

Parent views on school based immunisation

A survey of parents of year 1 and 6 in three diverse Auckland schools

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ABSTRACT

Background

New Zealand (NZ) is embarking on a mass immunisation campaign in an effort to control a 14-year epidemic of group B meningococcal disease. All under 20 year olds in NZ are eligible to receive the vaccine and school-aged children will be vaccinated via a school-based programme.

Aim

This study aimed to determine the views of parents of primary school children aged five and 10 from three diverse schools about immunisation.

Method

We surveyed parents of year one and six children from three Auckland schools representing pupils of low, medium and high socioeconomic status about their views on having their children immunised in a school setting. Questionnaires were sent home with the children. Parents were asked about their perceptions of meningococcal disease and measles and their knowledge and attitudes on immunisation. Differences between socioeconomic areas, ethnicities and age of child were noted.

Results

Response rate was 42%. Parental knowledge of the immunisations and diseases in this survey are similar to those of parents surveyed nationally in previous studies, and varies little between socioeconomic groups. Results indicate that overall two-thirds of parents – if given a choice – prefer to have their children immunised at their general practice, however a preference for school-based immunisation is higher among those from low socioeconomic schools. Parents see providers of primary care as their most important source of information about immunisation.

Key message

Primary care providers have an important role in informing parents about the Meningococcal B immunisation campaign and reassuring them about concerns they may have including the integrated records with the national register, public health nurse professionalism and expertise, and safety in the school setting.

Key words

Immunisation, school delivery

(NZFP 2004; 31:222–228)

Introduction

New Zealand (NZ) has benefited less from the improvements to population health made possible by immunisation than many other countries. Primarily this results from low vaccine coverage. For immunisation programmes to be fully effective they must maintain high coverage levels,

for example elimination of measles in a population requires a coverage rate of at least 95%.¹ The NZ Ministry of Health has set 95% coverage by two years of age as the national target.²

The NZ immunisation schedule is delivered mainly in the general practice setting by practice nurses. The 11-year-old Tetanus/Diphtheria (TD) and

catch-up polio vaccine (IPV) are delivered in schools in the North Island only. For epidemic control and catch-up programmes delivery of vaccines is made through school-based immunisation programmes, for example the school MMR campaign in 2001. NZ is planning a campaign to immunise all those under 20 years of age against

the epidemic meningococcal B (MenNZB) strain that has gripped the country for over a decade.

Large school-based vaccination programmes have been shown to be successful in reaching the population.^{3,4} The school population is well defined and 'captive' in terms of time and space.

In 1999 the UK implemented an immunisation programme against meningococcal serogroup C disease. The most timely uptake was achieved through school-based immunisation, as the numbers vaccinated in a single session are greater than those able to be achieved through general practice.⁵

The last NZ school-based immunisation campaign was in 1997 in response to a predicted measles epidemic. The predicted epidemic came earlier than expected. A vaccination campaign originally aimed to prevent the epidemic was therefore undertaken during the epidemic.⁴

All children between the ages of two and 10 years were offered the MMR vaccine in an attempt to curb the outbreak. Immunisation of school aged children aged five to 10 began in May that year and concluded in July. General practices continued immunising until September.⁴ Parents were required to sign a consent form and could choose between school-based vaccination or general practice based.

Of the 55 814 consent forms returned, 75% were completed accurately. Just over half of the valid consent forms (55 776) were consenting to the school-based programme providing the MMR vaccination. Overall, however, the data available from the campaign was incomplete and the conclusions are limited by this fact.

Data from the consent status of school-aged children in the Midland

Region during this campaign suggest that:

- Approximately 6% did not want the immunisation
- Approximately 10% preferred immunisation via the general practice
- Those who got their children immunised via the general practice varied from 10% in some districts up to 60% in other districts.

The differences appeared to be mostly associated with access to vaccination prior to initiation of the school-based programme. The level of decliners to immunisation was fairly consistent over the region. Overall approximately half the school-aged children received their vaccination via the GP and half via the school-based programme. Ethnicity data was not accurate, however it appeared that the school-based programme immunised Maori children in the same, or slightly greater, proportion than Maori children from the general population.⁶

Rationale and strategy for delivery of Meningococcal B vaccine (MenNZB)

2004 marks the 14th year of a widespread epidemic of group B meningococcal disease increasingly dominated by a single subtype ((P1.7b,4). Case numbers for 2002 (the most recent published data) was 557, representing a rate of 14.9/100 000. The

tentative total number of notified cases for the year 2003 is 549 with 13 deaths. The year 2001 marked the highest rate of 17.4/100 000.⁷ The highest standardised rates of meningococcal disease are

among Pacific people, followed by Maori. The case fatality rate in NZ is one of the lowest reported in the international literature at about 5% or

less,⁸ however significant morbidity is sustained in 15–20 per cent of cases including sensori-neural deafness, skin, digit or limb loss and neurological sequelae such as developmental delay. It has been estimated by the NZ Ministry of Health that meningococcal disease had cost the health service and society \$630 million in the years 1991–2001.

In the absence of a vaccine the epidemic is expected to continue for a further 10 years with 4000 more cases, 200 deaths and 600 permanently damaged in some way, primarily in those under 20 years of age.⁸

Acceptance and subsequent uptake of a vaccine depends on several key factors including:

Acceptance and subsequent uptake of a vaccine depends on several key factors including:

- Community demand for the vaccine^{9,10}
- Knowledge and attitudes of health professionals^{11–16}
- Knowledge and attitudes of parents/caregivers^{13,14,16–27}

These factors are modifiable through various interventions that are more successful when part of a multi-component strategy.²⁸ Other important contributors to vaccine uptake include social demographic characteristics, and are not so easily amenable to change.²⁹

This study aimed to:

- Explore how parents felt about having their children immunised in a school setting against measles and meningococcal disease.
- Investigate parent perceptions of meningococcal disease and measles, their knowledge and attitudes.
- Assess any differences between parents from different socioeconomic areas, ethnicities and age of child.

Methods

A cross-sectional study was conducted for three weeks in December 2002. Three schools were selected in Auckland from decile ratings of one, five and 10, correlating to low, me-

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dium and high socio-economic areas. The schools were in close proximity to each other and were chosen for their representation of diverse ethnic groups. The invited participants were parents of children in years one and six (corresponding to ages five and 10 years respectively). All families lived in suburbs with adequate medical facilities. The study was reviewed and approved by the University of Auckland Human Ethics committee and carried out as a summer studentship funded by the Auckland Medical Research Fund.

Questionnaire

The design of the questionnaire was based on areas identified in the medical literature and previous local surveys as barriers to immunisation. Children were given packs containing the information sheet, consent form, return envelope and questionnaire and were asked to take them home to parents to complete and return to school. Extra questionnaires were given to schools for students who misplaced copies. The information sheet contained detailed information of the purpose and aims of the study and was translated into

Maori, Samoan, Tongan and Mandarin, for respective minority groups available on request. After one week a reminder was sent home with the children.

Section 1 of the questionnaire aimed to identify parental understanding of diseases and immunisation. Section 2 allowed participants to comment in more detail about immunisation. After three weeks questionnaires were collected for collation and analysis.

Statistical Analysis

Data was entered into an excel database. The Chi Square statistic was used to test for differences between subgroups using Epi Info 2000.

Qualitative data

The freeform reasons given for preferring a general practice or a school setting for the immunisation of their child were explored using a general inductive approach. Emerging themes were identified by reading the transcripts and then combined into major themes through ongoing discussions and consensus reached by the first two authors by adjudication regarding the main themes being expressed.

Results

The sample population for the study (total number of children from all eligible classes) was 456. There were 194 surveys returned, a response rate of 42.5%. There were no requests for information in other languages. This response rate is in line with a similar survey conducted in San Diego of parents of school children about immunisation.³ Eighteen parents had two children attending the school in these years. The remaining 166 parents had only one child attending school in either year one or six. Five parents sent two surveys, one for each child, however these were excluded from the analysis, which used 189 surveys. Responses per socioeconomic decile were 27 (29%) for decile one, 66 (42%) for decile five and 96 (47%) for decile 10.

Responses to survey questions and statements

Responses to section 1, parental understanding of diseases and immunisation, are summarised in Table 1. There were no significant differences between deciles, ethnicities or year of child in response to these questions. The answers are consistent with those in previous national surveys.

Table 1. Summary of statements presented to parents about diseases and immunisation. N=188

Statement	Agree/strongly agree n (%)	Neither Nor/ Don't Know	Disagree/strongly disagree
Childhood diseases are no longer around much so you don't have to worry about immunising against them	13 (7%)	9 (5%)	166 (88%)
Meningococcal Disease can be a serious disease for young children	181 (94%)	3 (2%)	8 (4%)
Vaccines are generally effective at preventing measles	164 (85%)	16 (8%)	11 (6%)
Vaccination will make my child sick rather than keeping him/her healthy	14 (7%)	11 (6%)	164 (85%)
If you keep a child clean, well fed and otherwise clean and healthy they will not catch measles	25 (13%)	12 (6%)	154 (80%)
If you keep a child clean, well fed and otherwise clean and healthy they will not catch meningococcal disease	30 (16%)	10 (5%)	150 (78%)
Parents and caregivers have a responsibility to ensure children are immunised to prevent these diseases from spreading in the community	179 (93%)	5 (3%)	7 (4%)
Measles can be a serious disease for young children	169 (88%)	15 (8%)	8 (4%)

Section 2 focussed on immunisation against meningococcal disease and measles. The statements in the questionnaire were provided separately, one about measles and one about meningococcal disease.

'I would like my child immunised against (or have already had my child immunised against) measles and meningococcal disease.'

- Eighty-eight per cent of parents wanted their children immunised against measles.
- Eighty per cent believed it was important for their children to be immunised against meningococcal B disease.
- Of those parents who did not want their child/ren immunised or were unsure about immunisation against meningococcal B disease, 34% (13/38 parents) believed more information was needed before making a decision.

'I am likely to agree to having my child immunised at school against measles and meningococcal disease.'

- Sixty-nine per cent of the total sample would agree to have their child/ren immunised at school against measles, 28% would not and 3% did not answer this question.
- Sixty-nine per cent of the total sample would agree to have their child/ren immunised at school against meningococcal B disease.
- For measles vaccination, there is statistically significantly bigger proportion, 85% of parents, from the decile 1 school, who would like to have their children immunised at school, than the other two groups combined (67%) ($\chi^2=5.76$, $p=0.016$). There is no difference in proportions of parents, who would like to get their children's measles immunisation at school, between decile 5 and decile 10 schools. There is no evidence that there is any difference between decile 1 and the two other groups ($\chi^2=1.63$,

$P=0.201$) in immunising at school against meningococcal disease.

'I would prefer to have my child immunised in a general practice setting (i.e. at my family doctors' surgery).'

- Fifty-eight per cent of the whole sample would prefer a general practice (however, there were only 179 parents who answered this question; 61% of those who responded said they prefer the immunisation to be given by their GPs). Of these:
- There is no statistically significant difference regarding parents' preference in a GP or school set up for immunisation between other races and Maori, but this analysis could have been confounded by the significant number of Maori parents who did not want immunisation at either place (48%), and also high non-response rate (19%) to this question among them. There is a statistically significantly higher proportion (30%) of Pacific Islander parents who preferred their child's immunisation to be given at school in comparison to other groups (12%) ($\chi^2=5.1$, $p=0.024$).

Parents were asked why they prefer to have their child/ren immunised in a general practice setting. Six major themes emerged from the inductive analysis of the free form answers.

- Continuity of care: *'Because I know him and his nurses well and trust them.'*
- Perception of better quality and safety/observation of side effects: *'Better back-up if any problems, medical history known.'*
- Familiarity – child prefers general practice: *'My 9 year old daughter wants to have it in a general practice.'*
- Perception of better record keeping: *'Because he has got her family history of all her immunisations.'*
- To be with child:

'So I could be there to support my child – she is only six.'

- Unfair to vaccinate in front of other children: *'Feel it is unfair to line children up and vaccinate in front of each other.'*

'Have any of your children experienced an adverse reaction to a vaccine that concerned you?'

This question was asked in order to understand what sort of experiences parents find concerning.

- Twelve per cent of parents reported experiencing an adverse reaction. The most common reactions were fever, swelling, and lumps.

'Do you have any concerns about immunising your child/ren that you would like to share with us?'

One-fifth of all parents expressed concerns about immunisation and of these the main concerns were the benefits and risks of immunisation, being present for child support, the ages immunisation takes place and the 'dose' of immunisations. Major themes emerging from the thematic analysis:

- Vaccine safety and fear of adverse reactions: *'Thought at the back of my mind they could suffer allergic reaction, long term effects, possible link with autism.'*
- Had heard 'scary things' raising concerns: *'Concern re horror stories young infants transferring polio to their mothers through breastfeeding.'*
- Common myths: multiple vaccines, too many vaccines, vaccine contents: *'Would like MMR separately. Don't like the idea of so many things being injected at same time.'*

Year One and Year Six comparisons

There were no statistical differences between parents of children in years one and six for any of the questions asked.

Discussion

The aims of this study were to explore how parents felt about immunising their child at school, to find out the perceptions parents/caregivers had about meningococcal disease and measles, and to compare differences in attitudes and knowledge both between deciles, ethnic groups and children's ages as well as a recent national survey.²⁴

Although the attitudes of parents were generally positive, there is still a significant group who are concerned and not confident towards immunisation potentially preventing the 95% coverage levels needed in New Zealand for effective immunisation programmes. This was similar across the socioeconomic groups. Results from the statements about diseases and immunisation are in line with a previous national survey²⁴ and only varied by 1–3% suggesting this sample was representative of parents' views previously gauged in this country. Moreover a limitation of the previous NZ study was that it had a proportionately lower sample from lower socioeconomic groups. This survey, which included parents of children attending a low socioeconomic school, found that knowledge and views did not differ significantly across groups.

A survey conducted in San Francisco of parents' attitudes towards school-based Hepatitis B vaccination of their children explored perspectives of parents who had consented, refused or had not responded to a request for vaccination consent. Although few vaccination refusers reported objection to school-based immunisation as the major reason for declining, about 1/3 of refusers and vaccination non-responders disagreed with the statement that schools are good places to vaccinate children. Results

showed larger portions of Asian and white parents returned forms.¹⁹

Preference for general practices

This study indicates that two-thirds of the total sample of parents, if given a choice, prefer to visit general practices for immunisations. Preference for school-based immunisation against measles and meningococcal diseases are greatest amongst parents from lower socioeconomic schools compared to those from high socioeconomic schools.

In San Diego a parent survey determining correlates of hepatitis B vaccination status in sixth-grade students found that factors associated with initiation of the series included English as a primary language at home and higher socio-economic status. Both initiation and completion of the series was associated with having heard about the campaign from a health provider (physician, clinic or health plan) suggesting the crucial importance of efforts on the part of health care providers to educate parents and patients.³

The major limitation to this survey was the low response rate, especially from the decile 1 school (24%) limiting the generalisability of this study. This type of problem has been borne out in the literature as a barrier to school-based mass immunisation, the greatest being the return of consent forms from parents.³⁰ It is likely that this could be the major

hurdle in achieving high coverage and suggestions for improving responses from parents during a campaign have been suggested.⁹ The method of distributing consent forms to parents for the school-based meningococcal cam-

paign will be via the children; it will be important to ensure they reach the parents as children do not always reliably transport information home. International experience with school-based hepatitis B vaccination programmes suggest it is likely that once consent is obtained then the three dose series will be completed, providing they are given in the same school year.

Schools have the potential to achieve a higher immunisation coverage rate than health care settings.³¹ It was noteworthy that they commented peer incentives provide an important motivator for students to return

signed consent forms.⁹ It is possible that the response rate could have been greater had the surveys been posted to the parents rather than given to the children to take home; it may also have been helpful if the reminders had been posted.

The importance parents place around immunisation is a significant predictor for acceptance of the vaccine. As parents see providers of primary care as their most important source of information about immunisation,^{22,32} there is the opportunity to inform parents about the meningococcal B vaccination campaign and reassure them about any concerns they may have to facilitate vaccine uptake in schools.

- Most parents are positive about immunisation of their children. However a significant portion (up to 30%) harbour concerns and misconceptions.
- Primary health care providers have an important role in informing parents about school-based immunisation programmes, as parents see them as an important source of information.

The themes emerging from the freeform answers as to why parents preferred to get their children im-

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Preference for school-based immunisation against measles and meningococcal diseases are greatest amongst parents from lower socioeconomic schools

munised at their general practice are all issues that can be addressed when promoting school-based immunisation. Clear messages about the integrated immunisation register for record keeping, the high level of professionalism and expertise among public health nurses who will be giving the vaccinations, the safety of immunising in the

school setting in terms of observation period following vaccination and the capacity to provide appropriate care should an acute adverse event arise, an image of children being vaccinated in privacy and not in front of their peers, and the opportunity for parents to be provided with more information should they require it are all messages that

could facilitate parents acceptance of immunisation of their children in school.

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