1.6 Pertussis

Summary

Number of cases, 2016: 213
Number of cases, 2015: 117
Crude incidence rate, 2016: 4.5/100,000

Pertussis increased 1.8 fold in 2016 compared to 2015 with 213 cases notified in 2016 (4.5/100,000) and 117 cases (2.5/100,000) notified in 2015 (figures 1 and 2).

Of the 213 cases in 2016, 79% (n=169) were classified as confirmed, seven percent (n=14) were classified as probable and 14% (n=30) were classified as possible.

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

Fifty-four per cent of cases (n=114) were female and 46% (n=99) were male.

The largest number of cases and the highest age-specific incidence rate were in children aged less than one year followed by those in the age group 1-4 years (figures 3 and 4). Thirty five percent (n=74/213) of all cases were aged less than six months of age. Fourteen percent (n=30/213) of all cases were aged less than two months of age.

Maternal antibodies from women immunised before pregnancy wane quickly and the concentration of pertussis

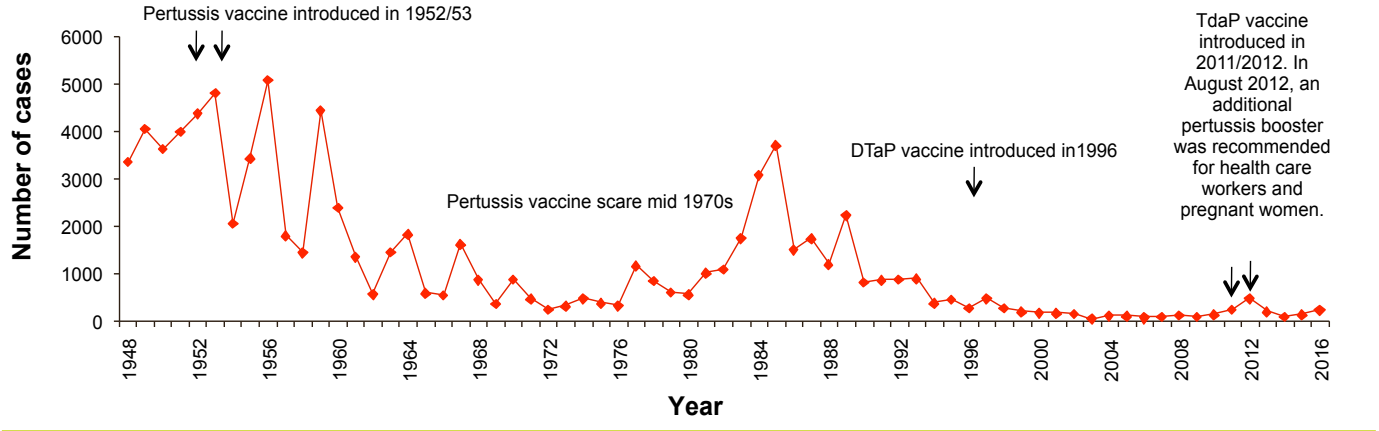

Figure 1. Number of notified pertussis cases in Ireland by year, 1948-2016
1948-June 2000 data collated by DoHC
July 2000-2016 data collated by HPSC

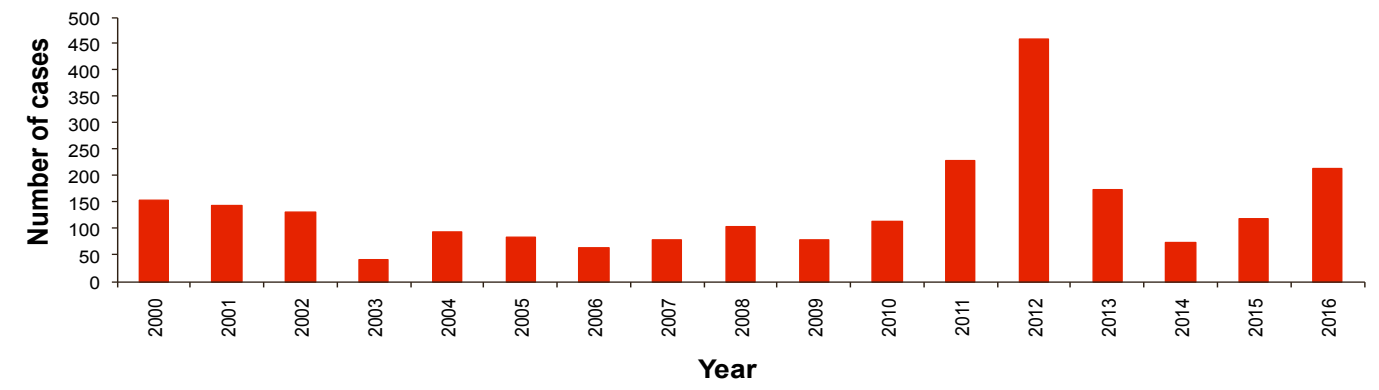

Figure 2. Number of notified pertussis cases in Ireland by year, 2000-2016

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 2016, data on maternal antenatal vaccination status was provided for 74 children aged less than one year (88%, n=74/84). The mothers of 70 of these infant pertussis cases (83%, n=70/84) were unvaccinated during the antenatal period. Four of the mothers of the infant pertussis cases (5%, n=4/84) reported vaccination during the antenatal period; one was vaccinated at 27 weeks gestation, one at 34 weeks gestation, one at 38 weeks gestation while the number of weeks gestation at vaccination was unreported for the fourth 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 pregnant women; please see the HSE National Immunisation Office website at http://www.immunisation.ie for additional information on pertussis vaccination recommendations.

In 2016, the number of doses of pertussis vaccine the cases received was reported for 67% (n=142/213) of cases. Thirty seven per cent of cases (n=78/213) were unvaccinated; these cases ranged in age from one month to 81 years, with 73% (n=57/78) of these cases aged less than six months. Thirty six per cent of the unvaccinated cases (n=28/78) were less than two months of age and were therefore not eligible for pertussis vaccine in the Irish schedule.

Eight per cent (n=17/213) of cases were reported to have one dose of pertussis vaccine, these cases ranged in age from two months to five years. One per cent (n=3/213) had two doses of pertussis vaccine, these cases were six to 10 months of age. Fifteen per cent (n=31/213) had three doses of pertussis vaccine, these cases ranged in age from eight months to 15 years. Six per cent (n=12/213) had four doses of pertussis vaccine, these cases ranged in age from six to 16 years. One of the 213 cases had five doses of pertussis vaccine, this case was 16 years. Of the cases reported to have four or five doses of pertussis vaccine forty percent were classified as confirmed (n=5/13) and forty six percent (n=6/13) had four vaccine dates recorded.

Country of birth was reported as Ireland for 69 cases, a country other than Ireland for three cases, and was unknown or not specified for the remainder (n=141).

Where data were provided, reported symptoms included cough (98%, n=146/149), paroxysmal cough (92%, n=136/148), any inspiratory whoop (64%, n=86/134), post-tussive vomiting (54%, n=75/140), choking episodes in infant (44%, n=23/52), apnoea (30%, n=40/134) and cyanosis (27%, n=35/130). Where data were provided, reported complications included conjunctival haemorrhages, (7%, n=9/124), pneumonia (2%, n=3/133), acute encephalopathy (1%, n=1/134) and seizures (0.7%, n=1/135). One death was reported in a seven week old child; the child's mother was not vaccinated during pregnancy.

Table 1. Number of pertussis cases notified and the crude incidence rate per 100,000 population (CIR) by HSE Area in 2016

HSE Area	Number	CIR
HSE E	110	6.4
HSE M	6	2.1
HSE MW	3	0.8
HSE NE	12	2.6
HSE NW	5	1.9
HSE SE	29	5.7
HSE S	35	5.1
HSE W	13	2.9
Total	**213**	**4.5**

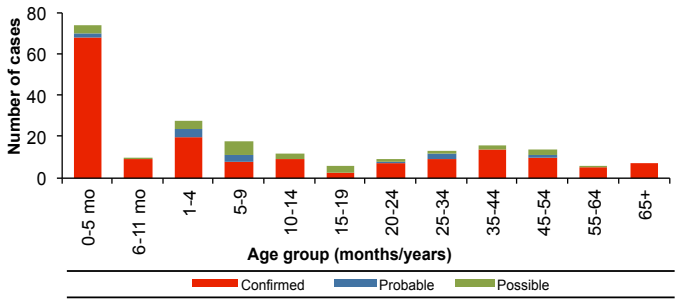

Figure 3. Number of notified pertussis cases in 2016 by age group and case classification.
'Mo' in graph indicates months ie 0-5 months and 6-11 months, the remaining age groups are in years

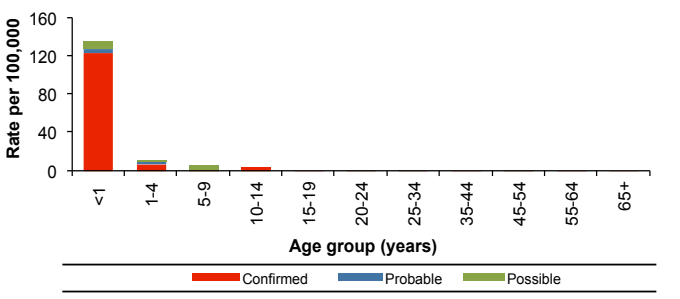

Figure 4. The age specific incidence rate (per 100,000 population) of notified pertussis cases in 2016 by case classification

Sixty four cases were hospitalised, representing 30% (n=64/213) of all cases and 41% (n=64/155) of cases where hospitalisation data was known. Eighty three per cent (n=53/64) of those hospitalised were aged less than one year and 33% (n=21/64) were less than two months of age.

Of the 213 cases, the likely setting of exposure to pertussis included home (21%, n=44), other family setting (2%, n=5), work (1%, n=2), school (0.5%, n=1), social setting (0.5%, n=1), and was unreported or not specified for the remainder (75%, n=160).

The likely source of exposure included sibling (8%, n=16), other relative (5%, n=10), mother (2%, n=5), father (1%, n=3), and was unknown or not specified for the remainder (84%, n=179).

Antibiotic usage was reported for 95% (n=145/153) of cases where this data was provided and for 68% of all cases (n=145/213). A second antibiotic was known to be given for 28% (n=40/145) of cases and known not to be given for 26% (n=37/145) of cases given a first antibiotic while this information was not provided for the remainder (47%, n=68/145).

Eleven localised pertussis outbreaks were notified during 2016, with 29 associated cases of illness. Nine outbreaks were associated with private houses, with 24 associated cases of illness, one was in a residential institution with three ill and one was at a scout event with two ill.

The figures presented in this summary are based on data extracted from the CIDR system on 24th August 2017. 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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