Editor

In the June/July issue there was an article titled Vaccine and Vigilance sub titled "Proving the best way to beat Meningococcal disease." This implies that there are other ways to beat meningococcal disease, thus I was very disappointed upon reading the article that the other ways were not discussed, nor was there discussion regarding the risk benefit analysis of the program. Therefore to rectify this situation and provide a more balanced view I further discuss these issues below.

Firstly we must determine what the risk of meningococcal B (MenB) is to under 5's. Currently the WHO defines a meningococcal epidemic when the infection rates are above 3 per 100 000[1]. In 2004 the rate was 9.2 cases per 100,000 population[2] thus being about 3 times the epidemic rate. However the following points should be noted. (1) That the majority of people (76%) make a full recovery from infection with meningococcal, with the death or permanent disfiguration rate being 24%[3] and importantly it is well known that early recognition of symptoms resulting in treatment with antibiotics improves probability of full recovery[4]. (2) That of the total infections only 73% is due to Men B strain[5], thus further reducing the number of infections the vaccinations is effective against. (3) Risk of meningococcal is associated both with under 5's and teenagers[6]. There would appear to be no NZ data commonly however data from overseas[7] would indicate that about 25% of infections are in the teenage populations further reducing the number associated with under 5's. Thus calculating through the three above points results in a reduction of Men B from 9.2 to 1.2 per 100 000, a significant reduction in risk.

Secondly it is well known that the Men B vaccination is approximately 60% effective at imparting immunity[8 9]. This is simply because science is not as simple as popular culture would believe. There are complexities that are not well understood that result in this reduced level of immunity. Thus if you immunize the under 5's the risk does not drop by 100%, but only by 60% effectiveness of the vaccination. Therefore the risk of unvaccinated Men B is 1.2 per 100 000 and for vaccinated children 0.48 per 100 00.

Thirdly there is a small, but finite, risk associated with Men B vaccination. Now assuming that the reaction levels are being accurately reported the negative reaction rate is 86 per 100 000[10]. Now the majority of this would be considered "minor" skin rash, fever, diarrhea, vomiting, irritability etc. There are however musculoskeletal side effects, which would appear more serious. The rate for this side effect is 2.6 per 100 000. Therefore it would appear that the rate of serious side effect of 2.6 per 100 000 is comparable to the risk of the disease being preventable via vaccination of under 5's of 0.72 per 100 000.

Fourthly there are NZ and international studies[11 12 13] that show there are other ways to reduce the risk of meningococcal disease. It was found that breast feeding reduced probability of infection, especially breast feeding for first 6 months post birth. The following, in no particular order was found to increase the probability of infection with meningococcal infection, the majority of which can be modifiable (1) Exposure to cigarette smoke increases risk and correlates with number of smokers in the house. (2)

David Whyte:
david@zestos.co.nz, 027 558 4448

Sharing bedroom with two or more people, or number of adolescent or adults household members per room. (3) Resent upper respiratory tract infection e.g. cough, "cold" runny nose by either the child or a household member (4) Analgesic (pain relief aka Pamol etc) thought to be a sign of resent illness. (5) Number of days at substantial social gathering (10 or more people > 4 hrs) (6) Sharing an item of food drink or pacifier. Therefore we can see that there is a scientific way to reduce the probability of infection by breast feeding a child for first 6 months. Furthermore the are other lifestyle choices that reduce or increase the risk of infection.

Thus we have seen that the real infection rate for under 5's of Men B strain is a lot lower than commonly thought. And that the vaccination is not an effective as media would portray. Furthermore the side effects of the vaccinations are a comparable level Men B itself. Lastly that breast-feeding for the first 6 months reduces the probability of infection and that there are other modifiable risk factors such as no exposure to cigarette smoke. With this additional information parents should be able to make an informed choice to the "best way to beat meningococcal disease."

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[1] NZ Ministry of Health response to Meningococcal Gold Rush Quickguide, Tuesday, 24 May 2005, 1:00 pm Press Release: Ministry of Health
[2] *Ibid*
[3] *Ibid*
[4] Baker MG, et al *A 10-year serogroup B meningococcal disease epidemic in New Zealand: descriptive epidemiology*, 1991-2000. J Paediatr Child Health. 2001 Oct;37(5):S13-9.
[5] NZ Ministry of Health response to Meningococcal Gold Rush Quickguide, Tuesday, 24 May 2005, 1:00 pm Press Release: Ministry of Health
[6] Trotter CL, et al. *The natural history of meningococcal carriage and disease.* Epidemiol Infect. 2006 Jun;134(3):556-66
[7] Perrocheau A, et al *Epidemiology of invasive meningococcal disease in France in 2003*, Euro Surveill. 2005 Dec 1;10(12)
[8] NZ Ministry of Health response to Meningococcal Gold Rush Quickguide, Tuesday, 24 May 2005, 1:00 pm Press Release: Ministry of Health
[9] Kilpi T et al. *Protective efficacy of a second pneumococcal conjugate vaccine against pneumococcal acute otitis media in infants and children: randomized, controlled trial of a 7-valent pneumococcal polysaccharide-meningococcal outer membrane protein complex conjugate vaccine in 1666 children* Clin. Infect Dis. 2003 Nov 1;37(9):1155-64
[10] NZ Ministry of Health response to Meningococcal Gold Rush Quickguide, Tuesday, 24 May 2005, 1:00 pm Press Release: Ministry of Health
[11] Moodley JR, Coetzee N, Hussey G. *Risk factors for meningococcal disease in Cape Town.* S Afr Med J. 1999 Jan;89(1):56-9.
[12] Baker M et al. *Household crowding a major risk factor for epidemic meningococcal disease in Auckland children*. Pediatr Infect Dis J. 2000 Oct;19(10):983-90.
[13] McCall BJ, et al. *Risk factors for invasive meningococcal disease in southern Queensland, 2000-2001* Intern Med J. 2004 Aug;34(8):464-8.

David Whyte:
david@zestos.co.nz, 027 558 4448