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hpsc

Annual Epidemiological Report

November 2018

Pertussis in Ireland, 2017

Key Facts

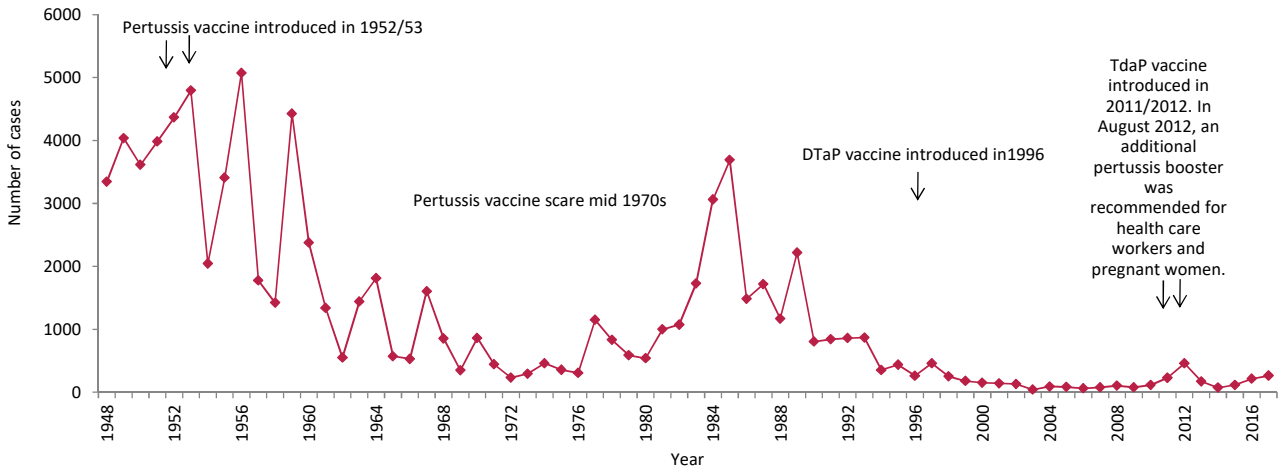
- Pertussis increased in 2017 with 263 cases notified.
- In comparison there were 213 cases notified in 2016 and 117 cases in 2015.
- The largest number of cases and the highest age-specific incidence rate in 2017 were in children aged less than one year.
- Just over a quarter (26%, n=69) of all cases were aged less than six months of age.
- One death was reported in an infant.
- Twenty nine percent (n=77) of all cases were hospitalised.
- Sixty nine percent (n=53/77) of those hospitalised were aged less than six months.

Suggested citation: HSE Health Protection Surveillance Centre. Pertussis in Ireland, 2017. Dublin: HSE HPSC; 2018

Epidemiology

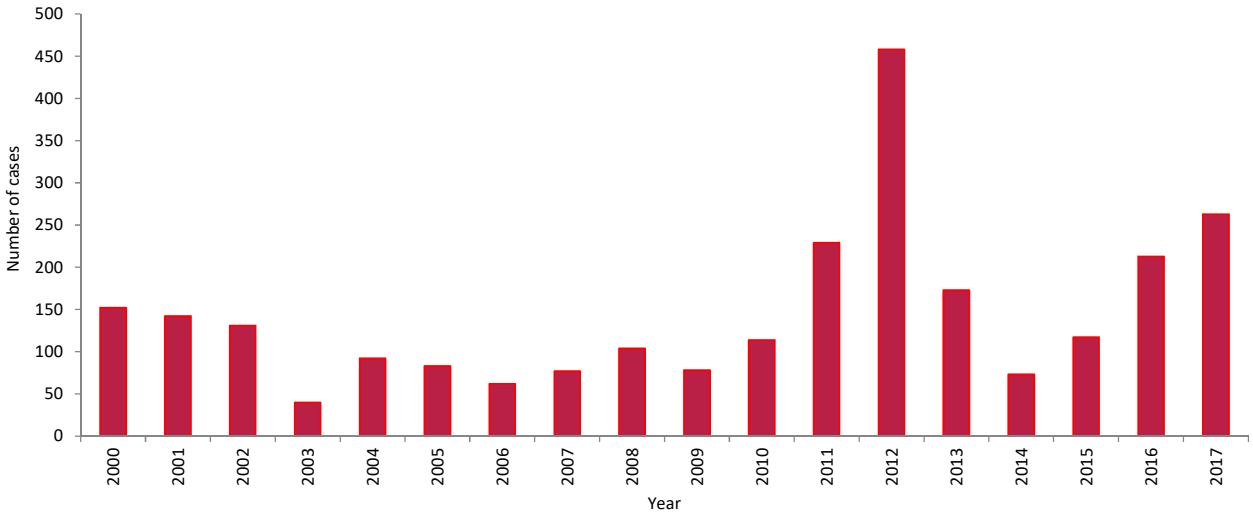
Pertussis increased in 2017 with 263 (5.5/100,000) cases notified compared to 213 (4.5/100,000) in 2016 and 117 cases (2.5/100,000) notified in 2015 (figures 1 and 2).

Figure 1. Number of notified pertussis cases in Ireland by year, 1948-2017



1948-June 2000 data collated by DoHC
July 2000-2017 data collated by HPSC

Figure 2. Number of notified pertussis cases in Ireland by year, 2000-2017



Of the 263 cases in 2017, 80% (n=211) were classified as confirmed, eight percent (n=21) were classified as probable and 12% (n=31) 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).

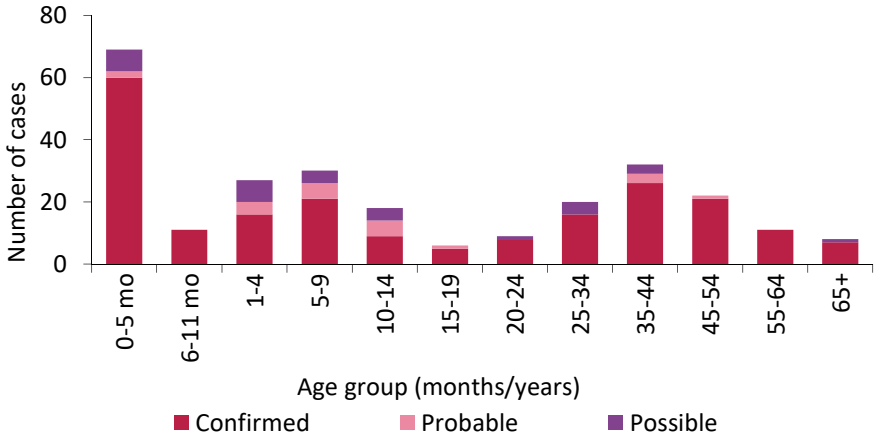
Table 1. Number of pertussis cases notified and the crude incidence rate per 100,000 population (CIR) by HSE Area in 2017

HSE Area	Number	CIR
HSE E	104	6.1
HSE M	12	4.1
HSE MW	13	3.4
HSE NE	23	5.0
HSE NW	7	2.7
HSE SE	60	11.7
HSE S	36	5.2
HSE W	8	1.8
Total	**263**	**5.5**

Fifty three percent of cases (n=140) were male and 47% (n=123) were female.

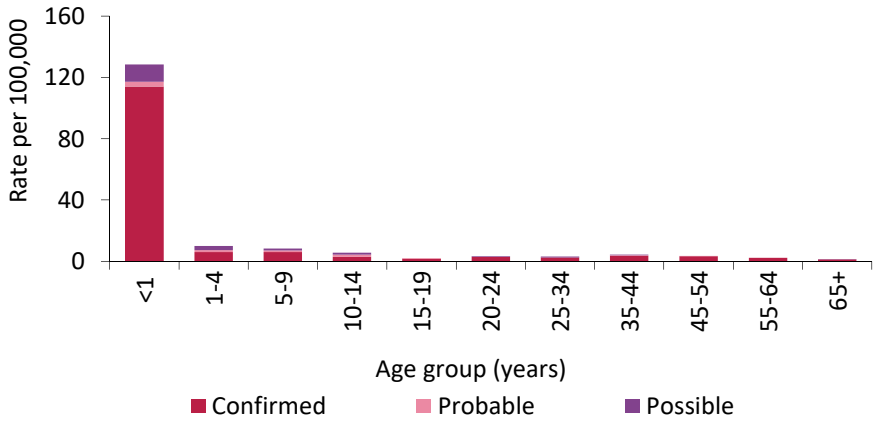
The largest number of cases and the highest age-specific incidence rate were in children aged less than one year (figures 3 and 4). Twenty six percent (n=69/263) of all cases were aged less than six months of age. Eight percent (n=22/263) of all cases were aged less than two months of age.

Figure 3. Number of notified pertussis cases in 2017 by age group and case classification in Ireland



'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 2017 by case classification in Ireland



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 2017, data on maternal antenatal vaccination status was provided for 71 children aged less than one year (89%, n=71/80). Gestational age at birth was reported for 17 of these 80 infant cases and ranged from 35 to 42 weeks with a median and a mean gestational age at birth of 39 weeks. The mothers of 63 of these infant pertussis cases (79%, n=63/80) were unvaccinated during the antenatal period. Eight of the mothers of the infant pertussis cases (10%, n=8/80) reported vaccination during the antenatal period; these cases were vaccinated at 20, 22, 23, 28, 31 and 35 weeks gestation while the number of weeks gestation at vaccination was unreported for two cases.

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 pregnant women; please see the HSE National Immunisation Office website at http://www.immunisation.ie for additional information on pertussis vaccination recommendations.

In 2017, the number of doses of pertussis vaccine the cases received was reported for 58% (n=152/263) of cases. Twenty eight percent of cases (n=73/263) were unvaccinated; these cases ranged in age from three weeks to 66 years, with 63% (n=46/73) of these cases aged less than six months. Twenty nine percent of the unvaccinated cases (n=21/73) were less than two months of age and were therefore not eligible for pertussis vaccine in the Irish schedule.

Eight percent (n=21/263) of cases were reported to have one dose of pertussis vaccine, these cases ranged in age from two months to 21 years. Two percent (n=5/263) had two doses of pertussis vaccine, these cases ranged in age from four months to 18 years of age. Thirteen percent (n=34/263) had three doses of pertussis vaccine, these cases ranged in age from nine months to 45 years. Seven percent (n=19/263) had four doses of pertussis vaccine, these cases ranged in age from six to 22 years. Of the cases reported to have four doses of pertussis vaccine sixty eight percent were classified as confirmed (n=13/19) and sixteen percent (n=3/19) had four vaccine dates recorded.

Country of birth was reported as Ireland for 49% of cases (n=129), a country other than Ireland for six percent of cases (n=17) and was unknown or not specified for the remainder (44%, n=117/263).

Where data were provided, reported symptoms included cough (99.5%, n=211/212), paroxysmal cough (96%, n=199/208), any inspiratory whoop (58%, n=106/183), choking episodes in infant (58%, n=32/55), post-tussive vomiting (45%, n=86/191), apnoea (27%, n=50/183) and cyanosis (27%, n=48/181).

Where data were provided, reported complications included conjunctival haemorrhages, (2%, n=3/180), seizures (1%, n=1/194) and respiratory arrest (n=1). One death was reported in a child less than two months of age; the child's mother was not vaccinated during pregnancy.

Seventy seven cases were hospitalised, representing 29% (n=77/263) of all cases and 35% (n=77/222) of cases where hospitalisation data was known. Sixty nine percent (n=53/77) of those hospitalised were aged less than six months and 25% (n=19/77) 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 three and 12 days.

Country of infection was reported as Ireland for 42% of cases (n=110), other than Ireland for 2% (n=4) and reported as unknown or not specified for 57% (n=149) of cases.

Of the 263 cases, the likely setting of exposure to pertussis included home (23%, n=61), other family setting (2%, n=5), social setting (2%, n=4), school (1%, n=3), work (1%, n=2), crèche/childcare (0.5%, n=1), and was unreported or not specified for the remainder (71%, n=187).

The likely source of exposure included sibling (7%, n=19), father (4%, n=11), other relative (3%, n=8), mother (2%, n=5), and was reported as other, unknown or not specified for the remainder (84%, n=220).

Antibiotic usage was reported for 90% (n=198/219) of cases where this information was provided and for 75% of all cases (n=198/263). A second antibiotic was known to be given for 17% (n=33/198) of cases and known not to be given for 26% (n=52/198) of cases given a first antibiotic while this information was not provided for the remainder (57%, n=113/198).

Nineteen localised pertussis outbreaks were notified during 2017, with 55 associated cases of illness. Thirteen outbreaks were in private houses with 35 associated cases of illness, three were community outbreaks with 12 associated cases of illness, one in an extended family with five ill and one was in a school with three ill.

The figures presented in this summary are based on data extracted from the CIDR system on 5th November 2018. 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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