

Newsletter

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Trends in immunisation coverage for NIP vaccines not routinely reported: summary of presentation by Brynley Hull at the Public Health Association of Australia's Immunisation Conference, Gold Coast, September 2008

Reporting of immunisation coverage data is necessary for planning, delivery and evaluation of immunisation programs. At present, coverage estimates for National Immunisation Program (NIP) vaccines not routinely reported in *Communicable Diseases Intelligence (CDI)* are not readily available.

The aim of this analysis was to use the Australian Childhood Immunisation Register (ACIR) to examine trends in immunisation coverage for NIP vaccines not routinely reported in *CDI*.

Trends in coverage for up to six 3-month wide cohorts of children for six NIP vaccines were examined: varicella and meningococcal C vaccines at 24 months of age; pneumococcal conjugate vaccine at 12 months of age; one dose of rotavirus vaccine at 4 months of age; hepatitis A vaccine in Indigenous children at 24 months of age; and pneumococcal polysaccharide vaccine in Indigenous children at 36 months of age.

Coverage estimates for all vaccines increased over time with variation by vaccine type and jurisdiction. Coverage levels were >90% for meningococcal and pneumococcal conjugate vaccines and <90% for the others. Under-reporting to the ACIR of vaccines currently on the NIP, but not part of the completed schedule assessment for provider incentive payments, is likely to occur.



Vaccine Preventable Diseases and Vaccination Coverage in Aboriginal and Torres Strait Islander People, Australia, 2003 to 2006

This is the second NCIRS publication focusing on VPDs and vaccination coverage in Aboriginal and Torres Strait Islander people. It includes the latest detailed data on nine major vaccine preventable diseases, as well as vaccination coverage in children and adults.

This publication is now available at the *Communicable Diseases Intelligence* website at <http://www.health.gov.au/internet/main/publishing.nsf/Content/cda-cdi32suppl.htm>

Under-vaccination among disadvantaged population groups: a study in three countries

Julie Leask

As a legacy of the MMR autism controversy, much research has focused on why parents actively delay or forego immunisation. However, there is still a significant proportion of children whose immunisations are not up-to-date for reasons of social exclusion or poverty. Sole parent families, larger families, and poorer families are particularly at risk.

What is missing from this profile is an understanding of why under-immunisation occurs in this group. This study is attempting to build knowledge in this area and add to what we already know. More importantly, we want to hear from the parents themselves of how they struggled with timely immunisation and what would make things easier for them.

As a result, we received a small grant from the University of Sydney International Program Development Fund to set up collaboration with the University of Leeds who is part of the Worldwide University Network and University of Auckland who is part of the Association of Pacific Rim Universities. In each country we will conduct qualitative in-depth interviews with sole parents, parents with more than three children, or parents on government benefits who are not up to date with their children's immunisations. We will ask them about the barriers they faced and discuss possible solutions.



University of Leeds Parkinson Building

In October, I worked with Dr Cath Jackson and Professor Francine Cheater at Leeds University as a short term visiting research fellow. The visit was primarily to kick start the Leeds arm of the study, and pilot test our recruitment methods and interview questions. I also ran a seminar and engaged in some collaborative meetings.

The research involved recruiting parents to interview from Children's Centres in deprived areas of Leeds. These centres were introduced by the Blair government in 1999 as a one-stop-shop for early childhood education



Burmantoffs, Leeds

and support services. As we anticipated, it was difficult to recruit parents because mostly their children were up-to-date. The parents told me that reminder letters from their general practice and their 'red book' helped them to remember when the immunisations were due.

Nevertheless, a few mums did struggle to get their children immunised on time and were willing to talk about it. The interviews are already revealing new insights which we hope to disseminate when the study wraps up late next year. We are keen to provide information for immunisation workers involved in local initiatives to increase their child vaccination rates.

In the meantime, Cath Jackson will continue the interviews in Leeds. Next year, I will travel to Auckland for study commencement with Drs Nikki Turner and Helen Petoussis-Harris at the Immunisation Advisory Centre. In Sydney, we are collaborating with Professor Mark Ferson and Ms Meredith Nirui at South Eastern Sydney Public Health Unit, to interview parents in early 2009.

If you are interested in learning more about the study, please contact me on Juliel3@chw.edu.au or phone (02)9845 1422.



Julie presents NCIRS research to staff in the School of Health Care, University of Leeds

Collaboration, how can you assist with Aboriginal and Torres Strait Islander immunisation coverage?: summary of presentation by Telphia-Leanne Joseph at the Public Health Association of Australia's Immunisation Conference, Gold Coast, September 2008

Public, private and community-controlled health services all have significant roles in vaccinating Indigenous people. Field studies were conducted to document the impact on immunisation outcomes of local projects that involve intersectoral collaboration.

Public Health in Central Australia initially provided administrative and clinical assistance to Central Australian Aboriginal Congress (Congress) during the rollout of the National Indigenous Pneumococcal and Influenza Program. The combination of different strengths of these organisations resulted in a transfer

of skills between them and a successful week-long fast track clinic and promotional campaign predominantly run by Congress.

Winnunga Nimityjah Aboriginal Medical Service (AMS) in Canberra invited Public Health ACT and ACT Divisions of General Practice to participate in their 'healthy child road show'. This resulted in the catch-up of 20 out of 29 identified children from the Australian Childhood Immunisation Register and Winnunga Nimityjah records. The Department of Health and Human Services in Tasmania have worked hard establishing/maintaining relationships with AMS's. Trusting relationships have helped establish effective cold chain management and procedures.

Expanding networks and establishing effective relationships with immunisation service providers to Indigenous people assists in achieving higher coverage, and therefore protection from disease, the saving of resources, and skill acquisition.

Immunogenicity of birth and 1-month old acellular pertussis vaccine: summary of presentation by Nicholas Wood at the Public Health Association of Australia's Immunisation Conference, Gold Coast, September 2008

Very young infants (<2 months old) are at highest risk of pertussis hospitalisation and death and are not protected by current vaccination schedules. Birth and 1-month old acellular pertussis (Pa) administration was investigated for the first time to assess if infants can be protected by 2 months of age. Newborns were randomised into three groups: Group 1 - Pa and hepatitis B (HBV) vaccine at birth and Pa at 1 month old; Group 2 - Pa and HBV vaccine at birth only; Group 3 - HBV vaccine at birth only. All infants then received DTPa-HBV-IPV-Hib and pneumococcal vaccines at 2, 4 and 6 months of

age. Immune responses to pertussis vaccine antigens were measured at birth, 2, 4, 6 and 8 months of age. Vaccination with Pa at birth and 1 month of age resulted in a significantly higher response to pertussis antigens (PT, FHA and PRN) at 2 months, compared with Pa at birth only and control groups. No immune tolerance to pertussis, diphtheria or tetanus was seen following birth Pa vaccination. The Pa birth dose was very well tolerated and there were no vaccine related serious adverse events or increased reactogenicity. These results are very promising and suggest that birth and 1-month old Pa vaccine can provide earlier neonatal priming by 2 months of age and that it may be possible to protect infants from pertussis disease by vaccinating them at birth.

Hospitalisation of Indigenous and non-Indigenous Australian children due to influenza: summary of presentation by Robert Menzies at the Public Health Association of Australia's Immunisation Conference, Gold Coast, September 2008

In Australia, Indigenous children have been shown to have higher rates of hospitalisation specifically coded as due to influenza, compared to non-Indigenous children. Estimating the much larger number of hospitalisations that were associated with influenza, but not coded as such, is more difficult, but was influential in the decisions to recommend universal childhood vaccination in the United States (US).

This study used multiple regression models to estimate total numbers of acute respiratory hospitalisations

that were attributable to influenza. The model used influenza notifications, bronchiolitis hospitalisations and average temperature to predict non-bronchiolitis acute respiratory hospitalisations, from 2001 to 2005, for children aged <5 years. Separate models were developed for northern and southern Australia.

Estimated annual rates were 164 per 100,000 for all children in southern Australia, 143 for non-Indigenous children in northern Australia, and 393 for Indigenous children in northern Australia. These compare with the range of international studies in temperate regions of around 50 to 250 per 100,000.

This study produces influenza disease burden estimates for non-Indigenous children that are similar to those that led to universal vaccination recommendations in the US, while those for Indigenous children in northern Australia are around 2.5 times higher than that.

Recent NCIRS Publications

- ◆ Aratchige PE, McIntyre PB, Quinn HE, Gilbert GL. Recent increases in mumps incidence in Australia: the "forgotten" age group in the 1998 Australian Measles Control Campaign. *Medical Journal of Australia* 2008;189:434-7.
- ◆ Ridda I, Lindley IR, Gao Z, McIntyre P, MacIntyre CR. Differences in attitudes, beliefs and knowledge of hospital health care workers and community doctors to vaccination of older people. *Vaccine* 2008;44:5633-40.
- ◆ Cagney M, McIntyre PB, Heron L, Giammanco A, MacIntyre CR. The relationship between pertussis symptomatology, incidence and serology in adolescents. *Vaccine* 2008;44:5547-53.
- ◆ Macartney K, McIntyre P. Vaccines for post-exposure prophylaxis against varicella (chickenpox) in children and adults. *Cochrane Database of Systematic Reviews* 2008;(3):CD001833. DOI: 10.1002/14651858.CD001833.pub2.
- ◆ Watkins RE, Cooke FC, Donovan RJ, MacIntyre CR, Itzwerth R, Plant AJ. Tackle the problem when it gets here: pandemic preparedness among small and medium businesses. *Qualitative Health Research* 2008;18:902-12.
- ◆ Isaacs D, Leask J. Should influenza immunisation be mandatory for healthcare workers? No. *BMJ* 2008;337:a2140.
- ◆ Brotherton JM, Gold MS, Kemp AS, McIntyre PB, Burgess MA, Campbell-Lloyd S. Anaphylaxis following quadrivalent human papillomavirus vaccination. *Canadian Medical Association Journal* 2008;179:525-33.
- ◆ Leask J, Macartney K. Parental decisions about vaccination: collective values are important [editorial]. *Journal of Paediatrics and Child Health* 2008;44:534-5.
- ◆ Burrell C, Booy R, Wood N, Egan AM, Taverner D, Williams K, Liauw W, Moskwa A, Pepin-Covatta S, Saville M. Immunogenicity of a reduced dose of A/H3N2 in the 2005 southern hemisphere formulation of inactivated split influenza vaccine. *Influenza and Other Respiratory Viruses* 2008;2:93-8.
- ◆ Ridda I, Lindley R, MacIntyre CR. The challenges of clinical trials in the exclusion zone: the case of the frail older people. *Australasian Journal on Ageing* 2008;27:61-6.

A recent Journal Club topic

Effects of influenza plus pneumococcal conjugate vaccination versus influenza vaccination alone in preventing respiratory tract infections in children: a randomized, double-blind, placebo-controlled trial

Jansen AG, Sanders EA, Hoes AW, van Loon AM, Hak E. *Journal of Pediatrics* 2008;153:764-770

- Presented by Dr Clayton Chiu, Clinical Research Fellow, NCIRS

The main objective of this study was to evaluate the effects of influenza vaccination with or without heptavalent pneumococcal conjugate vaccination on respiratory tract infections (RTIs) in children.

This study was a randomised, double-blind, placebo-controlled trial conducted in the Netherlands, comprising 579 children aged 18 to 72 months with a previous history of physician-diagnosed RTI who had not been vaccinated with any of the study vaccines, recruited in the months of September and October in the three years of 2003, 2004 and 2005. Children with specific medical conditions for which the influenza or pneumococcal vaccine were recommended were excluded. The participating children were randomly assigned to one of the three groups, to receive either two doses of parenteral inactivated trivalent subunit influenza plus heptavalent pneumococcal conjugate vaccination (TIV+PCV7), influenza plus placebo vaccination (TIV+plac), or control hepatitis B virus vaccination plus placebo (HBV+plac).

Study results showed that during the influenza seasons, febrile RTIs were reduced by 24% (95% confidence interval [CI] 1%-42%) in the TIV+PCV7 group and by 13% (95% CI -12%-32%) in the TIV+plac group compared with the control group. The occurrence of PCR-confirmed influenza was reduced by 52% (95% CI 7%-75%) in the TIV+PCV7 group and by 51% (95% CI 3%-75%) in the TIV+plac group. Episodes of acute otitis media (AOM) were reduced by 57% (95% CI 6%-80%) in the TIV+PCV7 group and by 71% (95% CI 30%-88%) in the TIV+plac group. There were no significant differences in primary care visits and antibiotic prescriptions among the three groups. Outside of the influenza seasons, no significant effects of vaccinations were demonstrated on the studied outcomes. Two of the three influenza seasons were mild seasons, and the influenza vaccine virus strains were suboptimal matches with the dominant circulating influenza strains over all the three seasons.

Results of this study were in agreement with other published non-randomised, unblinded or small studies or the few meta-analyses on the effect of the inactivated influenza vaccine in younger children. This study had limited power to detect a small additional benefit, if any, of the pneumococcal conjugate vaccine against AOM in children of this age group.

Merry Christmas and a Happy New Year in 2009 from the team at NCIRS



PCC2009 in Melbourne, March 18-20th 2009

The Victorian Cytology Service Inc (VCS), in association with the National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases (NCIRS), is proud to be the organiser of **Preventing Cervical Cancer 2009: Integrating screening and vaccination (PCC2009)**

PCC2009 will bring together international and Australian experts in cervical screening, vaccination and cancer epidemiology to debate and explore current and future directions in the prevention of cervical cancer. It will provide a forum for these experts to share their vision and influence policy development in the prevention of cervical cancer.

Australia's cervical screening program is amongst the most successful in the world. Now, coupled with our world-leading commitment to population-based vaccination for high-risk HPV, Australia is poised to develop highly effective new models for cervical cancer prevention that could eventually lead to the almost total eradication of this disease.

The provisional program is now available at <http://www.pcc2009.org.au/program.html> For more information, and registration details, please visit the conference website at www.pcc2009.org.au