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A STRATEGY TO STRENGTHEN
THE NATIONAL HEALTH SYSTEM
IN MAURITANIA, WEST AFRICA

A Report Prepared By:
RAMIRO DELGADO-GARCIA, M.D., M.P.H.

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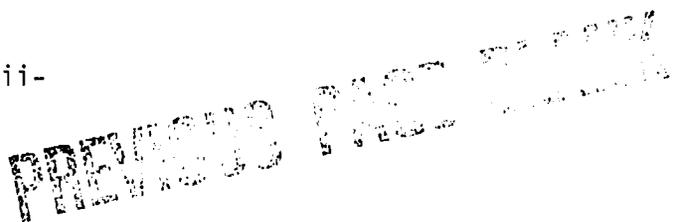
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Ramiro Delgado-García, M.D., M.P.H.
Chief, Mission to Strengthen the
Health Information System in
Mauritania

Nouakchott, June 1982

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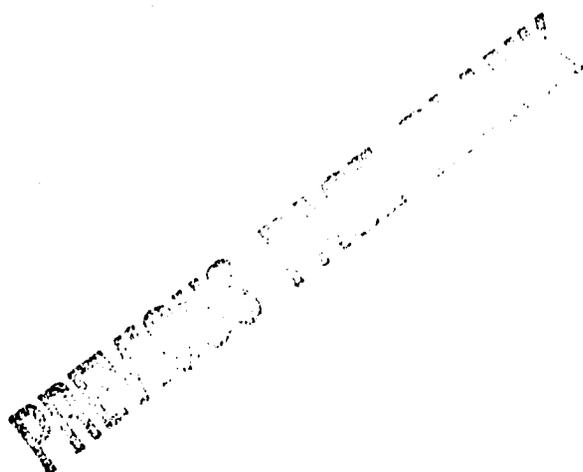
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EXECUTIVE SUMMARY

The Ministry of Health (MOH) of the Islamic Republic of Mauritania is stressing planning and programming operations as a direct result of the need to expand health services to rural areas, where the majority of the Mauritanian population lives. The recommendations included in the fourth-year health plan (1981-1985) are very clear in this regard. They specify that:

- a. priority is to be given to preventive medicine;
- b. health interventions are to be oriented toward rural areas;
- c. primary health care (PHC) services are to be generalized; and
- d. aspects of management and data collection in all health units in the country are to be improved.

The Commission to Strengthen the Health Information System (CSHIS) was created in October 1981. This action set in motion a plan to establish a simplified health information system (HIS).

The consultant for this assignment was asked to provide technical advice to the CSHIS and to organize a workshop (conducted on October 21-24, 1981) on issues dealing with the improvement of an HIS in Mauritania.

Under a four-week contract (May 3-30, 1982) to the International Health Programs Division, American Public Health Association (APHA), the consultant provided technical assistance to Mauritania in several areas; for example, he:

- a. helped to improve the current HIS of the Ministry of Health;
- b. helped to conduct a seminar on the use of the HIS;
- c. assisted in improving the current research and evaluation component of the Rural Medical Assistance Project (RMAP), and helped to conduct the preliminary analysis of study data; and
- d. worked with the Ministry of Economy and Finances to complete the section on health in the fourth-year health plan (1981-1985).



The outcomes of the consultant's activities were as follows:

- a. complete methodology to reshape and modernize the HIS was developed with the collaboration of Mauritanian health personnel.

Specific recommendations, adapted to the Mauritanian situation, were to:

- define objectives:
- select data;
- design procedures to store, record, process, and analyze data;
- identify constraints to the current HIS; and
- devise a strategy to implement the HIS.

A discussion of the problems that are supposed to be corrected by implementing a given recommendation is also presented in the attached report. Alternatives are recommended wherever it appears that the current situation in Mauritania would not be conducive to full implementation of the proposed solution.

- b. The director of the Statistical Division, Ministry of Health, accompanied the consultant on all his visits and interviews and was closely involved in the actual elaboration of the recording forms and in the technical discussions which the consultant had with CSHIS officials. The director received personal training in the use of the HIS during special sessions with the consultant.

As a collateral activity, the consultant advised the Statistical Directorate of the Ministry of Economy and Finances on a suitable curriculum for training in statistics for Ministry of Health personnel.

- c. The policies, methods, and procedures used by the RMAP were revised completely. A preliminary analysis and an evaluation of the research component of this project, which includes census and household surveys, were made.

STATISTICAL DIVISION
MINISTRY OF HEALTH
1974

- d. The consultant was assisted in writing the final draft of the health section of the Five-Year National Plan, prepared under the auspices of the Directorate of Studies and Programming, Ministry of Economy and Finances. Background in this section was taken from the document "Health Policy Options for Mauritania," prepared by the consultant (R. Delgado-García 1981b).

In summary, the consultant's mission to Mauritania was a useful and enjoyable experience for all the parties involved.

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ABBREVIATIONS

APHA	American Public Health Association
CENR	Nutrition Recuperation Centers
CHW	Community Health Worker
CSHIS	Commission to Strengthen the Health Information System
FP	Family Planning
HIS	Health Information System
LPN	Licensed Practical Nurse
MAX	Auxiliary Midwife
MCH	Maternal and Child Health
MD	Medical Doctor
MOH	Ministry of Health
MR	Monthly Report
NAX	Nutrition Auxiliary
NHE	Nurse-Helper
NRC	Nutrition Recuperation Center
PHC	Primary Health Care
PRL	Patient's Registration Log
QR	Quarterly Report
RM	Registered Midwife
RMAP	Rural Medical Assistance Project
RN	Registered Nurse
TB	Tuberculosis
TMW	Traditional Midwife
TS	Nurse-Trainer/Supervisor
WHO	World Health Organization

AMERICAN PUBLIC HEALTH ASSOCIATION
11 Dupont Circle, N.W.
Washington, D.C. 20036

I. INTRODUCTION

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Background

Until recently, the Ministry of Health (MOH) of the Islamic Republic of Mauritania had neglected the crucial subject of health statistical information. Consequently, the collection, dissemination, and use of health data are not well-developed. The National Fourth Development Plan (1981-1985) requires that the health sector attempt to implement better schemes to provide health services, including delivery of services to rural areas of the country.

To properly fulfill this mandate, it was deemed necessary to obtain enough information about the kinds, quantity, and distribution of illness to guide the planning and programming of health services during the quinquennium. A purposeful approach to strengthen the health statistics system was taken by setting up the Commission to Strengthen the Health Information System (CSHIS). The first activity of the CSHIS was to organize a technical workshop (conducted on October 21-24, 1981) on the subject of health information systems (HIS). The workshop was to be a forum to discuss the kinds of appropriate strategies that the Ministry of Health should adopt to improve the gathering of health statistics throughout the country. The program for the workshop included the following important items: the reasons for collecting health statistics; the basic categories of health-related statistics; the identification of bottlenecks in data gathering; the sequential steps required to develop a functional health statistical system; the factors affecting the delivery of health services in Mauritania; a critical analysis of the current structure of the Ministry of Health; and a recommended timetable for developing an improved health information system in Mauritania.

The consultant was invited to participate in the workshop as a senior technical adviser. From the workshop emerged a technical committee, composed of leading Mauritanian officials, charged with setting in motion the most suitable plan to create conditions favorable to the establishment of a simplified health information system, given the limitations of human and physical resources of the Ministry of Health. After six months (November 1981-April 1982), the committee produced a format for a simplified monthly report (see Appendix A) to be completed by all the health units in the country. This format was submitted to the consultant at the beginning of his new mission to Mauritania (May 3 1982) for technical appraisal.

Purpose of the Mission

The purposes of the assignment were to:

1. Work with the Ministry of Health in Mauritania to complete the development of a national health information system.
2. Conduct a seminar for health personnel on the use of the system.
3. Improve the current research and evaluation component of the Rural Medical Assistance Project (RMAP) and assist with the preliminary analysis of data.
4. Work with the Ministry of Economy and Finance, Directorate of Planning, to complete the health section of the Five-Year Plan (1981-1985) elaborated by the Government of the Islamic Republic of Mauritania.

Outcomes of the Mission

Mission activities led to the following outcomes:

1. The joint development, with officials from the Ministry of Health, of a simplified health information system for Mauritania.
2. The basic training of the Mauritanian officer in charge of the Statistical Division, Planning and Studies Service, Public Health Directorate, Ministry of Health, in the use of the simplified HIS for Mauritania.

Plans were made to provide training in basic statistical procedures for eight health officers from the Ministry of Health (June 21, 1982-July 3, 1982) at the Statistical Division of the Ministry of Economics and Finances. A second group of 12 registered nurses (RNs) will be trained afterwards. These nurses will be attached to each of the 12 regions of the country, where they will work as regional statistical officers. The curriculum for training was suggested by the consultant, in accordance with the specific needs of the health information system that was being considered.

3. The complete revision of the norms, techniques, and procedures used by the Rural Medical Assistance Project (Trarza Region) to "animate" the project-selected villages, to train and supervise the community health workers (CHWs), and to gather information on primary health care (PHC) activities. The research

and evaluation component of this project was also reviewed, in particular, the census schedule and the household survey. A preliminary analysis of the data gathered with these instruments was proposed. All these activities were carried out in close collaboration with the project's health supervisor and adviser in health education and personnel training.

4. The completion of the health section of the Five-Year Development Plan (1981-1985), developed jointly with the officer in charge of the Directorate of Studies and Programming, Ministry of Economy and Finances. This activity was the logical continuation of earlier work by the consultant on the development of a range of health policy options for Mauritania (R. Delgado-García, 1981b).

The scope of work for the mission was completed in its entirety. The considerable amount of work required to carry out the various activities imposed a heavy burden on the consultant's working time. Seven days each week were necessary to adhere to the proposed scope of work within the 28 days allocated to the mission. The field trip alone took 14 days, excluding the time to prepare and revise materials, thus necessitating a considerable amount of extra time. The schedule for some of the field visits appears in Appendix B. Only the most important supporting documents are included as appendices to this report.

II. PROBLEMS AND RECOMMENDATIONS

II. PROBLEMS AND RECOMMENDATIONS

The mission requested recommendations in six specific areas which appear to be the most critical for strengthening the health information system in Mauritania. The areas covered in this report are:

1. Objectives to Develop an HIS
2. Selection of Data
3. Collection of Data
4. Processing and Analysis of Data
5. Constraints Against Operating an HIS
6. Strategies to Implement an HIS.

All the recommendations contained in this report were discussed with Mauritanian health officials from the Ministry of Health and Social Affairs. Each recommendation is preceded by a statement of the problem for which the solution has been proposed.

Define the Objectives of the National Health Information System

A. Problem

The provision of health care to populations involves the coordination of interrelated parts of an organization to achieve the objectives of providing care. The entities that comprise the Ministry of Health at the central and regional levels in Mauritania are not so interconnected that they can function as parts of a whole body. Consequently, the health information system can absorb no more rough data than can be collected in six months or one year from the monthly morbidity reports of the health units that report, more or less regularly, to the Directorate of Health. No supervision, no monitoring, and no control are evident; consequently, collected data are not analyzed. In summary, the health information is not used for management or for planning or programming in Mauritania. In fact, it has no real purpose. An organigram of the Ministry of Health, with many isolated units surrounding the Directorate of Health, is presented in Appendix C.

B. Comments

The five main objectives of a health information system are to:

1. Assist in the administration and coordination of health services in any particular community, region, or country.
2. Promote short- and long-term planning of health services, both locally and nationally.
3. Assess whether health services are accomplishing their objective (effectiveness) and whether they are doing so in the best possible way (efficiency).
4. Aid the study of particular problems of health and disease and their effect on the administration of health services (for purposes of operational research).
5. Provide the background data that health service agencies, legislative bodies, international organizations, and the public may require from time to time.

In summary, an HIS should be established to facilitate:

- management;
- planning and programming;
- control;
- operational research; and
- data base.

The most important reason is health management.

Within the structure of the Ministry of Health, there are various management positions occupied by directors. The directors are responsible for the production of information; they also require information for decision-making.

Those who occupy management positions in the health system must act both as receivers and perceivers of information or signals from the environment, decode this information, decide courses of action, and compose and transmit messages designed to influence others in the system to act in accordance with these decisions (Mowbray, 1975).

Any given specialist-manager could be located in a three-dimensional matrix (see Figure II-1). The first dimension can be defined by managerial roles: management (giving direction and leadership to the organization); coordination (ensuring that the various parts of the organization are coordinated as required); and control (controlling, monitoring, evaluating, and assessing). The second dimension can be defined by levels of decision-making and action; policy decisions (defining long-, middle-, or short-term objectives for the organization); administration (establishing the methods to carry out policy decisions); and operations (doing whatever is necessary to achieve the objectives of the organization). The third dimension is concerned with the variety of tasks of the organization (the functions of the director of health, etc.).

The purpose of management is to make decisions, a process which must precede action. There are three kinds of processes: technical, administrative, and political, which, when interrelated, lead either to an intended action or to an action itself. The technical process specifies the action; the administrative process enables the action to be taken; and the political process mobilizes support for the action. Thus, progress toward an action blends the necessary objective or technical evidence with the equally essential administrative and political elements (Levin, 1972).

C. Recommendations

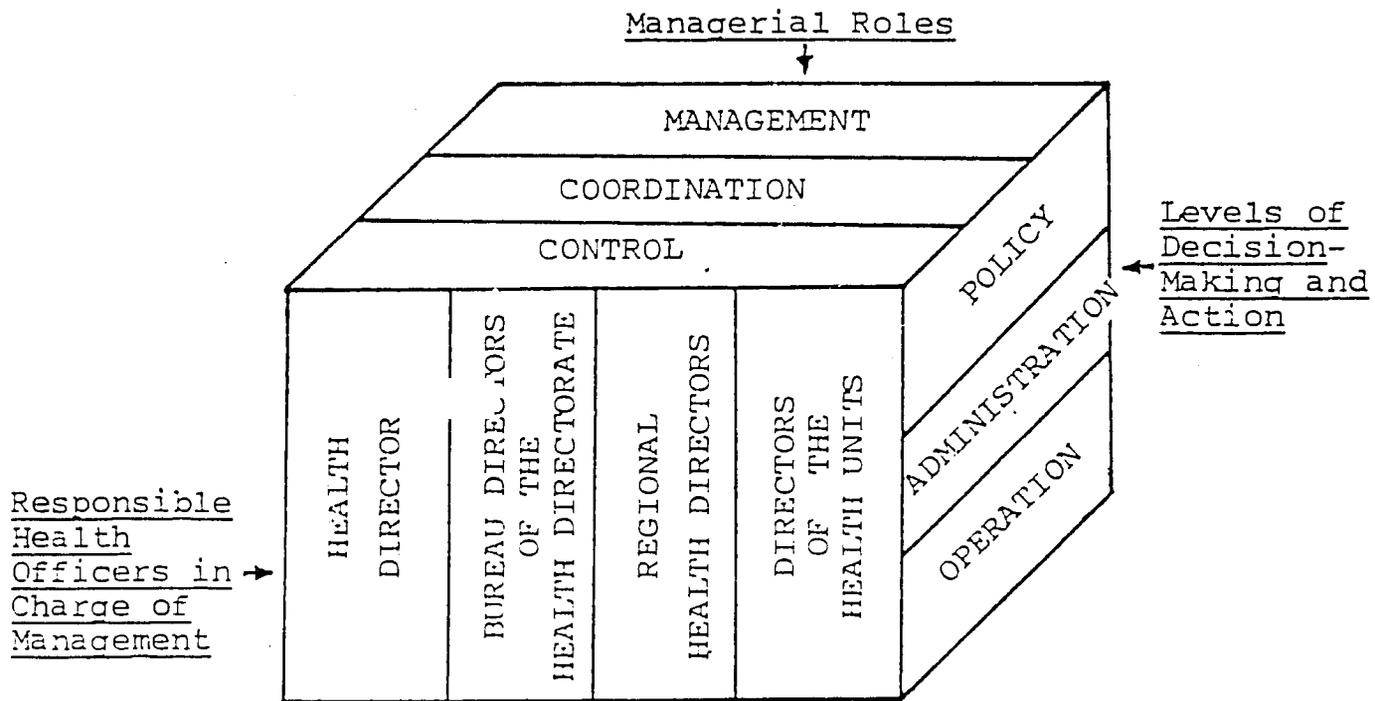
The Ministry of Health and Social Affairs, through the Directorate of Health, should define the purposes and objectives of a simplified health information system for Mauritania. In doing so, it should consider the plan of action outlined in the health sector chapter in the Five-Year Development Plan (1981-1985). This HIS must be comprehensive and include information originating in all directorates, services, divisions, and health units of the Ministry, as well as information on population and vital statistics.

The only way to implement a usable information system is to reinforce the Central Service Office of Planning and Studies and the Statistical Division. Personnel need to be trained in statistics, and at least one person with such training should be placed in each of the 12 regions of the country. This core of technical personnel must have logistical support, equipment, office supplies, office space, and an operating budget. Without this core personnel, it will be impossible to organize an HIS; moreover, personnel who lack the minimum resources will not be able to perform. The investment that is required to reinforce the Statistical Division is within the budgetary constraints of the Ministry of Health and the regional health districts.

Most of the technical aspects, the analysis of health resources, health policy options, and specific recommendations that appear in this

Figure II-1

A THREE-DIMENSIONAL MATRIX
SHOWING MANAGEMENT FUNCTIONS AND LEVELS



report were prepared by the consultant (R. Delgado-García, 1981-1 and 1981-2). What is required now is a political decision to define explicitly the HIS and its purposes.

There are no alternatives to this recommendation; at the least, the action proposed should be taken.

Select Kinds of Data to be Gathered Continuously

A. Problem

The only health statistics available in Mauritania in a time series concern number of diseases (primarily diseases diagnosed from symptoms described by the patient during a brief interrogatory, not followed by physical examination or confirmed in a laboratory), number of health establishments, number of health personnel and, eventually, number of consultations. In general, this information is provided by the administrative region and compiled annually. No analysis is attempted. The information needed to assess comprehensively, systematically, and timely the state of health and nutrition of the population is unavailable. Vital statistics are not collected systematically; demographic data are reduced to a series of tabulations from the 1977 census; no target population is defined by age group or other indicator; no denominator is used; no rates are calculated. A few studies on disease prevalence have been conducted by sampling methods. Most existing health data are merely estimates. The population covered by health care is estimated to be between 25 percent and 30 percent and is mostly located in urban settings.

B. Comments

The continuous compilation and issuance of health data entail considerable effort and significant expenditures. The need for comparability between countries and time periods makes the situation more complex. A careful selection of the kind of data that are needed must be made by responsible government officials. These persons must also decide what needs to be done to obtain the data, how the information can be collected, and how the outcome can be evaluated. That some data are collected, compiled, and published is irrelevant, if the data are unreliable, out of date, or cannot be used for some purpose. Both producers and users of data should indicate which of the series of data they consider to be the least significant.

Criteria to determine need and accessibility are very important. The criterion of need must be based on an understanding of commitments

and requirements for national and regional planning and support to implement established policies. The criterion of accessibility must take into account such factors as ease with which new data can be collected, the existence of suitable conditions for data processing, and the rapidity with which data can be disseminated. The presence or absence of these factors will depend on cooperation between the central level and the regional branches of the Ministry of Health, and the motivation and enthusiasm of the collectors and users of the data.

C. Recommendations

The Ministry of Health and Social Affairs, through the Directorate of Health, should identify the type of data to be gathered continuously (i.e., in a time series). The following list is illustrative of the principal categories of health-related statistics that should be collected.

- Data on the Population

Number of people and their attributes, such as age, sex, ethnic group, urban-rural, sedentary-nomadic, and geographic distribution (region and department).

- Vital Statistics

Live births; deaths (including fetal deaths), by sex, age, and cause; marriages and divorces; and migration (internal and external) and settlement.

- Health Statistics

Morbidity, by type, severity, and outcome of illness or accident; and notifiable diseases (including pestilential diseases), blindness, incapacity, etc.

- Statistics Bearing Upon Health Services

Numbers and kinds of services available and distribution of personnel and facilities; features of services and rates; organization of government and private health care systems (Croissant Rouge and others); budget and expenditures, by type (e.g., operation and investment) and geographic distribution; and payment mechanisms and related information.

● Other Related Data

- a. Numbers of malnourished children under five years of age; per capita energy (calories) intake and food consumption; per capita intake of protein; and total and per capita supply of energy (calories).
- b. Specific activities of maternal and child health care (MCH) programs: attendance, by sub-program; numbers and types of deliveries; number of abortions; number of children registered in nutrition and recuperation programs, and outcomes; and data on birth-spacing.
- c. Activities of specific programs, such as vaccinations, and anti-tuberculosis and anti-leprosy campaigns; health education sessions, and number of attendants; and family planning (FP) information.
- d. Supervision activities at the national, regional, and local levels, by type of supervisor and health unit supervised.
- e. Administration, logistics, and maintenance information; personnel on payroll; condition of buildings and facilities; and number and condition of vehicles, electric plants, and technical equipment.
- f. Provision, turnover, and inventory of drugs, by region, department, and health facility.
- g. Quarterly and annual reports of all central service units of the Directorate of Health (eight are listed currently).

D. Alternatives

The following are suggested alternatives.

1. Data selection is a delicate decision. Some criterion must be applied in the selection process, because it is obvious that the current situation of the Ministry of Health in Mauritania is not conducive to the establishment of a thorough health information system. Accessibility and need are the most important criteria for choosing relevant data; by using these criteria, it is possible to revise the illustrative list presented in the preceding pages and select a minimum of data for each category. This action constitutes a feasible alternative.

2. To think in operational terms, special attention needs to be given to the feasibility of the proposed information system and its collection mechanism, given statistical realities in Mauritania. The aim should be to design a basic, easily attainable program with the potential to produce quick and significant results, even if the investment period is comparatively long. Even the most realistic and basic program will take time, although once it is working, accurate and relevant health statistics can be produced relatively quickly and cheaply. It must be remembered that it is neither the statistical officer nor the actual user of the information who provides most of the raw data on health statistics, but the administrative and technical personnel who are responsible for delivering health services. The latter often resent the added burden.
3. Simplifying existing records and reducing unexploited record-keeping--legacies from the colonial period--are both actions that have been approved by the Commission to Strengthen the Health Information System. Such streamlining, as well as the collection of administrative data each quarter, will help to facilitate the operation of the system.
4. Even the most basic and viable program takes time to implement and produce results. Far-reaching or dramatic changes in policy should not be expected within a few years. The statistics which reflect relevant changes often are difficult to obtain and may become available only after a considerable time lag.
5. When Mauritania has a well-organized statistical system, the Ministry of Health should seek to obtain a series of data to calculate infant mortality rates and age-specific death rates. Currently, these data are incomplete and unreliable. The same is true of data used to calculate most of the rates used in population and epidemiological work. For now, it is suggested that the population and vital statistics data projected and estimated by the Bureau of Statistics be used.
6. Table II-1 presents the kinds of population data that should be collected. This information should be obtained by making a special request to the Directorate of Statistics and National Accounts, Ministry of Economy and Finances.
7. Table II-2 presents a series of health statistics that should be collected. This information should be obtained from the various health service delivery units in the country and from the central service bureaus of the Directorate of Health, Ministry of Health.

Table II-1
ILLUSTRATIVE POPULATION SERIES,
CLASSIFICATIONS AND INDICATORS

<u>Category and Time Series</u>	<u>Classifications</u>	<u>Indicators</u>
I. Population Data		
A. Size and Structure in Population		
1. Size of the Population (mid-year: 1982, 1983, etc.) and Percentage Annual Distribution	Sex, Age Department, Region, Nation National or Ethnic Group	Size of the Population: Total and Percentage by 5-Year Cohorts National or Ethnic Groups as Percentages of Total Population
2. Population Change and Rates per 1,000 Persons		
a. Births (annual estimates)	Sex, Age National or Ethnic Group Age of Mother Department, Region, Nation	Rates of Live Births in Total Population and per 1,000 Females of Childbearing Age Gross or Net Reproduction Rate
b. Deaths (annual estimates)	Sex, Age National or Ethnic Group Department, Region, Nation	Number and Rate of Deaths in Total Population Infant Mortality and Maternal Death Rates

Table II-2

ILLUSTRATIVE HEALTH STATISTICS SERIES,
CLASSIFICATIONS AND INDICATORS

<u>Category and Time Series</u>	<u>Classifications</u>	<u>Indicators</u>
II. Health Statistics		
A. State of Health		
1. Mortality and Length of Life		
a. Number and Rates of Deaths (annually)	Sex, Age Geographical Areas (Department, Region, Nation)	Proportions among Live Births of Infant and Maternal Deaths: Urban, Rural and Total; Geographical Areas Rates of Death: Ages: 1-4, 5-14, male and female; Ages: 15-24, 25-64, 65+
b. Expectation of Life, Selected Ages (annually)	Sex, Age Urban, Rural National or Ethnic Origin	Expectation of Life: Male and Female; Ages: 0, 1, 15, 45; Urban, Rural and Total
2. Morbidity, Impairments, and Handicaps		
a. Number and or Incidence of Selected Diseases of Public Health Importance (monthly)	Sex, Age Urban, Rural Geographical Areas Cases: Conference and Laboratory	Number and or incidence in Population of Selected Diseases of Public Health Importance
b. Number and Proportion of Persons with Chronic Functional Disabilities (every 5 Years)	Sex, Age Urban, Rural Impairments and Handicaps	Rate in Population of Blindness, One or More Extremities Missing, Sequelae or Polio, etc.: Male and Female; and Urban, Rural, and Total
B. Nutrition		
1. Annual Rate of Marasmus among Children	Age Urban, Rural Geographical Areas Nutrition Standards	Percentage of Children with Marasmus: Ages: 0-4; Urban, Rural, and Total; Geographical Areas

8. Table II-3 is an illustrative list of health service statistics that should be collected. This information should be obtained from the various health service delivery units in the country. Data that are related more directly to health interventions should be gathered monthly, and data dealing with logistics or supervision should be collected quarterly. Some data are needed only at the beginning and end of each year.

Design Appropriate Forms for Data Collection

After data have been selected, the next step is to design an instrument to collect the statistics. First, it is necessary to know who will fill out the data sheets; second, where these persons will be located, and third, how the forms will be channeled to the department, region, or central level, whichever is appropriate.

The persons responsible for collecting the information in the field are members of the health team. The health team includes:

MDs	Physicians
TSs	Nurse-Trainers/Supervisors (PHC)
RNs	Registered Nurses
RMs	Registered Midwives
LPNs	Auxiliary Nurses (Licensed Practical Nurses)
NAXs	Nutrition Auxiliaries
MAXs	Auxiliary Midwives
TMWs	Traditional Midwives
NHEs	Nurse-Helpers
CHWs	Community Health Workers

The field data collectors have a broad educational background, ranging from university study (physicians), to illiteracy (some traditional midwives and CHWs are illiterate). Special forms need to be designed for the professionals, the mid-career level staff, and the auxiliary personnel.

Table II-3

ILLUSTRATIVE HEALTH SERVICES SERIES,
CLASSIFICATION AND INDICATORS

<u>Category and Time Series</u>	<u>Classifications</u>	<u>Indicators</u>
III. Health Services		
1. Activities of Health Units	Urban, Rural	Number of Daily Visits and Controls, by Type of Personnel and Type of Health Unit
a. Number of Visits and Controls to Service Units (monthly)	Geographical Area	Urban, Rural
b. Number of Hospital Discharges (annually)	Hospital Departmental Service	Geographical Areas
c. Number of Beds per 1,000 Population (annually)	Health Service Unit	Occupancy of Hospital and Maternity Beds, by Type of Service
d. Occupancy Rate of Hospital Beds (annually)	Maternity	Geographical Areas
e. Number and Destination of Referrals (monthly)	Patient's Sex and Age: 0-11 Months, 1-4, 5-14, 15-64, 65+	Proportion of Referrals among Number of Patients Treated in Given Health Unit
f. Number and Type of Health Personnel, By Service Unit (annually)		Geographical Areas
		Ratio per 10,000 Persons of Health Service Personnel:
		Geographical Areas
2. MCH Activities	Prenatal	Volume of Services, by Type of Sub-Program in Each Service Unit and by Geographical Area
a. Patients' visits and Controls, by Sub-Program (numbers, by month)	Postnatal	
	Well-Baby Clinic	Proportion of Children in Nutrition Recuperation Programs Classified Monthly as.
b. Children Attending Nutrition Recuperation Centers (monthly turnover by reason of entry and discharge)	Sick-Child Clinic	
	Urban, Rural	• New
	Geographical Areas	• Lost for Control
	Type of Service Unit	• Recuperated
		• Dead
		• Referred

Table II-3, cont.

<u>Category and Time Series</u>	<u>Classifications</u>	<u>Indicators</u>
c. Children Attending Nutrition Recuperation Centers, Nutrition Status at Inscription (monthly)	Age Urban, Rural Geographical Areas	Proportion of Children in Nutrition Recuperation Programs Diagnosed at Inscription as: ● Marasmic ● Kwashiorkor/Matrstastic ● Hypotrophic ● Diarrheic ● Other (specify)
d. Children in Special Nutrition Surveillance Program (monthly)	Age Urban, Rural Geographical Areas	Outcome of Nutrition Surveillance Special Groups of Children: ● Prematures ● Hypotrophic ● Twins, Triplets
e. Number of Pregnant Women under Control from MCH Care Centers (monthly)	Age Urban, Rural Geographical Areas	
f. Number of Births Attended by Trained Health Personnel in Health Units (monthly)	Type of Health Personnel who Attended Deliveries Delivery Point (health facility, domicile) Urban, Rural Geographical Areas	Proportion of Births Attended in Health Facilities Proportion of Births Attended by Supervised Traditional Midwives
g. Number of Referrals from High Risk during Eighth Month of Pregnancy (monthly)	Urban, Rural Geographical Areas	Proportion of Pregnant Women Referred during Eighth Month, Diagnosed as High-Risk
h. Type of Delivery and its Outcome (monthly)	Urban, Rural Geographical Areas	Morbidity and Mortality (mother and child) Resulting from Deliveries Attended in Health Facilities
i. Number of Children Born with less than 2500 grs (monthly)	Urban, Rural Geographical Areas	

Table II-3, cont.

<u>Category and Time Series</u>	<u>Classifications</u>	<u>Indicators</u>
j. Number of Detected Abortions in Health Facilities (monthly)	Urban, Rural Geographical Areas	Proportion of Abortions among Pregnancies Urban, Rural Geographic Areas (annually)
k. Number of Twins, Triplets Born	Urban, Rural Geographical Areas	
l. Number of Educational Sessions and of Attendants, by Session (monthly)	Health Education Nutritional Education Nutrition Demonstrations Sewing Sessions Literacy Sessions Home Economics Sessions Urban, Rural Geographical Areas	Volume of Health Education Activities, by Type and Geographical Area Volume of Educational Activities of Social Value, by Type and Geographical Area
3. Activities of Anti-Tuberculosis Campaign	Age Group: 0-5, 5-14, 15-64, 65+	Prevalence of TB among Population (by 10,000)
a. Number of Diagnosed Cases, Classified by Entry and Discharge Status (monthly)	Sex Urban, Rural Geographical Areas	Proportion of TB Cases, by Patient Visits Geographical Areas
4. Activities of Anti-Leprosy Campaign		
a. Number of Follow-Up Cases Classified by Entry and Discharge Status (monthly)	Leprosy Type: ● Leprosy ● Undetermined ● Tuberculosis Urban, Rural Geographical Areas	Prevalence of Leprosy Cases among Population (by 10,000) Proportion of Leprosy Cases, by Patient Visit Geographical Areas

Table II-3, cont.

<u>Category and Time Series</u>	<u>Classifications</u>	<u>Indicators</u>
5. Activities of Vaccination Campaign (EPV)		
a. Number of Children Vaccinated Against Specified Diseases: Triple, Polio, BCG, Measles (fully scheduled vaccinations); Identify Those Children of Less Than 1 Year (monthly)	Mobile Units MCH Care Units Other Urban, Rural Geographical Areas	Volume of Immunized Children and Percentage Immunized Urban, Rural Geographical Areas
b. Total Number of Applied Vaccinations per Month	Same as Above Type, Dose Scheduled	Number of Applied Vaccinations by Type and Dose Scheduled
6. Administration		
a. Personnel Listing by Employee on Payroll (Quarterly)	Name, Title, Family Status, Type of Activity, Professional Status Geographical Areas	Ratio per 10,000 Persons of Health Services Personnel: Geographical (annually)
b. Number, Type, and Condition of Health Facilities (quarterly)	Urban, Rural Geographical Areas	Ratio per 10,000 Persons of Various Types of Health Facilities: Geographical Areas (annually)
c. Number, Type, and Condition of Vehicles Assigned to Specific Posts (quarterly)	Urban, Rural Geographical Areas	Ratio per Health Facilities: Geographical Areas (annually)
d. Number, Type, and Condition of Equipment Assigned to Health Facilities or Special Programs (quarterly)	Urban, Rural Geographical Areas	Condition of Equipment in Various Health Facilities or Special Programs: Geographical Areas (annually)
e. Budget Status, According to Transactions Made (quarterly)	Approved Spent Balance Geographical Areas	Operational Budget Status, According to Plan of Expenditures: Health Facility, Geographical Areas (quarterly)

Table II-3. cont.

<u>Category and Time Series</u>	<u>Classifications</u>	<u>Indicators</u>
f. Amount, Distribution, and Consumption of Drugs Allotted Each Semester (quarterly use)	Quantities at Beginning and End of Period Health Facility Geographical Areas	Drug Use, According to Amounts of Stock and Supply during the Period (quarterly)
7. Supervisory Activities		
a. Number of Formal Supervisory Visits by Type of Health Facility (quarterly)	Type of Health Facility Geographical Areas	Assessment of Supervisory Visits, According to Scheduled Plan (quarterly)

Using the roll of health personnel, a select list should be made of those staff with specific responsibility for the completion of registration forms (e.g., Patient's Registration Log, or PRL) and those staff in charge of the monthly report (MR) or quarterly report (QR). The persons who are responsible for the reports should be trained and supervised, and they must act, within their health units, as trainers and supervisors of other personnel who complete the PRLs.

The personnel in charge of collecting data in the field are located in various health units throughout the country. The approximate number of units, as of January, 1983, and their respective categories, are listed below.

<u>Type of Facility</u>	<u>Number</u>
Hospitals	12
Polyclinics	1
TB and Leprosy Units (SNAT, SNAL)	15
School Health Centers	6
Mobile Team Units (EPV, Vaccination)	12
MCH Centers (Mother and Child)	26
Nutrition Recuperation Centers (CENR)	21
Health Centers	
"A"	26
"B"	30
"C" (Dispensaries)	65
Health Posts (Primary Health Care)	<u>150</u>
TOTAL	<u><u>364</u></u>

The list of units in each of the 12 regions and in Nouakchott needs to be updated. Each health unit needs to be identified by number. A six-digit numeral, for example, could be used for identification. A suggested method would be:

- First Two Digits: Number of Region

01 Hodh Oriental

02 Hodh Occidental

03 Assaba

04 Gorgol

05 Brakna

06 Trarza

07 Adrar

08 Nouadhibou

09 Tagant

10 Guidimakha

11 Tiris Zemmour

12 Inchiri

20 Nouakchott

- Third Digit: Number of Department (1, 2, 3, etc.)*

- Fourth, Fifth, and Sixth Digits: Continuous Numbering of Health Units in Given Region, by Category

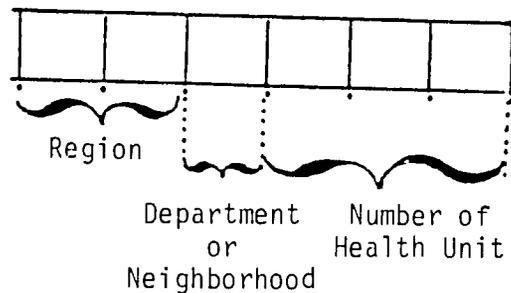
001 - 010 Hospitals

011 - 020 Polyclinics

* The maximum number of departments, by region, is 6.

- 021 - 030 TB and Leprosy Units
- 031 - 040 School Health Centers
- 041 - 050 Mobile Team Units
- 051 - 060 MCH Centers
- 061 - 070 Nutrition Recuperation Centers
- 071 - 090 Health Centers "A"
- 091 - 110 Health Centers "B"
- 111 - 150 Health Centers "C"
- 151 - 999 Health Posts (Village-Level)

All the forms and reports should carry the number of the corresponding health unit; for example:

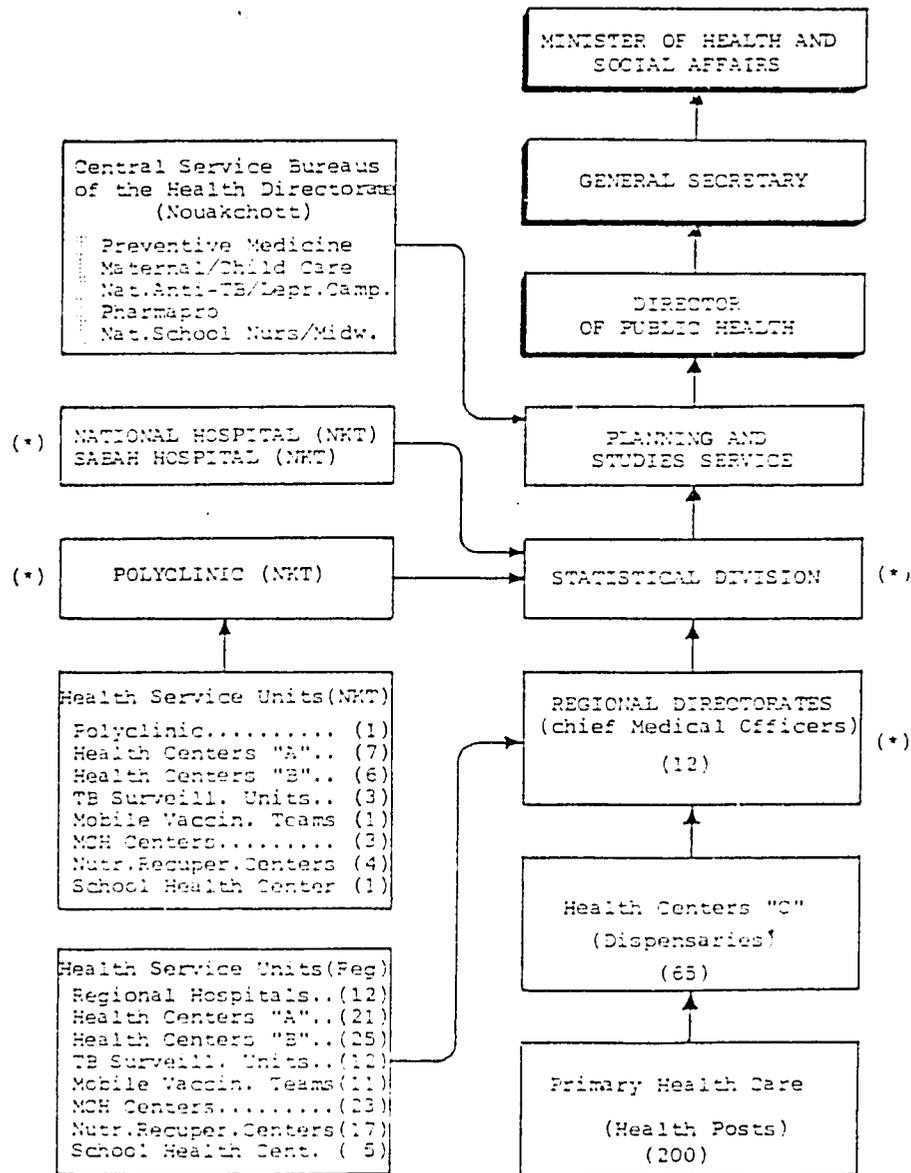


The numbers should be assigned by the Health Statistics Division of the Ministry of Health.

All the statistical forms completed in a given health unit should be sent to the person responsible for the reporting in the unit. This person should channel the report to the corresponding gathering point. The various gathering points are listed in Figure II-2, which also shows how the data would flow.

Figure II-2

FLOW CHART OF COLLECTED HEALTH INFORMATION,
FROM HEALTH UNITS TO DECISIONMAKERS, MOH



(*) Points of Placement of Statistical Officers
Data Compilation Points

() Numbers in Parenthesis indicate Numbers of
Health Units

The data should first be registered in the log book in each health unit. Generally, the MOH furnishes a printed copy of the patient's registration book of hospitals and health centers. On the left side of the book appears the following information:

- date;
- name of patient;
- diagnosis;
- code of disease or illness diagnosed; and
- prescribed treatment.

On the pages on the right side of the book are the days of the month (a mark is made here to indicate the day of the revisit). Patients who are listed on the left side of the book are called "consultants" (diagnosed cases), and marks on the right side correspond to "consultations" (revisits and controls). The registration book needs to be filled out properly; unfortunately, in most instances in Mauritania, the entries are inaccurate.

At the health posts (PHC), special data sheets are needed because of the low education level of the CHWs. Special data sheets were designed by the consultant, in collaboration with the primary health care personnel. A sample of the forms appears in Appendix D. Currently, the forms are being tested in more than 50 health posts. Eight forms can be used to collect data. The following data may be recorded on the forms:

<u>Disease/Illness (morbidity)</u>	<u>Code</u>
Diarrhea	005
Whooping Cough	016
Anginas (amygdalitis)	017
Measles	025
Malaria	031
Intestinal Parasites (helminthiasis)	043
Malnutrition	066
Anemia	067

Conjunctivitis	075
Otitis	078
Bronchitis	089
Dental Diseases (cavities and infections)	097
Fractures	141
Wounds and Slits	145
Hemorrhages	146
Snake Bites	150
● <u>Health Services</u>	
Prenatal Visits and Consultations	401
Postnatal Visits and Consultations	402
Deliveries	420
Health Education Sessions and Visits	434
Meetings with Community Health Commission	801
● <u>Vital Statistics</u>	
Newborns	421
Deaths	810

The forms are designed to collect a variety of information, including sex and age (e.g., female, children under five, or male patient); type of patient (e.g., consultants [red ink] and consultations [blue ink]); date (month and day); number of patients per day; and type of disease or illness in females, children under five, and males.

The forms should be left with the community health worker, who should keep them in the medicine kit provided by the project. During the supervision visit, the nurse-trainer/supervisor should collect the monthly information and bring it to Nouakchott for processing.

The code is modeled on the seventh revision of the International Classification of Diseases and Injuries, which lists 150 causes of death and rubriques for morbidity classification. In several years, when the clinical laboratories in the hospitals have been strengthened and have the capacity to diagnose a broader spectrum of diseases, it would be feasible to extend the code to the 999 causes adopted during a conference to revise the classification an eighth time. The same list of 150 causes should be used to record morbidity in health centers and hospitals, because the HIS is a nationwide system.

The major categories in the proposed classification are provided on the following page.

Given the considerations described above, a set of four forms was designed to report information obtained and registered in the field. These forms are:

<u>Code</u>	<u>Type of Report</u>	<u>Frequency</u>	<u>Reported By</u>
SIS-000	Weekly Report	Weekly	Chief Regional Physician
SIS-001	Monthly Report	Monthly	All Health Units
SIS-002	Monthly Report	Monthly	Hospitals
SIS-003	Quarterly Report	Quarterly	Regional Directorates

A. Weekly Report SIS-000

SIS-000 is a weekly telegram, officially notifiable by the main health authority in the region, who is the chief regional physician. With this telegram, the region informs the director of health about two groups of diseases:

- Diseases Subject to Regulations
 - (001) Cholera (including cholera caused by the El Tor vibrio)
 - (011) Plague
 - (024) Smallpox (including variola minor or alastrim)
 - (026) Yellow Fever

- Diseases under Surveillance
 - (030) Louse-Borne Typhus
 - (031) Malaria
 - (033) Relapsing Fever
 - (090) Influenza
 - (022) Poliomyelitis
 - (019) Meningitis C.S. (on instructions from MOH)

Major Categories in International Statistical
Classification of Diseases, Injuries, and Causes of Death

<u>Category</u>	<u>Morbidity/Mortality Cause</u>	<u>ICD No.</u>	<u>A</u>	<u>B</u>	<u>C</u>
I	Infective and Parasitic Diseases	000-044	*	#	@
II	Neoplasms	045-061	*		
III	Endocrine, Nutritional, and Metabolic Disorders	062-066	*	#	@
IV	Diseases of Blood and Blood/f/Organs	067-068	*	#	@
V	Mental Disorders	069-074	*		
VI	Diseases of the Nervous System/Sens Organs	075-079	*	#	@
VII	Diseases of the Circulatory System	080-088	*	#	
VIII	Diseases of the Respiratory System	089-096	*	#	@
IX	Diseases of the Digestive System	097-104	*	#	@
X	Diseases of the Genito-Urinary System	105-111	*		
XI	Complications of Pregnancy, Child Birth, and Puerperium	112-118	*	#	
XII	Diseases of the Skin and SC Tissue	119-120	*	#	
XIII	Diseases of Musculoskel/Connective Tissue	121-125	*		
XIV	Congenital Anomalies	126-130	*		
XV	Certain Causes of Perinatal Morbidity/Mortality	131-135	*		
XVI	Symptoms and Ill Defined Conditions	136-137	*		
EXVII	Accidents, Poisonings, and Violence (Ex)	138-150	*	#	@
NXVII	Accidents, Poisonings, and Violence (In)	138-150	*	#	@

Code: A* Morbidity reported in these categories by physicians.

B# Morbidity reported in these categories by TS, RN, RM, and LPNs.

C@ Morbidity reported in these categories by CHWs and TMWs.

The group of "diseases subject to regulations" must be reported by telegram or telex to the World Health Organization (WHO) in Geneva within 24 hours of awareness of the first case of a disease subject to the regulations. The group of diseases under surveillance should be reported weekly.

B. Monthly Report SIS-001

SIS-001 is a report that should be produced by all the health units in the country. It has six parts (see Appendix E):

- Principal Diseases/Illness/Injuries

A coded list of 54 diseases is presented. The list includes diseases that can be diagnosed with relative ease under the current conditions of most dispensaries and outpatient wards (e.g., overcrowding of patients, poor or nonexistent laboratory facilities, and insufficiently trained personnel).

- Movement of Patients

Numbers of patient visits, patient controls, patient hospitalizations, and patient referrals (including site of referral) may be listed.

- Sex and Age of Consultants (301-312)

Age groups that may be considered are: less than 1 year, 1-4, 5-14, 15-64, and 64 and older.

- MCH Activities (401-433)

The following information on MCH activities may be collected:

1. Attendance at MCH services, by sub-program, including numbers of consultants and consultations in each sub-program (401-406).
2. Attendance at nutrition recuperation centers (NRCs) including registration, movement, and discharge, by category of events (407-413).

3. Handling of pregnancies and deliveries, including registration, movement, and discharge, by category of event (414-420).
4. Type and outcome of the delivery, including classification of the delivery and status of the child, numbers of abortion cases, and numbers of twins, triplets, etc. (421-423).
5. Nutritional status of children at time of registration in the NRC and classification of children under special surveillance (426-433).
6. Educational activities at MCH centers and NRCs, including numbers of sessions and numbers of participants, by categorical activity (434-435).

- Activities of the Anti-TB and Anti-Leprosy Programs

The following information may be recorded:

1. Anti-TB Program (501-510)

Numbers of patients, by sex and age, classified according to registration, movement, and discharge.

2. Anti-Leprosy Program (511-513)

Numbers of patients, according to type of disease, and classification according to registration, movement, and discharge.

- Activities of the Vaccination Campaign (EVP) (601-612)

The total number of vaccines applied monthly and the total number of fully vaccinated children, by type of vaccine and health unit, may be recorded. Prenatals vaccinated against tetanus also may be recorded.

- C. Monthly Report SIS-002

SIS-002 should be produced by the hospitals (national and regional). Included on the form is a coded list of more than 100 diseases. This list identifies diseases that are difficult to

diagnose; that require a physical examination, and the skill and knowledge of a physician; and that, on occasion, must be confirmed by laboratory test. This list should be used by hospital personnel (physicians or RNs who are closely supervised by physicians and who have access to a clinical laboratory).

The information on monthly cases of Diseases must be compiled by the officer in charge of hospital reporting. The clinician's registration book can be used for this task. The 54 diseases listed on Form SIS-001 should also be included among the diseases reported by the clinician. In other words, hospitals' monthly reports should consist of accumulated data from form SIS-001 (all health personnel who examine patients including MDs, TSs, RNs, RMs, LPNs, etc.), and accumulated data from Form SIS-002 (physicians and, in some instances, auxiliary or paramedical personnel who are closely supervised by a physician). The entire compilation constitutes the single hospital monthly report, which should be signed by the regional medical chief or by the director of the hospital. Hospitals' monthly reports should be sent to the Statistical Division of the Planning and Studies Service, Directorate of Public Health, in Nouakchott, during the first week of the following month of the report.

A sample of Form SIS-002 appears in Appendix F.

D. Quarterly Report 003

This report contains data on health services and has two parts: D-1, Administrative Aspects (see Appendix G), and D-2, Supervisory Activities (see Appendix H).

The first part (D-1) should be reported by the regional health director each quarter. Among the reported items should be:

- personnel data;
- number, type, and condition of health facilities;
- number, type, and condition of vehicles assigned;
- number, type, and condition of equipment assigned;
- budget status and expenditures during the quarter; and
- amount of drugs at the beginning and end of the quarter.

The second part (D-2) should also be reported by the regional health director each quarter. Among the reported items should be:

- type of health personnel making the supervisory visit;
- type of health facility receiving the supervisory visit; and
- number of supervisory activities during the quarter.

Reported information on supervision will be included among the data accumulated each month in each regional health directorate. The monthly data should include all supervisory activities in the region, including those in the central offices of the Ministry, the regional directorate, the departmental dispensary, the mobile unit, or the headquarters of special programs.

Store, Process, and Analyze Data According to Specific Needs

A. Problems

Storage, processing, and analysis of health service statistics are still rudimentary in Mauritania. Special guidelines for improving these activities are urgently needed.

The responsibility for storing, processing, and analyzing health statistics has been left to the central offices of the Directorate of Health. The accumulation of unprocessed data from 12 regions and the District of Nouakchott creates a tremendous burden on these offices.

Continuous administrative control of health services at the regional level requires the timely processing of health statistics and health services. The regions should be responsible for processing selected data so that they can properly manage their health programs. Currently, this is not happening in Mauritania.

Rapid feedback of information to the lower levels is essential to motivate local personnel to obtain good quality data. This condition is not present in Mauritania at this time.

B. Comments

In preceding sections of this report, some aspects of kinds of data and record forms were reviewed. The following outline presents the general principles for storing, processing, and analyzing the data collected by the proposed health information system.

Several facts have been stressed: One, data should be relevant to the objectives of the health system; two, data and information should be easy to obtain; three, data should be reliable and complete; and, four, data should be timely.

C. Recommendations

The following recommendations are designed to improve the collection, storage, processing, and analysis of data in Mauritania.

1. The Ministry of Health and Social Affairs, through the Directorate of Health, should establish the procedures and the organization to store, process, and analyze data for the health information system.
2. The decisions to conduct such activities should be discussed thoroughly and approved by the regional directorates.

D. Guidelines

The following outline may help the Ministry to develop the corresponding guidelines.

1. Storage of Information

It is important that data be registered by the person responsible for collecting or producing the information, and at the moment the data are obtained. An attempt should be made, whenever possible, to avoid transcribing data from other forms to the register, because this procedure may result in errors.

Registry books or forms should always be kept at the corresponding health unit.

The information for weekly, monthly, or quarterly reports should be obtained from the registry.

For data recording and processing, written instructions should specify who is to perform which tasks. Instructions should be prepared for routing data; these should specify when and how frequently the forms should be sent.

Units that send or receive documents should keep a register that indicates the number and type of documents, classified by date or by a number corresponding to the forms included in the dispatch; in this way, it should be possible to identify the material in case of loss. Personnel at the local level should also keep an account of the record forms that are dispatched.

At the local level, before data are tabulated or sent to other levels, the statistical record forms should be checked for omissions, clarity of entries, and other aspects of quality, so that the documents can be corrected immediately, using information available in the service unit. A review system should be implemented at the central or regional processing unit to correct errors found in the documents. When errors are not serious, techniques such as sampling or assignment of classification based on probable incidence may be used. If the system is computerized at the central level, the data should be cleaned before processing to detect and correct omissions and inconsistencies.

Data should be stored at the local, regional, and central levels, as indicated below.

- At the health unit, the information should be kept in the register. A copy of any report sent should be filed in order.
- At the regional and national levels, five filing boxes or drawers should be provided, as shown in Figure II-3.

Box 1 For health statistics, with three divisions (monthly, quarterly, and annual reports).

Box 2 For health services, with two divisions (quarterly and annual reports).

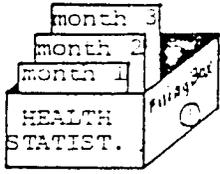
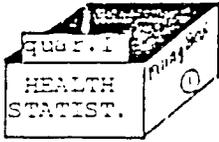
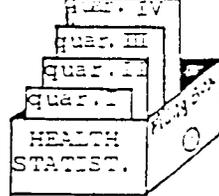
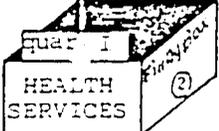
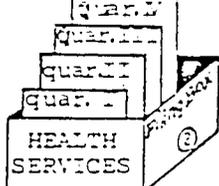
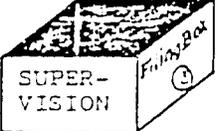
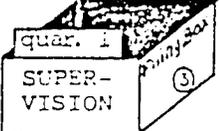
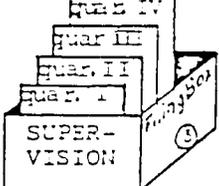
Box 3 For supervision, with two divisions (quarterly and annual reports).

Box 4 For vital statistics, with two divisions (births and deaths, by geographical area).

Box 5 For population data, with two divisions (mid-year population, by sex and age, and target population estimated for each health unit). The setting should be by geographical areas and urban-rural distribution).

Figure II-3

INFORMATION TO BE FILED IN FIVE
FILING BOXES OF STATISTICAL DIVISION OF
MOH AND REGIONAL HEALTH DIRECTORATES

MONTHLY REPORT * Regional * National	QUARTERLY REPORT * Regional * National	ANNUAL REPORT * Regional * National
		
		
		
		
		

2. Information Processing

The levels which process and analyze data should conform to information requirements. It must be determined in advance whether the processing will be done manually, with conventional or electronic equipment, or with a combination of procedures. Simultaneously, the various levels of processing should be defined according to the frequency (monthly, quarterly, annually, etc.) with which the information is required, the availability and training of the human resources involved, and the use that is to be made of the information.

If the information is to be processed manually, tabulation forms and record forms must be designed.

A series of tabulations was suggested earlier (see Tables II-1, II-2, and II-3), to process the following kinds of information:

- Population Size and Structure
 1. Mid-Year Size and Structure
 2. Population Change and Rates per 1,000 Persons

- Health Statistics
 - A. State of Health
 1. Mortality and Length of Life
 2. Morbidity, Impairments, and Handicaps
 - B. Nutrition

- Health Services
 1. Activities of Health Units
 2. Activities of MCH Programs
 3. Activities of Anti-TB Program
 4. Activities of Anti-Leprosy Program

5. Activities of Vaccination Program
6. Administration
7. Supervisory Activities

For each item, specific tabulations were recommended and a list of indicators was presented. To process this information, manual tabulation or electronic processing may be used. In any instance, a minimum of trained personnel in statistics will be required (at least one person from each region and a small group in the central Statistical Division of the Ministry of Health), so that the system can be set in motion. An appropriate curriculum and the required teaching materials must be adapted to accommodate actual needs.

A flow chart, graphically illustrating the steps required to produce the various reports, either by hand-tabulation or by electronic processing, is shown in Figure II-4. If electronic processing is used, the information will be stored and secured in the computer as a data bank.

3. Data Analysis

The plan for tabulating and analyzing information should reflect consideration of the purposes and objectives of the system. It is necessary to specify the indicators or special methods of analysis required by the Directorate of Health. The indicators should be used for rational decision-making, particularly for the distribution of resources according to needs.

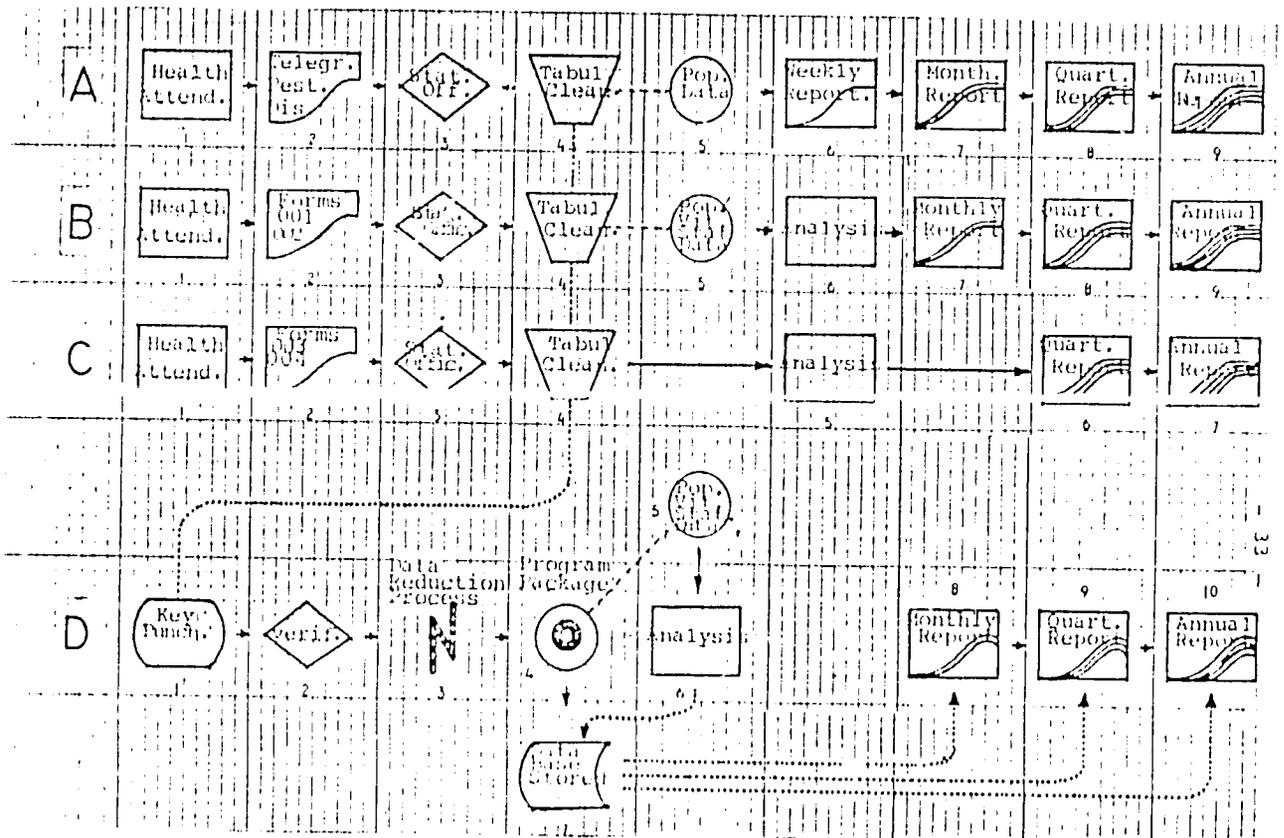
Tables II-1, II-2, and II-3 should be reviewed carefully when decisions are made to tabulate and analyze the selected information. The first two rows in these tables may be used for tabulation and analysis at the regional level, and the last row (indicators) for tabulation and analysis at the central level.

In general, the denominators recommended for several of the proposed tabulations are population (mid-year) or service users (patients), and population targets for services (e.g., the percentage of the population in an area that should be covered by a given service).

The proposed indicators were developed to measure the achievement of specific program objectives. Some of the indicators may be used to make comparisons of similar units or similar services, or to document trends over time for units of services.

Figure II-4

FLOW CHART OF PROPOSED HIS
ILLUSTRATING STEPS TO PRODUCE
VARIOUS REPORTS BY HAND-TABULATION
OR ELECTRONIC PROCESSING



The indicators may also be used to control or supervise operating units. In all these ways, indicators may serve as the means to rank the performance of units, or, more important, to single out units for exceptional performance (inferior or superior) and to indicate appropriate supervisory attention.

The indicators presented in this document are illustrative of a wide range of available indicators, and they are not meant to be a definitive list to be used without reservation. The same is true for the proposed tabulations.

Broadly, indicators may be classified in five categories for analytical purposes:

- Volume
- Coverage
- Quality
- Effectiveness
- Efficiency.

Examples of types of indicators are:

- Volume
Number of patients or controls, by service unit; and number of beds, by thousand population.
- Coverage
Proportion of births attended in health facilities; percentage of immunized children; and proportion of births attended by supervised traditional midwives.
- Quality
Proportion of pregnancies referred during the eighth month, diagnosed as high-risk; percentage of special referrals among total clients; and morbidity and mortality (mother and child) resulting from deliveries attended in health facilities.

- Effectiveness

Maternal mortality by cause; and outcome of nutritional surveillance in special children's groups (e.g., pre-matures, hypotrophic, twins, etc.).

- Efficiency

Number of deliveries per person per year of personnel time; and bed occupancy rate.

Some commonly used vital and health statistics are presented in Table II-4, making possible more meaningful comparisons of the measures than can be obtained from crude (whole population) figures. Unfortunately, the question of age may be raised as an example of the uncertainty inherent in Mauritanian census-taking.

Identify Major Constraints Affecting HIS

A. Problems

As in many other developing countries, the economic situation in Mauritania makes it difficult to develop reasonably good health statistics. Human and physical resources of the necessary quality and quantity are lacking. However, the government has decided to attempt, during the period 1981-1985, to improve the delivery of health services to the rural population through better planning and programming. One of the strategies it plans to follow to accomplish this task is to improve the health information system.

At the central level, there is a statistical division, but it has limited resources. There are no trained personnel in health statistics, no data processing equipment, no vehicles for supervision, no counterpart personnel at the regional level, and few supplies.

At the regional level, there is no statistical structure; consequently, health personnel are not motivated to collect, process, or analyze health statistics or health service data. The result is poor-quality information, data that are irregular, incomplete, and unreliable. Lack of supervision and feedback are cause for worse conditions, exacerbating the difficulties of health management.

At the local level, resources are still more limited, so much so that many health units do not have registration books for service activities or forms for monthly or quarterly reports.

Table 11-4

COMMONLY USED VITAL AND HEALTH STATISTICS

Category	Meaning
A. Annual crude live birth rate (= "Birth rate")	$\frac{\text{Number of live births occurring in a defined population during a year}}{\text{Number in that population at midyear of the same year}} \times 1,000$
B. Annual crude death rate (= "Death rate", "mortality rate", "gross death rate")	$\frac{\text{Number of deaths occurring in a defined population during a year}}{\text{Number in that population at midyear of the same year}} \times 1,000$
C. Annual specific death rate 1. for age 2. for sex 3. for cause 4. for combination of these	$\frac{\text{Number of deaths at a specified age, of a specified sex, or cause occurring in a defined population during a year}}{\text{Number in that population of the specified age, or sex, or susceptible to die of the specified cause, at midyear of the same year}} \times 1,000$
D. Annual infant mortality rate	$\frac{\text{Number of deaths under one year of age occurring in a defined population during a year}}{\text{Number of live births occurring in that population during the same year}} \times 1,000$
E. Annual neonatal mortality rate	$\frac{\text{Number of deaths under 28 days of age occurring in a defined population during a year}}{\text{Number of live births occurring in that population during the same year}} \times 1,000$
F. Annual postneonatal mortality rate	$\frac{\text{Number of deaths at ages 28 days to the end of the first year occurring in a defined population during a year}}{\text{Number of live births minus neonatal deaths occurring in that population in the same year}} \times 1,000$
G. Annual fetal death rate (= "Stillbirth rate")	$\frac{\text{Number of fetal deaths at 20 weeks* or more gestation occurring in a defined population during a year}}{\text{Number of live births plus fetal deaths of 20 or more weeks occurring in that population during the same year}} \times 1,000$
H. Annual maternal mortality rate	$\frac{\text{Number of deaths from puerperal* causes occurring in a defined population during a year}}{\text{Number of live births occurring in that same population during the same year}} \times 10,000$
I. Proportionate mortality	$\frac{\text{Number of deaths in specific category occurring in a defined population during a year}}{\text{Total number of deaths occurring in that same population during the same year}} \times 100$
J. Standardized mortality ratio (SMR) 1. for age 2. for occupation, ethnic group, social class, etc 3. for sex 4. for disease 5. for combination	$\frac{\text{Number of deaths in specific category occurring in a defined population during a year}}{\text{Number of deaths in the same specific category occurring in a selected defined comparison population during a year}} \times 100$
K. Annual incidence for occurrence of a specified condition	$\frac{\text{Number of new cases of the specified condition occurring in a defined population during a year}}{\text{Number in that population at midyear of the same year}} \times 100,000^{\dagger}$
L. Point prevalence of a specified condition	$\frac{\text{Number of cases of the specified condition existing in a defined population at a particular point in time}}{\text{Number in that population at the same point in time}} \times 100,000^{\dagger}$
M. Morbidity rate 1. crude 2. specific for age, sex, occupation, place, etc	$\frac{\text{Number of cases of specified disease occurring in specified categories during a year}}{\text{Average population in the category during the same year}} \times 1,000^{\ddagger}$

*Varies somewhat in different jurisdictions

†As listed in latest revision of the ICD

‡Multiplier varies depending on frequency

To compound these problems, physicians are not motivated to participate in activities in which health statistics are collected; nurses are overwhelmed by the daily number of patients (more than 100 in many cases).

B. Recommendations

The following recommendations are designed to overcome the constraints against implementation of a successful and fully operational health information system.

1. The Ministry of Health and Social Affairs should identify the major constraints affecting the current health information system in Mauritania and make a substantial effort to correct these deficiencies.
2. At the central level, the Statistical Division of the Planning and Studies Service of the Directorate of Health should be strengthened. This can be done by hiring personnel trained in statistics; by purchasing conventional equipment for data processing, and vehicles for supervision; by training in health statistics the personnel of the Statistical Division, at least one person from each of the regions, and, in Nouakchott, one person for the National Hospital and one person for the central polyclinic; and by allocating an appropriate budget to operate the entire health information system.
3. At the regional level, a small statistical office should be established and fitted with minimum equipment (e.g., conventional processing equipment and one vehicle for supervision within the region). One statistical officer who could be a registered nurse should be trained.
4. At the local level, the necessary supplies (e.g., registration books and monthly and quarterly report forms) should be provided in a timely manner. The personnel in charge of reporting should be supervised systematically.
5. At all levels, health personnel should be trained and motivated to collect health service statistics. Motivation can be increased by creating incentives for producers of good-quality data and by establishing a feedback system to illustrate to low-level personnel the importance of the data they have collected.
6. An effort should be made to enlist the collaboration of the Statistics and National Accounts Directorate of the Ministry of Economy and Finances and the Bureau of Census. This can be done by making these groups active members of the Committee to Strengthen the Health Information System.

Choose Progressive, Step-by-Step Strategy
to Implement HIS

A. Problem

Given current circumstances, it would be difficult to improve the health information system in Mauritania in a short period of time. The process of change will probably take an entire quinquennium. It is, therefore, necessary to plan a step-by-step strategy that takes into account the progressive solution of the major constraints discussed above.

B. Recommendations

The following recommendations should be implemented to promote the use of a step-by-step strategy to implement the HIS.

1. The plan to strengthen the health information system using an integrated approach to improving the national health delivery system should be considered. Information alone cannot be substantially improved if the working conditions of the health personnel are not improved simultaneously. Various aspects of training (recycling) and the establishment of career incentives for all personnel will have to be carefully considered. Realistic job descriptions should be developed for all members of the health team. It should be kept in mind that it will be more efficient to do well a reasonable number of activities than to overload each worker with unreasonable demands. For example, it would be impossible to expect good-quality work from a registered nurse who is consulting 100, 150, or 200 patients each day; no RN with this many cases could be expected to do good clinical work, to do a reliable data registration, and, to make an acceptable monthly report. The development of norms, techniques, and procedures for the different activities of the health personnel is a necessary pre-condition to the organization of the health information system.
2. The following steps are recommended to strengthen the health information system in Mauritania.

Step I: Groundwork

The improvement of the current health information system does not imply expansion of the system with the addition of more elements, but reappraisal of the existing organization and

adaptation of the usable portions of that system to the proposed technical approach. Thus, the preliminary steps aside, the evaluation of the existing system should encompass defining the objectives of the new system, developing a plan for tabulation and analysis, determining what data are to be collected, establishing the processing procedures, designing appropriate forms, estimating the necessary resources, and training the requisite personnel. The consultant did all this groundwork, which is documented in this report. The efforts should be repeated, in the precise sequence described here, by a Mauritanian multidisciplinary team composed of statisticians and producers and users of information, so that each group's various views can be considered and a system that meets the needs of all concerned can be developed. With the background presented in this report, it should be possible for the Committee to Strengthen the Health Information System to organize a workshop for selected representatives of the Ministry of Health (from the central, regional, and local levels), statisticians, demographers, and planners. Within several days, it should be possible to reach a consensus on the specific characteristics of the new health information system for Mauritania.

After the groundwork has been completed, the following steps should be followed.

Step II: Field-Testing

The newly designed system, or the substantial changes made in the old system, will have to be tested before final adoption.

Despite the limitations inherent in testing, a test should nevertheless provide valuable information on the design, the ease with which the forms can be completed and handled, the clarity of the instructions, and the practicality of procedures. Moreover, testing will help to identify those aspects which should be given special attention during the training of personnel.

The system should be tested at its various operational levels. Generally, it is advisable to conduct the testing in several places, because by recognizing differences in certain easily identifiable aspects, it is possible to determine which factors influence the functions of the system. At each place, a complete trial run of all the programs of the system should be made involving all the staff who will be operating the system after it has been introduced. There seem to be several ideal places to test the system in Mauritania, including Nouakchott Health District (because of the strength and complexity of its health units); the regional health circonscription of Trarza (because it has a considerable number of health posts for primary health care

which are well-supervised); and the regional health circonscription of Adrar (because of its geographical situation in the northern part of the country, its ethnic composition, and its difficult communication network). The regional health circonscription of Assaba might be an alternative site, because of its comparatively modest health resources.

There are no strict rules governing the duration of testing. It is expected that there will be an additional learning period, during which the new system may seem to be more complicated than the old system. As an arbitrary timeframe, the testing might be conducted for approximately three months, which would be the minimum time required to produce the main reports. Three months should be sufficient time for the staff to learn the procedures and acquire skill in applying them. In addition, it should be possible to collect sufficient data to test local tabulations.

When the trial period is over, the results obtained by the various observers at the different sites should be compared, and decisions should be made about design changes in the system. If necessary, the trial run should be repeated, incorporating the changes.

This stage should not be considered complete and the system permanently instituted until the results of the testing have been deemed to be satisfactory.

Step III: Monitored Expansion

Before replicating the system in other regions of the country, a decision must be made about how to institute the system, ensure the availability of human and material resources, and train personnel. Once the system has been instituted, its operation will have to be supervised.

There are two alternatives to expanding the system: one, institute the system immediately on a fixed date in all the units, or, two, introduce the system gradually.

The first alternative is preferable, because the data from all the units will be uniform from the same date onward. That date should, if possible, begin a period for which there are periodical publications; for example, at the beginning of 1983. However, this approach will require sufficient training resources to cover all areas at the same time.

If the system is to be introduced gradually, it may be necessary to transfer training staff to the corresponding group of regions. In this case, it would be best to avoid simultaneously using both

the new and the old system. The workload that such a situation would imply might detract from the alleged advantages of the new system and create resistance among the personnel responsible for operating it.

Any additional staff required by the new system should be recruited before the system is instituted.

An estimate should be made of the quantities of forms and instruction sheets that will be required at the various operational levels, and a supply sufficient for several months should be provided. It should be confirmed that the supplies have been distributed before the system is initiated.

The file cabinets, file boxes, calculating machines, and other processing equipment should be available when the system becomes operational.

The norms governing the functions and duties of the personnel involved in the system and the flow of information, as well as instructions for completing the various statistical forms, should be clearly specified in an operating manual for the system.

Ideally, practical inservice training for the staff who are to operate the new system should be provided. Because this probably is not possible in Mauritania, various teams should be formed to carry out the training at the regional level, bringing together groups of selected personnel from the service units. These persons, once trained, would be responsible for training at the local level. It is important that the training also be extended to the regular program supervisors.

The directors of health at the regional level should, in addition to learning about the specific tasks they are to perform, also receive training in the procedures at the local level, so that they can better understand the preceding stage.

The director of health at the Ministry of Health should inform the administrators at the various levels of the precise moment that the new system will be activated.

Once the system has been instituted, either at the national or the regional level, the training teams and the regular program supervisors should visit the service units and the levels at which data will be processed (see Figure II-2). This will ensure that the operation of the system is being supervised.

Such supervision is fundamental, because after the system becomes operational, additional problems may arise which were not discovered during the trial period.

Supervision should include a careful review of the data recorded on the forms. The aim should be to improve the instructions and immediately correct omissions and errors in recording the data, before they become routine.

It is recommended that after six months or one year of full operation of the system, an evaluation be made. The evaluation should focus on the information provided by the system, the procedures, the organization, and the costs.

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APPENDICES

Appendix A

SIMPLIFIED MONTHLY REPORT
(Prepared by Committee to Strengthen
the Health Information System)

الجمهورية الإسلامية الموريتانية
République Islamique de Mauritanie

شرف - اخاء - عدالة
Honneur - Fraternité - Justice

وزارة الصحة والشؤون الاجتماعية
MINISTÈRE DE LA SANTÉ ET DES
AFFAIRES SOCIALES

RÉGION _____ ولاية _____

FORMATION SANITAIRE _____

RAPPORT MENSUEL D'ACTIVITE

Mois de _____ 198 _____

Principales Affections rencontrées

	Nombre de cas	Cas confirmés par LABO	Observations
002 Fièvre Typhoïde			
004 Dysenterie bacillaire			
006 Dysenterie amibienne			
012 Tuberculose respiratoire			
020 Peste			
022 Charbon			
023 Brucellose			
030 Lèpre			
032 Diphtérie			
033 Coqueluche			
036 Meningite Cerebro-Spinale			
037 Tetanos			
045 Poliomyélite aigue			
050 Variole			
055 Rougeole			
060 Fièvre jaune			
070 Hépatite infectieuse			
071 Rage			
073 Oreillons			
076 Trachome			
084 Paludisme			
091 Syphilis récente (Béjel)			
098 infection gonococcique			
120 Schistosomiase			
125 Filariose			
126 Ankylostomiase			
284 Avitaminose			
280 Anémie			
372 Conjunctivites			
390 Rhumatisme articulaire aigu			
481 Grippe			
460 - 466 Affections aigues des			

1 - Activités de Supervision

Activités	Médecin	Infirmier d'Etat	Sage - Femme	Chef d'Equipe	Soins de Santé primaire
Postes médicaux					
Accoucheuse traditionnelle					
Agent de Santé Communautaire					

2 - Programme élargi de Vaccination

Formation	DTaP			Polio			BCG	Rougeole	Nombre d'enfants vaccinés	V. Anti-tétanique	
	1	2	3	1	2	3				1	2
Equipe mobile											
P. M. I.											
Autres Formations											

Observations _____

III SERVICE NATIONAL ANTI-TUBERCULEUX & ANTI-LÉPREUX

A - Tuberculose	0 à 5 ans		6 à 15 ans		16 ans et plus		TOTAL
	M	F	M	F	M	F	
- Nouveaux cas							
dont BK +							
- En traitement							
- En observation							
- Guéris							
- Rechute							

B - Lèpre	FI.		FI.		FT.		TOTAL
	0 à 5 ans		6 à 15 ans		16 ans et plus		
	M	F	M	F	M	F	
- En traitement							
- Nouveaux cas							
- En observation							
- Blanchis							

IV C R E N

- a) Fréquentation
- Enfants inscrits _____
 - dont nouveaux _____
 - Abandon _____
 - Guérison _____
 - Décès _____
 - Transferts au Centre de Santé _____
- b) Etat nutritionnel à l'inscription
- Marasme _____
 - Kwashiorkor marastique _____
 - Diarrhée aiguë _____
 - Autres _____
- c) Nombre séance d'éducation

Autres précisions et Renseignements divers

Le soupçon de maladie pestilentielle doit être signalé par Télégramme à DIRSANTE Nouakchott.

NOTA : Ce rapport est à adresser tous les mois en deux exemplaires au Médecin Chef de la Circonscription qui se chargera de la synthèse et de l'envoi à D I R S A N T É Nouakchott.

A _____ le _____ 19S ____

Nom _____

Titre _____

Signature _____

Appendix B

SCHEDULE FOR CONSULTANT'S FIELD TRIP
TO REPRESENTATIVE HEALTH UNITS
(Nouakchott Health District and Brakna and
Trarza Regional Health Circonscriptions)

République Islamique de Mauritanie
Ministère de la Santé et des
Affaires Sociales

Honneur-Fraternité-Justice

Direction de la Santé

Nouakchott, le 22 Avril 1982

No 167

LE DIRECTEUR,

à Monsieur le Chef du Service
du Projet Trarza

Dans le cadre de la restructuration des méthodes de la collecte des statistiques sanitaires, le Professeur DELGADO nous rendra visite en vue de s'informer et discuter avec nous les voies et moyens de parvenir à une meilleure collecte des données statistiques, qui sont indispensables à une bonne planification.

Vous trouverez ci-joint le Programme qui a été établi pour la Mission du Professeur Delgado.

Je vous demande de prendre toutes les mesures en vue de faciliter cette mission qui revêt un caractère particulièrement important.

(signed)

Dr. Mohamed Mahmoud Ould Hacen
Directeur de la Santé

Programme de Visite aux Formations Sanitaires et Entrevues
avec les Responsables de la Collecte des données du
Ministère de la Santé et des Affaires Sociales.

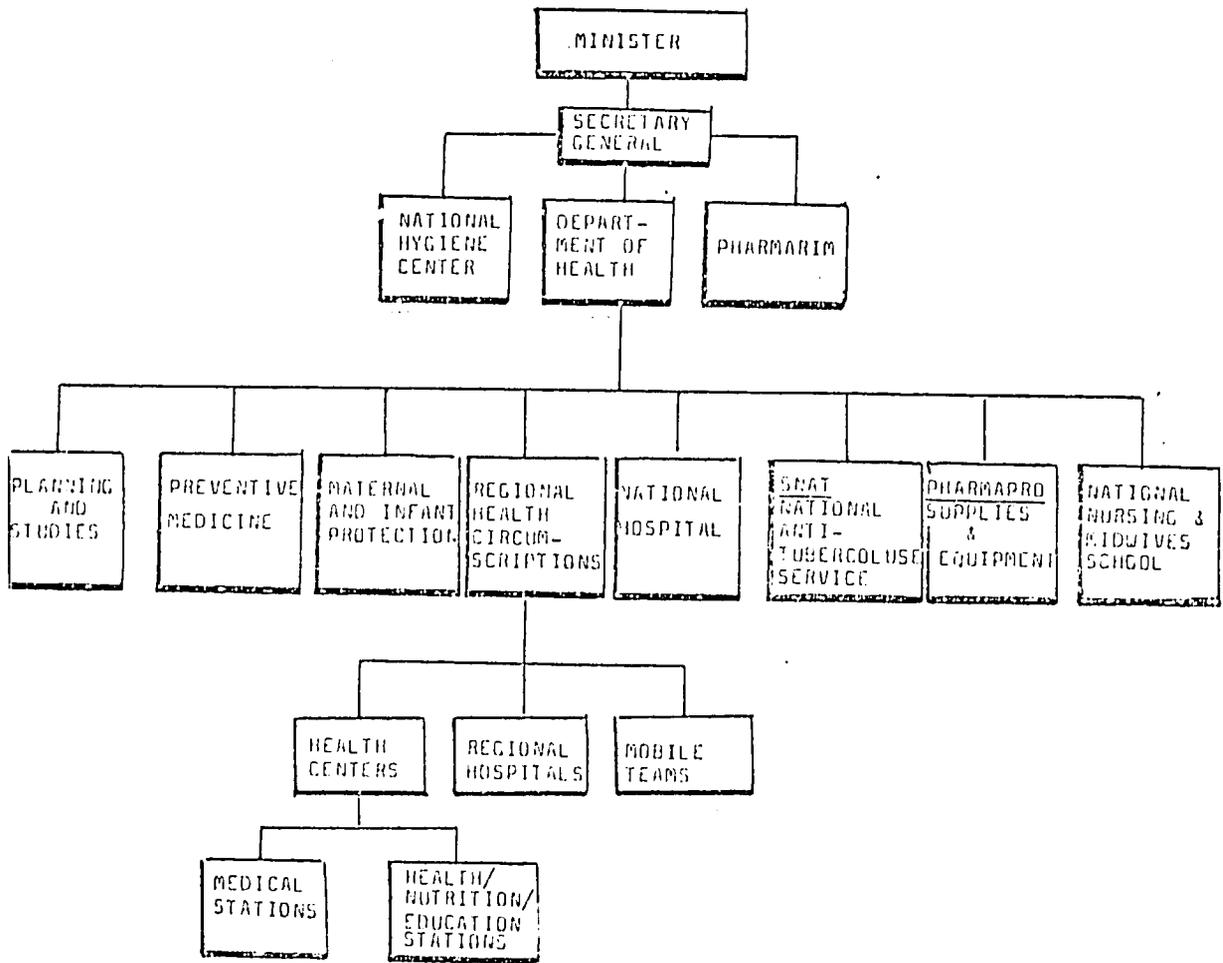
Professeur Dr. Ramiro Delgado-García
Mr. Kane Mamadou

Mai 1982

Lundi	3	07:00	Départ pour Aleg
		11:00	Entrevue avec le Médecin Chef d'Aleg
Mardi	4	07:00	Départ pour Boghé
		09:30	Entrevue avec l'Infirmier Chef de Boghé
			Visite au Centre de Santé A, PMI, équipe mobile
		16:00	Départ pour Boutilimit
		18:30	Arrivée à Boutilimit
Mercredi	5	08:30	Entrevue avec le responsable du Centre de Santé A de Boutilimit
			Visite au Centre de Santé et à la PMI
		16:00	Départ pour Nouakchott
		18:30	Arrivée à Nouakchott
Jeudi	6	07:00	Départ pour Rosso
			Visite à un Centre de Santé C
		11:00	Entrevue avec le Médecin Chef de Rosso
			Visite à l'Hôpital, PMI et au Centre Santé A
		17:00	Départ pour Nouakchott
		20:00	Arrivée à Nouakchott
Vendredi	7	08:00	Entrevue avec le Médecin Chef de la Polyclinique
		10:30	Visite à la PMI Pilote de Nouakchott
		15:30	Visite à la PMI du Ksar
Samedi	8	08:00	Entrevue avec Mademoiselle Fatimata Sy, CREN
		10:00	Entrevue avec Mme. Bâ
			Visite à la PMI et aux Divisions de celle-ci
Lundi	10	08:30	Visite au Centre Mère-Enfant du 5ème Arrondiss.
		15:30	Visite à l'Hôpital National de Nouakchott
Mardi	11	08:30	Visite au Centre National d'Hygiène (CNH)
		15:30	Visite au Dispensaire du 6ème Arrondissement
		17:00	Visite au Service National Anti-Tuberculeux, SNAT
Mercredi	12	08:30	Visite à l'Ecole Nationale d'Infirmiers et des Sages-Femmes
		15:30	Visite au Programme d'Hygiène Scolaire
Jeudi	13	08:30	Visite au Dispensaire Inter-Entreprises
		15:30	Visite à la Direction de Santé Militaire
Vendredi	14	08:30	Visite à PHARMAPRO
		10:00	Visite à PHARMARIM
		15:30	Visite au Service de Médecine Preventive
Samedi	15	08:30	Visite au Croissant Rouge Mauritanian
Lundi	17	08:30	Entrevue avec la Commission Nationale Chargé du Renforcement du Système d'Information Sanitaire.

Appendix C

STRUCTURE OF THE MINISTRY OF HEALTH OF THE
ISLAMIC REPUBLIC OF MAURITANIA
(1980)



Appendix D

SERIES OF SIX DATA RECORD FORMS
FOR CHWS IN THE HEALTH POST
(Primary Health Care)
(Exhibits D-1 to D-6)

Exhibit D-1

HMA/008/5/A
 A.S.C. : _____
 DEPARTEMENT DE : _____
 VILLAGE & N° : _____
 DATE : _____
 SUPERVISEUR : _____

رقم
 الرصيد
 جامعة
 قبة
 الشرب

FICHE DE TRAITEMENT

بجائز علاج

N°

PAMR 008

--	--	--	--	--	--	--	--	--	--

Supervision N° _____

Note de _____



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28

ANEMIA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
067	♀																											
ALIMENTATION	066	♀																										
TOUSSEGLE	025	♀																										
INFECTIONAUX	043	♀																										

Appendix E

SAMPLE OF FORM SIS-001: MONTHLY REPORT
(For All MOH Health Units in Mauritania
With Government Health Attendants)

REPUBLIQUE ISLAMIQUE DE MAURITANIE
 MINISTERE DE LA SANTE ET DES
 AFFAIRES SOCIALES

DIRECTION DE LA SANTE PUBLIQUE

RAPPORT MENSUEL D'ACTIVITES

Mois de _____ 198

I. Principales Affections Rencontrées:

REGION: _____

Formation Sanitaire: _____

Numéro de la Formation Sanitaire:

Nom du Rapporteur: _____

Titre: _____

CODE.	AFFECTION	CAS	Conf. Labo.	DECS	CODE	AFFECTION	CAS	Conf. Labo.	DECS
001	CHOLERA				058	Infection Gonococcique.....			
002	Fièvre Typhoïde.....				039	Bilharziose.....			
004	1. Dysenterie Bacillaire.....				041	Dracunculose.....			
004	2. Dysenterie Amibienne.....				042	Ankylostomiase.....			
005	Entérites et Autres Diarrhées.....				043	Autres Helminthiase.....			
006	Tuberculose Pulmonaire.....				062	Goître Non-Toxique.....			
011	PESTE.....				065	Avitaminoses et Autres Carences.....			
012	Charbon.....				066	Malnutrition.....			
013	Brucellose.....				067	Anémies.....			
014	Lèpre.....				072	Méningites (Autres).....			
015	Diphthérie.....				074	Epilepsie.....			
016	Coqueluche.....				075	Conjonctivites.....			
017	Angines.....				078	Otitis.....			
019	MENINGITE CEREBRO-SPINALE.....				080	Rhumatisme Articulaire Aigu.....			
020	1. Tétanos Néonatal.....				089	Affections Aigües de l'App.Respirat.			
020	2. Tétanos Post-Partum.....				090	Grippe.....			
022	Polioomyélite Aigue.....				097	Maladies des Dents et du Parodonte..			
025	Rougeole.....				113	1. Hémorragies de la Grossesse.....			
026	FIEVRE JAUNE.....				113	2. Hémorragies de l'Accouchement....			
028	Hépatite Infectieuse.....				115	Avortements.....			
029	1. Varicelle.....				116	Infections à l'Accouch. et S. de C..			
029	2. Oreillons.....				118	Accouchements.....			
029	3. Trachôme.....				119	Affections de la Peau et du T=C-S...			
029	4. Rage.....				141	Fractures.....			
030	TYPHUS EXANTHEMATIQUE.....				145	Déchirures et Plaies.....			
031	Paludisme.....				148	Brûlures.....			
035	Syphilis (Primaire/Secondaire).....				150	Morsures de Serpents.....			
TOTAL.....									

DRSANTÉ|515-00 -Juin 1982

II. Activités de la Formation Sanitaire:

- (201) Consultants..... _____
- (202) Consultations..... _____
- (203) Hospitalisations..... _____
- (204) Journées d'Hospitalisation..... _____
- (205) Evacuations sur Nouakchott (*)._____
- (206) Evacuations sur la Capitale Régionale. _____
- (207) Evacuations sur le Chef-Lieu Départ... _____

(*) Si la Formation Sanitaire Informante se trouve à Nouakchott, placer ici les évacuations sur l'Hôpital National.

III. Sexe et Age des Consultants:

< 1		1-4		5-14		15-64		65 +		TOTAL	
M	F	M	F	M	F	M	F	M	F	M	F
301	302	303	304	305	306	307	308	309	310	311	312

IV. Activités de Santé Maternelle et Infantile (S.M.I.)

1. Fréquentation à la P.M.I.

CATÉGORIES	Pre-Natal	Post-Natal	Gynécologie	Enfants -		TOTAL
				Sains	Malades	
A. Consultants....						
B. Consultations.						
CHE	401	402	403	404	405	406

2. Fréquentation au C.R.E.N.

- (407) total des enfants inscrits début mois _____
- (408) nouveaux..... _____
- (409) abandons..... _____
- (410) guérisons..... _____
- (411) décès..... _____
- (412) évacuations..... _____
- (413) total enfants inscrits fin mois..... _____

IV. Activités de Santé Maternelle et Infantile (S.M.I.)
(cont.)

1. Grossesses et Accouchements:

- (414) Grossesses sous surveillance début mois.... _____
- (414) Nouvelles grossesses diagnostiquées..... _____
- (415) dont grossesses à risque..... _____
- (416) dont évacuées..... _____
- (417) Evacuation au 8ème mois (total)..... _____
- (418) Grossesses sous surveillance fin du mois... _____
- (419) Accouchements assistés Maternité..... _____
- (420) Accouchements assistés à domicile..... _____

4. Type d'Accouchement, Etat de l'Enfant:

Type d'Accouchement	Enfants		
	vivants	dont moins de 250grs	mort-nés
A. Normaux.....			
B. Prématurés.....			
C. Dystociques.....			
D. Total.....			
CODE	421	422	423

- (424) Avortements..... _____
- (425) Jumeaux..... _____

5. Etat Nutritionnel à l'Inscription CREB:

- (426) Marasme..... _____
- (427) Kwashiorkor marasmatique..... _____
- (428) Hypotrophie..... _____
- (429) Diarrhée..... _____
- (430) Autres..... _____

Crèche (enfants sous surveillance):

- (431) prématurés..... _____
- (432) hypotrophiques..... _____
- (433) jumeaux..... _____

6. Activités d'Education:

CATEGORIES	Séances	Participants
A. Education Sanitaire.....		
B. Education Nutritionnelle.....		
C. Démonstrations Nutritionnelles.....		
D. Couture.....		
E. Alphabétisation.....		
F. Enseignement Bilingue.....		
CODE	434	435

Observations:

.....

V. Activités du Service Anti-Tuberculeux et Anti-Lèpreux

TUBERCULOSE PULMONAIRE	0-5		5-14		15-64		65 +		TOTAL	
	M	F	M	F	M	F	M	F	M	F
A. cas au début du mois.....										
B. nouveaux.....										
C. dont BK.....										
D. en traitement.....										
E. en observation.....										
F. guéris.....										
G. rechute.....										
H. perdus de vue.....										
I. décès.....										
J. cas à la fin du mois.....										
CHE	501	502	503	504	505	506	507	508	509	510

LEPRE	Forme		
	lèpreuse	indéterminée	tuberculoïde
A. cas au début du mois...			
B. nouveaux.....			
C. en traitement.....			
D. en observation.....			
E. blanchis.....			
F. décès.....			
G. perdus de vue.....			
H. cas à la fin du mois...			
CHE	511	512	513

VI. Activités du P.E.V. (Vaccinations):

Vaccinés	DT Coq			Polio			B C G	Rougeole	Enfants vaccinés		Télanos	
	1	2	3	1	2	3			T*	C*	1	2
Formations Sanitaires												
A. Equipe Mobile												
B. P.N.I.												
C. Autres Formations												
D. TOTAL												
CHE	601	602	603	604	605	606	607	608	609	610	611	612

* T = Nombre Total de Vaccins Appliqués pendant le Mois

* C = Nombre d'Enfants Complètement Vaccinés.

Observations:

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Date d'envoi du Rapport: _____

Date de réception à Nouakchott: _____

Signature et Cachet du Responsable: _____

Appendix F

SAMPLE OF FORM SIS-002: MONTHLY REPORT
(For Hospitals or Physicians)

REPUBLIQUE ISLAMIQUE DE MAURITANIE
 MINISTÈRE DE LA SANTÉ ET DES
 AFFAIRES SOCIALES
 88888888888888

Honneur - Fraternité - Justice

DIRECTION DE LA SANTÉ PUBLIQUE

RAPPORT MENSUEL D'ACTIVITÉS

Mois de _____ 198_

1. Principales Affections Rencontrées: (suite)

RÉGION: _____

HÔPITAL: _____

Code de l'Hôpital:

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Nom du Rapporteur: _____

Titre: _____

CODE	AFFECTIONS	CAS	Conf. Labo.	DECES.	CODE	AFFECTIONS	CAS	Conf. Labo.	DECES.
003	Fièvre paratyphoïde et autres à Salm.				057	Tumeur maligne de la prostate.....			
007	Tuberculose des méninges et du NC				058	Autres Tumeurs Malignes.....			
008	Tuberculose de l'intestin, pér.gangl..				059	Leucémies.....			
009	Tuberculose osseuse et articulaire...				060	Autres tumeurs des tissus lymph/hépat			
010	Autres formes de TBC et s'quelles...				061	Tumeurs bénignes et sans précision...			
018	Erysipèle.....				063	Thyréotoxicose avec ou sans goitre...			
023	Séquelles de la poliomyélite aigüe..				064	Diabète sucré.....			
027	Encéphalite à virus.....				066	Autres maladies endocriniennes (métal)			
029	Autres maladies à virus.....				068	Maladies du sang et des org/hématopo.			
032	Trypanosomyases.....				069	Psychoses.....			
033	Fièvre récurrente.....				070	Névroses, troubl/personnal/mentaux....			
034	Syphilis congénitale.....				071	Arriération mentale.....			
037	Autres formes de syphilis.....				073	Sclérose en plaques.....			
040	Echinococcose.....				076	Cataracte.....			
044	Autres maladies infectieuses et paras				077	Glaucome.....			
045	Tumeur maligne cavité buccale/pharyng				079	Autres malad. S=H-/Organes sens.....			
046	Tumeur maligne de l'œsophage.....				081	Cardiopathies rhumatism.croniques....			
047	Tumeur maligne de l'estomac.....				082	Maladies hypertensives.....			
048	Tumeur maligne de l'intestin.....				083	Maladies ischémiques du cœur.....			
049	Tumeur maligne du rectum.....				084	Autres formes de cardiopathies.....			
050	Tumeur maligne du larynx.....				085	Maladies cerebro-vasculaires.....			
051	Tumeur maligne de:trach/bron/poumones				086	Maladies des artères/arteriol/capil..			
052	Tumeur maligne de os.....				087	Embolies et thromboses veineuses			
053	Tumeur maligne de la peau.....				088	autres maladies de l'app.circulatoire			
054	Tumeur maligne du sein.....				091	Pneumonie à virus.....			
055	Tumeur maligne du col de l'utérus....				092	Autres pneumonies.....			
056	Autres tumeurs malignes de l'utérus..				093	Bronchites,emphysèmes et asthme.....			

IRSAUTE/ 515-002-Juin 1982

Appendix G

SAMPLE OF FORM SIS-003: QUARTERLY REPORT
(For Regional Directors re: Administrative Occurrences in Region)

--ETAT DU PERSONNEL (Suite)

Nom et Prenom	Titre et grade	Fonction assurée	Affectation Poste occupé	Situation de famille	Remarques date d'arrivée date de départ de la C.M.

II-ETAT DES BATIMENTS ET MATERIELS

A-BATIMENTS

	Situation	Travaux à Entreprendre
— Formation Composition		
— Postes secondaires Composition		
— Remarque.		

B — VEHICULES MOYENS DE TRANSPORTS

Marques - Type - Immatriculation	Date d'affectation à la C. M.	Kilométrage actuel	Affectation Poste	Etat

C — GROUPE ELECTROGENES

Marque - Type - Puissance	Affectation	Date d'affectation	Etat

D — REFRIGERATEURS - CLIMATISEURS

Marque - Type	Affectation	Date	Etat

E — APPAREILLAGE TECHNIQUE

App. de Radiologie — Anesthésie — Dentaire ect...

Marque - Type	Affectation	Date	Etat

Appendix H

SAMPLE OF FORM SIS-003: QUARTERLY REPORT
(For Regional Directors re: Regional Supervisory Activities)

République Islamique de Mauritanie
 Ministère de la Santé et des
 Affaires Sociales

Honneur-Fraternité-Justice

Mois: _____ 1982

REGION: _____

Nom du Rapporteur: _____

Formation Sanitaire: _____

Titre du Rapporteur: _____

Numéro de la Formation Sanitaire: _____

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RAPPORT TRIMESTRIEL DES ACTIVITES DE SUPERVISION

	A	B	C	D	E	t
Personnel Formation Sanitaire	Médecin	Infirmier Supervis.	Infirmier d'Etat	Sage- Femme	... Chef d'Equipe.	
1. Hôpital						
2. Polyclinique						
3. TB Antenne						
4. Pr. Anti-Lépreux						
5. P.Santé Scol.						
6. Equipe Mobile V						
7. Centre Mère-Enf						
8. P.M.I.						
9. Centre Santé A.						
10. Centre Santé B.						
11. Centre Santé C.						
12. Poste Santé [ASC]						
TOTAL						

Placer dans le carreau le nombre des visites effectuées dans la période.
 SIS-003 Supervision

III—SITUATION DES CREDIS

Chapitre, Article, emploi	Credits délégués	Depenses engagées	Disponible

IV—APPROVISIONNEMENTS PHARMACEUTIQUE

Date d'arrivée des dotations	Destination formation Principale des postes ruraux	Date de distribution	Situation

V—OBSERVATIONS—COMMENTAIRES—DESIDERATA

AMPLIATION :

Gouverneur de Région I

— Archives 1

N. B. Ce rapport est à adresser chaque fin de trimestre en 3 Ex
à l'hôpital Nouakchott

A _____, le _____ 19

Le Responsable de la Circonscription

Nom, Titre

Signature.