



Infection report

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Immunisation

Laboratory confirmed cases of pertussis reported to the enhanced pertussis surveillance programme in England during April to June 2015 (Q2/2015)

In England there were 960 laboratory confirmed cases of pertussis (culture, PCR, serology or oral fluid) reported to the Public Health England (PHE) pertussis enhanced surveillance programme in the second quarter of 2015, from April to June (see table). Total cases were 19% higher than those reported in the same quarter of 2014 (810 cases between April and June 2014).

Typically pertussis activity peaks in quarter 3 and then declines (see figure). The continued increase observed in each successive quarter between the first quarter of 2011 and third quarter of 2012 was unusual. 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]. The most recent PHE figures reported that 55.2% of mothers due to give birth in May 2015 had been immunised with a pertussis containing vaccine in pregnancy in England, compared to 50% and 53.6% in the same month in 2013 and 2014 respectively [3]. An annual report summarising prenatal pertussis vaccination coverage data has recently been published providing a more complete assessment of vaccine coverage and validation of the monthly surveys [4,5]. From April 2014 the collection of vaccine coverage data has changed from a manual to an automated system [6] and for data for June to September 2015 will be published in November 2015.

Following the high levels of activity in 2012, an overall decrease has been observed with slight increases in the third quarters of 2013 and 2014, 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 less than three months of age. The number of confirmed cases in infants less than three months in the second quarter of 2015 (31 cases) was 19% higher than the same quarter in 2014 (26 cases). One infant with laboratory confirmed pertussis tested between January and March was reported to have died. Of the 12 infants who have died following confirmed pertussis disease, and who were born after the introduction of the maternal programme on 1 October 2012, 11 were born to mothers who had not been immunised against pertussis during pregnancy. Total case numbers of pertussis in all age groups are higher in Q2, 2015, than the same quarter in 2014 and activity remains higher in all age groups from one year and older, relative to the pre-2012 peak.

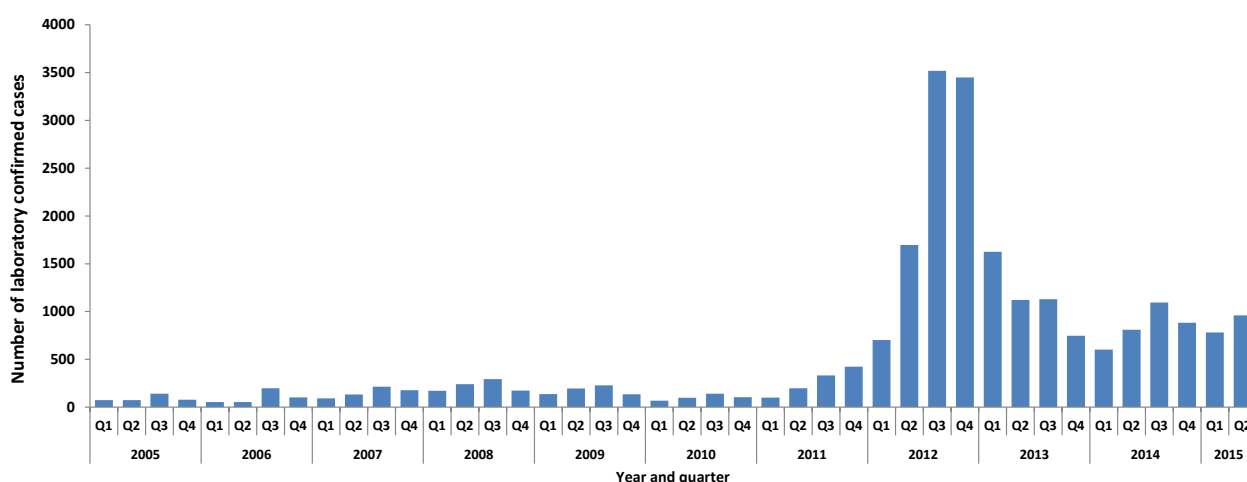
Surveillance data in young infants following the introduction of a programme to immunise pregnant women are encouraging as a relatively low incidence has been maintained, with expected seasonal increases. It is important to be aware, however, that raised levels of pertussis persist in older age groups 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 [7,8]. 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 [9].

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.

Laboratory-confirmed cases of pertussis by age and testing method in England, April to June 2015

Age group	Culture	PCR	Serology	Oral fluid only	Total
<3 months	12	18	1	–	31
3-5 months	3	1	–	–	4
6-11 months	2	2	–	–	4
1-4 years	1	4	10	1	16
5-9 years	3	–	29	16	48
10-14 years	3	1	105	29	138
15+ years	4	4	702	9	719
Total	28	30	847	55	960

Total number of laboratory-confirmed pertussis cases per quarter in England, 2005 to 2015 (Q2)



References

1. [Health Protection Report 6\(15\)](#), 13 April 2012.
 2. Department of Health: <https://www.gov.uk/government/news/pregnant-women-to-be-offered-whooping-cough-vaccination>
 3. [Health Protection Report 9\(26\)](#), 24 July 2015.
 4. PHE press release (3 September 2015). "[New whooping cough figures prompt call for pregnant women to get immunised](#)".
 5. [Pertussis vaccine coverage in pregnant women April 2014 to March 2015 report](#).
 6. Public Health England: <https://www.gov.uk/government/publications/prenatal-pertussis-vaccine-uptake-surveys-data-collection-via-immform>
 7. Amirthalingam G, Andrews N, Campbell, Ribeiro S, Kara E, Donegan K, *et al* (2014). Effectiveness of maternal pertussis vaccination in England: an observational study. *The Lancet*.
 8. Dabrera G, Amirthalingam G, Andrews N *et al* (2012). 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*.
 9. Donegan K, King B, Bryan P. Safety of pertussis vaccination in pregnant women in UK: observational study. *BMJ* 2014, **349**.
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