

Immunisation Status of Children with Measles: Experience with the Oyo State Expanded Programme of Immunisation

MC ASUZU* AND MO ONADEKO†

Summary

Asuzu MC and Onadeko MO. Immunisation Status of Children with Measles: Experience with the Oyo State Expanded Programme of Immunisation. *Nigerian Journal of Paediatrics* 1984; 11:13. A study of children with measles seen at a rural health centre (Igbo-Ora) and at an urban centre (Ibadan) during an epidemic revealed that 30% and 57% respectively, of the children had received measles vaccine. The most likely causes of immunisation failure in these children were inappropriate immunisation age and breakdown in the cold chain. The possibility of delaying measles vaccination till the age of nine months when adequate sero-conversion could be achieved, and the importance of strict monitoring of the cold chain, are highlighted.

Introduction

MEASLES constitutes a major cause of morbidity and mortality in developing countries.¹ The incidence can be significantly reduced by immunisation with the improved measles vaccine²⁻⁴ However, measles immunisation programmes present many problems which include vaccine transport and storage (cold chain),⁵ age of susceptibility to measles infection in the particular area,^{6,7} age at which measles immunisation will produce optimal seroconversion,⁸⁻¹² and the interference of maternal antibodies with seroconversion, especially in breast-fed children.¹³ In order to ensure maximum success of measles

immunisation in any locality, it is important to have a well-planned programme based on a careful evaluation of past experience as advocated by previous workers.^{11,14} Thus, vaccine failure which may adversely affect the morale of the clients will be minimised.

The Expanded Programme of Immunisation (EPI) was started in Oyo State in 1976 as part of the general health services of the State. A two-contact immunisation schedule was adopted and, to our knowledge, no evaluation of the programme has been published. The two-contact complete immunisation schedule was adopted on the basis that group immunisation for the different diseases in each group does not interfere with seroconversion against the individual diseases.

Towards the end of 1979, three years after the programme was started, it was suspected that the immunisation for measles was probably not as

University College Hospital, Ibadan

Department of Preventive & Social Medicine

*Senior Registrar

†Senior Lecturer

study on the incidence of measles in previously vaccinated children in this part of the country made it difficult for us to ascertain whether the failure was solely attributable to the lowering of the age of immunisation from 8 to 6 months introduced with the State EPI programme.

In the present study, the high proportion of patients with measles among previously immunised children suggests that poor vaccine potency and inappropriate age for primary measles vaccination were probably the most likely reasons for the immunization failure. There was a significantly higher rate of immunisation at Igbo-Ora than at Ibadan, thus confirming the results of a recent community-based survey carried out at Igbo-Ora by one of us (MCA), which revealed an immunization rate of 85%. Among Ibadan children from the traditional districts, Olugbile¹⁵ has reported an immunization rate of 10%. In the present study, the immunization rate among the children from the traditional areas of Ibadan who had measles was 10.8%. Thus, a higher proportion of Igbo-Ora children would seem to have been protected against measles than Ibadan children of similar social and environmental conditions. The only difference in the immunization practice in Igbo-Ora and in the indigenous Ibadan areas was that while measles vaccine was stored in the deep-freezer and removed only on the morning of immunization at Igbo-Ora, it was sometimes stored in the ice compartment of ordinary fridges in some of the centres at Ibadan.

Studies carried out on Nigerian children have shown that maternally derived measles antibodies level is 100% at birth, but falls to very low levels by 7-8 months, while build-up of antibodies from childhood infections starts after 9 months of age.¹⁴ Another study by the same authors has revealed that the mean age of sero-conversion in children who received measles vaccine was 9.79 months¹⁶ which is close to the peak age incidence of 10-12 months in the present study. Thus, it is evident that there is no justification for lowering the age of immunisation against measles from 8-9 months as previously practised to 6 months

as in the EPI. Seroconversion studies carried out elsewhere in Africa lend further support for retaining the 8-9 months age at which acceptably high enough sero-conversion rates are achieved.^{6,9}

In the light of the present findings, it is recommended that as a matter of priority, central laboratories should be instituted for routine potency check of vaccines at all terminal central depots. Vaccines should be checked for potency from time to time and impotent vaccines discarded. This will help to avoid the manpower and resource wastage involved in the administration of useless vaccines and subsequently, loss of confidence of the recipients when immunisation ultimately fails to protect the children. The need to provide an effective cold-chain is quite well known, but in the situation of uncertainty in this regard, particularly with the incessant power-cuts, an end-of-the-road check such as proposed here is a worthwhile alternative.

It is suggested that a similar study to the present one is desirable elsewhere in the country in order to confirm the suggested age of 8-9 months for measles immunisation. If however, the procedure is undertaken at 6 months of age, a booster dose should be given at about the age of one year as advocated by King.¹¹

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