



Annual Epidemiological Report

November 2019

Pertussis in Ireland, 2018

Key Facts

Pertussis decreased in 2018 with 117 cases notified.

In comparison there were 263 cases notified in 2017 and 213 cases in 2016.

The largest number of cases and the highest age-specific incidence rate in 2018 were in children aged less than one year.

Nearly a third (32%, n=37) of all cases were aged less than six months of age.

Thirty nine percent (n=46) of all cases were hospitalised.

Sixty five per cent (n=30/46) of those hospitalised were aged less than six months.

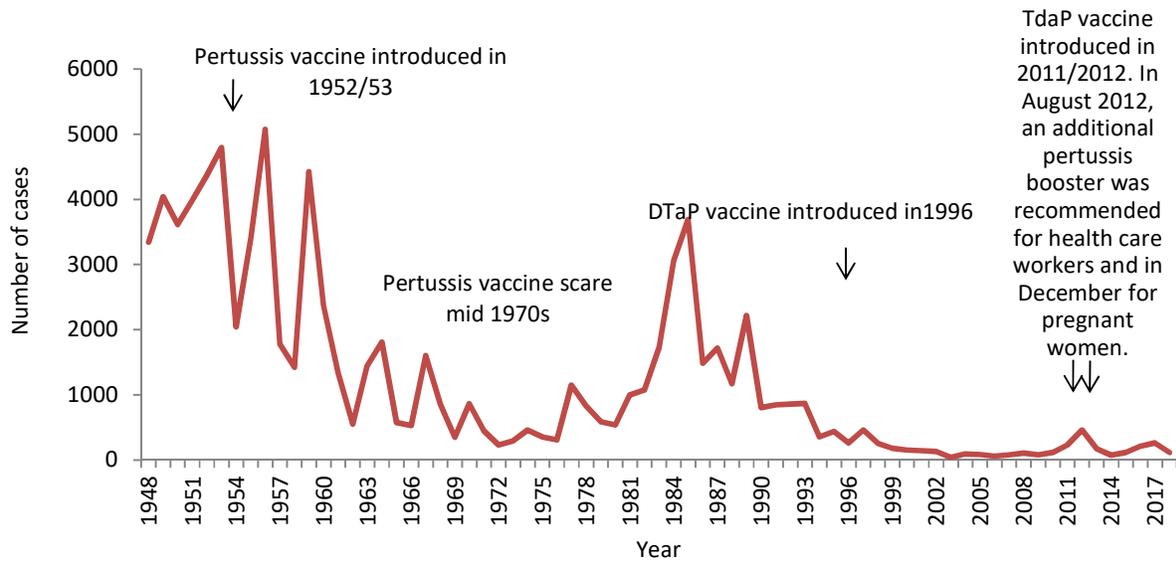
No deaths were reported.

A national outbreak was declared from 5th November 2018 in order to increase access to pertussis vaccination among pregnant women and thereby protect both mothers and their young babies from pertussis and its complications

Epidemiology

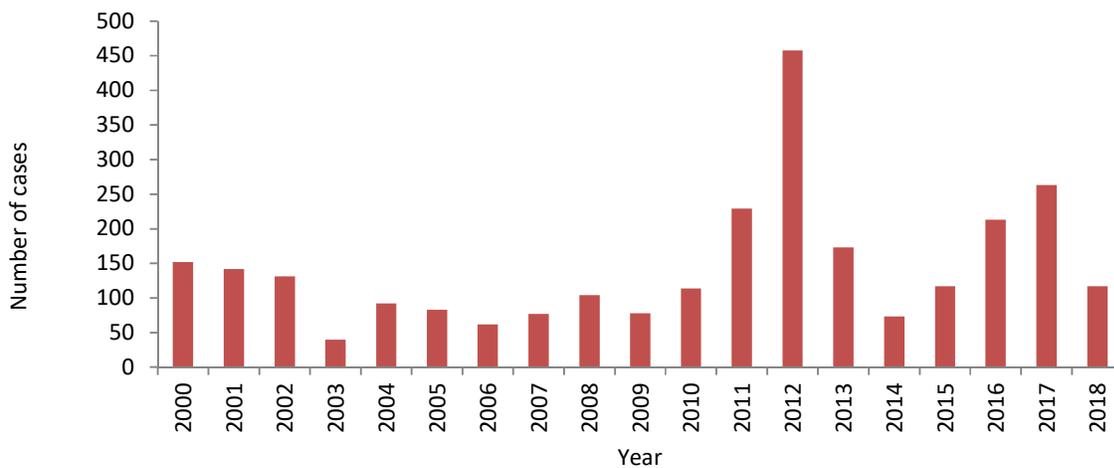
Pertussis decreased in 2018 with 117 (2.5/100,000) cases notified compared to 263 (5.5/100,000) in 2017 and 213 cases (4.5/100,000) notified in 2016 (figures 1 and 2).

Figure 1. Number of notified pertussis cases in Ireland by year, 1948-2018



1948-June 2000 data collated by DoHC
 July 2000-2018 data collated by HPSC

Figure 2. Number of notified pertussis cases in Ireland by year, 2000-2018



Of the 117 cases in 2018, 77% (n=90) were classified as confirmed, four percent (n=5) were classified as probable and 19% (n=22) were classified as possible.

The largest number of cases notified was in the HSE E and the highest crude incidence rate was in the HSE SE (table 1).

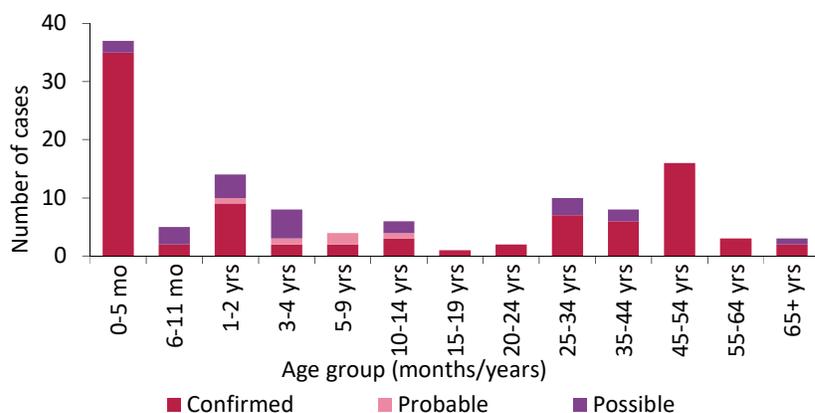
Table 1. Number of pertussis cases notified and the crude incidence rate per 100,000 population (CIR) by HSE Area in 2018

HSE Area	Number	CIR
HSE E	38	2.2
HSE M	9	3.1
HSE MW	3	0.8
HSE NE	11	2.4
HSE NW	12	4.7
HSE SE	15	2.9
HSE S	21	3.0
HSE W	8	1.8
Total	117	2.5

Forty nine per cent of cases (n=57) were male and 51% (n=60) were female.

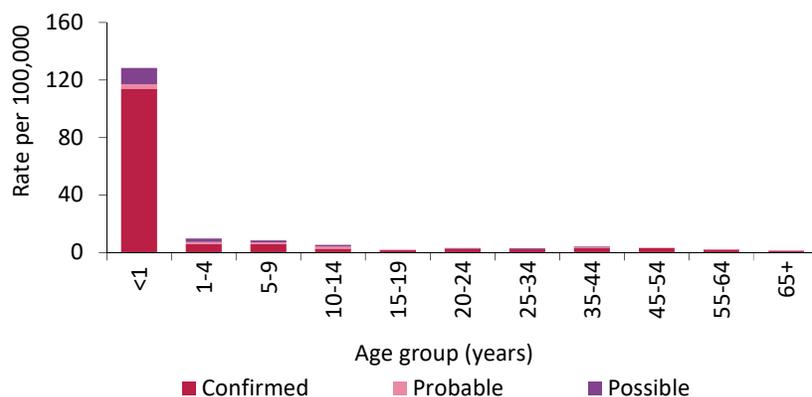
The largest number of cases and the highest age-specific incidence rate were in children aged less than one year (figures 3 and 4). Thirty one percent (n=37/117) of all cases were aged less than six months of age. Ten percent (n=12/117) of all cases were aged less than two months of age.

Figure 3. Number of notified pertussis cases in Ireland in 2018 by age group and case classification.



'Mo' in graph indicates months ie 0-5 months and 6-11 months, the remaining age groups are in years

Figure 4. The age specific incidence rate (per 100,000 population) of notified pertussis cases in Ireland in 2018 by case classification.



Maternal antibodies from women immunised before pregnancy wane quickly and the concentration of pertussis antibodies is unlikely to be high enough to provide passive protection to their infants prior to primary vaccination. The National Immunisation Advisory Committee (NIAC) has recommended that pregnant women should be offered tetanus and low dose diphtheria and acellular pertussis (Tdap) vaccine as early as possible after 16 weeks and up to 36 weeks gestation in each pregnancy, to protect themselves and their infant. Tdap can be given at any time in pregnancy after 36 weeks gestation although it may be less effective in providing passive protection to the infant. Tdap should be offered in the week after delivery to those women who were not vaccinated during their pregnancy.

In 2018, data on maternal antenatal vaccination status was provided for 37 children aged less than one year (88%, n=37/42). Gestational age at birth was reported for 12 of these 42 infant cases and ranged from 26 to 40 weeks with a median age at birth of 38 weeks. The mothers of 31 of these infant pertussis cases (74%, n=31/42) were unvaccinated during the antenatal period. Six of the mothers of the infant pertussis cases (14%, n=6/42) reported vaccination during the antenatal period; these cases were vaccinated at 20 (n=2), 21, 31, and 33 weeks gestation and the number of weeks gestation at vaccination was not reported for one case.

In Ireland, it is recommended that children be vaccinated with an acellular pertussis containing vaccine at two, four and six months of age and a booster dose at four to five years of age. In 2008, NIAC recommended a booster with low dose acellular pertussis vaccine for children aged 11-14 years. The adolescent pertussis booster was introduced

into the school programme, in 19 LHOs, in 2011 and to all schools in 2012. In August 2012, an additional pertussis booster was recommended for health care workers and in December of 2012 an additional dose for pregnant women; please see the HSE National Immunisation Office website at <http://www.immunisation.ie> for additional information on pertussis vaccination recommendations. Vaccine was provided free of charge for pregnant women in 2013, but charges for vaccine administration were not covered by the HSE until November 5th 2018, when a national pertussis outbreak was announced by the HSE.

In 2018, for 67% (n=78/117) of cases the number of doses of pertussis vaccine received by cases was reported. Twenty nine per cent of cases (n=34/117) were unvaccinated; these cases ranged in age from 1 month to 63 years, with 74% (n=25/34) of these cases aged less than six months. Thirty five per cent of the unvaccinated cases (n=12/34) were less than two months of age and were therefore not eligible for pertussis vaccine in the Irish schedule.

Thirteen per cent (n=15/117) of cases were reported to have one dose of pertussis vaccine, these cases ranged in age from two months to 38 years. Three per cent (n=4/117) had two doses of pertussis vaccine, these cases ranged in age from five months to 8 months of age. Fourteen per cent (n=16/117) had three doses of pertussis vaccine, these cases ranged in age from fifteen months to 9 years. Six per cent (n=7/117) had four doses of pertussis vaccine, these cases ranged in age from four to 33 years. Of the cases reported to have four doses of pertussis vaccine, two cases (29%, n=2/7) were classified as confirmed but neither case had any vaccine dates recorded. An additional confirmed case in a child aged 10-14 years and a possible case in an adult aged 25-34 years were reported to have received five doses of vaccine, but no vaccination dates were recorded for any vaccine.

Country of birth was reported as Ireland for 50% of cases (n=59), a country other than Ireland for three percent of cases (n=3) and was unknown or not specified for the remainder (7%, n=55/117).

Where data were provided, reported symptoms included cough (99%, n=100/101), paroxysmal cough (88%, n=88/100), any inspiratory whoop (58%, n=47/81), choking episodes in infants (48%, n=11/24), post-tussive vomiting (55%, n=48/88), apnoea (30%, n=25/82) and cyanosis (26%, n=19/74).

Where data were provided, reported complications included conjunctival haemorrhages, (4%, n=3/79), seizures (2%, n=2/88), pneumonia (1%, n=1/83) and pulmonary haemorrhage (n=1). No deaths were reported in 2018 but one infant case was reported to have long term sequelae (unspecified) following infection.

Forty seven (40%) cases were hospitalised cases. Sixty six per cent (n=31/47) of those hospitalised were aged less than six months and 23% (n=11/47) were less than two months of age. Two cases were in the intensive care unit with the number of days in the intensive care unit reported as 11 and 19 days.

Country of infection was reported as Ireland for 44% of cases (n=51), other than Ireland for 3% (n=3) and reported as unknown or not specified for 54% (n=63) of cases.

Of the 117 cases, the likely setting of exposure to pertussis included home (17%, n=20), other family setting (4%, n=5), other (not specified) (1%, n=1), crèche/childcare (1%, n=1), and was unreported or not specified for the remainder (77%, n=90).

The likely source of exposure included sibling (6%, n=7), father (4%, n=5), mother (3%, n=3), other relative (3%, n=3), other (2%, n=2) and was reported as unknown or not specified for the remainder (83%, n=97).

Antibiotic usage was reported for 92% (n=97/105) of cases where this information was provided and for 83% of all cases (n=97/117). A second antibiotic was known to be given for 25% (n=25/97) of cases, 29% (n=28/97) did not get a second antibiotic. For 45% (n=44/97) of cases no information was available whether further antibiotics were prescribed.

Five localised pertussis outbreaks were notified during 2018, with between two and three associated cases of illness in each outbreak. Four outbreaks were in private houses with a total of 10 associated cases of illness, and one in an extended family (with two ill).

The figures presented in this summary are based on data extracted from the CIDR system on 25th October 2019. These figures may differ slightly from those published previously due to ongoing updating of notification data on CIDR. The 2016 census data was used here to calculate rates.

Acknowledgements

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