

# Fighting immunisation preventable disease in primary care

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## Coverage and timeliness maximise success of immunisation

Childhood immunisation is one of the most cost-effective activities in health care. In New Zealand, the immunisation programme has eliminated polio and controlled tetanus and diphtheria. However, disease persists, as seen with high rates of pertussis and recurrent epidemics of measles. The burden of disease disproportionately affects Māori and Pacific children. With better coverage and improved timeliness of immunisation, the gains could be higher.

### Immunisation Coverage

While much of New Zealand historical coverage data has not been accurate, there are three coverage surveys using robust methodology involving random sampling of geographical clusters to ascertain children’s immunisation status.

## Coverage Survey Results

### Children Fully Immunised At the Age of 2 Years

	All Children	Māori	Pacific
1991 National Survey <sup>1</sup>	56%	-	-
1995/6 North Health Survey <sup>2</sup>	72%	47%	53%
<b>2005 National Survey<sup>3</sup></b>	77.4%	69%	82%

### Timeliness of Immunisation

Achieving good disease control requires not just high coverage, but immunisation events to be delivered on time. Delay in receiving the first immunisation in the primary series is one of the strongest predictors of subsequent incomplete immunisation.<sup>4</sup> Also a delay in timeliness affects disease control. A child with delayed immunisation in the primary course has a 4.5 times increased risk of being admitted to hospital with pertussis.<sup>5</sup>

## Overcoming barriers to immunisation coverage and timeliness

The major factors leading to incomplete immunisation are socioeconomic factors (poverty), provider and system factors, and parental/community attitudinal factors.

### Provider commitment is the key

The commitment of the provider is the most important determinant of immunisation coverage. Effective, motivated primary care can achieve good immunisation uptake, even in the face of socioeconomic deprivation and parental low confidence. Despite mediocre national coverage, some primary care providers with strong commitment to immunisation delivery can, and do, achieve high coverage rates.

### Provider knowledge overcomes false immunisation beliefs

Health provider knowledge is a significant factor in obtaining high immunisation coverage. While GP attitudes to immunisation in New Zealand are positive, our knowledge base is not as strong. A national survey reviewing GP knowledge revealed significant knowledge gaps around false contraindications.<sup>6</sup>

### Genuine contraindications to immunisation

Children with minor illness (without an acute systemic illness and with a current temperature below 38.5°C) may be vaccinated safely.

Major illness or high fever may be confused with vaccine side effects and increase the discomfort for a child. In this case the vaccination should be postponed 2–3 days until the child is well. It is a good idea to make a return appointment at the time of deferral.

### A practice visit is an opportunity for immunisation

A visit to primary care when a child is due a vaccination but does not receive it, is a missed opportunity. This is one of the most important factors contributing to decreased immunisation coverage and timeliness. Missed opportunities are happening almost universally in New Zealand primary care. Recent research<sup>7</sup> has shown that on auditing a subgroup of children in 62 practices, 97% of practices had missed opportunities to vaccinate. Of the records audited, 30% of the children had had a missed opportunity, with the most common reason being a visit for an URTI. Genuine contraindications were shown in less than 5% of cases. Surprisingly 10% of the missed opportunities occurred at well child visits.

## Guide to the contraindications for vaccination

Vaccine	Contraindications
All	Fever greater than 38.0°C
	Moderate to severe acute illness without fever >38.0°C
	Anaphylaxis, allergy, or anaphylaxis reaction to any vaccine component or previous dose
Diphtheria, tetanus, acellular pertussis	Previous encephalopathy within 7 days after diphtheria, tetanus, whole cell pertussis vaccines, and haemophilus influenza type b vaccine
	Evolving, undiagnosed neurological problem
Measels, mumps and rubella vaccine	Other than simultaneously administered vaccines (at different injection sites), the patient having had a previous live virus vaccine within the last 4 weeks
	The patient having received blood or human immunoglobulin within the last 6 months, or is about to in the next 3 weeks
	Immune suppressed patient
Influenza, yellow fever	Anaphylaxis to eggs or chicken

**Some conditions increase the risk of complications from infectious diseases and children and adults with such conditions should be vaccinated as a matter of priority**

**These conditions include:**

- Asthma
- Chronic lung and congenital heart conditions
- Downs Syndrome
- HIV infection
- 'Small for date babies' and premature babies

### Practice systems impact on immunisation rates

A range of practice policies and systems have considerable impact on immunisation uptake. Vital systems for high immunisation rates include:

- A clear enrolment policy
- Early enrolment of children
- Good data entry of records
- Systematic precall\* & recall
- Regular audit

*\*Precall is a reminder sent prior to the vaccination being due*

While around 60–70% of children receive immunisation with a simple precall system and organised practice, the other 20–30% requires extra time and effort in tracking and recalling. This requires committed staff time, a good understanding of how to use a PMS and effective use of National Immunisation Register (NIR) status queries. Practices with high staff turnover or inexperienced staff are likely to have greater problems with entering quality, accurate data.

There are significant numbers of errors occurring in immunisation data entry at the practice level. Recommendations to improve this include early enrolment of infants, standardised approaches to entering data, checking data entry quality, improving staff training in use of the PMS, and developing a focus on timeliness, as well as coverage, with regular audits. Performance feedback to the practice has been shown internationally and locally to improve coverage rates.

Other important ways to improve immunisation coverage and timeliness include making immunisation services available at all possible hours, and having staff available at all times who can vaccinate (including GPs if the practice nurse is not present).

### Parent/Community

knowledge and attitudes

In New Zealand it is known that 20% of parents consider that good healthy living will be enough to prevent disease without the need for vaccination.<sup>8</sup>

Caregiver's knowledge and attitudes impact on immunisation uptake to a lesser extent than practice characteristics but the impact is still significant.

The media, fuelled at times by the anti-immunisation lobby, can have dramatic effects on parental confidence in vaccination as has been seen with the abiding myth that MMR may be linked to autism despite the lack of any scientific backing.

The importance of the primary care provider relationship with the parent is vital to parental confidence. A knowledgeable, committed and confident provider with a good relationship with their patients, is likely to overcome many parental myths and concerns.<sup>9</sup>

### **Practice Strategies that Promote High Coverage/Timeliness**

Improving immunisation coverage and timeliness of delivery is a practice-level issue. The answers lie in good practice systems, dedicated staff time and regular commitment of all clinical staff to regularly review progress.

#### **Key factors are:**

1. Enthusiastic and committed staff
2. Enrolling children as early as possible
3. Accurate immunisation data entry in the PMS
4. Using NIR status queries to update records
5. Timely precall system
  - a. Attractive, engaging precall and recall letters
  - b. Early and systematic recall follow up, first recall within 2 weeks of the due date
  - c. A broad recall approach – letters and telephone
6. Regular practice audit, preferably monthly
7. Dedicated staff time to recalls, audits and data entry
8. Regular feedback of results
9. Vaccinate at all times, do not turn children away
  - a. All clinical staff available to vaccinate, including GPs
10. Take every opportunity
  - a. Flags, electronic reminders on notes
  - b. High staff awareness, regular awareness raising
  - c. Vaccinate children with mild illnesses
11. Improve our knowledge base
  - a. Attend regular updates\*\*
  - b. Access and use the Immunisation Handbook

*\*\*The Immunisation Advisory Centre, University of Auckland, is launching a web-based online update course in April 2007.*

*Visit [www.icomet.org.nz](http://www.icomet.org.nz)*

### **References**

1. Stehr-Green PA, Baker M, Belton A, et al. Immunisation Coverage in New Zealand. Communicable Diseases NZ 1992;92 (suppl. 12):1-15.
2. Lennon D, Jarman J, Jones N, et al. Immunisation coverage in North Health. Comparative results from North Health's 1996 immunisation coverage survey. Auckland: Northern Regional Health Authority 1997.
3. Ministry of Health. Immunisation Handbook 2006; 2006.
4. Guyer B, Hughart N, Holt E, et al. Immunisation coverage and its relationship to preventive health care visits among inner-city children in Baltimore. Pediatrics 1994;94(1):53-8.
5. Grant C, Scragg R, Lennon D, et al. Incomplete immunisation increases the risk of pertussis in infants. BMJ. 2003;326:852-3.
6. Petousis-Harris H, Goodyear-Smith F, Turner N, Soe B. Family physician perspectives on barriers to childhood immunisation. Vaccine 2004;22(17-18):2340-2344.
7. Grant C, Petousis-Harris H, Turner N, et al. Primary health care and health professional determinants of immunisation coverage, Health Research Council/Ministry of Health partnership programme. 2004.
8. Petousis-Harris H, Goodyear-Smith F, Godinet S, Turner N. Barriers to Childhood Immunisation among New Zealand Mothers. NZ Fam Physician 2002;29:396-401.
9. Smith PJ, Kennedy AM, Wooten K, et al. Association between health care providers' influence on parents who have concerns about vaccine safety and vaccination coverage. Pediatrics 2006 118(5):e1287-92.