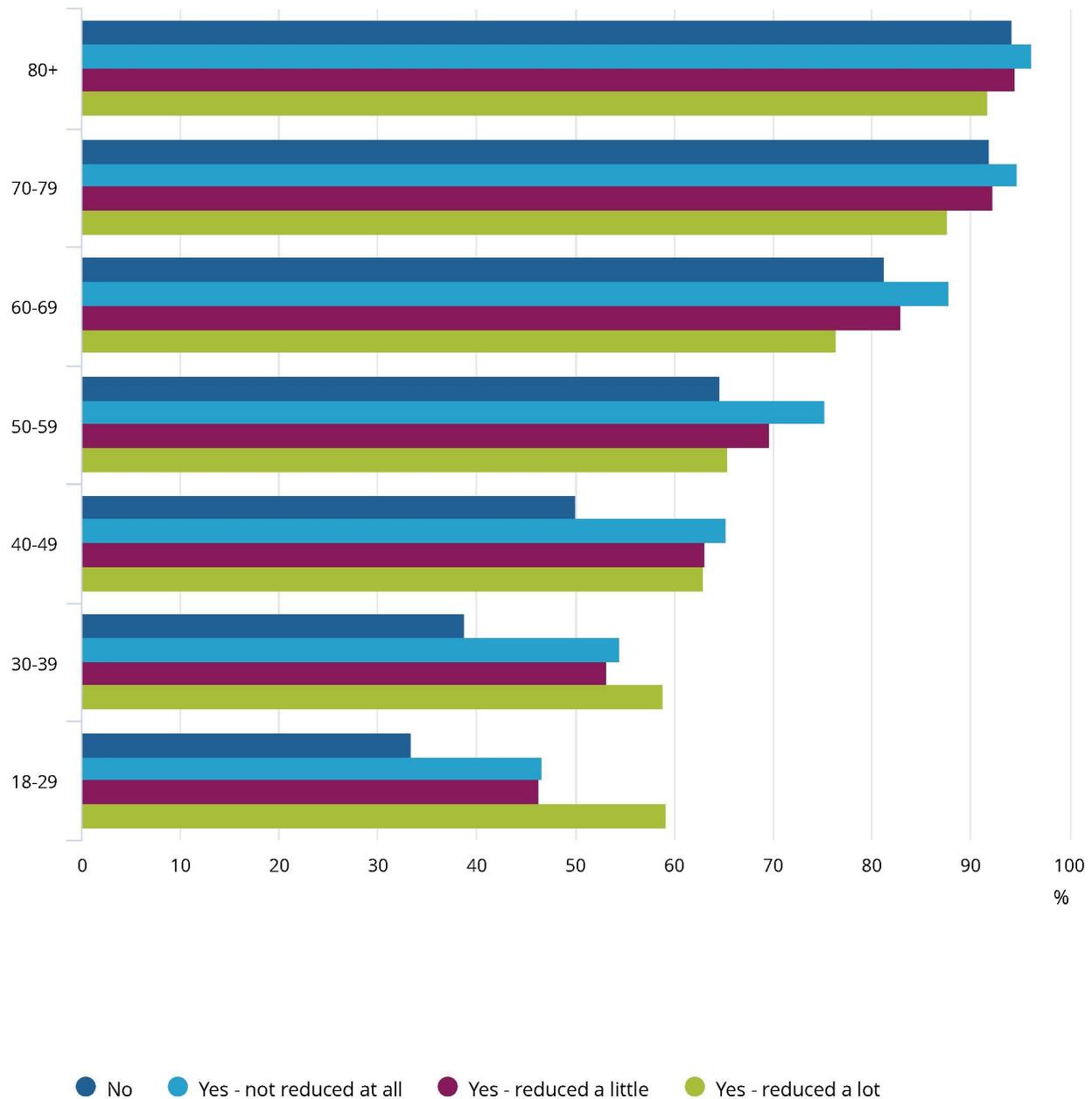
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For age bands above 60 years, individuals who are reduced a lot in their day-to-day activities had lower continuation to their fourth vaccination

Proportion of eligible people aged 18 years and over who had received four vaccinations by disability status and age group, England, 8 December 2020 to 2 March 2023



Source: Death registrations and Census 2021 from the Office for National Statistics, National Immunisation Management Service, Hospital Episode Statistics and General Practice Extraction Service data for Pandemic Planning and Research

For individuals aged 60 years and over, the continuation from third to fourth vaccination was lowest among those who report they are reduced a lot in their day-to-day activities by their long-term health condition or disability. People who have long-term health issues or a disability but are not reduced at all had the highest continuation for all age groups, from age 40 years and over. Among individuals aged under 60 years, continuation to the fourth dose was lowest for those with no self-reported long-term health conditions.

People reporting fair health (77.8%) were the highest proportion of people continuing from a third to a fourth vaccination; individuals in very good health (71.8%) had the lowest continuation from third to fourth dose, followed by those in very bad health (73.1%).

Last updated: 27 March 2023

Read more about this in our [Coronavirus and vaccination rates in adults by socio-demographic characteristic and occupation, England: December 2020 to March 2023 bulletin](https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthinequalities/bulletins/coronavirusandvaccinationratesinadultsbysociodemographiccharacteristicandoccupationengland/december2020tomarch2023) (<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthinequalities/bulletins/coronavirusandvaccinationratesinadultsbysociodemographiccharacteristicandoccupationengland/december2020tomarch2023>)

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Deaths by vaccination status

No increased risk of cardiac or all-cause death for young people in general in the weeks after vaccination

Assessing the impact of COVID-19 vaccination and positive SARS-CoV-2 tests on the risk of cardiac and all-cause death in young people (aged 12 to 29 years) in England (8 December 2020 to 25 May 2022) showed that there was no significant increase in cardiac or all-cause death in the 12 weeks following COVID-19 vaccination compared with more than 12 weeks after any dose.

However, there was an increased risk of cardiac death in young women after a first dose of non-mRNA vaccines, with the risk being 3.5 times higher in the 12 weeks following vaccination, compared with the longer-term risk. There was no increased risk for young men for either vaccine type. Those who received non-mRNA vaccines were more likely to be clinically vulnerable and may be at greater risk of adverse events following vaccination than the general population.

While vaccination carries some risks, these need to be assessed in light of the benefits of vaccination. The risk of death is greatly increased following a positive test for COVID-19 even in young people, and many studies show that vaccines are highly effective at preventing hospitalisation or death following COVID-19 infection. A positive SARS-CoV-2 test was associated with increased cardiac and all-cause deaths; the risk was higher in those who were unvaccinated at time of testing than in those who were vaccinated.

Last updated: 27 March 2023

Read more about this in our [Risk of death following COVID-19 vaccination or positive SARS-CoV-2 test in young people, England: 8 December 2020 to 25 May 2022](https://www.ons.gov.uk/releases/riskofdeathfollowingcovid19vaccinationorpositivesarscov2testinyoungpeopleengland8december2020to25may2022) bulletin (<https://www.ons.gov.uk/releases/riskofdeathfollowingcovid19vaccinationorpositivesarscov2testinyoungpeopleengland8december2020to25may2022>)

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COVID-19 mortality rates lowest for those with at least three vaccinations

Risk of death involving COVID-19 in England has been consistently lower for people who had at least a third vaccine dose or booster 21 days or more ago, compared with unvaccinated people and those with only a first or second dose.

Between March and December 2022, risk of death involving COVID-19 was similar for those who had received only a first or second dose and unvaccinated people, indicating possible waning in protection from vaccination over time. However, there is more uncertainty around these estimates because of smaller populations.

Non-COVID-19 mortality rates for people who have had at least a third dose or booster at least 21 days ago have been similar to those for unvaccinated people in the latter half of 2022.

While these rates are adjusted for age, they are not the same as vaccine effectiveness. Vaccinated and unvaccinated people likely differ in characteristics other than age, such as health. Some deaths are expected in vaccinated people as the number who are vaccinated is high and no vaccine is 100% effective.

Last updated: 21 February 2023

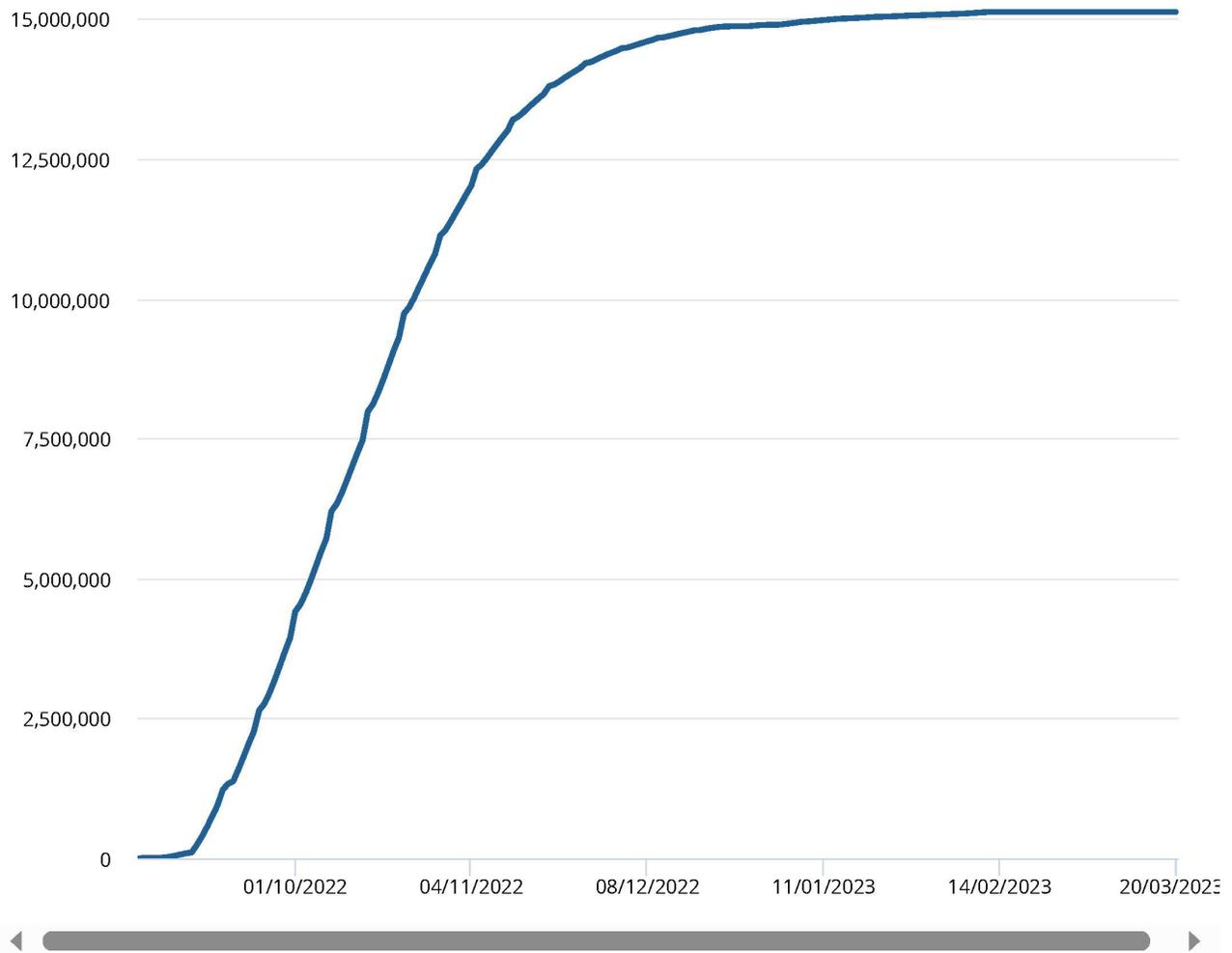
Read more about this in our [Deaths involving COVID-19 by vaccination status, England: deaths occurring between 1 April 2021 and 31 December 2022](https://www.ons.gov.uk/releases/deathsinvolvingcovid19byvaccinationstatusenglanddeathsoccurringbetween1april2021and31december2022) bulletin (<https://www.ons.gov.uk/releases/deathsinvolvingcovid19byvaccinationstatusenglanddeathsoccurringbetween1january2020and31december2022>)

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Vaccination rates

Over 15 million people aged 50 years and over have received an autumn booster in England

Number of people aged 50 years and over who have received an autumn booster COVID-19 vaccination in England, by date of vaccination, 1 September 2022 to 20 March 2023



Source: GOV.UK coronavirus dashboard from the UK Health Security Agency

In England, 15,120,938 people aged 50 years and over had received an autumn booster by 20 March 2023. Around 100 people received their autumn booster in the latest seven-day period (14 to 20 March 2023). This is a decrease from the previous seven-day period (around 200 autumn boosters, 7 to 13 March 2023).

The autumn booster campaign ended on 12 February 2023. All adults aged between 50 and 64 years were offered the autumn booster from 14 October 2022. Before this, boosters were being offered to residents and staff of care homes for older people, frontline health and social care workers, all adults aged 65 years and over, those aged 5 years and over in a clinical risk group, those aged 5 years and over who live with an immunosuppressed individual, and those aged 16 years and over who are carers.

More information can be found in the [Joint Committee on Vaccination and Immunisation \(JCVI\) statement](https://www.gov.uk/government/publications/covid-19-vaccines-for-autumn-2022-jcvi-advice-15-august-2022/jcvi-statement-on-the-covid-19-booster-vaccination-programme-for-autumn-2022-update-15-august-2022) (<https://www.gov.uk/government/publications/covid-19-vaccines-for-autumn-2022-jcvi-advice-15-august-2022/jcvi-statement-on-the-covid-19-booster-vaccination-programme-for-autumn-2022-update-15-august-2022>). This chart uses the vaccination data from the [GOV.UK Coronavirus Dashboard](https://coronavirus.data.gov.uk/details/vaccinations) (<https://coronavirus.data.gov.uk/details/vaccinations>) which includes only those aged 50 years and over. This differs to the data from [NHS England](https://www.england.nhs.uk/statistics/statistical-work-areas/covid-19-vaccinations/) (<https://www.england.nhs.uk/statistics/statistical-work-areas/covid-19-vaccinations/>) which includes those aged under 50 years, for example health care workers and immunosuppressed individuals.

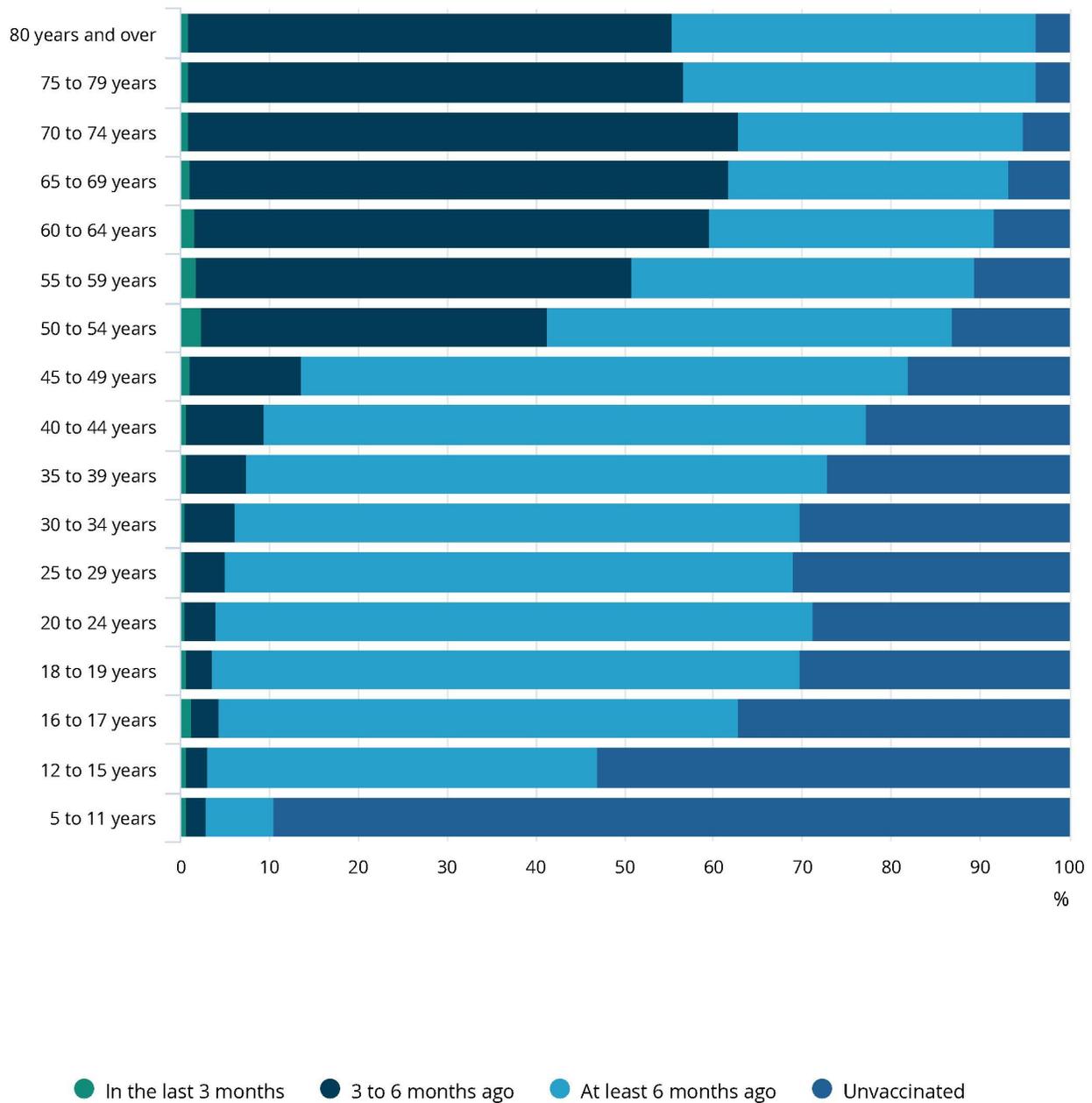
Last updated: 24 March 2023

Read more about this on the [GOV.UK Coronavirus Dashboard](https://coronavirus.data.gov.uk/details/vaccinations) (<https://coronavirus.data.gov.uk/details/vaccinations>)

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Most older adults received a vaccine three to six months ago

Provisional percentage of people vaccinated with any dose of a coronavirus (COVID-19) vaccine in the last three months, three to six months ago, and at least six months ago, England, 19 March 2023



Source: National flu and COVID-19 surveillance report from the UK Health Security Agency

The length of time since people were last vaccinated varies by age group. More older people have received a dose of a COVID-19 vaccine in the last three months than younger people. However, the proportions in the oldest age groups have started to decline, as an increasing number of older people received their autumn booster more than three months ago now.

Around six months after the start of the autumn booster rollout, the majority of those aged 80 years and over (54.3%), 75 to 79 years (55.6%), 70 to 74 years (61.9%), 65 to 69 years (60.7%) and 60 to 64 years (57.9%) last received a dose of a COVID-19 vaccine three to six months ago.

Adults aged 55 to 59 years (1.9%) and 50 to 54 years (2.4%) had the highest proportions of people last vaccinated in the last three months.

For adults aged under 50 years, the majority of people were last vaccinated for COVID-19 at least six months ago. In those aged 45 to 49 years, 68.4% were last vaccinated at least six months ago, compared with 39.7% of those aged 75 to 79 years and 41.1% of those aged 80 years and over. This reflects younger age groups not being eligible for the autumn booster in 2022.

Children aged 5 to 11 years were most likely to be unvaccinated (89.4%) and adults aged 80 years and over (3.6%) were least likely to be unvaccinated. Vaccinations for those aged 5 to 11 years who are not in a clinical risk group are optional, whereas they were recommended for other groups.

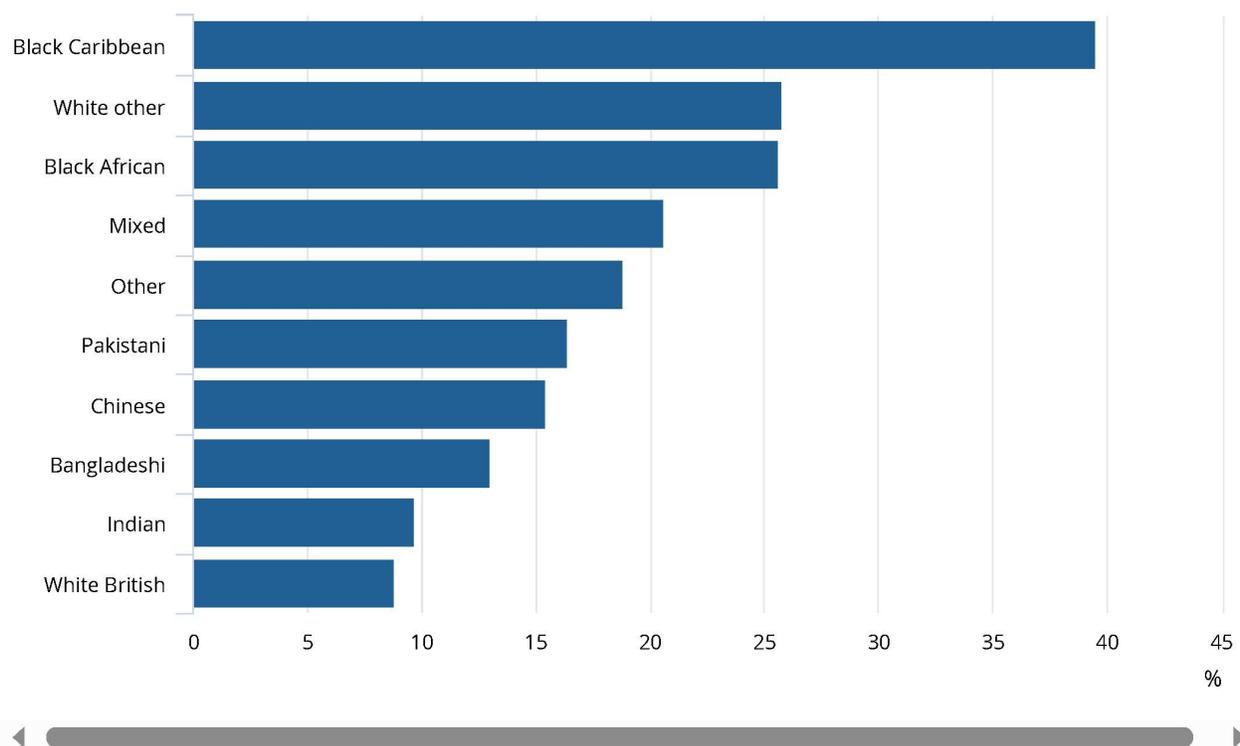
This chart uses data from the National Immunisation Management Service (NIMS), which shows the number of people vaccinated as a proportion of the living resident population of England.

Last updated: 24 March 2023

Read more about this in the UK Health Security Agency's (UKHSA) [National flu and COVID-19 surveillance reports \(https://www.gov.uk/government/statistics/national-flu-and-covid-19-surveillance-reports-2022-to-2023-season\)](https://www.gov.uk/government/statistics/national-flu-and-covid-19-surveillance-reports-2022-to-2023-season).

Rates for unvaccinated adults were highest among the Black Caribbean ethnic group

Age-standardised proportion of people aged 18 years and over who had not received a COVID-19 vaccination, by ethnic group, England, October 2022



Source: Office for National Statistics, National Immunisation Management Service, NHS Digital GP Extraction Service Data for Pandemic Planning and Research

The proportion of people aged 18 years and over who were unvaccinated in October 2022 was highest for those identifying as Black Caribbean (39.5%), followed by those identifying as White Other (25.8%) and Black African (25.6%). The lowest proportions of unvaccinated adults were in the White British (8.8%) and Indian (9.7%) ethnic groups.

This is also reflected in rates for people aged 18 years and over receiving two or three COVID-19 vaccinations, where the lowest proportions were for those identifying as Black Caribbean (57.5% have received two vaccinations and 39.2% have received three vaccinations). Those identifying as White British had the highest proportions receiving two vaccinations (89.4%) and three vaccinations (77.6%).

The proportion of adults who were unvaccinated was also higher for those:

- living in more deprived areas, urban areas, or social rented housing
- who were not born in the UK or did not have English as a main language
- who have never worked or are long-term unemployed
- who are limited a lot by a disability
- who identify as Muslim or as having an “Other Religion”
- who are male

Last updated: 9 December 2022

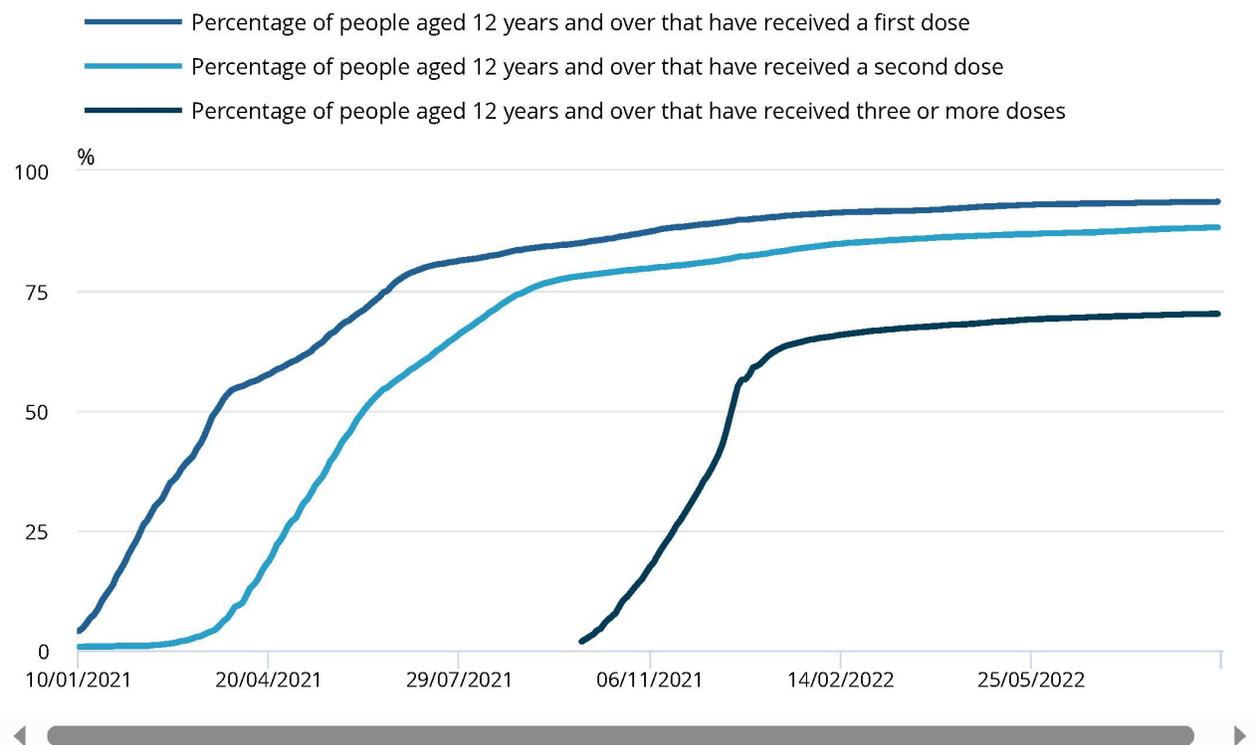
Find out more in our [Coronavirus and vaccination rates in people aged 18 years and over by socio-demographic characteristic and region, England dataset](https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthinequalities/datasets/coronavirusandvaccinationratesinpeopleaged18yearsandoverbysociodemographiccharacteristicandregionengland)

(<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthinequalities/datasets/coronavirusandvaccinationratesinpeopleaged18yearsandoverbysociodemographiccharacteristicandregionengland>)

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Nearly 9 in 10 people aged 12 years and over in the UK have received two doses of a COVID-19 vaccine

Proportion of those aged 12 years and over who have received one, two, or three or more doses of a COVID-19 vaccine, UK, 10 January 2021 to 31 August 2022



Source: GOV.uk Coronavirus Dashboard

In the UK by the end of August 2022, of those aged 12 years and over:

- 93.6% had received a first dose of a COVID-19 vaccine
- 88.2% had received a second dose
- 70.2% had received three or more doses

This chart uses the vaccination uptake data from the [GOV.UK Dashboard](https://coronavirus.data.gov.uk/details/vaccinations) (<https://coronavirus.data.gov.uk/details/vaccinations>), which shows the number of vaccinations given to people of all ages as a proportion of the population aged 12 years and over.

First and second dose rates overestimate uptake. They include vaccinations given to children aged between 5 and 11 years but are shown as a proportion of the population aged 12 years and over.

Rates for three or more doses underestimate uptake. Not everyone aged 12 years and over is able to receive three or more doses. Only a small proportion of people aged under 16 years who are at a greater risk from COVID-19 can receive three or more doses. However, the figures provide a reasonable estimate of the proportion of those who can get a COVID-19 vaccine that have been vaccinated.

Last updated: 5 October 2022

Read more about this on the [GOV.UK Coronavirus Dashboard](https://coronavirus.data.gov.uk/details/vaccinations)
(<https://coronavirus.data.gov.uk/details/vaccinations>)

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Vaccine effectiveness

High vaccine effectiveness shown for third dose against COVID-19

Vaccine effectiveness is the reduction in risk due to receiving a vaccine. It is estimated by comparing the risk between vaccinated and unvaccinated individuals, taking into account differences in the vaccinated and unvaccinated populations.

Vaccine effectiveness against hospitalisation was 52.2% for a first dose for COVID-19 (between 21 March 2021 to 20 March 2022). Vaccine effectiveness against hospitalisation for COVID-19 was 55.7% for the second dose, and 77.6% for the third dose, respectively.

Vaccine effectiveness against COVID-19 mortality was 58.7% for a first dose, 88.6% for a second dose and 93.2% for a third dose.

Protection increases with the increase of doses and is high for the third dose or booster, as has been shown in previous research.

While these estimates take into account many sociodemographic and health-related differences between people, some differences may remain.

Last updated: 8 March 2023

Read more about this in our [Vaccine effectiveness estimated using 2021 census variables bulletin](#)

(<https://www.ons.gov.uk/releases/vaccineeffectivenessestimatedusing2021censusvariables>)

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Further information

On this page we present official vaccination records reported on the GOV.UK Coronavirus Dashboard. We also present attitudes towards vaccination from our Opinions and Lifestyle Survey (OPN) and vaccination status by characteristic.

To find out more about vaccination data from different sources visit our [more information \(https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/moreinformationondatasourcesrelatedtocoronaviruscovid19/2020-12-11#vaccinations\)](https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/moreinformationondatasourcesrelatedtocoronaviruscovid19/2020-12-11#vaccinations) page.

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Coronavirus (COVID-19) definitions



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