

# Whoop Whoop Whoop – impact of pertussis in community and a health care facility



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# Pertussis

- Respiratory infection caused by *Bordetella pertussis*
- Transmitted by droplet infection and direct contact with discharges from respiratory mucous membranes of infected persons
- Incubation period 5 to 21 days; average 7 to 10 days
- Highly communicable in catarrhal stage and early coughing stage; communicability negligible three weeks after cough commences, or after five days of appropriate antibiotics

# Clinical presentation

- Initial catarrhal state similar to viral upper respiratory infection
- Coughing follows which becomes paroxysmal; may end in vomiting, cyanosis and/or an inspiratory whoop
- Cough may last three months
- Adults and immunised children may not show typical picture – may have prolonged cough only
- Complications pneumonia, encephalitis, death
- Case fatality ratio approx 1 per 1000 in young babies

# Pertussis



# Laboratory testing for pertussis

PCR/culture testing for *B. pertussis*

- Nasopharyngeal aspirate in children
- Nasopharyngeal swabs for adults
- Throat swabs in adults

Serology

- IgA is widely used; sensitivity is low
- may be present for 6 months to 2 years after vaccination

# Legislation

- Pertussis is a Group B notifiable disease under the *Health (Infectious Diseases) Regulations 2001*
  - Notified in writing from medical practitioners and pathology laboratories within 5 days
- Cases must be excluded from school and child care for 5 days after commencing antibiotic treatment
- Unimmunised household contacts aged less than 7 years must be excluded from school and child care until for 14 days or 5 days after commencing antibiotics

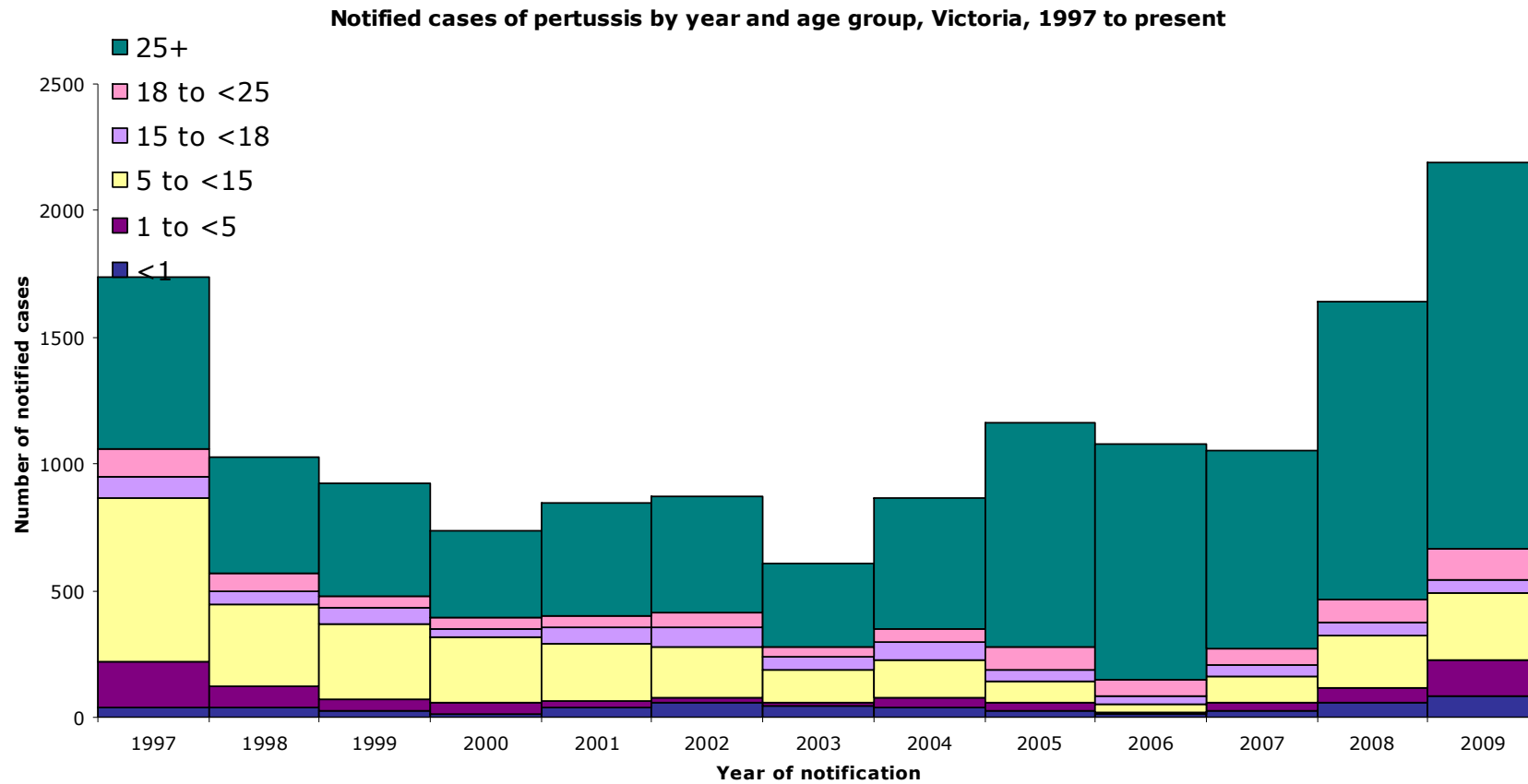
# Antibiotic prophylaxis

- High risk contacts
  - Household contacts with young incompletely immunised children
  - Any woman in the last month of pregnancy, regardless of vaccination status
  - Infants less than 12 months of age, regardless of vaccination status
  - Neonates who have been cared for by an infectious staff person; parents/primary carers exposed to the infectious staff member
  - Health care workers who have been exposed who are to care for neonates in the next three weeks
  - Some child care situations
- Useful if commenced within 21 days of last contact with infectious case

# Antibiotic treatment

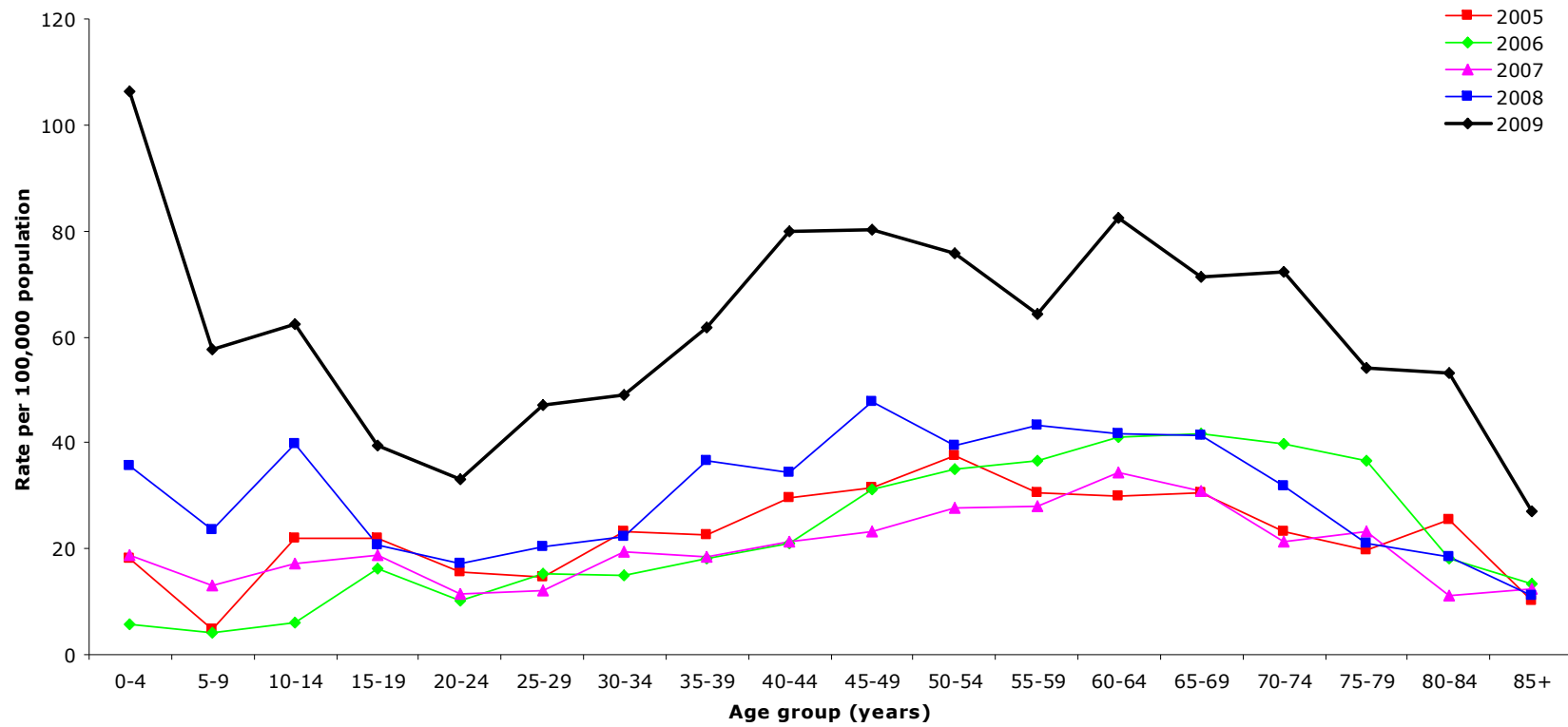
- antibiotics reduces infectivity and may alter the course of the illness
- Useful if commenced within 21 days of onset of cough
- Azithromycin, clarithromycin or erythromycin
- Not roxithromycin
- Use of erythromycin in neonates has been associated with the development of pyloric stenosis; use of clarithromycin in neonates is not recommended as no safety data available

# Notifications of pertussis 1997 - 2009



# Notification rate 2005 - 2009

Notification rate of pertussis by age group and year, Victoria, 2005 to present

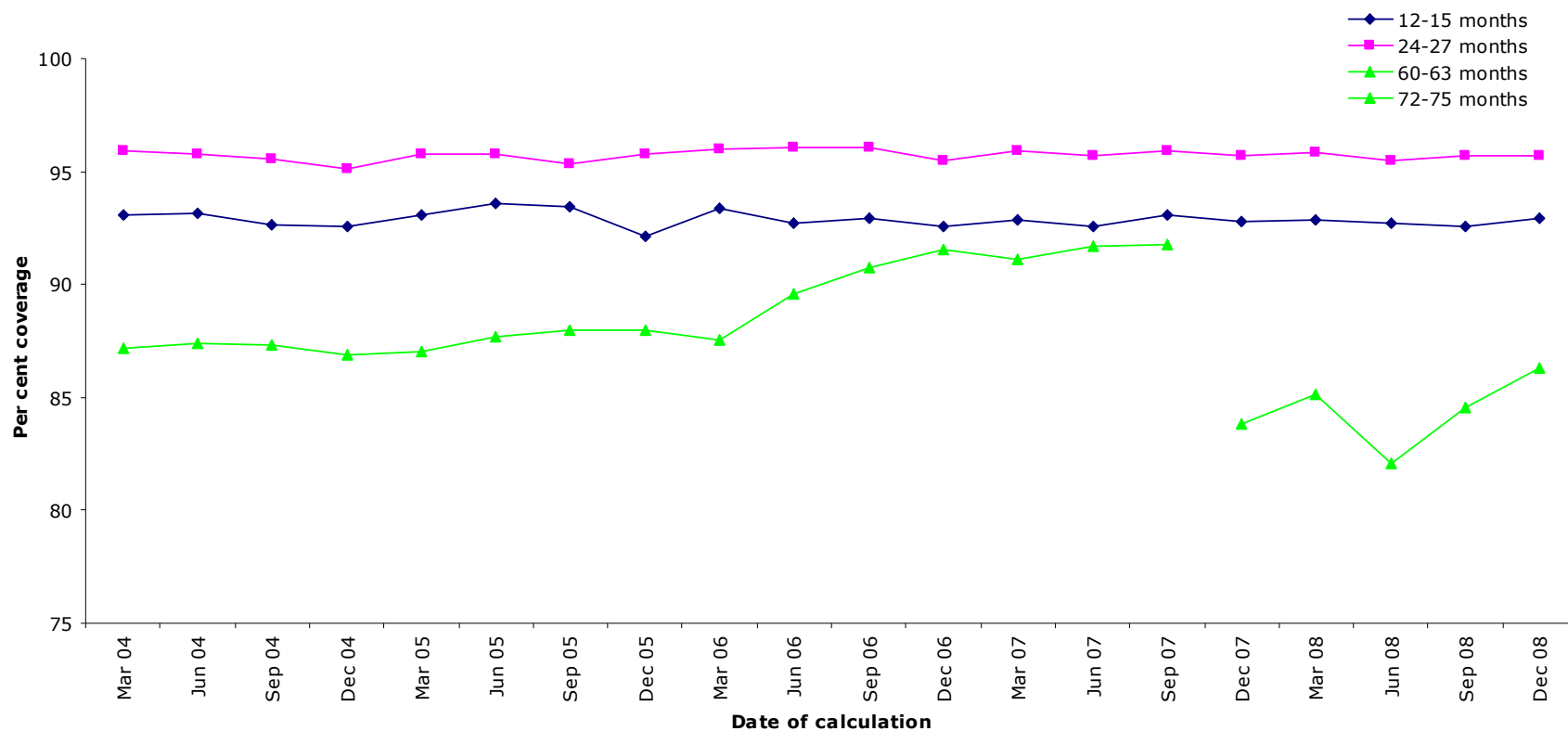


# Immunisation recommendations

- National Immunisation Program at 2,4,6 months, 4 years and 15 years
- Other recommendations – single booster dose for
  - Adults planning pregnancy, or both parents as soon as possible after birth of a child (“cocoon” strategy)
  - Health care workers in contact with young children, particularly maternity and neonatal
  - Child care workers

# Immunisation coverage - children

DTPa coverage by quarter and childhood age cohort, Victoria, January 2004 to present



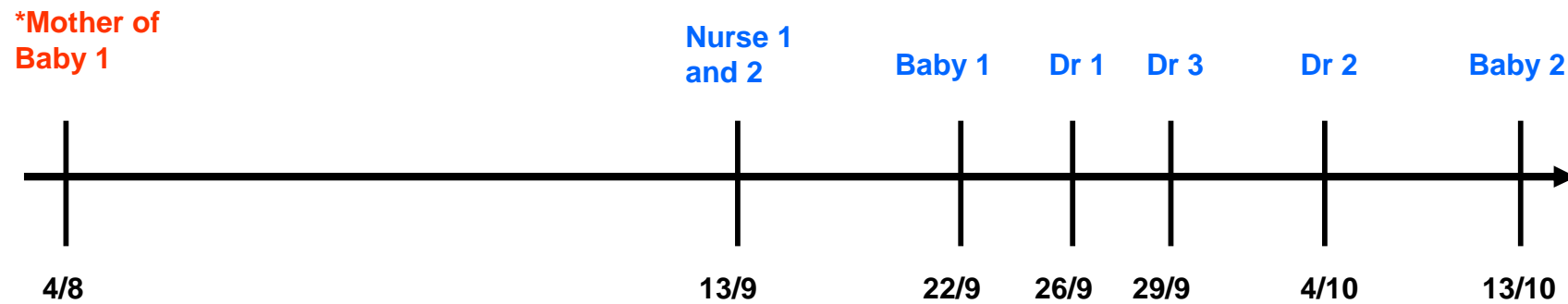
## Cluster of cases in maternity hospital 2008

- 30 September – notification of pertussis in nurse (midwife) – onset 13 September
  - Action – antibiotic prophylaxis for 19 staff members and 20 babies
- Second week October – three doctors all with coughing illnesses – all met case definition
- Two of these doctors thought to be not immunised as children because of parental concern
- Further three nurses symptomatic over mid-September/early October – probable cases

## Cluster of cases in maternity hospital 2008

- Baby 1- 5 week female– onset 22 September
- Baby 2 – 3 week female - onset 13 October
- No staff vaccination program
- Summary of actions
  - Initial prophylaxis to 19 staff and 20 babies
  - Additional 47 babies in contact with other staff members
  - Surveillance letter to parents of 472 babies born from mid-September to mid-October
  - Staff surveillance

# Cases by date of onset



\*Probable case - Not laboratory confirmed

## Summary of actions (cont)

- Examine DHS pertussis notifications in babies
  - check hospital born in – baby 2 identified
- Four other EDs at metropolitan hospitals contacted for active surveillance (RCH, MMC, Northern, Box Hill)
- Implement staff vaccination program

## Cluster of cases in maternity hospital 2008

- Possible transmission mother of baby 1 still infectious when in hospital for birth on 21 August – passed infection to staff member and began chain of transmission

# Acknowledgements

- DoH
  - Kleete Simpson, Anne Murphy
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  - Richard Bartolo, Paul Johnson