

# Measles Outbreaks in the Mozambican Refugee Camps in Malawi: The Continued Need for an Effective Vaccine

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Between November 1988 and January 1989, measles outbreaks occurred in 11 Mozambican refugee camps in Malawi with five camps principally affected. A total of 1214 cases were reported. Despite the reduction of the age of measles vaccination to six months in 1987, attack rates were highest in children aged 6-9 months (10-26%); rates were also high in the 0-5 month age group (3-21%). The case-fatality rate was high among children less than five years old (15-21%). Children were being inappropriately vaccinated, either being vaccinated at less than six months of age (2-29%) or failing to receive a second dose if vaccinated at six months (0-25%). With vaccine coverage between 66-87%, vaccine efficacy in children less than five years old was estimated to be more than 90% in the camps principally affected. Reduction of the age of vaccination leads to logistical problems in vaccine delivery in refugee situations. These outbreaks again indicate the need to improve vaccine coverage with the existing Schwarz vaccine, and also highlight the urgent need for an effective single dose measles vaccine for children less than nine months of age.

Despite the advent of a measles vaccine in 1959<sup>1</sup> measles epidemics with high mortality and morbidity continue to occur across the world.<sup>2-4</sup> The Schwarz strain of live, further attenuated measles vaccine was used in the US from 1965 to 1976, and remains the predominant measles vaccine strain in most other countries. In the US, measles immunization at 15 months of age with the Schwarz strain and more recently the Moraten strain (first licensed in 1968), has reduced the incidence of measles to 6/100 000 population per year.<sup>2</sup> The currently available live vaccines have been shown to produce high seroconversion rates only in children of eight months of age or older<sup>5</sup> and because of this, these vaccines are not as useful in Africa where infants are exposed to measles early in their lives.<sup>6-8</sup> To combat this effect the World Health Organization (WHO) recommends that the Schwarz single antigen vaccine is given to children between 9 and 23 months of age.<sup>9,10</sup> In certain populations where measles occurs in even younger children the vaccine is

given at six months with a second dose at nine months of age.<sup>11</sup> Despite these measures, measles epidemics continue to occur. Nowhere is this more of a problem than in the crowded populations of refugee camps.<sup>12,13</sup>

We report an investigation conducted during the 1988 to 1989 measles outbreaks in the Mozambican refugee camps in Malawi. This report reviews the measles surveillance in the camps, discusses the reasons for the outbreaks and identifies the continued need for an effective single dose measles vaccine for children less than nine months of age.

## BACKGROUND

Malawi is a land-locked African country, south of the equator, bordered to the north by Tanzania, to the west by Zambia and to the south and southwest by Mozambique. Since 1985, refugees had been fleeing across the Mozambican border into Malawi to escape the civil war. In September 1986, the refugee population reached 70 000 and by the end of 1988 the numbers had increased to 620 000.

In 11 refugee camps in the south of the country, health care is provided by Malawian medical personnel and medical staff from Medecins sans Frontières

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