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# **Pertussis vaccination programme for pregnant women update: vaccine coverage in England, October to December 2019**

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# Pertussis vaccination programme for pregnant women update: vaccine coverage in England, October to December 2019

This report presents pertussis vaccine coverage in pregnant women in England for the period October to December 2019, updating previous data reported for April to September 2019 [1].

Following increased pertussis activity in all age groups, including infants under three months of age, and the declaration of a national pertussis outbreak in April 2012 [2] pertussis vaccine has been offered to pregnant women since 1 October 2012 [3].

The prenatal pertussis vaccination programme aims to minimise disease, hospitalisation and deaths in young infants, through intra-uterine transfer of maternal antibodies, until they can be actively protected by the routine infant programme with the first dose of pertussis vaccine scheduled at eight weeks of age [4]. In June 2014 the Joint Committee on Vaccination and Immunisation (JCVI) considered available data and, based on the high effectiveness and safety of the programme, advised it should continue for a further five years [5]. In February 2016 the JCVI considered new evidence demonstrating that vaccination earlier in pregnancy would increase opportunities during pregnancy for vaccination, without detrimentally affecting the protection afforded to the infant [6,7]. Based on this, JCVI advised that vaccination could be offered from gestational week 16, although for operational reasons, vaccination should ideally be offered from around 20 weeks, on or after the foetal anomaly scan [8]. This advice was implemented from April 2016 and the vaccine is now offered through general practice as well as some maternity services.

## Key point

- pertussis vaccine coverage in pregnant women for the third quarter of 2019/20 averaged 72.1%, 0.4% percentage points higher than coverage for the same quarter in 2018/19

## Methods

General practice (GP) level pertussis vaccine coverage data are automatically uploaded via participating GP IT suppliers to the ImmForm<sup>1</sup> website monthly and a separate annual extraction was uploaded at the end of the financial year. ImmForm data are validated and analysed by PHE to check data completeness, identify and query any anomalous data and describe epidemiological trends.

Since April/May 2016 (implementation date varied by GP IT supplier) the following monthly (annual) data have been collected:

- *denominator*: number of women who delivered in the survey month (year), excluding miscarriages and stillbirths, regardless of gestational age
- *numerator*: number of women receiving pertussis vaccination between week 16 of pregnancy and delivery

For accurate denominators to be extracted from GP IT systems by the automated survey and precise coverage estimates to be calculated, it is important that the medical records of all women who have given birth have the following fields completed:

- the date of delivery
- the date of receipt of a pertussis-containing vaccine at or after week 16 of pregnancy, regardless of the setting where the vaccine was administered
- where relevant, fields indicating stillbirth or miscarriage.

### Participation and data quality

National GP practice participation remains very high, 98.3% (October), 98.9% (November), and 98.7% (December).

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<sup>1</sup> 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

## Results

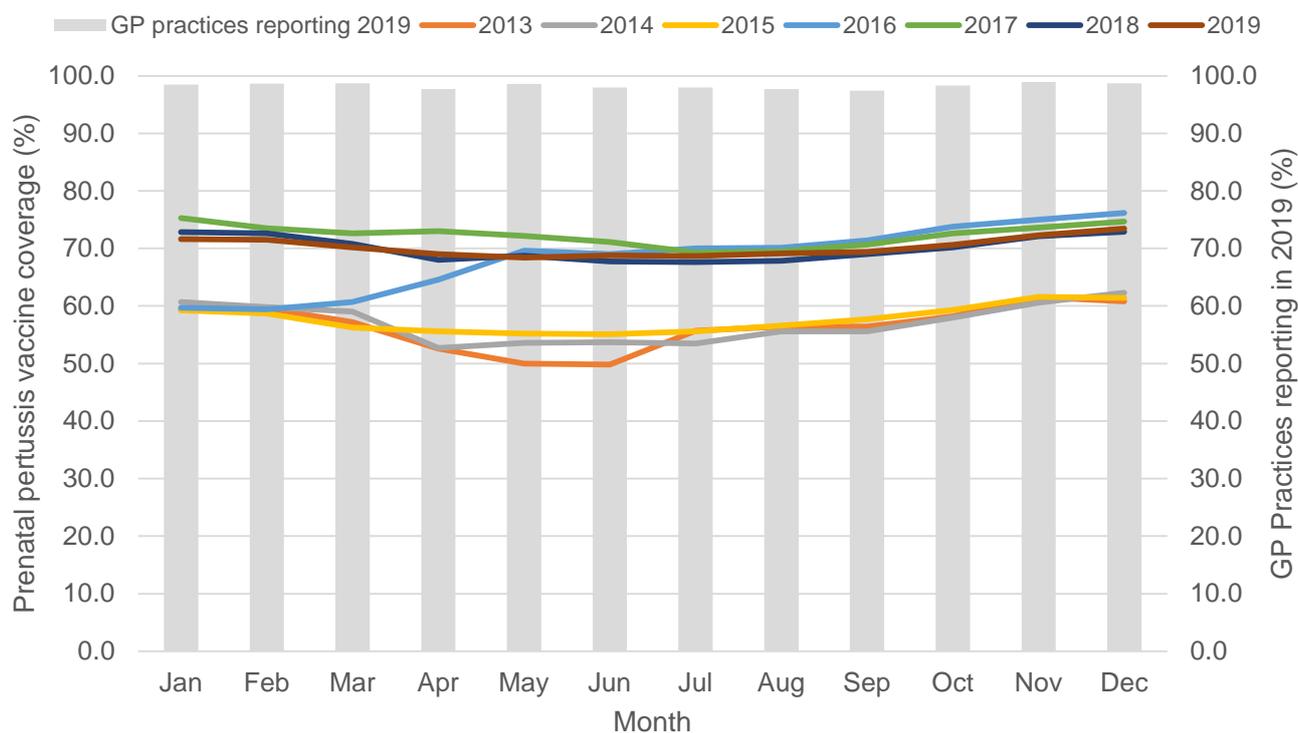
Pertussis vaccine coverage increased from 70.6% in October 2019 to 73.5% in December 2019 and average coverage for the quarter was 72.1% (Table 1, Figure 1, and [see data tables](#)). During this period, prenatal pertussis vaccine coverage by NHS England Local Team ranged from 56.7% (London, October) to 82.9% (Yorkshire and Humber, December) (Table 1).

**Table 1. 2019/20 Quarter 3 monthly pertussis vaccination coverage (%) in pregnant women by NHS England Local Team: England, October to December 2019**

NHS Local Team		2019/20 Quarter 3 coverage		
		Oct (%)	Nov (%)	Dec (%)
Q71	NHS ENGLAND LONDON	56.7	58.2	60.9
Q72	NHS ENGLAND NORTH EAST AND YORKSHIRE (YORKSHIRE AND HUMBER)	78.8	80.9	82.9
Q74	NHS ENGLAND NORTH EAST AND YORKSHIRE (CUMBRIA AND NORTH EAST)	79.4	79.3	81.6
Q75	NHS ENGLAND NORTH WEST (CHESHIRE AND MERSEYSIDE)	71.2	70.2	73.8
Q76	NHS ENGLAND MIDLANDS (NORTH MIDLANDS)	76.8	77.8	78.1
Q77	NHS ENGLAND MIDLANDS (WEST MIDLANDS)	67.1	69.0	71.1
Q78	NHS ENGLAND MIDLANDS (CENTRAL MIDLANDS)	71.9	72.5	74.1
Q79	NHS ENGLAND EAST OF ENGLAND	70.3	73.9	73.5
Q83	NHS ENGLAND NORTH WEST (GREATER MANCHESTER)	71.4	72.5	72.2
Q84	NORTH WEST (LANCASHIRE AND SOUTH CUMBRIA)	71.9	76.5	74.9
Q85	NHS ENGLAND SOUTH WEST (SOUTH WEST SOUTH)	71.7	74.7	74.0
Q86	NHS ENGLAND SOUTH WEST (SEST NORTH)	76.2	75.5	77.7
Q87	NHS ENGLAND SOUTH EAST (HAMPSHIRE, ISLE OF WIGHT AND THAMES VALLEY)	73.1	74.1	74.5
Q88	NHS ENGLAND SOUTH EAST (KENT, SURREY AND SUSSEX)	74.6	76.0	76.4
<b>Total</b>		<b>70.6</b>	<b>72.3</b>	<b>73.5</b>
Monthly denominator		<b>38,608</b>	<b>36,052</b>	<b>35,796</b>

Monthly coverage between October to December 2019 was 0.4 percentage points higher than coverage for the same quarter in 2018 and followed a similar seasonal trend (Figure 1).

**Figure 1.** Monthly pertussis vaccination coverage (%) in pregnant women: England, 2013-2019



Footnotes:

1. New IT specification implemented in March/April 2016 [10]; coverage reported prior to this date is likely to have been underestimated.
2. Women first offered pertussis vaccine from 20 weeks gestational age in April 2016 would have been expected to deliver in August 2016.
3. Data from one of the largest IT suppliers were missing in April 2017
4. Data from the smallest IT supplier was excluded July 2017 to September 2018 and in August to September 2019

## Discussion

The number of confirmed cases in infants under 3 months remains low with 64 confirmed cases from January to September 2019 compared to 39 and 97 cases in the same periods in 2018 and 2017 respectively [9-11]. After the introduction of the maternal programme in 2012, reported incidence remained higher in all age groups from one year and older relative to years preceding the pre-2012 peak. In young infants under three months of age targeted by the programme, however, disease levels fell back to those observed before the 2012 peak and are still in line with those seen in earlier (pre-2012) peak years. Disease levels remain elevated in older age groups and so unprotected young infants continue to be at risk of infection with the increased possibility of serious complications in this age group.

Since 2016 vaccine coverage has been around 70%. Factors that could have contributed to the overall increase in coverage observed since April 2016 were described in the April to September 2016 report [12]. Between October and December 2019, pertussis vaccine coverage varied by over 20% each month between Local Teams. Identifying methods and procedures in areas achieving consistently high coverage for pertussis vaccination during pregnancy and applying them to low coverage areas may help address this gap.

Overall, prenatal pertussis vaccine coverage between October and December 2019 remained above 70%, increasing from 70.6% in October to 73.5% in December 2019. This follows a similar increase in coverage beginning in September alongside the influenza season (where there are increased opportunities and signposting for pre-natal pertussis vaccine).

Limitations to the data presented in this report may explain variability in coverage by Local Team and over time. First, completeness of data is reliant on the recording of delivery dates in the mothers' medical records and comparison of these data with national data on maternities [13], indicates that in 2016, prior to the implementation of the revised IT specification, these data represented about 65% of the population of pregnant women. A PHE report (unpublished) suggests that maternity notes regarding pregnancy and delivery are often scanned or archived, rather than coded in an extractable format.

Second, following the change in recommendation for eligibility of the vaccine around the time of the 20-week scan, some maternities have started offering the pertussis vaccine, and early findings (pending publication) suggest that while maternity delivery of pertussis vaccine may increase vaccine coverage, only a small proportion of doses delivered in maternities are recorded in GP systems. As a result, maternity delivery of pertussis vaccination may even lead to an artefactual decrease in vaccine coverage when only GP data is analysed (as is the case with this report) as shift from vaccination in general practice to vaccination in maternities takes place.

Continued support in the delivery of this important programme has been sought from service providers (GP practices and maternity units), Screening and Immunisation Teams and Health Protection Teams. The continued high coverage reported here suggests the delivery of this programme is becoming embedded in the national immunisation programme. Screening and Immunisation Teams should continue to

update service providers on the current epidemiology of the disease, the recent changes to and effectiveness of the vaccination programme, and the need to maintain and improve coverage achieved thus far. If coverage, and ultimately the impact of the programme itself, is to be accurately monitored, it is essential that GPs and practice nurses continue to ensure that vaccination and date of delivery are recorded in the patient's GP record. In areas that have commissioned maternity units to offer pertussis vaccines in pregnancy, it is important that providers ensure doses of vaccines given to individual women are also communicated to the woman's GP. Maternity units not offering pertussis vaccines to pregnant women should continue to discuss its importance, making use of available resources [14] and sign-post the woman to her GP to receive the vaccine.

GPs, practice nurses, obstetricians and midwives should continue to encourage pregnant women to receive the pertussis vaccine, ideally between weeks 20 and 32 of their pregnancy (but up to term) to optimise protection for their babies from birth [8].

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