

Expanded Program of Immunization (625-0937.05)  
Evaluation Report  
(Summary of Original French Text)

1. Summary of Evaluation Observations:

The evaluation team concluded that the overall balance sheet of the Mauritanian EPI now operating for 1½ years is positive. Given the local constraints (extremely dispersed population, insufficient health infrastructure, difficult terrain and minimal financial resources), the evaluation team concluded that the current plan is particularly realistic. The team appreciated the integration of EPI in a large number of Maternal Child Health (MCH) centers where vaccinations are an integral part of the services furnished by these centers, permitting a vaccination coverage for cities and important centers without using a mobile strategy. The team noted that despite logistical difficulties, the mobile teams manage trimestrial visits to villages and that coverage in far-away rural areas is satisfactory. The team noted the seriousness and enthusiasm of the EPI managers and the high quality of the central vaccine warehouse.

Despite the overall positive assessment, the team considered that the EPI-MCH coordination was still insufficient at the central as well as regional levels concerning the cold chain, the team noted its insufficiency at regional and peripheral levels such that this compromises the success of the vaccinations. The team also noted that the epidemiological surveillance of target EPI diseases was still insufficient despite concerned efforts.

The team also noted details such as the insufficient regional stocks of injection material and vaccination cards, reutilization of disposable material and the insufficiency of personnel and material of the Nouakchott central organization.

Concerning vaccination coverage, the evaluation team made the following observations:

- The 5th district of Nouakchott and two rural regions, the Gorgol and the Brakna, were studied.
- The Gorgol has the best coverage with 85% BCG (anti-tuberculosis vaccine) coverage and 76% measles coverage. At Nouakchott, the coverage was average 70% BCG and only 42% for measles, but the percentage of children with the 3rd dose of DPT relative to the first dose is very good: 76%. In contrast, in the Assaba, the results were not as good.

(See addendum for progress made between August, 1981 and March 1982.)

2. Summary of Major Evaluation Recommendations:

- a. Better coordination between the MCH centers and EPI with the objective of having a single program with fixed and mobile components.
- b. Substantial improvement of cold chain at regional and peripheral (MCH) levels
- c. Better stocking of vaccines, re-useable injection material and vaccination cards at the regional level.
- d. Study the possibility of additional training for EPI personnel and possibility of an EPI mid-level course for 1982.
- e. Development of health education of the population regarding EPI by means of an separate GIRM health education department with sufficient resources, (as a supplement to EPI's own health education activities).
- f. Development of an epidemiological surveillance service through selection of sentinel posts which will furnish monthly reports on diseases. This method is indispensable to evaluate the real impact of the EPI.
- g. Improve the motivation of EPI personnel by looking into the possibility of GIRM paying travel per diem.
- h. Conduct a second evaluation with a national/international team in 2 years.

3. Background: Development of EPI in Mauritania

In the late 1970's Mauritania began planning for its EPI whose objective is to reduce the incidence of immunizable diseases which contribute significantly to the child mortality rate (especially measles and whooping cough) and cripple a portion of the adult working force (tuberculosis and polio). This situation has posed an important developmental constraint to Mauritania. Mauritania with the help of the World Health Organization, launched a pilot EPI in the Trarza region in 1977. In September 1978, Mauritania presented a draft proposal for a national EPI to the CILSS Human Resources Sector Mtg for donor funding. The U.S. expressed interest in this Project and assisted Mauritania in refining the proposal in 1980.

AID approved funding for the EPI Project 625-0937.05 which describes the overall EPI and contributes \$ 400,000 (35% of the approximate total of \$ 1,100,000 of which other donor contributions are provided by W.H.O., UNICEF, the Council of Arab Health Ministers and Libya). The goal of the global GIRM

EPI is to vaccinate 80% of Mauritanian children aged 0-5 yrs against measles, whooping cough, polio, tuberculosis, tetanus and diphtheria by 1985.

4. Program Strategy:

a. Current Plan: The Mauritanian EPI uses a combined strategy of mobile teams (1 per each of 12 regions plus Nouakchott) and fixed centers (the 25 MCH centers in Mauritania). The MCH centers vaccinate the population in an approximate radius of 10 kilometers and the mobile teams vaccinate the population living outside this radius. From November 1979 to May 1981 Mauritania gradually increased vaccination activities several regions at a time. Currently, about 90% of the country is covered, leaving only several small areas in the North of Mauritania. This strategy will continue with the following evolution:

- vaccination activities will be increasingly emphasized in fixed centers through retraining of personnel and improvement of cold chain.
- Mobile teams will gradually take on additional tasks; supervision of primary health workers, health education, control of endemic diseases. (This is part of an overall GIRM effort to integrate rural health activities and improve their cost effectiveness.

b. Future Planning: In the Spring of 1982 Mauritania will design a 5 year plan (1982-1987) for EPI operations (see addendum for further comments).

5. Terms of Reference and Scope of Work for Evaluation:

a. Objectives:

The evaluation concentrated on the following objectives:

- (1) Vaccination coverage,
- (2) Operational Effectiveness (program organisation, vaccine supply, cold chain and vaccination strategy.
- (3) Cost-effectiveness estimations.

b. Methods

(1) Vaccination Coverage Surveys:

The evaluation team composed of 7 outside evaluators, 3 Mauritians not working in the program and 7 persons working in the EPI, carried out the evaluation 12-30 June, 1981.

In addition to analyzing the existing documents concerning the project, the team was able to assess the vaccination coverage in Nouakchott and the regions of the Gorgol and the Assaba. (Nouakchott was chosen because of its important population and to judge vaccination in its MCH centers and PMIs; the Gorgol and Assaba were chosen to compare the work of mobile teams in two rural areas - Gorgol seemingly having a good program, Assaba seemingly a poorer program. Using the cluster sampling method as standardized by WHO for vaccine coverage, the vaccination coverage survey drew a sample of 30 blocks (one District in Nouakchott) and a total of 60 villages in the Assaba and the Gorgol Regions.

Note : Lack of good census data made it necessary to modify the standard protocol somewhat by making population estimations. The age group chosen for evaluation were children 12-47 months. Vaccinations were verified using vaccination card, scar (for BCG) and/or the mother's word about sites of injection and number of vaccinations performed (sites are standardized).

(2) Operational effectiveness:

The team analyzed EPI documents and made observations on site to assess program operations.

(3) Cost effectiveness estimation:

Basic cost data were gleaned from EPI documents at central and rural levels. In addition data were gathered during the vaccination coverage survey site visits.

(4) Measles vaccine effectiveness survey at the village of Legran in the Assaba region:

Although not part of the original evaluation objectives, a survey was carried out in this Assaba village which had recently had a measles epidemic, to check measles vaccine effectiveness. Half the children in the village were surveyed and the vaccine effectiveness was evaluated using the following standard formula.

Vaccine Effectiveness : 
$$\frac{\text{Attack rate of non-vaccinated children} - \text{attack rate of vaccinated children}}{\text{Attack rate of non-vaccinated children}}$$

(children less than 6 months of age at the time of measles epidemic were excluded as well as those having had measles before the epidemic).

6. Results

a. Results of the Vaccination Coverage Surveys in 3 Mauritanian Regions

Table I : RESULTS OF VACCINE COVERAGE SURVEYS IN THREE MAURITANIAN ZONES

	<u>Nouakchott</u> 5°arrondissement	<u>GORGOL</u> Rural Zone of Kaedi & Maghama	<u>ASSABA</u> Rural Zone of Kiffa & Boundeid
Vaccination Cards	69.1 °	69.7	32.7++
BCG	70.4++	85.3	64.0°
Scar	64.1++	79.8	49.5++
BCG Scar	91.1 °	93.5	77.3++
Measles	41.7+	75.7	53.1++
DPT 1°	64.6++	86.6	61.1°
DPT 2°	54.3 °	60.5	40.0+
DPT 3°	48.9	34.8+	16.8++
DPT 3/1	75.7	40.2++	27.5+
Polio 1	56.1+	86.2	67.2++
Polio 2	47.5+	58.7	39.5°
Polio 3	45.3	34.4+	16.0++
Polio 3/1	80.8	39.9++	23.8+
Completely Vaccinated	27.4 °	29.4	13.6++
Vaccination Cards/BCG	98.2	81.7++	51.1++
Number of Children	223	218	220

Comparison of values by Chi Square test for each vaccination between regions (horizontal line);  
 ++ Significant difference ( $p < 0.001$ ) with the value immediately above

- + Significant difference (p < 0.02) with the value immediately above
- ° Difference not significant with the value above

Comments on Coverage Surveys:

(1) Nouakchott:

Concerning the continuity of vaccinations, the results are excellent. The percentage of children having received their first injection and returning for their 3rd injection is 76 to 81%. This indicates a good reception and a good level of health education. (In several other countries, this percentage is 30-40%)

- ° On the other hand, measles vaccination coverage is only 42%, too low to have a significant impact on the endemicity of measles.
- ° About 98% of the children had some sort of vaccination record card, but almost none had a real vaccination card. Many families had small vaccination note books (costing about 20¢), but because these are too fragile, many had replaced them once they became old or dirty, thus losing the information about previous vaccinations.
- ° The objective of the EPI is to completely vaccinate 80% of children before 1985, there is much work to do yet in the 5th Arrondissement where only 27.4% of children are now completely vaccinated

(2) Gorgol Region:

- ° Of the 3 regions studied, the Gorgol certainly has the best vaccination coverage. The goal of 80% has been significantly surpassed for BCG vaccination (85% as well as for the first DPT/Polio (86%) and nearly reached for measles (76%). Despite this good coverage, only 29% of children are completely vaccinated, this is due to the difficulty in attaining the 3rd DPT/Polio injection for which coverage is only 39%. Some mothers noted having missed one of the visits of the mobile teams to their village.
- ° Among the children vaccinated, 82% had their vaccination cards. These were not official cards, but rather many women had just small pieces of paper. At the beginning of vaccination activities, the mobile team had not yet received the official cards and had thus distributed the unofficial papers. Therefore, it is indispensable to replace these papers with real cards as soon as possible.

(3) Assaba Region:

- ° This region has the poorest vaccination coverage of the regions studied; only 14% of the children were completely vaccinated. Concerning measles, the coverage is better than Nouakchott (53%). On the other hand, coverage for the 2nd and 3rd DPT/Polio is very weak (40% and 16%).
- ° It appears that there are problems with the BCG vaccination technique. In the regions of Gorgol and Nouakchott, 92% of vaccinated children had scars, compared to only 77% in the Assaba. Statistically this difference is very significant ( $p < .001$ ).
- ° Nomadic encampments were excluded from our survey; however they constitute 37% of the region's population. During the time of the survey - the dry season - these nomads had migrated to the south of the country; during the wet season they will come back to this region.
- ° To check on the effectiveness of measles vaccine in a village where there was a measles outbreak despite good vaccination coverage, the evaluation team conducted a special survey. In summary, the survey showed that the measles vaccine was ineffective (vaccine effectiveness was 30%) in this village due to the cold chain problems and use of non-heatstable measles vaccine prior to the epidemic. Only heat-stable measles vaccine is now used in Mauritania.

b. EPI Administration

(1) Organization:

° Central Office

Personnel at central office:

- National Program Director
- 2 Supervisors
- Warehouse Supervisor

(accounting and transport resources are shared under MOH as a whole)

- Nouakchott vaccinations are carried out in 5MCH centers. A mobile team was planned for use in peripheral areas, but not yet operational.

Comments: Team noted the insufficiency of personnel at the central level.

° Regional:

The regional Medical Directors oversee the regional EPI operations.

° Ground Level:

Mobile teams consist of these personnel:

- State Nurse, licensed practical nurse's aide, driver, orderly. MCH centers have variable personnel.

° Cold Chain:

In addition to the central vaccine warehouse, each mobile team has a freezer and refrigerator to stock vaccines at the regional level.

Coolers are used for vaccination trips. MCH centers have a refrigerator, sometimes a freezer also.

(2) Control and Supervision

Mobile teams submit monthly reports including:

- places visited
- number of children vaccinated
- doses of vaccine used
- vaccine inventory
- vaccine temperature control sheet
- kilometers covered
- financial report

MCH centers submit separate reports.

Mobile teams are visited by one of the 2 national supervisors every 3 months. The supervisors bring vaccines and other necessary material. Mobile teams deliver vaccines and cards to the MCH centers.

c. Cold Chain

- (1) Central Warehouse: The central vaccine warehouse located in Nouakchott is very well managed. The warehouse is furnished with 5 freezers, 21 refrigerators, and 2 cold chambers.

Comments: The team noted the very satisfactory organization and perfect management of the central warehouse. The warehouse supervisor was very competent and vaccine inventory well recorded.

The equipment is well maintained and temperatures recorded 2 times per day. The team noted that vaccine stocks were insufficient notably for polio, tetanus and BCG vaccines.

(2) Regional:

a. Gorgol (1 freezer and 3 refrigerators) the vaccine depot is perfectly maintained and cold chain satisfactory. Measles and BCG vaccines were lacking during this inspection.

° Assaba - Only 1 refrigerator (no freezer for polio and measles vaccines). Temperature recorded was +14°C which is explained by the high ambient temperature and the limits of performance of this refrigerator. Cold chain is inadequate at this depot.

° MCH Centers -(Nouakchott and Kaedi) have mediocre cold chain effectiveness because of electricity ruptures (NKTT) and lack of refrigerators (Kaedi).

° Transportation - Each mobile team has a 4 wheel drive vehicle, no truck available for equipment transport. Vehicle repair is expensive.

b. Vaccination Calendar and Techniques

° Calendar

BCG: one injection-birth to 5 yrs old.

Measles: one injection - 9 months to 5 yrs

DPT/Polio: 3 doses separated by intervals of at least month - 3 months to 5 yrs.

Tetanus Toxoid: 2 injections during pregnancy  
(at MCH centers only)

Mobile teams - visit each area every 3 to 4 months

MCH centers; one or more vaccination sessions per week.

° Vaccination Techniques

BCG - intradermal (left forearm)

Measles - intramuscular (right upper arm)

DPT - scapular or buttocks

Polio - oral drops, sometimes on sugar cube

Disposable syringes are often reused; jet-injectors are not used.

Comments: vaccination calendar as well as standardized techniques must be understood by all personnel.

c. Vaccination Cards and Recording

Comments:

- vaccination cards often lacking
- MCH centers record detailed vaccination information for each child, requires much personnel time; should be simplified.

d. Disease Surveillance

Disease surveillance is the responsibility of the Division of Statistics and Documentation of the Service of Planning and Studies, this Division was created in 1978 and consists of 2 persons (the second arrived in early 1981). This Division receives reports from each region and MCH center. Despite limited means, the Division has published a report for 1980. Unfortunately the quality of these data and the percentage of reports submitted is uncertain because many health units do not send in reports regularly and others not at all.

A system of surveillance posts is needed for target diseases. Studies are needed to survey polio and neo-natal tetanus - not now considered important diseases in Mauritania, but data are sketchy.

7. Addendum to Evaluation

Following the evaluation results completed July, 1981, Mauritania began a systematic improvement of the EPI based on the evaluation recommendations. The following summarizes progress made in the 8 months following the evaluation:

a. Retraining of personnel, EPI - MCH Coordination:

Two seminars of one week each have been held for the EPI personnel (mobile team leaders, MCH staff and central staff) covering the following topics: EPI program and objectives, current and future activities, standardization of vaccination techniques, mobile team-MCH center cooperation, cold chain maintenance and EPI reporting. The first seminar was held in Kiffa in October, 1981 regrouping mobile team and MCH personnel from southern and eastern Mauritania; the second held in Nouakchott in March, 1982 regrouped remaining personnel. Both seminars were judged very effective in informing personnel and improving quality of EPI activities. (Many personnel, especially in

MCH centers, admitted they knew little about EPI before the seminar).

b. Epidemiological Surveillance

Mauritania has developed a standardized reporting system for health units. A seminar was held in Nouakchott, February, 1982 to introduce the system. Testing of the system will take place in health centers during this year. This reporting system includes a section on vaccinations.

c. Cold Chain

Seminar for personnel noted above included workshop on maintenance of cold chain material. Mauritania has identified 2 persons for advanced training in cold chain refrigeration repair and maintenance (central vaccine warehouse manager and chauffeur of central EPI supervisors). Training course is being planned with a refrigeration company for the summer or early Fall, 1982.

d. Health Education

Mauritania is setting up a multi-sectoral health education commission which will develop a national program including EPI information. Modest funds are available for this effort.

e. Surveys and Evaluation

Mauritania has developed a plan of studies and on-going evaluation (vaccine coverage, vaccine effectiveness, measles incidence, polio/TB, etc) for 1982. The first studies are in progress including a study of measles cases showing a dramatic reduction of measles cases since the EPI activities have begun. In August, 1982, regional OCCGE epidemiologist and African Counterpart will assist Mauritania with a polio/TB study. Following a post evaluation survey of refrigeration needs, the EPI has made a substantial equipment order (refrigerators and freezers).

f. Planning

With the help of the evaluation recommendations and suggestions by EPI personnel during the 2 seminars, Mauritania has begun redesign of its EPI. Five year planning for the EPI will be completed by July, 1982. In addition to other donors, USAID is participating in this redesign as part of its long-term planning of

its support to the health sector which includes design of a health sector support project for the Preventive Medicine Division. Completion of this design is expected in early FY 83.

At this stage, Mauritania wishes to make the mobile team "polyvalent" by having them perform a number of functions in addition to vaccinations, such as supervision of rural health workers, health education, endemic disease control, etc.

These functions are now carried out by a variety of discrete programs which generate unacceptably high costs and duplication of efforts. Mauritania's objective is to integrate the individual rural health activities so as to produce a cohesive program giving good coverage to rural areas at a minimal cost.

The following annexes  
have been extracted  
from the original French  
text of the evaluation.  
The term P.E.V. is  
equivalent to the English

E.P.I.

Annexe 1 :LISTE DES MEMBRES DE L'EQUIPE MIXTE D'EVALUATION

N O M	FONCTIONS	ADRESSE
-Dr. André DELAS (E)	: Fonctionnaire de l'OMS : Chef d'équipe de Surveillance : épidémiologique et PEV pour : l'Afrique de l'Ouest.	: B.P. 10.739 : NIAMEY (Niger) : :
-Mr. SANOH LAYES (E)	: Assistant chercheur Université : de R.C.I. - C I R E S	: 08 BP 1295 : ABIDJAN 08 : :
-Dr. SIDATT Mustapha (M.I.)	: Directeur du CNH	: Centre National : d'Hygiène -Nouakchott : :
- Dr. David C. SOKAL (E)	: Epidémiologiste CDC - OCCGE : Centers for Disease Control, : Atlanta, détaché à l'OCCGE	: B.P. 153 : Bobo-Dioulasso : :
-Dr. CONDE Aly Med (E)	: DRS PITA Chargé du PEV/R.P.R. &	: Guinée : :
-Dr. CAMARA Momo (E)	: Chargé du PEV à Dalaba : Rép. de Guinée	: Hopital de Dalaba : Dalaba - Guinée. : :
-Dr. MARA Souleymane (E)	: Chargé de Prévention à Mamau	: Hop. De Mamau-Guinée : :
-Mr. RABY Anthony (E)	: Officier de liaison UNICEF	: B.P. 620 PNUD : Nouakchott : :
-Mr. KANE Mahamadou (MI)	: Sce de Planification	: Nouakchott BP 177 : :
O-Mr. HAMDI Abderrahmane Ould (MI)	: Chef de Sce Vaccination : Internationale CNH	: Nouakchott : :
1-Dr. HACEN Med Mahmoud (MPEV)	: Chef Sce de Médecine : Préventive	: Nouakchott BP.177 : :
12-Mr. SENGHOTT Djibril (MPEV)	: Superviseur du PEV	: Programme Elargi de : Vaccination BP. 177 : :
13-Mr. BEN ISSA Mohamed (MPEV)	: Chef d'équipe PEV GORGOL	: Kaédi - Mauritanie : :
14-Mr. SIDI Mohamed (MPEV)	: Chef d'équipe PEV Nouakchott	: Mauritanie : :
15-Mr. ABDI Cheikh Ould (MPEV)	: Chef d'équipe PEV Assaba	: Kiffa - MAURITANIE : :
16-Mlle Linda NEUHAUSER (CPEV)	: Conseillère de Santé USAID	: BP.222 - Nouakchott : :
17-Mr. AYOUB Antoine (CPEV)	: Technicien des Opérations de : l'OMS Projet MAU PTR/PEV	: Nouakchott - Mauritanie : :

( E ) : Extérieur

( M.I. ) : Mauritanien Indépendant

( M.P.E.V. ) : Mauritanien Impliqué dans le PEV

( C.P.E.V. ) : Coopérant Impliqué dans le PEV;

Annexe 1 = VACCINATIONS FAITES PAR LE P.E.V.  
 EN REPUBLIQUE ISLAMIQUE DE MAURITANIE  
 NOVEMBRE 1979 - DECEMBRE 1980

Annexe 4 -1 : Vaccinations faites par les P.M.I.

LOCALISATION	D T C			POLIO			B.C.G.	ROUGECLÉ
	1° dose	2° dose	3° dose	1° dose	2° dose	3° dose		
ROSSO (TRARZA)	5182	3235	2154	5182	3255	2154	3739	3344
5° ARDET (NKTT)	4469	3082	1047	4532	3176	1280	3449	1182
PILOTE (NKTT)	1836	1200	872	1836	1200	872	1175	814
KZAR (NKTT)	1530	988	778	1477	943	715	911	651
POLYCLIN (NKTT)	1742	1011	661	1744	1015	663	1044	871
ATAR (ADRAR)	934	586	483	716	417	956	846	590
AKJCUJT (INCHIRI)	762	536	389	762	536	389	670	505
KREDI (GORGOL)	705	415	209	705	415	209	318	208
NGUDHIS (DAKHLT)	387	173	135	387	173	135	276	138
K'BOU (GORGOL)	170	79	54	170	79	54	284	630
SELIBAB (GUIDMA)	335	49	32	335	49	32	290	236
BOGHE (BRANNA)	121	792	31	121	792	31	139	118
MAGHAMA (GORGOL)	167	217	30	167	217	30	15	29
ALEG (ERAKNA)	187	33	5	187	35	5	530	416
1° ARRONDT (NKTT)	11	6	2	11	6	2	19	6
DOUTILIMIT. (TRARZA)	46	14	0	46	14	0	45	737
<b>T O T A U X .....</b>	<b>18584</b>	<b>12420</b>	<b>6882</b>	<b>18378</b>	<b>12298</b>	<b>6927</b>	<b>14163</b>	<b>10475</b>

VACCINATIONS FAITES PAR LES EQUIPES MOBILES  
 EN REPUBLIQUE ISLAMIQUE DE MAURITANIE  
 NOVEMBRE 1979 - DECEMBRE 1980

-----

REGION	B.C.G.	ROUGEOLE	D T C			POLIO			DOSE DTC + POLIO NON REPARTIES	NOMBRE DE MOIS D'ACTIVITE
			1	2	3	1	2	3		
TRARZA	7172	2699	1236	461	1660	1244	441	660	13281	10 mois
BRAKNA	13051	9370	18160	9461	3427	18160	9461	3427	0	12 mois
ASSABA	15837	13624	9439	9247	4959	8141	6639	4959	5205	10 mois
GORGOL	19364	17575	20854	9148	3841	19725	9148	3841	0	9 mois
GUIDIKHA	14624	13415	10604	661	?	10604	661	?	2108	10 mois
HODH GHARBI	5829	5630	5651	X	2	5651	X	2	0	4 mois
DISTRICT NKTT	1668	1458	1963	978	221	1969	978	221	0	4 mois
<u>TOTAUX</u>	77545	63771	67907	29956	13110	65484	27328	13110	20594	

TOTAL DES VACCINATIONS DANS DIX REGIONS  
DE LA REPUBLIQUE ISLAMIQUE DE MAURITANIE  
NOVEMBRE 1979 - DECEMBRE 1980

-----

REGIONS VACCINS	B.C.G.	ROUGEOLE	D.T.COQ	POLI0	OBSERVATIONS
DISTRICT	8266	4982	3581	3753	
TRARZA	14880	8018	15264	15264	
BRAKNA	30204	14675	3463	3433	
GORGOL	19981	18442	4134	4134	
GUIDIMAKHA	14914	13651	32	32	Les doses ne sont pas ré- parties
ASSABA	10951	17169	4959	4959	
INCHIRI	670	505	389	389	
ADRAR	846	590	183	356	
DARHLET NDSB	276	138	135	135	
HODH GHARBI	5829	5630	2	2	1er passage
TOTAUX	105817	83800	32442	32487	

الجمهورية الإسلامية الموريتانية  
REPUBLICQUE ISLAMIQUE  
DE MAURITANIE

بطاقة تطعيم  
**CARTE DE VACCINATION**

**Observations** ملاحظات

**Nom de l'enfant** اسم الطفل

**Age ou date de naissance** العمر أو تاريخ الولادة

**Sexe F. ou M.** الجنس ذكر أو انثى

المطاعيم VACCINATIONS		تاريخ التطعيم DATE D'ADMINISTRATION			
VACCINS	المطاعيم	الجرعة Dose	اليوم Jour	الشهر Mois	السنة Année
DT Coq et Pollo I	الأولى الثلاثي وشلل الأطفال				
DT Coq et Pollo II	ثانية ثلاثي وشلل الأطفال				
DT Coq et Pollo III	ثالثة ثلاثي وشلل الأطفال				
BCG I	أولى السل				
BCG II	ثانية السل (السلطة)				
Rougeole	الحصبة (بهيمنور)				
Variole	جدري				
Tétanos I	أولى الكزاز				
Tétanos II	ثانية الكزاز				