Pneumococcal Polysaccharide Vaccine (PPV) coverage report, England, April 2017 to March 2018

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Introduction
This report describes vaccine coverage for the thirteenth year of the pneumococcal polysaccharide vaccine (PPV) programme in England, in adults aged 65 and over, comparing vaccine coverage estimates with the previous years of the programme [1-2].

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 annually in England. Young children, the elderly and people in clinical risk groups are most at risk of severe pneumococcal disease, and so all of these groups are currently offered pneumococcal immunisation.

A pneumococcal immunisation programme for older people was introduced in the UK in August 2003 [3]. 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). 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) [4].
Key points

- Coverage of PPV in adults aged 65 years and over, vaccinated any time up to and including 31 March 2018, was 69.5%, 0.3% lower compared with 2016/17 and 0.6% lower than 2015/16 and 2014/15.
- The proportion of adults aged 65 years who were vaccinated in the last 12 months was 11.8%, compared to 16.3% in 2016/17
- A national shortage of PPV vaccine is likely to be the main contributor to these decreases

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, identify and query any anomalous results and describe epidemiological trends. The following definitions are used in this report:

ImmForm is the system used by Public Health England to record vaccine coverage data for some immunisation programmes and to provide vaccine ordering facilities for the NHS.

- **vaccine coverage** – the total number of patients aged 65 and above on 31 March 2018 who have ever received the vaccination (numerator) as a proportion of the number of patients registered aged 65 and above on 31 March 2018 (denominator)
- **vaccine uptake** – the total number of patients aged 65 and above on 31 March 2018 who have received the vaccination between 1 April 2017 and 31 March 2018 (numerator) as a proportion of the number of patients registered aged 65 and above on 31 March 2018 (denominator)

For the third 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 of each eligible cohort for England and by NHS England Local Team (LT). Data by Local Authority and NHS England Clinical Commissioning Group (CCG), are presented in the appendix associated with this report.

* ImmForm is the system used by Public Health England to record vaccine coverage data for some immunisation programmes and to provide vaccine ordering facilities for the NHS
Participation and data quality

All four GP IT suppliers provided data for the annual report. Out of 7,159 GP practices in 2017/18, 6,924 (96.7%) provided data, a greater proportion of practices reporting than in 2016/17 (95.5%). This ranged by LT from 94.5% of practices in the North Midlands, to 99.3% of practices in Wessex (see table 1).

Results

PPV coverage was 69.5% in all patients aged 65 and over, immunised at any time up to 31 March 2018 in England, rising to 82.5% for those aged 75 and over. Table 1 describes coverage by LT and age group.

Table 1. Percentage of GP practices reporting and vaccination coverage for patients who received PPV anytime up to 31 March 2018 by age group (years) for each Local Team in England

<table>
<thead>
<tr>
<th>NHS England Local Team</th>
<th>% GP practices responding</th>
<th>Vaccine coverage (%) by age group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Over all (aged 65 and over)</td>
<td>Aged 65 only</td>
</tr>
<tr>
<td>LONDON</td>
<td>95.7</td>
<td>64.4</td>
</tr>
<tr>
<td>MIDLANDS AND EAST (CENTRAL MIDLANDS)</td>
<td>97.7</td>
<td>69.8</td>
</tr>
<tr>
<td>MIDLANDS AND EAST (EAST)</td>
<td>98.5</td>
<td>68.9</td>
</tr>
<tr>
<td>MIDLANDS AND EAST (NORTH MIDLANDS)</td>
<td>94.5</td>
<td>70.5</td>
</tr>
<tr>
<td>MIDLANDS AND EAST (WEST MIDLANDS)</td>
<td>96.0</td>
<td>69.1</td>
</tr>
<tr>
<td>NORTH (CHESHIRE AND MERSEYSIDE)</td>
<td>96.8</td>
<td>72.9</td>
</tr>
<tr>
<td>NORTH (CUMBRIA AND NORTH EAST)</td>
<td>97.5</td>
<td>70.9</td>
</tr>
<tr>
<td>NORTH (GREATER MANCHESTER)</td>
<td>96.6</td>
<td>69.7</td>
</tr>
<tr>
<td>NORTH (LANCASHIRE)</td>
<td>96.5</td>
<td>71.1</td>
</tr>
<tr>
<td>NORTH (YORKSHIRE AND HUMBER)</td>
<td>98.4</td>
<td>71.3</td>
</tr>
<tr>
<td>SOUTH (SOUTH CENTRAL)</td>
<td>96.2</td>
<td>71.3</td>
</tr>
<tr>
<td>SOUTH (SOUTH EAST)</td>
<td>96.4</td>
<td>67.7</td>
</tr>
<tr>
<td>SOUTH (SOUTH WEST)</td>
<td>95.8</td>
<td>68.8</td>
</tr>
<tr>
<td>SOUTH (WESSEX)</td>
<td>99.3</td>
<td>71.3</td>
</tr>
<tr>
<td>England</td>
<td>96.7</td>
<td>69.5</td>
</tr>
<tr>
<td>England denominator</td>
<td>7,159</td>
<td>9,916,968</td>
</tr>
</tbody>
</table>
Coverage in the 65 years and over age group increased from 68.3% (2011/12) to 70.1% (2015/16) before declining to 69.5% (2017/18). Coverage in the 75 years and over age group has increased steadily from 79.5% (2011/12) to 82.5% (2017/18) (figure 1).

**Figure 1. Percentage PPV coverage – ever vaccinated, by age group, England, 2005/06 to 2017/18**

PPV uptake in the previous 12 months across all age groups remained stable over the nine years between 2007/8 and 2016/17 before declining in the youngest age groups in 2017/18 (figure 2). In the 65 years only group uptake fell from 16.3% in 2016/17 to 11.8% in 2017/18 (figure 2, table 2). Declines in uptake were observed in each of the older age groups, though the size of decline decreased with increasing age (table 2).
Figure 2. Percentage PPV uptake – past 12 months, by age group, England, 2005/06 to 2017/18

![Graph showing PPV uptake by age group over years](image)

Table 2. Percentage of individuals (uptake) receiving PPV between 1 April 2016 and 31 March 2017 and between 1 April 2017 and 31 March 2018, by age group, England

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>65</th>
<th>66</th>
<th>67</th>
<th>68</th>
<th>69</th>
<th>70-74</th>
<th>75+</th>
<th>Total (65+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% PPV uptake – proportion of adults receiving vaccine between 1 April 2016 and 31 March 2017</td>
<td>16.3</td>
<td>11.5</td>
<td>7.3</td>
<td>5.7</td>
<td>4.8</td>
<td>3.4</td>
<td>1.7</td>
<td>4.4</td>
</tr>
<tr>
<td>% PPV uptake – proportion of adults receiving vaccine between 1 April 2017 and 31 March 2018</td>
<td>11.8</td>
<td>8.7</td>
<td>5.2</td>
<td>3.8</td>
<td>3.2</td>
<td>2.5</td>
<td>1.1</td>
<td>3.0</td>
</tr>
<tr>
<td>Difference</td>
<td>-4.5</td>
<td>-2.8</td>
<td>-2.1</td>
<td>-1.9</td>
<td>-1.6</td>
<td>-0.9</td>
<td>-0.6</td>
<td>-1.4</td>
</tr>
</tbody>
</table>

Of the 30.9% of patients in the 65 years only group vaccinated at any time to 31 March 2018, 19.0% had already received the vaccine prior to 1 April 2017 because they were included in specific clinical risk groups (figure 3). 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 3).
PPV coverage in all patients aged 65 and over up to 31 March 2018 was 69.3% in males and 69.6% in females (figure 4). PPV uptake in 2017/18 all patients aged 65 and over was 3.1% in males and 2.9% in females (figure 4). A small proportion (1.3%) of patients aged 65 or above refused/declined PPV vaccination. There was no difference in the proportion of patients refusing/declining the vaccine by gender.
Discussion

The proportion of GP practices participating in the PPV survey was at least 95% for the fourth consecutive year. PPV coverage among people aged 65 years and over has been close to 70% for the past five years, despite the ongoing national vaccine shortage which started in 2017 and particularly affected uptake in 65 year olds who became eligible in 2017/18 (unless they were in a high risk group). Although the vaccine shortage affects all cohorts, its impact on individual single age band cohorts is modest, except for those aged 65 years old, for whom 2017/18 was the first opportunity to receive the vaccine.

The impact of the PPV programme on reducing the incidence of vaccine-type IPD in patients aged 65 years and over has not been evident in surveillance data, due to the vaccine’s modest effectiveness, its existing use in risk groups prior to their entry into the over 65 programme, and the indirect impact of the conjugate vaccines used in children [5]. However, there is evidence of individual protection against the serotypes covered by
PPV23 [6]. PHE is currently doing a study to further assess effectiveness in the 65 years and over age group and any decline by time since vaccination.

For the third year, data by individual year group have been collected for those aged 66 to 69 years. 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.

References


2. PHE website. Pneumococcal polysaccharide vaccine (PPV): vaccine coverage estimates.


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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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