



Inquiry into how to improve completion rates of childhood immunisation, and Briefings from the Chief Coroner on the coronial process, from Dr Michael Tatley on the adverse reaction process, and from Professor Sir Peter Gluckman on how to improve completion rates of childhood immunisation

Report of the Health Committee

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(Dr Paul Hutchison, Chairperson)
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Inquiry into how to improve completion rates of childhood immunisation

Summary of recommendations

The Health Committee makes the following recommendations to the Government:

Immunisation targets for coverage and timeliness

- that it require the Ministry of Health to publish an annual review of immunisation, showing changes over time in coverage, disease rates, and adverse events (page 12)
- that the Ministry of Health introduce targets for timely immunisation in infancy, and for older age groups. The targets should be for 95 percent of children at six months, two years, and four years, with an age-appropriate target at 11 years. These targets should be introduced immediately (page 12)
- that it require the Ministry of Health to get the current basic immunisation systems working optimally within the next 12 months (page 12)
- that it implement Dr Turner’s “Six Star” Plan where there is a clear evidence base for doing so within the resources available (page 13)
- that it review and implement the advice from Dr Turner about hard-to-reach children and Māori where completed immunisation rates are often low (page 13)
- that it continue its efforts unrelentingly to achieve on-target immunisation (page 13)

The National Immunisation Register

- that it ensure that district health boards strengthen the primary health organisations’ performance programme. The programme should align with data from the National Immunisation Register (page 15)
- that it require district health boards to focus on providing good access to the National Immunisation Register and its data, and encouraging effective coordination between the various organisations that provide immunisation services (page 15)
- that the Ministry of Health enable any health professional treating a child patient to access that child’s immunisation status (page 15)
- that the Ministry of Health continue to improve the functionality of the National Immunisation Register in every way possible, and that it undertake a review of the National Immunisation Register (page 15)
- that the Ministry of Health support and maintain Immunisation Steering Groups in all district health boards, and that they coordinate on a regional and national basis (page 15)

Methods for achieving timely immunisation and high completion rates

- that it direct the Ministry of Health to explore providing incentives to immunisation providers and parents. This exploration should include reviewing the way that the immunisation benefit is paid, recognising the costs of reaching those most in need, and examining the possibility of linking existing parental benefits to immunisation (page 18)
- that it strengthen the requirements on parents to present immunisation information when their children enrol at early childhood centres or schools. The required immunisation information should consist of either a certificate demonstrating that the child has received all the appropriate vaccinations, or a written statement that the parents have declined to immunise their child. We consider this should be implemented within one year (page 20)
- that the Ministry of Health hold district health boards responsible for immunising the populations in their areas. Funding and contracting arrangements should be aligned accordingly (page 19)
- that it ensure that the Ministry of Health moves its funding of local immunisation-related functions to district health boards so that accountability and funding are aligned (page 20)
- that the Ministry of Health require district health boards to enrol all newborns with primary care and well child providers before they leave hospital, and at that time immunisation should be explained and promoted (page 20)
- that the Ministry of Health encourage district health boards to work with other social and community services to provide immunisation services (page 20)
- that district health boards be required to ensure that immunisation services are available from a wide range of providers at times and in locations that suit the parents and other people involved. The district health boards should consider working with other agencies to improve the health of children and individuals (page 20)

Community concerns, informed consent, and conscientious objection issues

- that it ensures that the Ministry of Health tailors its communication about immunisation to audiences rather than to institutions (page 22)
- that the Ministry of Health ensures that it publishes up-to-date, readily accessible evidence-based data on the positive and adverse effects of immunisation so that informed consent can be made from a robust evidence base (page 23)
- that it ensure that the Minister of Health and the Minister of Social Development and Employment continue to advocate for children to complete immunisation schedules (page 24)
- that each district health board nominate a clinical leader to champion immunisation (page 24)
- that the Ministry of Health implement a national media or social media campaign to promote immunisation positively within the resources available (page 24)

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- that the Ministry of Health develop more readily available, evidence-based electronic resources for parents who research immunisation using the internet (page 24)
 - that the Ministry of Health and district health boards ensure that up-to-date, evidence-based immunisation information is included in the training of all professionals who care for mothers and babies (page 25)
 - that the Ministry of Health strengthen the legal and contractual requirements for health professionals involved in maternity care to provide scientifically credible immunisation information, in contexts including antenatal classes (page 25)
 - that the Ministry of Health build websites about immunisation with content written by and designed for antenatal educators, lead maternity carers, and well child providers (page 25)
 - that the Ministry of Health review all of the resources containing immunisation information aimed at parents to ensure that they are targeted to all the various audience segments, user-tested, easily accessed, and up-to-date (page 25)
 - that it fund free antenatal classes for all first-time parents, and ensure that scientifically credible information about immunisation is provided to them (page 25)
 - that the Ministry of Health review the system for monitoring adverse events to make it easier for the public to report, and more responsive to their needs when they have reported, an adverse event. (page 26)
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1 Introduction

Immunisation against infections is one of the most effective evidence-based ways to prevent a variety of infectious diseases that in the past have caused severe morbidity and mortality in the New Zealand population.

While rates of completion of immunisation for under-two-year-olds have improved markedly in more recent years, for decades New Zealand's completion rates have been far lower than those in many developed and undeveloped countries. We are pleased that the latest data has shown the highest-ever recorded completion rates for under-two-year-olds, and that the gap between Māori and non-Māori has improved rapidly. However, there are significant inequities for many of New Zealand's most vulnerable children (Māori uptake in Auckland and Counties Manukau has up until recently been only 64 percent). Dr Nikki Turner of the New Zealand Immunisation Advisory Centre told us that with current improvements in service delivery, New Zealand will be able to achieve full immunisation of more than 90 percent of infants by the age of two years. However, for optimal disease control, immunisation coverage rates need to be as high as 95 percent. Dr Turner told us that infants need to receive all of their immunisations on time, at the recommended schedule ages; equity gaps need to be closed for specific groups in specific areas; and immunisation coverage for older children at the ages of 4 and 11 also need to improve.

It is of great concern that completion rates for children over four years of age are not known. This poor record, despite New Zealand's advantages, has multiple causes. It has been suggested that it results partly from a poor focus on public health over a long time, partly from five percent of parents being against immunisation, and partly from parental apathy and misunderstanding. The poor results have occurred despite immunisation being free of charge to the caregiver of the individual child.

We wish to make it clear that we did not initiate this inquiry in order to seek to make immunisation compulsory. There are rare but significant reactions to immunisation, and there must be room for exempting those who object to it. However the evidence is clear that the benefits of immunisation far outweigh the disadvantages.

Throughout the country dedicated teams of public health workers are using innovative strategies to improve the situation. We admire their efforts, and expect to see the Government continue to support and promote immunisation completion relentlessly until it achieves optimal coverage for all ages.

It is possible to calculate the proportion of people who should be vaccinated to prevent a disease from spreading. For example, the herd immunity for measles is 92–95 percent, for rubella 83–90 percent, and for polio 80–86 percent (WHO 2009). In this way people who cannot be immunised because they are immuno-compromised, for example because of cancer treatment, organ transplantation, or a weak immune system, also receive some benefit.

Where there are high levels of population immunity resulting from high coverage, diseases such as measles can be eliminated, so long as vaccination coverage is maintained. In 1980 smallpox was declared eradicated because of vaccination. In a similar way the World Health Organisation is aiming to eradicate poliomyelitis, an infectious disease that adversely affected many New Zealand children over the past 60 years.

Immunisation is the use of vaccines to stimulate the body to make antibodies to fight illness and infection. These antibodies will protect a person against the disease in question without the person contracting the illness. Vaccines may contain

- live bacteria or viruses that have been weakened so that they cannot cause disease
- inactivated bacteria or viruses and bacterial toxins that have been made harmless
- parts of bacteria or viruses.

We consider that immunisation is a highly effective strategy for the prevention of infectious disease throughout life. An immunisation programme has two benefits: it protects individuals from serious and potentially fatal diseases, and it protects the community from common diseases that would otherwise damage public health. Different vaccines can have different purposes: an individual benefits from being vaccinated against tetanus through protection against an infection, whereas the benefit of rubella vaccination programmes does not go to the vaccinated individual because the disease itself is fairly mild, but to others as it assists in preventing sometimes very serious birth defects caused by the exposure of pregnant women to the disease.

Advances in public health may have the paradoxical effect of creating the conditions in which epidemics occur. Immunisation and improvements in housing, diet, and drinking water result in babies being exposed to fewer infectious organisms, and thus having fewer opportunities to develop immunity. Immunisation is therefore necessary to protect populations against epidemics.

During our inquiry we explored the current state of immunisation in New Zealand, and ways of improving the rates of immunisation coverage. Our report summarises our findings.

In the course of our inquiry we requested briefings from three experts. We received a briefing from the Chief Coroner on the coronial process, a briefing from Dr Michael Tatley on the adverse reaction process, and a briefing from Professor Sir Peter Gluckman on how to improve completion rates of childhood immunisation.

Terms of reference

We established the following terms of reference for our inquiry:

- To collate current statistics for New Zealand children on timeliness of delivery and completion of immunisation, and how we compare internationally.
- To assess how well the New Zealand Immunisation Register is working, and the effectiveness of utilisation.
- To search relevant world literature for optimal methods of how to achieve timely and high immunisation completion rates.

- To seek up-to-date information on community concerns, informed consent, and conscientious objection issues.
- To seek an analysis of benefits and disadvantages.
- To define and make recommendations as to what methods could be applied at minimal cost to improve immunisation coverage in New Zealand (bearing in mind the first 60 percent are relatively easy to secure, the next 20–30 percent require more effort, the next five percent lots of effort, and around five percent are declines).

The structure of our report is based on the terms of reference. The sixth term of reference calls for us to define and make recommendations, which are summarised at the beginning of the report and also placed at the relevant junctures within the report.

2 New Zealand immunisation rates

Immunisation targets for coverage and timeliness

The current targets for immunisation in New Zealand are that 90 percent of two-year-old infants will be fully immunised by July 2011, and that 95 percent of two-year-olds will be fully immunised by July 2012. The 2012 target is based on the coverage needed to prevent outbreaks of measles, the most infectious disease that can be prevented by vaccination. Approximately five percent of New Zealand parents oppose immunisation, so the target of 95 percent coverage represents the children of those who do not oppose it.

The childhood immunisation schedule is tied to specific ages to take into account epidemiology, vaccine effectiveness, and the age at which a child is physiologically equipped to produce a protective immune response. Failure to deliver the scheduled immunisations on time results in unnecessary rates of preventable diseases. One of the benefits of immunising a community is “herd immunity”, the effect whereby immunised individuals do not transmit disease, reducing the risk of exposure for those who are not immunised. Herd immunity to a specific disease is achieved when the rate of immunisation is high enough to eliminate the disease; it contributed to the worldwide elimination of smallpox. To achieve effective herd immunity, which reduces the transmission of disease through a population, it is necessary to immunise four-year-olds and 11-year-olds. For some specific diseases such as tetanus it is also necessary to immunise adults at regular intervals.

Performance against the targets

We are concerned that immunisation coverage in New Zealand is currently well below the targets. In the three months ending 31 December 2010, only 88 percent of two-year-olds had completed the immunisations appropriate for that age group. Immunisation timeliness is also not on target. We were told by Dr Turner that a vaccination report compiled in early 2010 shows that only 41 percent of New Zealand infants receive their first dose of vaccine at the scheduled age of six to eight weeks. The Ministry of Health told us they had data to show that 75 percent had their first dose by 11 weeks. The ministry information shows that the number of children who have received three doses by six months is 69 percent.

The Ministry of Health told us that once it achieves the target of 95 percent of two-year-olds being fully immunised it may focus on improving immunisation coverage in older age groups, and upon the timeliness of immunisation. We consider that to achieve effective disease control, targets also need to be set for immunisation coverage rates for four- and 11-year-olds.

New Zealand's performance compared with other countries

We were concerned to hear that New Zealand rates for immunisation coverage and timeliness compare poorly with those achieved in other countries. Professor Sir Peter Gluckman told us that New Zealand's current immunisation rates are low by OECD standards. New Zealand's current immunisation rate for measles may not be high enough

to provide herd immunity for unimmunised people, and it falls below the 90 percent rate required for global eradication of the disease, he told us. In 2008 only 86 percent of one-year-olds in New Zealand were immunised against measles. New Zealand ranks 33rd out of 35 developed nations for measles vaccination rates, and has failed to achieve the 90 percent target relating to measles eradication since 2000. (The Ministry of Health provided updated numbers which show that by the end of 2010, 91 percent of two year olds had been immunised against measles).

Improving New Zealand's performance

We were impressed by the immunisation plan proposed by Dr Turner, the Director of the Immunisation Advisory Centre. The six-star plan depends upon New Zealand building on the Ministry of Health's plans and making further commitments to deliver a high-quality national immunisation programme. We urge the Government to consider carefully the recommendations of Dr Turner's plan.

Dr Turner's "Six Star" Plan

Dr Turner's plan is set out in full in Appendix B. It involves

- enhancing existing systems, service delivery, cross-sectional initiatives, antenatal education, and adverse event monitoring
- refining contracts for immunisation services to remove ambiguities
- supporting primary care providers to ensure they fulfil their responsibilities towards enrolled populations, including early engagement with parents, and encouraging active parental decision-making
- enhancing efforts to encourage parents to make active and informed decisions about immunising their children, for example through early childhood education centres and schools
- developing proactive multi-component communication strategies to support community confidence in the programme, by listening to, communicating with, and responding effectively to all sectors of the population
- developing additional surveillance systems for more active monitoring of the safety of vaccines.

Recommendations

1 We recommend to the Government that it require the Ministry of Health to publish an annual review of immunisation, showing changes over time in coverage, disease rates, and adverse events.

2 We recommend to the Government that the Ministry of Health introduce targets for timely immunisation in infancy, and for older age groups. The targets should be for 95 percent of children at six months, two years, and four years, with an age-appropriate target at 11 years. These targets should be introduced immediately.

3 We recommend to the Government that it require the Ministry of Health to get the current basic immunisation systems working optimally within the next 12 months.

4 We recommend to the Government that it implement Dr Turner’s “Six Star” Plan where there is a clear evidence base for doing so within the resources available.

5 We recommend to the Government that it review and implement the advice from Dr Turner about hard-to-reach children and Māori where completed immunisation rates are often low.

6 We recommend to the Government that it continue its efforts unrelentingly to achieve on-target immunisation.

3 The National Immunisation Register

Background

The National Immunisation Register (NIR) is a computerised information system holding the immunisation records of New Zealand children. The Ministry of Health coordinates the collection of data, and uses it to measure immunisation rates and to set targets for coverage and timeliness. The information can be analysed from a regional perspective, so that programmes can be developed to target specific populations with low immunisation rates. The ministry publishes national and DHB data quarterly so that progress towards the immunisation targets can be monitored.

The NIR allows authorised health professionals to find out what vaccines a child has been given. Thus primary care providers can follow up individual children, and check their immunisation status in real time. This helps to ensure that immunisations are given at the appropriate times.

We consider the NIR to be a powerful tool, which is critical for delivering a better immunisation service, and for improving coverage. The ministry told us that DHBs and practices that understand the NIR and use it effectively have higher rates of immunisation coverage.

Data collection

The NIR receives and sends information to other information systems, including the multiple maternity systems used to register babies, the five practice management systems used in general practices, the payments system used by all health providers, and the school-based vaccination system. Transferring data between the systems is complicated by the security measures that protect the private medical records.

Improving the NIR

We understand that the strength of the NIR is that it is built into the patient management systems used by primary care providers. This integration, however, also makes it difficult and complex for the ministry to change the NIR, because it involves changing systems which the ministry does not own.

When the national immunisation schedule was changed in 2008 the ministry upgraded the NIR, which increased the accuracy of the data. Previously the NIR may have been under-counting by up to three percentage points. When the immunisation coverage rates for July 2009 were re-calculated after the NIR upgrades, the measured percentage of two-year-old children who are fully immunised rose from 80 percent to 83 percent.

The ministry believes that changes to the NIR over the last two years have made it more user-friendly, but that further improvements are necessary. We are pleased that the ministry is reviewing the design of the NIR and related policies to make it more cost-efficient, easier for health providers to use to access immunisation information, and better able to meet the

needs of parents and other users. We heard that newer technologies and the National Health IT Plan will provide opportunities to improve the system. The plan, which is expected to be operating by 2014, is intended to provide comprehensive electronic access to health information.

The use of the NIR

The ministry recognises that it is important to train the users of the NIR to record immunisation data accurately. We were told that the ministry is establishing training requirements and tools for this purpose, and is considering how training can best be carried out throughout New Zealand.

The ministry has also examined the ways in which some DHBs are using the NIR to improve immunisation coverage rates, and is sharing this information. We heard that DHBs who have good immunisation rates are acting as mentors to those performing less well in this area. The ministry is also holding national workshops to identify and deal with issues relating to the NIR.

We were interested to hear that the NIR can now be used to produce coverage reports for particular practices and clinics. The DHBs are sharing this information with PHOs and practices, and the ministry believes that it is likely to encourage them to enter data into the NIR correctly and efficiently. The ministry considers that linking the PHO performance payments with the NIR, which began in January 2011, will improve data quality, as providers will not receive payments unless their immunisation data is entered correctly.

Recommendations

7 We recommend to the Government that it ensure that district health boards strengthen the primary health organisations' performance programme. The programme should align with data from the National Immunisation Register.

8 We recommend to the Government that it require district health boards to focus on providing good access to the National Immunisation Register and its data, and encouraging effective coordination between the various organisations that provide immunisation services.

9 We recommend to the Government that the Ministry of Health enable any health professional treating a child patient to access that child's immunisation status.

10 We recommend to the Government that the Ministry of Health continue to improve the functionality of the National Immunisation Register in every way possible, and that it undertake a review of the National Immunisation Register.

11 We recommend to the Government that the Ministry of Health support and maintain Immunisation Steering Groups in all district health boards, and that they coordinate on a regional and national basis.

4 Methods for achieving timely immunisation and high completion rates

Risk factors for low immunisation uptake

The Immunisation Advisory Centre provided us with information about the risk factors for low immunisation uptake, principal among which are socio-economic status and ethnicity.

Socio-economic deprivation

We were told that the strongest predictor for low immunisation uptake in New Zealand is the socio-economic environment. Immunisation coverage is lower in general practices where there is more social deprivation among the population, and there are markedly lower immunisation rates for children from lower socio-economic areas. The timeliness of immunisation is also a problem for children from areas of relative deprivation. These children are less likely to be immunised at all, and if they are immunised, the delivery is likely to be delayed.

We heard about UNICEF's 2009 report *State of the world's children—maternal and newborn health*, which argues that poverty undermines child health. People who live in poverty are less likely to take care of themselves and others, and are more likely to find it difficult to access healthcare. We were interested to hear that maternal educational achievement is the single most important determinant of child health, because educated women are more likely to invest in their children's healthcare. The report recommends ensuring that girls and women are educated to create a supportive environment for maternal and newborn health, including immunisation.

Relatively low deprivation is also linked with low immunisation coverage rates. The highest rates of decline during the Auckland school-based HPV immunisation programme were among New Zealand Europeans at schools in low-deprivation areas.

Ethnicity

We heard that immunisation coverage rates for Māori children are considerably lower than those for New Zealand European and Pacific children. All immunisation coverage surveys in New Zealand over the past 20 years have consistently shown lower immunisation coverage for Māori than non-Māori. The 2005 National Childhood Immunisation Coverage Survey showed that 69 percent of Māori two-year-olds were fully immunised, compared with 77.5 percent of all two-year-olds. The equity gap also affects the timeliness of immunisation, and Māori children's immunisations are often delayed. We heard that recent improvements in overall immunisation coverage have not had a significant effect on the ethnic gap. We were concerned to hear that the low rate of immunisation coverage among Māori is the principal reason why this section of the population suffers disproportionately from vaccine-preventable communicable diseases.

The Auckland DHB achieved a greater than 87 percent immunisation completion rate for two-year-olds in 2009/10, and reported that completion rates for Pasifika children were the

highest of any group. We understand this may be attributable to a network of at least 48 Pacific churches focusing on promoting immunisation services. Māori coverage is now higher than European rates were in 2007.

Specific measures taken by governments

We heard about successful Government policies and initiatives in a number of countries, particularly Australia. We were interested to hear how Australia has significantly increased its rates of immunisation since the launch of its Seven Point Plan in 1997. The Seven Point Plan involved

- incentives for parents
- incentives for doctors
- monitoring and evaluating immunisation targets
- immunisation days
- measles eradication
- education and research
- school entry requirements.

More detail about specific aspects of the Seven Point Plan is provided below. We heard that the immunisation rate of one-year-olds in Australia increased from 75 percent in 1997 to more than 90 percent in 2004. Recently the immunisation rate has gone down, with a drop in the coverage of four-year-olds to 83 percent.

Incentives for parents

We heard that all Australian parents, regardless of their income, are eligible to receive a Maternity Immunisation Allowance. The allowance is two payments of A\$122.75; the first payment is made when the child meets the immunisation requirements scheduled for between 18 and 24 months of age; the second when the child has all the immunisations scheduled to take place between four and five years of age. Parents who do not immunise their children can receive the payment if they meet certain exemption requirements. Means-tested rebates on the fees for childcare are also available for parents whose children are fully immunised and attend an approved childcare centre.

Vaccinations are part of school entry requirements, and maternity and childcare benefits are suspended if parents do not immunise their children. Parents have the option of registering as conscientious objectors; if they do so, they can collect the benefits, and their children can go to school.

We were told that the effect of these measures is that immunisation is a routine part of child healthcare for Australian parents, and that coverage was generally sustained above 90 percent. Parents can choose not to vaccinate their children, but the onus is upon parents to demonstrate that they have made an active and informed choice.

The GP's role

We heard that financial incentives are awarded to GPs who monitor, promote, and provide age-appropriate immunisation services to children under seven. This initiative has increased awareness and knowledge of immunisation among GPs. Information has also been provided to GPs to ensure that they follow the protocols for immunisation, and that they are sending data to the Australian Childhood Immunisation Register correctly.

We were told that after the incentives were offered to GPs the number of practices with an immunisation coverage rate of 90 percent rose significantly. Recently, however, there has been a drop in coverage to the lowest rate in seven years. The decrease has been traced partly to the ending of a Federal Government incentive scheme which paid GPs to set up vaccination reminder systems. We were told that another reason for the decline in rates is the prevalence of material opposing immunisation, especially on the internet. A further reason is that the modern cohort of parents is often not aware of the benefits of immunisation and can become apathetic when they do not hear of children contracting polio or rubella, as the incidence of these diseases has been greatly reduced.

Other measures

The Australian Government also

- regularly publishes data on immunisation rates
- held a series of immunisation days in 1997, on which many people were vaccinated, in areas with low rates of immunisation
- gave all primary-school-aged children an additional opportunity to be vaccinated for measles, mumps, and rubella in 1998
- conducted a major community education campaign in 1997
- established the National Centre for Immunisation Research and Surveillance in 1997, to coordinate and conduct research into and analysis of the epidemiological and sociological aspects of immunisation, and provide policy information and advice.

The United States of America

We heard that a medical study held in the United States measured the effect of paying financial bonuses to physicians based on childhood immunisation coverage rates. The group of physicians who were paid a bonus achieved a sharp and rapid rise in coverage. The largest benefit of the bonuses was that previous immunisations were better documented. We were told that the rapid improvements in immunisation rates were related to documentation, and that improvement in active vaccination behaviour takes more time.

Recommendation

12 We recommend to the Government that it direct the Ministry of Health to explore providing incentives to immunisation providers and parents. This exploration should include reviewing the way that the immunisation benefit is paid, recognising the costs of reaching those most in need, and examining the possibility of linking existing parental benefits to immunisation.

New Zealand examples

We were interested to hear about successful immunisation programmes in New Zealand. Primary care providers that succeed in delivering effective and timely immunisation services usually do so by working with the local community, and by improving the service delivery systems. An important factor in the success of such systems is ensuring that the immunisation data is recorded accurately and consistently, so that the resulting data on immunisation coverage rates is useful.

We heard that a major New Zealand study sought to determine the practises in primary care and the characteristics of health professionals associated with higher immunisation coverage. Increased immunisation uptake is achieved in medical practices where

- the GP displays confidence and knowledge about immunisation and engages with the patient
- there are no staff shortages
- a nurse with ample time and resources is dedicated to immunisation
- there is an accurate database to record immunisation information.

The study also determined some of the factors that prevented immunisation rates from rising. We heard that they included parents receiving discouraging information about immunisation in the antenatal period, children not being enrolled at birth with a primary care provider, social deprivation, ethnicity, and children becoming older.

We agree with Dr Turner, who told us that general practices need to contact parents or caregivers about immunisation before their children reach six weeks of age. At the six-week health check either the infant should be immunised or the parents should be guided through a decision-making protocol. The immunisation services could be offered at the practice or by other providers, but the practice should be responsible for ensuring that each enrolled child goes through the process. We were told that the Government should provide extra funding to general practices to recognise the responsibility and the time and resourcing costs involved.

We asked about the immunisation benefit subsidy the ministry provides for each vaccination. Dr Turner told us that the subsidy is adequate to cover the immunisation of children who attend general practices regularly, but that locating and immunising children who do not consumes more time and resources. She suggests that funding needs to be increased, on the assumption that the average general practice requires extra funding for around 10 to 15 percent of the children it deals with, and that more funding will be necessary for practices that deal with more deprived populations and higher percentages of Māori and Pacific patients.

Recommendations

13 We recommend to the Government that the Ministry of Health hold district health boards responsible for immunising the populations in their areas. Funding and contracting arrangements should be aligned accordingly.

14 We recommend to the Government that it ensures that the Ministry of Health moves its funding of local immunisation-related functions to district health boards so that accountability and funding are aligned.

15 We recommend to the Government that the Ministry of Health should require district health boards to enrol all newborns with primary care and well child providers before they leave hospital, and at that time immunisation should be explained and promoted.

16 We recommend to the Government that the Ministry of Health encourage district health boards to work with other social and community services to provide immunisation services.

17 We recommend to the Government that district health boards be required to ensure that immunisation services are available from a wide range of providers at times and in locations that suit the parents and other people involved. The district health boards should consider working with other agencies to improve the health of children and individuals.

Immunisation registers in schools and early childhood centres

Some submitters told us that the Government should strengthen the requirement for parents to provide an immunisation certificate before their child is enrolled in an early childhood centre or school. We also heard that parents who choose to decline should provide a certificate of declination.

The Health (Immunisation) Regulations 1995 require that

- parents present an immunisation certificate upon enrolling their child at an early childhood centre or school
- early childhood centres and schools maintain registers of the immunisation status of enrolled children.

We understand that the Education Review Office audits education providers' immunisation registers but that subsequent vaccinations are not recorded. The National Immunisation Register will eventually provide more complete information for all children born after December 2005, and will in time remove the need for school-based registers. We consider that strengthening the requirement for immunisation certificates and requiring documentation of declination are an important steps towards improving New Zealand's vaccination completion rates.

Recommendation

18 We recommend to the Government that it strengthen the requirements on parents to present immunisation information when their children enrol at early childhood centres or schools. The required immunisation information should consist of either a certificate demonstrating that the child has received all the appropriate vaccinations, or a written statement that the parents have declined to immunise their child. We consider this should be implemented within one year.

5 Community concerns, informed consent, and conscientious objection issues

Attitudes to immunisation

We received many submissions expressing fear of immunisation, distrust of the agencies that provide vaccinations, and scepticism about the information provided by the Government about immunisation. We heard stories of babies, children, and young people with ill health, and impairment, and even dying, and about their families' belief that these events were linked to immunisation. We were disturbed about the unsatisfactory information flow between agencies and the families in this process.

We were told that about four to six percent of parents actively decline immunisation, and that a significantly higher proportion lack confidence in immunisation.

Groups with lower uptake of immunisation

The Ministry of Health told us that it is useful to differentiate between the groups that do not immunise. We heard that strategies to promote immunisation have usually focussed on the messages given by different institutions, including the Ministry of Health, district health boards, primary health organisations, and health professionals. These institutions then implement initiatives intended to target the part of the population that is not immunised. We were told that this approach does not recognise that this part of the population is not homogeneous. There is a risk that interventions are not targeted correctly. There needs to be an immunisation programme that suits the majority, but specifies interventions for the hard to reach.

The Ministry of Health is interested in taking a new approach, dividing the population into segments according to behaviour and motivation rather than ethnicity or location. This would help the ministry to target its communication and interventions appropriately. It plans to advocate this approach with the health sector and its providers, particularly district health boards. We heard that the ministry has commissioned research into factors including the sizes of the different groups, and their motivations.

Audience segments

The largest audience segment identified by the Ministry of Health consists of people who accept being immunised. We understand that it is important not to overlook this group or take them for granted. They need to receive good service and a good overall experience, positive encouragement, and no surprises, to help to maintain trust.

The Ministry of Health told us that targeting the groups who are willing but for whom there are barriers to immunisation (for example, families who owe the general practice money and are embarrassed to attend, or those with problems with transport) could increase coverage. This would mean removing the barriers or disincentives to immunising, and providing better information about immunisation, with a focus on how to access immunisation services, possibly in other languages.

Another segment of the immunisation audience is unmotivated, and the Ministry of Health told us that it needs to find out what is important to this group, and try to link its messages to these motivations. In order to reach this group the ministry needs to provide clear information about the responsibilities of the members of the group, and the consequences of their inaction; make the diseases relevant or personal; and make it easy to immunise.

The ministry also mentioned a group that is distrustful. We recognise that it is hard to change attitudes, and that the ministry needs to earn the group's trust, address the concerns of the members, provide the group with more facts and less "hard sell" about immunisation, and present information in a way that is acceptable to them.

Another identifiable group consists of people who are opposed to immunisation. The ministry told us that this group is unlikely to be convinced of the benefits of immunisation, and that it needs to leave this group alone, support its members' efforts to keep their children healthy, and give the group information about how to prevent diseases spreading to others.

Recommendation

19 We recommend to the Government that it ensure that the Ministry of Health tailors its communication about immunisation to audiences rather than to institutions.

Informed consent

The information given to parents is a key influence on their attitudes to immunisation. The New Zealand system depends upon parents making an active, informed decision to immunise their children. We consider that it is very important that parents are given helpful, evidence-based information, to balance the common belief that immunisation is an individual parent's choice and only affects children. We agree with Dr Turner that every family should be expected to consider immunisation for their children, and to make a timely and conscious decision.

New Zealand's immunisation programme protects people from serious diseases; it also prevents them from seeing the effects of these diseases. We were concerned to hear that because parents are unfamiliar with such effects, they perceive the risk from not immunising their children as low. Many people therefore question the need for immunisation, and are concerned about the safety of vaccines. Dr Turner told us that parents also attribute the absence of these diseases to other factors, including hygiene, natural immunity, and unproven products.

Dr Turner told us that families and communities sometimes do not understand the evidence behind the immunisation programme, and that the evidence is sometimes poorly explained to them. We were interested to hear that families and communities often perceive the scientific perspective as dispassionate, easily manipulated, and uncaring. Personal experience and anecdotes are given equal or greater weighting, and are treated as fact rather than opinion. Many parents find it difficult to evaluate the information they are given, and find it easier to make no decision about immunisation, leaving their children unvaccinated. Dr Turner told us that these parents are unlikely to be contacted and given help to make a decision.

Professor Sir Peter Gluckman, in his discussions with us, suggested the value of having readily accessible data available to the public that demonstrates clearly the incidence and prevalence of the disease immunised against on the schedule, what the morbidity or mortality of the disease might be, and the statistics on adverse effects from immunisation. This information is provided in chapter six.

Recommendation

20 We recommend to the Government that the Ministry of Health ensure that it publishes up-to-date, readily accessible evidence-based data on the positive and adverse effects of immunisation so that informed consent can be made from a robust evidence base.

Health professionals

We were told that unpublished studies have found that many parents consider that their GP's office is the best place to get information about immunisation. Most GPs support immunisation, but assessments have shown that GPs' knowledge of the subject is often incomplete. GPs and practice nurses have also expressed a need for assistance in addressing immunisation issues that are raised in the media. Dr Turner told us that all New Zealand health care professionals need to advocate the national immunisation programme, by presenting the evidence behind it.

Some submitters argued that immunisation information is crucial during the antenatal, birth, and perinatal periods. We were told by the ministry that DHBs are required to fund pregnancy and parenting education for at least 30 percent of the population of pregnant women in each area. The Primary Maternity Services Notice 2007 contains clauses requiring the provision of ministry information about immunisation to clients during the third trimester of pregnancy, but DHB midwives are not covered by this legislation. The ministry is creating a service specification for the pregnancy and parenting education that is provided or funded by DHBs, to be implemented by 1 July 2011.

Several submitters also told us about the need to inform children about immunisation. Dr Turner suggested that the ministry should work closely with the Ministry of Education to review the information provided in school health classes. The curriculum should cover immunisation and vaccine-preventable diseases.

The media

We heard how media reports can affect the uptake of vaccines. Several unpublished studies report that most people use the media as their primary source of information about immunisation. After extensive media coverage of outbreaks of swine flu, there was an increase in the number of people who sought seasonal influenza vaccinations. In 2005 negative reports about New Zealand's meningococcal B vaccine resulted in immediate cancellations of vaccination appointments by parents. We were told that a large proportion of media reporting about immunisation contains inaccurate material that creates fear and discourages immunisation.

Dr Turner told us that it is important to build understanding and trust with the media. We agree that media organisations need access to articulate and knowledgeable immunisation experts. New Zealand images and stories relating to immunisation should be made

available to the media and health promoters, to guide the way that immunisation is presented in the media, and in education materials.

Groups and individuals that do not support immunisation

Organised groups and vocal individuals circulate material containing negative messages about immunisation. Much of the material about immunisation that is available on the internet opposes it. We were told that the same concerns about immunisation have been present since the eighteenth century, with changes reflecting only the progress in vaccines and information technology. While we respect the views of others, we strongly support immunisation and consider that it has a firm evidence base.

Recommendations

- 21 We recommend to the Government that it ensure that the Minister of Health and the Minister of Social Development and Employment continue to advocate for children to complete immunisation schedules.
 - 22 We recommend to the Government that each district health board nominate a clinical leader to champion immunisation.
 - 23 We recommend to the Government that the Ministry of Health implement a national media or social media campaign to promote immunisation positively within the resources available.
 - 24 We recommend to the Government that the Ministry of Health develop more readily available, evidence-based electronic resources for parents who research immunisation using the internet.
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The Ministry of Health

We heard that one of the ministry's tasks is to provide science-based, up-to-date information about vaccines and the diseases they protect against. In this way the ministry aims to facilitate discussions between parents and immunisation providers, in order to secure either informed consent or a considered decision not to immunise.

The ministry told us that it produces a number of resources for parents and immunisation providers, some of which are available in a number of languages. We heard that it is difficult to provide information that matches each audience's needs without producing so many resources that the audiences are overwhelmed. We support Dr Turner's proposal that the ministry should examine any decision-making tools that it offers to parents during the antenatal stage, and consider developing them further.

The ministry should also ensure that all contracts for immunisation services oblige the contracted party to promote immunisation, and the evidence behind it. We consider that all health care professionals should be prevented from undermining the national immunisation programme.

Recommendations

- 25 We recommend to the Government that the Ministry of Health and district health boards ensure that up-to-date, evidence-based immunisation information is included in the training of all professionals who care for mothers and babies.
- 26 We recommend to the Government that the Ministry of Health strengthen the legal and contractual requirements for health professionals involved in maternity care to provide scientifically credible immunisation information, in contexts including antenatal classes.
- 27 We recommend to the Government that the Ministry of Health build websites about immunisation with content written by, and designed for, antenatal educators, lead maternity carers, and well child providers.
- 28 We recommend to the Government that the Ministry of Health review all of the resources containing immunisation information aimed at parents to ensure that they are targeted to all the various audience segments, user-tested, easily accessed, and up-to-date.
- 29 We recommend to the Government that it fund free antenatal classes for all first-time parents, and ensure that scientifically credible information about immunisation is provided to them.

Vaccine safety

We were told that the primary concern that prevents immunisation is fear of side effects from vaccination. The ministry told us about the extensive process vaccines go through before being introduced, which involves preclinical testing, clinical studies, approval by Medsafe, and pharmacovigilance or post-approval safety surveillance.

We also received briefings from Dr Michael Tatley and the Chief Coroner on the processes by which any adverse events that might be linked to vaccines are investigated.

The Centre for Adverse Reactions Monitoring

Dr Michael Tatley from the Centre for Adverse Reactions Monitoring (CARM) told us that New Zealand's safety monitoring system for immunisation involves a voluntary spontaneous reporting scheme. Healthcare professionals, consumers, and pharmaceutical companies submit reports of adverse events that follow immunisation. We were interested to hear that data published by the World Health Organisation shows that New Zealand has the highest spontaneous reporting rate per capita in the world.

Dr Tatley told us that information from spontaneous reports needs to be interpreted with caution, and that an adverse event after immunisation does not necessarily mean there is a causal link between the two occurrences. In most cases adverse events are easily resolved or are subsequently found to be unrelated to the vaccine.

Medsafe and CARM analyse spontaneous reports in conjunction with other information to determine whether there are any potential warning signals. Most warning signals about vaccines are not supported by any additional information, and so no action is taken, although Medsafe may continue to monitor the issue. A small number of possible warning

signals are confirmed as real, and in those cases Medsafe can choose from a number of regulatory actions, including withdrawing the product.

Improving the monitoring system

Dr Turner told us that New Zealand could offer a broader, more active vaccine safety surveillance system. Using the NIR and the disease-coding systems used in general practices and hospitals, New Zealand could develop an independent vaccine monitoring programme. Such a programme would involve making it easier for the public to report incidents in various ways, and encouraging health providers to report any concerns. General practices, hospitals, and emergency departments would assess suspected adverse events using disease-coding systems and the NIR to compare rates of reaction. Dr Turner also suggested that an independent safety monitoring board be established to review the results of the monitoring programme, and to assess and report on the safety of the immunisation programme regularly.

Recommendation

30 We recommend to the Government that the Ministry of Health review the system for monitoring adverse events to make it easier for the public to report, and more responsive to their needs when they have reported, an adverse event.

The coronial process

We heard from submitters who had suffered the loss of a loved one and believed that this may have been due to an adverse reaction to a vaccine. We heard about the coronial process, with a particular focus on what happens when there is a correlation between the administration of a vaccine and a sudden death.

Under the Coroners Act 2006, any deaths that might be related to the administration of a medicine must be reported to the coroner. We understand that the coronial process helps to ascertain whether there is more than a temporal association between the administration of a vaccine and a death, and attempts to determine whether the vaccine was a causal factor. The coroner will examine many factors to ascertain the cause or causes of a death, including the deceased person's medical history, diagnostic tests, post mortem reports, toxicology reports, witness testimony, and any other medications taken by the deceased person.

We were concerned that the submitters considered that communication during the coronial process was poor. We encourage those involved in this process to ensure that, to the extent possible and appropriate, the deceased's family/whānau are kept fully informed about the progress of the inquiry.

6 The benefits and disadvantages

The benefits of immunisation

We heard about the many benefits that immunisation brings to individuals, and to the New Zealand population, which include

- individual immunity
- herd immunity
- lower healthcare costs.

We learnt that immunisation is one of the most cost-effective public health interventions.

Immunisation against specific diseases

Measles

We understand that if immunisation against measles ceased, measles infection would be expected to increase to pre-vaccine levels. The Immunisation Advisory Centre estimates that this would result in between 5,000 and 6,000 hospitalisations for measles, and 20 to 60 deaths annually.

Table 1: Measles disease and vaccine risks

Disease	Risks of disease	Risks of vaccine
A highly contagious viral illness causing fever, cough, and rash	<p>Otitis media (7 percent)</p> <p>Pneumonia (6 percent)</p> <p>Acute encephalitis (0.1 percent)</p> <p>Subacute sclerosing panencephalitis (one per 100,000)</p> <p>Case fatality rate of one to two per 1,000</p> <p>Maternal measles associated with an increased risk of premature labour, miscarriage, and low-birth-weight infants</p>	<p>Mild local or systemic reaction (14.2 percent)</p> <p>Aseptic meningitis (one per 100,000)</p> <p>Encephalitis (one per million)</p> <p>Anaphylaxis (<1 per million)</p>

Rubella

We were told that stopping rubella vaccination in New Zealand would reduce the population's immunity. Pregnant women would then be at risk of contracting rubella and passing congenital rubella syndrome on to their infants.

Table 2: Rubella disease and vaccine risks

Disease	Risks of disease	Risks of vaccine
A highly contagious viral illness causing fever, rash, lymphadenopathy, and foetal malformations	85 percent of infants infected during the first trimester of pregnancy will be born with some type of birth defect, such as deafness, eye defects, heart defects, and mental retardation, among others. One in two adolescents and adults have arthralgia One in 6,000 develop encephalitis	Mild local or systemic reaction (14.2 percent) Aseptic meningitis (one per 100,000) Encephalitis (one per million) Anaphylaxis (<1 per million)

Pertussis

We understand that if the vaccination programme against pertussis (also known as whooping cough) were stopped pertussis would be likely to rise to pre-immunisation levels.

Table 3: Pertussis disease and vaccine risks

Disease	Risks of disease	Risks of vaccine
A highly contagious bacterial infection causing whooping cough and vomiting	90 percent risk of contracting pertussis for non-immune infants 20 percent of all adults and adolescents being infected at any one time 0.1—0.3 percent risk of permanent neurological damage for patients with paroxysmal cough Case fatality of 0.05 percent in hospitalised infants	Mild local or systemic reaction (0.8—62 percent) Rare serious adverse events: severe local reaction (0.8—8.0 percent) Convulsions (0.00007 percent) Persistent screaming (<0.005 percent) Hypotonic hyporesponsive episode (<0.003 percent) Anaphylaxis (<0.00001 percent)

Polio

We were told that if the polio vaccination was stopped and a traveller brought the disease to New Zealand unimmunised people would be susceptible to infection.

Table 4: Polio disease and vaccine risks

Disease	Risk from disease	Risk from vaccine
Highly contagious gastrointestinal infection for which humans are the only reservoir	While many infections cause no symptoms, about one in 20 hospitalised patients will die and half of all surviving patients are permanently paralysed.	Local redness (one in three); pain (one in seven); swelling (one in 10); fever, crying, and decreased appetite (one in ten)

Immunisation funding

The ministry told us that funding for immunisation is unlikely to increase but that funding priorities may change. We asked how much it would cost to implement the changes that we understand are necessary to improve immunisation rates in New Zealand, and Dr Turner gave us some idea of some of the costs involved (refer Appendix B).

Improving the current immunisation programme

Many of our recommendations focus on improving the existing immunisation programme, by clarifying responsibilities, setting targets, and expanding service delivery. We were told that any costs should be covered by the current funding; however it is clear that in the long term more funding will be necessary if completion rates are to be improved for all ages.

Contractual improvements

Some of our recommendations involve reviewing the contracts for immunisation delivery to ensure that health professionals promote and support immunisation, and are committed to delivering timely immunisation. These costs are likely to be absorbed into the current funding.

Primary care support

One of the recommendations relates to general practices contacting parents to ensure that immunisation is done. Dr Turner estimates that this would cost an extra \$10 in addition to the immunisation benefit subsidy for each child, and that funding would also be necessary to set up the system. We also heard what it might cost to institute a system of tiered incentives to immunise the population that is harder to reach. Dr Turner told us that such a system might involve a practice receiving an extra payment for 10 percent of the enrolled population that it immunises, to cover the extra costs incurred. Practices with higher-needs populations would receive extra payment for 15 percent of the enrolled population. Further investigation would need to be done in order to work out how much this would cost.

Support for parents

The recommendation that immunisation information be presented to early childhood centres and schools would involve on-going costs, as well as the set-up costs, which have yet to be determined.

Communication

Dr Turner suggested that the funding that would be needed to improve the guidelines and information on immunisation is difficult to estimate, and might be more easily determined after working out other factors.

Appendix A

Committee procedure

We called for public submissions on the inquiry. The closing date for submissions was 5 March 2010. We received 53 submissions, and heard 24 of the submissions. We heard evidence at Auckland and Wellington.

We received advice from the Ministry of Health.

Committee members

Dr Paul Hutchison (Chairperson)

Dr Jackie Blue

Hon Ruth Dyson (until 9 February 2011)

Kris Faafoi (from 9 February 2011)

Kevin Hague

Hon Luamanuvao Winnie Laban (until 13 October 2010)

Iain Lees-Galloway

Hon Damien O'Connor (from 13 October 2010 until 9 February 2011)

Grant Robertson (from 9 February 2011)

Eric Roy

Nicky Wagner

Michael Woodhouse

We wish to thank our advisers and all submitters for their extremely helpful views on this subject. In particular we wish to thank the Ministry of Health, Dr Nikki Turner, Professor Sir Peter Gluckman, Dr Michael Tatley, and the Chief Coroner.

Appendix B

Dr Turner's "Six star" plan

Component One: Enhanced business as usual

- All significant political parties actively endorse the national immunisation programme.
 - Introduction of targets for on-time immunisation of infants and older age groups
 - 95 percent immunisation rates at six months, 16 months, and four years.
1. **Improving systems**
 - DHBs to be responsible for immunising their populations: funding and contracting arrangements to be aligned to accountability.
 - DHBs to be responsible for enrolment of all infants antenatally or at birth with a nominated general practice.
 - General practices to be responsible for the immunisation status of their populations.
 - A range of service providers to be allowed to immunise, and encouraged to do so, to ensure accessibility for all families.
 - All immunisers to have responsibility to ensure data is on the National Immunisation Register (NIR), and the enrolled general practice is informed.
 - DHBs to contract PHOs to support general practices in their responsibility for immunisation coverage of their enrolled populations.
 - Continuing to improve the functionality of the NIR and to review its functionality regularly.
 - Aligning PHOs' performance payments with NIR reporting.
 - Regular publication of DHB targets; Ministry of Health to publish an annual review of immunisation showing changes over time in coverage, disease epidemiology, and vaccine safety reporting.
 - Maintenance of functional Immunisation Steering Groups in all DHBs.
 2. **Service delivery**
 - DHBs to ensure that immunisation services are available from a wide range of providers at times and locations that suit people involved; and to consider using these opportunities for integration with other health services.
 3. **Cross-sectoral initiatives**
 - The Ministry of Health to work closely with the Ministry of Education to review the health education curriculum and in schools to include immunisation and vaccine-preventable diseases in the health and science curricula.

4. Increased focus in the antenatal arena

- Review and develop appropriate materials promoting immunisation and decision-making tools for parents antenatally.
- Improve options for education and resources for childbirth educators.
- Increase the amount and availability of education/training for Lead Maternity Carers.

5. Improve Adverse Event Notification Reporting

- Increase vaccine safety data reporting, as per approaches used in the United Kingdom and Canadian systems, including regular reporting via the Medicines Adverse Reaction Committee and regular publication of accounts of adverse events following immunisation reported to the Centre for Adverse Reaction Monitoring.

Component Two: Contractual/legislative aspects

- All contracts for immunisation service delivery to specify an obligation to promote the evidence base behind immunisation.
- All health care professionals to be under a legal obligation to neither promote nor disseminate immunisation information that is not evidence-based and not supported by the national programme.
- Health professionals involved in immunisation service delivery to be committed to offering timely immunisation to all children for best protection (i.e. keeping to the recommended schedule time frames).

A review of all contracts with health providers who promote or deliver immunisation services to be undertaken. All contractual language and obligations to be reviewed to conform to the above principles and remove any ambiguity. Contracts to be strengthened to recognise the obligation of health care professionals to promote only evidence-based medicine.

Component Three: Responsibilities/support for primary care

- Primary care services to be supported to ensure all their enrolled populations of infants have access to the initial immunisations on time.
- Primary care service providers to support all parents to make an active decision to immunise their infants on time, or to formally choose to decline immunisation.

All children in New Zealand need to be enrolled with a general practice (via PHO enrolment) at birth or before. This to be an obligation for DHBs working with PHOs in all areas.

All general practices to ensure parents or caregivers of enrolled children are contacted before infants are six weeks old and offered appropriate immunisation services. At the six-week check, infants to be either immunised or a full decision-making protocol undergone with a completed declination form.

Declinations to be reviewed regularly and families given opportunities to reconsider.

Services to be offered either at the practice or elsewhere (e.g. with outreach immunisation services, Well Child Care providers etc) but the practice to be responsible for ensuring it is done.

Extra funding to be provided to recognise the responsibility, and the time and resourcing costs, of ensuring immunisation at the six-week check.

General practices to be committed to the national immunisation target of at least 95 percent for their enrolled populations.

There is recognition that the current Immunisation Benefit Subsidy is adequate (along with other practice subsidies that support this) for the children who attend regularly, but extra time and resources are needed for the children who are harder to locate and do not reliably attend. Extra practice funding will be given to support the time commitment for contacting the families who do not bring the children after a simple precall/recall phone call, letter, or text. On average around 80 – 85 percent of children are immunised with current effective GP systems, 10 percent require more active, more frequent contacting, two to five percent are even harder and may need to be referred to outreach services and five percent are decliners. Children from backgrounds of greater socio-economic deprivation and of Māori and Pacific ethnicity are harder to access. Increased funding for accessing these children will be based on recognising that the average general practice requires extra funding for around 10–15 percent of children, but practices with higher deprivation populations and higher percentages of Māori and Pacific peoples will require extra funding.

A tiered approach will offer funding to practices who achieve high immunisation coverage, in recognition of the extra time and resources required to audit and recall these children. The funding will be given to the practices pro rata, based on their coverage rates at the ages of two years and five years.

Component Four: Responsibilities/support for parents

- Strengthen legislation that requires parents to present immunisation certificates when their child starts at an early childhood education centre (ECEC) and school, particularly focusing on the ECEC to support delivery of on-time immunisation.
- Support families to understand the rationale behind the need to make timely decisions.

When a parent enrolls a child, they either present a certificate demonstrating a fully completed immunisation series appropriate to the age, or a completed declination form. Either needs to be delivered and recorded by the ECEC. If a child is enrolled when they are under two years of age, on their second birthday the ECEC will be obliged to contact the parents and view, and record that they have viewed, the completed certificate or declination form.

The current free entitlement to 20 hours early childhood education will continue to be offered to all parents and caregivers; however eligibility will include the obligation from the ECEC to obtain from the parents a certificate of completion of immunisation events or a current declination form.

Government child benefits—when a child turns two years of age a parent receiving any child benefit will be obliged to show a completed immunisation certificate or declination form. In recognition of the extra effort required to obtain and present the certificate, the parents or caregivers will be entitled to a \$20 one-off payment.

Further support for families with decision-making to be provided via a multi-component communication strategy as per component five, which recognises different community needs.

Component Five: Communication

- Supporting confidence in the programme via listening, communicating, and responding effectively with multifaceted, targeted approaches.

Communicating the value of immunisation is paramount to the success of an immunisation programme. In a country where parents make an informed decision to immunise, the responsibility to provide them with the means to make that decision lies with the governing bodies of the health system.

Communication strategies need to move beyond reactive plans for outbreaks and epidemics. The way forward is to normalise immunisation as the default position for a healthy lifestyle, rather than a stressful decision that some perceive exposes their family to risks from vaccines' side effects.

Building trusting relationships with the media is an important step. Communities are affected by national and international stories of actual or perceived vaccine risk. Media organisations need to have easy access (at any time) to articulate and knowledgeable spokespeople who can communicate effectively with lay people.

Providing an understanding of disease risk in the New Zealand context requires New Zealand images and stories. Developing local resources available for media and health promoters will help guide the way immunisation is represented in the media, and in education materials.

The way that New Zealanders access information is changing and there are many different audiences; immunisation information needs to be available in the formats and styles that work best for a particular audience.

Coordination between PHO, DHB, and national immunisation communication strategies would both maximise expenditure and manage over-saturation or conflicting messages. When communication moves towards a more proactive approach, such coordination should become more achievable. This requires a stable and connected communication workforce at varying national and local levels.

1. Recommended communication components:

- Guidelines for immunisation communication

Develop and disseminate evidence-based guidelines for primary care providers and PHOs, defining how to differentiate immunisation audiences within their catchment, and what messages and delivery mechanisms are most effective.

- Experience of disease resources

Record personal, New Zealand-based stories of current or recent experiences with vaccine-preventable diseases. Make these available in a variety of materials. Ensure a broad range of subjects from varying cultural and social backgrounds.

- Consistency of messages and information collateral

Provide editorial consistency across resources developed to provide immunisation information.

- Framing of communication styles, messages, and media appropriate to different audience group.

Identify and respond to the differing audience requirements, based on current New Zealand and international data and tools.

- Effective print, internet, and social media monitoring with rebuttal of misinformation

Building on existing monitoring, develop protocols that organisations can use to effectively identify and refute inaccurate or misleading immunisation information. This is as much about understanding when not to respond as it is about how to respond.

This requires a range of media approaches including the use of the current social media mechanisms, and attention to the evolving media mechanisms for different audience groups. This includes attention to traditional mechanisms such as radio, print, television, and local community conversations, and the newer social media mechanisms including the internet, Facebook, and Twitter.

- Improved communication and relationships with key groups

There are key groups who can be central to parents' immunisation decision-making. Lead Maternity Caregivers, antenatal education groups, and parent advocacy groups are all strongly linked to families at the time when most immunisation decisions are being made. Specific communication plans are needed to engage effectively with each type of organisation. Careful relationship management would ensure that such groups may come to better understand evidence-based immunisation information and feel confident in communicating that to their audiences.

Component Six: Safety Surveillance

- New Zealand will develop an Independent Vaccine Monitoring Programme (IVMP).

New Zealand has an excellent passive safety surveillance system through the Centre for Adverse Reaction Monitoring at the University of Otago, with event reporting rates being one of the highest in the world. However, New Zealand parents remain appropriately concerned that a passive system does not guarantee that all safety signals are always noticed and responded to. There are also common misconceptions regarding the significance of event reporting, especially a misunderstanding about causality between vaccines and adverse events. The development of the National Immunisation Register enabled the meningococcal B immunisation programme to develop a high quality vaccine safety

monitoring system that was recognised internationally as gold standard. New Zealand will take many aspects of this programme to enhance vaccine safety monitoring for the national immunisation programme.

In recognition of community concerns and the need to maintain a high quality programme, New Zealand will offer a range of enhancements to its vaccine safety monitoring programme. By using the National Immunisation Register, disease-coding systems within general practice coding systems, and the hospital ICD10 coding systems, New Zealand has the capability to offer a broader, more active vaccine safety surveillance system.

1. Components:

- Effectively communicate the current health professional and public safety reporting on any incidents of concern following receiving an immunisation.

Enhance the opportunities for and ease of public reporting via all modalities including online and hard copy.

- Enhanced adverse event reporting: as per the intensive medicine monitoring programme, focus on specific issues or vaccines in a more proactive encouragement for health providers to report any concerns. For example, with the introduction of a new vaccine.
- Active monitoring for potential events of concern via database matching. Examples include:

General practice-based: assessment of suspected adverse events following immunisation via use of electronic detailing of events coded on the practice management systems from sentinel general practices and using the NIR to compare rates in immunised children with those in unimmunised children.

Hospital and Emergency Department-based: assessment of suspected adverse events following immunisation via use of electronic detailing from hospital and Emergency Department-based coding (ICD disease coding) and use of the NIR to compare rates in immunised children with those in unimmunised children.

- The development of an Independent Safety Monitoring Board to review the IVMP results, and assess and report on the safety aspects of the vaccination programme regularly.
- Regular reporting on the full system available to the public to enhance transparency.

Table One: Summary of cost estimates to deliver the six star strategy

Component	Detail	Estimated cost
Component one	Part of existing services	\$0
Component two	Some extra one-off staffing times to review and redevelop contracts	One-off extra staffing costs
Component three	Enhanced effort at the six-week check: suggested additional \$10 on top of the current Immunisation Benefit Subsidy for the six-week check to be delivered by 10 weeks of age or a record of a completed declination form. Birth cohort of 65,000 for 90 percent uptake = approximately \$595,000	\$595,000 + systems set-up cost + systems payment cost
	Extra support for proactively recalling and referring harder-to-reach children. Estimated costs: a very approximate guesstimate—suggest an extra \$20 for 10 percent of the childhood enrolled population in a practice under two years, up to 15 percent for practices with higher needs populations. A similar incentive added for fully-immunised at the four-year-old visit. Children under two years in New Zealand = 110,000: 10 percent x \$20 = \$220,000, and approximately another \$110,000 for four to five-year-olds. Estimate overall 20 percent of practices with higher needs (22,000 kids) adding another \$20 for 5 percent = \$22,000. Total: \$220,000+\$110,000=\$22,000=roughly \$360,000 and set-up costs	\$360,000 + systems set-up cost + systems payment costs
Component four	Strengthening the presentation of immunisation certificates or declination forms at ECECs. Offering \$5 to each ECEC for every child enrolment and a further \$5 for each child turning two years when needed to recheck if there is not a certificate completed to the 15 month event. Assume birth cohort of 65,000 and 80 percent enrolment in ECEC: \$344,000 and a bit more for those needed to be contacted who started prior to 18 months i.e. prior to completion of the 15 month event. Also need set-up costs for allocating funding to	\$344,000 + system set-up costs + systems payment costs

Component	Detail	Estimated cost
Component four continued	Presentation of an immunisation certificate/declination form as part of receiving child benefit at two years. Estimated costs: compliance costs for WINZ and \$20 a child for all two-year-old children of beneficiary parents. The numbers have not been checked—a very rough assumption of 10,000 children=\$400,000	\$400,000 + system set-up costs + systems payment costs
Component five	Multi-component communication strategy. Decisions need to be made on how much to allocate here as a percentage of the overall New Zealand programme. Advise looking at the UK model and what percentage of their overall programme costs are allocated to the communication strategy as a starting point for estimation of costs	Not estimated
Component six	Enhancing the surveillance system: development of an Independent Vaccine Safety Monitoring Board approximately \$30,000. Enhancing adverse event monitoring \$200-300,000, and another \$200,000 for lots of active monitoring. Perhaps \$450,000 in total	\$450,000