Maternal vaccination
(Gary) Edwin Reynolds

- Immunisation Advisory Centre (IMAC) 0.1FTE
  - University of Auckland
  - Medical Advisor / General Practitioner
  - Vaccinology / Immunology

- General Practitioner 0.1FTE

- Auckland Regional Public Health (ARPHS) 0.8FTE
  - General Practitioner
  - Operational Control of Outbreaks
  - Research Portfolio
Vaccinate pregnant women with pertussis containing vaccines (Dtap) – it is safe

Vaccinate with pertussis containing vaccine between 28-38 weeks gestation to protect the newborn who are most vulnerable

Vaccine is fully funded and can be recorded on the NIR

Don’t forget to claim for the cost of the vaccination to the ministry

Vaccinate in each pregnancy

Don’t forget Flu vaccine now fully funded for pregnancy and available until December each Flu year
Low uptake of maternal vaccination in notified pertussis cases aged less than 20 weeks

Edwin (Gary) Reynolds, Nicola Grant, Simon Thornley & Michael Hale

Published January 2017 NZ Med J

Auckland Regional Public Health (ARPHS)
Pertussis (Whooping cough)

- Prolonged illness
- Severe forceful coughing in paroxysms
- Leads to vomiting, cyanosis and can be fatal
- Under 12 months of age – severe disease
  - 60% of these cases are hospitalised
  - 90% of fatalities in this age group
- Highest risk period – first 6 months before the primary series immunisations is completed
Infant pertussis protection

- Immunisation coverage and timeliness important
- High rate towards 95% WHO rate
- Maternal vaccination key to protection very young
- Vaccination of mother in late pregnancy
- Antibody transferred across the placenta
- Passive immunity confers protection to the infant
- Especially the first months of life
History

- Introduced 2011 in certain NZ regions
- In response to pertussis epidemic – emergency measure
- Incorporated into NZ schedule 2013
- Tdap – Boostrix, GSK vaccine at 28-38 weeks gestation
- Fully funded
- Due for next epidemic
Maternal vaccine uptake

- Rate unknown
- Estimates as low as 13% - BPAC figures
- Was not captured on NIR
- GP claims data are unreliable
Methods

- Examine vaccine histories of pertussis cases aged less than 20 weeks
- Cases are notified to ARPHS in Auckland region across 3 metropolitan DHB’s
- Used 20 week period of increasing *de novo* immunity from the primary series of immunisations
Method

- For the pertussis notifications since 1 April 2015 for less than 20 weeks
- Contact with mother - vaccine given during late pregnancy
- Was vaccine offered or discussed by LMC
- Tdap vaccination confirmed by contact with general practice
- If not offered – LMC contacted to discuss barriers to vaccination
- Info and links sent
Results

- 12 months 1 April 2015 to 31 March 2016 – 18 confirmed cases in the Auckland area
- Majority of Cases between 3-12 weeks of age
Results

Figure 1: A histogram showing the age of the infant (in weeks) at time of confirmed pertussis notification
Of the 18 cases – The mothers

- 15 mothers (83.3%) did not receive the maternal vaccine during pregnancy
- 7 mothers (38.9%) were not offered maternal vaccine by their LMC
- 3 mothers (16.7%) were offered vaccine by their LMC and the mother chose not to have Tdap
- 5 mothers (27.8%) reported being offered Tdap in the antenatal period but the maternal vaccine was not given due to recall systems failure
- 3 mothers (16.7%) had Tdap in the third trimester and all 3 cases under 20 weeks of age also received their 6 week pertussis containing vaccine (Diphtheria –Tetanus – Pertussis – Polio - Hepatitis B - Haemophilus influenzae type B- Infanrix-Hexa®, GSK). This group represent true maternal vaccine failure
Of the 18 cases – The infants

- 12 cases under 20 weeks of age (66.7%) had their 6 week pertussis containing vaccine (1 given at 8 weeks) indicating that the first dose of the primary vaccine series for these children was insufficient to protect against disease.

- 4 cases were premature (22.2%) with 2 born at 32 weeks and 1 each born at 33 and 35 weeks respectively.

- 1 case (5.6%) was unimmunised.

- 5 cases (27.8%) were too young to receive primary immunisations before 6 weeks.
Discussion

- Maternal vaccination not given in 83.3% under 20 weeks of age in Auckland.
- High percentage not offered vaccine 38.9% - need for health professional education.
- Maternal vaccination strategy is safe in overseas and local studies.
- VE for prevention of pertussis is 91-93%.
- Interference of de novo response closely examined.
Discussion

- Missing out maternal vaccination - missed opportunity
- Protect the most at risk with a proven protection
- Reasons for this low uptake are uncertain
- Likely Suboptimal system delivery of vaccine
- Immunisation happens in general practice from 6 weeks post partum
- Maternal dose is required when redirected to maternity care
Discussion

- Recall systems well tested and could be used in late pregnancy
- Encourage maternal vaccination in third trimester
- Need to audit to estimate uptake – the denominator
- Been funded for 4 years but uptake is low? why
- Practitioner unawareness
- Patient unawareness
- No clear recommendation confuses patients
- Pertussis immunisation drives the early part of the NZ immunisation schedule
Conclusion

- Results suggest a strong need to promote the effectiveness of maternal vaccine to
  - would-be parents,
  - LMC’s
  - general practitioners
Acknowledgements

- Thank you to the medical, nursing and administrative staff at ARPHS