

Statistical bulletin

# Coronavirus and vaccination rates in people aged 18 years and over by socio-demographic characteristic and occupation, England: 8 December 2020 to 31 December 2021

Coronavirus (COVID-19) vaccination rates among people aged 18 years and older who live in England, including estimates by socio-demographic characteristic and Standard Occupational Classification (SOC) 2010.

Contact:  
Vahé Nafilyan, Ted Dolby and  
Jasper Morgan  
Health.Data@ons.gov.uk  
+44 1633 455865

Release date:  
20 January 2022

Next release:  
To be announced

## Table of contents

1. [Main points](#)
2. [Socio-demographic characteristics](#)
3. [Occupation](#)
4. [Coronavirus and vaccination rates data](#)
5. [Measuring the data](#)
6. [Related links](#)

# 1 . Main points

- Among people aged 18 years and over, 66.6% had received three coronavirus (COVID-19) vaccinations as of 31 December 2021; of those who had received two vaccinations by 30 September 2021, 79.6% had continued on to receive a third vaccination.
- To compare vaccination coverage between groups, we have adjusted the proportions for age; after adjusting for differences in age, the ethnic groups with the lowest proportion of people who had received three vaccinations were Black Caribbean (33.9%), Pakistani (37.8%) and Black African (37.9%).
- Among those who had received two vaccinations by 30 September 2021, there was particularly low continuation to receive a third vaccination in the Pakistani (51.0%), Black African (56.0%), Bangladeshi (56.8%) and Black Caribbean (58.8%) ethnic groups.
- Those identifying as Muslim (40.2%) had the lowest proportion of people who had received three vaccinations; similarly, among those who had received two vaccinations by 30 September 2021, those identifying as Muslim had the lowest coverage for third vaccinations (53.6%).
- The proportion of people who had received three vaccinations was lower among those in less advantaged socio-economic groups; people living in more deprived areas, those who have never worked or are long-term unemployed, those with no qualifications and those who do not own their own home all had lower coverage for third vaccinations than people in more advantaged socio-economic positions.
- For all 10-year age bands above 40 years old, the proportion of people who had received three vaccinations was lower for those who were "limited a little" and "limited a lot" in their day-to-day activities, compared with non-disabled people; among people aged 18 to 39 years, those limited in their day-to-day activities had higher coverage for third vaccinations.
- Among people aged 40 to 64 years, the occupations that had the highest proportion of people who had received three vaccinations were health professionals (83.3%) and teaching and educational professionals (81.2%).
- Among people aged 40 to 64 years, the occupations with the lowest proportion of people who had received three vaccinations were elementary trades and related occupations (58.3%) and skilled construction and building trades (62.3%); these occupations also had the highest proportion of people that had not received a vaccination at 15.0% and 12.9% respectively.

Vaccination data are produced using the linked National Immunisation Management System and Office for National Statistics Public Health Data Asset dataset and cover a subset of the population. Data may differ from weekly administrative vaccination data published by NHS England. Data only include third vaccinations (either a booster or a third dose received as part of the primary course) that were received from 16 September 2021 onwards.

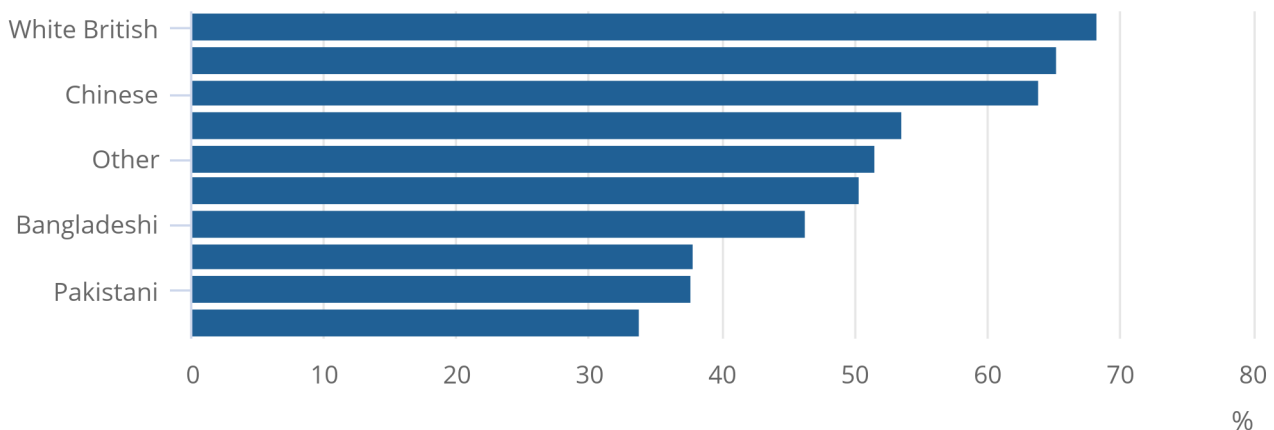
## 2 . Socio-demographic characteristics

**Figure 1: The proportion of people who had received three vaccinations was lower for all ethnic groups compared with the White British group**

Age-standardised proportion of people aged 18 years and over who had received three vaccinations, by ethnic group, England: 16 September 2021 to 31 December 2021

Figure 1: The proportion of people who had received three vaccinations was lower for all ethnic groups compared with the White British group

Age-standardised proportion of people aged 18 years and over who had received three vaccinations, by ethnic group, England: 16 September 2021 to 31 December 2021



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

**Notes:**

1. This analysis covers people aged 18 years old and over and includes vaccinations received between 16 September 2021 and 31 December 2021.
2. The population includes those enumerated in the 2011 Census, registered with a GP in 2019, resident in England and alive on 31 December 2021.
3. These data only include third-vaccinations that were received from 16 September 2021 onwards. Third-vaccination may refer to a booster vaccination or a third dose vaccination received as part of the primary course.
4. The age-standardised proportions presented are annualised directly age-standardised rates per 100 people, represented as a percentage. This is number of people who have received a vaccination divided by the population for the relevant time period, standardised to the European Standard Population, multiplied by 100.
5. Ethnic group was derived from the 2011 Census.

Among people aged 18 years and over, the proportion of people who had received three coronavirus (COVID-19) vaccinations was lower for all ethnic minority groups, when compared with those identifying as White British.

Occupation and other characteristics (sex, ethnic group, religion, country of birth, English language proficiency, disability status, educational attainment, National Statistics Socio-economic classification and household tenure) were derived from the 2011 Census. As this information was collected in 2011, it is possible that these characteristics have changed for some individuals.

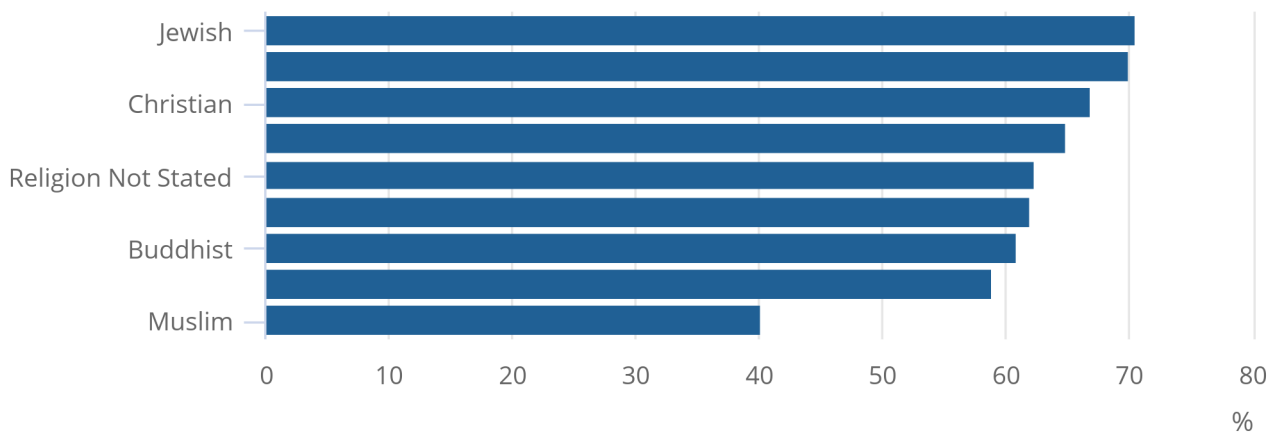
Although lower than that of the White British group (68.4%), third vaccination coverage was high among people identifying as Indian (65.3%) and Chinese (64.0%). The ethnic groups with the lowest proportion of people who had received three vaccinations were the Black Caribbean (33.9%), Pakistani (37.8%) and Black African (37.9%) ethnic groups. Among those who had received two vaccinations by 30 September 2021, there was particularly low continuation to receive a third vaccination in the Pakistani (51.0%), Black African (56.0%), Bangladeshi (56.8%) and Black Caribbean (58.8%) ethnic groups.

## Figure 2: Those identifying as Muslim had the lowest third-vaccination coverage

Age-standardised proportion of people aged 18 years and over who had received three vaccinations by religious affiliation, England: 16 September 2021 to 31 December 2021

### Figure 2: Those identifying as Muslim had the lowest third-vaccination coverage

Age-standardised proportion of people aged 18 years and over who had received three vaccinations by religious affiliation, England: 16 September 2021 to 31 December 2021



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

#### Notes:

1. This analysis covers people aged 18 years old and over and includes vaccinations received between 16 September 2021 and 31 December 2021.
2. The population includes those enumerated in the 2011 Census, registered with a GP in 2019, resident in England and alive on 31 December 2021.
3. These data only include third-vaccinations that were received from 16 September 2021 onwards. Third-vaccination may refer to a booster vaccination or a third dose vaccination received as part of the primary course.
4. The age-standardised proportions presented are annualised directly age-standardised rates per 100 people, represented as a percentage. This is number of people who have received a vaccination divided by the population for the relevant time period, standardised to the European Standard Population, multiplied by 100.
5. Religious affiliation was derived from the 2011 Census.

Third vaccination coverage was highest among those identifying as Jewish (70.5%), Hindu (70.0%) and Christian (66.9%). Those identifying as Muslim had the lowest proportion of people who had received three vaccinations (40.2%). Similarly, among those who had received two vaccinations by 30 September 2021, those identifying as Muslim had the lowest coverage for third vaccinations (53.6%).

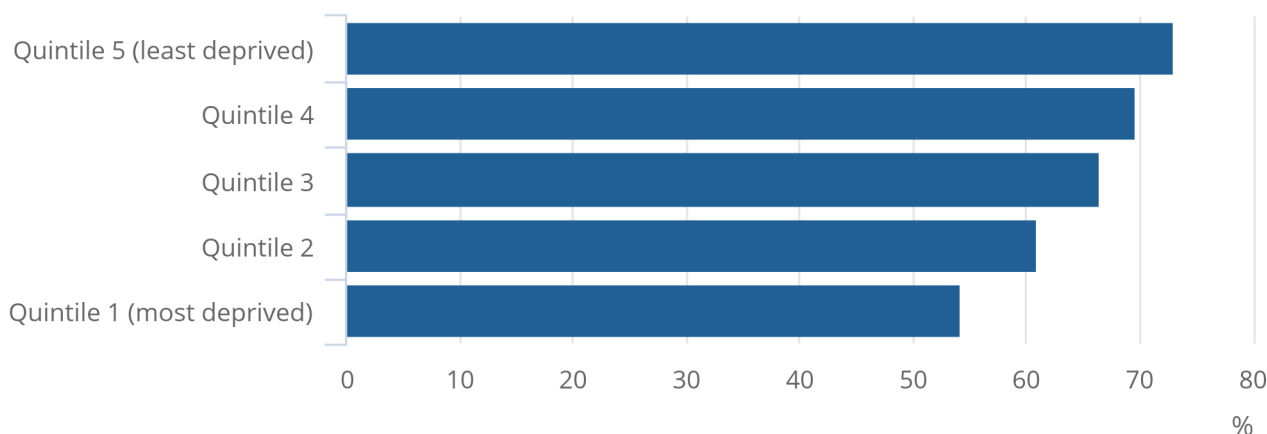
Third vaccination coverage was higher among people whose main language was English (66.6%) than those who did not have English as their main language (45.5%). The proportion of people who had received three vaccinations was also higher among people who were born in the UK (67.2%) than those who were not (51.1%) (See [Dataset Table 1](#)).

**Figure 3: The proportion of people who had received three vaccinations was lower in more deprived areas**

Age-standardised proportion of people aged 18 years and over who had received three vaccinations by Index of Multiple Deprivation quintile, England: 16 September 2021 to 31 December 2021

Figure 3: The proportion of people who had received three vaccinations was lower in more deprived areas

Age-standardised proportion of people aged 18 years and over who had received three vaccinations by Index of Multiple Deprivation quintile, England: 16 September 2021 to 31 December 2021



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

Notes:

1. This analysis covers people aged 18 years old and over and includes vaccinations received between 16 September 2021 and 31 December 2021.
2. The population includes those enumerated in the 2011 Census, registered with a GP in 2019, resident in England and alive on 31 December 2021.
3. These data only include third-vaccinations that were received from 16 September 2021 onwards. Third-vaccination may refer to a booster vaccination or a third dose vaccination received as part of the primary course.
4. The age-standardised proportions presented are annualised directly age-standardised rates per 100 people, represented as a percentage. This is number of people who have received a vaccination divided by the population for the relevant time period, standardised to the European Standard Population, multiplied by 100.
5. Index of Multiple Deprivation quintile was based on the English Index of Multiple Deprivation (IMD), version 2019. It was derived using the individual's resident address in the General Practice Extraction Service (GPES) data for pandemic planning and research. If this was not available, it was derived from the individual's resident address in the 2011 Census.

The proportion of people who had received three vaccinations was lower in more deprived areas; at 54.3% in the most deprived areas, compared with 73.0% in the least deprived areas. Area deprivation is measured according to the [English Index of Multiple Deprivation](#) of an individual's area of residence.

#### **Figure 4: Third vaccination coverage was lowest for those who had never worked or were long-term unemployed**

**Age-standardised proportion of people aged 18 years and over who had received three vaccinations by National Statistics Socio-economic classification (NS-SEC), England: 16 September 2021 to 31 December 2021**

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

##### **Notes:**

1. This analysis covers people aged 18 years old and over and includes vaccinations received between 16 September 2021 and 31 December 2021.
2. The population includes those enumerated in the 2011 Census, registered with a GP in 2019, resident in England and alive on 31 December 2021.
3. These data only include third-vaccinations that were received from 16 September 2021 onwards. Third-vaccination may refer to a booster vaccination or a third dose vaccination received as part of the primary course.
4. The age-standardised proportions presented are annualised directly age-standardised rates per 100 people, represented as a percentage. This is number of people who have received a vaccination divided by the population for the relevant time period, standardised to the European Standard Population, multiplied by 100.
5. National Statistics Socio-economic classification (NS-SEC) was derived from the 2011 Census. Not classified includes full-time students, people with insufficient occupation information and people in communal establishments at the time of the 2011 Census.

Those in the least advantaged [National Statistics Socio-economic Classification \(NS-SEC\)](#) class, individuals who had never worked or were long-term unemployed, had the lowest proportion of people who had received three vaccinations (44.2%). Those in the most advantaged NS-SEC class, those in higher managerial, administrative and professional occupations, had the highest proportion of people who had received three vaccinations (74.0%).

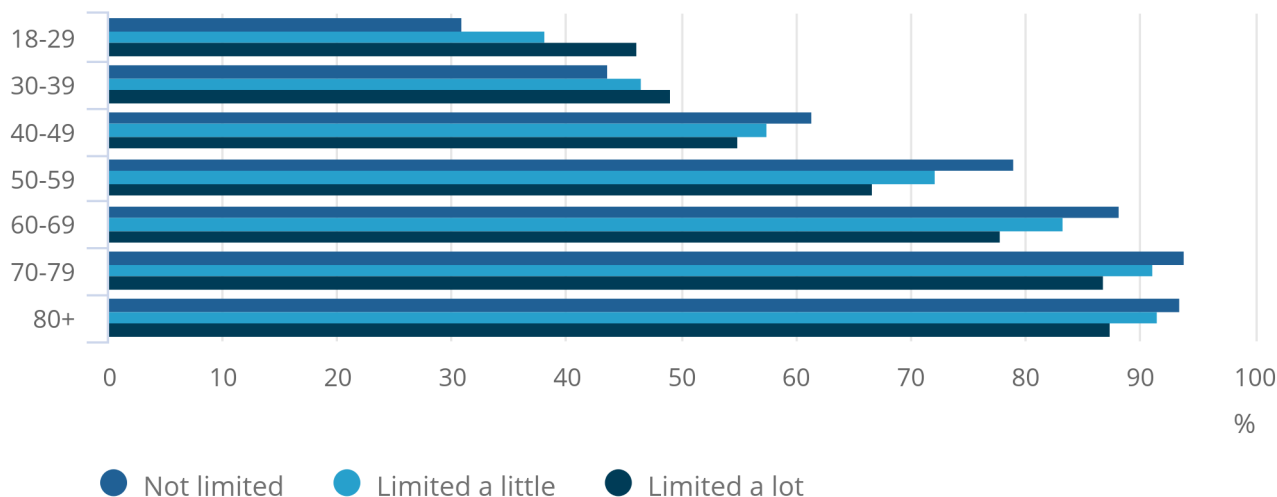
Similarly, those with no qualifications and those who do not own their own home had lower coverage for third vaccinations than people in more advantaged socio-economic positions (See [Dataset Table 1](#)).

**Figure 5: For all 10-year age bands above 40 years old, those limited in their day-to-day activities had lower third vaccination coverage than non-disabled people**

Proportion of people aged 18 years and over who had received three vaccinations by disability status and age group, England: 16 September 2021 to 31 December 2021

Figure 5: For all 10-year age bands above 40 years old, those limited in their day-to-day activities had lower third vaccination coverage than non-disabled people

Proportion of people aged 18 years and over who had received three vaccinations by disability status and age group, England: 16 September 2021 to 31 December 2021



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

Notes:

1. This analysis covers people aged 18 years old and over and includes vaccinations received between 16 September 2021 and 31 December 2021.
2. The population includes those enumerated in the 2011 Census, registered with a GP in 2019, resident in England and alive on 31 December 2021.
3. These data only include third-vaccinations that were received from 16 September 2021 onwards. Third-vaccination may refer to a booster vaccination or a third dose vaccination received as part of the primary course.
4. Disability status and Age group were derived from the 2011 Census.

For all 10-year age bands above 40 years old, the proportion of people who had received three vaccinations was lower among people who reported being “limited a little” and “limited a lot” in their day-to-day activities, compared with non-disabled people (Figure 5). However, among people aged 18 to 39 years, those limited in their day-to-day activities had higher third vaccination coverage than non-disabled people.



## More about coronavirus

- Find the latest on [coronavirus \(COVID-19\) in the UK](#).
- [Explore the latest coronavirus data](#) from the ONS and other sources.
- View [all coronavirus data](#).
- Find out how we are [working safely in our studies and surveys](#).

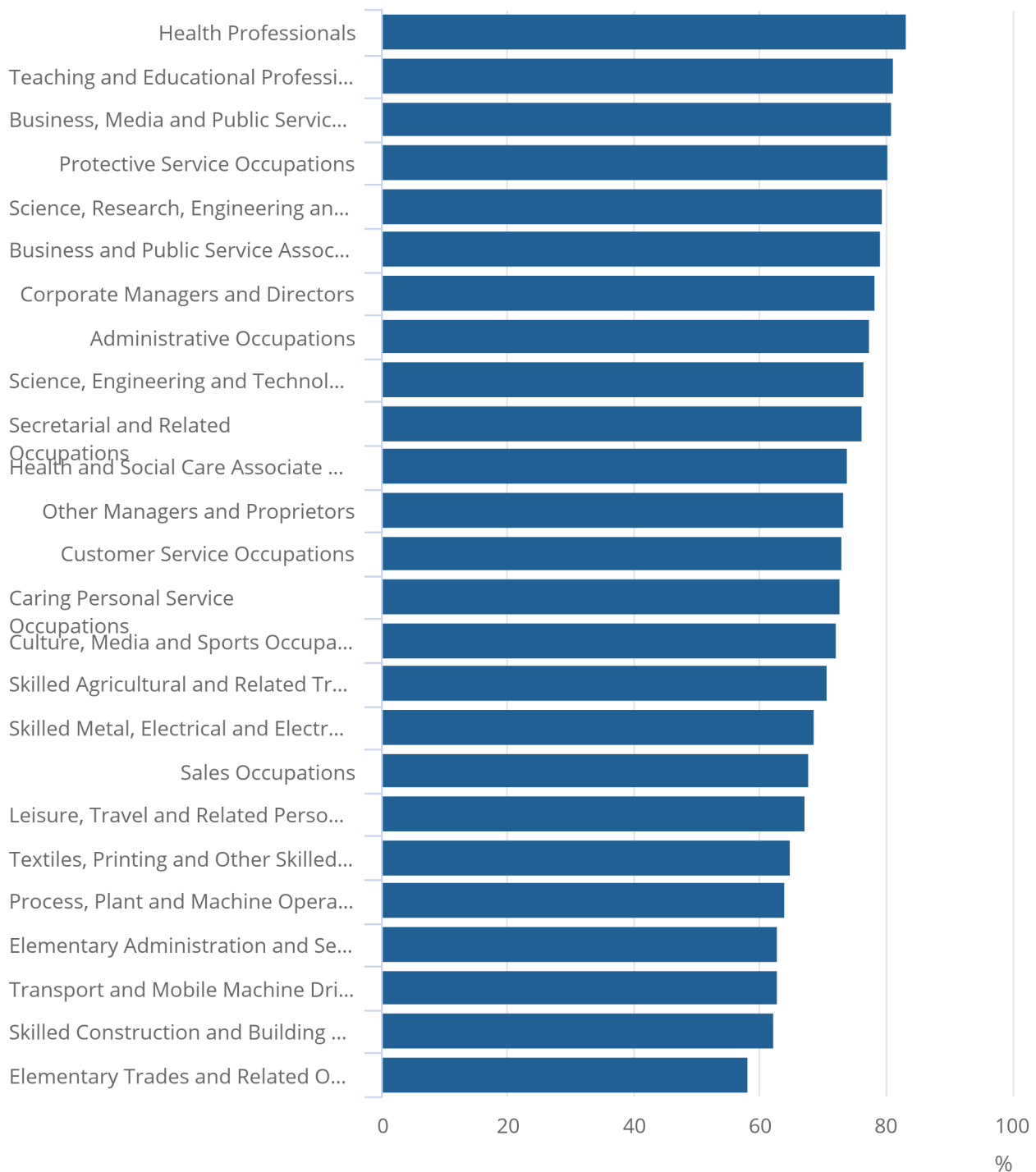
### 3 . Occupation

**Figure 6: Among people aged 40 to 64 years, the proportion of people who had received three vaccinations varied greatly by occupation**

Age-standardised proportion of people aged 18 years and over who had received three vaccinations by Standard Occupational Classification 2010 sub-major group, England: 16 September 2021 to 31 December 2021

Figure 6: Among people aged 40 to 64 years, the proportion of people who had received three vaccinations varied greatly by occupation

Age-standardised proportion of people aged 18 years and over who had received three vaccinations by Standard Occupational Classification 2010 sub-major group, England: 16 September 2021 to 31 December 2021



Notes:

1. This analysis covers people aged 40 to 64 years and includes vaccinations received between 16 September 2021 and 31 December 2021.
2. The population includes those enumerated in the 2011 Census, registered with a GP in 2019, resident in England and alive on 31 December 2021.
3. These data only include third-vaccinations that were received from 16 September 2021 onwards. Third-vaccination may refer to a booster vaccination or a third dose vaccination received as part of the primary course.
4. The age-standardised proportions presented are annualised directly age-standardised rates per 100 people, represented as a percentage. This is number of people who have received a vaccination divided by the population for the relevant time period, standardised to the European Standard Population, multiplied by 100.
5. Standard Occupational Classification 2010 sub-major group was derived from the 2011 Census. The Standard Occupational Classification (SOC) is a common classification of occupational information for the UK.

Among people aged 40 to 64 years, the occupations that had the highest proportion of people who had received three vaccinations were health professionals (83.3%) and teaching and educational professionals (81.2%).

The occupations with the lowest proportion of people who had received three vaccinations were elementary trades and related occupations (58.3%) and skilled construction and building trades (62.3%); these occupations also had the highest proportion of people that had not received any vaccination at 15.0% and 12.9% respectively.

Within [Standard Occupational Classification \(SOC\) 2010](#) sub-major groups presented in Figure 6, there was large variation in vaccination coverage between SOC 2010 unit groups. For example, 73.9% of health and social care associate professionals had received three vaccinations. Among the SOC 2010 unit groups that form this sub-major group, 85.9% of paramedics had received three vaccinations, compared with 63.8% of health associate professionals not elsewhere classified.

## 4 . Coronavirus and vaccination rates data

[Coronavirus and vaccination rates in people aged 18 years and over by socio-demographic characteristic and occupation, England](#)

Dataset | Released 20 January 2022

Coronavirus (COVID-19) vaccination rates among people aged 18 years and older who live in England, including estimates by socio-demographic characteristic and Standard Occupational Classification (SOC) 2010.

## 5 . Measuring the data

We linked vaccination data from the National Immunisation Management System (NIMS) to the Office for National Statistics (ONS) Public Health Data Asset (PHDA) based on NHS number. The ONS PHDA is a unique linked dataset combining the 2011 Census, the General Practice Extraction Service (GPES) data for pandemic planning and research, and the Hospital Episode Statistics (HES).

The study population consisted of people aged 18 years and over, alive on 31 December 2021 who were resident in England, registered with a general practitioner (GP) in 2019, and enumerated at the 2011 Census.

These data only include third vaccinations that were received from 16 September 2021 onwards. Third vaccination may refer to a booster vaccination or a third dose vaccination received as part of the primary course.

The age-standardised proportions presented are annualised directly age-standardised rates per 100 people, represented as a percentage. This is the number of people who have received a vaccination divided by the population for the relevant time period, standardised to the European Standard Population, multiplied by 100.

All individual-level socio-demographic characteristics (sex, ethnic group, religious affiliation, country of birth, English language proficiency, disability status, educational attainment, National Statistics Socio-economic Classification (NS-SEC) and household tenure) were derived from the 2011 Census.

NS-SEC and household tenure are measured at the household level, using the characteristic of the Household Reference Person (HRP); HRP is defined in the [2011 Census glossary](#).

Place of residence (region and rural-urban classification) and area-based deprivation were derived from the General Practice Extraction Service (GPES) data for pandemic planning and research where available, and from the 2011 Census where not available.

Occupation was derived from the 2011 Census and was classified according to the [Standard Occupational Classification \(SOC\) 2010](#). As this occupation information was collected in 2011, it is likely to be misclassified for a proportion of people, because they have left the labour force or changed occupation since 2011. To mitigate measurement error, we restricted our analysis to people aged 40 to 64 years, who are likely to have relatively higher occupational stability.

These data only contain information on people who were enumerated in the 2011 Census, and therefore exclude residents who did not take part in that census, and people who have immigrated since 2011. It also excludes those not registered with a GP in 2019. As a result, we excluded 20.9% of people aged 18 years and over who had received at least one vaccination.

The NIMS data covered the period 8 December 2020 to 31 December 2021. However, there may be an additional lag in data reporting such that it is possible we have not captured all vaccinations that were received by 31 December 2021.

## 6 . Related links

[Coronavirus and vaccination rates in people aged 50 years and over by socio-demographic characteristic, England: 8 December 2020 to 12 December 2021](#)

Bulletin | Released 24 December 2021

First, second, third dose and booster COVID-19 vaccination rates among people aged 50 years and older who live in England, including estimates by socio-demographic characteristic.

[Coronavirus and vaccination rates in people aged 40 to 64 years by occupation, England: 8 December 2020 to 12 December 2021](#)

Bulletin | Released 24 December 2021

First, second, third dose and booster COVID-19 vaccination rates, among people aged 40 to 64 years old who live in England, by Standard Occupational Classification 2010 (SOC 2010).

[What the ONS can tell you about the COVID-19 Vaccine programme](#)

Blog | Released 27 April 2021

A guide to the Office for National Statistics' (ONS) vaccine analysis.

[Coronavirus and the social impacts on Great Britain: 17 December 2021](#)

Bulletin | Released 17 December 2021

Indicators from the Opinions and Lifestyle Survey covering the period 1 to 12 December to understand the impact of the coronavirus (COVID-19) pandemic on people, households and communities in Great Britain.

[COVID-19 Health Inequalities Monitoring for England \(CHIME\) tool](#)

Webpage | Updated monthly

The CHIME tool brings together data relating to the direct impacts of COVID-19, for factors such as mortality rates, hospital admissions, confirmed cases and vaccinations. The tool presents these factors by inequality breakdowns, including by age, sex, ethnic group, level of deprivation and region.

[NHS England Coronavirus \(COVID-19\) Vaccinations](#)

Webpage | Updated daily

Administrative data on vaccinations published by NHS England weekly, covering all vaccinations given to individuals who have an NHS number and are currently alive in the resident population.