

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

Take Home Message First

- 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

NZ Medical Journal – Letter

- **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

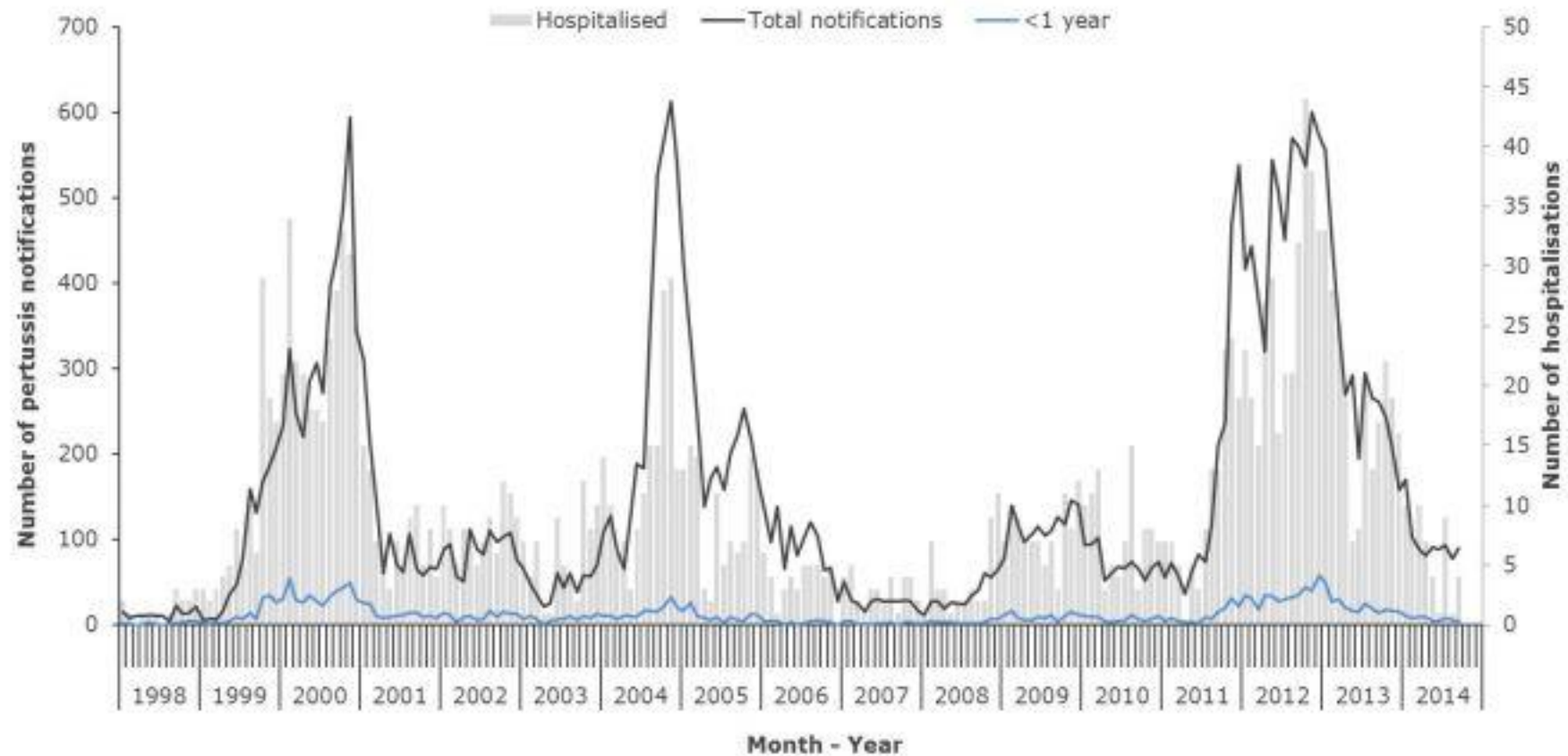
Infant pertussis protection

- 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

Pertussis in NZ



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

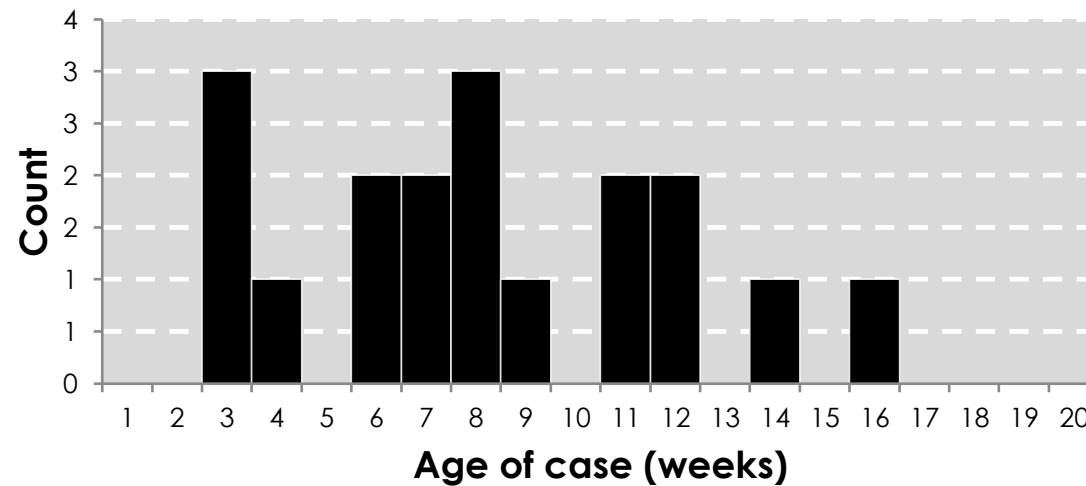
- For the pertussis notifications since 1 April 2015 for less than 20 weeks
- Contact with mother - vaccine given during late pregnancy
- Was vaccine offered or discussed by LMC
- Tdap vaccination confirmed by contact with general practice
- If not offered – LMC contacted to discuss barriers to vaccination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

