

Newsletter

Contents

Timeliness of childhood immunisation.....	1
NCIRS fact sheets.....	1
PHAA Immunisation Conference.....	2
Small area coverage reporting in Australia.....	2
PHAA PHERT Scholarship in 2006.....	2

October-November 2006

PHAA NCIRS presentations.....	3
Recent NCIRS publications.....	3
Varicella Zoster Workshop.....	3
Recent Journal Club topics.....	4

Timeliness of childhood immunisation in Australia - summary of presentation by Brynley Hull at the Public Health Association of Australia's Immunisation Conference in Sydney - July/Aug 2006

There are few data examining the timeliness of childhood vaccination and factors associated with it although it is of key importance in prevention of disease due to several childhood pathogens, such as pertussis, and invasive disease due to *Haemophilus influenzae* type b and *Streptococcus pneumoniae*.

The aim of this study was to use the unique resource of the Australian Childhood Immunisation Register to examine trends in and factors associated with timeliness of infant vaccination. The outcome measure, age-appropriate immunisation, was defined as receipt of a scheduled vaccine dose within 30 days of the recommended age.

There was greater vaccination delay for doses given at an older age, although most delays were less than 6 months. The highest proportion of children with delayed vaccination was found in Indigenous infants in remote and very remote areas, with little change over time, although eventually Indigenous infants had higher estimated immunisation coverage than others. There did not appear to be any evidence of greater delay in MMR vaccination compared with another vaccine due at the same time

(the third dose of Hib/Pedvax vaccine) as might be expected from negative media coverage regarding MMR vaccine and autism.

With immunisation coverage at the key indicator ages of 12 and 24 months now approaching 95% in Australia, timeliness of immunisation may be the next benchmark to aim for in program performance, especially in specific sub-groups such as Indigenous children who stand to gain most from prevention of early-onset disease.

Publication: *Vaccine* 2006 May 15;24(20):4403-8. Epub 2006 Mar 13



Brynley Hull presenting at the PHAA Immunisation Conference July/August 2006 in Sydney

NCIRS Fact Sheets

NCIRS has developed new fact sheets for Rotavirus and Human Papillomavirus vaccines, following the registration of Rotateq® (CSL/Merck) in April and Rotarix® (GSK) in March and the recent registration of Gardasil® (CSL/Merck). The Pertussis vaccine fact sheet has also undergone a recent update. These and all NCIRS fact sheets can be found at the following website address http://www.ncirs.usyd.edu.au/facts/f-fact_sheets.html.

PHAA Immunisation Conference

The 10th National Immunisation/2nd PHAA Asia Pacific Vaccine Preventable Diseases Conference was held in Sydney from 30th July-1st August 2006. Peter McIntyre, Director of NCIRS, was Chair of the organising Committee. The conference was well attended, with representation from all facets of immunisation. The conference theme, "Successes in Immunisation", reflected the significant health gains made by immunisation programs in Australia and progress in the Western Pacific Region to eliminate polio and control measles.

The conference included an outstanding panel of international and national invited speakers who presented the plenary sessions. Topics covered in the plenary presentations included global eradication of polio, measles control both globally and in Australia, new Rotavirus and HPV vaccines, the Australian Childhood Immunisation Register and communicating about vaccines to parents.

The Feery Oration preceding the conference dinner was given by Professor Ian Frazer, 2005 Australian of the Year, who spoke about the prevention of cervical cancer through immunisation.

The presentations from the plenary sessions can be purchased on a CD from the Public Health Association of Australia website <http://www.phaa.net.au/conferences/Immunisation2006/index.htm>.



NCIRS Staff



Helen Quinn & Han Wang

Small area coverage reporting in Australia - summary of presentation by Brynley Hull at the PHAA Immunisation Conference in Sydney - July/Aug 2006

National 'fully immunised' coverage at 24 months of age has been around 92% for the past 2 years, and reached almost 95% in a number of jurisdictions. However, less is known about coverage in smaller regions in Australia, and in some areas, coverage may be well below the 95% level required to prevent outbreaks of disease. The aim of the study was to inform the development of a nationally applicable, repeatable methodology to track immunisation coverage in small areas within Australia.

ACIR data, as at 30 June 2004, for a full year birth cohort was used to examine three important indicators of coverage in small areas (Divisions of GP and selected postcodes within them): immunisation coverage at 24 months of age; the proportion of conscientious objection to immunisation; and the proportion of children with no

vaccines recorded on the ACIR. There was much variation across the Divisions in the three indicators. In some Divisions, low coverage in relevant postcodes was not related to high levels of either registered conscientious objectors or no vaccines recorded, but in most low coverage areas one or other of these factors was prominent. Divisions, with many postcodes with low coverage and high levels of conscientious objectors or no vaccines recorded, were located in inner regions of cities and regional areas known to house a high proportion of residents with alternative views on health care. These areas could be at risk for outbreaks of VPDs. There were also Divisions with high coverage containing postcodes within them with low coverage. For ongoing tracking, It was recommended that annual reporting of these coverage indicators be restricted to the Divisions of GP where one or more postcodes within the Division has a recorded coverage estimate of less than 85%.

PHAA PHERT Scholarship in 2006

Mohamud Sheikh is a Doctor of Public Health candidate at the University of Sydney under the supervision of Professor Raina MacIntyre and Dr Julie Leask of NCIRS. He graduated from the Master of International Public Health program at the University of Sydney in 2004. Mohamud is the recipient of the University of Sydney's Cross Cultural Public Health Research Award 2006, and the PHAA PHERT Scholarship in 2006 for his PhD

work, which centres on the Children's Hospital at Westmead Refugee Clinic. Mohamud also works as the coordinator of the clinic. His research is looking at barriers to access to care for newly arrived sub-Saharan African refugee families in Australia, with a paper currently in press on this subject in the Medical Journal of Australia.

PHAA NCIRS Presentations

NCIRS staff provided presentations on a variety of different topics at the 10th National Immunisation/2nd PHAA Asia Pacific Vaccine Preventable Diseases Conference including the following:

- ◆ Meningococcal Serogroup C Disease in the UK: A measure of success - R Booy
- ◆ Trends in national passive AEFI surveillance data, 2000-2005 - G Lawrence
- ◆ The effects of internal travel restrictions on the geographic spread of a pandemic - J Wood
- ◆ Attitudes to hepatitis B vaccine birth dose among midwives. A qualitative study - J Leask
- ◆ The community impact of hepatitis A in Australia - R MacIntyre
- ◆ Developments in current immunisation programs - pertussis - P McIntyre
- ◆ Childhood mortality from pneumonia in Australia, from 1968 to 2003 - K Wang
- ◆ The epidemiology of cytomegalovirus in Australia - H Seale
- ◆ The efficacy of varicella vaccine as post-exposure prophylaxis: a systematic review - K Macartney
- ◆ Why is Hib disease still more common in Indigenous children? - an analysis of Hib notifications in the post-vaccination era - K Brenner
- ◆ Hepatitis B infection: results of antenatal screening in the Northern Territory 2002-2004 - N Wood
- ◆ Targeted vaccination strategies - what works for Indigenous populations? - R Menzies
- ◆ Aboriginal involvement in a study to identify Human Papillomavirus genotype prevalence in Australia - T Joseph
- ◆ The NSW adolescent pertussis vaccination program - program coverage and program acceptability among parents - H Quinn
- ◆ Timeliness of childhood immunisation in Australia - B Hull
- ◆ Vaccination uptake in hospitalised geriatric patients 4-6 months after commencement of a funded national pneumococcal vaccination program in > 65's - I Ridha
- ◆ The cost-effectiveness of rotavirus vaccination in Australia - A Newall
- ◆ Sneeze and you've missed it - A Egan
- ◆ Small area coverage - B Hull

Recent NCIRS Publications

- ◆ Cagney M, MacIntyre CR, McIntyre P, Puech M, Giammanco A. The seroepidemiology of pertussis in Australia during an epidemic period. *Epidemiology and Infection* 2006 May 11:1-9 [Epub ahead of print].
- ◆ Menzies R, McIntyre P. Vaccine preventable diseases and vaccination policy for indigenous populations. *Epidemiologic Reviews*. 2006;28:71-80.
- ◆ Backhouse JL, Gidding HF, McIntyre PB, Gilbert GL. Evaluation of two enzyme immunoassays for detection of immunoglobulin G antibodies to mumps virus. *Clinical and Vaccine Immunology* 2006;13:764-7
- ◆ Liyanage SS, MacIntyre CR. Do financial factors such as author page charges and industry funding impact on the nature of published research in infectious diseases? *Health Information and Libraries Journal* 2006;23:214-22
- ◆ Booy R. Commentary on "Vaccines for preventing influenza in healthy children", with responses from the review authors and from the editors of Evidence-Based Child Health. *Evidence-Based Child Health: A Cochrane Review Journal* 2006;1:525-7
- ◆ Salmon DA, Teret SP, MacIntyre CR, Salisbury D, Burgess MA, Halsey NA. Compulsory vaccination and conscientious or philosophical exemptions: past, present and future. *Lancet* 2006;367:436-42.
- ◆ Wood N, Isaacs D. Monitoring vaccine reactions in Australia. *Medical Journal of Australia* 2006;184:150.
- ◆ Clements JC, McIntyre PB. When science is not enough - a risk/benefit profile of thiomersal-containing vaccines. *Expert Opinion on Drug Safety* 2006;5:17-29.

Varicella Zoster Workshop

A 2-day workshop on the **varicella zoster virus** was held in Sydney on the **16-17th November 2006**. Prominent international guest speakers included Professor Myron Levin (US), Professor Anne Gershon (US) and Professor Judith Breuer (UK) and a host of well-respected local speakers including Professor Margaret Burgess and Associate Professor Alison Kesson joined them. The presentations from this workshop are now available on the NCIRS website <http://www.ncirs.usyd.edu.au/newsevents/index.html>

Recent Journal Club topics

Diagnostic laboratory contributions to control of meningococcal disease. Observations from the National Neisseria Network. Presented by Associate Professor John Tapsall, Department of Microbiology, SEALS POWH Randwick NSW, Chair of the Australian Meningococcal Surveillance Program (National Neisseria Network)

Prof Tapsall discussed the pathogenic *Neisseria* species, outlined the role that the National Neisseria Network (NNN) member laboratories play & briefly discussed the impact of the serogroup C meningococcal conjugate vaccine on invasive meningococcal disease (IMD) in Australia.

The two pathogenic species of *Neisseria* are *N.gonorrhoeae* & *N.meningitidis*. These organisms infect humans only & are highly adapted to just a few mucosal surfaces. *N.meningitidis* are usually encapsulated but *N.gonorrhoeae* do not possess a capsule. Both these organisms can evade host defences through many processes but, in particular, through antigenic variability, gene phase variation & gene recombination. Both organisms are successful at transmission & adaptation to their human host environments. The NNN laboratories enhance lab contributions for control of disease caused by pathogenic *Neisseria* through standardised & shared endeavours for national, comparable & valid data. Both isolates & diagnostic samples are forwarded to participating NNN laboratories for further characterisation. There are a range of diagnostic methods available but not all methods will be undertaken by each NNN member laboratory. Each member laboratory is part of the Network, not jurisdictional, which means that member laboratories in every State & Territory can request assistance & access a wide range of diagnostic tools if needed.

Meningococci can be characterised by their capsule (serogroup) & outer membrane proteins (serotype & serosubtypes) using both traditional antigen/antibody phenotypic techniques or by sequencing the genes that encode for these proteins. Molecular diagnosis now accounts for approximately 20-30% of IMD notifications & many laboratories now routinely perform PCR testing. It is important to remember to forward on any samples for serogroup specific PCR to a NNN laboratory, as this information is critical to gathering knowledge on the serogroups causing IMD & to monitor the impact of the current serogroup C meningococcal conjugate vaccination program.

The NNN data are presented in an annual report which is published in CDI. The National Meningococcal Vaccination Program commenced in January 2003 & NNN laboratory data from 1998 onwards indicated that in NSW, serogroup C IMD cases had already begun to decline before introduction of the vaccine but in Victoria, the vaccine has had a significant impact on serogroup C IMD. The NNN continues to make a valuable contribution to monitoring the impact of the national serogroup C meningococcal conjugate vaccination program.

Immunogenicity & safety achieved with a 2nd dose of MMRV in clinical development trials for ProQuad® given at either 18 months or 4 years of age. Presented by Anita Heywood, Research Assistant, NCIRS

Two published studies evaluate the immunogenicity & safety of a second dose of MMRV (frozen product) administered 3 months after the first dose in 11-23 month old healthy children (1,2) & a third study evaluates the use of MMRV in 4-6 year old healthy children vaccinated previously with M-M-R-II & Varivax (MMR+VV) (3). Study 1 evaluated a higher potency of the varicella component, study 2 evaluated three different doses, with the middle dose approximating the licensed ProQuad® frozen product, & the vaccine administered in the third study was the ProQuad® licensed frozen product.

The immunogenicity of MMRV was found to be non-inferior to MMR + VV for all components in the three studies. The proportion seropositive was comparable between the administration of a first dose of MMRV & first dose of MMR + VV in the 11-23 month age group, between the administration of MMRV & the administration of MMR + VV as a second dose at 4-6 years of age, & between administration of a second dose of MMRV at 11-23 months of age compared to 4-6 years of age.

Adverse events were found to be statistically comparable between first dose of MMRV & first dose of MMR + VV in studies 1 & 2, except an increase in fever reported in days 5-12 post-vaccination in MMRV recipients (P=0.034) & measles-like rash more common in MMRV recipients (5.9% vs. 1.9%) in study 1. The second dose of MMRV resulted in statistically lower injection site reactions than the first dose in both studies & statistically lower systemic reactions in study 2. Injection site & systemic adverse events were comparable between groups in study 3 apart from an increase in erythema at the injection site (days 1-5) in MMRV recipients compared to MMR (P=0.012) & MMR (P=0.006) + VV (P=0.014). In assessing the results of all three trials, the vaccine was well tolerated in all recipients. There appeared to be higher injection site reactions & lower systemic adverse events in the 4-6 year old group compared to the 11-23 month old group & no increase in fever in the 4-6 year old group compared to MMR + VV. The second dose of MMRV vaccine is tolerable & highly immunogenic at both ~18 months & ~4 years of age & administration at both ages comparable to use of MMR + VV.