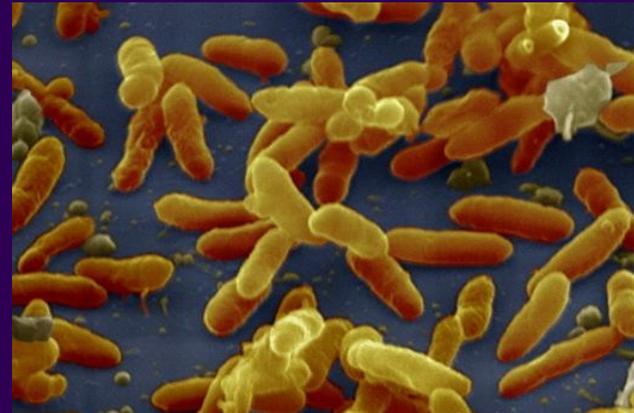


Epidemiology of whooping cough (pertussis)

(to 31st August 2012)



Mary Ramsay



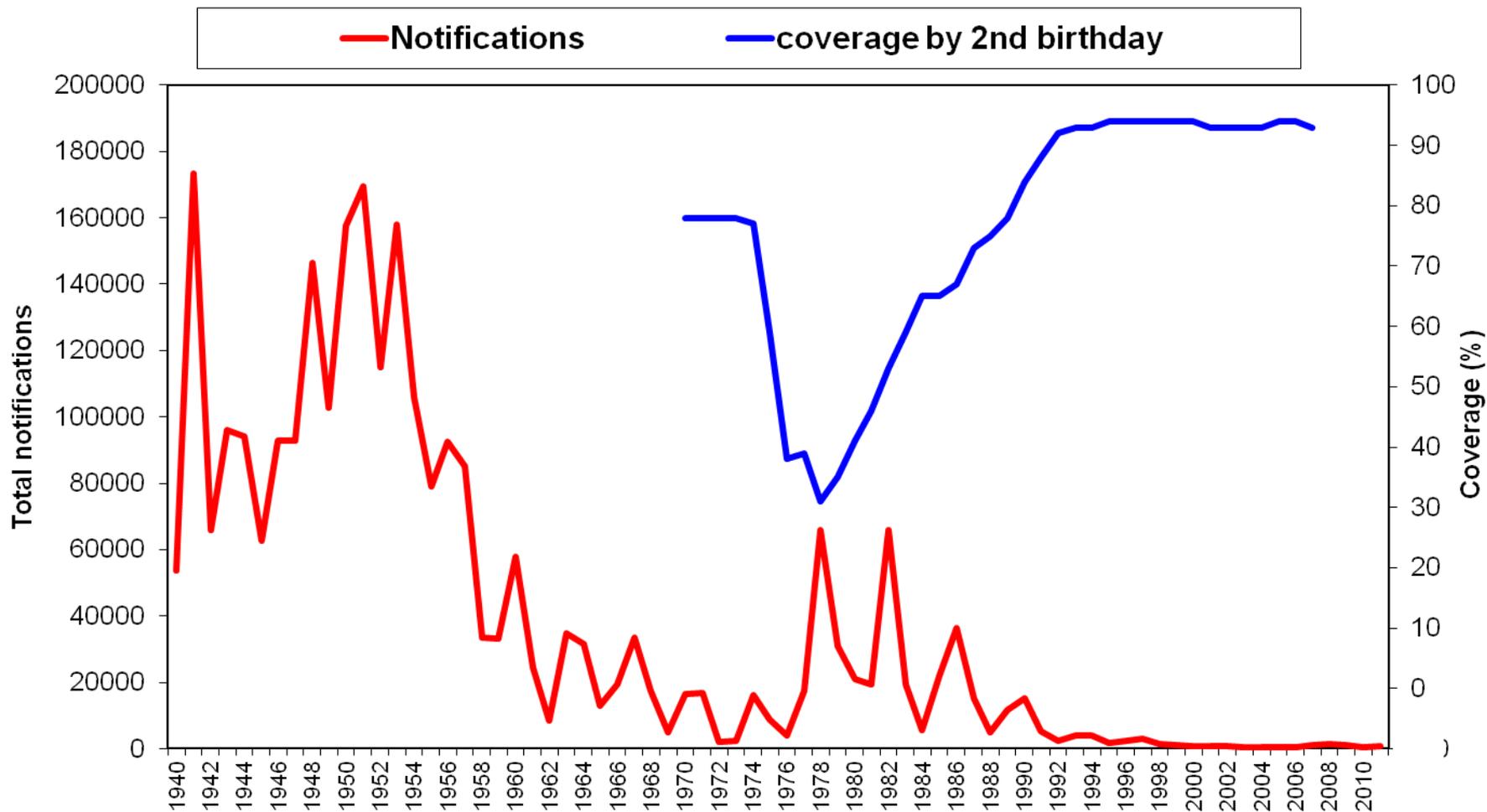
24th September 2012

Whooping Cough



- Disease of the respiratory tract caused by *Bordetella pertussis*
 - Starts with cold-like symptoms, develops into bouts of severe coughing followed by characteristic whoop or vomiting
 - Coughing can last for two to three months
- Spreads easily from person-to-person in droplets produced by coughing or sneezing
- Most dangerous in children under 1 year of age who are also at risk of the serious complications
 - Pneumonia, collapsed lungs or apnoeic attacks (stopping breathing)
 - Lack of oxygen leading to convulsions, brain damage, death
 - Weight loss and dehydration
- Older children and adults may simply have prolonged cough – infection often goes unrecognised

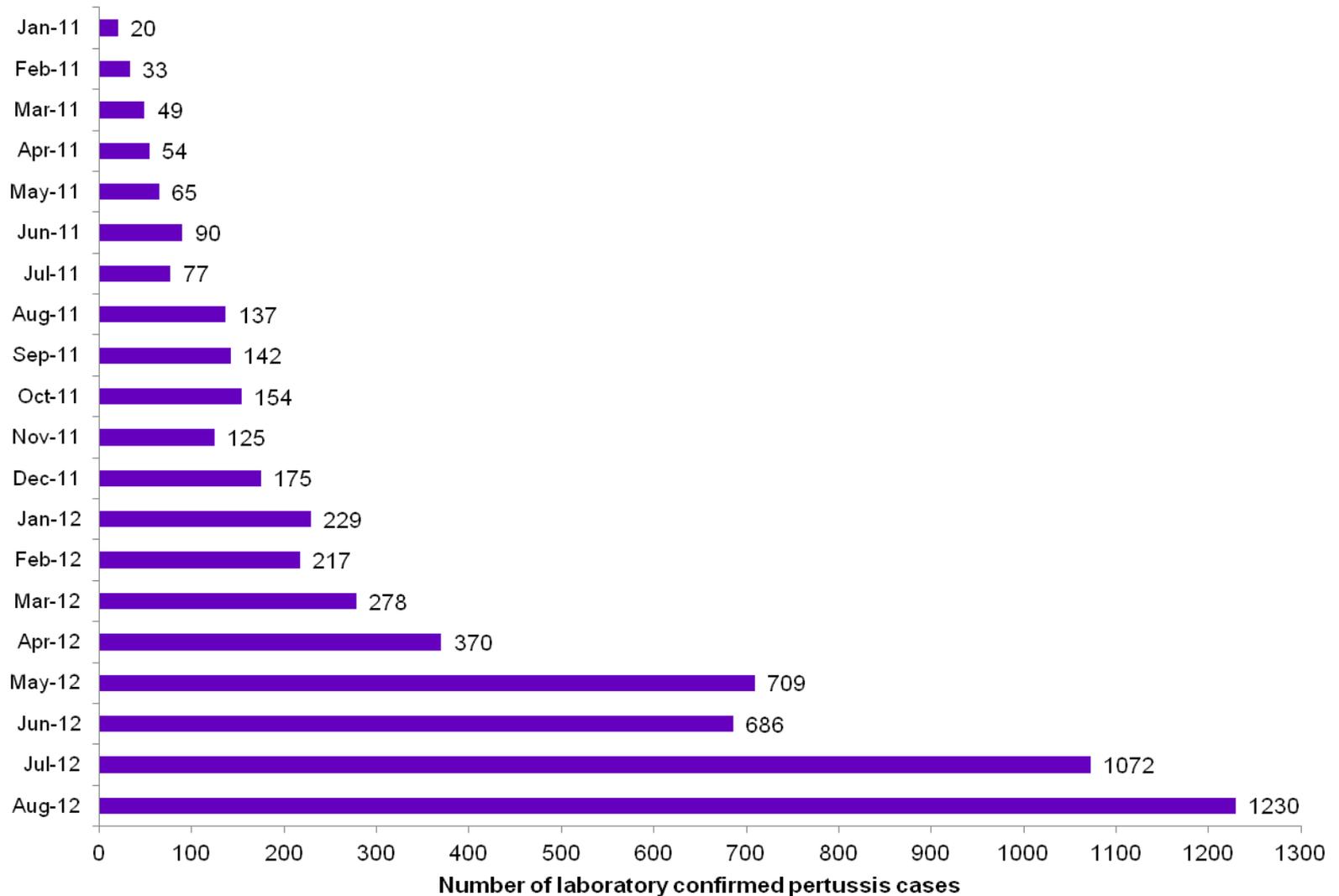
Whooping cough notifications and vaccine coverage 1940-2011 (England and Wales)



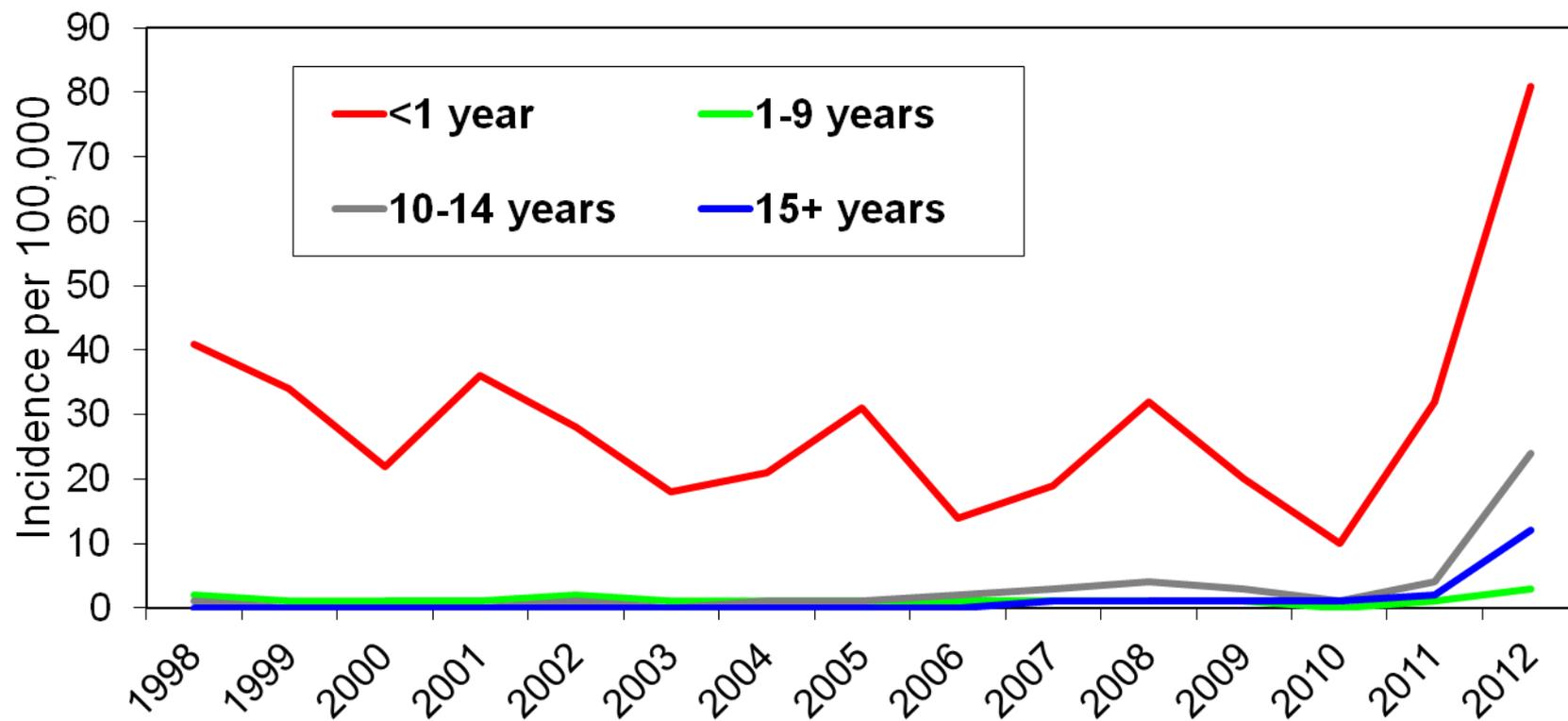
Summary of long term whooping cough trends

- Prior to the routine use of vaccination, over 100,000 cases of whooping cough reported each year in England and Wales
- Numbers of cases fell dramatically following the roll out of vaccination (by 1957)
- Epidemics (of up to 60,000 cases) occurred when vaccine coverage fell in the mid-1970s
- Vaccine coverage recovered and has exceeded 90% since the late 1980s
- Numbers of cases of whooping cough have been at historic low levels for over 20 years

Number of laboratory confirmed cases by month, England & Wales 2011-Aug 2012

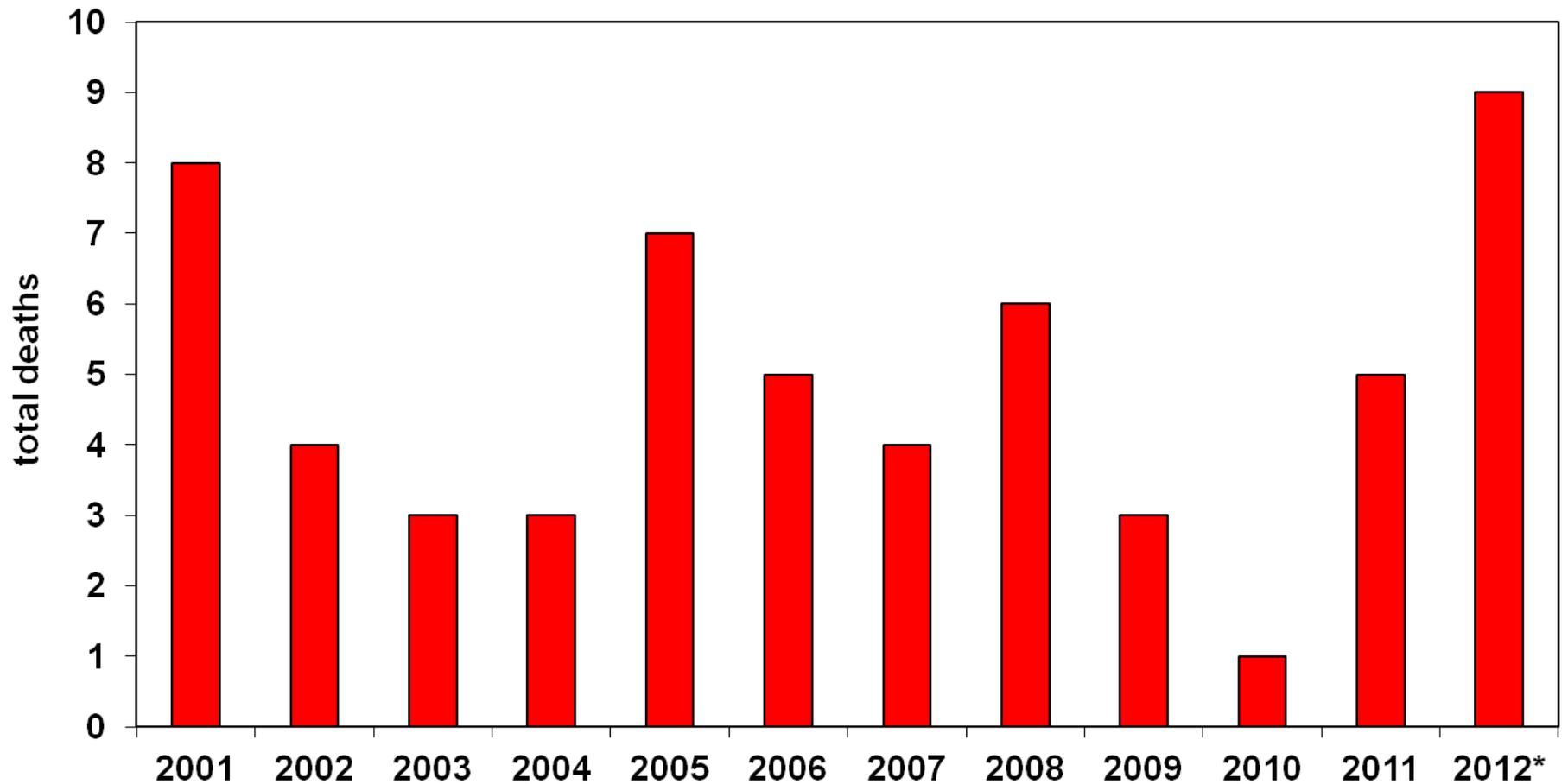


Annual incidence of laboratory confirmed pertussis in by age group, England and Wales 1998-2012



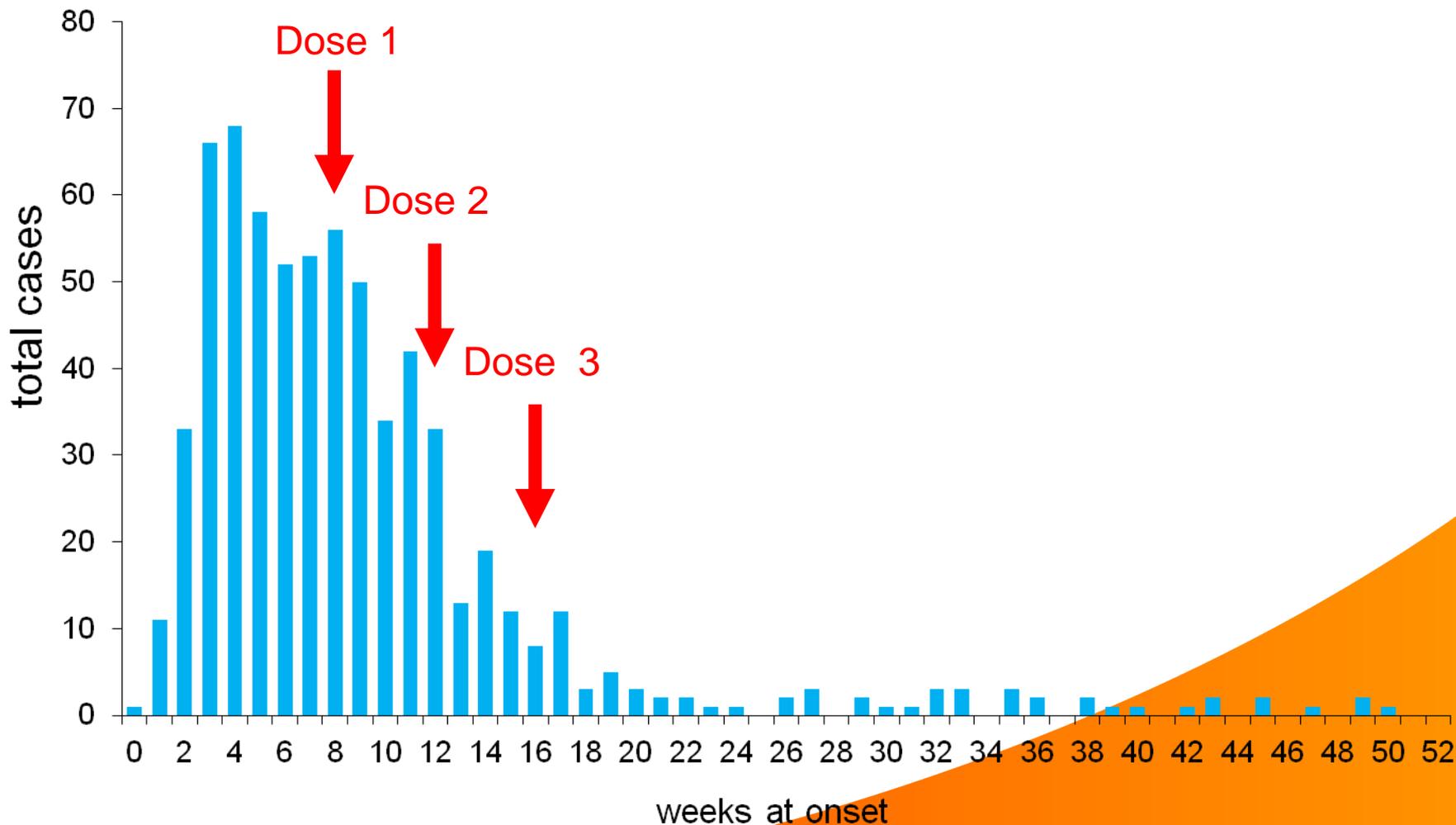
* 2012 incidence extrapolated from first 8 months of the year

Number of deaths from whooping cough in infants under a year of age, England 2001-2012



* 2012 to 31 Aug only

Confirmed cases in infants under 1 year, by week of age at onset (2011-2012)





Reasons for the increase

- Protection against whooping cough is not lifelong, even after natural disease
- Vaccinated people can get a mild infection, particularly as immunity wanes in adolescence and adulthood
- When pertussis is circulating, this boosts people's immunity and helps to stop transmission.
- After some time, the immunity wanes again and infection can spread more easily – leading to these regular epidemics (every four years).
- Reason for the particularly high epidemic this year is unclear, but many other developed countries have experienced recent increases in incidence
 - USA, Canada, Australia, the Netherlands, Norway

Summary of whooping cough in 2012



- Increase in all indicators of disease; 4,971 cases so far in 2012
 - *Numbers less than 10% of the levels reported before vaccination*
- Highest incidence of disease in infants, followed by older children and adults
 - *Very low incidence in the age groups covered by the current childhood vaccination programme*
- Most cases in infants occur below the age that can be prevented by the current vaccination programme
 - *at 2, 3 and 4 months of age, with booster at 3½ years*
- All deaths in 2012 were in unvaccinated children below the age of three months