



Questions & Answers

In Response to Possible Questions following Ministry of Health Announcement re MeNZB™ Vaccine

Prepared By the Immunisation Advisory Centre (IMAC)

April 2008

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Topic 1: International Comparison in ending Meningococcal b Vaccination Programme

Statement:

There are no published recommendations about discontinuing epidemic group B meningococcal vaccines and even the World Health Organisation offers no guidance as to when such campaigns should be discontinued.

Question:

Meningococcal disease is prevalent throughout the world. So why is there such a lack of information on when we should stop vaccinating with MeNZB™?

Key points:

- Meningococcal B vaccines are used in emergency epidemic campaigns in countries throughout the world.
- There are least 13 serogroups of meningococci (the organism which causes meningococcal disease) with about 5 being the most common causes of epidemics in humans. Of these, meningococcal B is one serogroup and this is then further divided into different types and subtypes.
- So many variables make it difficult to determine any standard recommendations on discontinuation of such campaigns.

Statement:

Other countries, such as Cuba, have decided to include the vaccine as an ongoing feature of their childhood immunisation schedule and the incidence of group B meningococcal disease in Cuba has decreased to 0.2 per 100,000.

Question:

Considering New Zealand still has an incidence rate of 2.7 per 100,000 (more than 10 times that of Cuba), and 108 cases reported in 2007, why are we not including MeNZB™ in the New Zealand immunisation schedule?

Key points:

- Unlike the NZ vaccine, the Cuban vaccine also includes a meningococcal C serotype in it
- In New Zealand, the MeNZB™ vaccine was always only intended as a Special Programme vaccine, whilst the epidemic disease rates were high.
- 2007 saw the lowest number of meningococcal cases since the epidemic peak in 1991.
- Only 47 cases of meningococcal disease were caused by the epidemic strain of MeNZB™ in 2007, down from a peak of 370 cases in 2001.

It would be premature to declare the epidemic is over but it is definitely rapidly declining and the need for the vaccine is therefore not as great as it was a few years ago.

Topic 2: Level and duration of protection

Statement: Level and Duration of Protection: Summary

The duration of a detectable immune response is measured in months rather than years.

Question:

Was it worth spending \$200 million on a vaccine programme which has such a short duration of protection?

Key points:

- There is little doubt that the MeNZB™ vaccine has contributed to the reduction in disease rates in New Zealand.
- The impact of MeNZB™ vaccine is also evident by the more rapid decline of epidemic strain disease in under 20 year old age group, compared with those in the unvaccinated age group.
- As an epidemic vaccine the objective was to prevent disease while the epidemic was high, which is what was achieved
- The alternative was to do nothing. In this case there was the potential for a vaccine. The vaccine has been demonstrated to be 73% effective in preventing disease. Many cases would have resulted in permanent disability.

Statement: Level of Protection: Infants and toddlers

One of the reasons for the limitations in use of meningococcal B vaccines as a routine infant immunisation given by the World Health Organisation is the poor immunogenicity in the under 2 year olds. Even evidence from New Zealand trials suggests that infants aged 6-10 weeks old who develop a satisfactory immune response is only 53%, compared with 74% and 75% for the 6-8 month old infants and the toddlers aged 16-24 months.

Question:

If the immune response is so poor in 6-10 week old babies, why didn't we wait until they were older before subjecting them to the MeNZB™ vaccine?

Key points:

- Rates of meningococcal disease were highest in infants under 1 year of age.
- It is therefore important that we protected as many infants as possible from disease as early as possible.

Statement: Duration of Protection: Infants and toddlers

The duration of the detectable immune response to MeNZB™ is measured in just months, not years. For those who commenced MeNZB vaccination at 6-8 months of age, only 12.5% maintained a protective antibody increase at 7 months after the 3rd dose. In 8-12 year olds, 16.4% maintained a protective antibody increase at 14 months after the 3rd dose.

Question:

This suggests that immunity declines faster in younger children, than in older children, so wouldn't it have been better to vaccinate them at school age instead of as babies?

Key points:

- The burden of disease is greatest in infants under 1 year of age.
- When vaccination is started at 6 weeks of age the proportion with a protective

immune response has decreased to 27% by 4-5 months after the 3rd vaccination, but this increases to 82% after the administration of the 4th dose at 10 months of age.

- The booster given at 10 months makes a significant difference to the immune response

Statement: Level and Duration of Protection: 4th dose

The current/previous immunisation schedule funds four MeNZB™ vaccinations at 6 weeks, 3, 5 and 10 months of age.

Question:

Even with the increase in immunity that 4th booster dose provides at 10 months, and that immunity declines after a few months, isn't it true that the majority of our infants are unlikely to be protected beyond the age of 17 months?

Key points:

- The 4th dose provides a considerable boosting of the immunity to about 82% and so gives extended protection.
- Rates of meningococcal disease are highest in infants under 1 year of age, so the 4th booster dose extends protection to beyond the most vulnerable age.
- The duration of immunity is short, however did offer protection while the epidemic was at high rates, which as an epidemic vaccine was the intention of the programme.

Statement: Level and Duration of Protection: Ethnicity

Provisional coverage data indicates that approximately 80% children have received 3 doses of MeNZB™ vaccine but only 50% have received the important 'booster' 4th dose. Taking into account this level of vaccination coverage and immunity decay data, it is predicted that only 40% of children between 6-17 months are protected against the epidemic strain of MeNZB™.

Question:

Isn't it also true that immunisation coverage and timeliness, are both worse in Maori and Pacific children living in high deprivation areas, and therefore aren't those at highest risk of meningococcal disease will be less likely to be protected by the vaccine?

Key points:

- MeNZB™ Immunisation data is not currently available by ethnicity, but patterns can be gleaned from overall immunisation coverage data, where we know immunisation rates for Maori children are lower than NZ European children, but not necessarily for Pacific.
- Pacific Island peoples are most seriously affected by the meningococcal epidemic, with incident rates in 2001 of 53.1 per 100,000, compared with 25.7 per 100,000 for Maori and 11.5 per 100,000 for European.
- There is evidence that the gap has narrowed, with the incident rates for 2007 being 4.8/100,000 for Pacific, 4.1/100,000 for Maori and 2.0/100,000 for Europeans.
- Pacific children obtained the highest vaccination rates through the MeNZB™ programme which is likely to have contributed to the marked reduction of the disease in Pacific children.

Topic 3: Impact of MeNZB™ vaccine on the epidemic decline

Statement:

The epidemic did appear to be already declining when the vaccination programme was commenced.

Question:

If the epidemic was declining naturally, has the vaccination programme been a waste of money?

Key points:

- Meningococcal group B epidemics elsewhere have persisted for up to 30 years and the Norwegian epidemic experienced a very gradual decline.
- The NZ epidemic did appear to be declining, but slowly. There were still very high rates of disease when the MeNZB™ vaccine was introduced.
- There is little doubt that the MeNZB™ vaccine has contributed to a reduction in disease rates in New Zealand. The data suggests the vaccine is around 73% effective
- The impact of MeNZB™ vaccine is also evident by the more rapid decline of epidemic strain disease in under 20 year old age group who received the vaccine, compared with those in the older, unvaccinated age group.

Topic 4: Co-Administration of MeNZB™ and Prevenar

Statement:

Consideration of the timing for the cessation of MeNZB™ is also influenced by the upcoming changes to the immunisation schedule. From July 2008, a vaccine against pneumococcal disease called Prevenar, will be included in the schedule and offered to children at the same times as the first 3 doses of the MeNZB vaccine.

Question:

Isn't the real reason that the MeNZB™ programme is being stopped at this time is because there is no data to support the concurrent administration of MeNZB™ with Prevenar and this would be a problem for the ongoing license of MeNZB in New Zealand?

Key points:

- The absence of clinical studies using both vaccines one of the considerations in the decision to cease the programme
- However, although there are no clinical studies where both Prevenar and MeNZB™ vaccines have been given together, no problems would be anticipated from the immune response, or the safety, of either vaccine.

Statement:

There are some infants who have already received Prevenar and MeNZB™ at the same time, some from the high risk funded programme and some in the private market.

Question:

Considering the fact that MeNZB™ is not licensed for use in conjunction with Prevenar, how safe and effective will these vaccines be? What risks have we exposed our children to?

Key points:

- There are no known or expected risks, to the children who have received both Prevenar and MeNZB™.
- From what we know about Prevenar and MeNZB™, no problems would be anticipated from the immune response, or the safety, of either vaccine.
- Although these particular two vaccines have not been used together in trials, there are many examples of other vaccines having been used safely and effectively such as travel vaccines.

Topic 5: Childhood Vaccine Funding Priorities

Statement:

There were 161 cases of invasive pneumococcal disease in children under 5 in 2004, compared with only 82 cases of epidemic meningococcal disease in that age group in 2004.

Question:

Considering there was double the number of case of pneumococcal, why did the Ministry of Health / government decide to fund MeNZB™, surely it would have been a better use of money to fund pneumococcal instead of MeNZB back in 2004?

Key points:

- Funding decisions were based on the high disease rates at the time: in 2001, the incidence of meningococcal disease was 651 cases, of which 370 were the epidemic strain. 2002 and 2003 the cases were still over 500, combined with knowledge of the epidemiology of meningococcal B epidemics from other countries showing that these epidemics are slow to decline. It was at this time with this information that decisions were made to develop a candidate vaccine.
- Now we have reached a time when the MeNZB™ epidemic is declining, there is likely to be greater health benefit for New Zealanders from spending money on other health interventions instead of MeNZB™ - pneumococcal disease is a good example.

Topic 6: Future Supply of MeNZB™

Statement:

The MeNZB™ vaccine was “tailor-made” specifically for the epidemic strain that was circulating in New Zealand.

Question:

If we stop the immunisation programme now, and then the epidemic picks up again in the future, how can we be assured we will be able to get more of the vaccine? If it isn't been used anywhere else in the world, how can we be sure we will be able to get any at all?

Key points:

- Yes, this is something which is currently being worked through with the government and the vaccine supply company.
- One possible compromise is to stock pile some vaccine supply as it can be stored for up to 3 years.
- Another option is that New Zealand continues to purchase a small supply of the MeNZB™ vaccine for use in high risk children, which may make it easier to scale up should there be an epidemic resurgence.
- Also, there are clinical trials underway with a more generic meningococcal B vaccine covering all “B” strains, which could be available within 5-10 years.

Topic 7: Ongoing Risk Of Contracting Epidemic Strain Meningococcal b Disease

Statement: Ongoing risk of contracting epidemic strain meningococcal b disease:
Population level

It would be premature to declare the epidemic over, as the 2007 incidence rate (for all meningococcal disease) of 2.7/100 000 is still almost double the annual incidence of 1.5/100 000 reported prior to the epidemic, when there were around 50 cases per year.

Question:

Will we see resurgence in disease and have to restart vaccination programme?

Key points:

- While one can never fully predict the behaviour of an epidemic disease, from international experience with meningococcal epidemics they decline slowly and do not appear to resurge.
- The New Zealand situation will be monitored closely.

Statement:

Children under five remain the highest risk age group for epidemic meningococcal disease, yet the majority of cases in 2007 occurred outside the age range likely to be protected by immunisation. Out of the 38 cases of all meningococcal disease in children under 2 years of age in 2007, only 14 were in the vaccine-protected age range of 6-17 months.

Question:

Therefore only 14 out of the 108 (13%) of all meningococcal cases in 2007 were in this 6-17 month age group. Doesn't that indicate that the proportion of cases likely to be avoided by continuing MeNZB™, or increasing coverage, is very small?

Key points:

- NB: these figures include all meningococcal disease cases, not just the epidemic strain.
- However these figures do help demonstrate that the proportion of cases likely to be avoided by continuing MeNZB™ in the infant programme, or improving coverage of MeNZB, is indeed small; therefore there is little gain currently in continuing a programme for infants alone.
- While rates of disease overall are low, there will still be cases occurring of meningococcal disease in all ages, and parents and providers need to remain vigilant to look for disease.

Statement:

For those who commenced MeNZB™ vaccine at 6-8 months of age, only 12.5% maintained a protective antibody level at 7 months after the 3rd dose.

Question:

We know only about 50% of children received the 4th "booster" dose. So the majority of children will only have had 3 doses. Doesn't this mean that 87.5% can still get the disease?

Key points:

- Immunity declines over time, infants will have immune protection for some months after vaccination, however without receiving the 4th dose the loss of protective immunity will be a lot faster; so yes the majority of children

are unlikely to have effective protection past 7 months

- The rate of disease in the community is now considerably lower so despite lack of protection there are less children catching disease, therefore there is probably less meningococcal B circulating.
- However it is important that everyone remains vigilant for meningococcal disease.

Statement:

Ongoing risk of contracting epidemic strain meningococcal b disease: individual level.

On balance, the reasons to discontinue MeNZB™ outweigh those to continue.

Question:

What would you say to the mother of a child who contracts MeNZB™ after the vaccination campaign has stopped?

Key points:

- It would be a tragedy for any child to die of meningococcal disease.
- It is impossible to prevent all cases of meningococcal disease even with the best vaccine and the highest possible coverage. The decisions about which vaccines to use must be based on benefits to as many people as possible.
- It is anticipated that 40% of children between the ages of 6-17 months are currently protected against the epidemic strain of MeNZB™ while immunising infants in the special programme.
- Even if the MeNZB™ programme continued as the current schedule, it would not prevent 100% of all MeNZB™ cases.
- The MeNZB disease is declining naturally, and so the risk of contracting the disease is declining.
- Now with disease rates being much lower, is a good time to consider stopping the MeNZB™ vaccine and putting the health dollar into another area that may have a greater impact on the health of New Zealand children.
- It is important that all parents and health professionals remain vigilant to look for signs of meningococcal disease in sick children.

Topic 8: Overall Impact of MeNZB™ Vaccination Programme on Disease Prevention

Statement:

There were 108 cases of meningococcal disease in New Zealand last year.

Question:

Just how successful has the MeNZB™ programme been?

Key points:

- New Zealand is in its 17th year of an epidemic of group B meningococcal disease. The epidemic peaked in 2001 and since then has declined rapidly with 2007 showing the lowest number of meningococcal cases since 1991.
- The impact of MeNZB™ vaccine has contributed significantly to the reduction in disease through the epidemic
- MeNZB™ is effective against only one strain of the meningococcal B group, the epidemic strain B:4:P1.7b,4
- The impact of the MeNZB™ vaccine is also evidenced by the more rapid decline of epidemic strain disease in the under 20 year age group, compared with those in the unvaccinated age group.
- The ability of the MeNZB™ vaccination to reduce disease burden in a population (i.e. its effectiveness) is influenced by the vaccine efficacy, duration of immunity and immunisation coverage.
- A regression model has estimated that MeNZB™ vaccination produced a 73% (95% CI = 52% - 85%) reduction in the incidence of meningococcal disease in vaccinated people, and calculated that overall the MeNZB™ programme prevented around 54 meningococcal cases and 1.7 deaths over the staggered rollout period 2004-2006. These estimates are based on conservative assumptions.

Statement:

The intensive MeNZB™ campaign in 2004-2006 cost the NZ tax payer over \$200 million. It is calculated that this programme prevented only 1.7 deaths.

Question:

Was it really worth it?

Key points:

- As well as preventing an estimated 1.7 deaths, the MeNZB™ programme is estimated to have prevented around 54 meningococcal cases, a large percentage of these would have been left with serious long term damage such as loss of limbs or brain damage. These are serious consequences for the individual, the family and for society over a lifetime of disability.
- These estimates are based on conservative assumptions.

References:

Loring B, Turner N, Petoussis-Harris H; 2008; MeNZB™ vaccine: Considerations for stopping vaccination of infants, submitted for publication, Immunisation Advisory Centre, University of Auckland,

Ministry of Health. 2006. Immunisation Handbook 2006. Wellington: Ministry of Health.