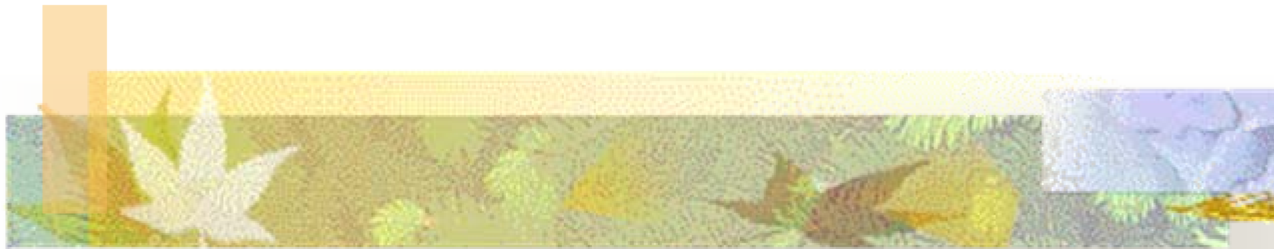
April 2007

Immunisation Update for GPs



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Update April 2007

- 9th edition AIH due June 2007
- HPV vaccination program
- Rotavirus vaccination program
- Adult Pertussis vaccination
- Travel vaccine update
- FLU update
- Immunisation tools

Australian Standard Vaccination Schedule

- **ASVS**
  - **term to be discontinued with 9th ed AIH**
- **National Immunisation Program**
  - Australian Govt funded vaccination program
  - i.e. vaccines that are provided 'free' to parents
  - Variation across States/Territories
  - 2007 NIP includes
    - 7vPCV (> Jan 2005)
    - IPV combo (> Nov 2005)
    - VZV (> Nov 2005)
    - HPV (> Apr 2007)
    - Rotavirus (> July 2007)

Rotavirus vaccine

- **Rotavirus gastro-enteritis**
  - most common cause of severe diarrhoea among children
  - Virtually all children infected with rotavirus by age 5
  - Peak age of incidence under 12 months
  - ½ million deaths of children per yr in third world counties
  - Children aged <2 years in Australia, annual rate of hospitalisation for Rotavirus gastroenteritis: 11.6 / 1000
    - 1/25 required hospitalisation by age 5
  - Approx 10,000 admissions/yr
    - plus 20,000 ED attendances plus 100,000 GP visits /yr
  - Incidence/severity of rotavirus higher in NT
    - NT funded program from Oct 2006

Rotavirus vaccine

- **Emerging Rotavirus vaccines**
  - ('*RotaShield*' first licensed in US in 1998, withdrawn after association with rare cases of intussusception)
  - '*Rotarix*' TGA licensed March 2006
  - '*RotaTeq*' TGA licensed May 2006
  - Candidate vaccine – Royal Children's Hospital, Melbourne
  - '*Gastrogard*'; '*Travelan*'; bovine colostrum

Rotavirus vaccines

Rotarix (GSK)

- Live attenuated, oral
- Monovalent *G1 P(8)*

- 2 doses (min interval 4 wks)
- 6 weeks to 6 months of age
  Dose 1: 6-14 weeks of age
  Dose 2: 14-24 weeks of age

- ↓ 75% any severity Rota-GE
- ↓ 90% severe Rota-GE
- AEs comparable to placebo
- Viral shedding approx 50%

- 10-step drawing-up/mixing

- TGA licensed March 2006
- Cost approx $210 ($106/dose)

RotaTeq (CSL)

- Live attenuated, oral
- Pentavelent *G1 G2 G3 G4 PiA(8)*

- 3 doses (min interval 4 wks)
- 6 to 32 weeks of age
  2, 4, 6 months of age
  (1st dose by 12 weeks of age)

- ↓ 75% any severity Rota-GE
- ↓ 98% severe Rota-GE
- AEs comparable to placebo
- Viral shedding approx 8%

- 1-step administration

- TGA licensed May 2006
- Cost approx $260 ($88/dose)

Rotavirus vaccination program

- Vaccine will be given orally to babies from 2 to 6 months of age
- Program commences July 2007
- All babies born from 1 May 2007 will be eligible
- 2 or 3 doses, depending on the brand administered,
  will generally be given at the same time as other immunisations around 2, 4 & 6 months of age
- Confirmation yet to be provided by DHS regarding actual vaccine brand to be supplied in VIC for this program
  - vaccine brand affects dosage schedule (i.e. '2' or '3' doses)
  - Vaccine brands are not interchangeable

HPV genital infections

- **Clinical impact HPV types 6, 11, 16, 18**
  - Types 16 and 18 cause 70% of all cervical cancer and 50% CIN 2/3 cases
  - Types 6, 11, 16, 18 cause 35% of CIN 1 cases
  - Types 6, 11 cause 90% genital warts cases

HPV genital infections

- **Burden of cervical disease (AUST/yr)**
  - ~ 2 million women PAP screened
  - ~ 100,000 abnormal PAP tests
  - ~ 18,500 low-grade abnormalities
  - ~ 15,000 high grade cervical abnormalities (HSIL or CIN 2/3)
    - surgery x 40 every day
  - > 800 new cases cervical cancer
  - ~ 230 deaths

'GARDASIL' Quadrivalent HPV vaccine

- **Indications**
  - Females 9-26 years
    - for prevention of cervical, vulvar, and vaginal precancerous or dysplastic lesions, genital warts and infection caused by HPV 6, 11, 16, 18
  - Males aged 9-15
    - for prevention of infection caused by HPV 6, 11, 16, 18
- ***'Gardasil'* dose schedule**
  - 3 injections of 0.5mL IM at 0, 2 and 6 months
    - *Minimum interval* 1 month between dose 1 and 2
    - *Minimum interval* 3 months between dose 2 and 3
    - *Or* 3 doses within one year

National HPV Program

National HPV Program will be a phased program in VIC

1. Females aged 12 to 18 years

- Commencing April 2007
  - females in Year 7,10,11 & 12 will be offered the vaccine
  - school immunisation program conducted by Local Councils
- In 2008
  - females in Year 7, 9 & 10 (school immunisation program)
- In 2009
  - female Year 7 students (ongoing school immunisation program)

2. Females aged 18 - 26 years
   - commencing July 2007
   - GPs will be responsible for implementing
   - GPs will not be issued with any vaccine until mid-late July
   - New vaccine order forms will be issued to providers around June 2007

Govt funded program details HPV vaccine '*Gardasil*'

Govt funded HPV vaccine program	Age	Point of access	* Program commencement	Program duration
Cohort 1	12-13 years	School-based delivery	From April 2007	Routine vaccination (ongoing program)
Cohort 2	13-18 years	School-based delivery	From April 2007	Catch-up program (for 2 years only)
Cohort 3	18-26 years	GP supply	Mid-2007	Catch-up program (for 2 yeas only)

(*pending State/Territory governments arrangements)

Travel vaccines update

- ***'Vivaxim'*** = Hepatitis A + Typhoid
- ***"Vivotif'*** = Oral Typhoid vaccine
  - 3 doses (alternate days), effective 3 years
- ***'Dukoral'*** = Oral Cholera vaccine (inactivated)
  - 2-dose schedule (for adults)
  - Effective against Cholera for 6 months
  - Effective against ETEC (Travellers Diarrhoea) for 3 months
  - *New chapter in Handbook update to NHMRC 8th Edition AIH*
- ***'Boostrix+IPV'*** = adult dTp_a plus IPV

- **? Other 'new' travel vaccines**
  - ***MMR*** = all travellers born >Jan 1966 (if not documented 2 prior doses)
  - ***Influenza*** = ? all travellers, all seasons, all destinations

Pertussis disease burden in Australia

- Least well controlled of all VPDs
- Periodic epidemics approx 3-4 yr intervals
- Background of endemic circulation
  - despite increasing vaccination coverage & reductions of disease in immunised children
- Control of pertussis is problematic because immunity wanes over time (approx 5–10 years)
  - whether from vaccination or infection
  - renewed susceptibility in older age groups
- Ave 7500 notifications of pertussis annually for decade prior to 2005
  - range 4194 (1995) to 11,202 (2005)

Age distribution

- Now 2 broad age groups
  - 20+ years (more than 80% of pertussis notifications)
  - those under 6 months of age
- Adolescents and adults are an important reservoir of pertussis infection
- Young infants more likely to have severe disease, hospitalisation or death
  - too young to have received 2-3 doses of DTPa
- Infants 50% of pertussis-related hospitalisations
  - Overall mortality 0.03%
  - hospitalised babies under 6 months of age 3.5%

Pertussis vaccine efficacy

- Acellular infant pertussis vaccine efficacy 80–85%)
  - similar to whole-cell vaccines (DTPw)
  - yet significantly less reactogenic
    - fewer local reactions, fevers or other systemic reactions
- Immunogenicity and reactogenicity of adolescent/adult dTpa formulations are comparable to dT vaccines
- Adult dTpa appears to produce higher antibody levels than those achieved in infants (following 3-dose primary series with DTPa)
- Vaccine efficacy in adults ~90%

Pertussis vaccine safety

- Serious adverse events
  - HHE (rare & much less common than with DTPw)
  - Pertussis vaccine does not cause infantile spasms, epilepsy or SIDS
  - Vaccine-induced fever causing febrile convulsion (much less commonly with DTPa than DTPw)

Pertussis vaccine safety (cont.)

- Use in adults
  - also immunogenic, safe and well tolerated in adults
  - The adult/adolescent formulations (dTpa) contain lower concentrations of d & p antigens
  - Previous pertussis infection is not a contraindication to vaccination.
  - dTpa should only be given in pregnancy when potential benefit outweighs potential risk to foetus

- Contraindications
  - Encephalopathy within 7 days of vaccination
    - This does not include febrile convulsions
  - Immediate severe allergic reaction
    - generalised urticaria, bronchospasm, hypotension, collapse or anaphylaxis
    - occurring within 20 minutes of receiving DTPa (or other pertussis-containing vaccine)

Available pertussis formulations

- Children under 8 years
  - DTPa:
    - *Infanrix; Tripacel*
  - Combination with other antigens
    - (DTPa-HepB): *Infanrix-HepB;*
    - (DTPa-IPV): *Infanrix-IPV; Quadracel*
    - (DTPa-HepB-IPV): *Infanrix Penta*
    - (DTPa-HepB-IPV-Hib): *Infanrix Hexa*
  - The DTPa component is equivalent in all paediatric formulations
  - Upper age limit for use of 8 years.
- Persons 8 years and over
  - dTpa: *Boostrix* (3Ag); *Adacel* (5Ag)
  - dTpa-IPV: *Boostrix-IPV*

Pertussis vaccine: current recommendations

- Recommendations (funded under NIP)
  - Primary course of DTPa at 2, 4, & 6 months of age
  - Booster of DTPa: 4th dose at 4 years of age
  - Single dose dTpa vaccine at 15 years of age

- Booster dose of dTpa (NOT FUNDED under NIP)

  Especially recommended for the following groups:
  - Before planning pregnancy
    - or for both parents as soon as possible after delivery of an infant, preferably prior to hospital discharge
  - For adults working with young children
    - child-care workers, health-care workers in contact with young infants, including maternity and nursery staff
  - Any adult expressing interest in a booster dose of Tetanus vaccine should be encouraged to have dTpa
    - dTpa may be used instead of *ADT* vaccine at 50 years of age
    - Whenever Tetanus vaccine indicated following Tetanus-prone wounds (note: Doctors Bag currently provides *ADT* for emergency use)

Pertussis vaccine: practical issues

- **dTpa not recommended for adult primary course**
- **Additional booster doses of dTpa are not currently recommended**
  - because of lack of data on the duration of immunity from a booster dose of dTpa
- **No minimum interval between dTpa and other tetanus-containing vaccines:**
  - dTpa can be administered at any time following a previously administered dose of tetanus toxoid containing vaccine (*ADT*)

Pertussis vaccination - summary

- 5-10,000 cases notified per year in Aust
- Estimated ~ ¼ actual cases
- Adult Pertussis is predominantly atypical
- 80% cases > 20 yrs of age
- Loss of protection after 5-10 yrs (from vaccine or disease)
- Young infants have highest risk of death
- Infant protection from vaccine only after 2-3 doses
- Infants usually infected by parents

Pertussis vaccination - summary

Therefore: NHMRC recommends

- **<u>Adult Pertussis vaccination:</u>**
  - All parents planning pregnancy (or ASAP after delivery)
  - Child care workers
  - All occasions where Tetanus booster required
    - age 50 routine Tet booster
    - Travel vaccinations
    - Consider Tetanus-prone wounds
      - Drs Bag currently only provides ADT
      - ? change to adTp soon

2006 Seasonal FLU

- **Impact of Seasonal FLU – Australia (est. annual)**
  - Medical consults 1 million
  - Hospitalisations 20-40,000
  - Deaths 1,500
  - Days off work 1.5 million
  - Total economic cost $600 million

- **FLU Vaccination Effectiveness (during FLU season)**
  - 70-80% effective against FLU illness
  - 50-60% reduction all RTIs (>65s)
  - 50% reduction hospitalisation, any cause (>65s)
  - 68% reduction death, any cause (>65s)
  - 40-50% reduction absenteeism during FLU season

2006 Seasonal FLU

- **High-risk: age >65 yrs**
  - 80% coverage rate (DHS supplies enough to cover 110%)
- **High-risk: age <65 yrs**
  - 40% coverage rate
- **High-risk: Pregnancy**
  - NHMRC recommends: vaccn during *any stage of pregnancy*
- **Normal risk (age >6 mo)**
  - NHMRC recommends Flu vaccine for:
    'anyone who wishes to reduce their risk of FLU illness'
- **Travel vaccination (age >6 mo)**
  - *? all people, all destinations, all seasons*

Effective VIC Mar 2007 - (extract *AIH 9th Edition 2007*)

Table 3.9.1: Recommended doses of influenza vaccine

Age	Dose	Number of doses (first immunisation)	Number of doses† (subsequent years)
6 months–<3 years	0.25 mL	2*	1
3–9 years	0.5 mL	2*	1
>9 years	0.5 mL	1	1

* Two doses at least 1 month apart are recommended for children aged <9 years who are receiving influenza vaccine for the first time. The same vial should not be re-used for the 2 doses.

† If a child 6 months to <9 years of age receiving influenza vaccine for the first time inadvertently does not receive the second dose within the same year, only 1 dose of vaccine should be administered the following year.[6]

***Two doses at least one month apart are recommended for children aged under 9 years who are receiving influenza vaccine for the first time.**

Table 3.11.1: Recommended doses of influenza vaccine

Age	Dose	Number of doses (first immunisation)	Number of doses (subsequent years)
6 months–2 years	0.125 mL	2*	1
2–6 years	0.25 mL	2*	1
6–9 years	0.5 mL	2*	1
>9 years	0.5 mL	1	1

AIH

(8th Edition 2003)

- Dr Jonathan Anderson

  > Practice Support

  > Avian Influenza

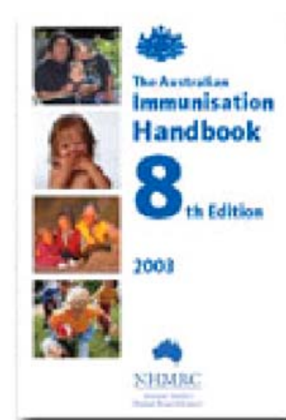
  > Clinic Flu Workplan

  - **http://www.mdgp.com.au**

New immunisation resources

- **9th ed AIH**
  - due for release 2007 (meanwhile 8th Ed + update 2005)
    - **http://www.immunise.health.gov.au/**
- **DHS VIC catch-up charts**
  - What's New? > 'Quick Guide - Catch-Up Immunisation'
    - **http://www.health.vic.gov.au/immunisation/**
- **SA On-line Catch-Up Calculator**
  - (up to age 7)
    - **http://www.health.sa.gov.au/immunisationcalculator**
- **Pandemic FLU Clinic Workplan**
  - MDGP > Practice Support > Avian Influenza > Clinic Flu Workplan
    - **http://www.mdgp.com.au**
- **TRIAGE CPD program (Rotavirus)**
  - RACGP 5 pts (cat 2), DGP
    - **rotavirusCME@adrenalinstrategics.com**

Immunisation update 2005



- References
  - Australian Immunisation Handbook NHMRC 8th Edition AIH, 2003
    - Hard copies contain a searchable CD (very clever)

  - Immunise Australia website www.immunise.health.gov.au

  - VIC Govt DHS 1300 882 008 www.health.vic.gov.au/immunisation

  - RCH Immunisation Unit 9345 6599

www.nevdgp.org.au