NCIRS National Centre For Immunisation Research and Surveillance

Newsletter

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Hot Topic 1

Evaluation of the National Q Fever Management Program—workshop report

NCIRS is evaluating the impact of the National Q Fever Management Program on the incidence of Q fever and vaccination coverage. We will also describe the models of vaccine service provision used during the Program with the aim of identifying best practice for future vaccination programs. To help with the evaluation process, NCIRS conducted a Q fever workshop on 30 April 2004.

The workshop aimed to provide a forum for the interchange of information available at a state and national level on Q fever disease surveillance and Program implementation. There were more than 30 attendees including representatives from the Meat Industry, CSL Ltd, NCIRS and organisations conducting Q fever research and diagnosis, as well as the Q fever project coordinators from each state and the ACT.

The day began with a summary of the preliminary findings from the impact evaluation. The group discussed the difficulties of conducting such a study, given that the Program has only been going for two years, confounding factors such as the drought and limitations with the available data. Following on from this talk we heard two research reports. The first was from the Dubbo Infections Outcomes Study research team which has been following up cases of Q fever in the Dubbo area since 1996. Interestingly, they found that one third of cases initially diagnosed with Q fever were false positives after further diagnostic testing. In addition, 20% of the identified cases occurred in people with no known occupational exposure. Enhanced notification data from southern and central Queensland presented in the next talk, indicated farmers were most at-risk and that the notification rate in children increased between 1997 and 2002.[1]

The next set of talks gave an industry perspective of the Program. The first talk, by representatives from CSL Ltd, described their role in the promotion and administration of Q fever vaccinations and provided evidence of the increased use of vaccine during the Program. AusVet then provided a summary of how the Australian Q Fever Register works. The register records and allows access to an individual's Q fever screening and vaccination results thereby reducing unnecessary repeat testing. There are now over 16,000 records on the register, mostly from abattoir workers in NSW and Queensland.

The final session of the day involved a summary from each Q fever project coordinator about the implementation of the program in their jurisdiction. Vaccination clinics for farmers, especially those in remote regions, and the training days for providers seemed to go well. However, there was a general consensus that the re-imbursement process was time consuming due to its complexity and eligibility criteria.

It was evident that all participants at the workshop were enthusiastic and committed to reducing the burden of disease from Q fever. A key theme to emerge from the workshop was that although vaccination programs targeting abattoir workers have been successful, other groups in the community have a high disease burden and future vaccination programs will need to address this.

Workshop attendees

Ref: 1 Barralet JH, Parker NR. Q fever in children: an emerging public health issue in Queensland [Letter]. *Med J Aust* 2004;18(11):596-597.

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Hot Topic 2

Incomplete immunisation among Australian children

A survey of Australian parents whose children were not fully immunised has found that parental beliefs, particularly about vaccine side effects, is the major reason for incomplete immunisation. Other reasons included postponement due to child illness, and stopping immunisation after a child has experienced mild, expected vaccine side effects.

In a study, conducted by the National Centre for Immunisation Research and Surveillance and published in *Australian Family Physician,** parents of 462 children who were incompletely immunised were surveyed. Of these parents, 58% disagreed with, or were concerned about, immunisation with 70% of these concerned about vaccine side effects.

The data indicate that the 'disagree/concerned' parents are similar to parents who are registered as conscientious objectors, with 81% of children of both groups having no vaccinations recorded on the Australian Childhood Immunisation Register compared with only 36% of children of parents who gave other reasons for incomplete immunisation. Although only 0.75% of Australian parents are registered as conscientious objectors, we estimate that 2.5–3% disagree with or are concerned about immunisation.

These findings confirm anecdotal evidence and emphasise that, although it is only a relatively small group who choose not to immunise, their decision is often based on perceptions about vaccine side effects. General practitioners have an important role to play in identifying and counselling parents who are deciding against immunisation due to beliefs about vaccine side effects. Checking a child's vaccination record could help GPs identify parents who might respond to counselling and advice about vaccine side effects. GPs also have an important role in addressing parents' concerns about the few appropriate medical contraindications to vaccination to help reduce unnecessary and often lengthy postponement of immunisation due to child illness. Addressing parents' concerns after a child experiences vaccine side effects could help parents complete their child's immunisations.

A range of materials is available to support general practitioners in discussing immunisation with parents, from the popular 'Immunisation Myths and Realities' booklet (http://immunise.health.gov.au/myths_2.pdf) to more technical fact sheets (available at the NCIRS website: www.ncirs.usyd.edu.au) and the 'Australian Immunisation Handbook' (http://immunise.health.gov.au/handbook.htm)

*Reference shown in recent publication list on page3

Respiratory infections in young children: implications for vaccine prevention

Respiratory seminar, 8 December 2003

In December 2003, NCIRS held a workshop to examine the contribution of influenza and pneumococcal infection to respiratory disease in childhood.

Dr Stephen Lambert from the School of Population Health, University of Melbourne presented data on the community level incidence of influenza in children from a cohort study in Melbourne. Children under the age of 5 years (from 234 families enrolled in this study) are followed prospectively with respiratory swabs tested by PCR for influenza. Of 563 combined nose-throat specimens collected by parents, 26 were positive for influenza A by PCR (4.6%). All of the influenza A positive specimens were collected in August or September 2003 and represented 16.4% of all specimens (n=159) collected from study subjects in those months.

Dr Melanie Wong from The Children's Hospital at Westmead's Department of Immunology presented data from her PhD studying causes of pneumonia in hospitalised children, showing that influenza makes a relatively minor contribution. Importantly, specimens are frequently not taken, especially in older children.

Dr Frank Beard presented data describing calculated rates of hospitalisations due to influenza in Sydney children from an analysis of hospitalisation data and local virological surveillance data. The study methods were based on previously published studies in the United States and Hong Kong, in which influenza hospitalisations were extrapolated from excess respiratory admissions during the influenza season. Results suggest that influenza is responsible for up to five times the number of hospitalisations officially coded as being due to influenza.

Data presented and discussed at the meeting will make important contributions to the Influenza Working Party being convened to consider the recent United States recommendation to vaccinate healthy children aged 6-24 months against influenza.

Recent NCIRS Publications

- Brotherton JML. Where to from here? [letter]. *BMJ* Rapid response, 8 Mar 2004. Available at: http://bmj.bmjjournals.com/cgi/eletters/328/7439/564#52674 (accessed Mar 2004).
- Postma MJ, Bos JM, de Groot R, Luytjes W, Beutels P. Do costs of varicella justify routine infant vaccination? Pharmaco-economic and clinical considerations [editorial] *European Journal of Health Economics* 2004;5:54-7.
- Elliott E, McIntyre P, Ridley G, Morris A, Massie J, McEniery J, Knight G. A national study of infants hospitalized with pertussis in the acellular vaccine era. *Pediatric Infectious Disease Journal* 2004;23:246-52.
- McIntyre P. Meningitis. In: Moyer VA, Elliott EJ (eds). Evidence-based pediatrics and child health. 2nd edition. London: BMJ Books; 2004. p. 285-91.
- De Graeve D, Beutels P. Economic aspects of pneumococcal pneumonia : a review of the literature. Pharmacoeconomics 2004;22:719-40.
- Burgess MA, McIntyre PB. Vaccines – the new Australian best-practice schedule. *Medical Journal of Australia* 2004;180:494-6.
- Lawrence GL, MacIntyre CR, Hull BP, McIntyre PB. Effectiveness of the linkage of childcare and maternity payments to childhood immunisation. *Vaccine* 2004;22:2345-50.
- Lawrence GL, Hull BP, MacIntyre CR, McIntyre PB. Reasons for incomplete immunisation among Australian children: a national survey of parents. *Australian Family Physician* 2004;33:568-71.
- McIntyre P, Wood N. What's new in childhood immunisation? *Medicine Today* 2004;5:68-77.
- O'Sullivan BG, Gidding HF, Law M, Kaldor JM, Gilbert GL, Dore GJ. Estimates of chronic hepatitis B virus infection in Australia, 2000. *Australian and New Zealand Journal of Public Health* 2004;28:212-6.

Recent Journal Club topics

Varicella vaccination – cost-effectiveness

Summary of talk presented by Dr Philippe Beutels

The population impact and cost-effectiveness of varicella vaccination has been shown to be highly dependent on adopted perspective and the effects widespread vaccination may have on the epidemiology of herpes zoster. Two studies have provided evidence to support an exogenous boosting theory (ie that exposure to wild varicella boosts immunity and may protect against herpes zoster).

Childhood varicella vaccination has been found to be cost-saving only when indirect costs associated with parental time off work are incorporated to express a societal perspective. For the health care system (in practice the viewpoint preferred by the Australian government), a single dose schedule would be as cost-effective in preventing severe morbidity and mortality compared to competing interventions. However, if potential detrimental effects of childhood vaccination on herpes zoster are included in the analysis, childhood vaccination becomes highly inefficient for the health care system, and may lead to an overall net loss in Quality Adjusted Life-Years (QALYs), as shown in an analysis for the UK. The alternative of vaccinating susceptible pre-adolescents has been suggested as a safe (it would have a limited impact on herpes zoster and would not cause an age shift), and cost-effective (for both the health care system and society) option that should be considered irrespective of implementing a childhood VZV program.

Campaigning against vaccines: the 'anti-vaccination movement' in the UK

Pru Hobson-West, guest speaker from the Institute of Genetics, Biorisks and Society and the School of Politics, University of Nottingham, UK, presented work from her PhD study which looks at the anti-vaccination movement in the UK.

Mass childhood immunisation is usually regarded as a cornerstone of modern public health policy and is credited with a dramatic reduction in mortality and morbidity from infectious disease. However, recent media debate in the UK about the safety of the MMR (measles, mumps and rubella) vaccine has been blamed for a decline in uptake of this vaccine, prompting fears of measles outbreaks. The presentation provided by Pru discussed the arguments of the 'anti-vaccination movement' in the UK and in particular looked at how science is used by vaccine critical groups to make their case. Early qualitative analysis of interviews, documents and websites suggests that anti-vaccination does not necessarily mean anti-science.

Commonly asked immunisation questions (and answers!)

In this newsletter feature, we share some of the commonly asked questions we receive. If you have any "common questions" that you'd like to see addressed in this format, please e-mail us (karynp@chw.edu.au) and we'll publish the answer in an upcoming newsletter.

Please note that answers provided here are consistent with current recommended practice but are not a substitute for individual medical advice.

Why is adult diphtheria-tetanus-pertussis vaccine (dTpa, tradename Boostrix®) recommended for 15-17 year olds instead of adult (ADT) diphtheria and tetanus vaccine and what are the contraindications to its use?

Currently in Australia, over 60% of pertussis notifications occur in persons >10 years of age. As the protective efficacy of both natural infection and pertussis vaccine wane over time, a booster dose of a pertussis containing vaccine, **dTpa,** is recommended in adolescence to reduce morbidity and transmission of pertussis.

Absolute contraindications to its use are an immediate severe allergic reaction to a previous dose of DTPa vaccine or one of its components or an encephalopathy without another evident cause within 7 days of previous DTPa vaccination. In these cases referral to an immunisation specialist or clinic may be helpful. A period of 5 years must have elapsed since the last tetanus or diphtheria dose before Boostrix® is administered to avoid hypersensitivity. If a person has already received a dose of dTpa, subsequent tetanus booster vaccinations should be the ADT vaccine.

Ref: The Australian Immunisation Handbook 8th Edition, p 210, 215 and Immunisation Program. FAQ: Adult/Adolescent Diphtheria, Tetanus and Pertussis Vaccine - Boostrix® *www.health.vic.gov.au/immunisation/downloads/addiptet.pdf*

If an adolescent has only received 2 doses of hepatitis B vaccine prior to 11 years old, do they need the third dose?

For children and young adults up to 20 years old, a total of 3 doses of 0.5ml of paediatric formulation are recommended. The optimum interval is one month between the first and second doses and a third dose 5 months after the second dose. This adolescent should be given one further dose of the paediatric formulation to be fully vaccinated. There is no need to recommence the 3 dose course.

Adolescents (11 to 15 years of age) who have not received any hepatitis B vaccines can be vaccinated with a 2 dose schedule of H-B-Vax II 10ug (adult formulation) at 0 and 4-6 months.

Ref: The Australian Immunisation Handbook 8th Edition, p 149

When deciding on whether to use Meningitec®, Menjugate® or NeisVac-C® are there any important considerations following a past reaction to tetanus?

There are 3 different meningococcal C vaccines available. Two of these include a non-toxic *Corynebacterium diphtheriae* CRM 197 protein (Meningitec®, Menjugate®) and one contains a tetanus toxoid protein (NeisVac-C®). All 3 vaccines contain aluminium phosphate or hydroxide as an adjuvant. All 3 vaccines are comparable and considered safe and effective.

The *Handbook* states that the absolute contra-indications to administration of a meningococcal C conjugate vaccine are a severe hypersensitivity to any of the vaccine components, or an anaphylactic reaction following a previous dose. It is recommended that discussion with an immunisation specialist occur prior to meningococcal C vaccination in those persons who have had a severe hypersensitivity to any of the vaccine components.

In those who have had a past reaction to tetanus toxoid, it is important to determine what type of reaction occurred. In most cases the reaction will have been minor and/or not related to the vaccine and vaccination with any of the meningococcal C vaccines should proceed.

Ref: The Australian Immunisation Handbook 8th Edition, p 200

Do non-Indigenous healthy children need booster doses of conjugated pneumococcal vaccine (Prevenar®) or polysaccharide pneumococcal vaccine (Pneumovax®)?

Non-Indigenous healthy children do NOT need booster doses of pneumococcal vaccines. Children who have any of the diseases compromising the immune response to pneumococcal infection and/or any of the anatomic or metabolic abnormalities associated with increased rates of invasive pneumococcal diseases (table 3.18.1, p 227 *Handbook*) require booster doses of both Prevenar® and Pneumovax®. The number of Prevenar® doses to be given depends on the age at first dose and the recommended interval between doses is 2 months.

Table 3.18.5 (p 232) in the *Handbook* outlines the primary and catch up vaccination schedule for healthy children under the age of 2 years. Prevenar® will be provided free for all Australian children under the age of 2 years from 1/1/2005. For children aged 2-5 years, a single dose of Prevenar® can be given and parents need to pay for it. The incidence of invasive pneumococcal disease is less in this age group compared to those under the age of 2 years. The highest overall incidence is in 1 year olds (117 per 100,000) and then infants (80 per 100,000) and declines thereafter – 2 year olds (55 per 100,000), 3 year olds (26 per 100,000) and 4 year olds (19 per 100,000).

Ref: The Australian Immunisation Handbook 8th Edition p 232