

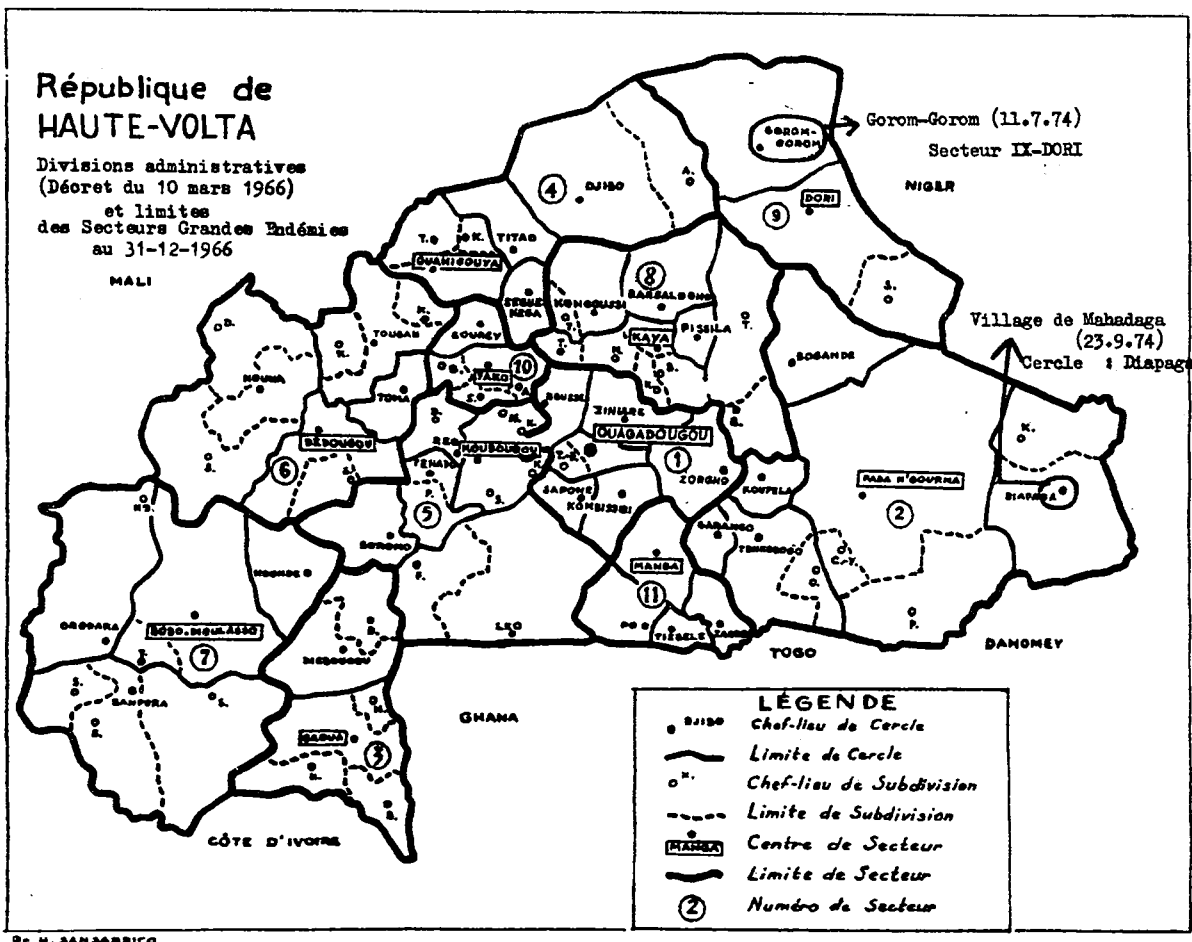
Area: 274 000 km<sup>2</sup>

Population: 5 500 000

Population density: 20 per km<sup>2</sup>

Medical Officer currently in charge of smallpox eradication: Dr Koudougou Pierre Comaore

Title: Director of Public Health



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PART I - PROGRAMME PERFORMANCE 1967-1971

1.1 Organization

1.1.1 By Presidential décret dated 31 July 1974, the Ministry of Public Health, Population and Social Affairs was reorganized, particularly at the level of the Directorate-General. This now comprises five technical directorates, including the Directorate of Public Health, which combines the technical responsibilities formerly divided between the departments of urban and of rural health.

In January 1975, following the administrative reorganization of the country into 10 departments, it was decided to redistribute the health sectors so that there should be one sector to each department. Each of these health sectors is controlled by a chief medical officer, and together they comprise (including the urban units of the two cities of Ouagadougou and Bobo-Dioulasso, which are not attached to the corresponding health sector):

1.1.2 The various categories of static unit which constitute the backbone of the 10 health sectors, namely:

- 2 main hospitals (Ouagadougou and Bobo-Dioulasso)
- 3 regional hospitals (Fada-N'Gourma, Ouahigouya, Gaoua)
- 11 medical centres
- 28 sub-prefecture health centres
- 37 arrondissement health centres
- 135 dispensaries providing no other services
- 24 maternity units providing no other services
- 48 specialized units (including 12 sleeping sickness and leprosy centres)

Mobile units

Mobile investigating teams:

These, of which there are 20, are responsible at the level of each health sector for the systematic case detection of the major endemic diseases and for performing BCG, smallpox and yellow fever vaccinations (Dakar vaccine for adults only).

Three national vaccination teams, working in conjunction with a logistical liaison team. These are more particularly responsible for vaccinations against measles and yellow fever (Rockefeller 17 D vaccine) and for performing urgent vaccinations (cholera) on request.

Twenty leprosy control teams which take part in case detection, watch over the regularity of treatments and follow up the results.

One hundred and twenty-five leprosy treatment rounds responsible for periodical distribution of medicines to patients being treated at home.

A mobile ophthalmological group (G.O.M.) responsible for the application in the field of the anti-trachoma campaign and for epidemiological evaluations relating to onchocerciasis.

Finally, mention must be made of the 16 mobile teams of the Sahel equipped by UNICEF. These were intended to reinforce, for a period of two years starting in January 1975, the mobile units already located throughout this zone of Upper Volta, which are still under-equipped, particularly as regards their activities in the field of prevention (vaccinations), maternal and child health and nutritional rehabilitation. For material and financial reasons, however, these teams will not be fully operational before the second quarter of 1975.

## 1.2 Vaccination programme

1.2.1 On 31 January 1967 Upper Volta signed a convention with USAID under which it became a participant in the programme of smallpox eradication and measles control.

The proposed programme was divided into two stages:

First period: systematic vaccination of the entire population over a two-year period, July 1967 - June 1969.

The performance of these vaccinations was assigned to 20 investigating teams, who were at the same time responsible for case detection and the control of major endemic diseases. The technique used was either scarification or multiple pressure.

As it was necessary, under the annual plan of campaign, for adults and children over the age of 10 in certain cantons to be vaccinated against yellow fever, these teams performed a number of combined smallpox and yellow fever vaccinations.

Second period: this was originally intended to run from July 1969 to July 1971, but in fact began on 1 January 1969 by agreement with the NCDC authorities. It had been decided that there should be a new smallpox vaccination campaign covering the entire country and lasting for a further period of two years.

During the first year, priority was given to the frontier cercles in which small foci of smallpox had still developed in the preceding year.

The cercles in the central region of the country were revaccinated in the second year of the second period.

The programme was run jointly with the measles control programme.

These smallpox vaccinations were performed with the needleless Ped-O-Jet injector by the national vaccination teams. There were altogether six of these - four which had been in existence since November 1968 and two additional ones established later - each composed of two vaccination orderlies with Ped-O-Jet, a secretary and a driver.

A liaison and coordination team composed of a medical orderly and a driver had overall responsibility for the operation.

There had also been established:

- 1 evaluation team with 2 medical orderlies and 1 driver
- 2 health information teams.

It should be noted that the campaign, which had been due to resume in October 1969 after the rainy season, was interrupted at the end of October because of a yellow fever epidemic. The USAID-NCDC personnel voluntarily placed themselves at the disposal of the health authorities in order to help fight this new outbreak.

It had also been decided that additional vaccinations should be carried out at the level of MCH consultations and investigation teams.

Smallpox vaccinations performed

Year	Vaccinations performed			Total
	Smallpox only <sup>a</sup>	Smallpox and yellow fever	Smallpox by Ped-O-Jet <sup>b</sup>	
1967	1 827 173	212 694	-	2 039 867
1968	1 451 444	176 225	448 303	2 075 972
1969	530 542	38 699	856 559	1 425 800
1970	467 385	35 551	1 013 244	1 516 180
1971	384 718	7 954	1 129 134	1 521 806

<sup>a</sup> By scarification or multiple pressure.

<sup>b</sup> Under the Smallpox Eradication and Measles Control Programme.

Results of annual evaluation (1967-1969)

Cumulative total of vaccinations, January 1967 - December 1968 . . . . . 4 115 839  
 Estimated population in 1968 . . . . . 5 272 000  
 Percentage . . . . . 78%

Cumulative total of vaccinations, January 1967 - December 1969 . . . . . 5 541 639  
 Estimated population in 1969 . . . . . 5 410 000  
 Percentage . . . . . +100%

Name of producer of the vaccine used (1967-1971)

SMALLPOX-VACCINE-WYETH INTERNATIONAL LIMITED INC., P.O. BOX 8299, PHILADELPHIA,  
 PA 19101, UNITED STATES OF AMERICA

1.3 Surveillance-containment programme

1.3.1 The breakdown by sector of units providing periodic reports under the system operated by the former Department of Rural Health is as follows (figures according to the plan of operation for 1968-1969):

Sector I . . . . .	37	dispensaries
Sector II . . . . .	30	"
Sector III . . . . .	25	"
Sector IV . . . . .	14	"
Sector V . . . . .	38	"
Sector VI . . . . .	35	"
Sector VII . . . . .	34	"
Sector VIII . . . . .	24	"
Sector IX . . . . .	7	"
Sector X . . . . .	9	"
Sector XI . . . . .	9	"

Under the system operated by the former Department of Urban Health, the breakdown of units is as follows:

Ouagadougou Hospital + Dispensaries = 10  
 Bobo-Dioulasso Hospital + Dispensaries = 5

Mention should also be made of:

20 investigating teams which travel throughout the country for 20 days each month (except during the rainy season, i.e. July, August and September) and examine the population of 300-400 new villages each month.

124 ambulant leper treatment rounds covering 4763 villages. Two thousand and fifty-two treatment centres are visited in this way each week.

20 leprosy inspectors who supervise the ambulant patients treated on the above leprosy rounds.

### 1.3.2 Method of reporting inside the country

A medical orderly confronted with a suspect smallpox case must immediately report it to his chief medical officer, who examines the case and, where indicated, immediately notifies the Directorate of Public Health, which will take the necessary measures (on-the-spot epidemiological investigations, taking of specimens, containment measures, etc.).

#### Primary level

A weekly report in the form of an official letter-telegram listing cases of and deaths due to smallpox, measles, cerebrospinal meningitis and yellow fever must be sent to the health centre by the person in charge of each health unit. Even if no cases or deaths have occurred, this weekly report, with the entry "nil", must still be sent.

#### Health centre level

These weekly reports are collected by the State medical orderlies in charge of the health centres, who immediately report to the chief medical officer of their sector any cases or deaths occurring in their area.

#### Health sector level

Each week the senior medical officer of the sector sends an official telegram to the Directorate of Public Health. This telegram lists, for each disease, the cases diagnosed, the number of deaths and their geographical location (village, canton, cercle). The Directorate of Public Health collates this information for the whole of the country.

At the end of each month, a monthly synopsis of the weekly reports received from the various static and mobile units is sent by each sector to the Directorate of Public Health, together with the reports of activities. This synopsis must mention all the health units of each cercle in which this epidemiological surveillance is carried out.

This system of epidemiological surveillance ensures that the Directorate of Public Health is informed as rapidly as possible of all suspect cases of smallpox and yellow fever and of the number of new cases of measles and cerebrospinal meningitis. It provides a fairly complete coverage of the entire national territory.

### 1.3.3 Number of reported smallpox cases

1967 - 118 cases, with 6 deaths

1968 - 188 cases, with 14 deaths

Smallpox cases, by month and location, for the year 1967 (Annex 1)

Smallpox cases, by month and location, for the year 1968 (Annex 2)

### 1.3.4 Number of smallpox cases reported in 1969-1970 - Nil

1.3.5 Epidemiological information on last two outbreaks

The last two outbreaks occurred:

1. At Botu in September 1968
2. At Gani in October 1968

1.3.5.1 Smallpox outbreak at Botu

Location: village of Botu  
canton of Botu  
subdivision of Kantchari  
cercle of Diapaga  
Sector II of Fada

Botu is a village near the Niger frontier with a market each Friday which attracts nationals of both Upper Volta and Niger. Botu is extremely isolated and difficult to reach. There is no radio or telephone and no means of telegraphing. Kantchari is 59 km away (three hours by road).

Population of the Canton of Botu

12 000 inhabitants (1967). They are members of the Peulh and Gourmantché tribes living in concessions of 15-30 people. The concessions are often 500-1500 m apart and this arrangement goes on for mile after mile. During and after the rainy season, the vegetation attains a height of 3-4 m, making the concessions practically invisible from the road.

Outbreak

The head of the subdivision and the chief medical orderly of Diapaga made a routine inspection at Botu and reported 18 cases of smallpox, with two deaths, to the Directorate of Public Health on 19 September 1968 (for list of cases see Annex 3).

The breakdown of cases by age is as follows:

0 - 4 years	-	8 cases
5 - 14 years	-	5 cases
15 - 44 years	-	5 cases
Total	-	18 cases

None of these cases had been vaccinated. During the vaccination sessions decided on as soon as the outbreak was discovered, scars from previous smallpox vaccinations were found.

Breakdown of smallpox vaccination scars (Botu)

Age	Men	Scars (%)	Women	Scars (%)
0 - 4 years	25	0	21	0
5 - 14 years	86	30	34	8
15 - 44 years	40	36	93	60
45 years +	4	4	4	0
Total	155	70	152	68

In the course of the investigations, six specimens (one vesicular and five of serum) were taken. The Laboratory for Vesicular/Exanthematous Diseases, Vira Unit 1, CDC, Atlanta, Georgia, confirmed that the disease was smallpox.

#### Measures taken

(a) Vaccinations performed in the Region of Botu:

<u>Date</u>	<u>Place</u>	<u>Number</u>
20.9.1968	Botu	1 274
21.9.1968	Gide	310
21.9.1968	Botu	1 489
21.9.1968	Pendyagapouri	525
25.9.1968	Koyenga	574
	Total	4 172

(b) The second phase of the countermeasures was conducted by the chief medical officer of the Upper Volta Smallpox Eradication Programme. He discovered a twentieth case and a third death, and performed 800 vaccinations.

(c) Vaccinations in the frontier region of Niger.

The official in charge of the smallpox eradication programme in Niger was advised by telegram dated 19 September 1968 of the existence of a focus of smallpox in the frontier area.

Representatives of the Niger programme arrived in the area on 23 September 1968. Their vaccination team examined all the villages of the region in the vicinity of Botu and no case of smallpox was found. The team performed 3000 smallpox vaccinations.

#### 1.3.5.2 Outbreak at Gani

Location: village of Gani  
canton of Barani  
subdivision of Djibasso  
cercle of Nouna  
Sector VI of Dédougou

According to census figures, the village of Gani has 665 inhabitants, of the Dogon tribe. Five hundred and forty of them live in the upper part of the village, on a hill about 100 m high, and the remaining 125 down below in the plain. There was no case of smallpox in this lower part of the village.

The village is more than 30 km from the nearest administrative or health authority (Djibasso); access to it is difficult and investigating teams are obliged to stop 2 km away in the plain.

Previous vaccinations: the village of Gani had been vaccinated in April 1967, with a turnout rate of 67%.

#### Outbreak

The village of Gani had been included in the supplementary vaccination programme and the investigating team had arrived there on 11 October 1968 to perform the vaccinations. It was then that the team discovered 22 cases, with three deaths. Systematic investigation and interrogation of all the families in the village revealed that altogether there had been 40 cases of smallpox, with eight deaths (list of cases attached in Annex 4).

The outbreak had originated in a case imported into Gani - a frontier village - in May 1968: a girl aged 13 years (case I.A.T.) from the village of Kouma in Mali, where an outbreak of smallpox was in progress. The following cases appeared 10 days after her arrival: three other members of her family living in the same courtyard were attacked by the disease, after which the epidemic spread to the entire community and lasted from May to October.

Breakdown according to age and sex

Age	Male		Female		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Less than 1 year	-	-	3	1	3	1
1 - 4 years	15	5	5	1	20	6
5 - 14 years	6	1	11	-	17	1
15 - 44 years	-	-	-	-	-	-
45 years +	-	-	-	-	-	-
Total	21	6	19	2	40	8

The girl who had originally imported smallpox to Gani had left the village by the time of the investigation and could not be examined. Apart from the five unknown cases, no first-vaccination scars were found on the patients observed.

Measures taken

(a) Vaccinations and control of the epidemic at Gani

On 11 October 1968, the date of its first visit to the village of Gani, the investigating team vaccinated 530 persons out of the registered population of 665, a number of adults having left to seek work in Togo, Dahomey and Ivory Coast.

On 30 October 1968 the team returned to Gani under the supervision of Dr Latouche and spent that day and the next vaccinating persons who had been absent on the previous occasion and the inhabitants of the surrounding villages of Bargani, Daga, Abbaye, Bombari, Komborinikoura, Kouna, Ouori. The team thus performed 990 vaccinations.

At Gani some difficulty was encountered in vaccinating the entire population on the first day. As smallpox had only occurred in the upper part of the village, the inhabitants of the lower part refused to go there in order to be vaccinated. Special arrangements had to be made for them to be vaccinated separately.

Altogether 1520 vaccinations were performed in the region of Gani. A further visit to Gani 20 days after these measures had been taken revealed no new cases of smallpox.

(b) Vaccinations in the village of Kouma in Mali

The epidemiological investigation of the smallpox outbreak in the village of Gani (Upper Volta) in October 1968 had revealed the existence of a smallpox focus in the village of Kouma in Mali.

It was therefore decided that vaccinations should be performed by representatives of the two countries' major endemic disease services, under the direction of the two USAID teams. The various teams assembled at Tominian on the night of Thursday, 14 November 1968. On 15 November, Kouma, which is not on the main road, was reached after a 90-minute march. About 60 smallpox cases were registered, and the population of 1100 inhabitants was systematically vaccinated by Ped-O-Jet.

PART II - SURVEILLANCE AND VACCINATION PROGRAMME (1972-1975)

2.1 Surveillance programme

2.1.1 Number and category of reporting units

for rural sectors:

10 rural sectors, with their 34 subprefectures taking in their respective health units.

for urban sectors:

the cities of Ouagadougou and Bobo-Dioulasso taking in their respective health units.

2.1.2 Regularity of reporting

Synoptic report of the weekly official letter-telegrams notifying communicable diseases (including smallpox) are sent by the various health services of the urban and rural sectors of Upper Volta and received at the Directorate of Public Health.

Weekly official letter-telegrams notifying communicable diseases

Years	1974				1975			
	No. 11	No. 12	No. 13	No. 14	No. 11	No. 12	No. 13	No. 14
<u>Urban sectors</u>								
Ouagadougou Hospital	+	+	+	+	+	+	+	+
Dispensaries	-	-	-	-	+	+	+	+
<u>Bobo Hospital</u>	+	+	+	+	+	+	+	+
Dispensaries	+	+	+	+	+	+	+	-
<u>Rural sectors</u>								
1. Ouagadougou	+	+	+	+	+	+	+	+
2. Fada	+	+	+	+	+	+	+	+
3. Gaoua	+	+	+	-	+	+	+	+
4. Ouahigouya	+	+	+	+	+	+	+	+
5. Koudougou	+	+	+	+	+	+	+	-
6. Dédougou	+	+	+	+	+	+	+	+
7. Bobo	+	+	+	+	+	+	+	+
8. Kaya	+	+	+	+	+	-	-	+
9. Dori	+	+	+	+	+	+	+	+
10. Yako*	+	+	+	+	+	+	+	+
11. Manga*	+	+	+	+	+	+	+	+
12. Banfora*	+	+	+	+	+	+	+	+
Total number of official letter-telegrams received	15	15	15	14	16	15	15	14
Number expected	16	16	16	16	16	16	16	16
% official letter-telegrams received/expected	92.2%				93.75%			

\* Former health sectors becoming sub-sectors in the present structure.

2.1.3 List of suspect cases

Two suspect cases were reported in 1974:

1st case at Gorom-Gorom (11 July 1974), chickenpox (for details see Annex 5)

2nd case in the village of Mahadaga (23 September 1974), chickenpox (for details see Annex 6).

2.1.4 Listing of deaths due to chickenpox

The following were reported by the various health units

	<u>Cases of chickenpox seen by a doctor</u>	<u>Cases of chickenpox seen by a medical orderly</u>
1972	1 730*	7 668*
1973	1 121*	8 757*
1974	- 12 762 (global figure not broken down into cases seen by a doctor or by a medical orderly)*	

\* No deaths were noted among the cases of chickenpox.

2.2 Vaccination programme (1972-1975)

2.2.1 The smallpox immunization maintenance programme in Upper Volta represents the logical continuation of the regional smallpox eradication programme.

Plan of action

Plan of action in 1974:

The entire population should be systematically vaccinated every three years by the investigating teams of each sector. Some of this work can be done by the national teams for sectors so requesting.

Between two systematic vaccinations, children should be protected by a supplementary vaccination, performed either by the investigating teams or by the MCH services.

In certain cercles, the last systematic vaccinations were performed in 1968 or 1969. The entire populations of these cercles should therefore be revaccinated without delay.

Thus, cercles covered for the last time in 1971 or earlier should be systematically vaccinated in 1974. Each investigating team works about 20 days per month, allowing for compensatory rest periods, and nine months per year allowing for the break during the rainy season (July-August-September). One team therefore examines approximately  $500 \times 20 \times 9 = 90\ 000$  persons, and 20 teams examine  $90\ 000 \times 20 = 1\ 800\ 000$  persons per year.

Number of vaccinations performed:

1972	423 233
1973	300 917
1974	1 380 966

Vaccinations in 1974 by age groups

<u>Age group</u>	<u>Numbers vaccinated</u>
0 - 4 years	284 151
5 - 14 years	373 765
15 years and above	<u>723 050</u>
Total	1 380 966

A survey of BCG and smallpox vaccination scars was carried out in rural sector No. 1 of Ouagadougou from 9 to 25 October 1973 by the World Health Organization team UPV/1001-ESD 01 (Epidemiological Services).

19 villages were chosen at random and a total of 5564 persons examined.

The prevalence of smallpox vaccination scars was as follows (for details, see Annex 7):

Less than 1 year	10%
1 - 4 years	35%
5 - 14 years	78%
15 - 25 years	80%
25 years and above	92%
Total	68%

In three rural schools, where altogether 441 pupils aged 5-14 were examined, the prevalence of vaccination scars was 91.33% (Annex 8).

Name of producers of the vaccine used:

Smallpox vaccine, dried, made in the USSR (producer's name not mentioned)  
Smallpox vaccine, dried DRYVAX, Wyeth Laboratories Inc. - Marietta PA 17547.

ANNEX 1

UPPER VOLTA  
SMALLPOX CASES REPORTED IN 1967,  
BY MONTH, LOCATION AND AGE GROUP

Date	Sector	Focus	0-4 years	15-14 years	15-44 years	45+ years	Total cases
April	III Gaoua	Gaoua	-	-	2	-	2
April	II Fada-N'	Pouitenga	1	-	2	-	3
April	VIII Kaya	Tougouri	14	21	10	-	45
May	I Ouaga.	Silmiougou	1	2	-	-	3
May	I Ouaga.	Woontinga	1	1	2	-	4
June	VII Bobo-D.	Karankasso	1	-	-	-	1
June	III Gaoua	Gongonbili	7	3	28	3	41
June	III "	Pompomena	-	2	7	-	9
June	III "	Balantira	-	-	1	-	1
June	III "	Djikando	-	-	1	-	1
July	VII Bobo-D.	Bobo-Dioulasso	1	-	-	-	1
August	VIII Kaya	Kaya	6	3	7	-	16
September	II Fada-N'	Kantchari	-	-	1	-	1
November	IX Dori	(Falagountou (Gossey (Falgo-Nord	12	39	15	-	66
Total			45	71	76	3	195*

- Notes: (1) Sources - Directorate of Rural Health annual report for 1967.  
(2) \* The cases mentioned in the 1967 report are more numerous than those mentioned in the following annual reports (118 cases).  
(3) Deaths are not indicated.

UPPER VOLTA

SMALLPOX CASES

1968

Dates	No. of cases	Deaths	Sectors	<u>Cercles</u>	Cantons	Villages
January	16	0	IX Dori	-		
March	1	0	VII Bobo	Orodara	Seguedouou	Fofara
April	10	3	VI Dédougou	Djibasso (subdivision)	-	Kolonkan Komboury Kousua
July August September	20	3	II Fada	Kantchari (subdivision)	Botu	Botu Kalmana Partiaga Kangniga
October	41	8	VI Dédougou	Nouna (Djibasso)	Barani	Kani
<b>Total</b>	<b>88*</b>	<b>14</b>				

\* Figure contained in the Rural Health Department's annual report for 1968, whereas the number of cases reported to WHO for the same year was 100.

UPPER VOLTA

EPIDEMIOLOGICAL INFORMATION ON SMALLPOX CASES

Location: village of Botu (canton of Botu, subdivision of Kantchari,  
cercle of Diapaga, Sector No. 2 of Fada)

September 1968

Case	Location	Age	Sex	Date of appearance	Vaccinated	Condition
1	Koyenga	24 years	M	April 1968	No	Recovered
2	Gide	10 "	M	12 July	No	"
3	Gide	10 "	M	12 July	No	"
4	Gide	6 "	M	12 July	No	"
5	Gide	25 "	F	12 July	No	"
6	Gide	15 "	M	12 July	No	"
7	Gide	8 "	F	12 July	No	"
8	Gide	3 "	M	14 July	No	"
9	Gide	5 "	M	14 July	No	Dead
10	Gide	30 "	F	15 July	No	Recovered
11	Gide	6 months	M	17 July	No	Dead
12	Gide	2 years	F	19 July	No	Recovered
13	Gide	5 "	M	20 July	No	"
14	Gide	24 "	F	28 August	No	Grave
15	Gide	18 months	F	28 August	No	Grave
16	Gide	4 years	M	30 August	No	Recovered
17	Botu	10 months	F	30 August	No	"
18	Botu	6 "	M	16 September	No	Developing
19	Pendyaga	Unknown				

UPPER VOLTA  
SECTOR VI - DEDOUGOU  
EPIDEMIOLOGICAL INFORMATION ON SMALLPOX CASES

Location: village of Gani (canton of Barani, arrondissement of Nouna,  
subdivision of Djibasso)

October 1968

Serial No.	Initials	Age	Sex	Commencement	State of vaccination	Complications
1	A.T.*	13	F	May	Not known	
2	S.T.	6	M	May	Not known	Purulent ophthalmia
3	D.T.	3	M	May	Not known	Died. Purulent ophthalmia
4	A.T.	5	F	May	Not vaccinated	
5	F.A.	9	F	May	Not vaccinated	
6	A.A.	6	F	May	Not vaccinated	
7	B.A.	3	F	May	Not known	Died on 7th day. Purulent ophthalmia
8	S.D.	1	M	May	Not vaccinated	
9	Y.D.	3	M	May	Not vaccinated	
10	L.D.	6	M	May	Not vaccinated	
11	K.T.	10	M	May	Not vaccinated	
12	S.T.	11	F	May	Not vaccinated	
13	B.T.	7	F	June	Not vaccinated	
14	A.T.	1	M	June	Not known	Died
15	K.T.	6	F	June	Not vaccinated	
16	O.T.	2	F	June	Not vaccinated	
17	D.T.	1	M	June	Not vaccinated	
18	S.T.	4	M	June	Not known	Died
19	A.T.	1	M	June	Not vaccinated	
20	A.T.	3	M	June	Not vaccinated	
21	B.T.	1	M	June	Not vaccinated	
22	A.D.	4	F	June	Not vaccinated	
23	A.D.	3	M	June	Not vaccinated	Died on 8th day
24	Y.D.	5	M	June	Not known	Died on 12th day
25	K.D.	3	F	June	Not vaccinated	
26	S.D.	5	M	June	Not vaccinated	
27	F.A.	6 months	F	July	Not vaccinated	
28	A.T.	8 months	F	July	Not vaccinated	Died
29	Y.T.	2 months	F	July	Not vaccinated	
30	K.T.	1 month	M	July	Not vaccinated	
31	S.T.	3 months	M	July	Not vaccinated	Died
32	K.T.	6 months	M	July	Not vaccinated	
33	L.T.	8 months	M	July	Not vaccinated	
34	S.T.	5 months	F	July	Not vaccinated	
35	A.A.	1 month	M	July	Not vaccinated	
36	L.K.	1 month	M	August	Not vaccinated	
37	S.K.	1 month	F	August	Not vaccinated	
38	A.D.	1 month	F	September	Not vaccinated	Purulent ophthalmia
39	A.D.	10	F	October	Not vaccinated	
40	A.D.	7 months	F	October	Not vaccinated	

Total: 40 cases, with 8 deaths.

\* Initial case. The disease declared itself 10 days after her return from Kouna (Mali).

ANNEX 5

FIRST CASE AT GOROM-GOROM

Date of notification: 11 July 1974.

Date of epidemiological investigation: from 12 to 15 July 1974.

Location: Gorom-Gorom, cercle of the Oudalan, department of the Sahel.

Name of patient: Alhabas. First name: Inta-Hamadin. Age: 28 years, male, of the Touareg tribe.

The patient is a shepherd from Gourmarharon, a village located between Timbuctu and Gao (on the River Niger) in Mali. He left his village on foot on 30 June 1974, arriving at Gorom-Gorom on 9 July 1974 (a 10-day journey of about 350 km).

On 9 July, Mr Alhabas noticed an eruption of pustular lesions on his shoulders; these lesions then spread to his chest, abdomen, buttocks and, to a lesser extent, his extremities and face. The pustules were at different stages of development and they began to dry out and desquamate towards the fourth day of the eruption.

The only prodromal symptom was a fever occurring 48 hours before the eruption.

There was no previous history of chickenpox or smallpox. The patient had never been vaccinated against smallpox or any other disease. He stated that he had had no contact with cases of eruptive sickness during the past month.

He did not report having suffered any genital or anal lesion during the two months preceding the commencement of his disease.

The patient is a grazier and came to Gorom-Gorom to "seek his fortune". He stated that he did not eat any wild animal except rabbit and deer, and, in particular, neither monkeys nor rodents.

Under clinical examination the patient appeared to be in good health, with the exception of his generalized eruption. This was composed of a very small number of vesicles, some pustules and many scabs. The lesions were concentrated on the chest, the back and the region of the buttocks. They were superficial, with a surface diameter of 2-4 mm. Some were situated on the face and extremities, but in smaller numbers than on the torso. Several scabs had already desquamated, leaving patches of hypopigmentation. Some small lesions were noted on the periphery of the outer ear and on the genitals. No lesion was found on the palms of the hands or the soles of the feet. The patient had no vaccination scar and revealed no traces of previous smallpox.

The patient's two companions were in good health and carried vaccination scars.

Specimens of pustules, scabs and blood serum were taken and sent to the "Centre for Disease Control" (CDC), Atlanta, Georgia, United States of America.

Measures taken

(a) Previous vaccinations in the cercle of the Oudalan, 55 467 inhabitants (1972):

1970: 10 606 smallpox vaccinations

1971: 14 958 " "

November 1973 - April 1974: 32 209 smallpox vaccinations.

(b) Vaccinations on 11 July 1974: 3500 persons in the town of Gorom-Gorom and the nearby encampments of Malians.

Laboratory results

NEGATIVE AGAR GELS FOR POX VIRUS FOR SPECIMEN FROM ALHAMAS INTA-HAMADIN CRUST HERPES-VARICELLA GROUP VIRUS IDENTIFIED BY ELECTRON MICROSCOPY (cf telegram of 30 July 1974 from the CDC)

ANNEX 6

SECOND CASE AT MAHADAGA

Date of notification: radio message from the chief medical officer of Sector 2 of Fada-N'Gourma, received at the Directorate of Health on 23 September 1974.

Date of investigation: from Wednesday 24 September to Sunday 29 September 1974.

Location: Mahadaga, cercle of Diapaga, Sector 2 of Fada-N'Gourma.

Name of patient: LOMPO Nandé, 4 years, male, Gourmantché tribe.

Father: LOMPO Badondi, vaccinated, in good health.

Mother: B'NIOULA Maboungani, vaccinated, in good health.

1 brother: aged 2, with a fever (38°) and cephalalgia; no cutaneous lesions.

1 sister: aged 9, vaccinated, in good health.

State of patient: BCG vaccination one year previously; no smallpox vaccination scar.

Prodromic phase of five days with fever (38.5°), vomiting, appearance of lesions on the fifth day.

The child lives on a large concession, where contacts have been numerous and where a number of identical cases have recently occurred; prodromic phase lasting some days, with identical cutaneous lesions, recovery with no sequelae; no deaths. The child had never left the village and has had no special contact with wild animals.

Skin examination revealed the presence of scattered lesions, 1-2 mm in diameter, at the papular, vesicular and scab stages. The rash was distributed mainly on the head and trunk; it was also present in the armpits, but absent from the palms and soles of the feet. The rest of the examination was negative, except for a slight fever (37.5°).

Rapid development towards recovery without sequelae.

Measures taken

Isolation of patient

Taking of specimens

Vaccination of the villages of Mahadaga, Logobore, Napousiga, Tambaga, Namounou:

11 617 revaccinations

1 897 first vaccinations

Examination of clinical state with vaccination of patient after three weeks, and taking of second sample of serum.

Diagnosis: chickenpox confirmed.

PREVALENCE OF SMALLPOX SCARS BY VILLAGES AND AGE GROUPS  
IN FIRST RURAL SECTOR OF OUAGADOUGOU

Age	Smallpox scars		Total examined	% with scars	Age	Smallpox scars		Total examined	% with scars
	Yes	No				Yes	No		
	1. TANGHIN					2. BAZOULE			
-1 an	0	18	18		-1 an	28	10	38	
1-4	34	51	85		1-4	81	24	105	
5-14	101	30	131		5-14	255	28	283	
15-25	66	18	84		15-25	79	5	84	
25 +	77	8	85		25 +	51	1	52	
Total	278	125	403	68,98	Total	494	68	562	8,790
	3. DOUNDOULNA					4. BALLOLE			
-1 an	3	4	7		-1 an	14	13	27	
1-4	48	20	68		1-4	70	62	132	
5-14	136	18	154		5-14	157	55	212	
15-25	33	1	34		15-25	74	13	87	
25 +	26	1	27		25 +	72	1	73	
Total	246	44	290	84,82	Total	387	144	531	72,88
	5. GAOGHIN					6. VILPALOGO			
-1 an	0	13	13		-1 an	0	13	13	
1-4	12	85	97		1-4	18	48	66	
5-14	102	62	164		5-14	112	75	187	
15-25	45	27	72		15-25	34	24	58	
25 +	67	10	77		25 +	13	-	13	
Total	226	197	423	53,42	Total	177	160	337	52,52
	7. NAMYMI					8. TADENGA			
-1 an	0	18	18		-1 an	0	12	12	
1-4	28	55	83		1-4	27	48	75	
5-14	125	21	146		5-14	93	7	100	
15-25	48	2	50		15-25	49	11	60	
25 +	34	2	36		25 +	57	-	57	
Total	235	98	333	70,57	Total	226	78	304	74,34
	9. OUIDI					10. GOGHIN			
-1 an	0	13	13		-1 an	0	39	39	
1-4	15	40	55		1-4	23	84	107	
5-14	64	14	78		5-14	159	68	227	
15-25	60	2	62		15-25	75	25	100	
25 +	49	1	50		25 +	164	15	179	
Total	188	70	258	72,86	Total	421	231	652	64,57
	11. PISSI					12. SABTENGA			
-1 an	0	17	17		-1 an	0	22	22	
1-4	6	27	33		1-4	27	57	84	
5-14	68	35	103		5-14	99	42	141	
15-25	25	3	28		15-25	35	8	43	
25 +	18	1	19		25 +	70	1	71	
Total	117	83	200	58,50	Total	231	130	361	63,98
	13. NABAGUEB-TENGA					14. SAABA			
-1 an	0	31	31		-1 an	0	18	18	
1-4	52	66	118		1-4	15	43	58	
5-14	132	24	156		5-14	183	36	219	
15-25	47	11	58		15-25	42	6	48	
25 +	111	14	125		25 +	62	6	68	
Total	342	146	488	70,08	Total	302	109	411	73,47
	15. SOURGOU					16. GOUPANA			
-1 an	0	51	51		-1 an	0	27	27	
1-4	53	170	223		1-4	46	88	134	
5-14	275	104	379		5-14	270	52	322	
15-25	100	27	127		15-25	54	7	61	
25 +	201	24	225		25 +	94	5	99	
Total	529	376	1 005	52,63	Total	464	179	643	72,16
	17. VOAGA					18. ZOUNDI			
-1 an	0	63	63		-1 an	0	9	9	
1-4	48	130	178		1-4	6	21	27	
5-14	232	52	284		5-14	27	12	39	
15-25	71	27	98		15-25	10	4	14	
25 +	102	9	111		25 +	19	1	20	
Total	453	281	734	61,71	Total	62	47	109	56,88
	19. NABITENGA					TOTAL GENERAL			
-1 an	0	12	12		-1 an	45	403	448	10,04
1-4	15	23	38		1-4	624	1 142	1 766	35,33
5-14	54	7	61		(0-4)				30,21
15-25	10	6	16		5-14	2 644	742	3 386	78,08
25 +	7	12	19		15-25	957	227	1 184	80,82
Total	86	60	146	58,90	Total général	1 294	1 112	2 406	92,03
Total	86	60	146	58,90	Total général	5 564	2 626	8 190	67,93

PREVALENCE OF BCG AND SMALLPOX SCARS IN RURAL SCHOOLS,  
FIRST RURAL SECTOR OF OUAGADOUGOU

Rural schools	Age	Total examined	BCG scars		% BCG scars	Smallpox scars		% Smallpox scars
			Yes	No		Yes	No	
Saaba	5-14	157	135	22	85.98	142	15	90.44
Bazoule	5-14	154	144	10	93.50	150	4	97.40
Goupana	5-14	130	117	13	90.00	111	19	85.38
Total		441	396	45	89.79	403	38	91.33

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