Immunisation issues

Linda Hill
August 2010
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- Disease control and vaccine effectiveness
- The NZ schedule
- Vaccines on the horizon
- Common Practice Nurse issues
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DISEASE CONTROL AND VACCINE EFFECTIVENESS
“Only clean water and antibiotics have had an impact on childhood death and disease that is equal to that of vaccines”

World Health Organization
In 2002, WHO estimated that 1.4 million of deaths among children under 5 years were due to diseases that could have been prevented by routine vaccination. This represents 14% of global total mortality in children under 5 years of age.
Smallpox

Bangladeshi girl infected with smallpox (1973).
POLIO
No cases of indigenously acquired poliomyelitis in New Zealand since the OPV mass immunisation campaigns in 1961 and 1962.
Hib laboratory confirmations 1990 - 1995
and notified cases 1996 - 2010

Vaccine introduced 1994
Cluster Outbreaks examples:

- **Amish populations in USA 1985 – 1994**
  - 13 outbreaks of measles, 1200 cases, 9 deaths

- **1999 Netherlands unimmunised community**
  - 10 month long measles outbreak, 2961 cases

- **Rubella outbreaks in decliners Netherlands, spreads to Canada**
  - Outbreak 2004/5, 309 lab confirmed cases, 23 in pregnant women: (at least 1 infant death, 9 severe handicap)
  - Travel: 214 cases in Canada, 5 in pregnant women

May T et al, Vaccine 21(2003) 1048-1051
Eurosurveillance 2005;10(5):050519
VACCINES ON THE NZ SCHEDULE
Key Schedule Changes 1 June 2008

Pneumococcal
- Conjugate vaccine added
- Pneumococcal high-risk programme extended to more people with high-risk conditions

Infanrix®-hexa
- Replaces two vaccines
- DTaP-IPV and Hib/Hep B
- These antigens are combined into one vaccine so only up to 3 injections are needed per visit

Boostrix®
- Replaces Boostrix®-IPV at Year 7
- 4th dose of polio now given at age 4 years

MeNZB
- MeNZB to infant schedule stopped
## 2008 Childhood Schedule (from Sept 08)

<table>
<thead>
<tr>
<th>Age</th>
<th>DTaP-IPV-Hib/HepB (IM)</th>
<th>PCV7 (IM)</th>
<th>Hib (IM)</th>
<th>MMR (S/C)</th>
<th>DTaP-IPV (IM)</th>
<th>dTap (IM)</th>
<th>HPV (IM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 weeks</td>
<td>Infanrix®-hexa</td>
<td>Prevenar®</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 months</td>
<td>Infanrix®-hexa</td>
<td>Prevenar®</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 months</td>
<td>Infanrix®-hexa</td>
<td>Prevenar®</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 months</td>
<td>Prevenar®</td>
<td>Hiberix™</td>
<td>MMR-II®</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 years</td>
<td></td>
<td></td>
<td></td>
<td>MMR-II®</td>
<td>Infanrix™-IPV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Boostrix®</td>
<td></td>
</tr>
<tr>
<td>12 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Gardasil®</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 months after 1st dose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Gardasil®</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 months after 2nd dose</td>
</tr>
</tbody>
</table>
VACCINES ON THE HORIZON
Private market vaccines to consider

• Varicella
  – Zoster (soon)
• Rotavirus
• Conjugate meningococcal vaccines
The schedule: What is next............

• Conjugate pneumococcal vaccines
  – 10 and 13 serotypes

• Next vaccines recommended for the schedule, but not yet.....
  – Rotavirus
  – Varicella
COMMON PN ISSUES
Who needs a catch up?

- for immigrants

- for children or adults with an incomplete immunisation history

- Eligible populations as specified in schedule changes (e.g. introduction of PCV7) that occur after an immunisation programme has commenced
To work out a catch up schedule

Ascertain what immunisations have already been given (and documented)

Refer to the Catch Up Schedules in the 2008 National Immunisation Schedule Health Provider Booklet (MoH 2008) and also the Pneumococcal Catch up Schedule for children born after 1st January 2008

Do not ‘just give the episodes they have missed’
Appendix 1: Immunisation Catch-up Schedules

The following tables are for use from 1 June 2008. These tables replace Appendix 2 of the Immunisation Handbook 2006 (Ministry of Health 2005).

1.1 National Immunisation Schedule catch-up schedules

Note: PCV7 is available from 1 June 2008 only for healthy infants born after 1 January 2000. See Section 1.2 below for catch-up schedules for infants with chronic medical conditions who are eligible for funded pneumococcal vaccines.

First dose at 3–5 months

<table>
<thead>
<tr>
<th>First dose</th>
<th>6 week interval</th>
<th>6 week interval</th>
<th>At age 15 months</th>
<th>At age 4 years</th>
<th>At age 11 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTaP-IPV-HepB-Hib</td>
<td>PCV7</td>
<td>PCV7</td>
<td>Hb</td>
<td>DTaP-IPV</td>
<td>dTap</td>
</tr>
<tr>
<td>DTaP-IPV-HepB-Hib</td>
<td>PCV7</td>
<td>PCV7</td>
<td>Hb</td>
<td>DTaP-IPV</td>
<td>dTap</td>
</tr>
</tbody>
</table>

First dose at age 6 months

<table>
<thead>
<tr>
<th>First dose</th>
<th>6 week interval</th>
<th>6 week interval</th>
<th>At age 15 months</th>
<th>At age 4 years</th>
<th>At age 11 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTaP-IPV-HepB-Hib</td>
<td>PCV7</td>
<td>PCV7</td>
<td>Hb</td>
<td>DTaP-IPV</td>
<td>dTap</td>
</tr>
<tr>
<td>DTaP-IPV-HepB-Hib</td>
<td>PCV7</td>
<td>PCV7</td>
<td>Hb</td>
<td>DTaP-IPV</td>
<td>dTap</td>
</tr>
</tbody>
</table>

First dose at 7–11 months

<table>
<thead>
<tr>
<th>First dose</th>
<th>6 week interval</th>
<th>6 week interval</th>
<th>At age 15 months*</th>
<th>At age 4 years</th>
<th>At age 11 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTaP-IPV-HepB-Hib</td>
<td>PCV7</td>
<td>PCV7</td>
<td>Hb</td>
<td>DTaP-IPV</td>
<td>dTap</td>
</tr>
<tr>
<td>DTaP-IPV-HepB-Hib</td>
<td>PCV7</td>
<td>PCV7</td>
<td>Hb</td>
<td>DTaP-IPV</td>
<td>dTap</td>
</tr>
</tbody>
</table>

* The fourth dose of Hib vaccine and the third dose of PCV7 should be two months after the prior dose. However, this should not delay the administration of MMR at 15 months. If the third dose of Hib vaccine is given at 18 months or older the fourth dose can be omitted.

First dose at 12–14 months

<table>
<thead>
<tr>
<th>First dose</th>
<th>6 week interval</th>
<th>6 week interval</th>
<th>At age 4 years</th>
<th>At age 11 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTaP-IPV-HepB-Hib</td>
<td>PCV7</td>
<td>PCV7</td>
<td>Hb</td>
<td>dTap</td>
</tr>
<tr>
<td>DTaP-IPV-HepB-Hib</td>
<td>PCV7</td>
<td>PCV7</td>
<td>Hb</td>
<td>dTap</td>
</tr>
</tbody>
</table>

For children born after 1 January 2008, two doses of PCV7 should be given at least six weeks apart. PCV7 should be given as a third injection at a scheduled visit.

* Alternatively, at the third visit, DTaP-IPV-HepB-Hib vaccine may be given.

First dose at 15 months–3 years

<table>
<thead>
<tr>
<th>First dose</th>
<th>6 week interval</th>
<th>6 week interval</th>
<th>At age 4 years</th>
<th>At age 11 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTaP-IPV-HepB-Hib</td>
<td>PCV7</td>
<td>PCV7</td>
<td>Hb</td>
<td>dTap</td>
</tr>
<tr>
<td>DTaP-IPV-HepB-Hib</td>
<td>PCV7</td>
<td>PCV7</td>
<td>Hb</td>
<td>dTap</td>
</tr>
</tbody>
</table>

Children born after 1 January 2008 are eligible for funded PCV7 vaccine from 1 June 2009.

For children aged 15–23 months, two doses of PCV7 should be given at least six weeks apart. PCV7 should be given as a third injection at visits one and two, but can be given at an additional visit. Alternatively, at the second visit and third visits, a DTaP-IPV-HepB-Hib and a PCV7 vaccine may be given. For ease of delivery though, additional doses of Hib vaccine beyond 15 months are not required.

For children aged 24–35 months, one dose of PCV7 should be given as a third injection at a scheduled visit but can be given at an additional visit. Alternatively, at the second visit, DTaP-IPV-HepB-Hib and a PCV7 vaccine may be given.

First dose at 6 years

<table>
<thead>
<tr>
<th>First dose</th>
<th>6 week interval</th>
<th>6 month interval</th>
<th>At age 11 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTaP-IPV-HepB-Hib</td>
<td>PCV7</td>
<td>PCV7</td>
<td>Hb</td>
</tr>
<tr>
<td>DTaP-IPV-HepB-Hib</td>
<td>PCV7</td>
<td>PCV7</td>
<td>Hb</td>
</tr>
</tbody>
</table>

Children born after 1 January 2008 are eligible for funded PCV7 vaccines.

For children aged 24–48 months, one dose of PCV7 should be given as a third injection at the first visit. Alternatively, at the second visit, DTaP-IPV-HepB-Hib and a PCV7 vaccine may be given.
# Pneumococcal Catch Up Schedule for Children Born After 1 January 2008

**Pneumococcal Catch Up Guidelines:**

1. No more than 1 dose needs to be given after 24 months of age
2. No more than 2 doses need to be given after 12 months of age
3. No more than 3 doses need to be given after 7 months of age
4. Doses in 1st year must be separated by at least 4 weeks
5. Last dose must always be at least 8 weeks after previous dose
6. For **High Risk** Pneumococcal catch ups refer to page 53 2008 National Immunisation Schedule Health Provider Booklet

<table>
<thead>
<tr>
<th>Age Now</th>
<th>Previous Doses of PCV7</th>
<th>Catch up 1st dose</th>
<th>Catch up 2nd dose</th>
<th>Catch up 3rd dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-6 months</td>
<td>None</td>
<td>3 doses 4 weeks apart + 1 dose at 15 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-11 months</td>
<td>None</td>
<td>Give now</td>
<td>4 weeks later</td>
<td>At 15 months of age$^1$</td>
</tr>
<tr>
<td></td>
<td>One (received before 7 months)</td>
<td>Give now</td>
<td>4 weeks later</td>
<td>At 15 months of age$^2$</td>
</tr>
<tr>
<td></td>
<td>One (received 7 months or later)</td>
<td>Give now</td>
<td>At 15 months of age$^2$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Two</td>
<td>Give now</td>
<td>At 15 months of age$^1$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Three</td>
<td>At 15 months of age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12-14 months</td>
<td>None</td>
<td>Give now</td>
<td>At 15 months of age$^2$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One</td>
<td>Give now</td>
<td>At 15 months of age$^2$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Two (first dose received before 7 months)</td>
<td>Give now</td>
<td>At 15 months of age$^2$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Two (first dose received 7 months or later)</td>
<td>At 15 months of age$^1$</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Three</td>
<td>At 15 months of age$^1$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-23 months</td>
<td>None</td>
<td>Give now</td>
<td>8 weeks later</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One (received before 1st birthday)</td>
<td>Give now$^2$</td>
<td>8 weeks later</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One (received after 1st birthday)</td>
<td>Give now$^1$</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Two (first dose received before 7 months)</td>
<td>Give now</td>
<td>8 weeks later</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Two (first dose received between 7-11 months)</td>
<td>Give now$^2$</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Three</td>
<td>Give now$^2$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24-59 months</td>
<td>None</td>
<td>Give now</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>One (received before 2nd birthday)</td>
<td>Give now$^1$</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>One (received after 2nd birthday)</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Two (any doses received before 1st birthday)</td>
<td>Give now$^1$</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Three</td>
<td>Give now$^2$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$^1$ Final dose must be 8 weeks after previous dose

$^2$ Do not give if all 3 doses received after 7 months of age

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*Immunisation Advisory Centre, University of Auckland*

*September 2009*
Some basic principals

**Pertussis, Diphtheria, Tetanus**
- Primary course of 3 doses at least 4 weeks apart
- Boosters required

**Polio**
- Primary course of 3 doses. Preferable to give 1 booster dose

**Hib and Pneumococcal Disease**
- Catch up’s are complicated as the number of doses required varies with age

**Hepatitis B**
- Primary course of 3 doses except 11 – 15 year olds when a 2 dose (10μg) 4-6 months apart
- Adult schedules can be accelerated

**MMR**
- 2 doses 1 month apart for at risk population

**HPV**
- 3 doses at 0,2 and 6 months
- Accelerated schedule possible
Recurrent problems

- DTaP / HIB; forgetting the HIB
- Not given after a child’s 7th birthday; Infanrix-IPV & Infanrix-Hexa
- Can we use expired vaccines?
- Funded vaccines cannot be sold as travel vaccines or given to ineligible people e.g. HBvaxPRO, ADT Booster, Boostrix, Ipol, Menomune, Pneumovax23, Gardasil, Prevenar
- Tetanus vaccine and TIG in a previously unimmunised child with a tetanus at risk wound. Refer IMAC tetanus at risk wound chart. Remember they still need a course of 3 tetanus
Guidelines for the Management of Tetanus Prone Wounds

START: Check immunisation history

- **Dirty wound**
  - Wounds not classified as clean, which may be contaminated, infected, penetrating, more than six hours old and with tissue damage

- **Clean wound**
  - Wounds less than six hours old, non-penetrating with negligible tissue damage

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**Completed primary course (3 doses of tetanus toxoid)**

- **Dirty**
  - Less than 5 years since last dose or booster***
    - No
  - Less than 10 years since last dose or booster***
    - Yes
    - No tetanus dose needed

- **Clean**
  - Less than 10 years since last dose or booster***
    - Yes
    - Less than 7 years old give: DTaP-IPV (Infanrix™-IPV) or DTap-IPV Hep B/Hib (Infanrix™-hexa)****
  - 7 yrs to 15 yrs give: dTap (Boostrix®)
  - 16 yrs and over give: Td (ADT® booster) **

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**No prior tetanus immunisation or Incomplete primary course or Unknown immunisation status**

- **Dirty**
  - Give tetanus immunoglobulin* (TIG) and...
    - Requires tetanus vaccination
      - Give age appropriate tetanus immunisation immediately and arrange catch-up immunisation (to complete the course/schedule)

- **Clean**
  - **No tetanus dose needed**
The use of antipyretics

• No place for routine use
  – No evidence that antipyretics reduce febrile convulsions
  – Some evidence that antipyretics may blunt immune response


• It is not necessary to treat fever unless....
  – For distress or pain

• But always check for cause of fever...do not just assume it is vaccine related
IMPROVING COVERAGE
International coverage

In order to prevent the transmission of whooping cough and measles 95% of the population needs to be immune.
Fully immunised at 6 months of age

Data source: National Immunisation Register 2010
Fully immunised at 6 months of age - by ethnicity

Data source: National Immunisation Register 2010
Fully immunised at 6 months of age - by deprivation

Data source: National Immunisation Register 2010
DHB Immunisation Coverage at milestone age 24 months (2008-2009)

National Average = 78%
(NIR sample dataset, n = 61,815)

Global Coverage (%)
- below 70.0%
- 70.0 - 74.9%
- 75.0 - 79.9%
- 80.0 - 84.9%
- 85.0 - 89.9%
- above 90.0%
Key areas that can make a difference

HOW TO IMPROVE
Early engagement
Provider support and improving systems

• Quality systems:
  • enrolment/registration
  • early engagement ?antenatal
• Effective precall/recall
  • chasing DNAs, use of OIS
• Opportunistic efforts/flags/awareness
• Practice champions
• Immunisation/child health a higher priority
Missed Opportunities to Immunise
Out of sight out of mind: Absence of disease is a very hard product to sell

Estimated incidence of severe measles reactions expected over a 10 year period in NZ in the absence of a measles vaccine.

- 600,000 cases
- 50,000 - 60,000 hospitalisations
- 200 - 600 deaths
- 600 cases encephalitis
- 300 permanent brain damage

*Based on a birth cohort of 60,000.
Waiting for polio immunisation USA 1962
VACCINE SAFETY SURVEILLANCE
Vaccine Safety

**Clinical Trials**
- Compares events between vaccine and no vaccine
- Tells us if the vaccine contributes to events. **Causality.**
- E.g. local pain, redness etc, fever, serious events up to 1/10,000

**Post marketing surveillance**
- Collect reports of adverse events following immunisation
- **Cannot tell us if the vaccine caused the event**
- Early warning system for rare or unexpected events

**Cohort studies, case/control studies, datalinking**
- Looks at incidence of adverse events in vaccinated compared with unvaccinated
- Tells us if the vaccine increases the risk of a particular event - **Causality**
- Method used to evaluate possible concerns
## Passive safety surveillance systems

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Highly sensitive</td>
<td>• Not very specific</td>
</tr>
<tr>
<td>• Detects rare serious events</td>
<td>• Common less severe reports underreported</td>
</tr>
<tr>
<td>• An early warning system e.g. Rotashield® and interssusception</td>
<td>• Cannot provide causality e.g. febrile convulsions and flu vaccination in children</td>
</tr>
<tr>
<td></td>
<td>• Does not have a denominator</td>
</tr>
</tbody>
</table>
COMMON MYTHS
The Cow-Pock
or
the Wonderful Effects of the New Inoculation!

Vide the Publications of Jenner Vaccina Society.
International examples of myths leading to reduction in coverage

- Nigeria and polio
- France and HepB
- UK and MMR, pertussis
- US Green our vaccines
- NZ and polysorbate
VACCINES CONTAIN TOXIC INGREDIENTS
Surfactants/emulsifiers

- Wetting agents that alter the surface tension of a liquid and lower the tension between two liquids - like detergent
- i.e. Polysorbate 80 (Tween®)
  - Often used in foods such as ice cream
  - Made from Sorbitol (sugar alcohol) and Oleic Acid (omega fatty acid)
Nasty toxic poisons in vaccines...

Aluminium (adjuvant)

- 8th most abundant element on earth, most common metallic element.
- Found in the blood of all animals, including humans, constantly exposed
- Average daily intake 10-15mg
- Hep B vaccine has 0.235mg of aluminium.
- Average water has about 0.2mg of aluminium per litre
- The amount of aluminium in one dose of HepB = to aluminium in a litre of water - or 1 day worth of baby formula (infant formula has increased aluminium).

- Excreted in urine via kidneys
Would you drink this cocktail?

- Butanol, iso amyl alcohol, hexanol, phenol ethanol, tannin, benzyl alcohol, caffeine, geraniol, quercetin, 3-galloyl epicatchin, 3-galloyl epigallocatechin and inorganic salts including aluminium
• “... the first is a metal so unstable that it bursts into flame when exposed to water; the second a lethal gas. When we swallow the blend, it forms hydrochloric acid in our stomachs... Suicidal? ”

– G Young, National Geographic
“Even its basic makeup defies logic. Salt is a blend of sodium and chlorine – the first is a metal so unstable that it bursts into flame when exposed to water; the second a lethal gas. When we swallow the blend, it forms hydrochloric acid in our stomachs... Suicidal? No, an absolute necessity for life.”

– G Young, National Geographic
Overloading the infant immune system

TOO MANY VACCINES
Do multiple vaccines overload the infant immune system?

- More T and B cells per cc of blood than adults
- $10^{16}$ possibilities!
- Huge Capacity

- Genital tract flora – 18 species
- Faecal flora – 400 species
- Breast milk – 8 species
- $= > 10^6$ different foreign proteins
## Multiple vaccines

<table>
<thead>
<tr>
<th>Year</th>
<th>Antigens</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900</td>
<td>~200</td>
<td>Smallpox vaccine</td>
</tr>
<tr>
<td>1960</td>
<td>~3217</td>
<td>Included smallpox vaccine and whole cell Pertussis</td>
</tr>
<tr>
<td>1980</td>
<td>~3041</td>
<td>Included whole cell pertussis</td>
</tr>
<tr>
<td>2000</td>
<td>~50</td>
<td>Change to acellular pertussis</td>
</tr>
</tbody>
</table>

Infants receiving NZ scheduled vaccines now receive around 50 different antigens at one time, previously it was well over 3000.
VACCINES DON’T WORK
Vaccinated children can still get disease

- No vaccine is 100% effective.
- As the proportion of children who are immunised increases, so the proportion of disease cases that are immunised will increase.
- Obviously absolute numbers are much lower
100 school kids exposed to measles which is 100% infective with a 95% effective vaccine

<table>
<thead>
<tr>
<th>% Immunised</th>
<th>Number of measles cases</th>
<th>% Cases Immunised</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>5</td>
<td>100%</td>
</tr>
<tr>
<td>90%</td>
<td>10 + 5</td>
<td>33%</td>
</tr>
<tr>
<td>80%</td>
<td>20 + 4</td>
<td>17%</td>
</tr>
<tr>
<td>50%</td>
<td>50 + 3</td>
<td>6%</td>
</tr>
<tr>
<td>0%</td>
<td>100</td>
<td>0%</td>
</tr>
</tbody>
</table>
Measles cases in NZ Feb 06 - Feb 10

Immunisation Advisory Centre. March 2010.

Data Source: ESR Monthly Surveillance Reports
Figure 2: Weekly consultation rates for influenza-like illness in New Zealand, 2008, 2009 and 2010
Monthly whooping cough notifications by age group
January 2004 – February 2010

- 15+
- 5 to 14
- 1 to 4
- <1

Number of notifications by month and age group, showing peaks in certain months and age groups.
Pertussis control

• Vaccination
  – Completeness
  – Timeliness

• Protection of infants too young to be fully vaccinated
  – Contact with coughing older children/adults
  – Vaccination: teenagers, adults, healthcare workers, teachers, childcare workers....

• Future directions
  ....?maternal, neonatal vaccination
Pertussis notifications - rates per 100,000 by age Dec 2009 - April 2010
If the science is so strong why are we so mixed in our messages?
You should have had her vaccinated.

Certainly not! It might have made her sick.
Or is it all a deep-rooted fear of needles!

...for whom?
Communicating ……

“I do not believe in vaccines”

1st: open approach…… e.g.
• Have you got any specific concerns around vaccines you wish to discuss?
• Would you like to talk further or receive further information

2nd if appropriate raise a bit of dissonance
• Do you have any concerns about any of these diseases
• Are you aware XXX will need to show an immunisation certificate when they start preschool/school

3rd if hitting a brick wall stop digging (precontemplator)
"Yea, though I walk through the valley of the shadow of death, I will fear no evil" Psalm 23
The media needs controversy (feed the beast)

• “Our job is to be interesting. If the story also happens to be true — great.” Junior producer, NBC’s Dateline
Carl Sagan (1934-1996)

“Extraordinary claims should be backed up by extraordinary evidence”
Key points

• Good engaged relationship: TRUST
• Early engagement
• Clear and confident in our professional advice
• Promote the National Immunisation Schedule
• Reduce missed Opportunities
  (9 fold increased risk of not being fully immunised.)

• On time – Every time!
• Never too late to vaccinate!
Acknowledgements:

Dr Nikki Turner
Director, Immunisation Advisory Centre;
Senior Lecturer, University of Auckland.

Dr Nick Baker
Community Paediatrician,
Nelson Marlborough District Health Board
2010 Catch up – Example 1

• Sarah is a 6 month old baby who has recently enrolled with the surgery. Following a status query it is found that Sarah has had the following immunisations:
  – At 3 months: DTaP-IPV Hib/HepB PCV7

Work out a catch up schedule for her
Sarah is now 6 months old and has previously had:
• At 3 months: DTaP-IPV Hib/HepB PCV7

### 2010 Catch up – Example 1

<table>
<thead>
<tr>
<th>First dose at age 6 months</th>
<th>DTaP-IPV-HepB/Hib</th>
<th>PCV7</th>
<th>MMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>First dose</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 week interval</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At age 15 months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At age 4 years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At age 11 years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>First visit (today)</strong></td>
<td>DTaP-IPV HepB / Hib (Infanrix™-Hexa)</td>
<td>PCV7 (Prevenar)</td>
<td></td>
</tr>
<tr>
<td><strong>Next Visit (6 weeks later)</strong></td>
<td>DTaP-IPV HepB / Hib (Infanrix™-Hexa)</td>
<td>PCV7 (Prevenar)</td>
<td></td>
</tr>
</tbody>
</table>
2010 Catch up – Example 2

• Storm is an 18 month old who has visited the GP because of a rash. The doctor has noticed his immunisations are not up to date and has asked you to see him. His vaccination history is:
  – At 6 weeks: DTaP IPV Hib/HepB PCV7
  – At 3 months: DTaP IPV Hib/HepB PCV7

Plan a catch up schedule for him
• Storm is 18 months old and has had:
  – At 6 weeks DTaP IPV Hib/HepB PCV7
  – At 3 months DTaP IPV Hib/HepB PCV7

<table>
<thead>
<tr>
<th>First dose at 15 months–3 years</th>
<th>DTaP-IPV-HepB/Hib</th>
<th>HepB</th>
<th>MMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>First dose</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 week interval</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 week interval</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At age 4 years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At age 11 years</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Children born after 1 January 2008 are eligible for funded PCV7 vaccine from 1 June 2008.

Refer to IMAC Pneumococcal Catch Up Schedule for PCV7 Why have we not crossed off the Hib?
2010 Catch up – Example 2

Storm is 18 months old and has had:
• At 6 weeks DTaP IPV Hib/HepB PCV7
• At 3 months DTaP IPV Hib/HepB PCV7

<table>
<thead>
<tr>
<th>First dose at 15 months–3 years</th>
<th>DTaP-IPV-Hib</th>
<th>PCV7</th>
<th>MMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>First dose</td>
<td></td>
<td>HepB</td>
<td>MMR</td>
</tr>
<tr>
<td>6 week interval</td>
<td>DTaP-IPV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 week interval</td>
<td>DTaP-IPV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At age 4 years</td>
<td>DTaP-IPV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At age 11 years</td>
<td>dTap</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Children born after 1 January 2008 are eligible for funded PCV7 vaccine from 1 June 2008.

<table>
<thead>
<tr>
<th>First visit (today)</th>
<th>DTaP-IPV Hib HepB (Infanrix™-Hexa)</th>
<th>PCV7 (Prevenar)</th>
<th>MMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 weeks later</td>
<td></td>
<td>PCV7</td>
<td></td>
</tr>
</tbody>
</table>
2010 Catch up – Example 3

Jack has attended the surgery this morning with his mother. The practice staff routinely check the immunisation history of all under 5’s. He now 20 months old and has previously had:

- At 7 weeks: DTaP-IPV Hib/HepB PCV7
- At 15 months: DTaP-IPV Hib/HepB PCV7 MMR

Please plan a catch-up schedule for him
Jack is now 20 months old and has previously had:

- At 7 weeks: DTaP-IPV-HepB/Hib DTaP-IPV
- At 15 months: DTaP-IPV-HepB/Hib DTaP-IPV

Children born after 1 January 2008 are eligible for funded PCV7 vaccine from 1 June 2008.

Refer to IMAC Pneumococcal Catch Up Schedule for PCV7. How many doses of PCV7 does Jack require?

<table>
<thead>
<tr>
<th>First dose at 15 months–3 years</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>First dose</td>
<td>DTaP-IPV-HepB/Hib</td>
<td>MMR</td>
</tr>
<tr>
<td>6 week interval</td>
<td>DTaP-IPV</td>
<td></td>
</tr>
<tr>
<td>6 week interval</td>
<td>DTaP-IPV</td>
<td></td>
</tr>
<tr>
<td>At age 4 years</td>
<td>DTaP-IPV</td>
<td>HepB</td>
</tr>
<tr>
<td>At age 11 years</td>
<td>dTap</td>
<td>HepB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MMR</td>
</tr>
</tbody>
</table>
2010 Catch up – Example 3

<table>
<thead>
<tr>
<th>First dose at 15 months–3 years</th>
<th>DTaP-IPV, HepB/Hib</th>
<th>HepB</th>
<th>MMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>First dose</td>
<td>DTaP-IPV</td>
<td>HepB</td>
<td>MMR</td>
</tr>
<tr>
<td>6 week interval</td>
<td>DTaP-IPV</td>
<td>HepB</td>
<td>MMR</td>
</tr>
<tr>
<td>6 week interval</td>
<td>DTaP-IPV</td>
<td>HepB</td>
<td>MMR</td>
</tr>
<tr>
<td>At age 4 years</td>
<td>DTaP-IPV</td>
<td>HepB</td>
<td>MMR</td>
</tr>
<tr>
<td>At age 11 years</td>
<td>dTap</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Children born after 1 January 2008 are eligible for funded PCV7 vaccine from 1 June 2008.

<table>
<thead>
<tr>
<th>First visit (today)</th>
<th>DTaP-IPV* (Infanrix™-IPV)</th>
<th>HepB¹ (HBvaxPRO®)</th>
<th>PCV7² (Prevenar)</th>
</tr>
</thead>
</table>

¹ May use Infanrix-hexa instead
² Why would you not give 2 doses of PCV7?
Remember help is always at hand

- Local Immunisation Coordinator / District Immunisation Facilitator

- 0800 466 863 Immunisation Advisory Centre help line