Immunisation update

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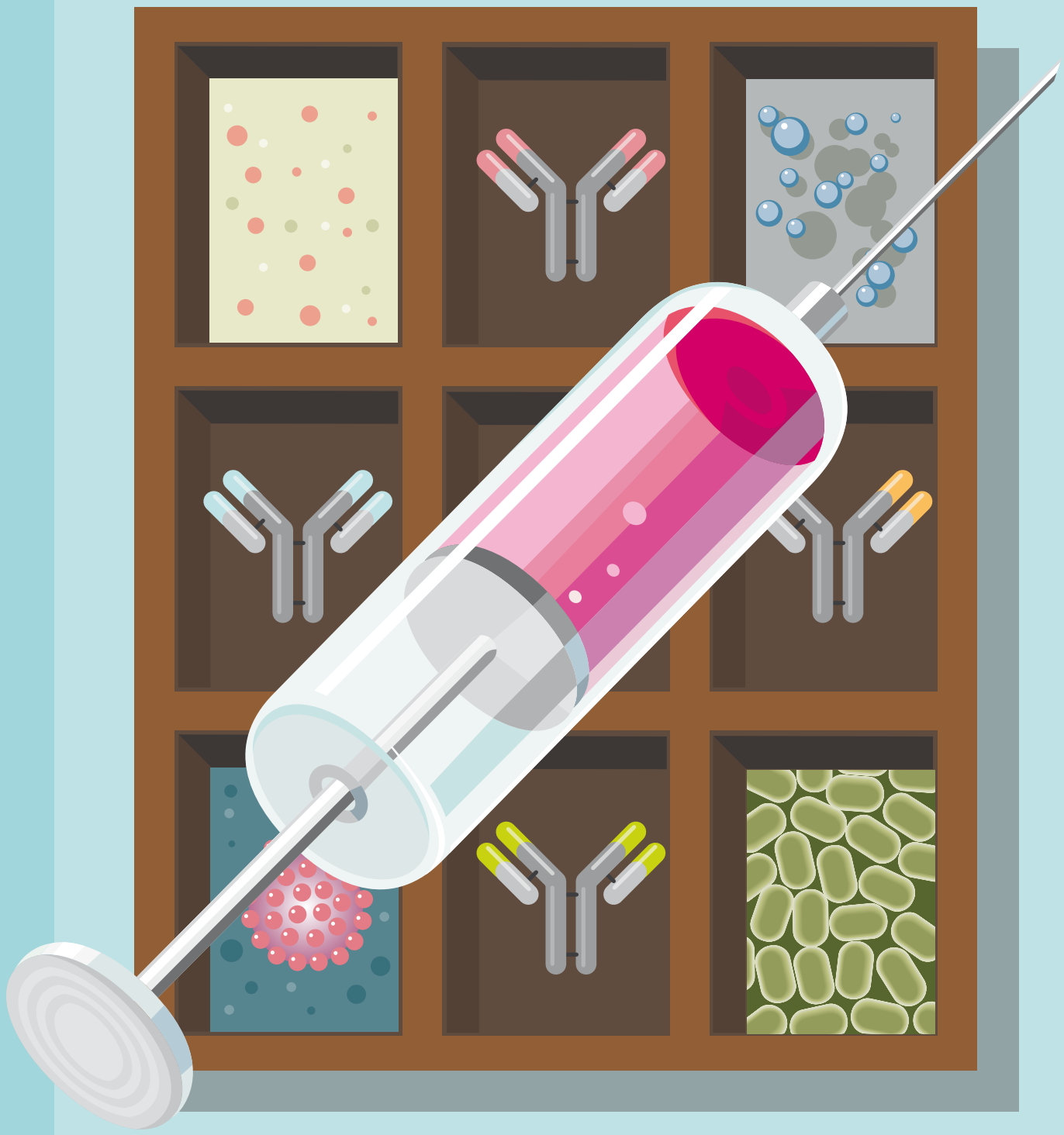

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THERE WERE THREE significant changes to the immunisation schedule in 2008, with the addition of the new pneumococcal and HPV vaccines and the removal of the special MeNZB programme.

New pneumococcal vaccine for infants

In June 2008, the PCV7 (Prevenar®) vaccine was added to the New Zealand immunisation schedule. This vaccine provides protection against the seven most common strains of *Streptococcus pneumoniae* seen most commonly in infants and implicated in severe pneumococcal disease such as meningitis, septicaemia and pneumonia.

Pneumococcus is also the most common bacterial cause of otitis media in children and a frequent cause of sinusitis and pneumonia in all age groups.

Polysaccharide pneumococcal vaccines such as 23PPV (Pneumovax®23) have been available for many years; however they are not effective in children aged under two years. The introduction of a conjugate pneumococcal vaccine, PCV7 (Prevenar®) will allow for the protection of infants, reducing incidence of disease in the broader community through herd immunity.

It is expected the introduction of the PCV7 vaccine will result in similar benefits in New Zealand to those seen in the United States. Following the introduction of the vaccine in the US in 2000, there was a decline of 85% in invasive pneumococcal disease incidence in young children, and a decline in invasive pneumococcal disease (IPD) in unimmunised adults from the herd immunity effects, created by vaccinating the infants.

Children in New Zealand are offered the PCV7 immunisation at ages six weeks, three months, five months and 15 months.

High-risk pneumococcal programme

Children considered at risk of pneumococcal disease may be eligible for the High-risk Pneumococcal Programme. This is a programme aimed at children aged under five years with a chronic condition. Children who meet the criteria are eligible for the PCV7 (pneumococcal conjugate, Prevenar®) vaccine and the 23PPV (pneumococcal polysaccharide, Pneumovax®23) vaccine at the ages recommended in the immunisation schedule.

Eligibility criteria for the High-risk Pneumococcal Programme:

Children under five years with the following conditions:	
▪ On immunosuppressive or radiation therapy ▪ Primary immune deficiencies ▪ HIV ▪ Renal failure or nephrotic syndrome ▪ Organ transplants ▪ Cochlear implants or intracranial shunts ▪ With chronic CSF leaks ▪ Cardiac disease with cyanosis or failure ▪ Insulin dependent diabetes ▪ Down syndrome	▪ On corticosteroid therapy for more than two weeks, at daily dose of prednisone of 2 mg/kg or greater, or a total daily dosage of 20 mg or more ▪ Children pre or post splenectomy or with functional asplenia ▪ Pre-term infants, born at under 28 weeks' gestation ▪ Chronic pulmonary disease (including asthma treated with high-dose corticosteroid therapy)

MeNZB vaccine programme

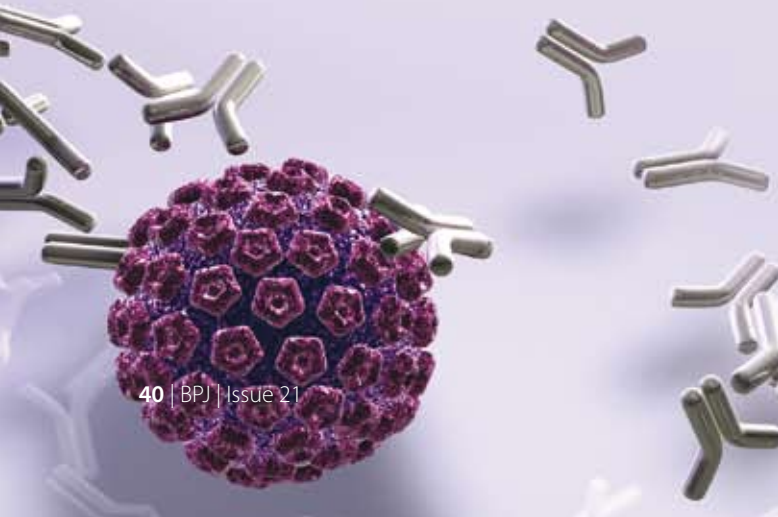
The MeNZB vaccine was introduced to control an epidemic of a specific strain of Group B meningococcus circulating in New Zealand. There has been a significant sustained decrease in confirmed cases since the completion of the programme in 2006. With the epidemic waning, MeNZB is no longer on the National Immunisation Schedule.

The MeNZB vaccine is still available and funded for individuals of any age, with a high risk of invasive meningococcal infection, and specific conditions including:

- Actual or functional asplenia
- Sickle cell anaemia
- Some complement deficiencies
- Individuals with HIV infection, who may be safely immunised with meningococcal polysaccharide vaccines.
- Microbiology and laboratory workers

HPV vaccine programme

See BPJ 18 (December 2008) for information on the new HPV vaccine.



Contraindications and precautions to vaccination

Contraindications

There are only a few contraindications to vaccination, these are listed in Table 1.

Precautions

There are a number of precautions to vaccination.

Giving a live vaccine less than four weeks after another live vaccine

There is a theoretical risk that the administration of multiple live virus vaccines within four weeks of one another, if not given on the same day, will result in a suboptimal immune response.

Pregnancy

Generally, vaccines are not tested in pregnant woman therefore there is little safety data available for this group. However in other countries the use of the influenza vaccines (and others) in pregnant women has been shown to be safe.

Allergy to Vaccine components

Provided there is no history of anaphylaxis, allergies to vaccine components, such as asthma following exposure to feathers or a rash following consumption of eggs, should be treated as a precaution only. A longer period of observation following immunisation may be prudent.

Guillain Barré Syndrome

In people with a history of Guillain Barré Syndrome (GBS) within six weeks of previous influenza vaccination, but who are not at high-risk for severe influenza complications, it is prudent to avoid further influenza vaccination.

In people with a history of GBS, but also at high-risk for severe complications from influenza, the established benefits of influenza vaccination justify yearly vaccination.

Thrombocytopenia or history of thrombocytopenic purpura and MMR

In most instances, the benefits of vaccination are greater than the potential risks and will justify giving MMR, particularly in view of the even greater risk of thrombocytopenia following measles or rubella disease.

Haemophilia and related bleeding disorders

People with haemophilia and related bleeding disorders should be immunised. In some cases of severe haemophilia the vaccine can be given subcutaneously rather than intramuscularly. Prophylaxis should be given on the same day as the vaccine.

False contraindications

The following conditions or circumstances are not contraindications to vaccination:

- Minor infections without significant fever or systemic upset
- Asthma, hayfever, eczema, "snuffles"
- Severe allergy to foods or medications unrelated to the vaccine
- Treatment with antibiotics or locally acting steroids
- Pregnancy in the child's mother
- A child who is breastfeeding
- Neonatal jaundice
- Low weight in an otherwise healthy child
- The child being over the usual age for immunisation
- Family history of vaccine reactions, seizures or Sudden Infant Death Syndrome
- Prematurity in an otherwise well infant who is not in hospital
- Established neurological conditions such as cerebral palsy or Down syndrome
- Contact with an infectious disease
- Clinical history of pertussis, measles, mumps or rubella (clinical history without laboratory confirmation can not be taken as proof of immunity)

Table 1: Vaccine Contraindications

Vaccine	Contraindications
All Vaccines	▪ Anaphylactic type reaction to a previous dose of that vaccine, or to any vaccine component (not trace element)
Pertussis-containing vaccines	▪ Previous encephalopathy within seven days after a previous pertussis-containing vaccine ▪ Evolving (undiagnosed) neurological problem
Measles, Mumps, Rubella, MMR, Varicella, Yellow Fever, Oral Polio	▪ Immunosuppressed individuals ▪ If blood, plasma or immunoglobulin were given in the last 11 months ▪ Pregnancy
Influenza, Yellow Fever	▪ Anaphylactic reaction to chickens, including eggs, egg protein, feathers etc

Epidemic update

Pertussis (Whooping cough)

New Zealand currently appears to be in the early phases of a pertussis epidemic. Recent surveillance data shows a marked increased in pertussis cases, from 28 cases in February 2008 to 140 cases in February 2009. The highest numbers of cases are being reported from Canterbury, Nelson Marlborough and Waikato DHBs.

New Zealand has a pertussis epidemic every four to five years, with the most recent epidemics in 1999–2001 and 2004. In 2004 alone, 3489 cases were reported. Since 2000 four infants have died from pertussis. Three out of the four were too young to have been immunised.

Minimal maternal protection to pertussis is passed to the foetus and breast-feeding offers very little protection. Infants who are too young to be fully immunised are vulnerable to disease. Their only protection is from other methods such as herd immunity, vaccinating close contacts and avoiding contact with those carrying the bacterium.

The best way to contain an epidemic is immunisation and effective management of confirmed cases

It is important to ensure children get their immunisations on time and "catch up" immunisations are offered to those who are overdue. At four years and 11 years children have booster pertussis vaccinations which provide protection through adolescence.

Adults can also be given a pertussis booster vaccine and in particular, close contacts of infants such as parents, grandparents and health professionals, should consider receiving a pertussis booster vaccination.

Management of confirmed cases includes exclusion of the infected person from school or work, until they have received at least five days of a 14-day course of erythromycin, or exclusion for three weeks from the date of onset of typical paroxysms of cough.

When the household includes any child aged less than 12 months, who has received fewer than three doses of pertussis vaccine, then other members of the household should also be given a course of antibiotics (14-day course of erythromycin).

Pertussis is a notifiable disease and it is essential to report suspected and confirmed cases to the local Medical Officer of Health. Collection of a nasopharyngeal swab is indicated in suspected cases.

Measles outbreak

Since the start of 2009 there has been an increased number of confirmed cases of measles. Between January and March 2009, ESR has recorded a total of 28 confirmed cases - 23 of which were reported in the Otago DHB region. Local data from Public Health South indicates that the number of cases of measles in people aged 4 to 22 years in Otago, since January may be as high as 31. "To put this into perspective, in the whole of the United States there are on average 64 cases of measles a year"–Richard Bunton, Chief Medical Officer, Otago DHB.

It has been estimated that to prevent recurrent outbreaks of measles, 95% of the population must be immune. This level of immunity has been difficult to achieve because the measles vaccine efficacy is 90–95% and not all children receive the first scheduled dose. To improve the overall level of community immunity, a course of two vaccines for all children is recommended at age 15 months and four years

References

Ministry of Health. 2008 National Immunisation Schedule. Health Provider Booklet. Wellington: Ministry of Health, 2008.

Immunisation Advisory Centre. Health professionals online resource centre: Available from: www.immune.org.nz (Accessed April 2009).