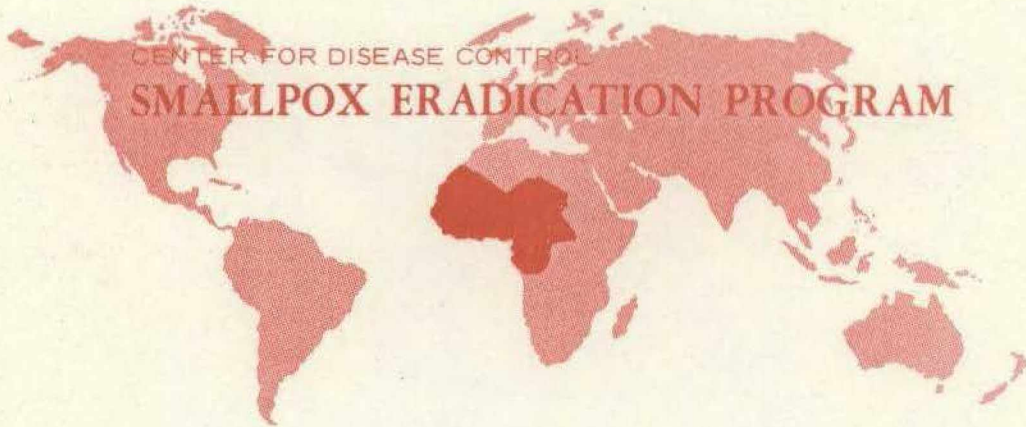


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- I. CURRENT SMALLPOX MORBIDITY STATUS
- II. SMALLPOX OUTBREAKS IN NIGERIA
- III. YELLOW FEVER IN AFRICA

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

PUBLIC HEALTH SERVICE

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I. CURRENT SMALLPOX MORBIDITY STATUS

The number of reported cases of smallpox for the 20 country West and Central African Area during 1968, 1969 and 1970 is presented in Table 1. The decline in smallpox is even more dramatic when compared to the monthly average for the period of 1960-1967. During this time an average of 10,149 smallpox cases were reported each year.

A total of 65 cases of smallpox have been reported in Nigeria from January 1, 1970 through May, 1970. These data will be updated as received.

Table 1. Reported Cases of Smallpox by Month, West and Central Africa 1968-1970

Month	Monthly Average 1960-1967	1968	1969	1970
January	730	729	124	2
February	1,191	939	117	26
March	1,411	619	41	28
April	1,616	683	83	8
May	1,306	688	30	1
June	855	411	22	
July	657	282	39	
August	509	197	15	
September	357	212	9	
October	382	319	2	
November	435	131	1	
December	469	120	0	
Total	10,149	5,330	483	65

Source: WHO WER, #8, February 21, 1969; #26, June 26, 1970.

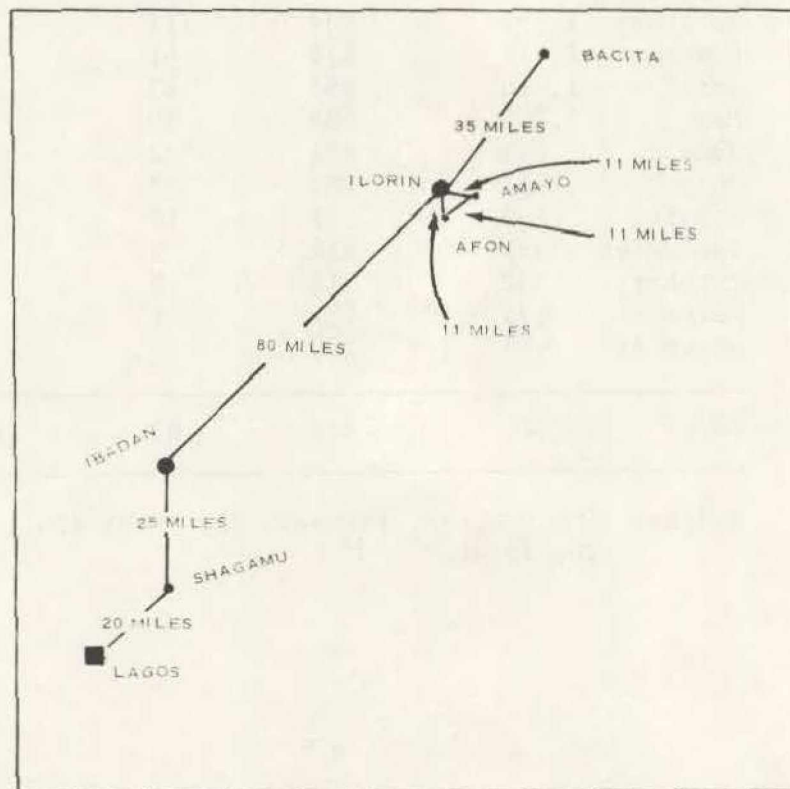
II. SMALLPOX OUTBREAKS IN NIGERIA

A. Introduction

During the first six months of 1970, a total of three outbreaks of smallpox have occurred in Nigeria. The geographic distribution of these outbreaks is shown in Figure 1. In these outbreaks, a total of 73 cases have been reported. As yet a common source between the three outbreaks has not been determined. Preliminary data on the three outbreaks are presented in chronological order.

An outbreak in Amayo village and Ilorin town was discussed earlier (SEP-R Volume IV, No. 3). Two additional cases were reported from Amayo village making a total of 61 cases. These cases had onsets of illness on April 4 and April 7.

FIGURE 1
GEOGRAPHIC SPREAD OF THREE SMALLPOX OUTBREAKS
IN NIGERIA, 1970



1. Ilorin Town Outbreak

Additional data are available for the seven cases in Ilorin town which were not presented in the cited reference. The first two cases were admitted to the Ilorin Infectious Diseases Hospital on April 14. Case #1, a 19-month-old vaccinated female with no visible vaccination scar, was attended by the mother of case #2. She developed fever on March 29, with rash occurring on March 31. Case #2, a three-week-old unvaccinated male had onset of rash on April 12. No known exposure with other smallpox cases was established. Case #1 and Case #2 lived in compounds which were approximately 150 yards apart. Case #1 and her mother had travelled to and lived in Bacita town, Kwara State during the period February 27 to March 14. Fever began 15 days after returning to Ilorin.

A follow-up visit on April 20, to the compound where Case #2 lived resulted in the discovery of Case #3. Case #3 was a five-year-old unvaccinated female who developed smallpox on March 16. During the same day while visiting the compound of Case #1, Case #4 was discovered. Case #4, a four-year-old unvaccinated female, was observed to have obvious depigmentation spots with distribution characteristic to that of smallpox. History indicated an onset of illness on April 1.

Case #5, a one-year-old unvaccinated male was discovered through a house-to-house search. Case #5 had onset of smallpox on or about February 1, and had lived in Afon village from mid-January to onset of fever, at which time the mother and child returned to Ilorin. The village of Afon is 11 miles from Amayo where an earlier outbreak had been reported.

Case #6 and Case #7 were known to have had onset in September 1969, and April 25, 1970, respectively. Additional information is unavailable.

2. Shagamu Outbreak

A total of two cases have been reported. Case #1 was a 45-year-old unvaccinated male who had onset of rash on May 6. No known exposure to smallpox was established.

Case #2, a 27-year-old vaccinated female who lived two doors away from Case #1, developed a rash on May 21. Due to the heavy density of the rash, the presence or absence of a vaccination scar could not be determined.

3. Lagos Outbreak

Two cases of smallpox were reported from Lagos. Case #1 reportedly died on April 19, without having sought medical attention. Case #2, a 16-year-old unvaccinated female was hospitalized at the Lagos Infectious Diseases Hospital with smallpox on May 1, 1970. This patient was in the fourth day of rash at the time of hospitalization, having developed a fever on April 24, with rash appearing on April 28. She was exposed to Case #1 on April 17.

B. Control Measures of the Three Outbreaks

Active surveillance efforts were instigated around each of the cases together with vaccination of all contacts. In Ilorin town a total of 48 primary contacts were located and vaccinated. Of these 48, 36 had visible signs of either vaccination scars or facial scarring due to the disease. An assessment survey showed that only 59.2% of 1084 persons seen had a vaccination scar. A total of 18,300 multiple pressure vaccinations were given as part of control activities in Ilorin.

In Shagamu, assessment showed vaccination scar rates to be approximately 80% before vaccinations were given as part of the control effort.

In Lagos, an assessment survey indicating 86.4% of approximately 4,000 people included in the survey had a vaccination scar. A total of 5,039 vaccinations were given in the immediate area of the case.

A summary of all 1970 smallpox cases in Nigeria together with the known relationships of cases will be presented in a future SEP Report when investigations have been completed.

(Reported by Dr. E. A. Smith, Ministry of Health, Nigeria.)

III. YELLOW FEVER IN AFRICA

Mass vaccination campaigns for yellow fever were conducted throughout West Africa during the period 1939 through 1962. For the period 1953 through 1965, epidemic yellow fever was not observed in these vaccinated areas. The disease still remained active, however, particularly in areas where systematic vaccination campaigns had not been conducted. Localized outbreaks occurred in Ghana, Nigeria, Sierra Leone, and Congo (Kinshasha) during 1948 and 1959, the Sudan in 1959, Ethiopia during 1961-1962, Ghana in 1963, Guinea in 1964, Senegal in 1965, and Liberia in 1967.

In 1969, during October and November, yellow fever was reported almost simultaneously from five countries; Ghana, Upper Volta, Mali, Nigeria and Togo. Prior to this outbreak, a similarly widespread geographic distribution of the yellow fever had not been seen since 1939. In view of the outbreak in 1969, it must be emphasized that yellow fever will continue to reappear if the vaccination coverage remains inadequate.

The large yellow fever outbreak (243 reported cases) which occurred in Senegal in 1965, provided useful information for health officers anticipating yellow fever in West and Central Africa, namely;

1. Populations previously vaccinated were not affected.
2. Vector control and vaccination can be started very rapidly when an epidemic occurs or threatens, provided the necessary personnel, supplies, and equipment are readily available.
3. The speed of intervention can be considerably improved by instituting permanent effective surveillance of yellow fever.

Resume of Number of Cases and Deaths Occurring During the 1969 Epidemic

In Ghana, the epidemic started during the last two weeks of August with at least 250 suspected cases occurring during the epidemic. The outbreak was initially discovered in Nigeria during the month of August with the peak reached in October. Estimates of the total number of cases ranged from 100 to several thousand cases. In Upper Volta, the epidemic commenced during October and at least 86 deaths were reported. During November the outbreaks in Mali and Togo were reported. In Mali at least 20 suspected cases occurred whereas in Togo only one confirmed death was reported with one additional case discovered several months later.

Control Measures

The primary control measures were that of vaccination; first in the epidemic areas and then in an expanding circle around that area. The vaccination centers were specifically set up in areas of high concentrations of populations and along principle routes of travel. Approximately 3.8 million doses of 17-D strain vaccine were distributed and an additional 2 million doses of Dakar-strain vaccine were distributed during the epidemic period.

Considerations of the World Health Organization

The Twenty-Third World Health Assembly of the World Health Organization, "having considered the report of the Director-General on Present Problems of Yellow Fever in West Africa and the report of the Working Party established to discuss these problems in detail:

1. REALIZES the gravity of the situation in 1969 when outbreaks occurred in five countries, realizes also that there is a considerable risk of further outbreaks occurring during and after the next rainy season;
2. STRESSES that yellow fever in West Africa is a problem which is of deep concern not only to African countries but also to countries in all continents, particularly those in which potential insect vectors are present;
3. DRAWS attention to the lack of fundamental knowledge of the animal reservoirs and vectors of the virus and other epidemiological and epizootical aspects of the disease;
4. APPRECIATES that many of the countries at risk do not have at present sufficient resources to set up adequate vaccination programmes for the over 16 million persons (mainly infants and children) who should be vaccinated with 17-D vaccine within the next few months or for emergency vector control operations;
5. NOTES that yellow fever vaccines prepared from the 17-D strain are highly effective and that a single injection will protect for at least 10 years; but recognizes that further research on the thermo-stability of the vaccine is required;
6. NOTES with satisfaction that actions undertaken by WHO in 1969 and its establishment of a mechanism for emergency action upon the occurrence of yellow fever epidemics;
7. EMPHASIZES that WHO also plays a role of primary importance in establishing effective coordination of the programmes of the countries concerned and of contributions from outside countries and agencies;

8. RECOMMENDS

- a) that each country in the yellow fever endemic areas of Africa should establish a scheme for the immediate investigation of suspected cases and for rapidly informing WHO;
- b) that the health authorities of the countries in the endemic areas of Africa should with all possible speed and without waiting for further cases to occur, establish effective vaccination programmes in cooperation with neighbouring countries in the following order of priority:
 1. immediate vaccination of presumed susceptible age-groups in districts peripheral to areas where epidemics have recently occurred,
 2. vaccination of presumed susceptible age-groups in areas where ecological conditions are favourable to the spread of infection, and
 3. vaccination of presumed susceptible age-groups in large centers of population;
- c) that health authorities in countries in the endemic areas should plan to include yellow fever vaccination in all routine immunization programmes for newcomers by birth or immigration;
- d) that countries outside the endemic areas of Africa should consider to what extent they could:
 1. contribute without delay supplies, viz. vaccines, vaccination equipment and refrigerators, insecticides and equipment for their application as well as means of transport sufficient to meet the requirements of the immediate situation, and
 2. contribute to the long-term programme referred to in paragraph (h);
- e) that WHO should immediately establish in Africa a unit which, in collaboration with the authorities in the countries concerned would ensure the collection and rapid dissemination of epidemiological information, would undertake the assessment of the probable nature and extent of the risk of spread of disease when cases first occur, would act as a centre of information on bilateral assistance and, would ensure that areas where the need is greatest at any particular time should be able to obtain the resources they require;

- f) that emergency schemes for vector control be set up in areas at special risk;
- g) that production laboratories be encouraged or assisted not only to increase the quantity of vaccine available but also to improve its quality;
- h) that a long-term internationally coordinated programme of research on the natural history of yellow fever in Africa should be undertaken under the auspices of WHO."

(Prepared from a report by the Director-General, World Health Organization, to the 23rd World Health Assembly, May 9, 1970.)

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