

Ministry of Health and Sanitation

Socio-Demographic Statistics Project
for Anglophone Africa: Provision of
Technical Assistance in Health in
Sierra Leone

*National Health Management
Information Systems Assessment*

November 2004

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With financial support from the Department of International Development of the United Kingdom (DFID), the World Bank is implementing a project to assist 14 Anglophone Africa countries to participate in the General Data Dissemination System (GDDS). Technical support is being provided in the area of socio-demographic statistics. The Ministry of Health and Sanitation (MoHS) in Sierra Leone has requested technical assistance to improve the health management information system in the country. The ultimate objective is to establish a computerized National Health Information System database for the planning and decision making of the health care delivery system, a more equitable distribution of health resources and services in line with the Poverty Reduction Strategy, and the improvement of the health status of the people of Sierra Leone.

This report describes the findings of a situational analysis of the health management information system (HMIS) in Sierra Leone. It mainly focuses on routine service reporting, epidemiological surveillance, and vital registration systems and gives less attention to special programme reporting systems, which are donor supported and rely on sentinel survey data, and administrative systems. The focus on routine service reporting and epidemiological surveillance reflects the first three goals of the HMIS identified in a stakeholder workshop of 80 governmental and non-governmental representatives conducted by the Directorate of Planning and Information in August 2004. The four goals of the HMIS are to:

- Strengthen Primary Health Care HMIS;
- Revitalize the Hospital Medical Record system;
- Harmonize all health data collection systems in line with the Integrated Disease Surveillance and Response Strategy; and
- Establish a unified information system on all management information systems in the health sector, with special emphasis on financial management and the planning and management of human resources (computerization). ⁽¹⁾

As mortality and fertility data are necessary for the calculation of the most common health indicators, an assessment of the vital registration system is critical. This is not to say that the administrative system, such as human resources and financial management warrant less attention. Both have serious implications for the HMIS and a summary of issues and action items are addressed in the report.

(1) MoHS, Directorate of Planning and Information, Report on the Workshop for the Finalization of the MoHS Hospital Data Collection Forms and the Review of PHU Forms, Atlantic Hall, National Stadium, Brookfields, Freetown, August 3-4, 2004.

The report first identifies the strengths and weaknesses of the current system of data collection, reporting, and dissemination taking place at the national, district, and chiefdom levels based on site visits to government, private, and donor health care facilities, national and district government statistical agencies and other related service providers; consultations with MoHS department and programme heads, and a review of health facility assessments conducted in the past year. It then presents a set of recommendations that focuses on the least functional aspects of the health information system and on country priorities. It is hoped that the recommendations will be included in the planning and financing of health activities at the Nov 8-11, 2004 Annual Health Review workshop.

The report is organized as follows:

- *Section 2* provides background information. It describes the organizational structure of the MoHS and health care institutions and presents an overview of the MoHS and vital statistics data collection and reporting instruments currently in use and the process for recording, compiling and reporting information at the chiefdom, district and national levels.
- *Section 3* presents the major findings of the assessment based on the consultations, site visits, and document review.
- *Section 4* concludes with recommendations and a list of priority action items.

The Annex contains the following documents:

- *Annex 1* - Abbreviations
- *Annex 2* - Institutions visited
- *Annex 3* - References

2.1 DECENTRALIZATION OF SERVICES

In March 2004, the Parliament of Sierra Leone passed the Local Government Act, which mandates the decentralization of services, including primary and secondary health services. The time horizon for decentralization is four years. Under the Act, local government will manage and run district, city, and community services. Councils will be responsible for generating revenues and using resources more efficiently. The Ministries will retain their policy-making, supervisory, monitoring, and accreditation functions. For the first time in 33 years, district and city council elections have taken place, and the newly formed councils have begun planning for service devolution.

Concurrently with the LG Act, Parliament also adopted the Hospital Boards Act, which delegates managerial authority of district and secondary and tertiary hospitals to hospital boards and hospital management committees. As it currently stands, the District Medical Officer In-Charge will serve as a member of the hospital board and as chairperson of the hospital management committee.

The LG Act and Hospital Boards Act have important implications for HMIS. Communities, and districts, in particular, will have tremendous responsibilities to provide basic and specialized health services, expand access, and improve quality of care. Information necessary for health decision-making and action will need to be structured to fit the needs of local authorities, including hospital boards, hospital management committees, data management committees, etc. Currently, the capacity of local areas to process and use data is hampered by a profound lack of the most basic resources (electricity, fuel, water) and a severe shortage of trained health personnel.

2.2 HEALTH CARE INSTITUTIONS

The Ministry of Health and Sanitation is responsible for the health care delivery system in Sierra Leone, comprising primary, secondary, and tertiary health services. Primary health care is provided by a network of peripheral health units (PHUs), including health centres, health posts, maternal and child health posts, and various other clinics (private, mission, industrial, donor, UN). Secondary health care consists of district and other hospitals and tertiary health care consists of referral hospitals. District hospitals are government facilities. Government, private, industrial, mission, and donors run the other secondary and tertiary hospitals. In the informal sector, traditional healers, quacks and drug peddlers deliver health care. The non-governmental health care providers use their own data collection instruments and as a general rule, do not routinely report health information to MoHS.

Two main bodies in MoHS undertake data (medical) management, the Directorate of Planning and Information (DPI) and the Directorate of Disease Prevention and Control (DPC). DPI is responsible for general data on the operations of MoHS, whereas DPC collects data on diseases for immediate action and acts as an early warning system for prediction, prevention, and control of epidemics. Data is collected on 21 priority diseases and diseases of public health importance. The DPC Disease Surveillance Unit collects and manages data for the MoHS.

The Department of Disease Prevention and Control has five donor supported national programmes that collect and report their own information from health care institutions, surveys, and sentinel surveillance – Integrated Disease Surveillance and Response (IDSR), National Malaria Control Programme (NMCP), Onchocerciasis Control Programme (OCP), WHO Expanded Programme on Immunization (EPI), HIV/AIDS, and Tuberculosis and Leprosy (TB/LP). This information is not systematically shared within MoHS.

At the district level, the District Health Management Team (DHMT) oversees and supervises all primary health care activities delivered through the government-run PHUs of each district. ⁽¹⁾ The Monitoring and Evaluation (M&E) officer is responsible for data collection and reporting from the PHUs. The DHMT is headed by the District Medical Officer (DMO) who reports to the Director of Primary Health Care and to the Programme Manager for DPC activities at the central level. District oversight and supervision of government-run secondary and tertiary health care activities are virtually non-existent and only a few of the 27 ⁽²⁾ functioning government hospitals in the country report information to the DMO. Similarly, there is no oversight or supervision of government and non-government pharmacies or laboratories.

At the chiefdom (community) level, ⁽³⁾ the Community Health Officer (CHO) is responsible for the treatment of minor ailments and for issuing birth and death certificates. Community nurses, maternal and child health aides (MCH), traditional birth attendants and vaccinators assist the CHO. At the PHUs and hospitals, registrars (performed by clerks, nursing and MCH aides, traditional birth attendants, and vaccinators) collect, compile, report, store and retrieve data. At the better-managed data points, doctors supervise data collection, often filling in the diagnosis and treatment columns in the registers, and providing daily feedback to the registrars. Some hospitals have a hospital management committee and/or data management committee whose function is to supervise and monitor the data gathering process. ⁽⁴⁾

(1) There are 13 districts in the country.

(2) Ministry of Health and Sanitation, Directorate of Planning and Information, Medical Statistics Unit, Report on Assessment of Hospital Data Collection and Records Keeping, March 2004, p. 4.

(3) Each district has between 7 to 14 chiefdoms.

(4) MoHS, Hospital Assessment, p.20.

2.3

HEALTH FINANCE INSTITUTIONS

The Financial Resources Division, one of three divisions that report to the Director General of Management Services, undertakes the management of health care financing. Management Services is the administrative wing of MoHS. The Financial Resources Division approves the MoHS annual budget as well as approves quarterly requests from the five divisions that report to the Director General of Medical Services. Each quarter funds are transferred from Financial Resources to the Primary Health Care Division, which transfers funds to the DHMT, which in turn transfers funds to the PHUs and hospitals for clinical and administrative operations, including health information management.

2.4

VITAL STATISTICS INSTITUTIONS

The Central Vital Statistics Office (VSO) is the central repository for birth and death records. District registrars are responsible for collecting birth and death tallies from the community health officers who are to provide monthly reports of events occurring in homes and at the PHUs and hospitals on a quarterly basis. The District Registrar is to compile the information and report the number of live births and cause and age specific deaths occurring in each district to the VSO annually. There is no District Registrar in the Western Area; instead, health facilities are to report tallies directly to the VSO.

2.5

PHU AND HOSPITAL DATA COLLECTION AND REPORTING

PHUs and a select number of hospitals collect patient information in five registers. Registrars compile information from the registers and record it on forms, which they report to the DHMT. Most reporting takes place at monthly meetings with PHU representatives. The DHMT compiles the PHU data and reports the tallies to Disease Surveillance Unit and to other national programmes for most diseases on a monthly basis. The registers and forms currently in use are presented in *Table 2.1*.

Table 2.1 *PHU and Hospital Registers and Forms*

| Registers | Forms | Reporting Frequency |
|-----------------------------------|--|---------------------|
| General Clinic Register | General Clinic Tally Sheet | Monthly |
| Under Five Register | Sick Children Tally Sheet | Monthly |
| Register of Malnourished Children | Under Five Nutrition Surveillance Tally Sheet | Monthly |
| Mothers and Neonates Register | ANC Attendance Tally Sheet | Monthly |
| | ANC Risk Factors and Referrals and Maternal Deaths Tally Sheet | Monthly |
| | Delivery Risk Factors and Referrals Tally Sheet | Monthly |
| | Puerperal at Risk Factors and Referrals Tally Sheet | Monthly |
| Epidemiological Register | Epidemic Prone Diseases Form | Episodic |

In addition to these forms, PHUs submit to the DHMT forms for the national special programmes (Table 2.2).

Table 2.2 *Forms required by Special Programmes*

| Form | Reporting Frequency |
|--|----------------------------|
| Expanded Immunization Programme (EPI) | Monthly |
| Safe Motherhood | Monthly |
| Family Planning Daily Activity Register and Clients Served and Commodities Dispensed | Monthly |
| TB | Quarterly |
| Leprosy | Quarterly |

PHUs also complete forms, which they report directly to the national programmes, IDSR, OPC, and NMCT. Hospitals and PHUs also provide information to NGOs and medical research institutions on a regular and adhoc basis.

The DHMT does not receive laboratory results. Laboratories situated in the hospitals tend to have registers for stool and urine tests. Some keep registers for CSF, malaria, and TB. District hospitals and a few health centres (e.g. Waterloo) with diagnostic capacity directly report TB and leprosy cases to the TB/LP unit on a quarterly basis. Results for diagnostic tests other than TB/LP remain in the hospitals and are not generally reported. ⁽¹⁾

Very recently, DPI undertook a systematic review of the hospital data collection forms and PHU registers and forms in an effort to create an integrated health data management system. It created new hospital data collection instruments, including laboratory forms, and revised the PHU forms, which are to be standardized across all health facilities, governmental and non-governmental alike. The new forms will capture mortality data for the first time. The new registers and forms are currently being pre-tested in select hospitals and PHUs. ⁽²⁾

2.6 *VITAL STATISTIC DATA COLLECTION AND REPORTING*

As is the case for morbidity data, the collection and reporting of birth and death figures is vertical. Information is conveyed from the chiefdoms to the districts to the Central Vital Statistics Office (VSO).

2.6.1 *Deaths*

The process for registering a death is, as follows. The CHO issues a death certificate to the relative of the deceased. The relative takes the death certificate to the District or Central death registrar who exchanges the

(1) Connaught hospital may report results for HIV/AIDS, cholera, and shigella to DPI and the HIV/AIDS surveillance unit. DPI sends specimens for yellow fever, lassa fever, neonatal, AFP and measles to Abidjan for testing.

(2) Refer to the Report of the Workshop, August 3-4, 2004 for the set of new forms.

certificate for a burial permit. The relative takes the burial permit to the City Council for signature, which s/he then presents to the cemetery official. ⁽¹⁾

The CHO records information about the deceased, including cause of death, in a Death Record (C.R. Form D1). Deaths that occurred at home are recorded in the "Death Statistical/Notification Report" (C.R. Form D). The registrar records the cause of death based on the relative's report. The PHU and hospital tallies the number of deaths by age, sex, and cause (the monthly tally sheet has 27 causes listed), which they then report to the District Registrar on a quarterly basis. The District Registrar tallies the figures for the district as a whole, which is then sent up to the VSO every quarter. The District Registrar also sends the death records to the VSO every quarter. By the end of each year, the VSO should have a repository of death certificates and death records. In its annual report, VSO publishes information by sex on infant deaths, child deaths, adult deaths (15+), and total deaths.

2.6.2 *Births*

The process for register a birth is, as follows. The CHO issues a birth certificate to the mother, and completes a "Live Birth Record Form." Monthly tallies of births are sent quarterly to the District Registrar who sends the number of births by sex to VSO also quarterly. Mothers who give birth at home are required to fill out a birth notification form at the District or Central Registrar. Births that are registered after one month are recorded as "late," and births that are registered after one year are recorded as "delayed" at the VSO. The VSO annual report publishes the number of live births and stillbirths by sex.

(1) In small towns such as Lungu (Northern region), the Death Registrar does not issue a burial permit and the relatives of the deceased retain the death certificate.

3.1 DOCUMENT REVIEW

The MoHS with support from WHO carried out two comprehensive studies related to HMIS. These studies provide valuable information about routine data collection and reporting conducted in the PHUs and in the hospitals. The first study, the Assessment of Disease Surveillance and Response Systems in Sierra Leone (Dec. 2003) was based on a random survey of 59 PHUs, 11 laboratories, and 4 DHMTs located in Bombali, Bo, Kenema and the Western Area. Major findings of the study related to HMIS are:

- Only 15% of PHUs fill out the registers correctly.
- No PHU has all the standard case definitions for the 21 priority diseases.
- No formalized reporting is conducted on a weekly basis. Eighty-nine percent of monthly reports received by DHMTs from PHUs are complete. However, 76% of the monthly reports were sent to DHMT on time. The national level received just 35% of district reports on time.
- The majority of PHUs do not analyse their data. DHMTs are the first users of the data, and even their capacity to display trends is limited.
- Feedback is uneven and usually in the form of large meetings rather than one-on-one sessions.
- Supervision is poor and irregular.
- Sixty-five percent of the laboratories assessed lack proper or standardized format for presenting results on their forms. Over 80% of labs do not present weekly or monthly reports on the different tests performed. None of the labs have a computer.
- None of the PHUs have computers. Districts have computers and VHF radios. Transport capacity to visit PHUs is weak.

The second study, Assessment on Hospital Data Collection and Records Keeping (March 2004), was conducted countrywide and included all government hospitals and a sample of non-government hospitals, both secondary and tertiary (a total of 42 facilities and 87 data points). It reported the dire conditions of hospitals for data collection, reporting, and analysis:

- Sixty-two percent of data points are located in corridors and waiting rooms.
- Over 51% of records offices do not have cupboards, shelves, and filing cabinets.

- Seventy-six percent of offices do not have trained or qualified staff in data management.
- The majority of data points use a combination of ledgers, exercise books, and printed forms. Some do not have forms for simple data processing.
- Forty-one percent of data points do not analyse their data.
- Seventy-one percent of data points do not report information outside the hospital (e.g. DHMT).

3.2 *COUNTS OF PHUs AND HOSPITALS*

The Disease Surveillance Unit (DSU) has an updated list of the total number of health facilities in the country by district and name and type of facility. ⁽¹⁾ According to the 13 district lists, there are 776 functioning health facilities in the country. But a drive by and cross check of facilities in the Western Area suggests that there are far more facilities operating than are recorded on the list. According to DSU, there are 105 functioning facilities in the Western Area. But seven PHUs that are not on the list of facilities provided by the DSU submitted monthly tallies to the DHMT in November. To add to the confusion, the Western Area DMO uses different universes of facilities based on programmatic area. For most activities he tracks 39 governmental PHUs; for Safe Motherhood programmatic activities, he tracks 45 PHUs and hospitals (public and private) and for EPI, he tracks 65 PHUs and hospitals (public and private.)

Having an accurate (and fixed) account of health facilities is important because it provides information about the extent and type of care available to specific populations. It is also important for monitoring the progress of data collection and reporting at the primary and secondary levels. Perhaps most importantly, having a census of care providers is important for regulating the quality of patient care and improving epidemiological surveillance. All health facilities (and pharmacies) should have an annual operating license issued by the MoHS that would allow health authorities to open or close facilities. At the present time, there is no mechanism for MoHS to guarantee the quality of care much less enforce standard treatment regimes and protocols. Similarly, the MoHS does not have the capacity to regulate the dispensation of medicine in the pharmacies.

3.3 *ANALYSIS OF PHU DATA COLLECTION AND REPORTING*

To assess the timeliness and completeness of data collection and reporting, visits were made to the DSU and the DHMT in the Western Area. The DSU receives the monthly morbidity summaries from the DHMTs on the 10th of every month. Data for 22 disease categories, an “other” disease category, births and deaths are disaggregated by week and two age categories (under 5,

(1) These lists can be found in, MoHS, National Operational Handbook for PHCs. Sierra Leone. 2004. Revised Edition.

5 and over). None of the facilities routinely report death information. Reports on the number of live births and stillbirths are captured in the Safe Motherhood forms, but they represent a fraction of births that take place in health facilities and a smaller fraction of all births.

As of November 3rd, the DSU had on file the following returns for July, August, and September. For the month of September, the DSU received 12 of the 13 returns (92%), but one of the returns contained data for one week only. For the month of August, the DSU received 10 returns (77%). For the month of July, the DSU received only 8 returns (62%).

On November 10th (the districts' deadline to submit October returns to the central level), the DSU received 5 of the 13 returns (38%).

Box 3.1 *Missing District Reports July-September, 2004 (as of Nov. 3rd)*

| | |
|------------|--|
| July: | Kono, Port Loko, Bombali, Pujehun, Bo |
| August: | Kono, Kailahun, Kambia |
| September: | Kono |
| October: | Kailahun, Port Loko, Bombali, Pujehun, Bonthe, Tonkolili, Kenema, Western Area |

Non-reporting occurs among different districts. The farther the district, the longer the delay. Kono failed to deliver returns for three consecutive months and finally submitted these returns in November. Kailahun submitted a backlog of returns for January-September in November.

Although not required, several of the districts report to DSU weekly morbidity totals by PHUs, enabling us to determine the extent of under reporting by these facilities. As shown in *Table 3.1* below, on average, between 80 to 90% of facilities in Moyamba, Port Loko, Koinadugu, Kambia, and Bonthe report fully completed monthly returns to the districts.

Table 3.1 *Reporting by PHUs for Select Districts*

| District | Number of functioning facilities | July returns | | August returns | | September returns | | October returns | |
|--------------|----------------------------------|--------------|----|----------------|----|-------------------|----|-----------------|----|
| | | # | % | # | % | # | % | # | % |
| Moyamba | 79 | 60 | 76 | 70 | 89 | 69 | 87 | - | - |
| Port Loko | 61 | - | - | 56 | 92 | 45 | 74 | - | - |
| Koinadugu | 43 | - | - | 39 | 91 | 41 | 95 | 31 | 72 |
| Kambia | 36 | 31 | 86 | - | - | 34 | 94 | - | - |
| Bonthe | 36 | 28 | 77 | 25 | 69 | 27 | 75 | - | - |
| Western Area | 105 | - | - | - | - | 30 | 29 | 16 | 15 |

The Western Area M&E officer does not report weekly totals by PHU. I attended the November 4th meeting to process the returns for October submitted by the PHU representatives. I also reviewed September morbidity and Safe Motherhood returns that the DHMT had on file. As *Table 3.1* points

out, the response rate is alarmingly low. Twenty-nine percent of PHUs (n=30) submitted morbidity returns for September, but one of the returns failed to contain information broken down in the two age categories. The response rate for the submission of the Safe Motherhood forms was slightly higher: 36% (n=38) of facilities had forms on file with the DHMT. Just 15% of PHUs (n=16) submitted October returns on time, but one of the returns was not disaggregated by age (this is a different facility than the one reporting for September.)

All 17 providers present at the Nov 4th meeting represented PHUs. Sixteen PHUs are government institutions and one is a mission clinic. (One of the providers did not submit any forms.) None of the Western Area's 21 functioning hospitals submitted returns.

The PHUs and hospitals are required to submit 10 forms on the 4th of every month to the DHMT. A total of 1,050 forms are expected (10 forms from 105) functioning health facilities). The Western Area DHMT received 76 of the 1,050 forms (7.2%). The average number of forms submitted per facility is 4.7. None of the facilities submitted all ten forms. The most forms received is seven and the fewest received is two. A tally of the forms submitted is presented in *Table 3.2*.

Table 3.2 *Monthly Reporting Forms Submitted for October, Western Area*

| | Form | Number | Percent of Reporting Facilities |
|----|--|---------------------|---------------------------------|
| 1 | General Clinic Tally Sheet | 16 (1 partial) | 100 |
| 2 | Sick Children Tally Sheet | 9 | 56 |
| 3 | Under Five Nutrition Surveillance Tally Sheet | 9 | 56 |
| 4 | ANC Attendance Tally Sheet | 6 | 38 |
| 5 | ANC Risk Factors and Referrals and Maternal Deaths Tally Sheet | 3 | 19 |
| 6 | Delivery Risk Factors and Referrals Tally Sheet | 0 | 0 |
| 7 | Puerperal at Risk Factors and Referrals Tally Sheet | 1 | 1 |
| 8 | Safe Motherhood | 13 (two partial) | 81 |
| 9 | EPI | 5 | 31 |
| 10 | Family Planning Daily Activity Register and Clients Served and Commodities Dispensed | 12 | 75 |
| 11 | Other (AN01, AN03) | 2 | 13 |
| | TOTAL | 76 | |

All of the facilities submitting returns reported information on morbidity for under five years and five years and older in the General Clinic Tally Sheet. Eighty-five percent submitted the Safe Motherhood form and 75% submitted information on family planning users and contraception dispensed. Less than half of reporting facilities provide information on deliveries and antenatal care. It appears that reporting is higher when the facility has the proper form. Accuracy is undoubtedly higher. About one-half of the returns submitted

were hand written on blank paper rather than on the form itself. They were often incomplete, containing only aggregate totals for some of the categories.

There does not appear to be much correspondence between accuracy of data collection and timeliness of reporting. For instance, of the nine PHUs that submitted comprehensive information to the Western Area DHMT for September, just three of them submitted October returns (two submitted five forms and one submitted seven forms). From site visits to health facilities, we know that clerks at Ross Road CHC, Rokupa Government Hospital, and Waterloo Health Centre completed all or most of the columns in the General Clinical Register and Under Five Register for the month of October. But only Waterloo Health Centre submitted its forms on time.

In addition to providing incomplete and untimely information, PHUs fill out information in the registers that are not analysed by themselves or the DHMT. For example, the General Clinical Register requires the registrar to record the name, sex, age, and occupation of the patient, none of which is sent to the DHMT. The Clinical Register is unlikely to be used by PHU staff for identifying patients as the patient's personal information is also recorded in his/her chart. The Under Five Register requires information on oedema, breastfeeding, and type of cases (e.g. new, returning), but again, this information is not being transmitted to the DHMT. Similarly, the new hospital registers that are currently being pre-tested require additional information about the patient, such as his/her marital status and tribe. Until PHUs and hospitals have the capacity to analyse the data, this information has little or no use value.

3.4 STATUS OF HOSPITAL DATA INFORMATION SYSTEMS

3.4.1 Collection

Despite the fact that the majority of PHUs submit incomplete and late reports to the DHMT, from the few PHUs (n=4) and hospitals (n=9) visited, it appears that PHU registrars collect and record more information in the Clinical Register and Under Five Register than the hospital registrars. As mentioned earlier, Waterloo Health Centre and Ross Road CHC, two government facilities, had near complete General Clinical Registers. The CHO of Ross Road CHC even monitors monthly morbidity on her wall. Like other non-governmental facilities, the third PHU, Marie Stopes Obstetric Centre uses its own forms to record patient information, and generally does not report tallies to the DHMT. ⁽¹⁾ These findings are consistent with those documented in the PHU and hospitals assessments noted in *Section 3.1*.

Site visits were also made to six government hospitals, one mission hospital and two private hospitals:

- Government hospitals

(1) Marie Stopes does tally monthly information on the Safe Motherhood form, which the DMO collects every several months.

- Lumley Health Centre – Reproductive Health Services
- Freetown Children’s Hospital
- Princess Christian Maternity Hospital
- Rokupa Government Hospital
- Kissy Mental Hospital
- Lungi Government Hospital, Northern Region
- Mission hospital
 - Adventist Hospital, Waterloo
- Private hospitals
 - Emergency Surgical Centre, Goderich
 - Chinese Medical Hospital, East Freetown

The quality of data collection in the facilities is uneven and generally very poor. Four of the six government hospitals had the appropriate roster (either General Clinical Roster or Under Five Roster or both) but only two hospitals used the roster for recording clinical information, and only one hospital filled it out completely.

In the Lumley outpatient ward, the clerk recorded the patient’s name, address, and sex in the General Clinical Roster and occasionally, the date of birth. The diagnosis and treatment columns were mostly left blank. When asked why he did not record all the information about the patient, he stated that most patients do not know their birth date, occupation, religion, or marital status. The UF Roster had not been completed since July. The clerk stated that he has a backlog of cases. It was at this time we learned that instead of directly recording the patient’s information at the time of registration, the clerk only fills out the patient’s name and address on the Hospital’s OPD form, and transfers the patient’s information ascertained on the chart at a later date.

At Freetown Children’s Hospital, the registrar only filled out the name, age, and sex of the patient in the UF Roster. The other columns were left blank. The registrar was not trained in the use of the Roster and did not know the type of information to record or what the column headings meant. She said that she is supposed to record the diagnosis and treatment from the patient’s card, which the patient is supposed to show her after the check-up. Most patients do not return to the register table, but instead proceed straight to the pharmacy.

In contrast, data collection on growth monitoring and immunizations at Freetown Children’s Hospital is impressive. Babies are weighed, measured, and immunized at one desk, where registrars record the information directly onto the child’s record. This information is reported for the EPI programme.

At Princess Christian Maternity Hospital, the outpatient ward has three registrars who separately record information for each of the three doctors. The first register recorded the date and patient’s name only in the General Clinical Roster. The rest of the information about the patient is filled out on a

blank card by the doctor, which the registrar files in a box. None of the information on the card appears to be transferred onto the Roster. The other registrar uses the Clinical Roster to record the patient's name and amount paid. When pre-printed gynaecological cards and/or antenatal cards are available, the doctor records information about the patient onto the cards, which the registrar files. On the antenatal card, the doctor fills out the date, name, nationality, next of kin, date of pregnancy, length of fetus and presentation. The rest of the categories are left blank. The registrar stated that it is often the case that the cards run out and the doctor must record the information on scrap paper (e.g. we saw a box of magazines and printed bulletins, for this purpose.)

Rokupa Government Hospital is currently pre-testing the inpatient and outpatient U5 Clinical Rosters. The doctor overseeing the registrar station attended a workshop on how to complete the Rosters, and trained his registrar in the use of the rosters. The Clinical Roster contained up-to-date and complete information, but information was missing in the U5 Clinical Roster on height, oedema, whether the child consumed non-breast food, and the type of case.

The registrar at Kissy Mental Hospital records information on the patient's medical chart and does not use the MoHS rosters.

At Lungi Government Hospital, the registrar had not received any training on how to record information into the General Clinical Roster. Most of the columns were left blank except for the patient's name, age, and sex. In the diagnosis column, the registrar recorded the patient's symptoms, such as, "septic sore throat," and "headache side pain," rather than the diagnosis made by the doctor. None of the information is tallied and sent to the DMO. The staff could not locate the U5 Clinical Roster.

In sharp contrast, the clerk in charge of the Tetanus Toxoid Register, used in the EPI programme, correctly recorded the information. He claims he tallies it and sends it to the District Operations Officer in charge of EPI.

None of the nongovernmental facilities visited used the MoHS rosters. The Adventist Hospital and Emergency Surgical Centre record information in ledgers, which is entered into computerized data sheets. At the Chinese Medical Hospital, patient information, including diagnosis and treatment, is recorded onto a card in French or Chinese. The patient's cards, which they take home, are also written in Chinese, which none of the patients are able to read.

3.4.2

Reporting

Except for Rokupa, none of the hospitals visited report information to the DMO. One obvious reason hospitals fail to report is they have not collected any data to report. And despite the good data collection efforts of Rokupa

and Freetown Children's Hospital (on immunizations), these two hospitals did not report August or September tallies to the DMO.

The laboratory at Lumley Health Centre reports TB and leprosy cases to the TB/LB programme officer who collects the information every two weeks. The laboratory does not report any other information. The laboratory at Freetown Children's Hospital reports information to the DSU only when a DSU officer visits the facility. Lab results are not regularly tallied.

3.4.3 *Analysis*

Of the hospitals visited, only the doctor at the Adventist Hospital analyses patient data. The Emergency Surgical Centre sends the data to its headquarters in Italy for processing. The laboratories also do not analyse the test results.

3.4.4 *Storage*

In the records office visited (Princess Christian Maternity Hospital) patient charts are stored by date of admission. They are filed in piles bound together with string. The records are situated wherever there was space – on the floor, on the desk, on chairs. The clerk kept a ledger that contained information from the medical charts, such as ward number, name, address, date of admission, diagnosis, and date of discharge. To locate a chart, the clerk referred to the ledger for the patient's name and date of admission. It is not clear how long the office retains patients' charts and the MoHS rosters.

3.5 *VITAL STATISTICS DATA COLLECTION AND REPORTING*

3.5.1 *Central Vital Statistics Office*

Every quarter, the Central Vital Statistics Office (VSO) should receive birth and death notification forms from persons residing in all 13 districts, in addition to 12 district tallies of the number of live births and stillbirths and tallies of the number of deaths by age, sex and cause. As the Western Area does not have a District Registrar, the VSO should also have on file birth and death tallies from the 105 functioning PHUs and hospitals.

A review of VSO's file of 2004 birth and death returns reveals gross under reporting of birth and death information. The file contained approximately 20 notification forms and tallies from eight PHUs, three hospitals, and four villages all located in the Western Area; tallies from four unlabelled facilities or villages; and tallies from four districts for select months [Kono (Jan-July), Bombali (Jan-April), Makeni (April), and one unknown (May).] None of the reporting units used the official live birth or death monthly tally sheets. As a result, most units gave summary totals, which are not disaggregated by age, sex, or cause. None of the PHUs sent tallies for all 8 months. *Table 3.3* presents the number of reports submitted to the VSO by month. They represent only a small fraction of possible reports from facilities.

Table 3.3 *Number of PHUs and Hospitals Submitting a Birth Tally, a Death Tally, or Both to the VSO in 2004 (as of Nov 3rd)*

| | Jan | Feb | Mar | April | May | June | July | Aug | Sep |
|-----------------------------------|-----|-----|-----|-------|-----|------|------|-----|-----|
| Number | 15 | 10 | 8 | 3 | 2 | 2 | 2 | 1 | 3 |
| Percent of Functioning Facilities | 1.9 | 1.3 | 1.0 | 0.4 | 0.3 | 0.3 | 0.3 | 0.1 | 0.4 |

The percentage totals in *Table 3.3* assume that every month a facility has a birth or death event, which may not be the case. Because the District Registrar has no way of knowing whether a non-report means zero events, all facilities should report live birth and death tallies even if no events had occurred in the previous month (e.g. they should record “0” on the forms.)

The VSO does not routinely monitor the reports it receives from the districts or facilities in the Western Area. It is therefore quite possible that the death and birth figures VSO produces at the end of the year are based on less than 1 or 2% of total events. This issue warrants serious attention.

It was also discovered that the VSO has an incomplete set of birth and death records. For example, the most recent birth and death records on file for Waterloo are for the years 1990 and 1991, respectively. The most recent year of death records on file for Lumley Hospital is 1999. The records are in very poor condition, damaged by the heat and humidity. There is also a great need for data security against violations of confidentiality, theft, and loss. Some of the records, for instance, served as desk pads.

Finally, although the monthly death tally form collects detailed information on the cause of death by age and sex, none of the data are analysed by VSO or any other government agency. Admittedly, this is a mute point, as it appears that few of the districts, if any, are using the forms.

3.5.2 *Birth and Death Registrar, Lungi Town*

As mentioned earlier, almost every chiefdom has a birth and death registrar (usually the Community Health Officer). The CHO is responsible for issuing birth and death certificates, recording information into birth and death records and submitting the records to the District Birth and Deaths Officer. The Birth and Deaths Registrar for Lungi is based at Lungi Government Hospital.

On the day of the site visit, the Birth and Death Registrar was absent from the hospital and the Records Office was locked. After about a half of hour, the key to the Records Office was found. None of the staff, including the Chief Hospital Administrator, were familiar with the birth and death registration procedures and the extent to which they were carried out. The Administrator informed us that the office had run out of birth certificates and could therefore not register any more births.

The Records Office held six random volumes of birth records dating back to July 2002. From the serial numbers, it is clear that individuals registered late births as far back as 1970. The Administrator did not know if monthly birth tallies were forwarded to the District Birth and Death Officer.

One volume of death records dated March 2002 – October 2003 was present in the Records Office. Another source of information on deaths was the in-patient register; there it was recorded if a patient died. The Administrator did not know if the deaths were tallied and sent to the District.

Unfortunately, due to time constraints, it was not possible to visit the District Birth and Deaths Registrar or District Medical Officer in Port Loko to confirm whether Lungi Hospital submitted birth and death tallies. It is certainly the case, however, that the birth and death records present in Lungi Hospital should have been sent to the District Births and Deaths Registrar.

3.6

CONSTRAINTS TO THE HMIS

The current health information system, including vital registration system, is extremely weak. The data received are not helpful for planning or decision making because they are incomplete, inaccurate, untimely, obsolete, and unrelated to priority tasks and functions of health personnel. One of the major obstacles to an effective system is the duplication among parallel health information systems operated by donor agencies and special programmes within the MoHS. There is very little coordination amongst the programmes, so health workers spend a lot of time collecting and collating redundant and overlapping data. They are also asked to report some of the data to DMO and some to the special programme unit, and it is unclear whether all the data reported reaches their intended destination.

Another large obstacle is the exclusion of the major providers of health care in the MoHS HMIS: hospitals, non-government run facilities, or the military. This is a serious omission as private medical practitioners provide more services in a greater number of facilities than government medical practitioners. As these facilities generally do not report information to MoHS, and given the general lack of reporting amongst government-operated facilities, official health data reflect the health status of only a small percentage of health service users. Physicians working in non-governmental facilities have little incentive to report to MoHS. They do not want to create more work for themselves, especially if they will not benefit from the information reported or doubt the health authorities will even use the information.

Because most data are submitted late, the information available to the DMO and the DSU is often incomplete and outdated. PHUs are limited in the means available for transmitting data. They tend to rely on direct handover at the monthly DMO meetings as the lack of electricity and financing renders more sophisticated communication methods to be untenable (e.g. email, faxes). Radio transmissions are not employed by PHUs but should be considered. The transmission of data from the districts to the centre is slow,

even though most districts have radios, which allow them to verbally report the information.

The quality of data collected is questionable, especially information on births and deaths. Health personnel report diagnoses that cannot be verified for lack of proper equipment. The ability of health staff to apply standard case definitions is likely to be fair or poor, given the lack of training and case definitions available in many facilities. Few medical personnel have received training of any kind in data management or health information systems. Registrars receive little or no feedback on the information they collect. Rarely is the information double-checked by a supervisor, and DHMTs do not monitor the quality of data provided by the PHUs and hospitals. Staff shortages and a lack of transport and fuel make it difficult for district M&E officers to make supervisory visits to the facilities. Low salaries, delayed payments, incentive arrears, and lack of performance-based incentives also hamper quality control. District officers receive incentives based on the number of visits they conduct, regardless of the level of support they provide. At the central level, a large amount of paperwork is required to requisition the vehicles and drivers to conduct supervisory visits, and even investigate possible epidemics.

Much of the data collected by the PHUs and hospitals fails to provide information that is useful at the facility level. Health unit managers need information that will allow them to assess the effectiveness and efficacy of the services they provide and mechanisms to quickly locate patient charts and monitor continuity of care. As health services become more decentralized, the need to collect and analyse service performance will become more urgent.

Finally, little of the information collected is used to make decisions. Data necessary for the computation of the most basic health indicators are sparse, the Government's estimates lack credibility, and figures provided by NGOs are not uniform. As a result, decisions regarding resource allocations to districts and cost centres are based on population estimates and the amount of external financing committed rather than on health status indicators.

In light of the constraints summarised in *Section 3.6*, the MoHS is advised to undertake the following four priority actions.

1 Streamline the data collection process and build up capacity

gradually. For 2005-2008, data should be collected for the most important health indicators only, disaggregated by district and sex. These include:

- Infant mortality
- Child mortality
- Under 5 mortality
- Maternal mortality
- Crude death rate
- Crude birth rate
- Life expectancy

It is recommended that the streamlining process take place nation-wide; however, if that is not politically feasible, it could also take place in a pilot district or region and then gradually rolled out to the other regions as part of a phased programme. The programme could have three or four distinct phases. The first phase would focus on data collection, reporting, and monitoring of the priority indicators, such as the seven indicated above. Once the district has demonstrated that it produces good data, as defined by a set of established and easily verifiable criteria, it can graduate to the second phase, which would involve the collection of additional indicators. The process would be driven by a set of targets and performance based incentives at the chieftdom (and/or facility) level and the district level. The system would rely on a rigid monitoring system with built-in quality controls to ensure that performance is consistent and meets MoHS standards. Incentives should be linked to performance targets, which are linked to indicators, which are linked to data instruments.

Implementing a well-coordinated stream lined process will involve planning, training, the development of tools, including data instruments and a system of monitoring; and the establishment of a performance based incentive system that is linked to the budgetary system. It will also require instituting a systematic process for the collection and reporting of vital statistics.

One consideration is whether all facilities, including those that collect morbidity data necessary for epidemiological surveillance, should stop collecting these data and focus its efforts on the priority indicators listed above. This will depend on the degree to which the current information received by DSU enables it to pre-empt the occurrence of major epidemics.

2 Conduct a census of health providers. The current HMIS system does not take into account the full range of providers in the country. As a

consequence, official health statistics reflect the health status of a small percentage of health service users. For this reason and for reasons of quality assurance, it is therefore imperative that the MoHS has an accurate count of all (functioning) health providers, government and non-government alike. This can be achieved through mandatory licensing and accreditation of health facilities. Any facility that does not meet MoHS standards should be shut down.

3 Institute mandatory reporting from all health providers. Private providers and NGO facilities should use MoHS data collection forms and report the information to the DMO on a monthly basis. This can be enforced through the annual Memorandum of Understanding agreements with NGOs and through the renewal of licensing and accreditation of private facilities. High-level negotiations should be conducted with the military to gain its cooperation. The DMO should be held accountable for obtaining monthly forms from all licensed health facilities in its jurisdiction.

4 Build data collection and reporting capacity at the community and district levels using resources and technical assistance from local NGOs and private providers. Many of the donor-financed NGOs, and even private providers, are concerned about the sustainability of health programs in Sierra Leone. They therefore have an incentive to build the capacity of governmental institutions to collect and report health indicators. They also have in-country expertise in establishing well-functioning health information management systems. The MoHS should enlist non-governmental health providers train health personnel, carry out spot checks of data collection efforts at the PHUs and hospitals, provide emergency back-up support, and demonstrate best practice approaches based on their own experiences. Their involvement in institutional capacity building will increase reporting compliance among non-governmental providers and enable the Ministry to carry out its activities more effectively.

The above four priority action items call for an overhaul of the existing HMIS. Recognizing that system reform can be a long and complex process, *Table 4.1* below raises issues and offers solutions that can be addressed as both piece meal and interim measures. Issues are not presented in any order.

Table 4.1 *Issues and Solutions*

| # | Issue | Solution |
|---|--|--|
| 1 | Majority of providers left out of HMIS | <ul style="list-style-type: none"> o Mandatory reporting using MoHS forms enforced through Memorandum of Understanding and licensing o Conduct a census of all operating health facilities |

| # | Issue | Solution |
|---|--|--|
| 2 | Lack of knowledge about the number of facilities | <ul style="list-style-type: none"> o Conduct a census of all operating health facilities |
| 3 | HMIS does not encompass events that take place outside facilities, e.g. birth and deaths | <ul style="list-style-type: none"> o Enforce the use of burial permits in the rural areas o Establish communication and reporting links between chiefs and CHOs, DMOs, and District Birth and Death Registrars |
| 4 | No routine collection and reporting of deaths | <ul style="list-style-type: none"> o Institute regular collection and reporting in the PHUs and hospitals using MoHS forms o Require DMOs to report death tallies to central level o Enforce stronger supervision at facility and district levels |
| 5 | Weak reporting of births | <ul style="list-style-type: none"> o Institute regular collection and reporting in the PHUs and hospitals using MoHS forms o Require DMOs to report birth tallies to central level o Enforce stronger supervision at facility and district levels |
| 6 | No mechanism to link morbidity with cause specific mortality | <ul style="list-style-type: none"> o Make cause specific mortality data available to the DSU o Build capacity for data collection and reporting of mortality and morbidity at chiefdom and district levels |

| # | Issue | Solution |
|----|---|--|
| 7 | Logistical problems in sending info from PHUs to districts and from districts to PHUs | <ul style="list-style-type: none"> o Consider supplying PHUs and hospitals with radios and e-wave transmission capability (used by MSF in Kenema) o Tie performance of PHUs and hospitals with incentives to DMOs to increase supervision by DMOs o Tie performance of PHUs and hospitals to their funding allocations to increase diligence and resourcefulness in reporting |
| 8 | Duplication of data collected | <ul style="list-style-type: none"> o Compare new forms with priority indicators; start small and then expand collection as quality of reporting improves o Recruit private providers and NGOs to become members of DHMTs |
| 9 | Under reporting | <ul style="list-style-type: none"> o Link financial incentives/budgets to completeness and timeliness of reporting (at district and community levels) o Keep a record of the number of returns submitted at each level |
| 10 | Incomplete reporting | <ul style="list-style-type: none"> o Link financial incentives to completeness of reports o Reduce the number of forms o Train staff in data collection o Strengthen supervision of reporting in facilities o Have District Officers review reports one by one at time of their submission. This can be accomplished by staggering the times/days of reporting. |

| # | Issue | Solution |
|----|--|--|
| 11 | Case detection capacity low | <ul style="list-style-type: none"> o Train staff to detect cases following MoHS guidelines; o Have case detection guidelines for priority diseases available in facilities; o Strengthen the diagnostic capacity of laboratories through training and equipment purchases |
| 12 | Laboratories are excluded from the HMIS | <ul style="list-style-type: none"> o Deploy newly created laboratory reporting forms and provide training in the use of forms o Institute reporting channels |
| 13 | Data collected is not being used | <ul style="list-style-type: none"> o In the short term, only collect data for a small set of priority indicators o In the middle term, support development of indicators close to the user o Provide training and resources for simple data analysis |
| 14 | Lack of basic supplies at the PHUs and hospitals, e.g. forms, paper, registers, pens/pencils, filing boxes | <ul style="list-style-type: none"> o Institute mechanisms to monitor and replenish the supply of stock in facilities o Tie stock supplies with demand |
| 15 | Lack of coordination amongst health programs in MoHS | <ul style="list-style-type: none"> o Continue stakeholder workshops to define health priorities and develop integrated approaches |
| 16 | Lack of trained staff in data management | <ul style="list-style-type: none"> o Make data management a part of the core curriculum taught at health training institutions o Conduct mandatory training sessions for ToT and facility based staff o Shed staff who fail to perform |

| # | Issue | Solution |
|----|--|--|
| 17 | Resource allocation decisions not based on health data | <ul style="list-style-type: none"> o Stream line the data collection process to improve the quality of data ascertained o Over time, develop indicators to measure efficacy and efficiency of health facilities and build the capacity of health facilities to collect, report and analyse this information o Do the same to measure health performance at the district levels. o Allocate resources based on demonstrated performance and need at all levels. |
| 18 | Arrears in central financial allocations to districts | <ul style="list-style-type: none"> o Streamline the budgetary process requiring fewer forms o Institute and enforce payment deadlines |

Annex 1

Abbreviations

| | |
|-------|---|
| CHO | Community Health Officer |
| DFID | UK Department of International Development |
| DMO | District Medical Officer |
| DPC | Directorate of Disease Prevention and Control |
| DPI | Directorate of Planning and Information |
| DSU | Disease Surveillance Unit |
| EPI | Expanded Programme on Immunization |
| GDDS | General Data Dissemination System |
| HMIS | Health Management Information System |
| IDSR | Integrated Disease Surveillance and Response |
| M&E | Monitoring and Evaluation |
| MCH | Mother and Child Health |
| MoHS | Ministry of Health and Sanitation |
| NGOs | Non government organizations |
| NMCP | National Malaria Control Programme |
| OCP | Onchocerciasis Control Programme |
| PHUs | Peripheral health units |
| TB/LP | Tuberculosis and Leprosy |
| UN | United Nations |
| VSO | Central Vital Statistics Office |
| WHO | World Health Organization |

Annex 2

Institutions Visited

1 *INSTITUTIONS VISITED*

1.1 *WESTERN AREA*

Adventist Hospital, Waterloo (mission)
Central Statistics Office
Central Vital Statistics Office
Chinese Medical Hospital, East Freetown (private)
DMO, Freetown
Emergency Surgical Centre, Goderich (Italian privately funded).
Freetown Children's Hospital (gov)
Kissy Mental Hospital, East Freetown (gov)
Kissy Road Cemetery, Freetown
Lumley Health Centre - Reproductive Health Services (gov)
Lungi Cemetery
Lungi Clinic (Red Cross Society)
Lungi Government Hospital (gov)
Marie Stopes Obstetric Center (donor)
MoHS (Divisions and Programmes)
Princess Christian Maternity Hospital, Freetown (tertiary referral hospital)
Rokupa Government Hospital
Ross Road CHC, East (gov)
Waterloo Health Centre (gov)

Annex 3

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