



Public Health  
England

Protecting and improving the nation's health

# Laboratory confirmed cases of Pertussis (England): January to March 2017

Health Protection Report  
Volume 11 Number 23  
30 June 2017

# Laboratory confirmed cases of pertussis (England): January to March 2017

In England there were 898 laboratory confirmed cases of pertussis (culture, PCR, serology or oral fluid) reported to the Public Health England (PHE) pertussis enhanced surveillance programme in the first quarter of 2017, from January to March 2017 (table 1). Total cases were 29% lower than those reported in the same quarter of 2016 (1264 cases).

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. Vaccine coverage in 2017 remains at the highest level recorded since the programme began. Extended eligibility criteria for the vaccine may have contributed to the increase 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 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 first three months of 2017 (37 cases) than 2016 (49 cases) but higher than the equivalent periods in 2013 to 2015 (33, 20 and 24 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. 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. (See the 2015 annual report [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 quarter of 2017. Of the 18 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.

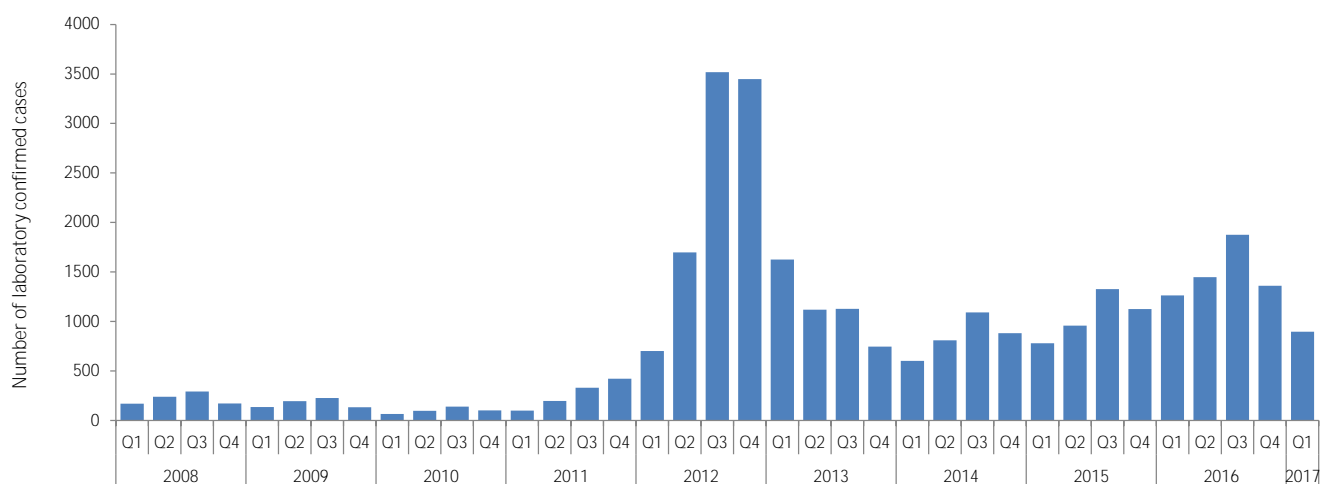
Surveillance data in young infants following the introduction of the pertussis immunisation in pregnancy programme continues to demonstrate that a relatively low incidence has been maintained in this age group, with expected seasonal increases. It is important to be aware, however, that raised levels of pertussis persist in groups aged one 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, January to March 2017.**

Age group	Culture*	PCR	Serology	Oral fluid only	Total
<3 months	11	20	0	0	31
3-5 months	1	5	0	0	6
6-11 months	0	0	0	0	0
1-4 years	2	6	4	0	12
5-9 years	0	1	24	12	37
10-14 years	1	3	68	17	89
15+ years	6	10	705	2	723
Total	21	45	801	31	898

\* 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).**



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

Age group	2012	2013	2014	2015	2016	2017
<3 months	70	26	12	16	35	31
3-5 months	11	7	5	6	9	6
6-11 months	2	0	3	2	5	0
1-4 years	4	20	6	14	15	12
5-9 years	13	29	24	39	77	37
10-14 years	98	175	79	82	121	89
15+ years	504	1368	473	622	1002	723
Grand Total	702	1625	602	781	1264	898

## References

1. PHE (2012). **Confirmed pertussis in England and Wales continues to increase**, *HPR* **6**(15), 13 April.
2. Department of Health (2012). **“Pregnant women to be offered whooping cough vaccination”** (press release), 28 September.
3. **Joint Committee on Vaccination and Immunisation minutes** (2014).
4. Amirthalingam, G., et al., *Effectiveness of maternal pertussis vaccination in England: an observational study*. *The Lancet*. **384**(9953): p. 1521-1528.12.
5. Dabrera G, Amirthalingam G, Andrews N et al. 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*. (2014) DOI: 10.1093/cid/ciu821.
6. Amirthalingam G, Campbell H, Ribeiro S, Fry NK, Ramsay M, Miller E, N Andrews (2016). Sustained effectiveness of the maternal pertussis immunization program in England three years following introduction. *CID* doi: 10.1093/cid/ciw559
7. Donegan K, King B, Bryan P (2014). Safety of pertussis vaccination in pregnant women in UK: observational study. *BMJ* **349**: g4219.
8. PHE (2017). **Pertussis vaccination programme for pregnant women: vaccine coverage in England, January to March 2017**, *HPR* **11**(19), 26 May.
9. PHE (2016). **Pertussis (England): annual report for 2015 (and fourth quarter 2015 report)**, *HPR* **10**(16), 6 May.

## About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health, and are a distinct delivery organisation with operational autonomy to advise and support government, local authorities and the NHS in a professionally independent manner.

### About Health Protection Report

*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.

Public Health England, Wellington House, 133-155 Waterloo Road, London SE1 8UG

Tel: 020 7654 8000 [www.gov.uk/phe](http://www.gov.uk/phe)

Twitter: [@PHE\\_uk](https://twitter.com/PHE_uk) Facebook: [www.facebook.com/PublicHealthEngland](https://www.facebook.com/PublicHealthEngland)

Queries relating to this document should be directed to:

HIV and STI Department,  
National Infection Service, PHE Colindale,  
61 Colindale Avenue, London NW9 5EQ.

[gumcad@phe.gov.uk](mailto:gumcad@phe.gov.uk)

© Crown copyright 2017

You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence v3.0. To view this licence, visit [OGL](https://www.ogil.io) or email [psi@nationalarchives.gsi.gov.uk](mailto:psi@nationalarchives.gsi.gov.uk). Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

Published June 2017

PHE publications gateway number: 2017147

