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England

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# Laboratory confirmed cases of Pertussis (England): April to June 2017

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# Laboratory confirmed cases of Pertussis (England): April to June 2017

In England there were 1198 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 2017, from April to June 2017 (table 1). Total cases were 17% lower than those reported in the same quarter of 2016 (1448 cases) but higher than the 958 cases reported in the second quarter of 2015 and 810 cases in 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 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 1 of April 2016 the recommended gestational age for vaccination was revised to between 16-32 weeks, and for operational reasons, should be offered from around 20 weeks on or after the foetal anomaly scan [3].

The pertussis immunisation in pregnancy programme in England has shown high levels of protection against pertussis and the risk of dying from pertussis in babies born to vaccinated mothers [4,5,6]. 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].

Pertussis vaccine coverage averaged 73.8% across January and March 2017. Extended eligibility criteria for the vaccine may have contributed to the increase in uptake observed in recent months [8].

Following the high levels of activity in 2012 an overall decrease was observed between 2013 and 2015. A relative increase in pertussis activity in 2016 was consistent with pre-existing epidemiological trends of 3-4 yearly cyclical peaks (Figure 1).

The greatest number of laboratory confirmed cases in England in the second quarter of 2017 continues to occur in individuals aged 15 years and over whilst disease incidence continues to be highest in infants <3 months. Pertussis activity in all infants <1 year of age was lower in the second quarter of 2017 (43 cases) than 2016 (72 cases) but higher than the equivalent periods in 2013 to 2015 (41, 29 and 39 cases respectively) (table 2).

Confirmed cases aged 6-11 months were higher (35 cases) in 2016 than in any year since the introduction of enhanced surveillance in 1994. There were, however, no laboratory confirmations in this age group in the first three months of 2017 and seven laboratory confirmations between April and June 2017 bringing totals in the first six months of 2017 in line with the equivalent period in 2016 (Table 2). This infant age group is known to have high levels of protection after completion of the primary immunisation programme.

Overall activity remains higher in all age groups from 1 year and older relative to years preceding the pre-2012 peak. Ascertainment in those aged 5-16 years has improved with availability of oral fluid testing since 2013. Please see the 2015 annual report [HPR Vol 10 No. 16 (9)] 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.

There have been no reported deaths in infants with pertussis confirmed in the first six months of 2017. Of the eighteen infants who have died following confirmed pertussis disease and who were born after the introduction of the maternal programme on 1 October 2012, 16 have been born to mothers who had not been immunised against pertussis during pregnancy.

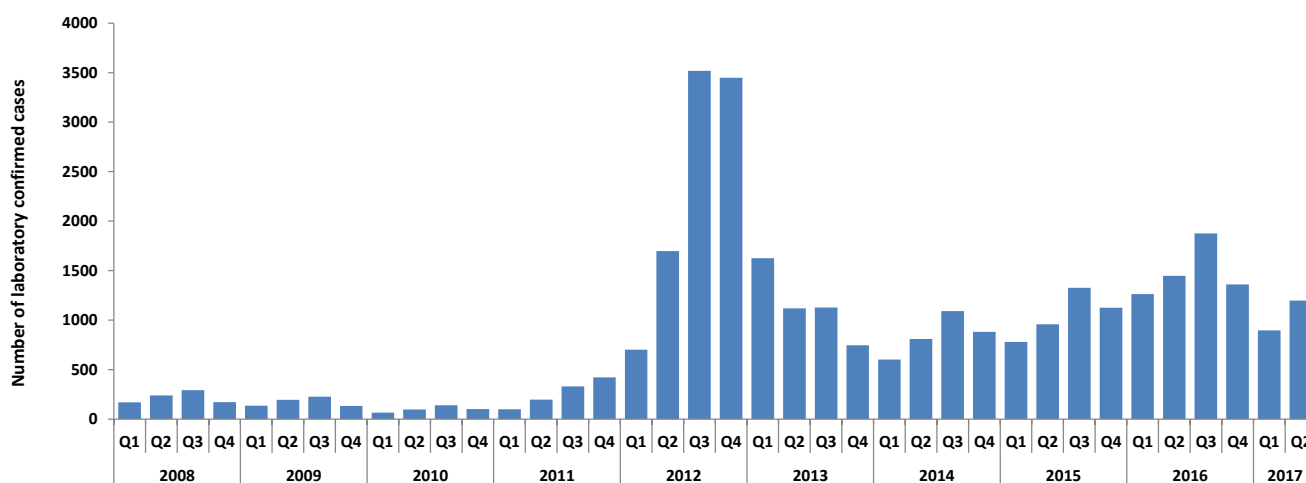
Surveillance data in young infants following the introduction of the pertussis immunisation in pregnancy programme continues to demonstrate that a relatively low incidence has been maintained in this age group, with expected seasonal increases. It is important to be aware, however, that raised levels of pertussis persist in groups aged 1 year and older. The increase in coverage is extremely encouraging and women should continue to be encouraged to be immunised against pertussis during pregnancy (ideally between 20-32 weeks) in order to protect their babies from birth.

**Table 1: Laboratory-confirmed cases of pertussis by age and testing method in England, April to June 2017.**

Age group	Culture*	PCR	Serology	Oral fluid only	Total
<3 months	15	10	0	0	25
3-5 months	0	11	0	0	11
6-11 months	2	3	2	0	7
1-4 years	2	8	11	0	21
5-9 years	3	5	37	32	77
10-14 years	0	3	90	31	124
15+ years	2	19	909	3	933
Total	24	59	1049	66	1198

\* Culture confirmed cases may additionally have tested positive using other methods. Submission of all presumptive *B. pertussis* isolates is encouraged for confirmation of identity and to allow further characterisation for epidemiological purposes.

**Figure 1: Total number of laboratory-confirmed pertussis cases per quarter in England, 2008 to 2017 (Q1 - Q2).**



**Table 2: Laboratory-confirmed cases of pertussis by age and year England, April to June: 2012 - 2017**

Age group	2012	2013	2014	2015	2016	2017
<3 months	118	25	26	31	50	25
3-5 months	16	12	1	4	16	11
6-11 months	5	4	2	4	6	7
1-4 years	12	8	8	14	33	21
5-9 years	36	19	37	48	82	77
10-14 years	216	119	89	138	157	124
15+ years	1294	933	647	719	1104	933
<b>Grand Total</b>	<b>1697</b>	<b>1120</b>	<b>810</b>	<b>958</b>	<b>1448</b>	<b>1198</b>

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*Health Protection Report* is a national public health bulletin for England and Wales, published by Public Health England. It is PHE's principal channel for the dissemination of laboratory data relating to pathogens and infections/communicable diseases of public health significance and of reports on outbreaks, incidents and ongoing investigations.

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