



Infection report / Immunisation

Volume 10 Number 16 Published on: 6 May 2016

Laboratory confirmed cases of pertussis reported to the enhanced pertussis surveillance programme in England during October to December 2015

In England there were 1124 laboratory confirmed cases of pertussis (culture, PCR, serology or oral fluid) reported to the Public Health England (PHE) pertussis enhanced surveillance programme in the fourth quarter of 2015, from October to December 2015 (table 1). Total cases were 27% higher than those reported in the same quarter of 2014 (882 cases).

The then HPA declared a national outbreak of pertussis (level 3 incident [1]) in April 2012 and, as a response to the ongoing outbreak and high number of infant deaths, the Department of Health announced the introduction of a temporary immunisation programme for pregnant women on 28 September 2012 [2]. From the 1st of April 2016 the recommended gestational age for vaccination is between 16-32 weeks and for operational reasons should be offered from around 20 weeks on or after the foetal anomaly scan [3].

Pertussis vaccine coverage in pregnant women increased from 59.3% in October 2015 to 61.4% in December 2015, peaking at 61.6% in November 2015. These trends are consistent with the same period in previous years [4].

Following the high levels of activity in 2012 (see figure), an overall decrease has been observed with slight increases in the third quarters of 2013, 2014 and 2015, in line with the usual seasonal pattern. The highest number of laboratory confirmed cases in England has persisted in individuals aged 15 years and over whilst disease incidence continues to be highest in infants <3 months. The number of confirmed cases in infants under three months in the fourth quarter of 2015 (32 cases) were more than double the 13 cases reported in the same quarter in 2014 (table 2). One infant with pertussis confirmed between October and December 2015 died. Of the fourteen infants who have died following confirmed pertussis disease and who were born after the introduction of the maternal programme on 1 October 2012, 12 have been born to mothers who had not been immunised against pertussis during pregnancy.

Total case numbers of pertussis in all age groups were higher in Q4 2015 than in Q4 2014 (table 2) with the greatest proportionate increase observed in infants aged 3-5 months and children aged 1-9 years. Overall activity remained higher in all age groups from one year and older relative to the pre-2012 peak and exceeded 2012 cases in the 5-9 year age group.

Surveillance data in young infants following the introduction of the pertussis immunisation in pregnancy programme are encouraging as a relatively low incidence has been maintained, with expected seasonal increases. It is important to be aware, however, that raised levels of pertussis persist in older age groups and women should therefore continue to be encouraged to be immunised against pertussis during pregnancy (ideally between 20-32 weeks) in order to protect their babies from birth. The pertussis immunisation in pregnancy programme in England has shown high levels of protection against pertussis in babies born to vaccinated mothers [5,6].

The Medicines and Healthcare Products Regulatory Agency also found no safety concerns relating to pertussis vaccination in pregnancy based on a large study of nearly 18,000 vaccinated women with similar rates of normal, healthy births in vaccinated and in unvaccinated women [7].

See the 2015 annual report [8] for details of appropriate laboratory investigation of suspected cases of pertussis which may be affected by the age of the suspect case and time since onset of their symptoms.

Table 1. Laboratory-confirmed cases of pertussis by age and testing method in England, October to December 2015 (Q4).

Age group	Culture	PCR	Serology	Oral fluid only	Total
<3 months	12	14	6	0	32
3-5 months	0	3	1	0	4
6-11 months	0	2	0	0	2
1-4 years	1	1	16	1	19
5-9 years	3	0	38	15	56
10-14 years	0	1	75	12	88
15+ years	6	6	908	3	923
Total	22	27	1044	31	1124

Total number of laboratory-confirmed pertussis cases per quarter in England, 2006-2015.

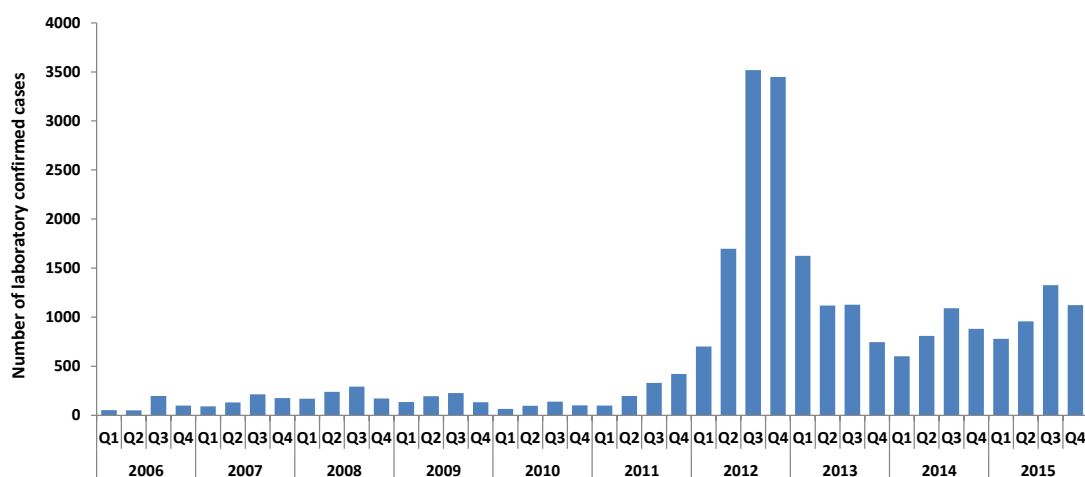


Table 2. Laboratory-confirmed cases of pertussis by age and year England, all quarters 2012-2015

Age group	2012	2013	2014	2015
<3 months	407	85	98	130
3-5 months	74	24	14	32
6-11 months	27	7	11	13
1-4 years	103	65	48	69
5-9 years	175	99	128	218
10-14 years	806	429	351	437
15+ years	7775	3912	2737	3291
Grand Total	9367	4621	3387	4190

References

1. [National increase in laboratory-confirmed pertussis cases in England and Wales](#), *HPR* **6**(15), 13 April 2012.
 2. Department of Health: <https://www.gov.uk/government/news/pregnant-women-to-be-offered-whooping-cough-vaccination>.
 3. JCVI minutes: <https://www.gov.uk/government/groups/joint-committee-on-vaccination-and-immunisation#minutes>.
 4. [Prenatal pertussis vaccine coverage estimates, November 2015 to January 2016](#), *HPR* **10**(8), 26 February 2016.
 5. Amirthalingam G, Andrews N, Campbell H, Ribeiro S, Kara E, Donegan K, *et al* (2014). Effectiveness of maternal pertussis vaccination in England: an observational study. *Lancet*. doi:10.1016/S0140-6736(14)60686-3.
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 8. [Laboratory confirmed cases of pertussis reported to the enhanced pertussis surveillance programme in England: annual report for 2015](#), *HPR* **10**(16), 6 May 2016.
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