Opportunistic Immunization With In-Patient Programme: Eliminating a Missed Opportunity in Calabar, Nigeria

M. U. Anah, I. S. Etuk and J. J. Udo

Department of Paediatrics, College of Medical Sciences, University of Calabar, Calabar, Nigeria
Reprint requests to: Dr. M. U. Anah, Department of Paediatrics, College of Medical Sciences, University of Calabar, Calabar, Nigeria. E-mail: maxejen@yahoo.com

Abstract

Background: Immunization is the most cost-effective tool for disease prevention. Several factors militate against completing immunization. Missed opportunities to vaccinate are one of the barriers to immunization.

Methods: The immunization cards of all the children aged 5 years and below admitted into the paediatric wards of the University of Calabar Teaching Hospital, Calabar, Nigeria, were compared with the history.

Results: Immunization status of 919 patients was ascertained. Only 560(60.9%) were fully immunized for age, 244(26.6%) partially immunized and 115(12.5%) had no form of immunization. The prevalence of missed opportunity was 39.1%. Most (64.9%) of these patients were in the lower socio-economic groups. The commonest reason for missing immunization was illness of the child at time of immunization. Immunization was given to 124(34.5%) before discharge, 71(19.8%) at follow-ups, 31(8.6%) loss to follow-up and 15(4.2%) rejected immunization.

Conclusion: Immunization coverage is still low and many children on admissions have not completed immunization. We can reduce missed opportunity to immunize if medical personnel crosscheck immunization history with immunization cards at each visit to a health facility and appropriate immunization offered. In-patient immunization programmes should be incorporated into the paediatric practice in our country.

Key words: Immunization status, missed opportunity, opportunistic immunization

Résumé


Méthodes: Les cartes d’immunisation de tous les enfants âgés de moins de 5 ans admis dans la salle pédiatrique du centre hospitalier universitaire du Calabar, Nigéria, ont été comparés avec l’histoire.

Résultats: Statut de l’immunisation de 919 patients était confirmé. Seulement 560 soit 60,9% étaient complètement immunisé pour l’âge, 244 soit 26,6% partiellement immunisé et 115 soit 12,5% n’avaient aucune forme de l’immunisation. La fréquence de l’opportunité manquée était 39,1%. La grande partie (64,9%) de ces patients étaient dans le groupe socio-économique bas. La raison la plus ordinaire pour manquer l’immunisation était, la maladie d’enfant pendant l’immunisation. L’immunisation était donnée au 124 soit 34,5% avant d’tre renvoyé, 71 soit 19,8% pendant des soins post-hospitalier et 15 soit 4,2% ont refusé l’immunisation.

Conclusion: La couverture de l’immunisation n’est pas encore encourageante et beaucoup d’enfants dans l’hôpital n’ont pas encore complété l’immunisation. Nous pouvons réduire l’opportunité manquée pour faire l’immunisation si les docteurs vérifient le dossier d’immunisation avec les cartes pendant chaque visite à l’hôpital et donnent l’immunisation adéquate. Les programmes pour l’immunisation des patients internes devrait être incorporée dans la pratique pédiatrie dans notre pays.

Mot-clés: Statut de l’immunisation, opportunité manquée, immunisation opportuniste
Introduction

Immunization against the 6 common childhood killer diseases (tuberculosis, measles, poliomyelitis, tetanus, diphtheria, and pertussis) had been adopted in Nigeria and children under 5 years are routinely immunized. Recently immunization had been expanded to include yellow fever and hepatitis B. Immunization uptake in Nigeria remains low because of missed opportunities to immunize significant contributors to this short fall in immunization targets. Missed opportunities for immunization occur when a child or woman who is eligible for immunization visits a health facility but fails to receive that vaccine. It is not only when a child present in hospital for immunization. Each contact between children and health care professionals should be seen as an opportunity to immunize.

Both in-patients and outpatients children are at risk of under immunization, because their illness could always be given as an excuse for under immunization. In University of Calabar Teaching Hospital (UCTH), Calabar, Southeastern Nigeria, infrastructure necessary for effective opportunistic immunization of in-patients does not exist. However, babies delivered at the centre benefit from routine BCG or oral polio vaccine (OPV) immunization, but infants brought on a day immunization is not scheduled stand a chance of missing the immunization.

Admission to hospital allows time to confirm immunization status. Appropriate immunization, would then be administered before discharge. The World Health Organisation (WHO) Officer of Expanded Programme on Immunization (EPI) advocates that staff at health facilities should screen and if appropriate, immunize every infant, child and woman of reproductive age attending the health facility.

The aim of this report was to determine the prevalence of missed immunization against the six common childhood killer diseases, administer appropriate immunization and assess the success of incorporating immunization programme into hospital care in children aged 5 years and below.

Materials and Methods

This was a prospective study carried out in the paediatric wards of the University of Calabar Teaching Hospital (UCTH), Calabar, in southeastern Nigeria. The study lasted 12 months from August 1, 2003 to July 2004. All consecutive admissions aged 5 years and below were recruited into the study.

The ethical committee approved the study. Consent was obtained from the parents/guardians.

A biodata detailing the age, sex, clinical features, immunization history, usefulness of immunization as well as the educational level and occupation of the parents/guardians, and reasons for missing immunizations were obtained for each child. The socio-economic group was established according to the recommendation by Olusanja et al. Those who did not present the immunization cards were excluded. Also excluded were patients that did not commence immunization because of present illness or were referred to other centers. Any under immunized child had appropriate immunization before discharge except there was absolute contraindication such as tuberculosis, severe malnutrition and immunodeficiency. Patients aged 3 months and above without BCG immunization had a Mantoux test and BCG vaccine was given to those with negative results. Others were immunized at follow-up when they were fit.

Results

Immunization status was ascertained for 919 children, mean age 1.2 ± 0.84 years out of 1597 patients. Five hundred and twenty-nine were males and 390 were females. Four hundred and ninety-six were infants and 423 were between the ages of 1 and 5 years. The youngest was aged 3 weeks and oldest 5 years. The mean age 1.2 ± 0.84 years out of 1597 patients. Five hundred and sixty (60.9%) had been immunized at the appropriate age; 244(26.6%) had been partially immunized and 115(12.5%) had no immunization at all. The prevalence of missed opportunity was 359 (39.1%).

Among the 359 that had missed a scheduled immunization, 233(64.9%) were in the lower socio-economic groups (IV and V); 72(20.1%) were in-group 111 and 54(15%) in groups 1 and 11.

Ninety-eight percent of parents/guardians subscribed to the usefulness of immunization but 21% did not know the diseases they prevent. One hundred and twenty six (35.1%) had missed a scheduled immunization because of acute illness (table 2). The illness included fever, cough, and diarrhea. Eight (2.2%) mothers attributed the development of a febrile episode following previous administration of vaccines for non-compliance.

The commonest vaccine missed was measles vaccine (Table 3). Two unimmunized children contracted measles while in the ward. Ten died because of measles and two because of tuberculosis during the period. One baby was on prophylactic isoniazid. The mother had open tuberculosis and hence, was not immunized with BCG (because there was no isoniazid resistant BCG).

One hundred and eighteen (32.9%) were not offered immunization because they had measles (86), chronic ill health (14) and mortality (18). One hundred and twenty-four (34.5%) were in-group 111 and 54(15%) in groups 1 and 11.

Fifteen (4.2%) rejected offered immunization and 31(8.6%) were lost to follow up.
Table 1: Age and sex of 919 children and social class of their families

<table>
<thead>
<tr>
<th>Social class</th>
<th>Sex</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>60</td>
<td>25</td>
<td>85</td>
</tr>
<tr>
<td>11</td>
<td>88</td>
<td>49</td>
<td>137</td>
</tr>
<tr>
<td>111</td>
<td>106</td>
<td>106</td>
<td>212</td>
</tr>
<tr>
<td>Iv</td>
<td>187</td>
<td>158</td>
<td>345</td>
</tr>
<tr>
<td>V</td>
<td>88</td>
<td>52</td>
<td>140</td>
</tr>
<tr>
<td>Total</td>
<td>529</td>
<td>390</td>
<td>919</td>
</tr>
</tbody>
</table>

Table 2: Reasons for missing scheduled immunization among 359 parents

<table>
<thead>
<tr>
<th>Reason</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ill at time of immunization</td>
<td>126(35.1)</td>
</tr>
<tr>
<td>No reason/ignorance</td>
<td>86(24.0)</td>
</tr>
<tr>
<td>Long distance from health facility</td>
<td>67(18.7)</td>
</tr>
<tr>
<td>No vaccine at time of visit</td>
<td>60(16.7)</td>
</tr>
<tr>
<td>Change of residence</td>
<td>12(3.3)</td>
</tr>
<tr>
<td>Fever following previous immunization</td>
<td>8(2.2)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>359 (100)</td>
</tr>
</tbody>
</table>

Table 3: Distribution of 359 children that did not receive various vaccines

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG</td>
<td>123 (34.3)</td>
</tr>
<tr>
<td>Oral polio vaccine</td>
<td>123(34.3)</td>
</tr>
<tr>
<td>DPT and oral polio vaccine</td>
<td>129(35.9)</td>
</tr>
<tr>
<td>DPT and oral polio vaccine</td>
<td>134(37.3)</td>
</tr>
<tr>
<td>DPT and oral polio vaccine</td>
<td>135(37.6)</td>
</tr>
<tr>
<td>Measles</td>
<td>139(38.7)</td>
</tr>
</tbody>
</table>

BCG: Bacille Calmette Guerin; DPT: Diphtheria, pertussis and tetanus. Many patients missed a combination of immunizations depending on their age.

Discussion

Immunization is an effective preventive medicine and is one of the pillars of the child survival strategies. The prevalence of missed opportunity to immunize was 39.1%. This is similar to reports in other places. Compliance with the National Immunization Programme (NPI) is variable. An earlier report in this centre had shown the almost disappearance of measles following response to immunization but this was lost as shown by a recent report. Emphasis of these reports have not been on missed opportunities of immunization. Edet et al had reported a prevalence of missed opportunity of 66% among patients seen at antenatal clinics in Calabar. This prevalence of missed opportunity in this survey might have been higher if outpatient Paediatric clinics were studied. To reduce this high prevalence, we must educate medical doctors and other healthcare professionals, to see each contact between children and the health care system as an opportunity to review their immunization status. Thereafter, immunizations could be updated where indicated with all the vaccines for which the children were eligible.

Missed opportunities to immunize is one of the major reasons for the continuing under immunization of vulnerable children. The National Immunization Days (NID) of the NPI is attempting to bridge this gap, but assessment of its success is questionable, children immunized are not given any card to that effect and it is not all embracing. Immunization in hospital care can make an important contribution to this vulnerable group of children but only if it is considered important by all medical staff, and a routine system is introduced for screening and vaccinating. Many doctors, do not even take immunization history in their ever-busy clinics.

Patients in the lower socio-economic groups contributed the greatest number of partially immunized/unimmunized children. These categories of children had earlier been shown in this centre to be more prone to malnutrition and other diseases. This group needs to be targeted if improvement in immunization coverage is to be increased.

It is not because of none awareness of the importance of immunization that constitute non-compliance. Most (98%) of the respondents acceded to the usefulness of immunization. Maternal education was shown to be one of the determinant factors of completion of immunization. Many parents (21%), however, did not know what diseases the vaccines prevented. Continuous health and general education is necessary to eliminate lack of knowledge. Others had earlier described the reasons given for missing schedule immunizations.

One noticeable important reason that should not be ignored is illness of the child, and appropriate follow-up system could obviate this reason. Many of our patients, benefited at follow up. Vaccines are still not available when due. This was one of the reasons for missing scheduled immunizations. To meet the immunization target, governments at all levels must continue to supply vaccines without hinderance.
needed to take care of missed immunization opportunities. Bell et al., through this method increased percentage of fully immunized children from 44% on admission to 70% at discharge. Pritchard et al increased coverage from 60% to 82% of hospitalised children prior to discharge. They also set up childhood immunization groups designed to identify and provide immunization to hospitalized children. Our centre does not have such a group even though immunization officers do provide OPV and BCG to in-born patients before discharge. This could be improved upon to include all in-patients pre-school children to increase immunization coverage. This group will also trace those lost to follow-up as well as take care of outpatient missed immunization opportunities.

Conclusion
In conclusion, we have shown that a large percentage of under-5 children admitted to hospital are under immunized. These under immunized/unimmunized children could be offered immunization before discharge or at follow-up.

We recommend that emphasis should be placed on accurate documentation of immunization status of each child admitted, and any needed vaccines given on the day of discharge through a properly organized immunization group in all centers that admit children.

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References