

## The Pattern of Measles in Calabar

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### Summary

Asindi AA and Ani OEO. **The Pattern of Measles in Calabar.** *Nigerian Journal of Paediatrics* 1984; 11:115. A review of 352 cases of measles admitted into the University of Calabar Teaching Hospital, Calabar, during a 2-year period showed that 80% of the patients were below 2 years of age with a peak incidence in the second half of the first year of life. While measles occurred throughout the year, the prevalence was highest during the dry season (November to May) and lowest in the rainy season (June to October). Bronchopneumonia and gastroenteritis were the commonest complications occurring in 57.4% and 15.9% of the cases respectively. The mortality rate was 2.8%. Deaths were due to associated bronchopneumonia in 80%, malnutrition, laryngotracheobronchitis in 2% each and dehydration in 1% of cases. The relatively low mortality rate was probably due to early consultation and prompt treatment of complications, particularly pneumonia.

### Introduction

Measles has become a minor childhood illness in the technologically developed countries of Europe and North America<sup>1 2</sup> whereas, in the tropics, it has remained a major cause of morbidity and mortality.<sup>3</sup> Factors responsible for these observations include malnutrition,<sup>2 4 5 6</sup> lack of immunization, delay in seeking medical

treatment and the very early age of onset. It is unfortunate that a preventable disease like measles should become a major public health problem in our childhood population. Previous studies on this disease have been carried out in some parts of Nigeria.<sup>4 6 7</sup> To the best of our knowledge however, the pattern of measles in our part of Nigeria has not yet been reported. It was therefore, considered desirable to review this endemic and fairly lethal disease in order to determine the incidence and general pattern in our community.

This retrospective study was undertaken to evaluate the features of measles in children admitted to the University of Calabar Teaching Hospital (UCTH), Calabar.

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### Materials and Methods

Until June 1981, all children seen with measles in the UCTH were referred to the Infectious Diseases Hospital (IDH), which is a State Government Hospital in Calabar. Although most of the patients with measles in Calabar still attend the IDH, those who have been presenting at the UCTH since June 1981 are no longer referred to the IDH but are managed at the Teaching Hospital. For the purpose of this study, records of children with a discharge diagnosis of measles from June 1981 to May 1983 were reviewed. The sources of admission of the cases were the General Outpatients, Casualty and the Children's Outpatient clinic.

In this study, diarrhoea and vomiting were taken as symptoms of measles, but as complications if associated with dehydration. Also,

purulent conjunctivitis and not just injected conjunctiva, was regarded as a complication. The patient's age, sex, clinical presentation, date of admission, immunization status and management including complications and outcome were recorded.

### Results

#### *Age and Sex Distribution*

Of the 352 cases of measles admitted during the study period, 173 were males and 179 females, a M/F ratio of 0.96:1. The ages ranged between five months and eight years (fig. 1). The peak age incidence was between 6 and 12 months. Detailed analysis of the data shows that 16 (4.5%) of the cases were 6 months and below; 119 (33.8%) were between 6 and 12 months; 84 (23.9%) were aged between 12 and 18 months, while 60 (17%) were between 18 and 24 months. Only 67 (19%) of the 352 patients were above two years of age.

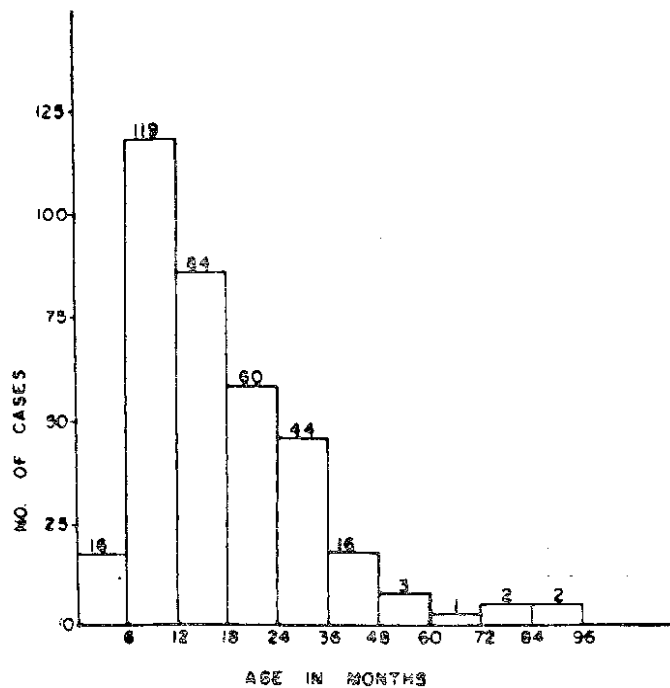


Fig 1. Age distribution in 352 cases of measles

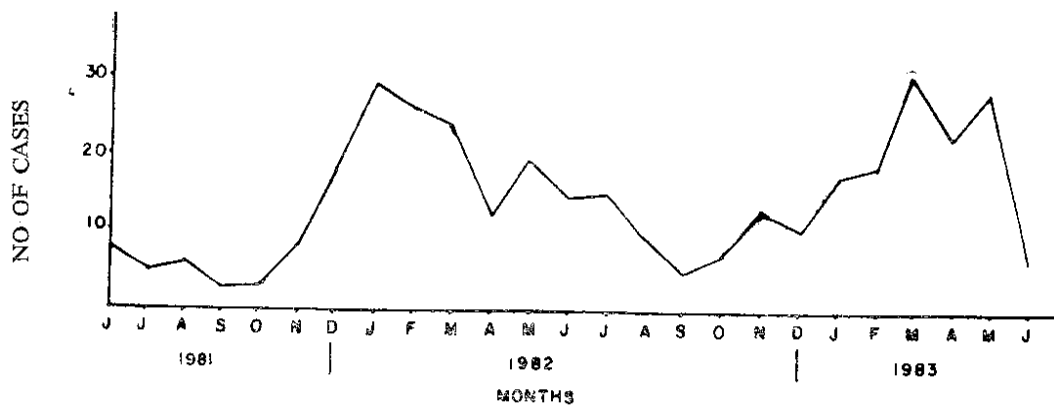


Fig 2. Monthly admissions of cases of measles

*Seasonal Distribution*

Cases of measles were admitted throughout the year, but admissions were highest in the months of December through May and lowest in August through October (Fig. 2). These periods correspond roughly with the dry and rainy seasons, respectively.

*Immunization Status*

Sixty-one (12.3%) of the patients had been immunized against the common infectious diseases of childhood, but only 17 (4.8%) had apparently been immunized against measles.

*Clinical Features*

Fever, cough and injected conjunctiva were present in all the 352 patients. Twenty-one (6%) patients were admitted as cases of pyrexia of unknown origin (PUO) and the rash erupted after 24-36 hours of hospitalization. Two hundred and eighty-two (80%) of the 352 cases were brought to the hospital on the day the measles rash was first noticed by the parents, while 49 (14%) patients were admitted between the second and fifth day following eruption of the rash. Of the 352 patients, 187 (53.7%) presented with diarrhoea and vomiting. Forty (11.4%) showed signs of

chronic malnutrition on admission. Of these, 10 had kwashiorkor and 30 were marasmic.

*Complications*

Three hundred and three (86%) of the 352 cases had various complications (Table I). Two

TABLE I

Major Complications in 352 Cases of Measles

Complications	No. of Cases	% of Total
<b>Respiratory</b>		
Bronchopneumonia	202	57.4
Laryngotracheobronchitis	9	2.6
Dehydration	56	15.9
Febrile convulsions	14	4.0
Purulent conjunctivitis	11	3.1
Otitis media	5	1.4
Subcutaneous emphysema	5	1.4
Severe stomatitis	2	0.6
Epistaxis	1	0.3
Encephalitis	1	0.3

hundred and eleven (60%) patients had respiratory complications; 202 of these had bronchopneumonia, while 9 had laryngotracheobronchitis. In 188 (53%) patients, the signs of pneumonia were detected when the rash was just appearing on the face while in the remaining 14 (3.9%), the signs were detected following the desquamation of the rash. It was possible to trace the chest radiographs of only 33 of the patients who had respiratory complications. Of these 33 chest radiographs, 9 were within normal limits; of the remaining 24 cases, 11 showed bilateral bronchopneumonic changes, in the other 13, the changes involved one lung field, 8 on the right and 5 on the left. Five (1.4%) patients developed subcutaneous emphysema involving the anterior chest wall. Each of these patients had pneumonia.

Fifty-six (15.9%) patients developed moderate to severe dehydration while 15 (4%) had convulsions during the course of their illness. There was no obvious cause of the convulsion other than fever except in one case who had encephalitis. Many of these complications frequently occurred together.

#### *Treatment*

A 5 to 7-day course of antibacterial agents was prescribed for all patients on admission. The most commonly used antibiotic was ampicillin. Substitutes, determined by availability, were cephalexin, cotrimoxazole and erythromycin. Fifty-six patients with dehydration following diarrhoea and vomiting received intravenous fluids. All the 11 children with purulent conjunctivitis had either chloramphenicol or sulphacetamide eye drops. High protein diets were offered to the 40 children with malnutrition. The average duration of stay in hospital was five days.

#### *Mortality*

Ten (2.8%) of the 352 children died. Death was associated with respiratory complications and in one case, with a combination of malnutrition and dehydration (Table II). Six of the 10 children who died, were aged between 7 and 12 months, three

TABLE II  
*Causes of Death in 10 Children with Measles*

<i>Cause of Death</i>	<i>No of Cases</i>
Pneumonia	5
Pneumonia + cardiac failure	1
Pneumonia + laryngotracheobronchitis	1
Pneumonia + malnutrition	1
Malnutrition + gastroenteritis	1
Laryngotracheobronchitis	1
Total	10

between 13 and 24 months, while the remaining one was 3 years old.

#### **Discussion**

This review has shown that in Calabar, children were admitted into hospital with measles at an early age, with about 80% of admissions being aged below two years. The prevalence of the disease among those admitted was higher in the second half of the first year than at any other period. The low age prevalence observed in this study is in keeping with the findings in Ibadan,<sup>4</sup> Benin City<sup>6</sup> and Lagos.<sup>7</sup> An explanation for this could be the waning maternal measles antibody as reported by Ogunmekan, Bracken and Marshall.<sup>7</sup> Therefore, it would seem appropriate that children in our environment should be immunized against measles between the ages of five and six months as has been suggested by other workers.<sup>4 8 9</sup>

Many of the complications occurred together in most patients. Bronchopneumonia, contributing to 90% of the deaths, was the commonest complication in the present study. The high incidence of pneumonia in more than half of our patients during the very early phase of the rash is not the experience in other centres. Only 5%

of the patients in the Benin City series<sup>6</sup> for instance, presented with pneumonia in the early stage of the disease while in the rest, the bronchopneumonia became apparent during the stage of skin desquamation.

The overall mortality rate of 2.8% was comparatively low considering recent reports on measles from other parts of Nigeria.<sup>8-10</sup> This low mortality rate might have been due to early consultation as a result of increasing awareness. Moreover, in our series, the appearance of pneumonia early in the course of the illness prompted the administration of antibiotics to every case on admission, to combat secondary bacterial infections. Malnutrition and gastroenteritis had made minor impact on the death rate. This observation is at variance with the report of Osunde<sup>10</sup> in Benin City where 30% of those who died were undernourished.

Our finding that 4.8% of the children with measles were previously immunised, raise the possibility that the vaccine used could have lost potency due to inappropriate storage or the result of technical error during the process of vaccination. In 1971, Williams<sup>11</sup> reported that 20% of previously immunized children in Lagos developed measles while recently in Ibadan,<sup>12</sup> between 30 and 50% of previously immunized children developed the disease. Furthermore, the observation that 15 of the 17 children so immunized contacted measles between the ages of 11 and 48 months lends support to the suggestion that booster doses of measles vaccine should be given at 11 months.<sup>13</sup>

This review has shown measles to be a comparatively mild disease in Calabar. This favourable outcome could have been due to the good state of nutrition of the children prior to measles infection. The economic depression currently affecting Nigeria may bring in its wake, an unprecedented increase in the prevalence of malnutrition which

may make measles a devastating disease. A periodic review of the disease in the same geographical area or locality is therefore, justifiable.

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