



## Infection report

Volume 9 Number 45 Published on 18 December 2014

### Laboratory confirmed cases of pertussis reported to the enhanced pertussis surveillance programme in England during July to September 2015 (Q3)

In England there were 1322 laboratory confirmed cases of pertussis (culture, PCR, serology or oral fluid) reported to the Public Health England (PHE) pertussis enhanced surveillance programme in the third quarter of 2015, from July to September 2015 (table 1). Total cases were 21% higher than those reported in the same quarter of 2014 (1093 cases between July and September 2014).

The HPA declared a national outbreak of pertussis (level 3 incident [1]) in April 2012 and, as a response to the ongoing outbreak and a 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]. Pertussis vaccine coverage in pregnant women increased over the third quarter of 2015 from 55.1% in June to 55.6% in July, 56.6% in August and 57.7% in September 2015. As observed in 2013 and 2014, coverage declined in late winter and early spring but was maintained at higher levels through the summer months than in the previous two years [3].

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 3 months in the third quarter of 2015 (46 cases) was similar to the same quarter in 2014 (47 cases) and remains low (table 2). One infant with pertussis confirmed between July and September 2015 died. Of the thirteen infants who have died following confirmed pertussis disease and who were born after the introduction of the maternal programme on 1 October 2012, 11 have been born to mothers who had not been immunised against pertussis during pregnancy.

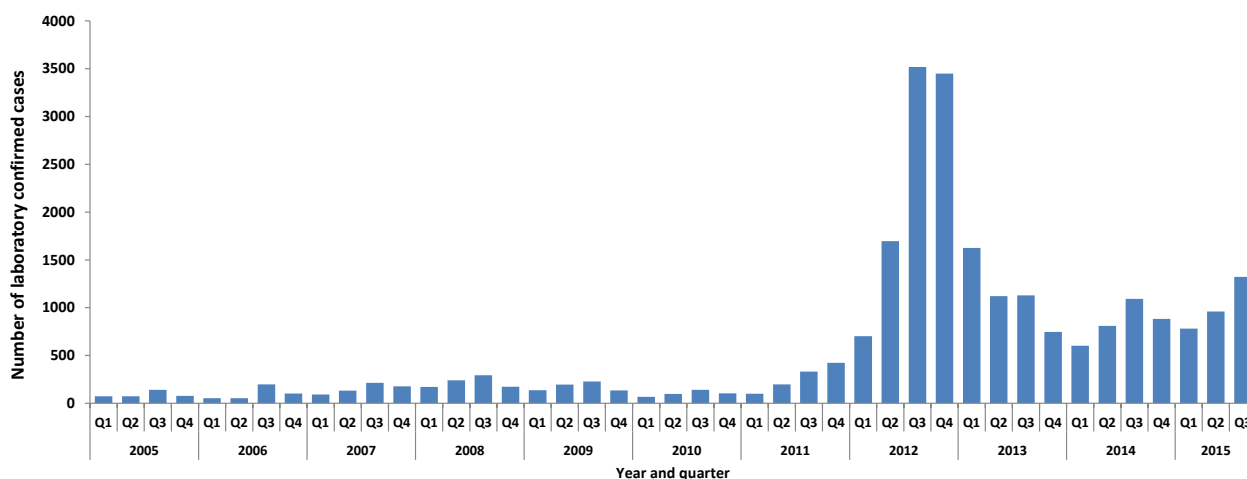
Total case numbers of pertussis in all age groups greater than 3 months are higher in Q1-3 2015 than the same quarters in 2014 (table 2) with the greatest proportionate increase observed in infants aged 3-5 months and children aged 1-9 years. Overall activity remained

higher in all age groups from 1 year and older relative to the pre-2012 peak and exceeded 2012 Q1-3 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 28-32 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 [4,5]. 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 [6].

Please see previous reports 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.

#### Total number of laboratory-confirmed pertussis cases per quarter in England, 2005 to 2015(Q3)



**Table 1. Laboratory-confirmed cases of pertussis by age and testing method in England, July-September 2015**

Age group	Culture	PCR	Serology	Oral fluid only	Total
<3 months	21	24	1	0	46
3-5 months	10	6	1	0	17
6-11 months	2	3	1	0	6
1-4 years	7	2	13	0	22
5-9 years	3	1	48	22	74
10-14 years	2	1	95	31	129
15+ years	3	5	1018	2	1028
Total	48	42	1177	55	1322

**Table 2. Laboratory-confirmed cases of pertussis by age and year England, 2012-2015 (Q1-Q3)**

Age group	2012	2013	2014	2015
<3 months	335	72	85	93
3-5 months	64	23	10	28
6-11 months	22	7	10	12
1-4 years	58	41	27	51
5-9 years	116	75	94	161
10-14 years	566	382	267	349
15+ years	4757	3274	2012	2369
<b>Grand Total</b>	<b>5918</b>	<b>3874</b>	<b>2505</b>	<b>3063</b>

## References

1. *HPR* 6(15), 13 April 2012, <http://webarchive.nationalarchives.gov.uk/20140714084352/http://www.hpa.org.uk/hpr/archives/2012/news1512.htm>
2. Department of Health: <https://www.gov.uk/government/news/pregnant-women-to-be-offered-whooping-cough-vaccination>
3. *HPR* 9(42), 27 November 2015, [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/480405/hpr42\\_15\\_ptss-vu.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/480405/hpr42_15_ptss-vu.pdf)
4. G Amirthalingam, N Andrews, H Campbell, S Ribeiro, E Kara, K Donegan, N K Fry, *et al* (2014). Effectiveness of maternal pertussis vaccination in England: an observational study. *Lancet*.
5. Dabrera G, Amirthalingam G, Andrews N, *et al* (2014). A case-control study to estimate the effectiveness of maternal pertussis vaccination in protecting newborn infants in England and Wales, 2012–2013. *Clin Infect Dis*.
6. Donegan K, King B, Bryan P, *et al* (2014). Safety of pertussis vaccination in pregnant women in UK: observational study. *BMJ*.