

Small pain, big gain

Children face disease whether or not we immunise them, writes **Danielle Teutsch**

Australian children born on or after May 1 last year will receive eight vaccinations, and 20 injections, before they reach their second birthday.

This year the Federal Government's national vaccination program underwent the biggest expansion since the 1980s, with two new vaccines added to the list. The pneumococcal jab was made universal in January, while every child born on or after May 1, 2004, will receive the chicken pox injection, starting from November. Meningococcal C was added to the list for all children in 2003.

Some parents may be concerned about the effects of so many shots at such a tender age.

But the Royal Australian College of General Practitioners' immunisation spokesman, Dr Neil Hearnden, says parents have to balance the perceived risk of vaccination against the numerous diseases children encounter at day care. "At day care children are hit with a barrage of viruses, which means the frequency of colds and gastroenteritis is much more than if a child is kept in the cotton-wool environment of home," Hearnden says.

"So we need to realise that the so-called assault on the immune system of vaccination is a drop in the ocean compared with the assault on the immune system when children go to day care."

The director of the National Centre for Immunisation Research and Surveillance, Peter McIntyre, agrees that vaccination

arms children against diseases they will inevitably encounter.

"You don't get a choice about this," he says. "You either encounter these diseases from a vaccine, or you encounter them at school, or the shopping centre, or your older brother. With the first option you develop immunity in a much safer manner."

McIntyre says there is no risk that babies' immune systems would be overwhelmed or weakened by multiple vaccines.

He cites a paper in the journal *Pediatrics* in 2002 that shows babies are capable of mounting a protective immune response to vaccines within hours of birth.

The paper estimates each infant would have the theoretical capacity to respond to about 10,000 vaccines at any one time. Further, if 11 vaccines were given to infants simultaneously then only about 0.1 per cent of the immune system would be "used up" and that would soon be replenished anyway.

"Babies are very well-designed creatures," McIntyre says. "They come into the world with no immunity apart from what they've got from their mother, but they are designed to develop it quickly."

In any case, he says parents may take comfort in knowing that although children are having more vaccines than ever before, they are being exposed to fewer antigens (proteins and polysaccharides) than in the past.

"We now have more purified versions of vaccines, so there are

fewer 'bits' for the immune system to respond to," McIntyre says.

For example, the current acellular pertussis (whooping cough) vaccine contains between three and five antigens, compared with the previous version that contained up to 3000 antigens.

Vaccines likely to be added to the immunisation schedule in future, include one against rotavirus, a major cause of gastroenteritis in children, and type B meningococcal, which is still in development.

There is also research being done into maternal vaccination. This would mean giving pregnant women vaccines to protect newborns against diseases such as pertussis and pneumococcus, though further work is needed to confirm safety.

Professor George Rubin, from the school of public health at Sydney University, says it is an exciting new era of vaccine development. On the horizon are vaccines for everything from cancer to HIV and immunological diseases such as asthma.

"I suspect in the decades to come we will have multiple vaccines in one," he says.

The national varicella (chicken pox) vaccination program begins on November 1 for children born on or after May 1, 2004. A catch-up program will be available for 10- to 13-year-olds, administered by NSW Health.

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