

IMMUNIZATION: ACCEPTANCE RATES IN A MILITARY COMMUNITY

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SUMMARY

An immunization survey was carried out in early 1983 in a military community. The survey covered 192 children from 147 families. 98% had BCG scars, and 94% had completed their primary course of immunization against diphtheria, pertussis, tetanus and poliomyelitis. The acceptance rate for booster was however low. The time frame for the immunization was also not adhered to strictly.

An immunization register has been started in all centres for recall of defaulters. Publicity has also been mounted to ensure all are aware of the immunization programme.

INTRODUCTION

Immunization is a major tool for prevention of disease, reduction of infant and childhood morbidity and mortality. It is one of the most cost-effective methods of disease control. With it smallpox has been eradicated¹ though it has

taken more than 180 years since vaccination was introduced by Edward Jenner in 1796.² Measles is the disease next in line for total elimination.³ Worldwide eradication of mumps is also feasible and Sweden has embarked on it.⁴

These vaccine-preventable diseases are however endemic in Malaysia. Sarawak recorded 2305 cases of measles, six cases each of whooping cough and tetanus, one case of diphtheria and no case of poliomyelitis for 1983.⁵ Though the general trend in incidence is downwards, outbreaks do occur from time to time. This paper briefly describes an immunization survey in a military community.

MATERIAL AND METHODS

A house-to-house survey was carried out in early 1983 among military dependents at an army residential complex in Kuching, Sarawak. All houses including flats within the complex were numbered consecutively from one onwards. With the use of a table of random numbers 200 residential units were selected and the houses were visited by two nurses. In the houses where pre-school children were residing, the mothers were interviewed on the immunization status of their children.

Enquiry was directed for Bacille-Calmette Guerin (BCG) (given soon after birth), the primary series against diphtheria, pertussis, tetanus (DPT)

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and poliomyelitis (given at two, three and four months of age) and the booster against diphtheria, tetanus and poliomyelitis at 18 to 24 months of age. The birth certificates were checked to verify the dates as it is common practice to record the dates of immunization on the reverse side of the certificate. If the birth certificate was not available for any reason, the approximate dates given by the mothers were recorded.

RESULTS

Details from a total of 192 children born during the years 1976 to 1983 from 147 families were obtained. The rest of the houses had no pre-school children or were away on leave. There were no refusals. The children comprised of all ethnic groups and came from all social strata. As there were no differences noted in their acceptance rates, the results of all were analysed together.

Only nine had completed the recommended course of immunization by age two. However, 98% showed BCG scars and the acceptance rate for primary immunization against DPT and poliomyelitis was 94%. Only three eligible children failed to have a single dose of the primary course of triple (DPT) antigen and polio vaccine. Three other children did not receive their second and third doses and six others their third dose of the basic course of immunization.

The first dose of quadruple antigen (triple antigen and poliomyelitis vaccine) was received by 74 children aged more than three months. Of these 63 children received it at less than six months of age, ten between six and 12 months, and only one at 14 months of age. This is contrary to the recommended age of receiving the first dose of quadruple at two months of age. (This is now at three months of age.⁶)

The intervals between the first and second and the second and third doses have also varied between one to 18 months. Fortunately only for nine children the interval was longer than one month but less than six months. Two had an interval of nine months and one 18 months.

The reinforcing dose of diphtheria and tetanus (DT) antigen and polio vaccine at the age of 18 to 24 months was not completed by 98 children (76%) belonging to 80 families. Birth certificates showing exact date of receiving the first booster of DT antigen and polio vaccine was available for only 27 children. Seven received their booster within 24 months while the other 20 beyond two years of age, 12 above 24 months but less than 36 months, and eight above three years but less than 10 years of age.

DISCUSSION

The high immunization rates among children of military personnel for BCG at 98% and the primary course of quadruple antigen at 94% compare well with other centres with computer-based recall system as that operated in a practice in Glasgow.⁷ This high rate has been possible because of easy availability of medical facilities within the complex as well as awareness on the part of the parents for immunoprophylaxis. The first booster dose of DT antigen and polio vaccine at age 18 to 24 months has, however, been poor (24% of the 129 eligible children). This is due to lack of knowledge regarding this booster, as was indicated by some of the parents on questioning. In fact the survey made the mothers aware of the need for immunization with the first booster against diphtheria, tetanus and poliomyelitis, and resulted in many children being immunized with it. It is felt that in future the acceptance rate for the first booster will be as high as the basic course.

60% of children received their first dose of the primary course of vaccination above three months of age and for some the intervals between doses were prolonged. This exposes the children to periods of unnecessary risk of acquiring the disease. Fortunately there has been no outbreaks of diphtheria, pertussis, tetanus and poliomyelitis among children of military personnel here in Kuching as well as in other parts of Sarawak and Sabah.

The poor acceptance rate for the first booster with DT antigen and poliomyelitis vaccine has prompted the establishment of an immunization register at the family clinic for easy recall of defaulters. All newborns will be entered in the register and children who miss any of the recommended immunizations (against tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis and measles) at the specified ages will be recalled through the home visitors service now in force or through the father's unit. This will ensure that children receive all their immunizations at the appropriate ages. This is particularly important now that immunization against measles has been included and coverage for measles must be near 100% to prevent outbreaks as shown by a recent outbreak in USA.⁸ It must also be remembered that an immunization failure rate of 5% against measles can be expected⁸ so that a 100% coverage is 95% effective.

Publicity on the immunoprophylaxis programme has also been given through the army newsletter for Region II (*Warta Perajurit*)⁹ and unit orders to ensure maximum participation as acceptance is an essential component of an effective programme. Under-utilization of immunization services is now the main barrier to control in many countries¹⁰ and this can be overcome with a good programme.

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REFERENCES

- 1 Certification of smallpox eradication. *WHO Wkly Epidem Rec* 1980; 55: 3.
- 2 Kahn C. History of smallpox and its prevention. *Am J Dis Child* 1963; 106: 507-609.
- 3 Morly D C. Measles vaccine by aerosol: eradication this century? *Trop Doct* 1983; 13: 90.
- 4 No more mumps in 10 years? *Malay Mail* 23 Nov 1979.
- 5 Sarawak Medical and Health Services Department. *Epidemiological News* Dec 1983.
- 6 *Guidebook on infectious diseases of public health importance in Sarawak*. Medical and Health Services Department, Sarawak, Nov 1983: 40.
- 7 Ross S K. Childhood immunoprophylaxis: achievements in a Glasgow practice. *Hlth Bull* 1983; 41: 253-257.
- 8 Measles surveillance. *WHO Wkly Epidem Rec* 1983; 58: 96-97.
- 9 *Warta Perajurit Wilayah II* (Military Region Two Newsletter) 1984; 103: 14.
- 10 Expanded programme on immunization (EPI). Indication and contraindications for vaccines used in the EPI. *Who Wkly Epidem Rec* 1984; 59: 13-15.