Pertussis Disease

- Pertussis (‘whooping cough’) is a bacterial infection affecting the respiratory system, caused by the organism *Bordetella pertussis*.

- It affects individuals of all ages, but is more severe (and can be fatal) in small babies, particularly those too young to be vaccinated or those who are unvaccinated.
NSW Pertussis Notifications

Upward trend

Number of pertussis notifications

Year of onset

Pertussis notifications in NSW by age group
1 July 2014 to 31 December 2014

Also source of pertussis transmission in young infants due to waning immunity
Pertussis Disease Burden

- Infants bear the greatest burden of pertussis; four deaths in NSW since 2009
- Hospital costs alone for infants <1 year of age are estimated at $3.2 million in an outbreak year
- Neither vaccination nor naturally acquired infection provides lifelong immunity
Previous Outbreak Control Measures

From March 2009, two vaccine-related outbreak control measures were introduced in NSW as part of the response to the increased notifications:

– NSW Health funded pertussis vaccine for new parents and adult carers (cocooning strategy) of infants less than 12 months old

– First dose of infant pertussis-containing vaccine was promoted to 6 weeks of age from 8 weeks
Previous Outbreak Control Measures

NSW Health cocooning strategy was amended in July 2013 due to:

– waning of the pertussis epidemic

– updated NH&MRC recommendations on the timing of the maternal dose

– recently completed research in NSW which showed that pertussis vaccination of mothers was only effective if given at least 4 weeks before onset of illness in the infant
Previous Control Measures II

- Free vaccine was no longer provided for new parents and carers of infants

- NSW Health continued to provide free pertussis vaccine in NSW Health public hospitals for the opportunistic vaccination of women post-partum who had not received the vaccine in the previous five years.
Other Control Measures

- Public health units receive notifications of all pertussis cases
- PHUs work with GPs and schools/child care centres to provide information and prophylaxis to cases and contacts according to national guidelines
- Timely vaccination is encouraged at:
  - 6 weeks, 4 months, 6 months
  - 4 years
  - 12 years (high school program)
PERTUSSIS PROTECTION PLAN 2015
New Research

- Recent evidence suggests greater protection for infants from pertussis disease through maternal vaccination in the 3rd trimester of pregnancy which results in utero transfer of maternal antibodies.
- Is likely to provide protection to young infants from disease until pertussis vaccination begins at 6 weeks of age.
- A UK study has shown a 91% reduction in infant pertussis disease.
- Extensive use in UK & US show pertussis vaccine in pregnancy is safe.
NH&MRC Draft Recommendations

- Pertussis containing vaccine is recommended as a single dose during the 3rd trimester of each pregnancy.

- Vaccination during pregnancy is more effective in reducing the risk of pertussis in young infants than vaccination of the mother post-partum.

- Added benefit is due to direct passive protection of the newborn by transplacental transfer of high levels of pertussis antibodies.

- The mother will also be protected against pertussis in the 3rd trimester and less likely to transmit pertussis to her infant after delivery.
NSW ObstetriX database

- At the end of 2014, maternal influenza and pertussis vaccination status questions were included in ObstetriX.
- Aims to prompt NSW midwives to discuss the need for maternal pertussis vaccination.
- Is a relatively new initiative – needs to be promoted widely to the relevant staff. It provides a means of measuring uptake of both vaccines.
NSW Antenatal Pertussis Vaccination Program

Hospitals:

- The postnatal catch-up vaccination will move to an antenatal vaccination program
- dTpa vaccine should be offered to all pregnant women in the 3rd trimester, ideally at the 28 week visit but can be given at any time during the 3rd trimester up to delivery.

Shared care patients:

- Free vaccine to pregnant women through GPs, public hospital and Aboriginal Medical Services as and outbreak measure
Other Control Measures

- Staff vaccination – ensure all staff in maternity and paediatric units have received booster in last 10 years
- Policies to investigate and furlough staff in high risk areas with coughing illness
- Isolate/cohort children with suspected pertussis
- Promote “Identify – Protect – Prevent” to new parents