



WORLD HEALTH ORGANIZATION
ORGANISATION MONDIALE DE LA SANTÉ

INDEXED

SMALLPOX ERADICATION SEMINAR

Kinshasa, 19-26 November 1968



STATUS OF SMALLPOX ERADICATION ACTIVITIES

COUNTRY MALAWI

1. Demographic data

1.1 Estimated population (1967)

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
0-4	<u>248 924</u>	<u>366 357</u>	<u>615 281</u>
5-14	<u>447 142</u>	<u>416 912</u>	<u>864 054</u>
15 and over	<u>1 258 457</u>	<u>1 425 892</u>	<u>2 684 349</u>
TOTAL	<u>1 954 523</u>	<u>2 209 161</u>	<u>4 163 684</u>

1.2 Proportion of population which is nomadic _____ %

2. Smallpox incidence and vaccination data

2.1 Annual smallpox incidence by Province/Region (1958-1967) - (Table 1)

2.2 Monthly smallpox incidence (1964-1968) - (Table 2)

2.3 Smallpox cases by age, sex and vaccination status - 1967 - (Table 3)

2.4 Vaccinations performed by Province/Region (1966-1968) - Table 4)

3. Vaccine

3.1 Liquid vaccine

Amount of liquid vaccine still being used (% of total) - 1967 Nil
1968 Nil

3.2 Freeze-dried vaccine

<u>Sources (producers) - 1968</u>	<u>Amount</u>
<u>Thailand</u>	_____
<u>U.K.</u>	_____
_____	_____

3.3 Vaccine storage

3.3.1 All vaccine at the central depot continuously stored at less than 10°C

Yes No

3.3.2 Adequate refrigeration facilities in the interior of the country to permit storage at less than 10°C

Yes At main centres No

3.3.3 All vaccine used less than 30 days after removal from refrigerated storage

Yes No

4. Vaccination

4.1 Personnel engaged in vaccinations:

4.1.1 Vaccinators 42
Other field staff, including recorders, drivers, etc. 2+
Supervisory personnel (paramedical) 12 (part time)
Supervisory personnel (medical officers) Nil

4.1.2 Organization of vaccination effort

House to house: Collecting points
 Vaccinators working alone;
 Vaccinators working in teams
 Other _____

4.1.3 Number of vaccinators directly supervised by one supervisor Variable

4.1.4 Average number of vaccinations performed daily by each vaccinator or team 70-100 per vaccinator

4.1.5 Vaccination targets by Province/Region, 1968-1970 - (Table 5)

4.2 Technique of vaccination used now:

Percentage performed
by this method

4.2.1 Multipuncture (bifurcated needle) _____
Ped-O-Jet _____
Other (specify) Multipuncture Surgical Needle 100%

4.2.2 Usual preparation of skin before performing vaccination, (i.e. water, nothing, etc.)
Soap and water

4.2.3 Method of sterilization of vaccination instrument
 Boiling Flaming None

4.3 Reconstituted vaccine used only on the day on which it is reconstituted

Yes No

4.4 Method for recording of vaccinations (please attach sample of sheets used for recording of vaccinations)

Tally sheet (vaccinees recorded only by age, sex, vaccination status)

Yes No

Other registry system (specify) Nil

4.5 Youngest age for beginning vaccination

Birth Epidemic outbreaks only

Three months X

Other _____

4.6 Contra-indications to vaccination other than severe, acute illness

No Yes - specify _____

5. Programme

5.1 Supervision

5.1.1 Proportion of time spent in field by supervisory staff checking directly on the work of vaccinators and lower level supervisors

(a) By staff at Territory/District level	70% Southern Region
(b) By staff at Regional/Provincial level	50% Central Region
(c) By staff at National level	15 %
	20 %

5.1.2 Measures taken when vaccinator performance is unsatisfactory (e.g. reprimand, suspension, dismissal) Reprimand or dismissal

5.2 Assessment

5.2.1 Vaccine "take rates"

Proportion of primary vaccinations in 0-4 year-old children which are checked after seven days to determine takes Variable %

Steps taken when the proportion of successful primary vaccinations falls below 95% Check field work and recording technique

5.2.2 Vaccination coverage

5.2.2.1 Vaccinations performed in each village or area are compared with population estimated to be in area (e.g. village register, census data, other)

Yes No usually, but not always

5.2.2.2 Assessment of coverage regularly performed in a sample of the population

Yes

No Variable

When coverage in the 0-4 or 5-14 year age-group is less than 85%, the following steps are taken:

Not assessed

.3 Surveillance

5.3.1 Notification of smallpox cases

5.3.1.1 Notification sites

(a) Number of sites which may notify cases of smallpox (e.g. hospitals, health centres, health posts, dispensaries)

(b) Number which report at least every two weeks whether or not smallpox cases were observed

(c) Other specialized programmes which report cases (e.g. malaria, yaws, etc. - specify) Nil

(d) Other persons or groups who have been requested to notify cases (e.g. teachers, village headmen, etc. - specify)

Teachers, village headmen, Young Pioneers, Peace Corps

5.3.1.2 Proportion of cases for which age, sex and vaccination status are recorded Not supplied

5.3.1.3 Best estimate of the percentage of cases which are reported

More than 90%	<u>X</u>
75-90%	<u> </u>
50-75%	<u> </u>
Less than 50%	<u> </u>

5.3.2 Case investigation and containment measures

Case investigation - containment teams ("fire-fighting" teams) have been established in each Province/Region

Yes Central and Southern Regions No

Proportion of cases in which containment action (verification, vaccination, isolation, etc.) taken within 48 hours after notification 100 %

Proportion of cases routinely investigated to determine the origin of infection 100 %

7. Describe briefly (two pages) the administrative organization and method of execution of the programme with organizational chart. Discuss specifically with reference to component activities in Table 6. (Attach samples of posters and pamphlets being used in programme.)

Malawi covers an area of some 45 483 square miles, of which 9 158 is Lake Malawi. The population at the last census in 1966 was 4 042 412 of which 3 023 033 were adults and 1 019 379 children.

Smallpox vaccination has been carried out for many years and as far back as 1945 Malawi started to manufacture its own calf lymph at Zomba General Hospital. The lymph contained a good deal of extraneous matter and was not very stable and therefore not very effective.

Health assistants used to take it in vacuum flasks if these were available and if not the vaccine was buried in the earth overnight in an endeavour to keep it cool and thus potent and viable.

Later glycerinated lymph was introduced and was a marked improvement on the old methods. Nevertheless, this caused storage difficulties and it soon lost its potency if kept in the field after 12-24 hours. This resulted in much vaccine and effort being wasted and despite repeated instructions people would still use lymph after it had lost its potency and the efficiency of the takes was 30 - 40% and this could not be improved in the field despite the introduction of paraffin deep freezers. The problem was to get the most efficient use from it when taken out by the vaccinators.

A small stock of freeze-dried lymph was kept in Medical Stores for use in certain conditions but the price was far beyond what the then Ministry of Health could afford, but in 1966 freeze-dried lymph was supplied by UNICEF and, of course, it is the only lymph used. The use of freeze-dried lymph has resulted in positive takes in the region of 90-95% which is a distinct improvement.

Malawi has a boundary with Mozambique of over 600 miles and this makes control of contacts and cases entering Malawi very difficult; the main road from Mcheu to Lilongwe for example, a distance of about 100 miles, is the boundary and on one side of the road is Malawi and the other Mozambique and there constant crossing to and fro between villages.

The position in the Fort Johnston area is also difficult; here the country is wild and rough and many refugees cross the border and camp in dense forest in the area, fleeing from the troubled areas of Mozambique. Many of these are sick, many not vaccinated and it is from this area that 95% of reported cases are derived.

Smallpox returns are received from Mozambique at weekly intervals but it is doubtful if any vaccination is being carried out in the troubled areas.

I hope the above resumé of the particular position of Malawi with regard to smallpox eradication will give an idea of the difficulties which confront us in this particular field. A systematic mass vaccination campaign is carried out principally in the Southern and Central Region and a maintenance vaccination in the North, where there have been no confirmed cases reported in the last two years. Surveillance is carried out by a prompt reporting system either by telegram or notification of infectious disease forms.

5.4. Legislative provisions

Vaccination compulsory: Yes No

Enforcement of compulsory vaccination is carried out:

at the time of birth (if born in hospital) Yes

at the time of school entry Hopefully

at the time of hospital admission _____

Other (specify) _____

Isolation of cases enforced through the time when all scabs have separated

Yes Yes if feasible No

Variolation prohibited by law

Yes No

6. Year in which the last endemic cases of smallpox are expected to occur _____

Impossible to say whilst no effective programme is being carried out in Mozambique.

7. Describe briefly (two pages) the administrative organization and method of execution of the programme with organizational chart. Discuss specifically with reference to component activities in Table 6. (Attach samples of posters and pamphlets being used in programme.)

Malawi covers an area of some 45 483 square miles, of which 9 158 is Lake Malawi. The population at the last census in 1966 was 4 042 412 of which 3 023 033 were adults and 1 019 379 children.

Smallpox vaccination has been carried out for many years and as far back as 1945 Malawi started to manufacture its own calf lymph at Zomba General Hospital. The lymph contained a good deal of extraneous matter and was not very stable and therefore not very effective.

Health assistants used to take it in vacuum flasks if these were available and if not the vaccine was buried in the earth overnight in an endeavour to keep it cool and thus potent and viable.

Later glycerinated lymph was introduced and was a marked improvement on the old methods. Nevertheless, this caused storage difficulties and it soon lost its potency if kept in the field after 12-24 hours. This resulted in much vaccine and effort being wasted and despite repeated instructions people would still use lymph after it had lost its potency and the efficiency of the takes was 30 - 40% and this could not be improved in the field despite the introduction of paraffin deep freezers. The problem was to get the most efficient use from it when taken out by the vaccinators.

A small stock of freeze-dried lymph was kept in Medical Stores for use in certain conditions but the price was far beyond what the then Ministry of Health could afford, but in 1966 freeze-dried lymph was supplied by UNICEF and, of course, it is the only lymph used. The use of freeze-dried lymph has resulted in positive takes in the region of 90-95% which is a distinct improvement.

Malawi has a boundary with Mozambique of over 600 miles and this makes control of contacts and cases entering Malawi very difficult; the main road from Mcheu to Lilongwe for example, a distance of about 100 miles, is the boundary and on one side of the road is Malawi and the other Mozambique and there constant crossing to and fro between villages.

The position in the Fort Johnston area is also difficult; here the country is wild and rough and many refugees cross the border and camp in dense forest in the area, fleeing from the troubled areas of Mozambique. Many of these are sick, many not vaccinated and it is from this area that 95% of reported cases are derived.

Smallpox returns are received from Mozambique at weekly intervals but it is doubtful if any vaccination is being carried out in the troubled areas.

I hope the above resumé of the particular position of Malawi with regard to smallpox eradication will give an idea of the difficulties which confront us in this particular field. A systematic mass vaccination campaign is carried out principally in the Southern and Central Region and a maintenance vaccination in the North, where there have been no confirmed cases reported in the last two years. Surveillance is carried out by a prompt reporting system either by telegram or notification of infectious disease forms.

7. (continuation)

All cases reported are promptly investigated in the field and in any event precautionary vaccination would be carried out in a suspected area by a "fire-fighting" team.

No laboratory work is done on smallpox at all, either by submission of samples or in any other way. This is due to lack of laboratory technicians and facilities. Cases of smallpox are always isolated if feasible either outside villages or in units adjacent to hospitals.

Vaccination is carried out by a team of 42 vaccinators and also by Mission and Government Hospitals, and returns are submitted monthly. At present only about 60% of our target figures are being reached and is due to lack of mobility which also accounts for inadequate supervision in the field and this is why assistance from the World Health Organization is sought and welcomed.

I give below an organizational chart, as requested.

During 1968 a few posters have been produced, principally for use in hospitals, but this situation should improve with the opening of a small visual aids extension unit in our Southern Region Office.

ORGANISATION CHART
SMALLPOX VACCINATION IN MALAWI
CHIEF HEALTH INSPECTOR

<u>SOUTHERN REGION</u> <u>REGIONAL HEALTH INSPECTOR</u>	<u>CENTRAL REGION</u> <u>REGIONAL HEALTH INSPECTOR</u>	<u>NORTHER REGION</u> <u>REGIONAL HEALTH INSPECTOR</u>
SENIOR HEALTH ASSISTANT	SENIOR HEALTH ASSISTANT	HEALTH ASSISTANT
3 HEALTH ASSISTANTS	3 HEALTH ASSISTANTS	
20 VACCINATORS	17 VACCINATORS	5 VACCINATORS

Note: Only the vaccinators are employed full time on vaccination duties.

2.1 Annual Smallpox Incidence
 Incidence annuelle de la variole

TABLE 1
 (1958-1967 annual figures)

TABLEAU 1
 (1958-1967 chiffres annuels)

Province (or major administrative area) Province (ou autre grande subdivision administrative)	Number of cases Nombre de cas									
	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Southern Region Région du Sud	-	-	82	45	14	15	316	155	82	38
Central Region Région du Centre	-	-	544	505	-	19	383	54	5	-
Northern Region Région du Nord	-	-	2	2	-	-	31	17	1	-
TOTAL	-	-	628	552	14	34	730	226	88	38

1
 8
 1

2.2

TABLE 2 - Smallpox Incidence by month or four week period

TABLEAU 2 - Incidence de la variole par mois ou période de quatre semaines

YEAR ANNEE	Jan. Jan.	Feb. Fév.	Mar. Mars	April Avril	May Mai	June Juin	*	July Juil.	Aug. Août	Sept. Sept.	Oct. Oct.	Nov. Nov.	Dec. Déc.	Total
Weeks Semaines	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	41-44	45-48	49-52	
1964	69	78	50	22	14	23		55	123	118	38	67	73	730
1965	32	28	42	11	7	31		35	11	7	10	8	4	226
1966	12	6	4	10	1	-		2	3	5	6	36	3	88
1967	2	1	-	-	3	2		-	13	1	4	-	12	38
1968	27	-	2	-	2	4		3	1	-				
TOTAL														

* Use this column only if reporting by four week periods

* N'utiliser cette colonne que si les chiffres correspondent à des périodes de quatre semaines

2.3

TABLE 3. CASES BY AGE, SEX AND VACCINATION STATUS - 1967
TABLEAU 3. CAS DE VARIOLE PAR AGE ET SEXE, ET PAR ETAT DE VACCINATION - 1967

I. Check this box if there were no smallpox cases during 1967.
 Cocher cette case s'il n'y a pas eu de cas de variole en 1967. **Not recorded**

II. SMALLPOX CASES BY AGE AND SEX, AND VACCINATION STATUS
 CAS DE VARIOLE PAR AGE ET SEXE, ET PAR ETAT DE VACCINATION

Age Group Groupe d'âge	Number of cases - Nombre de cas			
	Male Sexe Masculin	Female Sexe Féminin	Unknown Sexe non précisé	Total
< 1	-	-	-	-
1-4	3	1	-	4
5-14	12	15	-	27
15+	9	11		20
Unknown Age inconnu				
TOTAL	24	27	-	51

Number vaccinated before exposure Nombre de vaccinés avant l'exposition		
Vac. Vaccinés	Not vac. Non vaccinés	Unknown Antécédents vaccinaux inconnus

If detailed information is not available for all cases, complete as far as possible.
 En l'absence de renseignements détaillés sur tous les cas, remplir la formule dans toute la mesure du possible.

TABLE 4 : TABLEAU 4

VACCINATIONS PERFORMED⁽¹⁾ : VACCINATIONS PRATIQUÉES⁽¹⁾

Province (or major administrative area) Province (ou autre grande subdivision administrative)	Population (estimate for 1966) Nombre d'habitants (chiffre estimatif pour 1966)	1966			1967			1968 ⁽²⁾		
		Primary vaccination Primovaccination	Revaccination Revaccination	Total Total	Primary vaccination Primovaccination	Revaccination Revaccination	Total Total	Primary vaccination Primovaccination	Revaccination Revaccination	Total Total
Southern Region Région du Sud	2 063 894	195 137	136 319	331 456	152 786	195 083	347 869	78 479	95 671	174 150
Central Region Région du Centre	1 480 003	61 163	56 291	117 454	145 926	132 761	278 687	61 943	38 363	100 306
Northern Region Région du Nord	498 515	23 146	45 921	69 067	29 375	19 459	48 834	33 078	19 586	52 664
TOTAL	4 042 412	279 446	238 531	517 977	328 087	347 303	675 390	173 500	153 620	327 120

(1) If data regarding primary and revaccinations are not specifically available, please provide information as to total vaccinations performed.

Si l'on ne possède pas de renseignements précis concernant les primovaccinations et les revaccinations, indiquer le chiffre total des vaccinations pratiquées.

(2) January through June - janvier à fin juin.

4.1.5

TABLE 5 : TABLEAU 5

VACCINATION TARGETS : VACCINATIONS PREVUES

Province/Region	Number of vaccinations planned - Nombre de vaccinations prévues						1970 Total
	1968 Total	1969				Total	
		Jan.-Mar. Jan.-Mars	April-June Avril-Juin	July-Sept. Juil-Sept.	Oct.-Dec. Oct.-Déc.		
Southern Region Région du Sud	398 444						
Central Region Région du Centre	324 599						
Northern Region Région du Nord	276 957						
TOTAL	1 000 000						

TABLE 6

	ATTACK PHASE (PHASE 1)	CONSOLIDATION PHASE (PHASE 2)	MAINTENANCE PHASE (PHASE 3)	
DEFINITION	Endemic areas with an incidence of smallpox of five or more cases per 100 000 population per year and with less than 80% of all segments of the population showing scars of primary vaccination.	Areas with an incidence of smallpox of less than five cases per 100 000 and in which over 80% of all segments of the population show scars of primary vaccination.	Areas free from endemic smallpox for more than two years but geographically situated in an endemic continental area, presently Africa, Asia or South America.	
ACTIVITIES	VACCINATION	Systematic mass vaccination.	Continuing maintenance vaccination.	
	SURVEILLANCE	<p><u>Reporting</u> Establish prompt and regular reporting of smallpox by existing health facilities.</p> <p><u>Field investigation</u> Investigation of major outbreaks or outbreaks occurring in smallpox-free areas.</p>	<p><u>Reporting</u> Extension of case detection system to assure reporting of all suspect smallpox in all segments of the population.</p> <p><u>Field investigation</u> All cases and outbreaks promptly investigated epidemiologically to establish source of infection and unreported cases. Investigation forms submitted for every case.</p>	<p><u>Reporting</u> Extension of case detection system to assure reporting of all suspect smallpox in all segments of the population</p> <p><u>Field investigation</u> Each case investigated promptly as an emergency by a competent epidemiologist.</p>
	LABORATORY	Establish techniques and methods for the submission and examination of specimens for confirmation of diagnosis.	Specimens studied from all isolated cases and representative samples from each outbreak.	Specimens studied from every suspect case.
	CONTAINMENT	Localized, intensive vaccination in community where cases or outbreaks occur. Isolation of cases if feasible.	Vaccination and observation of case contacts. Isolation of cases and appropriate disinfection. Localized, intensive vaccination in community.	Vaccination and observation of case contacts. Isolation of cases and appropriate disinfection. Localized, intensive vaccination in community.

MED. 4

NOTIFICATION OF INFECTIOUS DISEASE

SECTION 13 OF PUBLIC HEALTH ACT (CHAPTER 94)

To the Secretary for Health, P.O. Box 351, Blantyre.

I hereby notify you that the undermentioned person ^{is suffering} from † _____
has died

Full Name _____ age _____ sex _____ race _____

Address † _____

Date of Onset of Illness _____ Date of Death _____

Where employed or what school attended _____

Probable place and source of infection _____

Probable date of infection _____

What facilities (if any) for isolating patient at home _____

Whether notified as officer of the Government local authority or of any Government or State-aided hospital or institution, etc. _____

Date _____, 19 _____

Signature _____
Medical Practitioner

† Insert name of disease.

‡ Give full address.

N.B.—A separate form should be filled in for each case. See cover for list of notifiable diseases and duties of medical practitioners.

VACCINATOR'S FORM

DISTRICT	BATCH NO.....		DATE19.....		VACCINATOR			
PARTICULARS OF AREAS VACCINATED	ESTIMATED POPULATION.....							
	Number of Primary Vac- cinations	Number of Re- Vaccinat. on	Total	Not Vacci- nated	Age 0 - 14 years	15 and over	Negative	Positive
Total								