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Recommending vaccination

General practice intervention with new parents

Background

Parents can be the source of vaccine preventable diseases that their children contract. The vaccination status of parents may not be readily available, and uptake rates are affected by factors such as complexity of vaccination schedules, personal perception of risks, and physician recommendation.

Method

Parents at eight general practices in North Queensland had immunisation histories recorded and vaccine recommendations made when they brought in their infants for vaccination. They were followed up by practice nurses after 2 months. This article describes parental immunisation status at eight general practices and examines whether parents in these clinics acted on recommendations for vaccination.

Results

Vaccination was recommended for 66.1% of parents. Of these parents, 53% complied, resulting in improved up-to-date vaccination status from 33.9–68.9% ($p < 0.0001$).

Discussion

Taking an immunisation history from parents and recommending specific vaccinations to them is likely to be a worthwhile intervention to add to general practice consultations for childhood vaccinations. Trialling this intervention in a broader cross section of general practices would be a useful next step.

Keywords: immunisation; communicable/infectious diseases; research; general practice

While 80% of notified pertussis infections in Australia occur in adults, 80% of deaths from pertussis occur in infants aged 2 months or younger.^{1,2} It is estimated that parents are the source of their infant's infection in 15–55% of cases.^{3–5} The *Australian Immunisation Handbook* recommends vaccination of all adults that reside with infants⁶ (although recent modelling suggests this might only be of modest benefit⁷).

Vaccination of parents of newborns against whooping cough is government subsidised in most Australian states and territories until 30 June 2011, with a possible extension depending on assessment of uptake and ongoing need. Other vaccinations recommended for parents are measles, mumps and rubella (MMR), and varicella if there is no history of infection. The MMR vaccine is provided free to adults born after 1966, but adult varicella vaccine is not subsidised.⁶

Adult vaccination uptake has been shown to be problematic internationally.⁸ There is evidence that healthcare professionals need more accessible information about vaccines, as well as better information systems to facilitate vaccination.⁸ Personal risk perception, access to public funding support and physician recommendations are thought to be important factors for adults considering vaccination.⁹

In the absence of a comprehensive adult vaccination register, Australian primary healthcare providers and researchers have to rely on self assessed vaccination status or on locating vaccination records to assess immunisation status.¹⁰ A general practice study¹¹ that relied on patient self assessment of immunisation, coupled with provider generated reminder tools, showed no significant improvement in vaccination

coverage. The main barriers identified were lack of provider time and complexity of adult vaccination recommendations. After controlling for socioeconomic status, vaccination coverage is better when practices have a reliable practice management system and adequate support staff.¹²

Health professionals have been identified as the most effective advocates for vaccination, and the most important source of vaccination information for the general public.⁸ Over 70% of Australian childhood vaccinations are delivered in general practice.¹³ These visits potentially provide an opportunity for health professionals to screen parents for their immunisation status and to recommend vaccines.

Method

The practices that participated in this study are affiliated with the North Queensland Practice Based Research Network (NQPBRN) based at James Cook University School of Medicine and Dentistry. The network's academic support team trains practice nurses in data collection, undertakes data analyses and has published a number of clinical studies.^{14–16}

This study used a before and after self reported survey method to assess the impact of a vaccination intervention delivered to new parents by general practice nurses. The study was undertaken in eight general practices affiliated with the NQPBRN. Practice principals were invited to support their practice nurses' participation in the project. The nurses received training in specific data collection protocols, as well as broader training in research methodology.

The target population was defined as parents who were bringing into the practice for scheduled vaccinations their infants and children of an age less than 4 years. Each practice was asked to

recruit up to 30 parents to the study by inviting consecutive parents who presented with a child for vaccination over a maximum time period of 2 months. This number was chosen based on 8–10 participating practices, with a total sample size of 170 able to show a statistically significant improvement in immunisation rates of 15%.¹⁷ Some practices were unable to recruit 30 parents due to their small population base.

The intervention consisted of practice nurses taking an immunisation history from the parent, and consulting with the general practitioner who would then recommend vaccines according to Australian immunisation guidelines⁶ and the parent’s medical history. Practices arranged vaccinations according to usual procedures.

Follow up of parents recommended for vaccination was undertaken 2 months after the initial visit. This was done by the practice nurse reviewing the file and making contact via telephone if no vaccination was documented. Subjects who were telephoned were asked whether they had completed the recommended vaccinations elsewhere, and if not reasons for not completing were asked. Consent and contact details for this follow up call were obtained at the initial visit.

Ethics approval was granted by the James Cook University Human Research Ethics Committee.

Results

A total of 177 parents (48 male, 128 female, 1 gender not reported) across the eight practices participated in the study. As shown in *Table 1*, the proportion of parents who were either fully vaccinated or immune to vaccine preventable diseases were: MMR 79.7% (141/177; pertussis 42.1% (74/176; one parent did not report their vaccination status for pertussis); tetanus 72.3% (128/177; and varicella 85.9% (152/177).

The rates of uncertainty regarding immunisation status were: tetanus 17.5% (31/177); MMR 15.8% (28/177); pertussis 15.3% (27/176); and varicella 6.8% (12/177).

Vaccination was recommended for 66.1% (117/177) of parents for 200 individual vaccines. The most frequently recommended vaccine was pertussis at 49.5% (99/200) followed by tetanus at 26.0% (52/200) (*Figure 1*). Of the vaccinations recommended 50% (100/200) were completed during the 2 month follow up period (*Table 2*). The recommended vaccine with lowest completion rate was varicella with only two vaccinations completed out of 18 recommended (*Figure 1*).

Of the 117 parents who were recommended vaccination, 53% (62/117) complied, resulting in an improvement in up-to-date vaccination status from 33.9% (60/177) to 68.9% (122/177; $p < 0.0001$).¹⁸ The most common reason given for noncompletion by those contacted was ‘haven’t got around to it’ (19/53). The proportion of parents that gave this reason was much higher than the next highest category which was ‘don’t want vaccination’ (5/53). Seven patients could not be contacted and two patient surveys were not completed. Reasons for noncompletion are outlined in *Table 3*.

Discussion

Two-thirds of the parents in the study were assessed as needing at least one vaccine. This suggests that taking a parent’s immunisation history is a worthwhile intervention in general practice consultations for childhood vaccinations. One limitation of this study was that it relied on self reporting of immunisation status. It was decided to use this as a measure, rather than serological confirmation of immunisation status, for practical considerations. There is support for

‘self reported gauging’ of immunisation status because there is a low rate of adverse reaction in adults when revaccinated.⁶ Most parents in this study when asked directly were able to give their immunisation and infection history for relevant illnesses.

In this study, when a GP recommended vaccines to parents according to Australian immunisation guidelines⁶ and the parent’s medical history, 50% of recommended vaccinations were completed within 2 months. No reminders were needed to achieve this outcome. It is likely that additional reminders would increase the immunisation coverage of the parents in this study.

The study allowed GPs and general practice nurses to implement and evaluate a health promotion strategy in their own practice population. The intervention was designed to fit the teamwork and time limitations that characterise Australian general practice. Patient recruitment, data collection and follow up were all conducted by the practice nurse, a method that has been shown to be effective in the Australian general practice setting.^{14–16}

This is a small study restricted to parts of North Queensland, so the findings are not necessarily generalisable to other Australian general practice settings. However, if a similar study was conducted in other Australian general practices, it is possible it would yield comparable results. This study’s success reflects the close engagement of practice nurses with an academic research unit; improvements in vaccination rates could be lower in practices that do not have this level of research engagement.

Teamwork between GPs and nurses is a necessary component of prevention practice in primary care. General practice nurses have the opportunity, knowledge and skills to implement health promotion interventions such as parent

Table 1. Patient knowledge of their vaccination status

Vaccination status	MMR n=177 (%)	Pertussis n=176* (%)	Tetanus n=177 (%)	Varicella n=177 (%)
Confirmed infection	31** (17.5)	0 (0)	0 (0)	136 (76.8)
Fully vaccinated	110 (62.1)	74 (42.0)	128 (72.3)	16 (9.0)
Incomplete vaccination	8 (4.5)	0 (0)	18 (10.2)	0 (0)
Not vaccinated	0 (0)	75 (42.6)	0 (0)	13 (7.3)
Unsure of status	28 (15.8)	27 (15.3)	31 (17.5)	12 (6.8)

* One parent did not report vaccination status for pertussis

** Includes patients born before 1966

Table 2. Proportion of vaccinations completed

Vaccination	Recommended	Completed
MMR	31	14 (45%)
Pertussis	99	60 (61%)
Tetanus	52	24 (46%)
Varicella	18	2 (11%)
Total	200	100 (50%)

Table 3. Reasons for noncompletion of recommended vaccinations

Reason	n=53
Haven't got around to it	19
Don't want vaccination	5
Affordability	4
Pregnant	3
Forgot to ask parent	2
Serology not done	2
Immunity confirmed	2
Other	12
Unknown (unable to contact patient)	7
Total	56*

* Total includes additional reason given by three patients

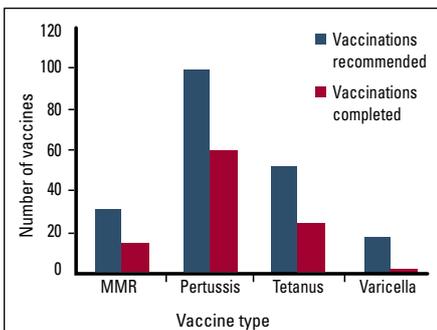


Figure 1. Vaccinations recommended and completed

vaccination. Trialling this intervention in a broader cross section of general practices would be a useful next step.

Implications for general practice

This study suggests that taking an immunisation history from parents and recommending specific vaccinations to them is a worthwhile intervention to add to general practice consultations for childhood vaccinations.

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