

## IN THIS ISSUE

Newsletter 1 | April 2011

### FEATURES

Publication news	1
CDC Conference & abstracts	2
<i>Medicine Today</i> article	3
Who is asking the questions?	4
Journal Club	5

### REGULARS

Publications	6
NCIRS placements	7
NZ Immunisation Conference	8

## Publication news

The 5th national surveillance report on the epidemiology of vaccine preventable diseases, ***Vaccine Preventable Diseases in Australia, 2005 to 2007***, has recently been published, as a supplement of *Communicable Diseases Intelligence*, Vol 34, December 2010.

This report is the latest in the series of national surveillance reports on vaccine preventable diseases prepared by NCIRS. The first report covered the period 1993–1998, and subsequent reports provided updates on these data every 2–3 years. Changes in the national immunisation schedules during the reporting periods were also described in these reports.

The latest report presents trends on two additional years (since the last published report) on 16 vaccine preventable diseases from three major sources of national data – notifications (2006 and 2007), hospitalisations (2005/06 and 2006/07), and deaths (2005 and 2006).

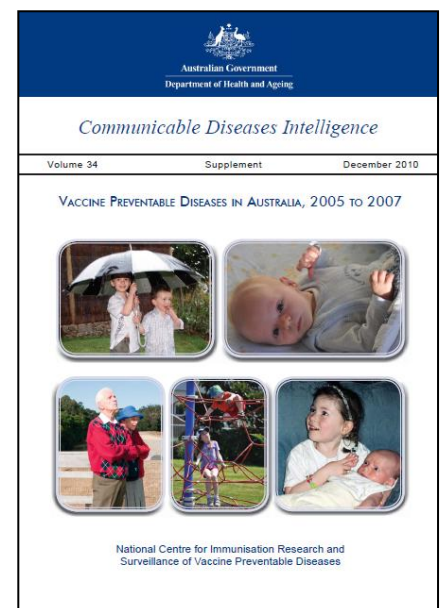
The diseases included in this report are:

poliomyelitis	measles	rotavirus	hepatitis A
diphtheria	mumps	<i>Haemophilus influenzae</i> type b	hepatitis B
tetanus	rubella	pneumococcal disease	varicella and zoster
pertussis	influenza	invasive meningococcal disease	Q fever

This report is accessible at <http://www.health.gov.au/internet/publications/publishing.nsf/Content/cda-cdi34suppl.htm>

A printable pdf version is accessible at

[http://www.health.gov.au/internet/publications/publishing.nsf/Content/CA25774C001857CACA2577FF00791B8A/\\$File/cdi34suppl.pdf](http://www.health.gov.au/internet/publications/publishing.nsf/Content/CA25774C001857CACA2577FF00791B8A/$File/cdi34suppl.pdf)



# Communicable Disease Control Conference

The Public Health Association of Australia, the Communicable Diseases Network Australia and the Public Health Laboratory Network held a 3-day Communicable Disease Control Conference in April 2011 in Canberra. The conference aims to promote evidence-based discussion around communicable disease control themes including: communicable diseases considered to be under control; communicable diseases which are poorly controlled, re-emerging or newly emerging; communicable disease issues of importance to Indigenous peoples; and the impact of communicable diseases locally, regionally and globally.

A number of NCIRS staff presented at the CDC conference. Professor Peter McIntyre, NCIRS Director, was invited to chair the VPD session and to facilitate a panel session on lessons learned from H1N1. Professor Robert Booy, Head of Clinical Research at NCIRS, was also on this panel and chaired a breakfast session on pneumococcal meningitis sponsored by Pfizer.

Other presentations by NCIRS staff included:

- Professor Robert Booy – Prolonged immunogenicity and safety of the HibMenC-TT conjugate vaccine in Hib-primed toddlers *and* Congenital and neonatal varicella: impact of the national varicella vaccination program in Australia
- Dr Aditi Dey – Impact of the national rotavirus immunisation program
- Dr Alexa Dierig – Paediatric Influenza Vaccine Outcome Trial (PIVOT): Adenovirus infections in day care centres
- Dr Deepika Mahajan – Surveillance of adverse events following seasonal and pandemic influenza vaccination in Australia in 2009–2010
- Dr Rob Menzies – Evaluation of the National Childhood Varicella Immunisation Program
- Dr Kevin Yin – Immunogenicity and safety of pandemic influenza A (H1N1) 2009 vaccine: systematic review and meta-analysis.

## Some abstracts from NCIRS presentations at CDC conference

### Rotavirus and intussusception in NSW: a clinical review

**Presenter:** Kath Cannings, NCIRS

**Authors:** Cannings K, Wood N, Moberley S, Menzies R, Wang H, Dey A, Quinn H, Macartney K

**Background:** Preliminary post-licensure study data for rotavirus vaccine in Mexico and Australia suggests an increased risk of intussusception (IS) following the first dose of rotavirus (RV) vaccine.

**Aim:** To review the clinical characteristics of all cases of IS in NSW infants over 3 years, including the relationship to RV vaccination.

**Methods:** All NSW hospitalisations ICD10-coded as IS from 1 July 2007 to 30 June 2010 were individually chart reviewed and demographic details, RV vaccination status (ACIR), investigations, treatment and outcome recorded. Each case was classified as confirmed or non-confirmed using Brighton criteria.

**Results:** 183 IS cases (males:females 2.1:1) were hospitalised. Only three-quarters of ICD10-coded cases (72%, n=132) met Brighton criteria for confirmed IS. Most (84%) IS confirmed cases had received a dose of RV vaccine and were younger than non-RV vaccinated infants. One-third (n=37) required surgery and there were no deaths. 21 confirmed IS cases occurred <21 days post RV vaccination, 5 of whom received RV vaccines at an older age than schedule recommendations.

**Discussion:** Infants who received RV vaccination had IS onset at a younger age than non-vaccinated infants. One-quarter of cases within 21 days of a dose were vaccinated beyond the recommended upper age limit. Symptom severity did not differ by vaccination status. Validation of cases is important for further analysis via statistical methods.

## Intussusception among New South Wales infants given Rotarix vaccine

**Presenter:** Helen Quinn, NCIRS

**Authors:** Wang H, Menzies R, Macartney K, Wood N, Cannings K, Moberley S, McIntyre P

Recent studies in Mexico and Australia have found evidence suggesting an increased risk of intussusception (IS) in infants following rotavirus vaccination. In response, we conducted a detailed analysis of NSW data, including a chart review of ICD-coded hospitalisations, a case-control study, and a self-controlled case-series analysis. The chart review is discussed in the abstract of the presentation by Kath Cannings on page 2 of this newsletter.

The other two studies had broadly consistent findings. The case-control study found an increased likelihood of IS in the 1–21 day post-vaccination risk period, which was significant after both doses. A significant risk was also found in the 1–7 day period for the second dose (odds ratio [OR] 9.1; 95% confidence interval [CI] 1.6–52.9). The case-series analysis also found a statistically significant relative incidence for the 1–21 day period following either dose. For the 1–7 day period relative incidences were significant for the first dose (OR 6.8; 95% CI 1.7–27.0) and approached significance for the second dose (OR 2.3; 95% CI 0.9–5.9).

These findings suggest a small increase in the risk of IS 1–7 days after receipt of the first dose of Rotarix, and perhaps also the second dose. Data also suggest that this risk may be greater in children vaccinated beyond the recommended age limit. However, this information must be balanced against the benefits of rotavirus vaccination. This unique study adds to the emerging body of evidence regarding the safety of rotavirus vaccines.

## Immunisation for life: don't forget adults

Published in the April issue of *Medicine Today*, the feature article ***Immunisation for life: don't forget adults***, by Melina Georgousakis, Jane Jelfs and Kristine Macartney from NCIRS, provides an overview of current Australian recommendations for vaccinating adults, and highlights barriers to, and opportunities for, providing best practice in this area.

The article discusses vaccines recommended for all adults, as well as additional vaccines that may be required due to specific circumstances, such as incomplete childhood schedules and medical and lifestyle risk factors. Adult vaccines recommended and funded under the NIP, as well as those recommended in *The Australian Immunisation Handbook* (9th edition) that are acquired through other means (i.e. private prescription and PBS), are discussed.

The article also highlights opportunities that health care providers can utilise to keep adult patients up to date with required vaccinations. To facilitate the delivery of adult vaccinations, the article includes a **table that summarises** the vaccines for use in adults and the different circumstances which may indicate their use.

NCIRS have also produced a fact sheet on adult vaccination. This is **available on the “Immunisation Resources” page of the NCIRS website** <http://www.ncirs.edu.au/immunisation/index.php> and may be a useful resource in addition to the *Medicine Today* article.



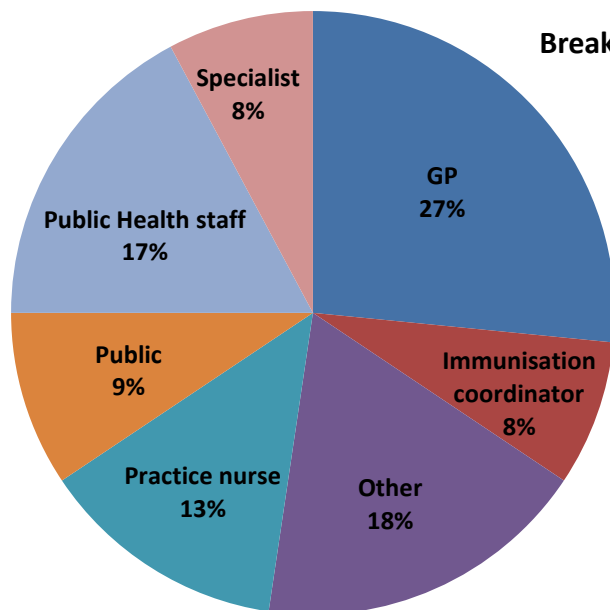
## Who is asking the questions?

Did you know NCIRS staff provide expert support in the area of immunisation and immunology to health professionals?\* Enquiries received from health professionals, via the telephone or electronically, are directed to the appropriate medical staff within NCIRS to answer.

All enquiries are recorded in a database, including the nature of the enquiry, who the enquiry was from and a brief summary of the response provided; data has been collected since 2004. Analysis reveals some interesting facts...

- *The number of phone enquiries has increased in the calendar year 2010 to 251 calls from 206 calls in 2009.*
- *The most common enquiries relate to, in order, adverse events, contraindications and catch-up schedules.*
- *General practitioners are the largest group of callers, followed by public health staff and practice nurses.*
- *The volume of calls has been found to increase when there is a new vaccine introduced or during an epidemic, such as occurred during the influenza and pertussis vaccine campaigns in 2009 and 2010.*

The information collected provides data on areas that are of interest for health professionals and relevant issues can be circulated and discussed on the NCIRS-AIP email discussion group. It also guides NCIRS in developing support information such as fact sheets.



**Breakdown of caller type for July-December 2010**

\* Please note that, in the first instance, enquiries from both immunisation providers and the public should be directed to local Public Health Units or equivalent, as specified by each State/Territory Health Department.

## STAY INFORMED! SUBSCRIBE TODAY!

Join the NCIRS Australian Immunisation Professionals (NCIRS-AIP) email discussion group. The group was created to facilitate communication among Australian immunisation practitioners, policy makers and researchers. You'll find news items, meetings of interest, questions and feedback, media controversies, discussions and more.

To subscribe, go to <http://mailman.ucc.usyd.edu.au/mailman/listinfo/ncirs-aip>

## Journal Club presentations

### **Global collaborative network for vaccine safety studies – a report on a recent conference**

Link to conference program: <http://www.fondation-merieux.org/-Conferences,276.html?year=2011>

The Global Collaborative Network for Vaccine Safety Studies met in Annecy, France, in March 2011. The attendees included academics from Europe, USA and Australia, representatives from regulatory authorities and the pharmaceutical industry, and members for lower to middle income countries. There was a recognition of the benefits of collaborative studies to investigate safety signals around the world, particularly given the rare occurrence of some adverse events and population size in individual countries. There was also a recognition of the difficulties in trying to combine data from separate countries. Successful examples include the VAESCO consortium funded by the European CDC and others. VAESCO is the Vaccine Adverse Events Consortium, a group of investigators across most of Europe which has collaborated to examine whether there is an increased risk of Guillain-Barré syndrome or narcolepsy after H1N1 vaccine. Results are yet to be finalised but early data suggests there is no link with GBS. Another successful example was the examination of intussusception and rotavirus in Mexico and Brazil which suggested an increased risk of 1 in 50,000 to 76,000 vaccines. WHO has also set up a collaborative study, involving Australia, to look at H1N1 and the link to GBS in countries outside of Europe as well as combining data with VAESCO. These initiatives demonstrate that it is feasible to set up and run collaborative studies across different countries. Much work needs to be done in lower to middle income countries where less data is available and infrastructure is not as well developed.

*Presented by Dr Nick Wood, Senior Clinical Research Fellow, NCIRS*

\*\*\*\*\*

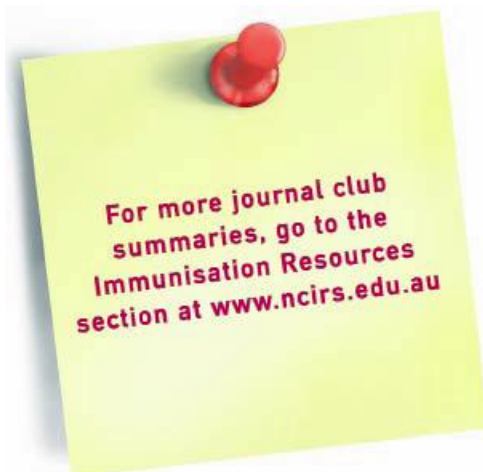
### **The predicted impact of HPV vaccination on male infections and male HPV-related cancers in Australia**

Smith MA, Lew JB, Walker RJ, Brotherton JM, et al. *Vaccine* 2011 Mar 17. [Epub ahead of print]

Link to abstract: <http://www.ncbi.nlm.nih.gov/pubmed/21419773>

The current Australian national HPV vaccination program provides ongoing vaccination of girls 12–13 years of age against HPV. This study used a dynamic model of sexual behaviour and HPV transmission to estimate the incremental benefits to males if they were included in the vaccination program, above and beyond what is already being achieved through the current female program. To address this aim the authors estimated vaccination coverage currently achieved in females and expected to be achieved in males, as well as HPV prevalence in females and males due to heterosexual transmission prior to the introduction of the vaccination program. They then modelled the short- and long-term impact of the female only versus gender neutral vaccination program. Based on baseline parameters, the model predicted that the current female program will result in significant reductions in HPV16 infections and associated disease in males by 2050. They estimated that up to three-quarters of the maximum possible vaccination conferred benefit to males will be achieved through the existing female only program. This study did not take into account homosexual transmission of HPV among males, and, in turn, may have over-estimated the number of male HPV-associated cancers averted by the female only program.

*Presented by Dr Melina Georgousakis, Research Officer, NCIRS*





Chiu C, Dey A, Wang H, Menzies R, Deeks S, Mahajan D, et al. **Vaccine preventable diseases in Australia, 2005 to 2007.** *Communicable Diseases Intelligence* 2010;34 Suppl:ix-S167.

Buttery JP, Lambert SB, Grimwood K, Nissen MD, Field EJ, Macartney KK, et al. **Reduction in rotavirus associated acute gastroenteritis following introduction of rotavirus vaccine into Australia's national childhood vaccine schedule.** *Pediatric Infectious Disease Journal* 2011;30(1 Suppl):S25-9.

Foxwell R, McIntyre P, Quinn H, Roper K, Clements MS. **Severe pertussis in infants – estimated impact of first vaccine dose at 6 versus 8 weeks in Australia.** *Pediatric Infectious Disease Journal* 2011;30:161-3.

Ward K, Seale H, Zwar N, Leask J, MacIntyre CR. **Annual influenza vaccination: coverage and attitudes of primary care staff in Australia.** *Influenza and Other Respiratory Viruses* 2011;5:135-41.

Dierig A, Khandaker G, Booy R. **Clinical impact of influenza – lessons learnt from the pandemic influenza A (H1N1) 2009.** *Microbiology Australia* 2011;32:29-33.

Booy R, Khandaker G, Heron L, Yin JK, Doyle B, Tudo K, et al. **Cross-reacting antibodies against the pandemic (H1N1) 2009 influenza virus in older Australians.** *Medical Journal of Australia* 2011;194:19-23

Heywood AE, Macartney KK. **How can we better understand trends in varicella zoster virus-related disease epidemiology?** [letter] *Medical Journal of Australia* 2011;194:268-9.

Booy R, Richmond P, Nolan T, McVernon J, Marshall H, Nissen M, et al. **Immediate and longer term immunogenicity of a single dose of the combined *Haemophilus influenzae* type B-*Neisseria meningitidis* serogroup C-tetanus toxoid conjugate vaccine in primed toddlers 12 to 18 months of age.** *Pediatric Infectious Disease Journal* 2011;30:340-2.

Buttery JP, Danchin MH, Lee KJ, Carlin JB, McIntyre PB, Elliott EJ, et al, for the PAEDS/APSU Study Group. **Intussusception following rotavirus vaccine administration: post-marketing surveillance in the National Immunization Program in Australia.** *Vaccine* 2011;29:3061-6.]

Khandaker G, Marshall H, Peadon E, Zurynski Y, Burgner D, Buttery J, et al. **Congenital and neonatal varicella: impact of the national varicella vaccination programme in Australia.** *Archives of Disease in Childhood* 2011;96:453-6.

Wood N, Siegrist CA. **Neonatal immunisation: where do we stand?** *Current Opinion in Infectious Diseases* 2011;24:190-5.

Seale H, Leask J, MacIntyre CR. **Awareness, attitudes and behavior of hospital healthcare workers towards a mandatory vaccination directive: two years on.** *Vaccine* 2011;29:3734-7.

Khandaker G, Dierig A, Rashid H, King C, Heron L, Booy R. **Systematic review of clinical and epidemiological features of the pandemic influenza A (H1N1) 2009.** *Influenza and Other Respiratory Viruses* 2011;5:148-56.

Helms C, Leask J, Cooper Robbins S, Chow MY, McIntyre P. **Implementation of mandatory immunisation of healthcare workers: observations from New South Wales, Australia.** *Vaccine* 2011;29:2895-2901.

Macartney KK, Porwal M, Dalton D, Cripps T, Maldigri T, Isaacs D, Kesson A. **Decline in rotavirus hospitalisations following introduction of Australia's national rotavirus immunisation program.** *Journal of Paediatrics and Child Health* January 2011 [Epub ahead of print]

Cooper Robbins SC, Leask J, Booy R. **Parents' attitudes toward the influenza vaccine and influencing factors.** *Journal of Paediatrics and Child Health* February 2011 [Epub ahead of print]

Petousis-Harris H, Poole T, Booy R, Turner N. **Fever following administration of two inactivated influenza vaccines - a survey of parents of New Zealand infants and children 5 years of age and under.** *Vaccine* February 2011 [Epub ahead of print]

Yin KJ, Khandaker G, Rashid H, Heron L, Ridda I, Booy R. **Immunogenicity and safety of pandemic influenza A (H1N1) 2009 vaccine: systematic review and meta-analysis.** *Influenza and Other Respiratory Viruses* March 2011 [Epub ahead of print]

Quinn P, Gold M, Royle J, Buttery J, Richmond P, McIntyre P, Wood N, Lee S, Marshall H. **Recurrence of extensive injection site reactions following DTPa or dTpa vaccine in children 4-6 years old.** *Vaccine* [Epub ahead of print]

## Students and professional placements at NCIRS

NCIRS provides a number of opportunities for students and professional trainees to take on research projects within our areas of expertise, under the guidance of our senior staff. NCIRS holds a regular academic meeting, chaired by Dr Julie Leask, to foster the scholarly development of postgraduate students and staff and provide a forum to discuss the centre's academic research and teaching activities.

### **Students**

NCIRS offers a variety of projects suitable for honours, masters and PhD theses, as well as short-term projects for undergraduates. Due to the diversity of the research carried out at NCIRS, student projects can be in a range of areas including epidemiology, social sciences, evaluation, systematic reviews and clinical trials. Currently we have high calibre students from diverse backgrounds and research interests completing research projects at NCIRS. We also have a number of students who carry out research projects under joint supervision with one of our collaborators, including the Discipline of Paediatrics and Child Health, The Children's Hospital at Westmead; Clinical School, and School of Public Health, University of Sydney; and School of Public Health and Community Medicine, University of New South Wales.



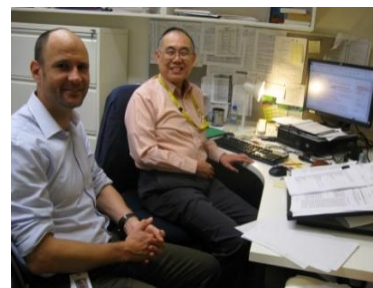
**Photo:** PhD student Dr Kevin Yin, whose project is assessing the epidemiological and economic outcomes of healthcare interventions to control influenza in institutions.

### **Professional trainees**

NCIRS is an accredited site for advanced training towards the Fellowship of the Australasian Faculty of Public Health Medicine. The Public Health Medicine Registrar position at NCIRS offers in-depth training experience that addresses multiple public health medicine curriculum areas, including research and evaluation, epidemiology, information management, policy, communication, and Indigenous health, in the context of national surveillance and control of vaccine preventable diseases.

NCIRS is also a host site for trainee placement in the NSW Public Health Officer Training Program, which is a service-based multidisciplinary training program that offers supervised experience for people who have completed postgraduate studies in public health. At NCIRS, trainees of this program are offered a wide range of projects and supervised learning experience in the context of national surveillance and control of vaccine preventable diseases. These projects and experience provide trainees with the basis for acquisition of a wide range of public health competencies and for completion of the academic requirements towards a Professional Doctorate in Applied Public Health awarded by the University of New South Wales.

Providing training for students and professionals in public health research, in particular regarding control of vaccine preventable disease and immunisation, is important at NCIRS. Although we can only offer a certain number of positions every year, we always invite interested candidates to contact us for more information <http://www.ncirs.edu.au/research/opportunities/index.php>



**Photo:** Public Health Medicine Registrar Dr Andrew Habig (left) working under the guidance of NCIRS public health physician Dr Clayton Chiu.

# New Zealand Immunisation Conference 2011

Get out your diaries now and reserve 18–21 August 2011. The 7th New Zealand National Immunisation Conference, “To Immunity and Beyond”, is being held in beautiful Rotorua, the land of hot thermal springs, bubbling mud and extraordinary landscapes.

Speakers at the Conference include:

**Professor Stanley Plotkin**, Emeritus Professor of the University of Pennsylvania, and Adjunct Professor of the Johns Hopkins University. Until 1991, Professor Plotkin was Professor of Paediatrics and Microbiology at the University of Pennsylvania, Professor of Virology at the Wistar Institute and, at the same time, Director of Infectious Diseases and Senior Physician at the Children’s Hospital of Philadelphia. Professor Plotkin has worked extensively on the development and application of many important vaccines, as well as authoring the seminal vaccine reference text *Vaccines*.



**Associate Professor Mike Gold**, paediatric allergist and immunologist, member of the WHO Global Advisory Committee on Vaccine Safety, and past member of the Therapeutic Goods Administration Adverse Drug Reactions Advisory Committee. Dr Gold’s current research is investigating ways of improving vaccine safety surveillance using data linkage, passive and sentinel surveillance.

A preconference workshop for those at the coal face of immunisation program delivery will be followed by a 2-day academic program covering the latest research regarding VPD epidemiology, vaccine safety surveillance, new and upcoming vaccines, best practice models for immunisation service delivery, and immunisation communication strategy.

There are flexible accommodation options, a very novel conference dinner venue and the lure of snow-capped mountains should you wish to extend your stay. For registration or more information visit the conference website at [www.imac2011.co.nz](http://www.imac2011.co.nz); you can also join the conference Facebook page to keep up to date.

National Centre for Immunisation Research and Surveillance  
Kids Research Institute, The Children’s Hospital at Westmead  
Cnr Hawkesbury Rd & Hainsworth St  
Westmead NSW 2145  
AUSTRALIA

Tel: 612 9845 1433 | Fax: 612 9845 1418 | [www.ncirs.edu.au](http://www.ncirs.edu.au)