



Vaccines work – decrease in cases of Pertussis

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Background – pertussis (whooping cough)

- Vaccine preventable disease – notifiable in Ireland since 1948
- Highly infectious bacterial disease involving the respiratory tract - caused by *Bordetella pertussis*
- Initially, symptoms may resemble common cold. Within 2 weeks, severe cough may develop characterised by episodes of rapid coughing followed by high-pitch whoop
- Spreads through droplets or direct contact with discharges from the nose and throat of infected individuals



Public health implications

- Potential for interruption of transmission through outbreak control measures such as antibiotics for close contacts of cases and vaccination
- Occurs at any age – most cases in children < 5 years old
- < 6 month old infants particularly vulnerable to pertussis and its complications – these may include **pneumonia, middle ear infection, seizures, encephalopathy, apnoeic episodes and death**
- Importance of vaccine in pregnant mothers to protect young infants – recommended between 16-36 weeks in each pregnancy

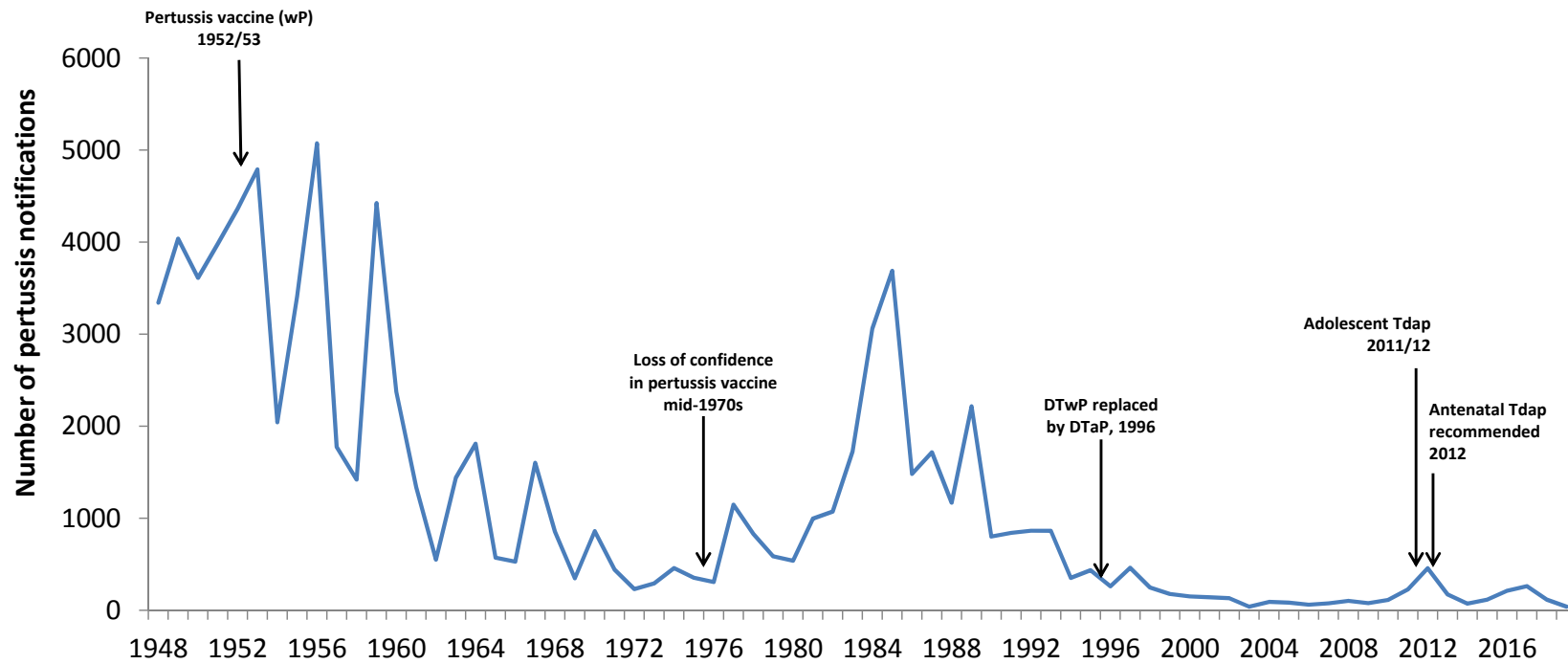


Methodology

- Historic pertussis notification data 1948-1997: provided by the Department of Health
- Pertussis notification data 1998-2019 (week 21) extracted from the Computerised Infectious Disease Reporting System (CIDR) in May 2019
- Data analysis using Microsoft Excel
- 2018 and 2019 data are provisional
- International data from relevant internet sources



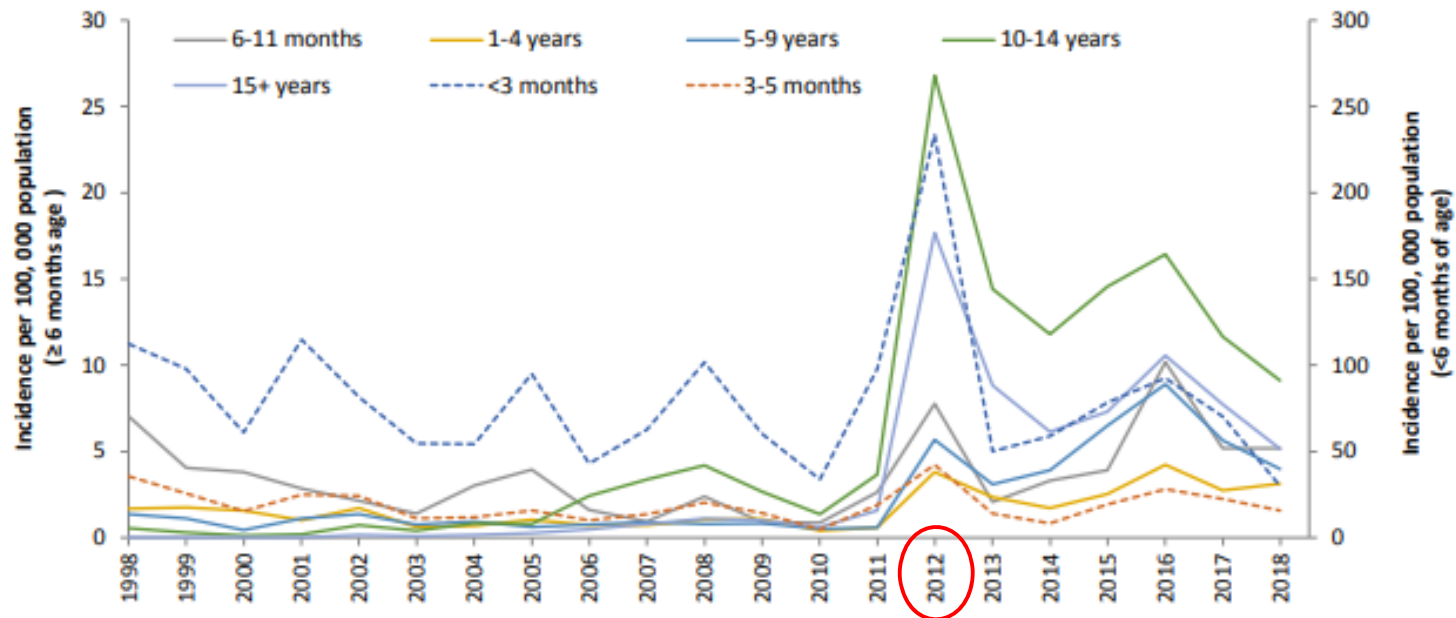
Annual pertussis notifications in Ireland, 1948-2018



Source:
CIDR/DoH



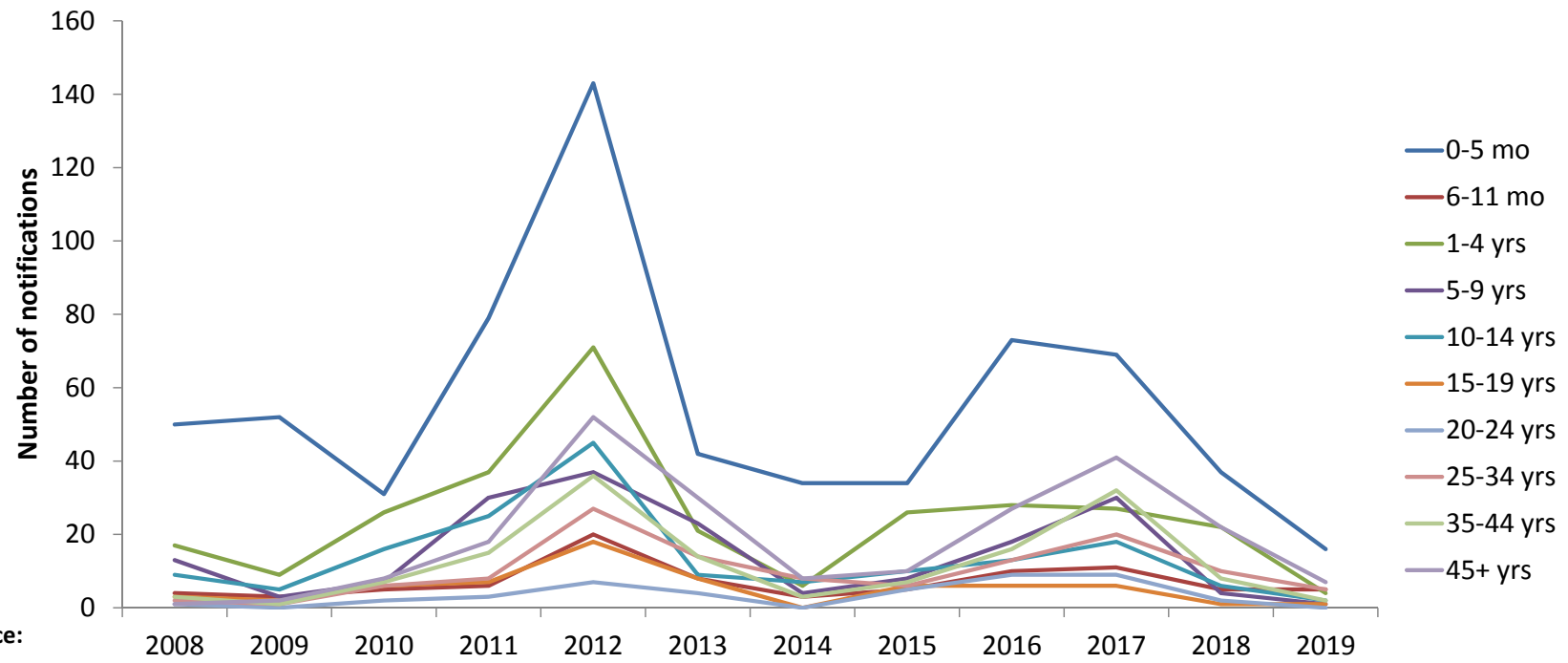
Incidence of laboratory confirmed pertussis cases per 100,000 population, by age group in England: 1998-2018



Source:
Public Health England



Pertussis notifications in Ireland by age group, 2008-2019*

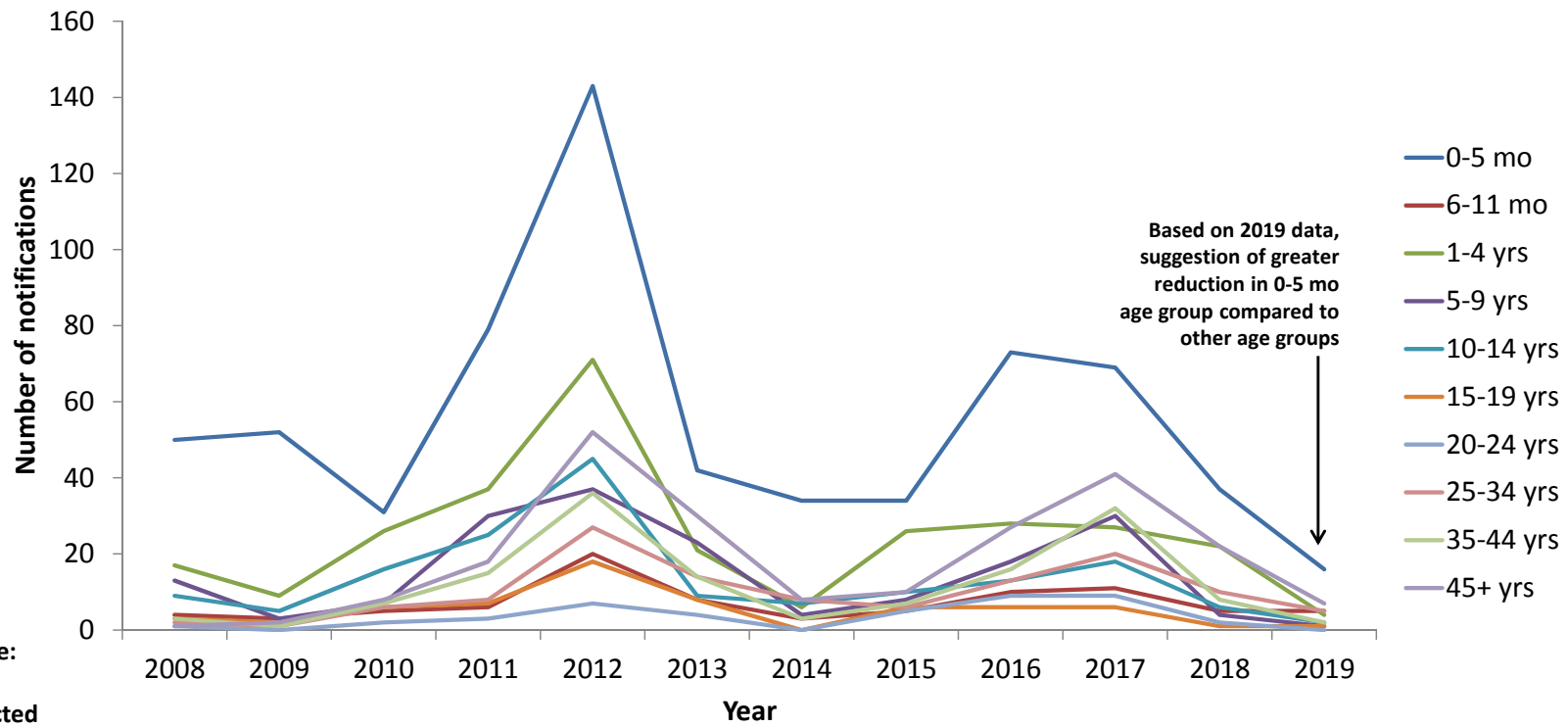


Source: CIDR, extracted 21.05.2019

*2019 data as of week 21



Pertussis notifications in Ireland by age group, 2008-2019*

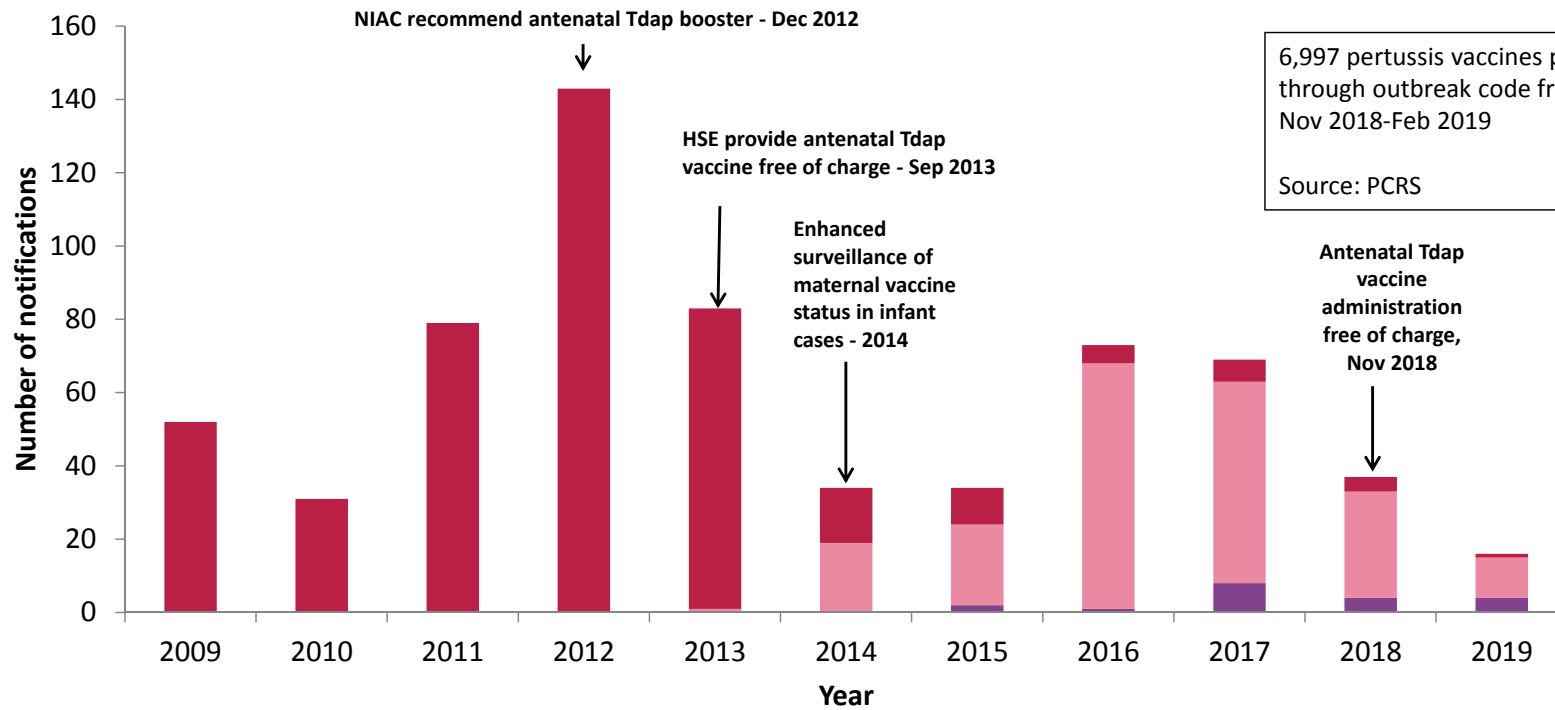


Source: CIDR, extracted 21.05.2019

*2019 data as of week 21



Pertussis vaccination status of mother in infant pertussis notifications (aged 0-5 months), and antenatal vaccination policy changes, 2009-2019*



Source: CIDR, extracted 21.05.2019

■ Vaccinated ■ Not vaccinated ■ Unknown

*2019 data as of week 21



Discussion

- In Ireland, incidence of pertussis has decreased substantially since the introduction of pertussis vaccines in the 1950s
- Upsurge occurred in 2012 – indicating waning immunity, particularly in older children and adults. Similar findings in other countries at this time
- Most pertussis notifications occur in infants, particularly those < 6 months of age – vulnerable age group
- A number of positive changes in vaccine policy in recent years to address this issue – the vaccine is now free for pregnant women yet uptake remains inadequate to effectively prevent morbidity and mortality in young infants
- Provisional 2019 data suggest a positive impact on pertussis in the 0-5 month age group



Conclusions

- Pertussis notifications have substantially reduced since pertussis vaccines were first introduced
- Despite the availability of a safe and effective vaccine pertussis continues to pose serious risk to infants, particularly those less than 6 months of age
- Need to continue to encourage and facilitate pregnant women to get the vaccine
- Consideration needs to be given to providing pertussis vaccine to pregnant women on an ongoing basis through a funded national programme so that uptake can be sustained into the future

Acknowledgements



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- HPSC Vaccine Preventable Diseases team/staff



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