



## Infection report

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### Laboratory confirmed pertussis in England: data to end-February 2017

This report presents current pertussis activity to 28 February 2017, updating the previous reports that included data to the end of December 2016 [1,2].

#### Background

In England the total number of laboratory confirmed cases of pertussis has fallen from a peak of 9367 cases in 2012; by 51% between 2012 and 2013 (4621 cases) and 27% between 2013 and 2014 (3387 cases). Due to the cyclical nature of pertussis disease the number of confirmed cases increased by 24% in between 2014 and 2015 (n=4191) and by 42% between 2015 and 2016 (n= 5945) but remained lower than 2012 (figure).

The pertussis vaccination in pregnancy programme was introduced in October 2012 [3,4] in response to a national outbreak and a significant increase in infant cases and deaths.

Evaluation of the pertussis immunisation in pregnancy programme has demonstrated the safety and high effectiveness of the programme [5,6,7]. Together with coverage and epidemiological data, these findings informed the Joint Committee on Vaccination and Immunisation's (JCVI) decision in July 2014 that the pregnancy programme should continue for at least a further five years [8]. Latest effectiveness data indicate sustained effectiveness against laboratory confirmed pertussis and death in young infants in the three years following the introduction of the maternal vaccination programme [9].

From 1 April 2016 the recommended gestational age for vaccination was revised to between 16-32 weeks (previously recommended from 28-32 weeks) to offer more opportunities for women to be vaccinated. For operational reasons, pertussis vaccination should be offered from around 20 weeks on or after the foetal anomaly scan [8]. Reported pertussis vaccine coverage in pregnant women increased from 59.7% in January 2016 to 76.2% in December 2016, the highest recorded since the programme started [10]. Since April 2016 a number of changes to the way coverage data are extracted from GP system came into effect and are thought to have contributed to in the increase in coverage. In addition, extended eligibility criteria for the vaccine, is likely to have contributed to the increase.

## **Confirmed cases in January-February 2017**

From January to February 2017, 562 laboratory confirmed cases were reported across all ages to the enhanced surveillance programme in England compared to 866 in the same period in 2016. Total cases for the first two months of the year were 35% lower in 2017 than for the same period of 2016 but higher than 2015 and 2014 (table). Overall pertussis activity in England persists at raised levels compared to the years preceding the outbreak in 2012 (figure and table).

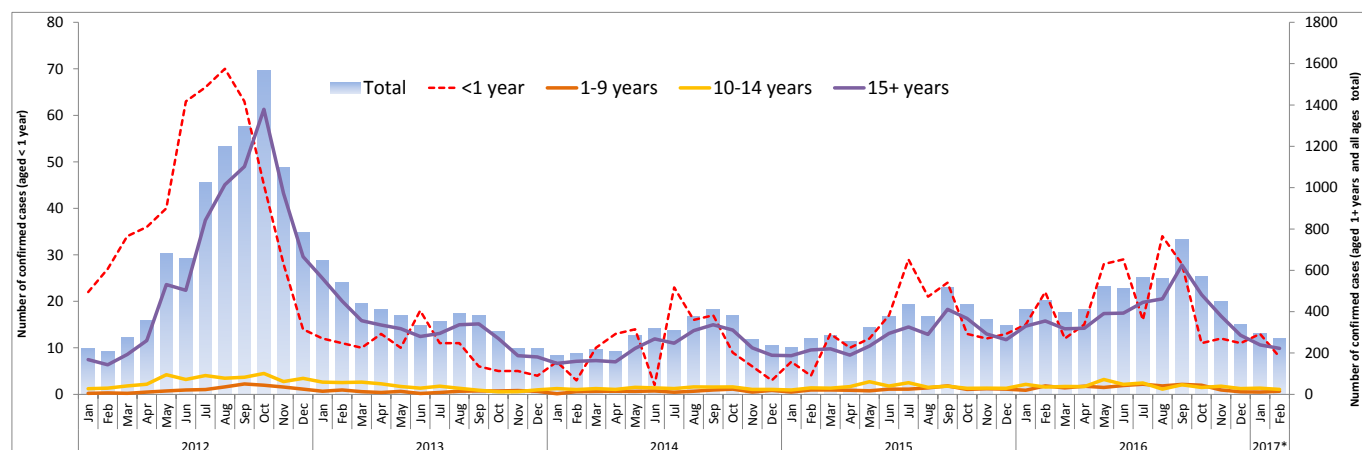
Disease incidence, as expected, continued to be highest in infants less than 3 months, however, pertussis activity in all infants <1 year of age was lower in the first two months of 2017 (see table), 2016 (21 and 37 cases respectively), but higher than the equivalent periods in 2015 and 2014 (11, 10 cases respectively). Cases in infants remain in line with totals observed in the years before the 2012 outbreak began. Confirmed cases aged 6-11 months were higher (33 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 two months of 2017. This infant age group is known to have high levels of protection after completion of the primary immunisation programme.

There have been no reported deaths in infants with pertussis confirmed in the first two months of this year. Eighteen deaths have been reported in young babies with confirmed pertussis who were born after the introduction of the pregnancy programme on 1 October 2012. Sixteen of these 18 babies were born to mothers who had not been vaccinated against pertussis; all of the 18 babies were too young to be fully protected by infant vaccination.

## **Overall trends as at end-February 2017**

Overall pertussis activity was relatively low in the first two months of 2017 in all regions of the country and in all age groups compared to 2012 and 2016. Cases in infants <1 year of age remain low despite the continued high activity in older age groups (see table). The immunisation programme for pregnant women continues to be important to protect young infants, particularly in light of the ongoing raised levels of pertussis in those over one year of age and infant deaths.

## Provisional number of laboratory confirmed cases of pertussis in England by age group and month: January 2012 to February 2017



\*2017 are provisional data

## Number of laboratory confirmed cases in England, 2008-2017 by age group: January to February

Year	Month	<3 months	3-5 months	6-11 months	1-4 years	5-9 years	10-14 years	15+ years	All ages
2008	Jan - Feb	20	3	2	5	3	15	55	103
2009	Jan - Feb	11	8	–	3	2	15	49	88
2010	Jan - Feb	8	1	–	1	1	2	33	46
2011	Jan - Feb	9	4	1	2	1	6	29	52
2012	Jan - Feb	43	5	1	4	8	57	311	429
2013	Jan - Feb	17	6	–	15	21	116	1012	1187
2014	Jan - Feb	7	1	2	3	13	51	310	387
2015	Jan - Feb	8	2	1	13	19	52	402	497
2016	Jan - Feb	27	6	4	11	50	83	685	866
2017*	Jan - Feb	20	1	–	7	19	54	461	562

\*2017 are provisional data

## References

1. Laboratory confirmed cases of pertussis reported to the enhanced pertussis surveillance programme in England: annual report for 2016, *HPR* 11(12): 24 March 2017.
2. Laboratory confirmed cases of pertussis reported to the enhanced pertussis surveillance programme in England during October to December 2016, *HPR* 11(12): 24 March 2017.
3. “Pregnant women to be offered whooping cough vaccination”, 28 September 2012. Department of Health website.
4. “HPA welcomes introduction of whooping cough vaccination for pregnant women as outbreak continues” HPA press release, 28 September 2012.
5. Amirthalingam G, Andrews N, Campbell H *et al* (2014). Effectiveness of maternal pertussis vaccination in England: an observational study *Lancet*.
6. Donegan K, King B, Bryan P (2014). Safety of pertussis vaccination in pregnant women in the UK: observational study. *British Medical Journal*.
7. 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 *Clinical Infectious Diseases* (online, 19 October).
8. Joint committee of Vaccination and Immunisation minutes.
9. Amirthalingam H, Campbell N, Ribeiro S, Fry NK, Ramsay M, Miller E, Andrews N (2016). Sustained effectiveness of the maternal pertussis immunization program in England three years following introduction. *Clinical Infectious Diseases* S236-S243.
10. Pertussis Vaccination Programme for Pregnant Women: vaccine coverage estimates in England, October 2013 to March 2014. *HPR* 8(17), May 2014.