



Public Health
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Pneumococcal Polysaccharide Vaccine (PPV) coverage report, England, April 2019 to March 2020

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Contents

Key points	3
Introduction	3
Methods	4
Results	6
Participation and data quality	
All patients aged 65 years and over analysis	
Risk groups analysis	
Discussion	11
References	12

Data tables associated with this report (available at: [PPV vaccine coverage estimates](#))

PPV coverage (%) in 65 years and over by age group and Clinical Commissioning Group (CCG) (cumulative data up to 31 March 2020).

PPV coverage (%) in 65 years and over by age group and Local Authority (LA) (cumulative data up to 31 March 2020).

PPV coverage (%) and uptake (%) in 65 years and over by and NHS Local Team (up to 31 March 2020).

PPV coverage (%) and uptake (%) in at risk groups by NHS Local Team (up to 31 March 2020).

National PPV coverage (%) and uptake (%) from 2005/06 to 2019/20.

Pneumococcal Polysaccharide Vaccine (PPV) coverage report, England, April 2019 to March 2020

Key points

Compared with the previous one-year period, coverage was slightly lower, and uptake slightly higher, in the reporting year 2019/20:

- coverage of PPV in adults aged 65 years and over, vaccinated any time up to and including 31 March 2020, was 0.2% lower compared with 2018/19 and 0.5% lower than 2017/18
- the proportion of adults aged 65 years on 31 March 2020 who were vaccinated between 1 April 2019 and 31 March 2020 was 12.9% compared to 12.4% in 2018/19 and 11.8% in 2017/18
- vaccine coverage for patients aged between 2 and 64 years in risk groups varied between 26.2% (chronic liver disease) to 76.5% (cochlear implants).

Introduction

This report describes vaccine coverage for the 15th year of the pneumococcal polysaccharide vaccine (PPV) programme in England, in adults aged 65 and over. It compares vaccine uptake estimates in 2019/20 with the previous years of the programme [1,2], as well as coverage among those eligible for the programme. For the second time since 2015, data on coverage among groups at risk was collected. The 2015 at-risk data was not published due to data inconsistencies; a revised methodology to identify those in at risk groups was used for the 2018/19 and 2019/20 extractions. In addition to coverage in those aged 65 and over, this report presents vaccine coverage for at risk patients, and vaccine uptake for patients that became at risk between April 2018 and March 2019.

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 2016/17 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 over [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 *Immunisation against infectious disease* (the “Green Book”) [5].

Methods

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

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

The following definitions are used in this report:

- vaccine coverage: the total number of individuals in an eligible group (either age group or clinical risk group) on 31 March 2020 who have ever received the vaccination (numerator) as a proportion of the number of patients in this group on 31 March 2020 (denominator)
- vaccine uptake (for individuals in an eligible age group): the total number of patients aged 65 and above on 31 March 2020 who have received the vaccination between 1 April 2018 and 31 March 2020 (numerator) as a proportion of the number of patients registered aged 65 and above on 31 March 2020 (denominator)
- vaccine uptake (for individuals becoming at risk in 2019/ 2020): the total number of patients vaccinated between 1 April 2017 and 31 March 2020 (numerator) as a proportion of the number of patients aged 2-64 years first registered as being at risk between 1 April 2018 and 31 March 2020 (denominator).

For the fifth year running, to better understand how PPV coverage increases after the first year individuals become eligible, data are reported by the following age bands:

65 years and over (overall)	65 years only
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 and uptake for England for each eligible group, either because of age or clinical risk. Data by Local Team, Local Authority and NHS England Clinical Commissioning Group (CCG) are presented in [data tables](#) associated with this report.

Clinical risk groups eligible for the pneumococcal immunisation are indicated in the Green Book. A collaboration between Public Health England, PRIMIS and the Health Protection Research Unit on Vaccines compared the PRIMIS specification with a research primary care dataset in a code-by-code review of over 3400 codes [7]. Read and CTV3 codes for each risk group, and the date when the codes were assigned, were extracted and used to calculate vaccine coverage and uptake. Vaccine uptake for patients aged 2-64 years, first registered as being at risk between 1 April 2018 and 31 March 2019 and vaccinated between 1 April 2018 and 31 March 2020 was calculated to determine the

proportion of patients that received the PPV vaccine within the first 1-2 years of becoming eligible (depending on the date at which they became at risk and eligible for the vaccine).

Results

Participation and data quality

All four GP IT suppliers provided data for the annual report. Out of 6,723 GP practices in 2019/20, 6,627 (98.6%) provided data, a higher proportion of practices than in 2018/19 (96.7%). This ranged by Local Team (LT) from 97.2% of practices in NHS England North West (Lancashire and South Cumbria), to 100% of practices in NHS England Midlands (Central Midlands).

All patients aged 65 and over analysis

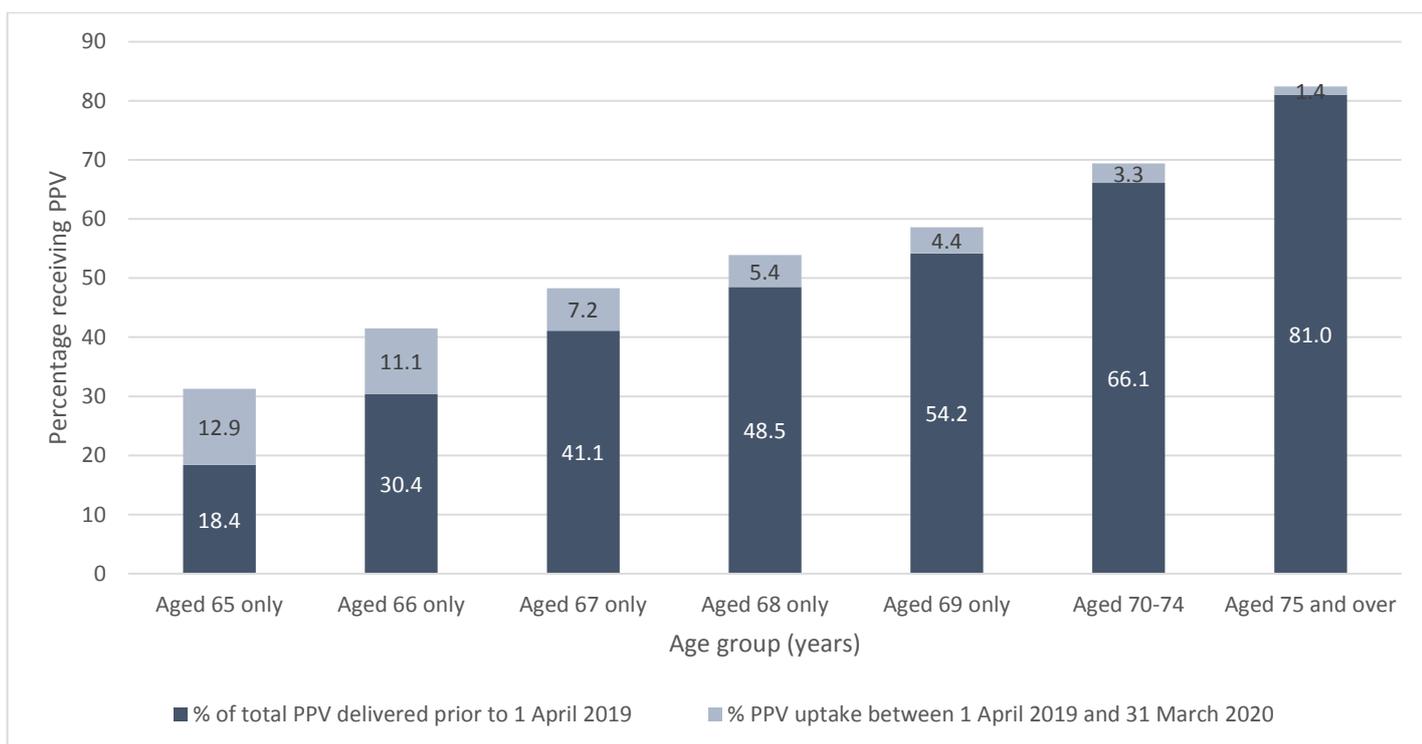
PPV coverage was 69.0% in all patients aged 65 years and over, immunised at any time up to 31 March 2020 in England, rising to 82.4% for those aged 75 years and over. The proportion immunised in the last 12 months for these two age groups was 3.8% and 1.4% respectively. Table 1 and Figure 1 describe coverage and uptake by age group. Coverage data by LT 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 2020 by age group (years) in England

	% GP practices responding	Age group							
		Overall (aged 65 & over)	Aged 65 only	Aged 66 only	Aged 67 only	Aged 68 only	Aged 69 only	Aged 70-74	Aged 75 & over
PPV coverage: proportion of adults who received PPV anytime up to 31 March 2019	98.6	69.0	31.3	41.5	48.3	53.9	58.6	69.4	82.4
PPV uptake: proportion of adults receiving vaccine between 1 April 2018 and 31 March 2019	98.6	3.8	12.9	11.1	7.2	5.4	4.4	3.3	1.4
England denominator	6,723	10,115,593	578,945	567,449	552,959	547,100	550,900	2,753,238	4,565,002

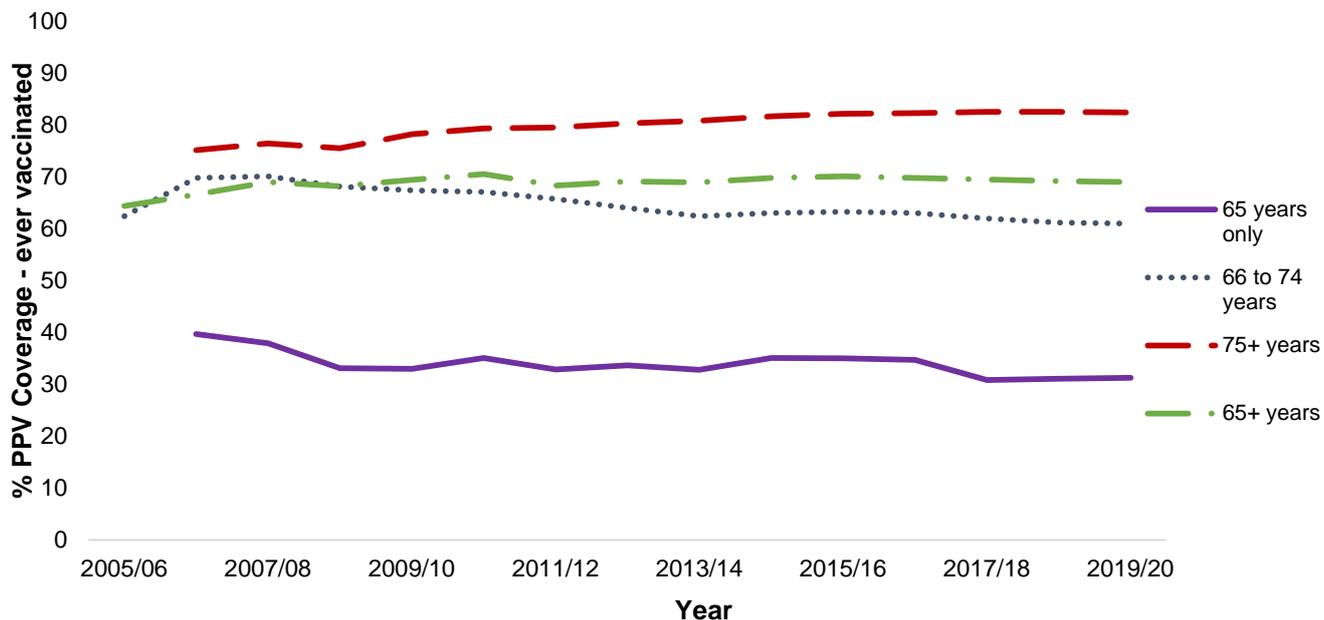
A total of 31.3% of patients in the 65-years-only group were vaccinated at any time up to 31 March 2020 (Figure 1), of which 18.4% had already received the vaccine prior to 1 April 2019 because they were included in specific clinical risk groups. Adults over the age of 65 years are still being vaccinated, 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 2019 or between 1 April 2019 and 31 March 2020), by age group, England



Compared with 2018/19, coverage in the 65 years and over age group decreased 0.2% in 2019/20 and coverage in the 75 years and over decreased 0.1% (Figure 2).

Figure 2. Percentage PPV coverage – vaccinated any time up to 31 March each year – by age group, England, 2005/06 to 2019/20



Compared with 2018/19, PPV uptake in the previous 12 months (in 2019/20) increased across all age groups. In the 65 years only group uptake increased from 12.4% in 2018/19 to 12.9% in 2019/20. However, although gradually increasing, uptake for the last three years remains lower than in the previous three years (2014/15 to 2016/17) when uptake for the 65 years only group was above 16%. A similar pattern is also seen for other age groups.

Vaccine uptake since 2005/06 is presented in the [data tables](#) associated with this report.

PPV coverage in all patients aged 65 years and over up to 31 March 2020 was 68.7% in males and 69.2% in females. PPV uptake in 2019/20 male patients aged 65 years and over was 3.9% and 3.7% in females. A small proportion (1.3%) of patients aged 65 years and above refused/declined PPV vaccination.

More detailed tables by CCG and Local Authority are presented in the [data tables](#) associated with this report.

Risk groups analysis

Vaccine coverage among patients at risk aged 2-64 years varied from 26.2% (chronic liver disease) to 76.5% (cochlear implants) (Table 2). Vaccine uptake for patients aged 2-64 years who became at risk between 1 April 2018 and 31 March 2019 and were vaccinated between 1 April 2018 and 31 March 2020 was extracted to determine vaccine uptake within the first 1-2 years of becoming eligible for the PPV vaccine. Overall vaccine uptake for the risk groups varied between 6.1% (cerebrospinal fluid leaks) and 49.9% (cochlear implants). Coverage and uptake data for at risk groups are presented by LT in the [data tables](#) associated with this report.

Table 2. PPV vaccine coverage and uptake by risk up to 31 March 2020 in England

	PPV vaccine uptake by risk groups (%)								
	Asplenia/ dys- function of the spleen	Chronic res- piratory disease	Chronic heart disease	Chronic kidney disease	Chronic liver disease	Diabetes requiring insulin or oral hypoglycaemic medication	Immuno- supp- ression	Cochlear implants	Cerebro- spinal fluid leaks
PPV coverage ¹	39.3	50.9	34.1	34.8	26.2	49.8	37.8	76.5	31.9
Total number of eligible adults at risk in England	252,664	500,490	1,033,403	287,030	184,194	1,411,933	687,541	6,547	21,339
PPV uptake ²	18.7	11.3	14.9	7.1	10.4	19.9	15.6	49.9	6.1
Eligible adults at risk in England 2018/19	14,861	300,958	71,433	22,182	14,907	95,254	47,794	339	11,611

1. Proportion of adults aged 2 to 64 years at risk anytime up to 31 March 2020

2. Proportion of adults aged 2 to 64 years becoming at risk between 1 April 2018 and 31 March 2019, and receiving vaccine between 1 April 2018 and 31 March 2020.

Discussion

PPV coverage among people aged 65 years and over has remained relatively constant, between 69.0% and 70.1% for the past six years, despite the national vaccine shortage in 2017 affecting uptake in 65 year olds who became eligible in 2017/18 (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 sixth consecutive year. For the fifth year, data by individual year group have been collected for those aged 66-69 years old. These data indicate 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 uptake among at-risk group for the second year since 2015. 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 uptake in individuals at risk indicate that vaccine coverage varies by different risk group category within the first two years of eligibility. Similar to 2018/19, only 6.1% and 7.1% of patients with cerebrospinal fluid leaks and chronic kidney disease respectively receive the vaccine within the first 1-2 years of being eligible for the vaccine, whereas 49.9% 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 Local Team. 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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Health Protection Report is a national public health bulletin for England and Wales, published by Public Health England. It is PHE's principal channel for the dissemination of laboratory data relating to pathogens and infections/communicable diseases of public health significance and of reports on outbreaks, incidents and ongoing investigations.

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