

NEWSLETTER

June 2009

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Welcome to the June edition of the NCIRS newsletter. This newsletter contains relevant and valuable information highlighting the Centre's activities as well as providing information on interesting topics and frequently asked questions raised from our immunisation email discussion group which reaches an Australian audience.

A look at the importance of serosurveillance

Dr Helen Quinn

Serosurveillance is an important component of any comprehensive surveillance system for vaccine preventable diseases. It is the gold standard for measuring immunity in a population, thereby complementing traditional disease surveillance methods.

The national serosurvey program conducted by NCIRS is a valuable national resource for estimating vaccine coverage by population immunity, for immunisation program evaluation and to contribute to disease modelling. The program is conducted in collaboration with the Centre for Infectious Diseases and Microbiology (CIDM), at the Institute of Clinical Pathology and Medical Research (ICPMR), Westmead Hospital.

In Australia, the first national serosurveys were conducted using sera collected in 1996–1998 and 1999, i.e. either side of the Measles Control Campaign. Nineteen publications resulted from this serosurvey. The second serosurvey was conducted using sera collected in 2002 and eight publications have resulted from this serosurvey. The third serosurvey is currently being conducted using sera collected in 2007. Antigens being tested include measles, mumps, rubella, varicella, pertussis, meningococcal C, diphtheria and tetanus.

We would like to take this opportunity to thank everyone who has been involved in the serosurveillance program, in particular the laboratories who contribute all the sera – without them we wouldn't have a program!

WATCH THIS SPACE!

A new logo and website is just around the corner for NCIRS. The new logo will engage with internal and external audiences and, most importantly, reflect the objectives, values and attributes of the Centre. The new-look website will be packed with educational resources, up-to-date information, latest news, events and much more.

FOR YOUR DIARY . . .

PNEUMOCOCCAL WORKSHOP

Topics will include 7 valent conjugate vaccine impact, 23 polysaccharide booster in Indigenous children and new conjugate vaccines.

Date: Thursday, 30th July, 2009

Time: 0845 – 1745

Venue: The University of Sydney

Cost: \$275 per day or \$440 for both workshops

THE 2ND INDIGENOUS IMMUNISATION RESEARCH WORKSHOP

After the success of the Indigenous Immunisation Research Workshop held in 2007, the second will be held at the end of July.

Date: Friday, 31st July, 2009

Time: 0830 – 1700

Venue: The University of Sydney

Cost: \$275 per day or \$440 for both workshops*

For more information, please contact Jo Perkins on 02 9845 1433

**Concessions available to Aboriginal Health Workers and Aboriginal and Torres Strait Islander Researchers from the Aboriginal Community Controlled Health sector.*

Australia free of endemic measles transmission Ms Anita Heywood

Summary of a recent publication: Heywood AE, Gidding HF, Riddell MA, McIntyre PB, MacIntyre CR and Kelly HA. Elimination of endemic measles transmission in Australia. *Bulletin of the World Health Organization* 2009;87:64–71

In this recent publication from the January 2009 edition of the *Bulletin of the World Health Organization*, the authors, including members of NCIRS, demonstrate that Australia has become free of endemic measles transmission using multiple criteria. This is the first publication to formally declare the elimination of endemic measles transmission in Australia. Australia now ranks alongside Finland, USA, South Korea, Mexico, Brazil, Canada and Cuba in declaring their countries free from endemic measles transmission. The United Kingdom has also declared itself free of measles transmission but declining vaccination rates have resulted in the recent re-establishment of endemic transmission.

Measles is one of few diseases to be targeted by the World Health Organization for elimination with the Western Pacific Regional Office setting a target date of 2012. Measles satisfies the criteria for elimination in that humans are the only reservoirs of the virus, vaccination is an effective control measure for measles and a simple, sensitive and specific test is available to diagnose cases of measles. The elimination of endemic measles transmission does not suggest that measles disease has been completely eliminated from Australia; numerous cases are imported into Australia each year by infected travellers. Elimination of endemic measles transmission refers to the absence of transmission within Australia and the lack of sustained transmission from imported cases. In Australia, this was achieved by the culmination of a number of measles control measures including high two-dose vaccination coverage and an adequate surveillance system able to detect and rapidly respond to outbreaks.

In this paper, multiple criteria are put forward as sufficient evidence for declaring Australia free of endemic measles transmission. Surveillance data demonstrates the low incidence of measles within an adequate surveillance system, with a high proportion of cases being imported or linked to an imported case. Consistently high two-dose vaccination coverage and evidence of high population immunity from national serosurveys are demonstrated and likely sufficient to prevent the re-establishment of measles in Australia, although this needs to be stringently maintained. The absence of an endemic genotype and the containment of outbreaks without the re-establishment of any specific genotypes has been demonstrated by molecular analysis. Finally, the mathematical modelling of surveillance and serological data provide further evidence. Estimates of the susceptibility of the Australian population are below the theoretical epidemic threshold indicating that endemic transmission can not occur.

Measles elimination is a dynamic situation, as seen with the re-establishment of endemic measles transmission in the United Kingdom. Although current evidence provided in this paper justifies the declaration of elimination in Australia, commitment to high vaccination coverage and containment of imported cases is necessary to maintain the absence of endemic measles transmission.

Low immunisation rates: the inside story

Dr Julie Leask

On the 19th February 2009 a high circulation Sydney tabloid declared “Inoculation rates worst amongst Sydney’s richest.”¹ It described Sydney’s eastern suburbs as having the worst immunisation rates in the country largely because rich parents were refusing immunisation. A local newspaper falsely conflated this report into the claim that “Immunisation rates plummet”, as did some radio outlets.²



Outraged editorials focused on “Selfish dummy mummies [who] need consciences pricked”,³ with others lamenting “our wealthiest, most well-educated citizens are to blame” for a potential outbreak of diseases, quoting “Medicare figures reveal NSW’s richest suburbs have the country’s worst immunisation rates, with almost 20 per cent of toddlers not vaccinated”.⁴

The [report](#), published on the Medicare Australia homepage, had listed vaccination rates for a range of age groups of children by postcode and Division of General Practice (DGP). The newspaper took a mean produced from coverage rates for five age groups under 7 years of age. Eastern Sydney Division’s average was the lowest in NSW at 80%.

What of those apparently not immunised? In 2001, South Eastern Sydney’s public health unit conducted a study of children aged 12 to 15 months listed as being not up to date on the ACIR.⁵ Of the 162 studied, 56% were up to date but were not recorded on the ACIR because the relevant form was incorrect

or had not been sent (i.e. provider error) or the child had been vaccinated overseas. Another 8% had moved overseas with no information about the child's vaccination status. Of the remaining one-third identified as truly not up to date, the majority (20%) were due to provider error (as above). In only 12% of cases was there parental non-compliance with schedule and only 4% were conscientious objectors.

Extrapolating this to the coverage figures from Eastern Sydney DGP, true immunisation rates for 2- year olds are likely to be at least 90%. These data, backed up by a larger NCIRS study,⁶ serve as an important reminder that parental attitudes are only part of the picture of under-immunisation as measured by the ACIR. Especially in inner city areas, provider factors such as recording error or non-submission of forms, and family transience also come into play.

Back to the original question: Are the rich shunning vaccines? Some studies have found an association between high income and vaccine refusal, but once the mother's education and age are factored in, income is no longer an independent factor. Regardless, our biggest problems with non-vaccination exist in areas such as the Sunshine Coast in Queensland and the Northern Rivers of NSW where there is a concentration of alternative lifestyle communities. Here can be found towns with up to 35% of children recorded as having no vaccines.⁷ Unsurprisingly, these are the areas with more outbreaks of diseases like measles and pertussis. See [here](#) for one family's story.

Looking at the bigger picture, overall only about 2–3% of Australian parents actively refuse vaccination⁸ which fortunately means that the vast majority, rich or poor, are still having their children immunised.

References

- 1 Kate Sikora, Angela Saurine. Innoculation rates worst among Sydney's richest suburbs. Daily Telegraph 2009 Feb 18.
- 2 Bennett J. Immunisation rates plummet. Wentworth Courier 2009 Feb 26.
- 3 Adele Horin. Selfish dummy mummies need consciences pricked. Sydney Morning Herald 2009 Feb 23.
- 4 Tracey Spicer. Naked truth of immunisation. Daily Telegraph 2009 Feb 19.
- 5 Botham SJ, Poulos RG, McFarland KJ, Ferson MJ. Getting it right-the Australian Childhood Immunisation Register and immunisation rates in south-eastern Sydney. Aust N Z J Public Health 2004;28:68-71.
- 6 Hull B, Lawrence G, MacIntyre CR, McIntyre P. Immunisation coverage: Australia 2001. Canberra: Commonwealth of Australia; 2002. (accessed December 2001).
- 7 Hull B, McIntyre P. National Centre for Immunisation Research and Surveillance small area coverage report for Divisions of General Practice. 2005. (Unpublished)
- 8 Lawrence GL, Hull B, MacIntyre CR, McIntyre PB. Reasons for incomplete immunisation among Australian children: a national survey of parents. Aust Fam Physician 2004;33:568-71.

Pertussis notifications

Ms Mamta Porwal

Pertussis (or whooping cough) is a notifiable disease in all states and territories of Australia.

Pertussis epidemics occur every three or four years set against a background of endemic circulation. Young infants, particularly those aged <6 months, are at higher risk of pertussis because these infants are only partially immunised or in some cases too young to have commenced their immunisations. The most common cause of severe disease and death from pertussis is pertussis pneumonia, sometimes complicated by apnoea, seizures, and hypoxic encephalopathy.

The last large outbreak of pertussis was in 2005. However, NSW and other regions are currently reporting epidemic numbers of pertussis, with 3,356 cases reported in NSW in January and February 2009 compared with 448 cases in the same period last year. In March 2009, NSW Health confirmed the death of a 4-week old baby girl, following complications from whooping cough.



Child diagnosed with pertussis coughing and experiencing breathing difficulty.

Source: Immunization Action Coalition

To help protect vulnerable babies, NSW Health has arranged for free dTpa vaccine to be administered to all new parents, grandparents and people who care for new babies. The vaccine is available from their usual immunisation service provider (mainly GPs). NSW Health also recommends that infants can receive their first pertussis-containing vaccination from 6 weeks of age.

Other states and territories (e.g. the Northern Territory, Queensland) have also responded to the current increase in pertussis notifications by encouraging the use of pertussis-containing booster vaccines in adults, particularly for all new parents, grandparents and people who care for new babies. Immunisation providers should refer to their state or territories current guidelines for information.

Currently pertussis-containing vaccines are given under the NIP at 2, 4 and 6 months of age with booster doses at 4 years, and at ~15 years of age (given by the school-based program). Control of pertussis is problematic because immunity, whether from immunisation or natural infection, wanes after approximately 6–10 years resulting in renewed susceptibility to infection. Adolescents and adults are an important reservoir for infection as they are capable of transmitting pertussis to vulnerable infants who are too young to have received two or more doses of a pertussis-containing vaccine, required for protection.

It is important to note adults can often just have a persistent cough WITHOUT the characteristic big deep gasp that sometimes produces the whooping-sound. Appropriate antibiotic treatment may be required to control and prevent the spread of infection.

Please refer to the 9th edition of *The Australian Immunisation Handbook*, page 231; for additional information please refer to pages 227– 39.

More details can be found on links as below:

1. http://www.health.nsw.gov.au/news/2009/20090313_00.html
2. http://www.health.qld.gov.au/floods/docs/CHO_pertussis.pdf
3. <http://www.immunise.health.gov.au>
4. http://www.racgp.org.au/Content/NavigationMenu/About/Faculties/SANTFaculty/SANTFacultyquarterlynewsletter/200812sant_matters.pdf

5. Professor McIntyre P. Whooping cough vaccine *is* effective. The Finer Point, Australia's general practice immunisation newsletter, No 141- March 2009.

Preventing Cervical Cancer Conference 2009 Dr Spring Cooper

What do you get when you add a new vaccine with new surveillance and new research about established practices? The Preventing Cervical Cancer 2009 Conference in Melbourne! On March 19th and 20th, 2009, the Victorian Cytology Service and NCIRS co-hosted the conference that was attended by more than 200 delegates from New Zealand, Zimbabwe, Japan, Cameroon and Australia. The attendees consisted of an exciting mix of professionals, researchers, and health care providers interested in preventing cervical cancer.



Participating in the conference from left to right from NCIRS – Dr Spring Cooper, Telpia Joseph and Dr Yeqin Zuo

There were keynote addresses about the HPV vaccine and its safety, including an update from Professor Ian Frazer, former Australian of the Year;

discussions surrounding surveillance reports, including data from the Canadian HPV vaccination experience by Professor Simon Dobson; and research presented on initial timing and spacing of screening for cervical cancer using liquid-based cytology and HPV testing. Both Professor Eduardo Franco (Montreal) and Professor Chris Meijer (Amsterdam) presented ideas about new cervical cancer screening models. And what were most stimulating were the implications that arose out of all of the sessions.



From Left to right – Dr Rosemary Lester, Professor Robert Booy and Professor Peter McIntyre

Change is likely on the way. Cervical cancer screening practices will need to be revised based on the research surrounding best practices for screening and the fact that many individuals are now protected against two or four strains of HPV. And, perhaps more importantly, the communication of this information to the public needs to change. Women who have been vaccinated will most likely be surprised to learn that they may still have abnormal pap smears (from previous infections), and younger women may be surprised to learn that they still need pap smears.

What all of this means is that we, as professionals in the field of immunisation and surveillance, need to be prepared with recommendations, answers, explanations, and new research questions in the changing face of cervical cancer prevention.

Fortunately, NCIRS was right there at the forefront. Professor Peter McIntyre spoke about vaccine safety and Ms Telpia Joseph raised the topic of HPV vaccination in Indigenous populations; both presentations prompted stimulating discussions. Professor Robert Booy and Drs Yeqin Zuo and Spring Cooper attended the conference as active participants.

Journal Club Topic Highlight

Informing adolescents about human papillomavirus vaccination: what will parents allow? Valley LA, Roberts SA, Kitchener HC, Brabin L. *Vaccine* 2008;26(18):2203-10

Link to abstract: <http://www.ncbi.nlm.nih.gov/pubmed/18394754?opt=Abstract>

This study evaluated a film that educated students in the UK about HPV and HPV vaccine. The study was well-done, though it would be interesting to determine what happened in the schools as a result of watching the film. The researchers provided information about knowledge and attitudes after watching the film, but we don't know if behaviour was affected. For example, did less girls opt out of receiving the HPV vaccine during the school vaccination day because of the film? The study is highly relevant to the Australian context since Australia has a school-based HPV vaccination program. The Australian program doesn't currently provide education directly to girls themselves, though it does provide information sheets for parents/guardians. It is possible that a film, such as the one described in this study, would be a valuable tool for the Australian program.

Presented by: Dr Spring Cooper, Senior Research Officer, NCIRS.

Recent NCIRS publications

1. Burgess MA, Forrest JM. Congenital rubella and diabetes mellitus [letter]. *Diabetologia* 2009;52:369-70.
2. Heywood AE, Gidding HF, Riddell MA, McIntyre PB, MacIntyre CR, Kelly HA. Elimination of endemic measles transmission in Australia. *Bulletin of the World Health Organization* 2009;87:64-71.
3. Isaacs D, Kilham H, Leask J, Tobin B. Ethical issues in immunisation [editorial]. *Vaccine* 2009;27:615-8.
4. Legood R, Coen PG, Knox K, Viner RM, El Bashir H, Christie D, Patel BC, Booy R. Health related quality of life in survivors of pneumococcal meningitis. *Acta Paediatrica* 2009;98:543-7.
5. MacIntyre CR, Cauchemez S, Dwyer DE, Seale H, Cheung P, Browne G, Fasher M, Wood J, Gao Z, Booy R, Ferguson N. Face mask use and control of respiratory virus transmission in households. *Emerging Infectious Diseases* 2009;15:233-41.
6. McIntyre PB, Burgess MA, Egan A, Schuerman L, Hoet B. Booster vaccination of adults with reduced-antigen-content diphtheria, tetanus and pertussis vaccine: immunogenicity 5 years post vaccination. *Vaccine* 2009;27:1062-6.
7. Rank C, Quinn HE, McIntyre PB. Pertussis vaccine effectiveness after mass immunization of high school students in Australia. *Pediatric Infectious Disease Journal* 2009;28:152-3.
8. Stein AN, Britt H, Harrison C, Conway EL, Cunningham A, MacIntyre CR. Herpes zoster burden of illness and health care resource utilisation in the Australian population aged 50 years and older. *Vaccine* 2009;27:520-9.
9. Wood JG, Gidding HF, Heywood A, Macartney K, McIntyre PB, MacIntyre CR. Potential impacts of schedule changes, waning immunity and vaccine uptake on measles elimination in Australia. *Vaccine* 2009;27:313-8.

For a complete list of NCIRS publications, please click below on the link to our website

<http://www.ncirs.usyd.edu.au/publ/publ.html>

STAY INFORMED! SUBSCRIBE TODAY!

NCIRS is pleased to announce that there are now over 320 Australian immunisation professionals subscribed to the NCIRS-AIP email discussion list.

NCIRS-AIP is an electronic discussion group designed to facilitate communication between professionals involved in immunisation in Australia, whether at the level of research, policy development, or as immunisation providers.

The NCIRS-AIP provides:

1. Notifications of news items, publications and meetings of interest, regular international updates on immunisation news, and summaries and commentaries on recent papers presented and discussed at the NCIRS Immunisation Journal Club.
2. A forum for questions and feedback
3. An avenue for rapid information about media controversies

NCIRS welcomes into the group all Australian professionals, as well as professionals in other countries who wish to learn more about immunisation in Australia, and/or wish to communicate their experience with us.

If you are interested in subscribing to this group, please log on at <http://mailman.ucc.usyd.edu.au/mailman/listinfo/ncirs-aip> and follow the instructions located there.