



UK Health
Security
Agency

Pneumococcal Polysaccharide Vaccine (PPV) coverage report, England, April 2020 to March 2021

Health Protection Report
Volume 15 Number 19
23 November 2021

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Main points

Compared with the previous one-year period, both coverage (defined as those who have received a vaccine at any time) and uptake (defined as those that received a vaccine within a specific time period) were slightly higher in the year 2020 to 2021.

Coverage of PPV in adults aged 65 years and over, vaccinated any time up to and including 31 March 2021, was 70.6%, 1.6 percentage points higher compared with 2019 to 2020, 1.4 percentage points higher than 2018 to 2019 and 1.1 percentage points higher than 2017 to 2018.

The proportion of adults aged 65 years only on 31 March 2021 who were vaccinated between 1 April 2020 and 31 March 2021 was 15.1% compared to 12.9% in 2019 to 2020, 12.4% in 2018 to 2019 and 11.8% in 2017 to 2018.

Vaccine coverage for patients aged between 2 and 64 years in risk groups ranged between 38.5% (chronic liver disease) to 70.7% (cochlear implants).

Introduction

This report describes vaccine coverage for the 16th year of the pneumococcal polysaccharide vaccine (PPV) programme in England, in adults aged 65 years and over. It compares vaccine uptake estimates in 2020 to 2021 with the previous years of the programme [1,2] as well as coverage among those eligible for the programme. In addition to coverage in those aged 65 and over, this report presents vaccine coverage for at risk patients.

Pneumococcal disease can present as non-invasive or invasive infections caused by the bacterium *Streptococcus pneumoniae* (also called pneumococcus). Non-invasive disease includes middle ear infections (otitis media), sinusitis and bronchitis, whilst invasive pneumococcal disease (IPD) includes septicaemia, pneumonia and meningitis.

IPD is a significant cause of morbidity and mortality globally and in the UK with more than 5,000 confirmed cases reported in 2016 to 2017 in England and Wales [3]. Young children, the elderly and people in clinical risk groups are most at risk of severe pneumococcal disease, so these groups are currently offered pneumococcal immunisation.

A pneumococcal immunisation programme for older people was introduced in the UK in August 2003 [4]. In the first year of the programme, all people aged 80 years or above were eligible for a single dose of PPV and in April 2004, this was extended to include all people aged 75 years and over. Since April 2005 all people aged 65 years and over have been eligible for the vaccine. PPV contains purified polysaccharide from 23 capsular pneumococcal types (PPV23). PPV23 offers moderate short-term protection against IPD caused by the vaccine serotypes in adults aged 65 years and above [5]. Most healthy adults develop a good antibody response to a single dose of PPV however children younger than two years do not and so a pneumococcal conjugate vaccine (PCV13) is used in the childhood immunisation programme. Further information on PPV vaccine eligibility is available in the 'Immunisation against infectious disease' book (the Green Book) [6].

In response to the COVID-19 pandemic, nationwide social distancing measures were initiated from 23 March 2020 and specific guidance for elderly groups to temporarily shield have been in place throughout the pandemic, potentially disrupting the delivery of PPV vaccination programme [7].

Methods

GP practice level PPV vaccine coverage data is automatically uploaded via participating GP IT suppliers to the ImmForm¹ website on an annual basis. This data is then validated and analysed by PHE to check data completeness, identify and query any anomalous results and describe epidemiological trends.

The following definitions are used in this report:

- vaccine coverage (for individuals in an eligible age group): the total number of individuals in an eligible age group on 31 March 2021 who have ever received the vaccination (numerator) as a proportion of the number of patients in this group on 31 March 2021 (denominator)
- vaccine uptake (for individuals in an eligible age group): the total number of patients aged 65 years and above on 31 March 2021 who have received the vaccination between 1 April 2020 and 31 March 2021 (numerator) as a proportion of the number of patients registered aged 65 years and above on 31 March 2021 (denominator)
- vaccine coverage (for individuals registered as being at risk on the date of extraction): the total number of patients vaccinated anytime on or before 31 March 2021 (numerator) as a proportion of the number of patients aged 2 to 64 years registered as being at risk on the date of extraction (denominator)

To better understand how PPV coverage increases after the first year individuals become eligible, data is reported by the following age bands:

- 65 years only
- 65 years and over (overall)
- 66 years only
- 67 years only
- 68 years only
- 69 years only
- 70 to 74 years
- 75 years and over

This report describes vaccine coverage for England for eligible age and risk groups, and uptake data in eligible age groups. Data by NHS England Clinical Commissioning Group (CCG), Sustainability and Transformation Partnerships (STP) and Clinical Commissioning Region is presented in data tables associated with this report.

1. ImmForm is the system used by UKHSA to record vaccine coverage data for some immunisation programmes.

Clinical risk groups eligible for the pneumococcal immunisation are indicated in the Green Book [6]. A collaboration between UK Health Security Agency (UKHSA), PRIMIS and the Health Protection Research Unit on Vaccines compared the PRIMIS specification with a research primary care data set in a code-by-code review of over 3,400 codes [8]. SNOMED codes for each risk group were extracted and used to calculate vaccine coverage.

Participation and data quality

All three GP IT suppliers provided data for the annual report and out of 6,595 GP practices in 2020 to 2021, 6,531 (99.0%) provided data. Due to data quality issues, vaccine uptake for clinical risk groups was excluded from the analysis. Please note that the definition for Cerebrospinal Fluid Leaks has changed from that of previous years [6].

Results

All patients aged 65 years and over analysis

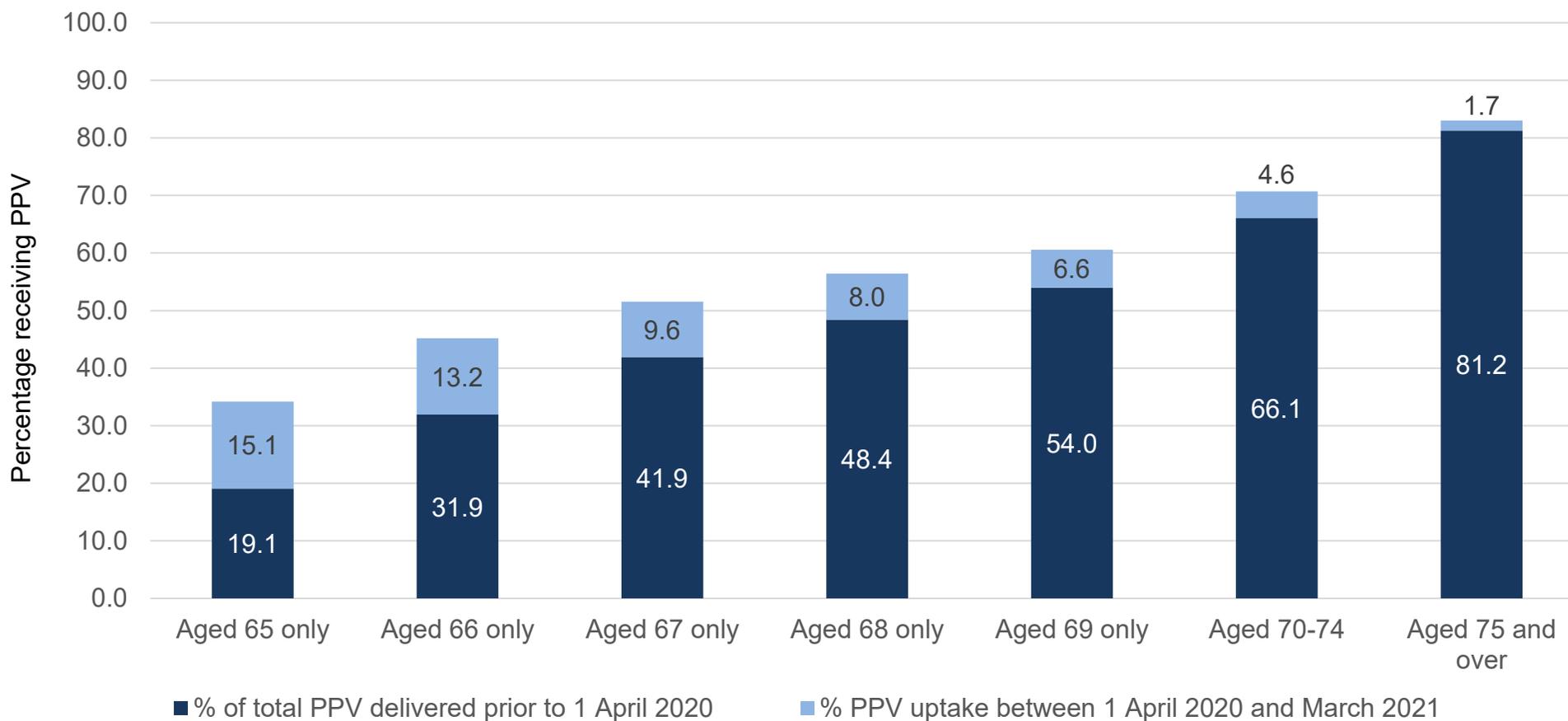
PPV coverage was 70.6% in all patients aged 65 years and over, immunised at any time up to 31 March 2021 in England, rising to 83.0% for those aged 75 years and over. The proportion immunised in the last 12 months for these two age groups was 4.9% and 1.7% respectively. [Table 1](#) and [Figure 1](#) describe coverage and uptake by age group. Coverage by STP are presented in the data tables associated with this report.

Table 1. Percentage of GP practices reporting and vaccination coverage and uptake for patients who received PPV up to 31 March 2021 by age group (years) in England

	% GP practices responding	Age group							
		Overall (aged 65 and over)	Aged 65 only	Aged 66 only	Aged 67 only	Aged 68 only	Aged 69 only	Aged 70 to 74	Aged 75 and over
PPV coverage (%)- proportion of adults who received PPV anytime up to 31 March 2021	99.0	70.6	34.2	45.2	51.5	56.4	60.6	70.7	83.0
PPV uptake (%) – proportion of adults receiving vaccine between 1 April 2020 and 31 March 2021	99.0	4.9	15.1	13.2	9.6	8.0	6.6	4.6	1.7
England denominator (n)	6,595	10,601,410	598,473	579,989	576,880	556,971	544,507	2,849,785	4,894,805

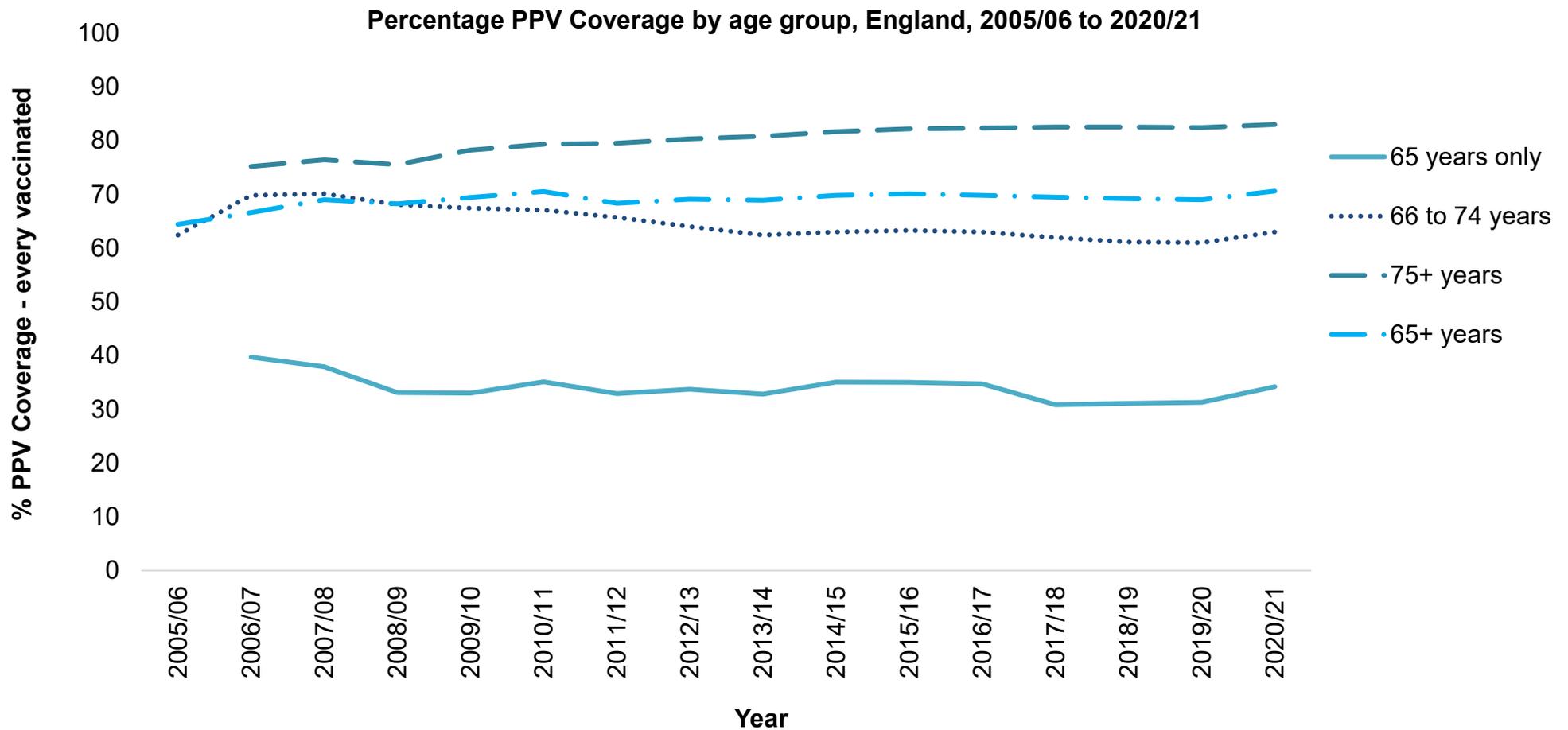
A total of 34.2% of patients in the 65-years-only group were vaccinated at any time up to 31 March 2021 ([Figure 1](#)). Adults over the age of 65 years are still being vaccinated, but the proportion of individuals receiving vaccine in the previous 12 months decreases with age as the proportion of individuals already vaccinated increases.

Figure 1. Percentage of individuals receiving PPV (up to 31 March 2020 or between 1 April 2020 and 31 March 2021), by age group, England



Compared with 2019 to 2020, coverage in the 65 years-and-over age group increased 1.6 percentage points in 2020 to 2021 and coverage in the 75 years-and-over increased 0.6 percentage points. Increase in coverage for PPV vaccine, who were vaccinated at any time, was observed in all age groups (Figure 2).

Figure 2. Percentage PPV coverage – vaccinated any time up to 31 March each year, by age group, England, 2005/06 to 2020/21



Compared with 2019 to 2020, PPV uptake in the previous 12 months (in 2020 to 2021) increased across all age groups. In the 65 years only group uptake increased from 12.9% (in 2019 to 2020) to 15.1% (in 2020 to 2021). However, although gradually increasing, uptake still remains lower than between 2014/2015 to 2016/2017, when uptake for the 65 years only group was above 16.0%. Vaccine uptake since 2005 to 2006 is presented in the data tables associated with this report.

PPV coverage in all patients aged 65 years and over up to 31 March 2021 was 70.1% in males and 71.0% in females. PPV uptake in 2020 to 2021 male patients aged 65 years and over was 4.9% and 4.9% in females. A small proportion (>1.0%) of patients aged 65 years and above refused/declined PPV vaccination.

More detailed tables by CCG, STP and NHS regions are presented in the data tables associated with this report.

Risk groups analysis

Vaccine coverage among patients at risk aged 2 to 64 years, and vaccinated at any time, varied from 38.5% (chronic liver disease) to 70.7% (cochlear implants) (Table 2). Coverage data for at risk groups is presented in the data tables associated with this report. Please note that uptake data for clinical risk groups has been excluded from this report due to data quality issues.

Table 2. PPV vaccine coverage by risk group up to 31 March 2021 in England

Risk group	PPV vaccine coverage by risk group (%)								
	Asplenia / dysfunction of the spleen	Chronic respiratory disease	Chronic heart disease	Chronic kidney disease	Chronic liver disease	Diabetes requiring insulin or oral hypoglycaemic medication	Immuno-suppression	Cochlear implants	Cerebro-spinal fluid leaks
PPV coverage ²	39.1	56.0	43.3	53.4	38.5	54.9	39.1	70.7	38.9
Total number of eligible adults at risk in England	342,938	518,165	835,750	87,809	117,786	1,487,496	1,034,001	8,806	5,294

² Proportion of adults aged 2 to 64 years at risk anytime up to 31 March 2021.

Discussion

In response to the COVID-19 pandemic, nationwide social distancing measures were initiated from 23 March 2020 and specific guidance for elderly groups to temporarily shield have been in place throughout the pandemic, potentially disrupting the delivery of PPV vaccination programme. Despite this, vaccine coverage and uptake in people aged 65 years and over have increased compared to 2019 to 2020 figures. This may be due to an increased awareness of vaccination in general amongst people in this age group and healthcare professionals.

PPV coverage among people aged 65 years and over has remained relatively constant, between 69.0% and 70.6% for the past seven years, despite the national vaccine shortage in 2017 affecting uptake in 65 year olds who became eligible in 2017 to 2018 (unless they were in a high risk group). The proportion of GP practices participating in the PPV survey remains stable and representative and was at least 95% for the seventh consecutive year. For the sixth year, data by individual year group has been collected for those aged 66 to 69 years old. This data indicates that many of those eligible for PPV vaccination do not receive the vaccine in the first year that they become eligible but in the subsequent years, with additional uptake gradually decreasing with age. Increasing vaccine coverage in the older age groups demonstrates that vaccination continues to be offered opportunistically in primary care to those aged over 65 years.

Following a review of the methodology used to define groups at risk, this report includes coverage among at-risk group. The data specifications used to define at-risk groups have focused on specificity rather than sensitivity so that there is high confidence that those included in the denominators are genuinely eligible for the vaccine. Vaccine coverage in individuals at risk indicate that coverage varies by different risk group categories. Only 38.5% of patients with chronic liver received the vaccine at anytime on or before 31 March 2021, whereas 70.7% of patients with cochlear implants receive the vaccine. This suggests that awareness of eligibility for PPV among clinicians varies substantially according to clinical indication. Due to the ambiguity of certain clinical codes, there will be individuals eligible for vaccination who are not included in the denominators. Vaccine coverage also varies by geographical regions. GPs should continue to encourage patients in risk groups and those aged 65 years and above to receive the pneumococcal vaccine.

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About the UK Health Security Agency

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Published: November 2021
Publishing reference: GOV-10459



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