



Public Health  
England

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# Laboratory confirmed cases of pertussis in England: April to June 2020

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# Laboratory confirmed cases of pertussis in England: April to June 2020

In England, there were 124 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 2020, from April to June (table 1). Total cases were 87% lower than those reported in the same quarter of 2019 (969 cases) (figure 1).

The COVID-19 pandemic and the implementation of social distancing measures and lockdown across the UK from 23 March 2020 has had a significant impact on the spread and detection of other infections including pertussis.

The national vaccination schedule recommends pertussis vaccination at 8, 12 and 16 weeks of age and a pre-school booster at 3 years and 4 months. In June 2019 the maternal vaccination programme became a routine programme. The maternal vaccination programme is recommended for pregnant women from 16 to 32 weeks of pregnancy, although the vaccine can be offered up to 38 weeks.

Between April and June 2020, the largest number of laboratory confirmed cases in England occurred in individuals aged 15 years and over although the highest disease incidence persists in infants aged under 3 months.

The number of confirmed cases in infants under 3 months, who are targeted by the maternal immunisation programme, continues to remain low with 6 confirmed cases in this quarter compared to 23 and 10 cases in the same quarter in 2019 and 2018 respectively. Low numbers were reported in older infants aged 3-5 months (6 cases) and 6-11 months (2 cases) consistent with protection from primary vaccination offered at 2, 3 and 4 months of age. Therefore, the number of cases in infants aged less than 1 year in the second quarter of 2020 (14 cases) were lower than the equivalent period in 2019 (39 cases) and in 2018 (20 cases) (table 2).

There were no reported deaths in infants with pertussis confirmed between April and June 2020. Of the 20 infants who have died following confirmed pertussis disease and who were born after the introduction of the maternal programme (on 1 October 2012), 18 were born to mothers who had not been immunised against pertussis during pregnancy. Calculated maternal vaccine effectiveness against death in their infant from pertussis is very high at around 95% [6].

Pertussis vaccine coverage in pregnant women averaged 72.2% across the January to March 2020 quarter, 1.1% higher than the coverage for the same quarter in 2018 to

2019 [8]. An increase in vaccines being delivered in maternity settings, which is poorly recorded in primary care records, may have contributed to the slight overall fall in coverage levels observed since 2017 [9].

Overall pertussis activity has declined since measures to control the spread of COVID-19 were introduced earlier this year. Ascertainment in those aged 5 to <17 years has improved with availability of oral fluid testing since 2013. From 1 May 2018, the availability of oral fluid testing was extended to all children aged 2 to <17 years. See the guidelines for the public health management of pertussis [10] for details of appropriate laboratory investigation of suspected cases of pertussis which is informed by the age of the suspected case and time since onset of their symptoms.

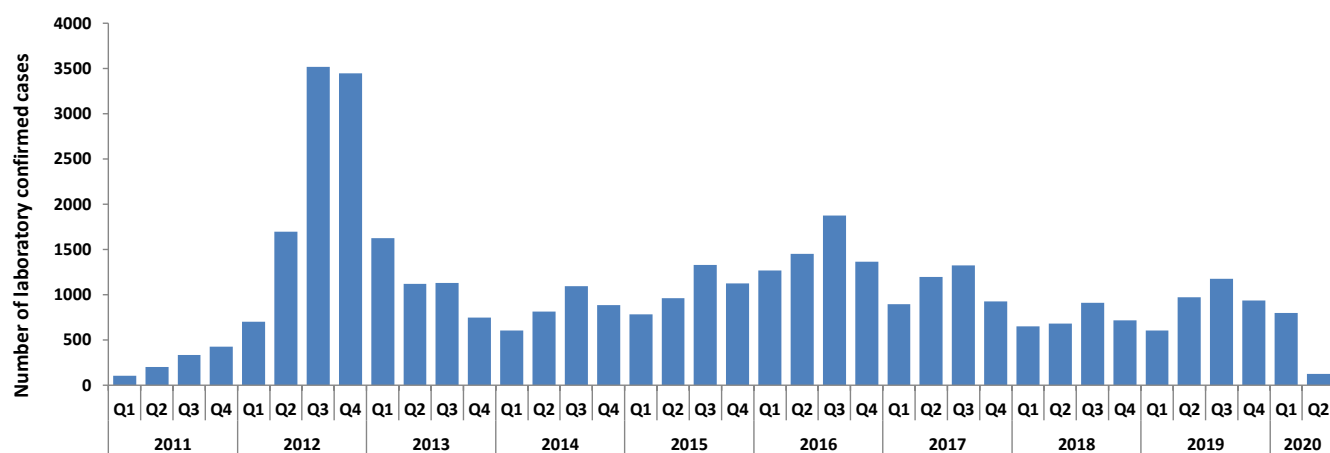
Surveillance data in young infants following the introduction of the pertussis immunisation in pregnancy programme continues to demonstrate that a low incidence has been maintained in this age group, with expected seasonal increases. It is important to that women continue to be supported in accessing immunisation against pertussis during pregnancy (ideally between 20-32 weeks) to optimise protection for their babies from birth.

**Table 1: Laboratory-confirmed cases of pertussis by age and testing method\* in England, April to June 2020**

Age group	Culture	PCR	Serology	Oral fluid only	Total
<3 months	2	4	0	0	6
3-5 months	3	2	0	1	6
6-11 months	1	1	0	0	2
1-4 years	1	3	0	4	8
5-9 years	0	1	3	3	7
10-14 years	0	0	12	10	22
15+ years	1	2	69	1	73
Total	8	13	84	19	124

\* Culture confirmed cases may additionally have tested positive by any other method, PCR confirmed cases may have additionally tested positive by serology or OF and serology confirmed cases may also have been confirmed by OF. 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, 2011 to 2020 (to Q2)**



**Table 2: Laboratory-confirmed cases of pertussis by age and year England, April to June: 2012 - 2020**

Age group	2012	2013	2014	2015	2016	2017	2018	2019	2020
<3 months	118	25	26	31	50	26	10	23	6
3-5 months	16	12	1	4	16	12	7	8	6
6-11 months	5	4	2	4	6	6	3	8	2
1-4 years	12	8	8	14	33	21	15	29	8
5-9 years	36	19	37	48	82	77	42	65	7
10-14 years	216	119	89	138	157	124	82	155	22
15+ years	1294	933	647	719	1104	931	521	681	73
Total	1697	1120	810	958	1448	1197	680	969	124

## References

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- 7 Donegan K, King B, Bryan P (2014). Safety of pertussis vaccination in pregnant women in UK: observational study. *BMJ* 349: g4219.
- 8 *HPR* 14(10), 26 May 2020.
- 9 *HPR* 11(34), 29 September 2017.
- 10 PHE (2018): Guidelines for the public health management of pertussis.

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