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Evaluation of the opportunities for and contraindications to immunization in a tropical paediatric clinic*

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The immunization status and frequency of contraindications to immunization were studied in 446 children attending the paediatric clinic of a teaching hospital in south India. In all, 27% of the children were up to date in their immunizations, 19% had a contraindication, and 57% required and could safely be given immunizations. A policy of offering immunizations in paediatric clinics to all who require them and who do not have a contraindication would result in protection of a significant number of unimmunized children.

Immunization against childhood diseases is universally regarded as not only desirable but also highly cost-beneficial and cost-effective. However, many children in developing countries remain unimmunized. Some of them are brought to clinics and hospitals only when they are ill, but even this opportunity to immunize them is not often used. The reasons for this are partly because the clinics that offer immunization are separate from the paediatric clinics, and partly because of the belief that any illness is a contraindication to immunization.

Despite recommendations by experts that every opportunity for immunization should be used, including children's visits to clinics owing to an illness (*1, 2*), it is not clear whether such a policy is feasible or will have much impact because of lack of data on what proportion of children attending paediatric clinics have a genuine contraindication to immunization. We have found only one previous study which reported that as many as 76% of 3–23-month old children attending outpatient clinics in several cities in Pakistan were eligible for and in need of immunization (*3*). The present study was conducted to determine the immunization status and the frequency of contraindications to immunization in patients attending a paediatric outpatient clinic in the Christian Medical College (CMC) Hospital in Vellore, south India.

METHODS

The CMC Hospital, Vellore, has a busy paediatric clinic on 6 mornings every week, and 40 544 child-visits were recorded there in 1983. The well-child (immunization) clinic is open on two afternoons each week and recorded 19 133 child-visits in 1983.

The medical records of all the children seen during four of the paediatric clinic sessions in December 1983 and January 1984, except for those who had been admitted or referred to other departments, were reviewed with regard to the following: the patient's age, place of residence and accessibility to a well-child clinic, body weight, presenting complaint, immunization history, and any contraindication to immunization. The status of diphtheria-pertussis-tetanus, oral polio and measles immunizations and whether they followed the schedule recommended by the national expanded programme on immunization were noted (*3*).

The admissible contraindications to immunization were: a severe illness with fever (> 38.5 °C) or requiring laboratory investigations or antibiotic therapy (such as pneumonia or dysentery), an undiagnosed chronic illness that was being investigated, immunosuppression due to steroids or cancer chemotherapy, and severe malnutrition (less than 60% of the median weight-for-age). Mild upper respiratory infections, mild diarrhoea, mild or moderate malnutrition, or fever below 38.5 °C were not considered to be contraindications (*1, 2*).

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Table 1. Selected data on 446 paediatric outpatients in Vellore, 1983

Residence:		
In Vellore town	279	(62)[a]
Outside Vellore	150	(34)
Outside the State	17	(4)
Immunization status:		
Immunizations up to date	121	(27)
Immunizations incomplete	183	(41)
Immunization history not recorded	142	(32)
Contraindications to immunization:		
Contraindication present	84	(19)
No contraindication, but fully immunized	107	(24)
No contraindication, but immunization required	255	(57)

[a] Figures in parentheses are percentages.

RESULTS

The average daily attendance in the paediatric clinic was 125 in 1983. The medical records of 446 children (average, 112 per clinic) were examined and some of the findings are presented in Table 1. Nearly half of the children had either a mild upper respiratory infection (35%) or mild diarrhoea (13%); pneumonia was diagnosed in 4% and severe diarrhoea or dysentery in 3%. The vast majority of all these patients were local residents, only 4% coming from outside Tamil Nadu State.

The immunization status was determined from either the growth charts from the well-child clinic (included in 48% of all case records) or the physician's notes and the results are given in Table 1. Twenty-six percent of the children were over 6 years old, which is above the age for maximum impact of immunization against childhood diseases. These older children constituted 43% of the group with no immunization data recorded in the case notes.

The conditions described above as contraindications to immunization were found in less than a fifth of the children (see Table 1). The category of children with no contraindication but requiring immunization included those who had no information regarding previous immunization in their records, because we assumed that they were more likely to be in need of some immunization.

DISCUSSION

Only 19% of the patients attending the paediatric clinic had a recognized contraindication to immunization; others had only relatively minor illnesses. Most of the children attending the clinic were not seriously ill, and more than half could receive a needed immunization. This clinic therefore offers an opportunity to protect a large number of unimmunized children from preventable illness.

In all, 27% of our outpatients were up to date with their immunizations; this finding that more than a quarter were fully immunized argues against the indiscriminate immunization of all outpatients.

Parents bring their children to the outpatient clinics for common ailments because they expect good medical care. What is the responsibility of the physician — merely to treat the presenting illness or to give complete medical care including immunization? As crowded clinics and waiting areas have been shown to be sources of infection with measles and pertussis, we feel strongly that at each clinic visit the

Table 2. Summary of risks of contracting childhood illnesses and their consequences and those attached to immunizations

Disease	Percentage of Indian children who have had the disease by the age of 5 years[a]	Percentage risk of death or disability from the disease[b]	Percentage risk of death or disability from immunization[c]
Measles	70	2	0.0003
Pertussis	40	2	0.001[d]
Poliomyelitis	0.6	70	0.00003
Tetanus	0.04[e]	60	0.001[d]

[a] Based on references *4–7*.

[b] Based on references *2, 4–7*.

[c] Based on reference *2*.

[d] DPT immunization.

[e] Excluding neonatal tetanus, which is not preventable by childhood immunization.

immunization history of every child should be reviewed and the appropriate vaccine(s) given when there are no contraindications.

However, the risks and benefits of an elective procedure, such as immunization, to a child should be evaluated. Publicity about adverse reactions to immunization in developed countries may make clinicians in developing countries unduly anxious about these risks. Table 2 presents a summary of the current risks of contracting selected childhood illnesses in India, the estimated risk of death or permanent disability caused by these illnesses, and the risk of serious adverse reactions due to immunization (*2, 4–7*). In India and other countries where these diseases are relatively common, the risk of permanent disability or death due to preventable illness is far higher than the risks attached to immunization. For example, using the data in Table 2, the overall risk of death or disability from childhood pertussis in India is estimated at 0.8% (0.40×0.02), which is 800 times greater than the estimated risk of death or permanent disability from DPT immunization, using data from studies in the United Kingdom (*2*).

CONCLUSION

Most of the children who attend our paediatric clinic do not have a contraindication to immunization, and many of them require immunization. We believe that our clinic is probably typical of paediatric clinics in developing countries, and that our experience can be generalized. A policy of offering immunizations in these clinics to all who require them and who do not have a contraindication would result in immunization of a significant number of currently unimmunized children. We are investigating the changes necessary in the outpatient chart to allow easy and rapid assessment of immunization status.

RÉSUMÉ

LA VACCINATION DANS UN SERVICE DE PÉDIATRIE EN RÉGION TROPICALE: ÉVALUATION DES POSSIBILITÉS ET DES CONTRE-INDICATIONS

En dépit des recommandations des experts qui préconisent la vaccination chaque fois que l'occasion s'en présente, et notamment lors des consultations au dispensaire pour cause de maladie, il n'est pas évident que cette politique praticable soit ni qu'elle ait un retentissement. Nous avons donc étudié l'état immunitaire et la fréquence des contre-indications à la vaccination chez les enfants admis en consultation externe de pédiatrie dans un centre hospitalier universitaire de l'Inde du Sud. En 1983, ce service a enregistré 40 544 visites d'enfants malades.

Quatre cent quarante six dossiers d'enfants vus dans le service pendant 4 jours (en décembre 1983 et janvier 1984) ont été examinés. Ont été considérés comme des contre-indications à la vaccination: une maladie grave accompagnée de fièvre (> 38,5 °C) ou nécessitant des examens de laboratoire ou une antibiothérapie (pneumonie ou dysenterie par exemple), une maladie chronique non diagnostiquée en cours d'investigation, les signes d'une immuno-dépression et la malnutrition sévère.

Des contre-indications n'ont été relevées que pour 19% des enfants étudiés; 57% avaient besoin d'être vaccinés et pouvaient l'être sans danger; 27% étaient apparemment à jour pour les diverses vaccinations.

La publicité donnée aux réactions indésirables aux vaccinations dans les pays développés pourrait inquiéter sans raison les cliniciens des pays en développement. L'analyse des données disponibles pour l'Inde atteste que le risque d'incapacité permanente ou de décès imputable à une maladie qui peut être prévenue est bien plus élevé que les risques liés à la vaccination.

Comme la plupart des enfants reçus en consultation dans notre service de pédiatrie ne présentent pas de contre-indication à la vaccination et ont en majorité besoin d'être vaccinés, une politique de vaccination systématique des enfants entrant dans ce cadre dans les services de pédiatrie aurait pour résultat d'assurer la protection d'un nombre significatif d'enfants actuellement non immunisés.

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