13th Public Health Association of Australia National Immunisation Conference

THIS YEAR, THE 13TH NATIONAL IMMUNISATION CONFERENCE WAS HELD IN DARWIN, NORTHERN TERRITORY. THE PUBLIC HEALTH ASSOCIATION OF AUSTRALIA (PHAA) PROVIDES A FORUM FOR THE EXCHANGE OF IDEAS, KNOWLEDGE AND INFORMATION ON PUBLIC HEALTH. THE ASSOCIATION IS ALSO INVOLVED IN ADVOCACY FOR PUBLIC HEALTH POLICY, DEVELOPMENT, RESEARCH AND TRAINING.

Prepared by Helen Quinn

Over 30 NCIRS staff members attended the conference and participated in presentations or poster displays. It was a successful event and well over 500 people from various health and medical backgrounds attended. The conference dinner was particularly well attended this year, with everyone enjoying the beautiful outdoor setting at the Darwin Sailing Club and the outstanding Darwin sunset.
This year, five NCIRS staff members were invited speakers at the conference — Professor Peter McIntyre, Associate Professor Kristine Macartney, Dr Tom Snelling, Dr Julie Leask and Dr Rob Menzies.

Professor Peter McIntyre, Director of NCIRS, provided a progress report on pertussis and Associate Professor Kristine Macartney, Deputy Director, Policy Support, provided a progress report on varicella. Dr Tom Snelling provided an update on rotavirus vaccines in Australia.

Dr Julie Leask, Social Research Manager, presented some interesting data in the maternal immunisation plenary session on “What makes pregnant women have a vaccine”. On the final day Dr Rob Menzies, Deputy Director, Surveillance, was involved in a plenary discussion on program implementation and evaluation and presented an interesting talk on “The importance of evaluating immunisation programs”.

Several other NCIRS staff made presentations at the conference. They included:

- Influenza vaccination in children with egg allergy at The Children’s Hospital at Westmead
  By Kath Cannings

- Trends in immunisation coverage and timeliness in Aboriginal and Torres Strait Islander children 2004 to 2011
  By Brynley Hull

- Immunisation records reliably predict immunity against vaccine preventable diseases in internationally adopted children

- Febrile seizures following influenza vaccine in Australian children in 2010: a self-controlled case series analysis
  By Dr Nick Wood

- Waning of pertussis antibodies to 4 years among infants who did and did not receive monovalent acellular pertussis vaccine at birth
  By Dr Melina Georgousakis

- Measuring pertussis vaccine effectiveness against pertussis using a novel case-control approach
  By Dr Helen Quinn

- Pertussis deaths in Australia – what has changed?
  By Dr Melina Georgousakis

- Effectiveness of preventing infant pertussis by ‘cocooning’ strategy: a NSW case-control study
  By Dr Andrew Habig

- General practice encounters following seasonal influenza vaccination as a proxy measure of early-onset adverse reactions
  By Dr Aditi Dey

- Seroprevalence of hepatitis B antibodies in New South Wales, 1999–2007
  By Dr Clayton Chiu

- Using hospital episode statistics to estimate hospitalisations attributable to rotavirus gastroenteritis

- Impact of the northern Australian Indigenous children pneumococcal vaccination schedule 2001–2010
  By Dr Sanjay Jayasinghe

- Influenza vaccine efficacy in young children: a double-blinded randomised controlled trial

- Nosocomial versus community-acquired pandemic influenza A (H1N1) 2009: a nested case-control study
  By Dr Leon Heron

- Communicating with parents about vaccination: guidelines for health professionals
  By Dr Julie Leask

- Trends in reporting of adverse events following immunisation (AEFI) in adults since 2000
  By Dr Deepika Mahajan

- Evaluation of the national varicella vaccination program

- Strategies to improve immunisation coverage in Australia: a systematic review
  By Kirsten Ward

- Pregnant women’s attitudes toward flu shots: a qualitative study
  By Kerrie Wiley

Several summaries from these presentations are available in this special edition newsletter.

Other staff who must also be acknowledged for their hard work in producing showbags and managing the conference stall so professionally are: Danielle Grant, Karyn Phillips, Donna Armstrong, Rose Joyce, Laura Rost, Carol Shineberg, Han Wang, Edwina Jacobs, Jenny Murphy, Liz Hayles and Lisa Chalmers.

A post-conference seminar day was successfully organised by the Australian Medicare Local Alliance. Dr Jane Jelfs, Policy Support Manager, NCIRS, and Helen Moore, National Principal Adviser, Immunisation, AMLA, assisted greatly with the organisation of the day.
A number of NCIRS staff members were invited speakers. The topics they presented were:

- Mum Influenza vaccination study (Kerrie Wiley)
- Vaccine safety (Dr Nick Wood)
- ACIR (Brynley Hull)
- Australian Immunisation Professionals email discussion group (AIP) (Dr Jane Jelfs)
- Adults and adverse events following immunisation (Kath Cannings)

In this special edition, our staff who participated and presented their topics at the conference have summarised their presentations for your interest.
SUMMARY OF CONFERENCE PRESENTATIONS

PHAA PRESENTATIONS HIGHLIGHTED

INFLUENZA VACCINATION IN CHILDREN WITH EGG ALLERGY AT THE CHILDREN’S HOSPITAL AT WESTMEAD

PRESENTER: KATH CANNINGS

AUTHORS: C NICKOLLS, ME BYRNE, N WOOD, D CAMPBELL, M WONG, A KAKAKIOS, P JOSHI, S MEHR

Egg allergy is common in Australian children with incidence estimated at 9%. Hospitalisation from egg allergy is greatest in children under 5 years of age. Hospitalisations from influenza complications are also more common in children in this age group. Current guidelines list anaphylactic sensitivity to eggs as a contraindication to influenza vaccination. Therefore there are a number of children who are at risk of developing severe influenza who are not eligible for protection from vaccination.

During the H1N1 pandemic, The Children’s Hospital at Westmead ran a clinic to establish protocols for the safe administration of influenza vaccination for egg allergic children.

Over a 4–month period, 113 egg allergic children (median age, 4.3 years) received the influenza vaccine. Twenty-eight (25%) of these children had past histories of egg-related anaphylaxis. We used a split vaccine dose regimen (10% then 90% 30 minutes later) with H1N1 and seasonal influenza vaccines that contained <2 g egg ovalbumin/mL. Follow-up phone calls were made 2 days after vaccination. Only one child developed hives following the 10% dose and none had anaphylaxis.

We established that, contrary to current guidelines, egg allergic children can safely receive influenza vaccines under medical supervision. This study and emerging literature will inform new guidelines for the 10th edition of The Australian Immunisation handbook.
EFFECTIVENESS OF PREVENTING INFANT PERTUSSIS BY 'COCOONING' STRATEGY: A NSW CASE-CONTROL STUDY

PRESENTER: DR ANDREW HABIG

AUTHORS: A HABIG, H QUINN, C CHIU, P SPOKES, P MCINTYRE

Background
NSW has experienced a prolonged pertussis epidemic since 2008, which particularly affected young infants. NSW has implemented a publicly-funded initiative for preventing pertussis in young infants through vaccinating adult close household contacts, the ‘cocoon strategy’, since April 2009. This study sought to address the current absence of direct evidence for this vaccination strategy.

Methods
A case-control study was conducted with cases comprising all infants notified in NSW with pertussis, at age under 4 months, between April 2009 and March 2011. Controls were randomly sampled from NSW-born infants, matched to cases by date of birth and statistical subdivision of residence, at a ratio of 3:1.

Parents or primary carers of infant subjects were surveyed by telephone. Data collected included the pertussis vaccination status and timing for infants, and the timing of pertussis vaccine booster around the birth of the infant of all their close contacts. Validation of the vaccination status of the primary carer and their children was undertaken.

Results
By the end of January, 189 (48%) of 392 eligible case households had completed interviews. We expect early results will be available by the end of May 2012.

Conclusion/Importance
This is a unique study internationally and results are of key importance to state, national and international policy recommendations.
PREGNANT WOMEN’S ATTITUDES TOWARD FLU SHOTS: A QUALITATIVE STUDY

PRESENTER: KERRIE WILEY

AUTHORS: K WILEY, J LEASK, N WOOD, S COOPER ROBBINS, P MASSEY

Influenza vaccination during pregnancy is recommended, due to the increased risk of complications of influenza infection for both mother and baby. Despite this recommendation, uptake of influenza vaccine by pregnant women remains low. The aim of this qualitative study was to explore pregnant women’s attitudes toward vaccination during pregnancy, and factors influencing their immunisation decision.

Twenty women were recruited from antenatal clinic waiting rooms at three hospitals. Using grounded theory methodology, semi-structured interviews explored perception of risk of infection, the benefits and risks of vaccination, and information sources.

Our results demonstrate that assigning a high priority to vaccination is dependent on the woman’s general view of vaccination, personal experiences, the people around her, and her antenatal care provider. Moreover, these factors both act independently as well as interact to inform the woman’s choices. These results suggest that this is a non-linear, dynamic decision process, in which influenza vaccination competes with other, changing priorities in pregnant women’s lives.

Understanding what motivates pregnant women to vaccinate against influenza is crucial to improving vaccination coverage and reducing the impact of influenza in this high risk population.

INFLUENZA VACCINE EFFICACY IN YOUNG CHILDREN: A DOUBLE-BLINDED RANDOMISED CONTROLLED TRIAL

PRESENTER: DR LEON HERON,

AUTHORS: R BOOY, JK YIN, L HERON, J LEASK, TP SLOOTS, SB LAMBERT, MD NISSEN, J LI-KIM-MOY, M CHOW

Evidence for influenza vaccine efficacy (VE) in young children is limited. We conducted a double-blinded, randomised controlled trial (RCT) of an unadjuvanted trivalent influenza vaccine (TIV) in children aged 6 to <48 months from 56 Sydney daycare centres in 2011. The control was hepatitis A vaccine. Computer-randomisation was done at household level. Subjects received 2 doses, 1 month apart, from March. Influenza-like-illness (ILI) was defined as temperature ≥37.8°C/feverishness plus ≥1 respiratory symptom. Parents collected and posted nose and throat swabs from ILI cases for polymerase chain reaction (PCR) testing at Queensland Paediatric Infectious Diseases Laboratory.

Of 125 children, 57 (46%) received TIV. Twenty-five ILIs (21 children) occurred in the intervention group, and 50 ILIs (34 children) in controls. In intention-to-treat analysis (from 10 days after 1st dose), there were 10 influenza-positive ILIs (9 children, 8 households): 6 A(H1N1)pdm09, 2 H3N2, and 2 B. Relative risk for influenza vaccinated children was 0.13 (VE=87% [95% confidence interval=–2% to 98%]). Among 32 vaccinees aged ≥2 years, VE was 100% (80–100%). One vaccine failure occurred, aged <2 years (VE=8%; –1287 to 94%).

Our study demonstrates a high VE of TIV for children aged 2–3 years. Power was lacking to detect protection in those aged under 2.
AS03 adjuvanted AH1N1 vaccine associated with an abrupt increase in the incidence of childhood narcolepsy in Finland


A sudden increase in childhood narcolepsy was observed in Finland soon after the pandemic influenza epidemic and vaccination with AS03-adjuvanted Pandemrix. Narcolepsy is a chronic sleep disorder causing excessive daytime sleepiness and cataplexy with a strong genetic predisposition which has never before been reported in association with vaccination.

The AS03 Pandemrix vaccine was introduced nationwide in Finland from October 2009; no other pandemic vaccines were available in the country. Vaccination coverage across Finland during this period was 52% with 75% coverage in the 4–19 years old cohort. Compared to the baseline incidence of 0.79/100,000 person-years, the incidence of narcolepsy in the vaccinated group was 9/100,000 person years. A 12.7-fold risk of narcolepsy was found in the 4–19-year-old individuals within approximately 8 months after the Pandemrix vaccination which translated into a vaccine attributable risk of 1:16,000. The findings were also supported by the results from Sweden where a cohort study covering the entire population reported an almost 7-fold incidence of narcolepsy with cataplexy in children vaccinated with Pandemrix compared to unvaccinated children in the same age group. Data from France, Norway and Ireland also indicate a higher than expected number of cases in children and adolescents after Pandemrix vaccination. Because of a lack of signal in the UK and Canada, a multifactorial nature of the phenomenon has also been suggested.

This study was based on comprehensive data and covers the entire population of Finland. The results indicate a strong association between the Pandemrix vaccination and narcolepsy. The authors go on to say that several infectious, environmental, social or psychological factors could modify the strength of the association seen in this study but none could completely undo an association of this magnitude. Their findings have raised concerns about lipid-containing adjuvants and calls for further research of their association with adverse effects such as autoimmunity.

Risk of febrile seizures and epilepsy after vaccination with diphtheria, tetanus, acellular pertussis, inactivated poliovirus, and Haemophilus influenzae


A WHOLE-OF-COUNTRY COHORT STUDY WAS UNDERTAKEN IN DENMARK TO ASSESS THE RELATIONSHIP OF FEBRILE SEIZURES (FS) IN INFANCY WITH THIS MULTI-COMPONENT VACCINE CONTAINING PERTUSSIS TOXOID, AND ALSO THE RISK OF EPILEPSY IN VACCINATED CHILDREN.

The birth cohort consisted of nearly 400,000 children born between 2003 and 2008. Vaccination records were obtained from the national health insurance registry, and hospital presentations (inpatient and outpatient) from the national hospital register. Unique identifiers allowed for linkage with other statistical databases and measurement and control of other perinatal, maternal and socioeconomic factors. The analysis was by the Cox proportional hazards model, with the “exposed” post-vaccination risk period defined as day 0 (the day of vaccination) up to 7 days after. Secondary analyses further defined this period as days 0, 1–3 and 4–7. A self-controlled case series analysis was also conducted.

There was an overall lower incidence of epilepsy in vaccinated compared with unvaccinated children (HR 0.63, 95% CI: 0.50–0.79 up to age 15 months; HR 1.01, 95% CI: 0.66–1.56 for age 16 months–7 years). There was little evidence of an overall increase in risk of febrile seizure in the week after vaccination, although as high as a 3-fold increase after dose 1 cannot be excluded. There was also a clustering of FS events on the day of vaccination, adding weight to the existence of a true small increase in risk.

The study limitations included potential misclassification of FS and epilepsy, differential ascertainment of events for vaccinated versus unvaccinated children, residual confounding (e.g. a healthy vaccinee effect), imprecision of risk estimates on sub-analyses due to small case numbers, and bias from multiple comparisons. Overall, the most likely net direction of bias is toward underestimation of the risk associated with vaccination.

Extrapolating from the data presented: at most (i.e. taking the upper boundary of the 95% CI), vaccination might account for an additional approximately 70 FS per 100,000 vaccinees compared to a background risk of FS in the population of approximately 2,000 per 100,000 (i.e. <2% of all FS). The most likely estimate is of <5 additional FS per 100,000 doses (i.e. <0.01 of all FS) attributable to vaccination.
SPECIAL CELEBRATION

HAPPY 15TH BIRTHDAY TO US!

NCIRS IS PROUD TO BE CELEBRATING OUR 15TH BIRTHDAY DURING AUGUST.

Here are some extracts which appropriately capture the breadth of work we have achieved over these past 15 years:

“The National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases has made an enormous contribution to Australia’s capacity to measure the burden of vaccine preventable diseases, the impact of vaccine programs and to investigate the occurrence of adverse events following immunisation.

The scope and success of NCIRS’s work, in putting the wealth of data sources available in Australia to best use and integrating them to provide a comprehensive picture of vaccine preventable diseases nationally, is impressive for what is still, despite its growth, a relatively small organisation in international terms.”

Professor Elizabeth Miller (taken from 2010–2011 NCIRS Biennial Report)

“...it is a great pleasure to see how NCIRS has developed from a fledgling group of less than 10 people to a flourishing organisation, an organisation which has become a truly national resource for Australia...I am confident that the highly skilled staff of NCIRS, with the strong consultative mechanisms the Centre has developed, will continue to serve Australia’s needs in the steadily growing area of immunisation policy development, both through its contribution to improving the quality of surveillance and by conducting research relevant to immunisation programs in the next decade of its work.”

Professor Don Roberton (taken from 2005–2007 NCIRS Biennial Report)

NCIRS


NOW AVAILABLE ONLINE – HELPFUL RESOURCES

RECENTLY, STAFF AT NCIRS HAVE BEEN WORKING HARD TO UPDATE AND IMPROVE RESOURCES ON THE NCIRS WEBSITE.

Now available to download:

- Vaccination history tables
- Childhood and adult immunisation schedules
- Hepatitis B vaccines fact sheet
- Strategies to improve vaccination uptake in Australia table

PAEDS NEWSLETTER ONLINE

The first edition of the Paediatric Active Enhanced Disease Surveillance (PAEDS) newsletter is now available online at www.ncirs.edu.au

PAEDS commenced in 2007 as a pilot project and has grown substantially over the last 5 years. Landmark studies arising from PAEDS surveillance to date have demonstrated a small but significant risk of intussusception (a rare form of bowel blockage) following rotavirus vaccination, and described the clinical burden of pandemic influenza in children. We are currently in a growth phase which has seen the introduction of a formal governance structure, the planned addition of a PAEDS site in Queensland and inclusion of new conditions under surveillance, such as pertussis. We hope you enjoy our introductory newsletter, and look forward to sharing more of our work with you.

THANK YOU!

In July, NCIRS was sad to farewell Dr Jane Jelfs who spent almost 7 years working with NCIRS, particularly in the Policy Support section. Jane made a significant contribution to various ATAGI working parties (particularly the Influenza, Rabies and Hib-Meningococcal working parties), the 9th and draft 10th editions of The Australian Immunisation Handbook, and many other areas. She was much appreciated for her wide-ranging and helpful responses on the NCIRS Australian Immunisation Professionals ‘AIP’ email network. We wish Jane all the very best in her future endeavours.