VARICELLA ZOSTER

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Varicella zoster is a herpes virus that causes chickenpox (also known as varicella) and shingles (herpes zoster). This Bug Breakfast discussed the background to the addition of the varicella vaccine to the National Immunisation Program on 1 November 2005, and outlined the process of introducing a new vaccine to the schedule in NSW.

CHICKENPOX

Chickenpox is usually a mild, self-limiting disease of childhood. It is highly contagious and causes a vesicular rash. Complications are seen in approximately one per cent of cases and infection of pregnant women can cause congenital varicella syndrome and neonatal varicella.[1] There are approximately 240,000 cases of chickenpox in Australia each year, leading to approximately 1500 hospitalisations and eight deaths.[1] In Australia, 80 to 90 per cent of unvaccinated people have been infected with varicella zoster by adolescence.[2]

SHINGLES

Shingles occurs following a primary infection with varicella zoster when the virus establishes a latent infection in sensory nerve ganglia then later reactivates as a vesicular, often painful rash. The most common complication of shingles is post-herpetic neuralgia. The lifetime risk of shingles is 15 to 20 per cent and the number of hospitalisations and deaths due to shingles are approximately twice that caused by chickenpox.[2]

VARICELLA VACCINATION IN AUSTRALIA

A varicella vaccine has been licensed for use in Australia since 1999. Prior to November 2005, it was recommended for use at 18 months of age as well as in immunocompromised people; however, the vaccine was not funded. The estimated rate of vaccination in two-year-olds in 2005 in Australia was approximately 16 per cent.[1] Since November 2005 the vaccine has been provided free to children at 18 months of age as part of the National Immunisation Program. A catch up vaccination program will also be conducted for children aged 10 to13 years who have not had the disease or the vaccine.

In the United States a universal varicella vaccination program has been in place since 1996 and coverage amongst 19- to 30-month-old children has risen from 12 per cent in 1996 to 85 per cent in 2003. Associated decreases in hospitalisations by 88 per cent and morbidity by 66 per cent have been observed.[3,4] Post-licensure studies of vaccine effectiveness have indicated that its effectiveness for prevention of varicella disease is about 85 per cent.[1]

The impact of universal vaccination against chickenpox on the incidence of shingles has not yet been determined. There are concerns that loss of ongoing exposure to varicella zoster as a result of population immunity may lead to loss of immune boosting and increased rates of shingles. However, the rate of shingles in vaccinated people is likely to be reduced and active surveillance in the United States has so far indicated no change in the rates of shingles in adults. Rates in children appear to be declining. Recent studies of a high-dose 'zoster vaccine' suggest that it may decrease the rates of herpes zoster and post-herpetic neuralgia in elderly populations.[5]

The aim of introducing the varicella vaccine to the National Immunisation Program in Australia is to reduce the burden of disease, hospitalisations and deaths. At least 80 per cent vaccine coverage is required to reduce the disease burden across all ages.[6]

INTRODUCING A NEW VACCINE INTO THE VACCINATION SCHEDULE

At a national level, the initial step in introducing a new vaccine into the schedule is for the vaccine to be licensed with the Therapeutic Goods Administration. Following this, the Australian Technical Advisory Group on Immunisation undertakes a review of the epidemiology of the disease and the vaccine data, including the cost-effectiveness of the vaccine, and makes recommendations to the Federal Minister for Health and Ageing. If the vaccine is approved for inclusion on the National Immunisation Program the price of the vaccine is negotiated nationally and all other support systems, such as the Australian Childhood Immunisation Register, are amended. From May 2005, the Australian Technical Advisory Group on Immunisation will make recommendations on the vaccine to the Minister for Health and Ageing; however, cost-effectiveness and pricing arrangements will be undertaken by the Pharmaceutical Benefits Advisory Committee.

At a state level, the NSW Department of Health tenders for the supply of the vaccine. The vaccine is purchased and then stored and distributed to all NSW service providers by

* Bug Breakfast is the name given to a monthly series of hour-long breakfast seminars on communicable diseases delivered by the NSW Department of Health's Division of Population Health.

the NSW Vaccine Centre. To coincide with the program, a communication strategy is implemented. This includes media releases, advice to public health units and general practitioners and all other service providers, an information kit, information on the web, and a 'road show' to area health services and general practitioner divisions.

FUTURE CONSIDERATIONS

Issues that may need to be considered in future include the need for two doses and/or booster doses of the vaccine. A new combined vaccine for measles, mumps, rubella and varicella was licensed in the United States in 2005. Another issue will be surveillance for varicella zoster. Although many Australian states are planning to make this a notifiable disease in association with the new vaccination program, at this stage NSW is planning to use alternative forms of surveillance including varicella-related hospitalisations and deaths and periodic serosurveys. NSW will also investigate the feasibility of sentinel surveillance. As the incidence of varicella infections declines with time, the feasibility of statewide surveillance will be reviewed.

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COMMUNICABLE DISEASES REPORT NSW FOR SEPTEMBER AND OCTOBER 2005

For updated information, including data and facts on specific diseases, visit www.health.nsw.gov.au and click on **Infectious Diseases.**

TRENDS

Tables 2 and 3 and Figure 1 show reports of communicable diseases received through to the end of September and October 2005 in NSW.

Data from the NSW Influenza Surveillance Program www.health.nsw.gov.au/infect/pdf/flureport.pdf show that the 2005 **influenza** season peaked in late August and had declined to baseline levels by mid October. Most cases were due to the influenza A virus. A small number were due to the influenza B virus, especially towards the end of the season.

Reports of **pertussis** cases appear to have peaked in NSW in August when 759 patients reported onset of symptoms. Nonetheless, pertussis remains common throughout the state (555 cases were reported in October), and clinicians should consider the diagnosis in people presenting with persistent bouts of coughing, especially when associated with an inspiratory whoop or vomiting. Treatment of the patient, if given within three weeks of onset, reduces infectiousness. It is important to identify other people who may be at risk of pertussis in whom infection could be severe, and who would benefit from receiving preventive antibiotics.

Prophylaxis is recommended for the following contacts of people infected with pertussis:

- all household members where the household includes an infant less than 12 months of age, a child aged between 12 and 24 months who has received fewer than three doses of pertussis vaccine, or a woman in the final month of pregnancy
- household members who have close dealings (within one metre) with children under five years old or with pregnant women
- where the person attended childcare for more than one hour while infectious, then other children and adults in the same classroom who are infants less than12 months of age (regardless of vaccination status); other children aged 12 to 59 months who have received fewer than three doses of pertussis vaccine; or staff who have not received a pertussis vaccine in the previous 10 years
- infants less than 12 months of age, children aged between 12 and 24 months who have received fewer than three doses of pertussis vaccine, and women in the last month of pregnancy who were cared for (at a