



UK Health  
Security  
Agency

# Laboratory confirmed cases of pertussis in England: April to June 2021

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# Laboratory confirmed cases of pertussis in England

In England, there were 10 laboratory confirmed cases of pertussis (culture, PCR, serology or oral fluid) reported to the UK Health Security Agency (UKHSA) pertussis enhanced surveillance programme in the second quarter of 2021, from April to June ([Table 1](#)). Total cases were 92% lower than those reported in the same quarter of 2020 (133 cases) ([Figure 1](#)).

The coronavirus (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. Vaccination continues to be important as levels of disease are likely to increase as control measures have eased.

Overall pertussis activity has declined since measures to control the spread of COVID-19 were introduced. The number of confirmed cases in infants under 3 months, who are targeted by the maternal immunisation programme, continues to remain extremely low with no confirmed cases in this quarter compared to 13 and 23 cases in the same quarter in 2020 and 2019 respectively. There were also no confirmed cases in infants aged between 3 and 11 months, consistent with protection from primary vaccination offered at 2, 3 and 4 months of age. There were no confirmed cases in infants aged less than 1 year in the second quarter of 2021 whilst there were 21 cases in the equivalent period in 2020 and 39 in 2019 ([Table 2](#)).

Between April and June 2021, 7 of the 10 cases of laboratory confirmed pertussis in England occurred in individuals aged 15 years or older with the remaining 3 in children aged between 1 and 4 years.

[Guidelines for the public health management of pertussis](#) provide details on the 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.

## Deaths

There were no reported deaths in infants with pertussis confirmed between April and June 2021. The last pertussis related death of an infant was reported in the second quarter (April to June) of 2019.

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% ([1](#)).

## Childhood vaccination programme

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.

The latest vaccine coverage estimates for DTaP/IPV/Hib/HepB immunisation across England was 91.5% for 3 doses at 12 months of age and 84.8% for the booster dose by 5 years of age ([evaluated between April to June 2021](#)) which were slightly lower than the [coverage estimates for April to June 2020](#) when the proportion of children vaccinated at 12 months was 92.8% and 85.6% for the booster dose.

The introduction of social distancing in response to the COVID-19 pandemic from late March 2020, when some of this cohort would have been scheduled for vaccination, may have contributed to these modest decreases.

## Maternal vaccination programme

The maternal pertussis immunisation programme introduced in response to the 2012 outbreak ([2](#), [3](#)) became permanent from June 2019 ([4](#)) based on evidence of disease impact, high effectiveness and safety ([1,5,6,7](#)). The recommended gestational age for vaccination is between 20 and 32 weeks, ideally after the 20-week scan, but the vaccine can be given as early as 16 weeks for pragmatic reasons to ensure vaccination ([4](#)).

Pertussis vaccine coverage in pregnant women averaged 64.5% across the April to June 2021 quarter, 5.0 percentage points lower than the average coverage for the same quarter in 2020 [[8](#)].

The impact of the pandemic on healthcare services has possibly resulted in vaccine coverage this quarter to be lower than any previous April to June coverage estimates since 2016. This could be due to a potential increase in the delivery of the vaccines through maternity units, during the pandemic, which may not have been captured completely in the survey and therefore resulted in an underestimation of coverage. The total number of women delivering in December 2020 was lower compared to December 2019. However, from January 2021 onwards, the number of women delivering has since increased [[8](#)].

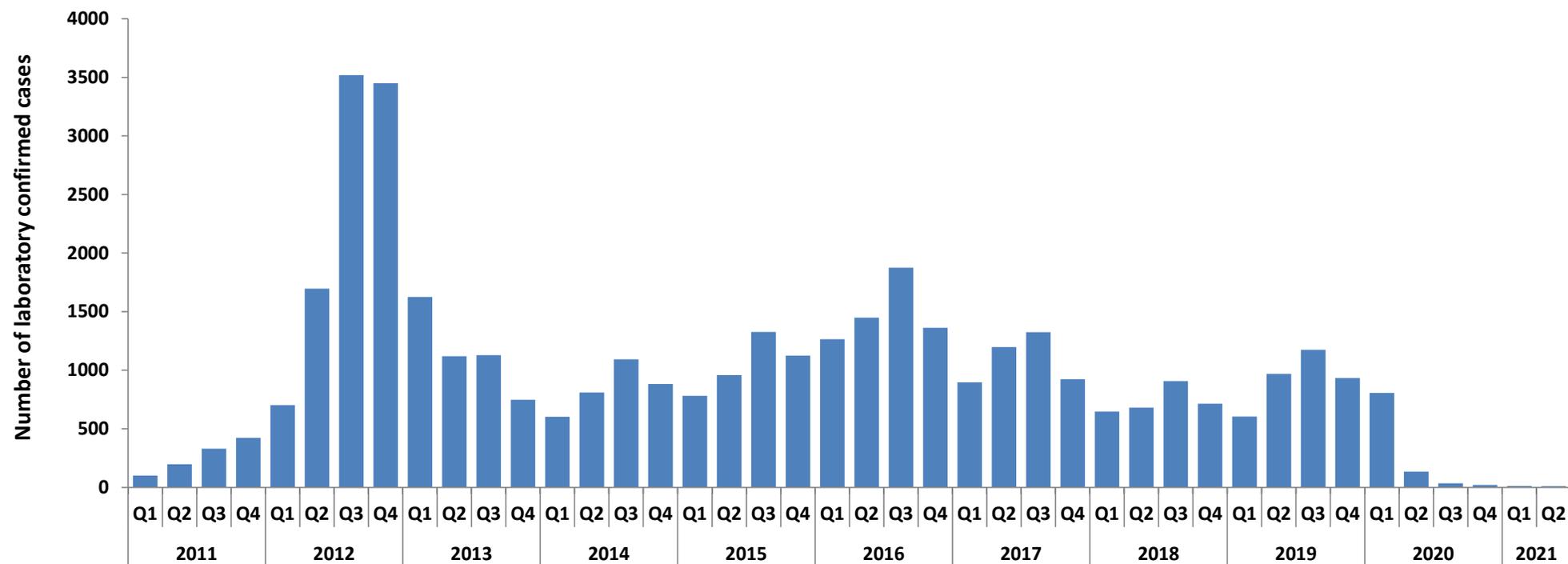
Surveillance data in young infants following the introduction of the pertussis immunisation in pregnancy programme demonstrated that a low incidence had been maintained in this age group, with expected seasonal increases. COVID-19 control measures appear to have had an additional impact on these observed effects. It is important that women continue to be supported during the ongoing pandemic to access immunisation against pertussis during pregnancy (ideally between 20 and 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 2021**

Age group	Culture	PCR	Serology	Oral fluid only	Total
Less than 3 months	0	0	0	0	0
3 to 5 months	0	0	0	0	0
6 to 11 months	0	0	0	0	0
1 to 4 years	0	1	1	1	3
5 to 9 years	0	0	0	0	0
10 to 14 years	0	0	0	0	0
15 years and over	0	1	6	0	7
Total	0	2	7	1	10

\* 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 2021 Q2**



**Table 2. Laboratory-confirmed cases of pertussis by age and year England, April to June: 2012 to 2021**

<b>Age group</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Less than 3 months	118	25	26	31	50	26	10	23	13	0
3 to 5 months	16	12	1	4	16	12	7	8	6	0
6 to 11 months	5	4	2	4	6	6	3	8	2	0
1 to 4 years	12	8	8	14	33	21	15	29	10	3
5 to 9 years	36	19	37	48	82	77	42	65	7	0
10 to 14 years	216	119	89	138	157	124	82	155	22	0
15 years and over	1,294	933	647	719	1,104	931	521	681	73	7
<b>Total</b>	<b>1,697</b>	<b>1,120</b>	<b>810</b>	<b>958</b>	<b>1,448</b>	<b>1,197</b>	<b>680</b>	<b>969</b>	<b>133</b>	<b>10</b>

## References

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# About the UK Health Security Agency

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