

Statistical bulletin

Coronavirus and vaccination rates in people aged 18 to 64 years by occupation and industry, England: 28 February 2022

Coronavirus (COVID-19) vaccination rates among people aged 18 to 64 years who live in England by Standard Occupational Classification (SOC) 2020 and UK Standard Industrial Classification of economic activities (SIC) 2007.

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Release date:
1 April 2022

Next release:
To be announced

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1 . Main points

- As of 28 February 2022, 74.5% of adults aged 18 to 64 years who were employed had received three coronavirus (COVID-19) vaccinations and 7.2% were unvaccinated.
- The occupation groups that had the highest proportion of people who had received three vaccinations were health professionals (84.7%) and teaching and other educational professionals (83.6%); these groups also had the lowest proportion of people who had not received a vaccine at 3.1% and 4.2% respectively.
- The occupation groups with the lowest proportion of people who had received three vaccinations were elementary trades and related occupations (57.6%) and skilled construction and building trades (61.8%); these groups also had the highest proportion of people who had not received a vaccine at 15.1% and 12.7% respectively.
- Within occupation groups, there was large variation in vaccination coverage between occupations; for example, within the health professionals group, 93.3% of specialist medical practitioners had received three vaccinations, compared with 71.9% of therapy professionals not elsewhere classified.
- The industry sections with the highest proportion of people who had received three vaccinations were public administration and defence; compulsory social security (81.9%) and professional, scientific and technical activities (81.0%).
- The industry sections with the lowest proportion of people who had received three vaccinations were accommodation and food service activities (61.7%) and construction (66.2%).
- The differences in vaccination status between occupation groups and industry sections did not appear to be driven by differences in geography, socio-demographic characteristics and underlying health conditions, as the rankings largely remained unchanged after adjusting for these factors.

Vaccination rates are produced using the Office for National Statistics Public Health Data Asset, which covers only a subset of the population (see [Measuring the data](#)). Data may differ from weekly administrative vaccination data published by NHS England.

2 . Coronavirus (COVID-19) vaccination rates by occupation group

Combining data from the Office for National Statistics (ONS) Public Health Data Asset (PHDA) and information on occupation collected as part of Census 2021, we examine differences in coronavirus (COVID-19) vaccination coverage between occupations. See [Measuring the data](#) for further details.

Vaccination rates are estimated by Standard Occupational Classification (SOC) 2020 sub-major occupation groups and unit group occupations. These are referred to as occupation groups and occupations, respectively, in the remainder of this article.

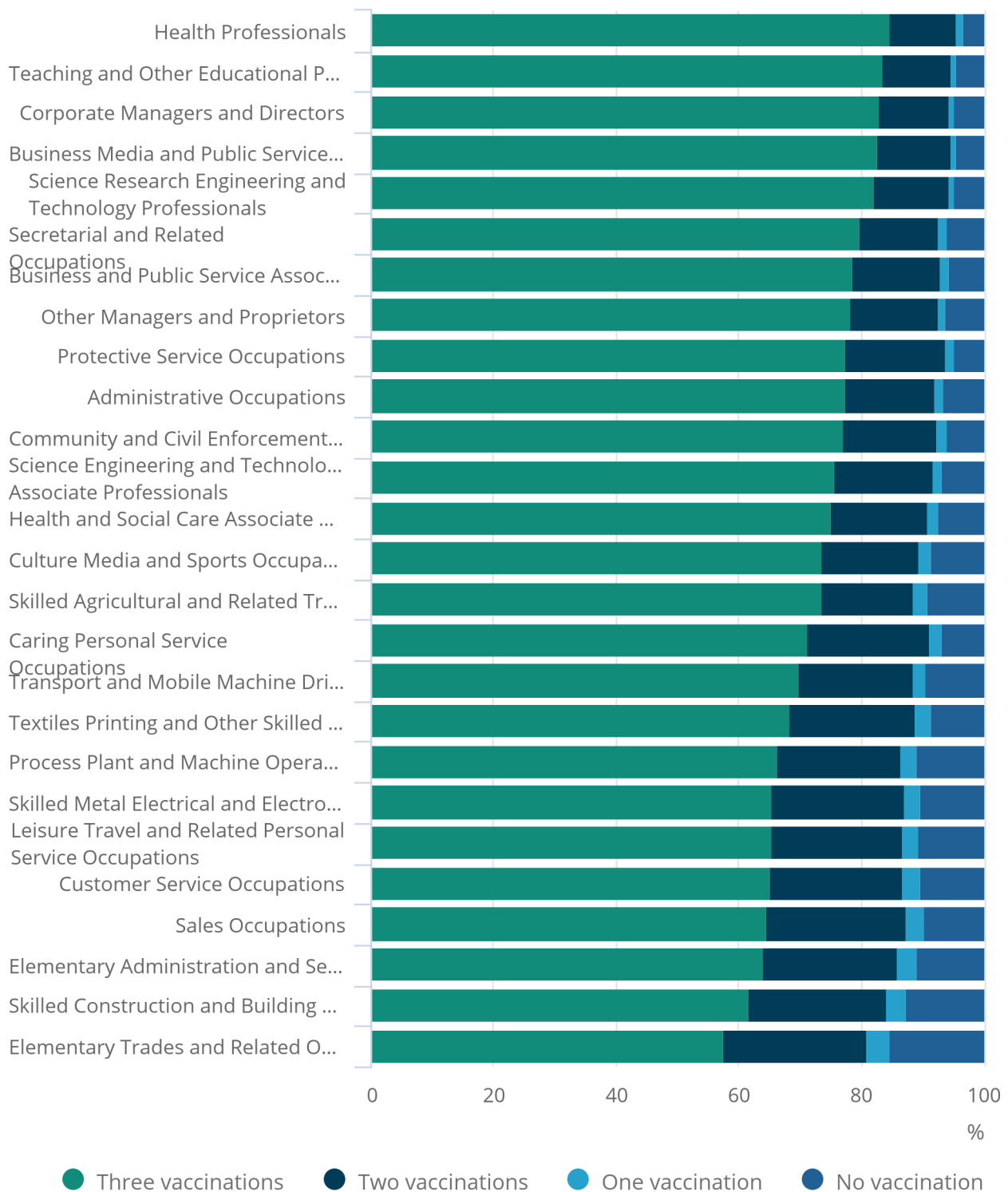
Vaccination coverage varies substantially by occupation group (Figure 1). The proportion of people who had received three vaccinations was highest in health professionals (84.7%) and teaching and other educational professionals (83.6%). These groups also had the lowest proportion of people who had not received a vaccine at 3.1% and 4.2% respectively. The lowest proportion of people who had received three vaccinations was in elementary trades and related occupations (57.6%) and skilled construction and building trades (61.8%). These groups also had the highest proportion of people who had not received a vaccine at 15.1% and 12.7% respectively.

Figure 1: The occupation groups with the highest proportion of people who had received three coronavirus (COVID-19) vaccinations were health professionals and teaching and other educational professionals

Crude vaccination rate by sub-major occupation group and vaccine number in people aged 18 to 64 years, England, 28 February 2022

Figure 1: The occupation groups with the highest proportion of people who had received three coronavirus (COVID-19) vaccinations were health professionals and teaching and other educational professionals

Crude vaccination rate by sub-major occupation group and vaccine number in people aged 18 to 64 years, England, 28 February 2022



Notes:

1. These data include coronavirus (COVID-19) vaccinations received between 8 December 2020 and 28 February 2022. They 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.
2. The study population consisted of people aged 18 to 64 years, alive on 28 February 2022 who were resident in England, registered with a general practitioner (GP) in 2019, enumerated at the 2011 Census and Census 2021, and were working and reported employment information.
3. SOC2020 sub-major group was derived from an extract of Census 2021. The Standard Occupational Classification (SOC) is a common classification of occupational information for the UK.

Vaccinations were offered according to priority groups set out by the Joint Committee on Vaccination and Immunisation (JCVI). To account for some of these differences, we calculated age-standardised vaccinated proportions. Age-standardised proportions are used to allow comparisons between occupations that may contain different proportions of people of different ages. Using logistic regression, we further accounted for differences in geography (region and rural-urban area), socio-demographic characteristics (age group, sex, ethnic group, disability status, educational attainment and area deprivation) and underlying health conditions.

In general, the differences in vaccination status between occupation groups do not appear to be driven by differences in geography, socio-demographic characteristics and underlying health conditions. The ranking largely remained unchanged after adjusting for these factors (See [dataset Tables 4 and 5](#)).

3 . Coronavirus (COVID-19) vaccination rates by occupations

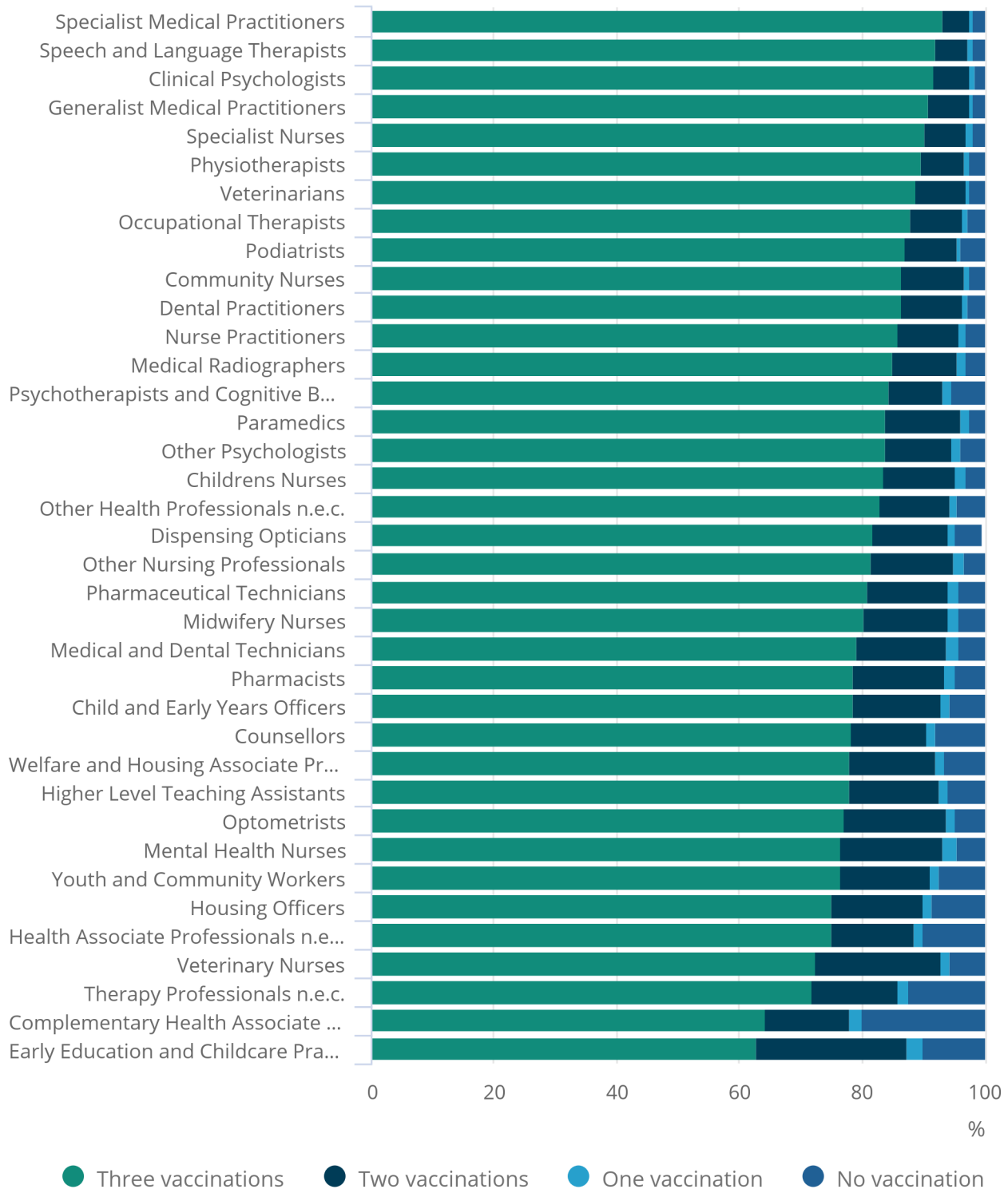
Coronavirus (COVID-19) vaccination coverage varied considerably within occupation groups. For instance, there are substantial differences in vaccination coverage within the health professionals and health and social care associate professionals groups. Among these groups, the occupations that had the highest proportion of people who had received three vaccinations were specialist medical practitioners (93.3%) and speech and language therapists (92.0%) respectively. The occupations that had the lowest proportion of people who had received three vaccinations were early education and childcare practitioners (63.0%) and complementary health associate professionals (64.4%).

Figure 2: Third coronavirus (COVID-19) vaccination coverage varied greatly among the health professionals and health and social care associate professionals occupation groups

Crude vaccination rate for health professionals and health and social care associate professionals, by unit occupation group and vaccine number in people aged 18 to 64 years, England, 28 February 2022

Figure 2: Third coronavirus (COVID-19) vaccination coverage varied greatly among the health professionals and health and social care associate professionals occupation groups

Crude vaccination rate for health professionals and health and social care associate professionals, by unit occupation group and vaccine number in people aged 18 to 64 years, England, 28 February 2022



Notes:

1. These data include vaccinations received between 8 December 2020 and 28 February 2022. They 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.
2. The study population consisted of people aged 18 to 64 years, alive on 28 February 2022 who were resident in England, registered with a general practitioner (GP) in 2019, enumerated at the 2011 Census and Census 2021, and were working and reported employment information.
3. SOC2020 unit group was derived from an extract of Census 2021. The Standard Occupational Classification (SOC) is a common classification of occupational information for the UK.

4 . Coronavirus (COVID-19) vaccination rates by industry section

Combining data from the Office for National Statistics (ONS) Public Health Data Asset (PHDA) and information on employment collected as part of Census 2021, we can also examine differences in coronavirus (COVID-19) vaccination coverage between industry section (see [Measuring the data](#)).

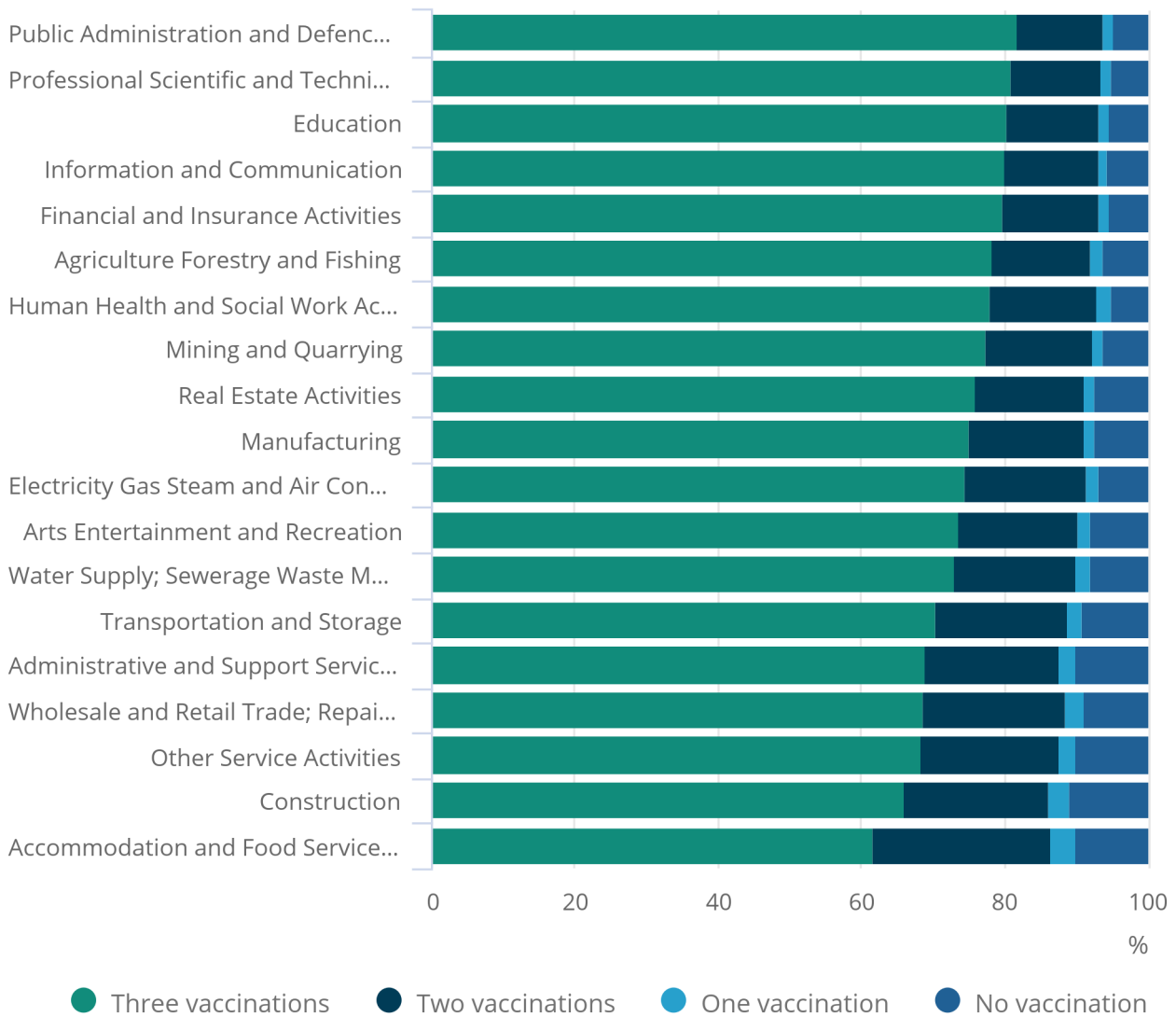
Vaccination coverage varied less by industry section when compared with occupation group. The proportion of people who had received three vaccinations was highest in the public administration and defence; compulsory social security (81.9%) and professional, scientific and technical activities (81.0%) industry sections. The industry sections with the lowest proportion of people who had received three vaccinations were accommodation and food service activities (61.7%) and construction (66.2%). The ranking of vaccination coverage by industry section remained largely similar once adjusted for geography, socio-demographic characteristics and underlying health conditions (see [dataset Tables 6 and 7](#)).

Figure 3: Third coronavirus (COVID-19) vaccination coverage was highest in the public administration and defence; compulsory social security industry section

Crude vaccination rate by industry section and vaccine number in people aged 18 to 64 years, England, 28 February 2022

Figure 3: Third coronavirus (COVID-19) vaccination coverage was highest in the public administration and defence; compulsory social security industry section

Crude vaccination rate by industry section and vaccine number in people aged 18 to 64 years, England, 28 February 2022



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

Notes:

1. These data include vaccinations received between 8 December 2020 and 28 February 2022. They 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.
2. The study population consisted of people aged 18 to 64 years, alive on 28 February 2022 who were resident in England, registered with a general practitioner (GP) in 2019, enumerated at the 2011 Census and Census 2021, and were working and reported employment information.
3. Industry section was derived from an extract of Census 2021 and classified according to the Standard Industrial Classification (SIC) 2007. The Standard Industrial Classification (SIC) is used to classify businesses by the type of economic activity they are engaged in.

5 . Coronavirus and vaccination rates by occupation and industry data

[Coronavirus and vaccination rates in people aged 18 to 64 years by occupation and industry, England](#)

Dataset | Released 1 April 2022

Coronavirus (COVID-19) vaccination rates among people aged 18 to 64 years who live in England by Standard Occupational Classification (SOC) 2020 and UK Standard Industrial Classification of economic activities (SIC) 2007.

6 . Glossary

Standard Occupational Classification

The Standard Occupational Classification (SOC) is a common classification of occupational information, in which jobs are classified by their skill level and content. SOC 2020 is the current classification.

Standard Industrial Classification

The Standard Industrial Classification (SIC) is used to classify businesses by the type of economic activity they are engaged in. SIC 2007 is the current classification.

7 . Measuring the data

Under strict security protocol, we linked vaccination data from the National Immunisation Management System (NIMS) to the Office for National Statistics (ONS) Public Health Data Asset (PHDA) and a de-identified extract of Census 2021.

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). We retrieved NHS numbers for 94.6% of 2011 Census participants, using the 2011 to 2013 NHS Patient Registers. All subsequent linkages were based on NHS numbers.

In addition, we updated the information on occupation and industry in the PHDA by using an extract from Census 2021, with all personal information removed to protect security and confidentiality. We retrieved NHS numbers for 82.1% of Census 2021 participants, using the Personal Demographics Service (PDS).

The study population consisted of people who were:

- aged 18 to 64 years
- alive on 28 February 2022 and resident in England
- registered with a general practitioner (GP) in 2019
- enumerated at the 2011 Census and Census 2021
- working and reported employment information

Our dataset contains 15,546,650 people, which amounts to 60.1% of the population of people employed, based on estimates from the Annual Population Survey. The dataset used in this study is not fully representative of the population living in England. People who did not take part in the 2011 Census and Census 2021, such as recent migrants, are not included in these calculations. In addition, some people enumerated at the 2011 Census and Census 2021 are not included, because no NHS number could be obtained for them.

These data only include third coronavirus (COVID-19) 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.

Occupation and industry section were derived from an extract of Census 2021. Occupation was classified according to the Standard Occupational Classification (SOC) 2020. We have used SOC 2020 sub-major occupation groups and unit group occupations, referred to as occupation groups and occupations, respectively, throughout this release. Industry section was classified according to the Standard Industrial Classification (SIC) 2007. Occupation and industry section were recorded on 21 March 2021, and information for some individuals may have changed since then.

The NIMS data covered the period 8 December 2020 to 28 February 2022. However, there may be an additional lag in data reporting, therefore it is possible we have not captured all vaccinations that were received by 28 February 2022.

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.

8 . Related links

[Use of preliminary information collected in Census 2021 in England to inform the ongoing response to coronavirus](#)

Web page | Last updated 28 January 2022

Statement outlining how we are updating estimates of coronavirus (COVID-19) vaccination rates in England.

[Coronavirus and vaccination rates in people aged 18 to 64 years by occupation, England: 31 December 2021](#)

Bulletin | Released 28 January 2022

Coronavirus (COVID-19) vaccination rates among people aged 18 to 64 years who live in England by Standard Occupational Classification (SOC) 2020.

[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](#)

Bulletin | 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.

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

Web page | 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](#)

Web page | Updated daily

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