



Department of Epidemiological Surveillance and Intervention Vaccine Preventable and Congenital Diseases Unit

EPIDEMIOLOGICAL DATA FOR PERTUSSIS IN GREECE

2004-2017

(MANDATORY NOTIFICATION SYSTEM)

Key Points

- Although pertussis is a vaccine preventable disease, it continues to be a public health concern in Greece.
- Unvaccinated pockets of population, in combination with the waning immunity after infection and after vaccination, contribute to the occurrence of pertussis cases.
- Based on data for the period 2004-2017, the disease appears to affect all ages (with the exception of the age group > 45 years old), but it presents the highest frequency of occurrence in the age group 0-4 years old (especially among children below one year of age).

Pertussis is an acute bacterial infection of the respiratory tract, caused by *Bordetella pertussis*. The bacterium mode of transmission is airborne, via droplet spread or by direct contact with excretions from the respiratory tract of an infected person. Indirect contact, via air, or recently infected surfaces-objects, occurs rarely. Pertussis is rather easily transmitted (family members that have no immunoprotection, are affected up to 80%) [1].

Time trend

During the period 2004-2017, the number of reported pertussis cases with known age and gender was 464.

The notification rate during the period 2004-2017, appeared between 0.03/100,000 population and 0.8/100,000 (Figure 1). The mean annual notification rate for the period 2004-2017 was 0.3 cases per 100,000 population (mean number of reported cases per year: 33, total number of reported cases for 2004-2017: 464).

Age and gender distribution

During 2004-2017, the number of reported cases with known age and gender was 461. The disease showed the highest frequency of occurrence in the age group 0-4 years old, with a mean annual notification rate of 5.0 cases /100,000 population (number of cases: 364, among which 306 below of one year of age). In the age group > 45 years old, no cases were reported for the period 2004-2017 (Figure 2). The mean annual notification rate was 0.32/100,000 population for women and 0.28/100,000 population for men.

Geographical distribution

During the period 2004-2017, the disease presented the highest mean annual notification rate in Attica (0.4/100,000 population) whilst slight smaller was the notification rate in the geographical areas of Central Greece and Aegean Islands – Creta (0.3/100,000 population). The notification rate for the geographical area of Northern Greece was 0.2 cases / 100,000 population.

Laboratory data

Among 464 reported cases during 2004-2017, 296 (64%) were laboratory confirmed, 46(10%) had clinical symptoms of pertussis and an epidemiological link with another case, 118 (25%) had only clinical symptoms of the disease and 4 (1%) cases had no relevant information.

Vaccination coverage

Among 464 reported cases during 2004-2017, the vaccination coverage was known for 407 cases (88%).

The majority of the reported cases (286 cases – 62%) were not vaccinated at all. In total, 61 cases (13%) reported vaccination with at least 3 doses of vaccine, another 21 cases (5%) vaccination with 4 doses, 22 (5%) vaccination with 5 doses while 17 (3%) had no information available regarding the number of doses performed (Figure 3). It is widely known that vaccination against pertussis offers immunoprotection that decreases with time. In Greece, for cases vaccinated with at least 3 doses of vaccine, the disease is probably related to the decreasing over time immunoprotection, in approximately half of the cases (especially in the age group 10-19 years old) [2].

Risk factors – Burden of disease

For the period 2004-2017, a significant proportion of the reported cases belonged to ROMA children, 0-14 years old (32%, n=148). The number of cases that needed to be hospitalized during the same period reached 351 (75.6%), whilst 42 cases (9.0%) presented complications, especially regarding the respiratory system. The outcome for pertussis is usually good. During the period 2004-2017, there were only 2 deaths, mortality rate 0.4% .

Conclusion

The disease's notification rate in Greece is low. The mean annual notification rate for the period 2004-2017 was lower than the mean notification rate for the EU/EEA countries (9.0/100,000 population for the year 2015)[3]. This low rate is related to the high vaccination coverage of the population (89.5% of the population is vaccinated with 5 doses of DTwP or DTaP), whilst 95.8% of preschool children attending nurseries-kindergartens aged 2-3 years old is vaccinated with 4 doses of DTaP)[4,5]. It should be noted, however, that pertussis is a disease that is under-diagnosed, due to difficulties in its clinical diagnosis, as well as due to the frequent unavailability of laboratory confirmation. The fact that vaccination against pertussis offers immunoprotection that decreases over time, as well as the increased proportion of reported cases among non-vaccinated ROMA children, underline the need for re-designing the policy for pertussis prevention in Greece[6].

References

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Figure 1. Time trend of pertussis reported cases and annual notification rate /100,000 population in Greece, 2004-2017

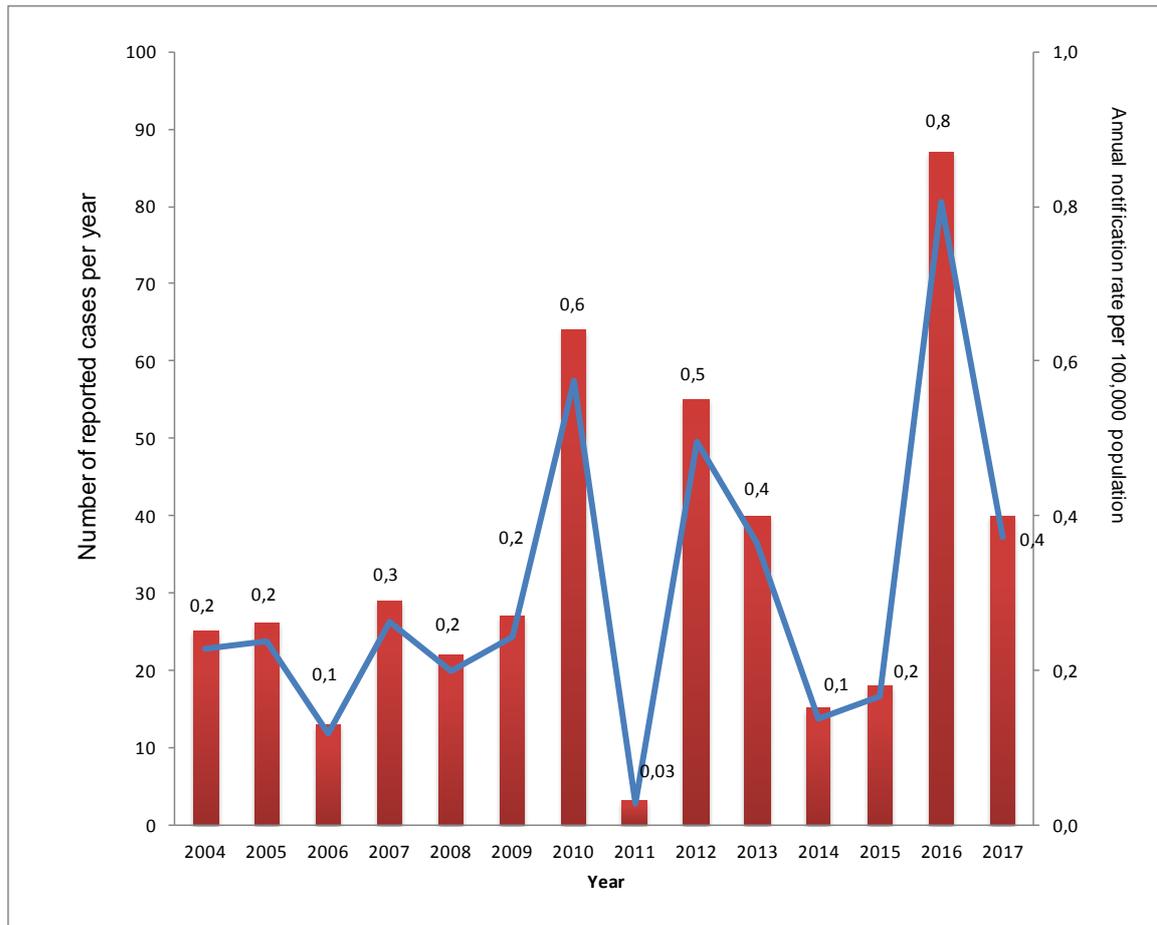


Figure 2. Age distribution of the mean annual notification rate of pertussis (cases/100,000 population), Greece, 2004-2017

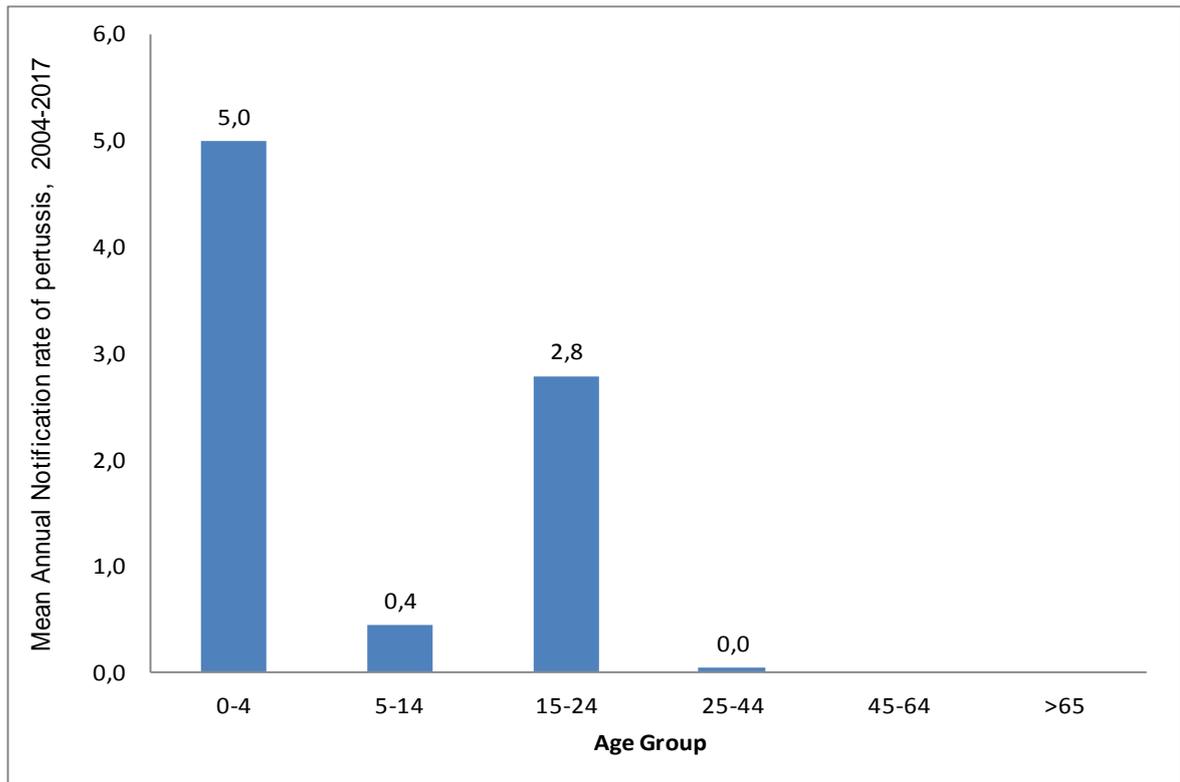


Figure 3. Frequency distribution of pertussis notified cases by number of vaccine doses, Greece, 2004-2017

