Pneumococcal Polysaccharide Vaccine (PPV) coverage report, England, April 2018 to March 2019

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Pneumococcal Polysaccharide Vaccine (PPV) coverage report, England, April 2018 to March 2019

Key points

coverage of PPV in adults aged 65 years and over, vaccinated any time up to and including 31 March 2019, was 69.2%, 0.3% lower compared with 2017/18 and 0.6% lower than 2016/17

the proportion of adults aged 65 years who were vaccinated in the last 12 months was 12.4% compared to 11.8% in 2017/18 and compared to 16.3% in 2016/17

vaccine coverage for the risk groups varied between 6.5% (cerebrospinal fluid leaks) to 52.2% (cochlear implants)

Introduction

This report describes vaccine coverage for the fourteenth year of the pneumococcal polysaccharide vaccine (PPV) programme in England, in adults aged 65 and over. It compares vaccine uptake estimates in 2018/19 with the previous years of the programme [1],[2], as well as coverage among those eligible for the programme. For the first time since 2015, data on coverage among groups at risk was collected. The 2015 at-risk data was not published due to data inconsistencies, and a revised methodology to identify those in at risk groups was used for the 2018/19 current extraction. This report presents vaccine coverage for at risk patients and vaccine uptake for patients that became at risk between 2017 and 2018.

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). 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) [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, identify and query any anomalous results and describe epidemiological trends.

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 2019 who have ever received the vaccination (numerator) as a proportion of the number of patients in this group on 31 March 2019 (denominator)

- **Vaccine uptake** (for individuals in an eligible age group) – the total number of patients aged 65 and above on 31 March 2019 who have received the vaccination between 1 April 2018 and 31 March 2019 (numerator) as a proportion of the number of patients registered aged 65 and above on 31 March 2019 (denominator)

* 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 uptake (for individuals becoming at risk in 2017/2018) - the total number of patients vaccinated between 1 April 2017 and 31 March 2019 (numerator) as a proportion of the number of patients registered as being at risk between 1 April 2017 and 31 March 2018 (denominator)

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

<table>
<thead>
<tr>
<th>Age Band</th>
<th>Age Band</th>
</tr>
</thead>
<tbody>
<tr>
<td>65 years and over</td>
<td>65 years only</td>
</tr>
<tr>
<td>66 years only</td>
<td>67 years only</td>
</tr>
<tr>
<td>68 years only</td>
<td>69 years only</td>
</tr>
<tr>
<td>70 to 74 years</td>
<td>75 years and over</td>
</tr>
</tbody>
</table>

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 an appendix 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 [6]. 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 registered as being at risk between 1 April 2017 and 31 March 2018 and vaccinated between 1 April 2017 and 31 March 2019 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 6,897 GP practices in 2018/19, 6,667 (96.7%) provided data, the same proportion of practices reporting in 2017/18. This ranged by Local Team (LT) from 91.8% in NHS England South West (South West South) of practices, to 98.2% of practices in NHS England North East and Yorkshire (Yorkshire and Humber) (Table 1).

All patients aged 65 and over analysis
PPV coverage was 69.2% in all patients aged 65 and over, immunised at any time up to 31 March 2019 in England, rising to 82.5% for those aged 75 and over. The proportion immunised in the last 12 months for these two age groups was 3.5% and 1.3% respectively. Table 1 and Figure 1 describe coverage and uptake by age group. Coverage 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 2019 by age group (years) in England

<table>
<thead>
<tr>
<th>% GP Practices Responding</th>
<th>Age group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overall (aged 65 and over)</td>
</tr>
<tr>
<td>PPV coverage – proportion of adults who received PPV anytime up to 31 March 2019</td>
<td>96.7</td>
</tr>
<tr>
<td>PPV uptake – proportion of adults receiving vaccine between 1 April 2018 and 31 March 2019*</td>
<td>96.7</td>
</tr>
<tr>
<td>England denominator</td>
<td>6,667</td>
</tr>
</tbody>
</table>

*Numbers in this row corrected in version 2 (November 2019)
Figure 1. Percentage of individuals receiving PPV (up to 31 March 2018 or between 1 April 2018 and 31 March 2019), by age group, England

Compared with 2017/18, coverage in the 65 years and over age group decreased 0.3% and coverage in the 75 years and over remained the same (Figure 2).
Compared with 2017/18, PPV uptake in the previous 12 months (in 2018/19) increased across all age groups. In the 65 years only group uptake increased from 11.8% in 2017/18 to 12.4% in 2018/19. However, uptake for those aged 65 and older remains lower in all age groups compared to uptake from 2005/06 to 2016/17. Coverage since 2005/06 are presented in the data tables associated with this report.

A total of 31.1% of patients in the 65 years only group vaccinated at any time to 31 March 2019 (Figure 2), of which 18.7% 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. Uptake since 2005/06 are presented in the data tables associated with this report.

PPV coverage in all patients aged 65 and over up to 31 March 2019 was 68.9% in males and 69.4% in females. PPV uptake in 2018/19 male patients aged 65 and over was 3.6% and 3.4% in females. A small proportion (1.2%) of patients aged 65 or 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 varied from 31.6% (cerebrospinal fluid leaks) to 76.5% (cochlear implants). Vaccine uptake for patients who became at risk between 1 April 2017 and 31 March 2018 and vaccinated from 1 April 2017 to 31 March 2019 were extracted to determine vaccine uptake within the first two years of becoming eligible for the PPV vaccine. Overall vaccine uptake for the risk groups varied between 6.5% (cerebrospinal fluid leaks) to 52.2% (cochlear implants). Coverage and uptake data for at risk groups are presented in the data tables associated with this report.

**Table 3. PPV vaccine coverage and uptake by risk up to 31 March 2019 in England**

<table>
<thead>
<tr>
<th>NHS England Local Team</th>
<th>PPV vaccine coverage (%)</th>
<th>PPV vaccine uptake by risk groups (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Asplenia/ Dysfunction of the Spleen</td>
<td>Chronic Respiratory Disease</td>
</tr>
<tr>
<td>PPV coverage</td>
<td>39.6</td>
<td>52.5</td>
</tr>
<tr>
<td>Total number of eligible adults at risk in England</td>
<td>236,819</td>
<td>464,112</td>
</tr>
<tr>
<td>PPV uptake</td>
<td>17.8</td>
<td>12.0</td>
</tr>
<tr>
<td>Eligible adults at risk in England 2017/18</td>
<td>14,517</td>
<td>268,023</td>
</tr>
</tbody>
</table>

1. Proportion of adults at risk anytime up to 31 March 2019
2. Proportion of at risk adults eligible between 01/04/17– 31/03/18 and received vaccine between 1 April 2017 and 31 March 2019
Discussion

PPV coverage among people aged 65 years and over has remained relatively constant at just under 70% 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 remarkably constant and representative and was at least 95% for the fifth consecutive year. Vaccine effectiveness for PPV was assessed recently and is published online [7]. For the fourth year, data by individual year group have been collected for those aged 66 to 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 first 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. Only 6.5% and 7.0% of patients with cerebrospinal fluid leaks and chronic kidney disease receive the vaccine within the first 1-2 years of being eligible for the vaccine, whereas 52.2% 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 and above to receive the pneumococcal vaccine.
References


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