M e m o r a n d u m

TO : Dr. J. D. Millar, Chief
Smallpox Eradication Program

DATE: February 23, 1967

FROM : Dr. G. I. Lythcott, Chief
Smallpox Measles Program, RPO

SUBJECT: Status Report as of February 20, 1967

Since the publication of Status Report No. 3 on January 18, the RPO has been heavily involved in a number of activities. The Ghana International Trade Fair opened with a flourish on Feb. 1, 1967. One of its most dramatic features has been the giving of free smallpox and measles vaccinations by a Ghanaian team from the Ministry of Health, working in a special Smallpox Eradication/Measles Control booth in the American pavillion. General Ankrah, Ghana's Chief of State, received one of the first vaccinations, and thousands of people have since patiently waited their turn in lines stretching for blocks outside of the pavillion.

In deference to facility and safety and to accomodate the tremendous crowd desiring vaccinations on the last two days of the fair, it was necessary to move the entire exercise outside the American pavillion. Actually, 16,921 smallpox vaccinations were given on the last Saturday alone! The SMP participation in the fair has been acclaimed an outstanding and dramatic success by all involved with it. Unofficially more than 105,000 persons were vaccinated against smallpox and approximately one-fifth of these received measles vaccine also.

We would like to take this opportunity to acknowledge with gratitude the cooperation and efforts extended by His Excellency, Franklin H. Williams, the American Ambassador to Ghana, Mr. Frank Pinder, USAID/Ghana Mission Director, Mr. Gordon Winkler, Public Affairs Officer USIS/Ghana and Mr. Don Gayton the Trade Fair Coordinator, Department of Commerce, Dept. of State, Washington, D.C.

Commendable, indeed, have been the contribution of the troops in this effort. In preparation for the fair, Dr. and Mrs. Ralph Henderson took up temporary residence in Accra from January 6-26, during which time, aided by frequent visits from Mr. Robbins and other appropriate RPO staff, the SMP booth was designed, consultations with USAID, USIS and the Health Education Section (Ministry of Health) were held, and the teams trained. On January 22 Dr. Bernard Challenor, (SMP Medical Epidemiologist assigned to Togo and Dahomey), arrived to take charge of the program for the actual period of the fair. On January 26, an International Press Conference was held highlighting the SMP presence at the fair as the kickoff for the nineteen country program. This

press conference featured Dr. Millar (on his way from Atlanta to conferences in Lagos and Yaounde), Dr. Lythcott, Dr. Akwei, Director of Medical Services for Ghana, and Mr. Gordon Evans, representing USAID/Ghana.

SMP technicians have been urged to visit the fair with their counterparts to underline the international and cooperative aspects of the program, and visits by both Togolese and Nigerian health authorities have been tremendously successful in this regard.

A complete report on the fair will be submitted by Dr. Challenor by March 1.

Dr. Lythcott visited Accra February 17-20 to witness the teams in action during the closing days of the fair and to participate in planning the upcoming pilot project with Dr. Challenor, Dr. De Sario, (Dr. Challenor's counterpart for the Ghana pilot project), Dr. Grant and others. At least two weeks will elapse before initiating the pilot project in Ghana to allow the teams a much needed rest, to allow for appropriate study of the pilot area and to develop proper propaganda programs for the populations involved.

The general concept of the global approach to smallpox eradication and the 19 country Smallpox Measles Program specifically, was discussed by Dr. Lythcott in a ten minute taped interview with Mr. Henry Grady, Regional (Africa) Chief of the Voice of America. VOA will prove to be a valuable resource in our propaganda program and it is planned at a later date (arranged with Mr. Grady) to have Mr. Robbins visit Monrovia (VOA Headquarters) to work out specific long range plans.

Following the Press Conference, Dr. Millar, Dr. Lythcott, Mr. Griggs, and Dr. Henderson arrived in Lagos to attend a two day meeting with SMP technicians and their AID counterparts from Nigeria and the OCCGE countries. On January 30, they traveled to a similar meeting for the OCEAC group held in Yaounde in conjunction with the OCEAC technical conference. The remaining RPO staff joined this meeting on February 3.

These meetings were successful in giving both the Atlanta staff and the field staff a clearer picture of the types of problems presently besetting the program, and provided an improved basis on which to solve them.

Dr. Millar, Dr. Lythcott, Dr. Henderson, Mr. Griggs and Mr. Hicks returned from Yaounde to Lagos on February 5, followed by the remaining RPO staff over the next five days. Prior to their return to Atlanta, Dr. Millar visited Kaduna and Zaria, while Mr. Griggs visited Ibadan.

During the past two weeks, Mr. Robbins has traveled on consultation to Enugu, Eastern Nigeria, and Mr. Shoemaker has traveled to Kaduna. Mr. Davis has been working on the assessment scheme for Maroko, a village chosen as a pilot vaccination project for the Lagos area, and has worked closely with Dr. Foster and the Nigerian authorities during February 14-18 in carrying out a post vaccination campaign survey. (A report of which will follow.)

In keeping with our already discussed new goals for the smallpox production laboratory (Yaba), Mr. Rothstein, who has previously prepared a thorough report on the status of the existing laboratory, has presented a new report including suggestions for modifications which should be made in the physical plant as well as other pertinent data. This report combined with an over-view from the RPO will be presented to the Nigerian authorities shortly for action. We are optimistic that their response will be positive.

Country Activities

A. OCCGE

Mauritania: (Report as of Feb. 5) Plans continue for the vaccination of the Hodh Oriental region, which will, hopefully, be completed by July. Tom Leonard will be using Air Mauritania as an aid to getting needed supplies (and himself) the 900 kilometers between his headquarters at Nouakchott and Nema, headquarters for Hodh Oriental. An arrangement has been made with Dr. Jujewicz, the Director of a UNICEF project concerned with Maternal and Child care, to have his eight child care and nine maternity clinics in Mauritania report on any observed complications of vaccination or cases of smallpox. By dint of a major effort on Mr. Lennard's part, the SMP Dodge trucks mis-sent to Port Etienne have been brought back to Nouakchott. Dr. Tom Drake has assisted in the early phases of the program.

Senegal: No ProAg yet signed.

Gambia: No ProAg signed.

Mali: (Report as of Feb. 3) A total of ten vaccination teams have been planned for this season. Six vaccination teams, (each composed of four vaccinators, two infirmiers, and one driver), will be deployed in Bamako region. This region cuts a North-South swath across Mali, touching both Guinea to the South and Mauritania to the North, and is inhabited by an estimated 800,000 people. The teams will be giving measles vaccination by jet injector to children 6 mo. - 6 yrs., and jet smallpox vaccination to children through the age of 10 years. Current plans call for multiple pressure vaccination (at two different vaccination sites) of all those 11 years and older with smallpox and

yellow fever vaccine (Dakar strain). The program in this area should be underway this month, and attempts will be made to coordinate vaccination activities with those of Mauritania when working close to the Mauritanian project area. This border area between the two countries is suspected to be highly endemic for smallpox.

Four additional vaccination teams will be deployed around Mopti (cercles of Niafunke, Djenne, Tenenkou and Maeina) in March. This is also a well known problem area for smallpox, accessible to vehicles only during a brief period of the year because of the swampy terrain.

Refresher courses in the jet injector have been given by Pat Imperato (MO) and Jay Friedman (OO) to infirmiers involved with last year's project, and these infirmiers have aided in instructing new team recruits. A pilot measles vaccination project was held on January 17-18 in the city of Kita, (population 10,000), where 553 cases of measles were reported during December with over 200 deaths. A generally successful campaign was conducted during which 2551 measles vaccinations were given. This corresponded closely to the estimate of the number of children aged 6 mo. - 7 years residing in Kita (2500).

The present reporting system for smallpox consists of 42 reporting units located in each cercle who telegraph immediately on the occurence of cases of smallpox.

Upper Volta: (Report as of January 18) Although the ProAg was signed some time earlier, it did not receive the approval of the Ministry of Finance until January 31. Dr. Chris D'Amanda is currently working on the implementation of the program.

Ivory Coast: (Report as of January 20) The measles vaccination program was begun on December 19 by the Service des Grandes Endemiés, concentrating in the Western part of the country. Smallpox vaccination is carried out using multiple pressure technique by three separate health services - the Institute d'Hygiene, (responsible for carrying out a mass attack program of smallpox vaccination which by 1965 had apparently wiped out all indiginous cases), the "Assistance Medicale Africaine", (largely responsible for fixed medical installations such as hospitals and dispensaries), and the Service des Grandes Endémies, (the mobile arm of the health force, making a tour of the entire country approximately every two years). Smallpox vaccinations are given year round by these services which gave a total of 1,660,849 vaccinations during 1966 (covering an estimated 44 percent of the population).

Negotiations are currently underway to divert four vehicles initially assigned to Upper Volta to the Ivory Coast where they are needed by the program.

Niger: (Report as of February 6) Don Moore (MO) and Tony Masso (OO) stopped in Lagos briefly en route to Cotonou on January 12, where they, with the help of Jean Roy, picked up four vehicles destined for Niger, and drove them to Niamey. On January 20, while returning to Niamey from Saragan at night, Dr. Moore and Mr. Masso overturned in their trucks when Mr. Masso swerved off the road to avoid hitting an animal. They were both wearing safety belts, and neither were injured, although the cab of the truck was a total loss. Villagers helped upright the upsidedown truck, with which the technicians were able to limp back to Niamey.

On January 23-28, a successful training course was held for seven nurses. On their return from the Lagos regional meeting, (Jan. 27-29), Dr. Moore and Mr. Masso were stranded in Abidjan for a week because the Harmatton weather had closed the Niamey airport.

Unofficial reports of cases of smallpox occuring in the Southwestern area of Niger were received in Niamey on January 24, and another suspected outbreak, involving some forty people, was reported near Tera on February 4. Tera borders Upper Volta, and is close to the Sebba area from which suspected smallpox was reported from Upper Volta in December.

The vaccination campaign is due to begin on February 8.

Togo: (Report as of February 7) After initial training sessions, a pilot vaccination program was held on January 20-21 during which 3695 vaccinations were given in four villages close to Lome. At one of the villages, the Ministry of Information made a film which will be shown in Togolese theaters in the documentary series, "Togo Actualités".

A strong health education effort is being planned, utilizing, among other things, posters, a commemorative stamp, a stamp cancellor with a message about the campaign, and a campaign slogan printed on the backs of the national lottery tickets. Music for the "Vaccination Highlife" has been composed and lyrics are being written for the Togo program.

On February 7, Andy Agle (OO) attended the Ghana Trade Fair with Dr. Gadagbe and Dr. Akakpo, and photographs of them with Mr. Agle and Dr. Bernie Challenor (MO), (who has been in charge of the SMP booth at the fair), were taken. Dr. Gadagbe is the Director of Maternal and Child Health for Togo and chairman of the Smallpox Measles Program committee, while Dr. Akakpo is the Director of Communicable Disease.

The campaign is due to start in the north of Togo, beginning in the area around Dapango, on February 16.

Dahomey: (Report as of January 9) Team training has been deferred until final settlement has been made with WHO regarding the payment of local costs. Jean Roy (OO) responded to an urgent call from Nigeria and drove 37,200 doses of measles vaccine from Cotonou to Lagos on February 11, driving back that same evening. (To attend a soiree being given for Elizabeth Taylor and Richard Burton, no less.)

B. Anglophone Countries

Ghana: (Report as of January 25) Activities have mainly centered about the Trade Fair as described in the activities of the RPO. Two teams of vaccinators have been trained who will begin a pilot vaccination project in the largely urban Accra-Téma area, and the basically rural Shai-Adangbue area of Ghana. The area has an estimated population of 600,000.

Nigeria: (Report as of February 3, 1967) After training programs were held, pilot projects have been begun in all the regions. This will involve a total of 220,000 people in the project area selected.

An outbreak of smallpox has occurred in the East which has been controlled by dint of a massive vaccination campaign, carried out using both multiple pressure and jet injection techniques, during which over 60,000 vaccinations have been given. Although the official details are not yet available, it is of interest to note that this outbreak involved a remote, low density area of the East (125,000 people in an area of approximately 500 miles or 29.8 people per square mile). Although vaccination had been carried out in the area as recently as October of 1966, the coverage in the remote villages had been low. The last reported epidemic of smallpox had occurred in the area in 1950.

This outbreak is of considerable theoretical interest, since it has occurred in a low density area, and would seem to lend weight to the hypothesis that smallpox can be maintained in 'bush' populations. More observations of cases occuring in relatively isolated areas will be of great interest.

During weeks 1-4 of 1964, smallpox cases were reported from all the regions of Nigeria except the Federal, with special prevalence in the Eastern and Northern regions.

C. OCEAC Countries

Cameroon: (Report as of January 1) The OCEAC technical conference was held January 30 - February 3, and was attended (at least in part), by all of the SMP technicians. John McEnaney (OO) reports that the measles vaccination program in East Cameroon (begun in 1965), is to be completed by February 15, and that West Cameroon will be started in March, aiming for completion by June 1967. Dr. Arlan Rosenbloom (MO) and family arrived February 7.

C.A.R.: (Report as of January 31) After holding training sessions, Bernie Lourie (MO) and Neal Ewen (OO) conducted a practice measles vaccination session January 10-12 in two quarters of Bangui, giving a little over 1000 shots to children aged 6 mo.-6 yrs. Plans are to field one vaccination team in each of the five secteurs of C.A.R. in February.

Chad: (Report as of January 10) Smallpox and measles vaccinations are given by mobile 'prospection' teams which cover the entire country every three years combining vaccination for smallpox measles, and tuberculosis (BCG) with diagnostic and control procedures aimed at trypanosomiasis, leprosy, yaws, syphilis, trachoma, and onchocerciasis. In Chad's five major cities, however, (Ft. Lamy, Ft. Archambault, Moundou, Bongor and Abéché), vaccinations are given yearly to protect their rapidly changing populations.

Bernie Lourie (MO) and Russ Charter (OO) reported that the 1967 smallpox vaccination effort was underlined by a Presidential proclamation which told of the world wide fight against smallpox and urged each citizen to be vaccinated. In addition, it directed all administrative units to assist in gathering populations together for vaccination. Some 20,000 flyers with pictures and a text promoting vaccination are to be distributed to schools and clinics. An article written by Dr. Ziegler (the Director of the Service des Grandes Endémies) on the diagnosis and prevention of smallpox is to be published in a monthly journal for nurses, and distributed to all nurses in Chad.

Gabon: (Report as of January 23) The vaccination campaign will begin giving smallpox, measles and (tentatively) BCG vaccine in the capitol city, Libreville, (1961 population estimate 31,000), around February 20. With the arrival of needed refrigeration equipment and vehicles, the teams will be able to address themselves to the difficult task of covering a sparsely populated country with scattered small villages, (population 150), and poor roads.

Mark Lapointe (OO) has written that the current reporting scheme for measles and smallpox now involves only hospital cases.

Program Wide Problems

The myriad of complexities involving the administration of this unique program have been made even more difficult and more frustrating by the occurence of a number of program wide problems. These, happily, have been recognized and discussed recently, and all concerned are working toward their solution. The following, then, is for the record.

The arrival dates of most of the materials for the campaign have lagged, (sometimes considerably), behind the ETA's given for them. In addition, bills of lading and other needed documents have either not arrived at all, or have become lost in piles of routine paper work in the host country bureaucracy, resulting in more than usual delays in getting the materials cleared through customs. Although in some countries the special nature of this program has permitted considerable shortening of the usual clearance procedure, in others we have had little success in speeding the process. Thus weeks and months have been added to the delays in shipping. In addition to being demoralizing for our own staff, these delays have resulted in a certain amount of rancor on the part of host government health officials whose carefully planned programs have had to be altered.

Added to the delay in arrival of equipment have been major and minor defects in the material itself. As a group, the jet injectors have been poorly made, having light cases which soon warp so as not to close (a criticism leveled by Dr. Ziegler and transmitted to Atlanta in March, 1966), straps and clips which do not succeed in securing the injector to the top of the case, frequent minor seepage of oil around the dosage window which is not stopped by replacing the spring-piston seal, and, most disasterously, a whole series of injectors (affecting the majority in Northern Nigeria and in C.A.R.) having the vaccine chamber improperly machined. This resulted in the piston seals being shredded by the rough interior surface, and rendered the injectors inoperable.

The same criticism of shoddy workmanship and occasional gross negligence can be levied at the manufacturers of the vehicles, which have often deviated from specifications. Mr. Charter has submitted a long list of specific complaints with the vehicles sent to Chad, which is applicable program wide, and which mentions only the highpoints.

Lastly, and perhaps most frustrating of all, have been problems with communications between the field and the RPO, and the field and the RPO with Atlanta.

Two very early major dificits have resulted from (1) a confusion between Atlanta and the RPO as to whom should take action on a specific item, and (2) the disorganization involved in setting up the RPO. This disorganization was compounded by the fact that a multitude of problems

requiring urgent personal RPO attention occurred within the first weeks of the arrival of the program personnel, leaving only a skeleton staff who were often too involved with local emergencies to be able to respond meaningfully to requests from the field.

Needless to say, we all anticipated problems in embarking on this venture, however, no amount of experience or even clairvoyancy could have anticipated all the realities of this complex exercise. The staff of this program was selected with the knowledge that they themselves would be the most important element in the entire operation, and this faith in our troops has been amply justified and supported to date. Programs are beginning to move with effectiveness, and generally excellent working rapport has been established with the health services of the host countries. Definitive steps are being taken to upgrade the standards of the commodities and communications, and the pervading spirit of the program remains one of confidence and optimism.

Morbidity and Mortality Report

The data presented for reporting period number one is most noteworthy for its incompleteness. At present this is more referable to the squeaky wheels of our own SMP data gathering and transmitting system than to deficiencies in host country reporting.

Figure one showing the monthly reported smallpox cases and deaths, demonstrates the well described but as yet poorly understood phenomenon of seasonal incidence.

TABLE 1

[1]Reported Cases, Deaths and Vaccinations of Smallpox and Measles

[2]West Africa: Jan 1967 (Period No.1)

	SMALLPOX			MEASLES		
Country	Vaccinations	Cases	Deaths	Vaccinations	Cases	Deaths
CAR	-[4]	-	-	1050	-	-
DAHOMEY[3]	-	45	10	-	-	-
GHANA	-	-	-	-	-	-
NIGERIA	-	370	36	-	5326	62
Federal	-	-	-	-	225	11
East	-	65	18	-	1930	15
North	-	287	18	-	1701	19
MidWest	-	6	-	-	508	2
West	-	12	-	-	962	15
TOGO	-	28	-	-	-	-

[1]Reports submitted to RPO

[2]Countries not listed did not submit a Mortality, Morbidity Report

[3]Covers period of Jan 4 - Jan 31

[4]- No data Available

TABLE 2

[1]Reported Cases, Deaths and Vaccinations of Smallpox and Measles

[2]West Africa: 1966

	SMALLPOX			MEASLES		
Country	Vaccinations	Cases	Deaths	Vaccinations	Cases	Deaths
CAR	170916	0	0	0	2246	2
CHAD	904794[3]	0	0	-[6]	9099[3]	141[3]
DAHOMEY	468829	-	-	52660[4]	-	-
GHANA	-	13	2	0	-	-
IVORY COAST	1,660,849	0	0	205792	17843[5]	-
MAURITANIA	-	0	0	-	28	-
NIGERIA	-	4952	406	0	88526	783
Federal	-	93	16	-	-	-
East	-	109	22	-	-	-
North	-	134	15	-	-	-
MidWest	-	4366	334	-	-	-
West	-	250	19	-	-	-

[1]Reports submitted to RPO

[2]Countries not listed did not submit a Mortality, Morbidity Report

[3]Covers period of Jan - Nov 1966

[4]Total excludes CIRCONSCRIPTION Centre where no data were available

[5]Covers period of Jan - June 1966

[6]- No data available

TABLE 3

Reported Cases and Deaths of *Smallpox

NIGERIA: 1966

S M A L L P O X

MONTH	CASES	DEATHS	$\frac{\text{DEATHS}}{\text{CASES}}$ x 1000
JAN	183	11	59
FEB	692	46	67
MAR	914	57	62
APR	1385	124	89
MAY	560	51	92
JUN	344	37	108
JUL	235	16	68
AUG	111	16	145
SEPT	68	6	88
OCT	135	6	45
NOV	62	11	178
DEC	258	25	97
TOTAL	4952	406	

*Comparable Data not available for Measles

FIGURE 1

REPORTED CASES AND DEATHS OF SMALLPOX BY MONTH

NIGERIA: 1966