

**Meningococcal**  
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### Invasive meningococcal disease (IMD)

Invasive meningococcal disease (IMD) is capable of causing death in a matter of hours BUT it is very rare, though the incidence is 'apparently' increasing. The Australian Communicable Diseases Intelligence (CDI) Bulletin reports an increase in IMD from 1.6 to 3.1 cases per 100,000 from 1991 to 2000, and in 2001 the figure is 3.5.

An outbreak of serogroup A disease among indigenous populations in Central Australia and a rise in notifications of groups B and C is held responsible for this.

As a comparison, the notification rate in New Zealand is 13.3 cases per 100,000 with a meningococcal B 'epidemic' in Maori and Pacific Islander communities in its eleventh year. Disease typically affects children aged 0 - 4 but also young adults aged 15 - 19 and these are now the initial target groups for meningococcal vaccine.

(CDI Vol25 No3 pages 113,126; also Vol27 No1 pg.67)

In South Australia in 2002 there were a total of 31 cases and of these 8 involved the 'C' strain. In 2001 there were 39 cases, 7 type C and one death in this group. In the current CDI (hot off the press!) a total of 677 notifications were received in Australia in 2001, of which 452 had their serogroup (A, B etc.) identified - 283 cases were type B, 155 type C, and 14 were serogroup W135 or Y. (Refs as above) When you take these figures into account it means that the confirmed incidence of meningococcal which the vaccine targets (i.e. C) is very small - 0.8 cases per 100,000 - and with 23 deaths from 'C' strain you have roughly a one in a million chance of dying from this in Australia. Meningococcal C vaccine offers no protection from other strains according to both government and manufacturers information.

There are not only different serogroups but different phenotypes (physical characteristics), serotypes and serosubtypes of meningococcal spread across Australia. For example we have B:15:P1.7 and B:4:P1.4, C:2a:P1.2 and C:2a:P1.5. To my thinking, targeting any strain with a vaccine is ambitious - obviously the bacteria modifies its physical structure in many ways depending on the environment it inhabits.. This is why researchers have been unable to formulate a vaccine for the more common 'B' strain.

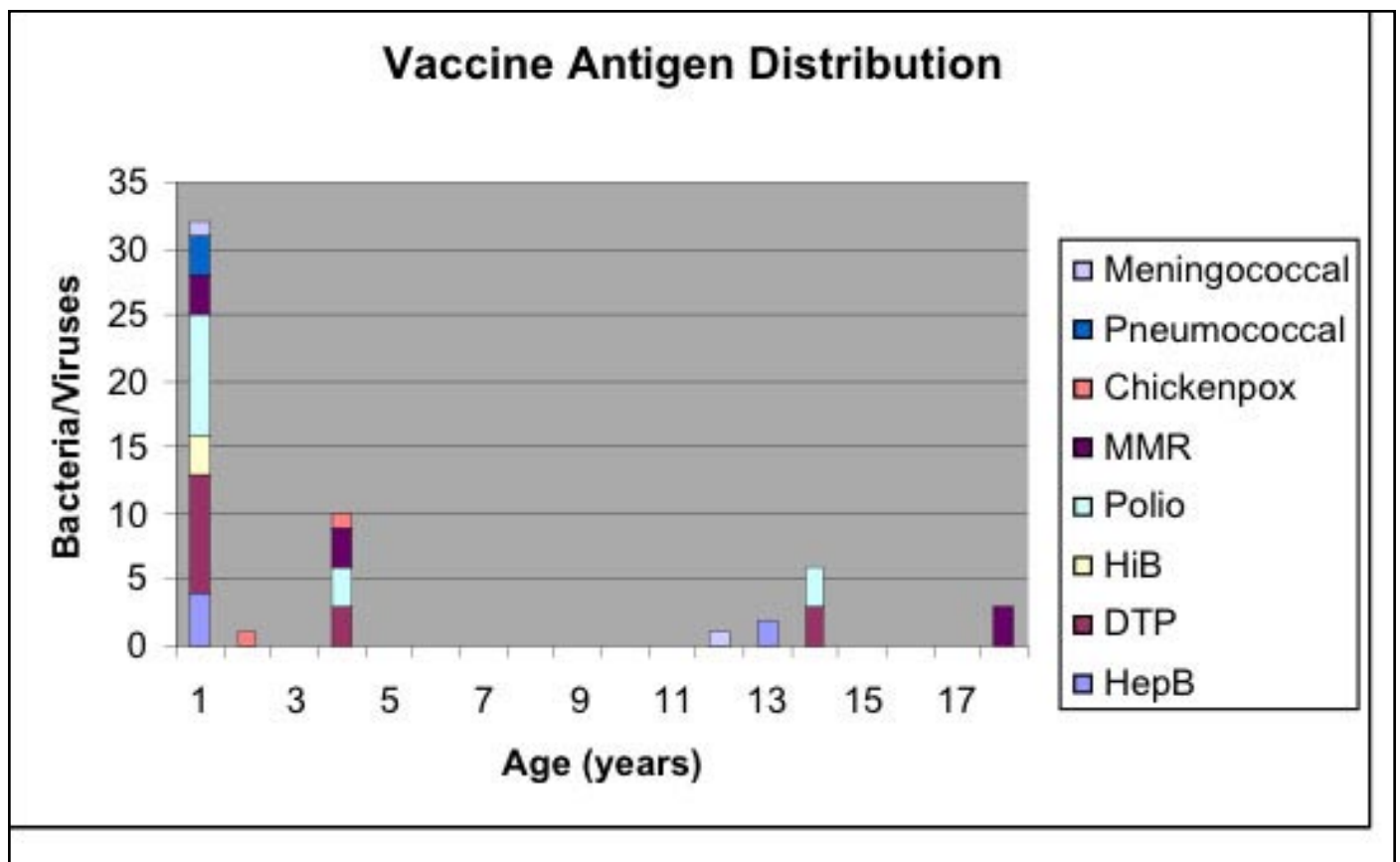
The most sensible argument against this vaccine comes from the government's own bulletin and refers to the experience in the UK and the mass vaccination campaign in 1999 - " A more recent study has shown a 25 per cent increase in serogroup B disease across all age groups in the United Kingdom since the vaccination campaign... This observation supports a hypothesis that serogroup replacement (ie. B for C) may be an important factor in the epidemiology of meningococcal disease after the introduction of new vaccines.

It therefore remains to be seen what the value of meningococcal vaccines will be in the future control of meningococcal disease." In other words - when you target 'C' you get more 'B' and both cause IMD so you have gained nothing.

(CDI Vol25 No3 Aug 2001 p128) Adverse events reported following mass vaccination in the UK numbered more than 16,000 and included 12 deaths, among them 6 Sudden Infant Deaths and several IMD (claimed to be a result of infection by a different strain).

I have to wonder what the motivation for this campaign in Australia is. Three different manufacturers are producing the same vaccine which seems like overkill (no pun intended), but funding has guaranteed they will all get a share of the sizable target population pie. I am personally not baffled by the apparent (though very minor) 'increase in incidence' of IMD.

The increase in the number of vaccines on the schedule, with associated toxic ingredients, lead to an overloaded immune system and create the right environment for disease. Indigenous populations are the most heavily vaccinated and are given vaccines not yet recommended for other groups - this could be a contributing factor in the outbreaks in Central Australian, Maori and Islander populations.



This table shows the potential number of viral and bacterial vaccine components to be given according to the schedule, including - HepB, DTP, Hib, OPV, MMR, Meningococcal - and others also promoted - Pneumococcal, Influenza, Chickenpox and even Q-fever! Notice that the most heavily vaccinated age groups are also those that succumb to meningococcal disease

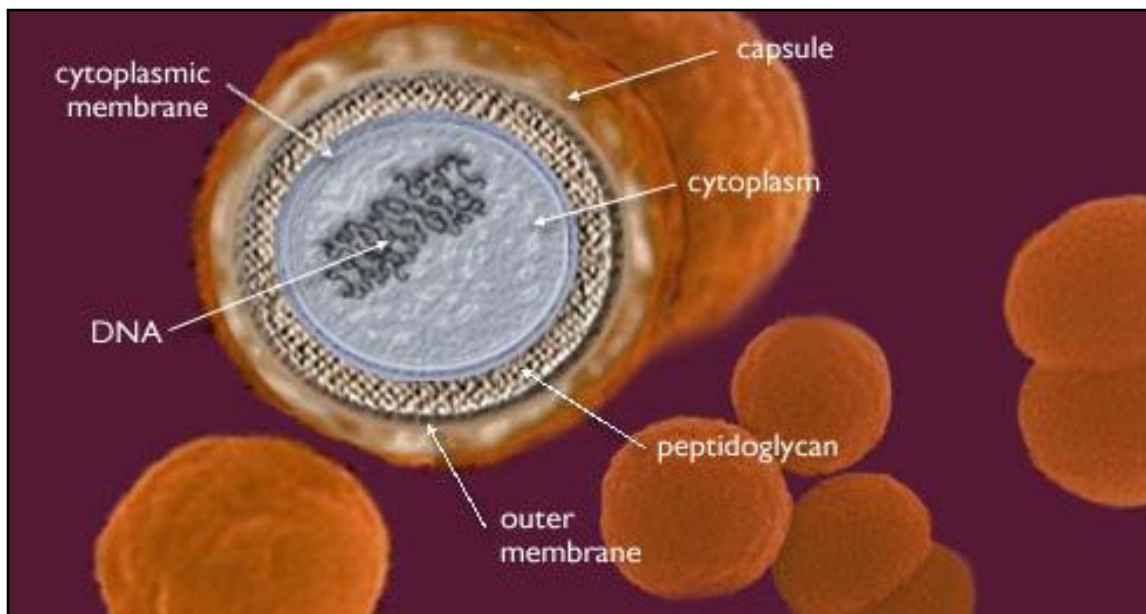
## Neisseria meningitidis

*Neisseria meningitidis* are bacteria that have a characteristic coffee bean shape when observed in stained smears under a regular light microscope used in microbiology laboratories. *N. meningitidis* may be present in the nose and throat of humans without causing any symptoms or signs of disease. This is referred to as colonisation or the carrier state. (Meningococci do not survive well outside their human host and have no alternate host.) There are 13 serogroups of *N. meningitidis* but groups A, B, C, Y and W-135 are associated most frequently with serious disease in humans.

[www.nfid.org/library/meningococcal/fs\\_bacterium.html](http://www.nfid.org/library/meningococcal/fs_bacterium.html) Meningococcal conjugate vaccines

## Meningococcal Organisms

Meningococcal Organisms can colonise the nose and throat in carriers for several weeks or months without symptoms. The disease spreads through coughing, sneezing or close contact. It then passes into the blood stream (meningococemia) and spreads to the protective membranes of the brain and spinal cord (meningitis).



The risks are greater in people with damaged lining in their nose and throat through cigarette smoke or preceding viral infection. In the early phase of colonisation before sufficient specific antibodies are produced in people with defects in the complement (tagging) part of their immune system which helps defence cells to identify and engulf the bacteria.

## Invasive Disease

"Meningococemia is usually characterised by acute fever, chills, malaise, low back and thigh pain, generalised muscle aches, and a rash that occurs in about 75% of patients. The rash may be mild or severe. In overwhelming infections, problems with blood clotting occur, resulting in shock (dangerously low blood pressure) and death. Meningococci also cause meningitis, which is difficult to distinguish from meningitis caused by other bacteria such as *Streptococcus pneumoniae*..

## Treatment

"Use of antibiotics has resulted in a significant decrease in mortality rates among patients with invasive meningococcal disease. Meningococci in the United States have remained susceptible to penicillin, which is the drug of choice used to treat persons with invasive meningococcal infections. However, penicillin-resistant strains have been reported in other parts of the world."

Ref:[http://www.nfid.org/library/meningococcal/fs\\_bacterium.html](http://www.nfid.org/library/meningococcal/fs_bacterium.html)

In Australia two thirds of all strains tested in the 2000 Annual Surveillance Report showed decreased susceptibility to penicillin but "were susceptible to third generation cephalosporins and to the prophylactic (preventative) agents rifampicin and ciproflaxin."

Ref: CDI Vol 25 No 3 August 2001 p.113 (info from the Dept. of Human Services . put human services address here)(MenCCV), specifically Meningitec (Wyeth), Menjugate (CSL Vaccines/Chiron) and NeisVac-C (Baxter Healthcare).

The type of sugar material forming the outer coat or capsule of an organism determines the serogroup. This vaccination protects against meningococcal C. There is no vaccine available to protect against the B strain of the meningococcal disease.

## Side effects of having the Meningococcal C Vaccination

Common side effects include:

Pain, redness and swelling at the injection site, Mild fever, Lack of appetite, Headaches

Very Rare side effects include:

Severe allergic reaction (anaphylaxis), Joint pain, Rash

For more information about this vaccine please contact -

The 24 hour Child and Youth Health Parent Helpline on 1300 364 100 (toll free) or The South Australian Immunisation Coordination Unit on 8226-7177

## Multiple injections at 12 months of age

ATAGI Australian Technical Advisory Group on Immunisation has also advised that it is safe and appropriate practice to administer three vaccines during the one visit, using the injection sites outlined below. Parents/guardians should be advised that it is safe and effective to give three injections at the same visit and that there is no evidence that administration of multiple vaccines at the same visit overloads a child's immune system. Sites for multiple injections at the same visit - Children under 12 months of age (at 12 months MMR and Hib or Hib-HepB combined are also scheduled. Many Hib vaccines are conjugated to meningococcal protein - Is this be safe? - KS)

When three injectable vaccines are to be given at the same visit, two injections can be administered in the same anterolateral thigh but the injection sites should be separated by at least 25 mm (2.5cm), so that local reactions will not overlap (see Fig.1).

The third injection (preferably those vaccines which may cause slightly more swelling or redness than others such as MenCCV or 7vPCV) should be administered in the opposite thigh. The location of each injection should be recorded so that the vaccine associated with a local reaction can be differentiated.

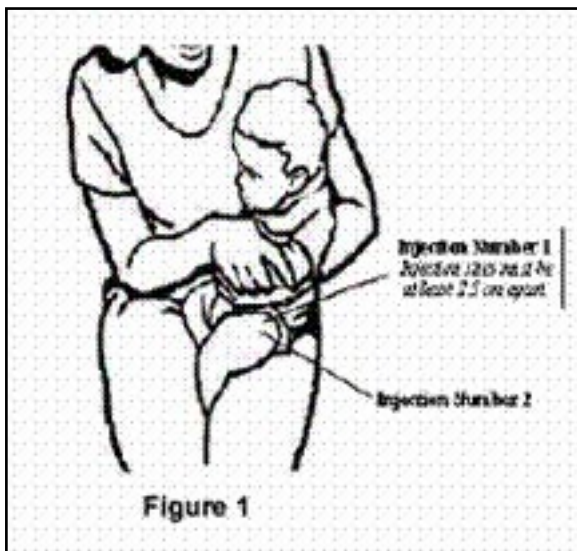


Figure 1

\* Infants at 12 months are scheduled to receive free meningococcal C conjugate vaccine along with the other scheduled vaccines. The Paediatric Trials Unit research team at the Women's and Children's Hospital is trialing a new vaccine with the aim of protecting children against two different types of meningococcal disease caused by strains C and Y. Babies enrolled into the trial will also receive the appropriate infant vaccinations needed at two, four, six and 12 months of age. - KS

\* Please compare this list with the product manufacturers information which is more extensive and includes high pitched/persistent crying, vomiting, diarrhea sleepiness and irritability, dizziness, fainting and convulsions. -KS