AN EVALUATION OF THE TOGOLESE HEALTH INFORMATION SYSTEM

IN THE CONTEXT OF THE CCCD PROJECT

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INTRODUCTION

Health information is collected from various sources within any one country. For example, data are available from surveys, the national census, hospital and dispensary/clinic reporting and special studies. Health information is used to determine priority intervention programs, for health services planning resource allocation (supplies and manpower), to evaluate prevention program effectiveness and to monitor disease occurrence.

In order to maximize the usefulness of data which are collected, a summary of who will use the information and for what purposes should be outlined (optimally in the program planning stage) as a program objective. This process should also point out weaknesses in the data collection system i.e.what important information is missing.

This report focuses on the collection of disease occurrence data at the dispensary level for the purpose of monitoring overall trends in disease occurrence and for health services planning. These data will provide only a very crude basis, however, for evaluating the effectiveness of a specific intervention program (such as CCCD). More appropriate methods for evaluating program effectiveness will be discussed under the section "Compatibility between the National HIS and the CCCD Objectives".

BACKGROUND INFORMATION - GENERAL DESCRIPTION OF THE TOGOLESE HIS

Togo is made up of five regions which are subdivided into 21 prefectures. Each region has a hospital and most prefectures have a hospital and numerous dispensaries. The dispensaries are manned by at least one trained "infirmier d'etat" whose activities are supervised by the prefecture "medecin-chef" (MC).

The present system of collecting dispensary-level data began in 1964. Each month the dispensary nurses tabulate the number of cases of diseases which they treated, by age and sex, and forward this information on to the MC (See Form 1). The MC collects all of the data for his prefecture and forwards it on to the Ministry of Health (MOH) at the national level. The data are summarized by the Statistics Office within the Division of Epidemiology by prefecture and for the country as a whole.

Information on 37 diseases is sent to the Director General (DG) on a monthly basis which, in turn, is distributed to 12 international organizations. Data on over 900 categories of disease (based upon the WHO International Classification of Disease) are scheduled to be published in an annual report which is distributed to the various divisions within the MOH, to other ministries (e.g. the Ministry of Planning) and to interested national and international researchers (See Table 1).

Over the last 20 years the national HIS has had to adapt to accommodate changes in the organization of health subdivisions, in the international classification of disease and in data processing technology. Although these modifications were designed to improve the system of data collection, the process of change itself precipitated new problems, some of which remain to be addressed. The purpose of this

report is to outline some of these problem areas and to recommend ways to improve the national system of collecting disease occurrence data.

ANALYSIS OF THE CURRENT HIS

Essential Characteristics of a Useful HIS

In order to justify the effort and resources expended to collect health data, the information must be useful and actually used. Characteristics which define a useful system include its a) completeness, b) accuracy, c) timeliness and d) reliability. The specific parameters of these characteristics, however, will vary according to the needs for which the HIS has been designed. Factors which affect these characteristics are found at all levels of the data collection system. The following analysis will describe the quality of the present national HIS, in terms of these characteristics, based upon a review of data available for 1984 and 1985.

COMPLETENESS

In Togo, one goal of the national HIS is to have 100% health information coverage. At present there are various health units which are not included in the system. Among these are some of the private religious-based dispensaries and hospitals, the private urban physician clinics, some urban medical centers and the hospital network. Table 2 lists the approximate number of health units which are missing from the HIS.

The names of health units in just the city of Lome are listed in Table 2b. Some of these centers send reports to the Statistics Office but there is no consistency in which ones report on a regular basis. That is, from one year to another different Lome health centers report disease occurrence which makes annual summaries uncomparable. Annual

national disease totals include some Lome data but not all, and never from the same sources. The names and number of centers reporting each year are not indicated in the annual report and therefore corrections cannot be made to adjust for the missing data. In order to make the health data more useful, a policy needs to be established whereby Lome data are either considered separately (and also are not included in the denominator) or are consistently included in the national totals.

Information on hospitalizations is collected on a special form for every individual admitted as an inpatient (See Form 2). This information is forwarded to the Statistics Office throughout the year and is designed to be included in the annual report. This data has never been processed, however, because no computer program exists for the data.

The Regional Hospitals treat the largest number of cases which are otherwise not recorded in the system. In an effort to document what proportion of cases are missed by not including hospital data in the HIS, the 1984 annual hospital reports were reviewed for all 5 Regional Hospitals. The number of cases of a few important childhood diseases, treated on both an inpatient and outpatient basis, was recorded. The data for 1984 are presented in Tables 3 and 4. The total number of cases in 1984 (the denominator) includes some, but not all, of the cases seen in Lome.

. Table 3 notes that the disease for which the largest proportion of inpatient cases was missed was for measles (8.6% of the total number of cases recorded in the HIS for that year). Some measles cases may have been transferred within a hospital, however (eg. from pediatrics to the contagious ward) and therefore 8.6% may be an overestimate. The numbers for cases of diarrhea are even more approximate due to differences among hospitals in

A proportion of inpatient cases may have been transferred from other dispensaries or the prefecture polyclinic and would therefore already be recorded in the system. It is difficult to calculate exactly how many cases are referred/transferred patients in order to adjust the 8.6%, however, because no record is kept of transferred patients. The dispensary nurses note in their daily register if a patient is evacuated or referred to a hospital but the hospital staff does not indicate in their logs if an incoming patient has been previously treated elsewhere. If it can be assumed that, overall, at least 5% of all cases seen in the dispensary are referred to, and reach, a hospital, the proportion missing from the HIS is at least 5% less than the 8.6% estimate.(In fact, estimates of the number of patients referred to a higher level of medical care range from 10-70%). If it can be assumed that the tendency for nurses to refer patients has remained constant over the years, the relative monthly and/or annual disease trends are comparable and the data are useful for disease surveillance.

Table 4 lists the outpatient data from the 5 Regional Hospitals. A comparison of these two tables suggests that most patients treated at the hospitals are admitted as inpatients and represent the most severe cases. The proportion of cases missed by not including outpatient measles cases is 2.1%. The limitations described above for inpatient estimates apply equally for outpatient data. If the two sources of hospital data are combined, about 10% of measles cases treated are missed by excluding Regional Hospital data.

Table 5 lists the number of cases of the same diseases treated in 1979 in 9 out of the 11 main medical centers in Lome. This information was obtained from an annual publication. The proportion of measles cases treated in 1979 in these nine health centers was 3.5%. The proportion of all measles cases treated (out and in patient) in the CHU Lome in 1982 was 5%. This suggests that at least 10% of all measles cases were from just the city of Lome.

Table 5b notes the percent completeness of reporting in 1984 and 1985 for just the city of Lome. The number of expected reports was calculated assuming that there were 19 health centers functioning all year round (excluding the CHU). The coverage was less than 50% for either year. Considering the magnitude of the affect that the Lome data has on the national tabulations, the Statistics Office should standardize its policy for including Lome data to improve the usefulness of the data.

As of October, 1985, there were 316 health dispensaries which were included in the national HIS. In 1984 there were 308 dispensaries which reported disease occurrence. Tables 6 and 7 list the proportion of reports which were received by the Statistics Office for these two years.

The number of reports expected was calculated based upon the number of prefecture dispensaries assumed to be functioning all year round. In fact, in some areas dispensaries were nonoperational for a few months out of the year when the nurse was on vacation and/or because the dispensary is affiliated with a school. In addition, a few dispensaries were newly opened in 1985 and may not have been functioning for the first few months. An asterisk in the tables indicates those prefectures in which a problem with estimating expected numbers may exist. One asterisk indicates that the missing data come mostly from one (or more) dispensaries; two asterisks indicate that all of the missing data are from one (or more) months.

A tour of the rural dispensaries was scheduled to determine why some disease reports were not received. The MC keeps a copy of all reports at his office and therefore it was possible to verify the number and dates of reports sent. In many instances the number of reports received by the Statistics Office was less than the number turned in by the nurses and forwarded by the MC. The completeness of reports filled in therefore is actually very high (over 90%) and recommendations to improve reporting should be directed at the national level.

In 1983 a morbidity survey was conducted in the Maritime Region by the Division of Epidemiology in cooperation with the CCCD Program. The survey revealed that approximately 75% of mothers prefer to treat their children at the health center for measles and/or diarrhea. This suggests that dispensary level data reflect approximately 3/4 of the actual number of disease cases occurring. A correction factor of 25% could be applied to the disease totals to provide a better estimate of the actual number of cases for health planning purposes. If it can be assumed that the proportion of women who would chose to treat their children at a clinic has remained stable over the years, however, the correction factor is unnecessary to study relative monthly or annual trends in disease occurrence.

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Table 8 is a list of the various steps involved in processing the health data and the time required to complete each step. The time-required estimate is based upon information provided by the health personnel themselves. A special work-flow analysis is needed to provide a more exact time line. Figure 1 is a flow diagram which indicates, under optimal conditions, how much time it should take for data to get from the dispensaries to publication. At present disease occurrence is scheduled to be reported on a monthly and annual basis. Factors which affect timeliness in disease reporting, therefore, must be divided into those factors which affect monthly reporting (i.e. disease surveillance) and those which affect the publication of an annual report.

The Division of Epidemiology, within the MOH, is responsible for reviewing and responding to changes in disease trends. In addition, a system of weekly telegram reporting of 5 important diseases exists which complements the collection of monthly disease occurrence reports (for meningitis, cholera, yellow fever, smallpox and typhus). If an outbreak is confirmed from either source of information, a team from the office of "Grandes Endemies" within the Division of Epidemiology is assigned to handle the situation.

Table 8a summarizes how timely the current processing of health data is for both the monthly and yearly publications. The monthly reports arrive in the Statistics Office for processing within 2 months of recording.The 37 disease monthly bulletin passes via the office of the Director of Epidemiology with approximately 2-4 months time delay. Occasionally disease trend graphics are constructed by hand and included in epidemiologic reports to facilitate interpretation of the data. Provisional summaries are made, when needed, on certain diseases of interest. The Director of Epidemiology suggests that a comprehensive quarterly review of the trend in a select number of indicator diseases

disease surveillance purposes if the data were presented in a more useful form.

A statistics report which summarizes all of the health data for health services planning has been available with a 2-3 years time delay. Staff from the Ministry of Planning need more timely information and therefore intermediate reports have had to be tabulated by hand. This additional work load has entailed a lot of duplicate effort and has taken time way from routine data processing tasks. This, in turn, has resulted in time delays in the processing of incoming data for the monthly bulletin. Ideally a summary health services data publication should be available for widespread distribution within 6 months of the start of the new year.

The various bottlenecks in the system which retard the processing of data are outlined in Table 9. These are divided into problems at the peripheral and central levels. Recommendations to alleviate the bottlenecks are listed in Table 10. These are organized into groups to facilitate efforts at solving the problem.

ACCURACY

Health information is only as useful as it accurately reflects the country's health status. The level of accuracy of reporting at the peripheral level reflects the proficiency of the dispensary nurses who diagnose and record the data, and the interest of the MC who verifies the nurses monthly reports.

In most dispensaries only 15 or 20 different categories of disease are treated on a routine basis. Prior to 1980, a reporting form with 56 tropical diseases was used to record monthly disease occurrence by age and sex. This system was judged to be inefficient based upon the fact that most of the form was left blank and the nurses added extra pages under the open heading "other". A lot of paper was required to supply the forms and frequently the supply of forms ran short. In addition, it was thought that a preprinted format encouraged the nurses to fill in the forms at random.

In 1980 a new system was instituted whereby the nurses fill in the disease categories themselves on an open form (See Form 1). This system cuts down on wasted paper and encourages nurses to take more responsibility in organizing the disease occurrence data. The new system, however, has resulted in coding problems because 1) the coders often have difficulty in reading the nurses handwriting (or carbon copies) and 2) some nurses list symptoms rather than specific disease categories and so it becomes the coders responsibility to classify the symptons into one of the 900 plus WHO disease categories. This entails a lot of time searching through two large WHO volumes of disease classification. In addition, the WHO classification coding scheme inclues two spaces after the decimal point. The computer program to

process the data, however, is not compatible with this system of coding and an intermediary coding scheme had to be devised. This intermediary system is very tedious and confusing and results in inaccuracies in interpreting disease classification.

Recently a new list of 97 diseases was distributed to each dispensary nurse to use as a reference guide for filling in the monthly disease report. This was an endeavor, on the part of the Statistics Office, to alleviate the coding bottleneck. The Statistics Office, therefore, is aware of the coding problems and is actively seeking alternatives to improve the present system of data collection (See Form 3).

The nurses in the dispensaries all hold the title of "infirmier d'etat" which means that they have successfully completed at least 2 years of standard nursing training. Some dispensaries are equipped with laboratories (e.g. the polyclinics), others have microscopes but many have no ancillary facilities at all. Diagnoses, therefore, are often made only on symptoms and whether or not the prescribed course of treatment "cured" the patient (i.e. if the patient did not return to the dispensary).

This method of diagnosing is obviously more accurate for certain diseases than others. For example, measles is relatively easy to diagnose based upon symptoms whereas diagnosing the type of diarrhea necessitates a laboratory procedure. Some dispensary nurses diagnose amebiasis based upon the patient's recollection of blood in the stool whereas other nurses require a microscopic confirmation. Some dispensary nurses diagnose malaria using blood smears whereas others presumptively diagnose all fevers as malaria. There is, therefore, no standardization of diagnoses among dispensary nurses.

The MC is responsible for verifying the nurses' diagnoses during his tour of the prefecture and during his monthly meeting with the dispensary nurses. The MC should be familiar with the laboratory facilities of each dispensary and he should establish the limitations of each nurse's diagnostic capabilities. At present this responsibility is acknowledged but, in practice, it is not routinely carried out. As a result, tabulations of some disease categories are inaccurate on any level higher than the dispensary or prefecture.

This problem could be circumvented in some instances by aggregating "like" diseases into the most general classification (e.g. dysentery, amebiasis, gastro-enteritis and intestinal parasites into the classification of diarrhea) for purposes of routine disease surveillance. The desired level of accuracy of the HIS must be established based upon the goals for which the HIS was set up (taking into consideration the limitations of the health facilities). If a more precise level of accuracy is desired to monitor intervention program effectiveness or to direct disease prevention activities, resources will be needed to retrain nurses and to supply the dispensaries with more sophisticated laboratory equipment. Alternatively, using another system of data collection (e.g. sample surveys) might prove a more efficient manner of obtaining accurate data for these purposes (See Section on Compatibility). At the very least some standardization of diagnosing at the dispensary level is needed to increase the usefulness of the disease occurrence data currently collected (Possibly of a format similar to that used in " The Guide to Vaccinations ").

RELIABILITY

Reliability refers to the ability to obtain similar results during repeated collection of the same data. In the context of a HIS this can be divided into the reliability of diagnosing and the reliability of collecting/recording data.

The former concept overlaps with data accuracy as discussed above. Within any one dispensary, if a nurse considers fever to be presumptive of malaria, the nurse should be consistent in this diagnosis for all of his patients. Most nurses are consistent with their own system of diagnosing but problems arise in dispensaries in which there is more than one nurse who treats patients (if they have different systems of classifying symptoms). This is not a problem for diseases with obvious symptoms but is a potential problem for important disease groups such as malaria/fever, diarrhea/dysentery/parasites/amebiasis and bronchitis/tuberculosis/respiratory infections.

The MC should monitor this potential problem during his tour of the dispensaries by reviewing the nurses' daily patient register. The nurses record which treatment, if any, was given to each patient; the disease diagnosis should be consistent for all patients given any one medication (except in those cases where the same medication is prescribed for more than one disease). For example, if Flagyl is prescribed for amebiasis and/or giardiasis, and the diagnosis is microscopically confirmed, this diagnosis should be recorded as one of these two diseases rather than as one of the more general categories of parasites or dysentery. If, on the other hand, this treatment is given for suspected amebiasis (i.e. blood in the stool with no lab confirmation), the diagnosis should be consistently marked dysentery by all nurses working in the same dispensary. A national guidebook for

standardizing these procedures at the dispensary level would increase the reliability, and accuracy, of diagnosing which would, in turn, render the health data much more useful for all purposes.

The number of cases of any disease, e.g. measles, which were treated in any one dispensary should be recorded the same on all official forms.That is, the number of cases of measles recorded on the Statistics Office monthly report form should equal the number recorded on the two EPI forms (See Forms 4 and 5) and on the Sentinel form (See Form 6) (if the dispensary is a vaccination center and sentinel post). Only the number of cases of measles are tabulated from the sentinel reports at the Division of Epidemiology although data on measles, whooping cough, neonatal and adult tetanus, diptheria, polio and tuberculosis are collected. 3 sentinel posts were selected from each of the 5 prefectures in the Maritime Region.

The sentinel post data for January of 1985 (chosen at random) were compared to the same data collected from the monthly disease reports. Table 11a notes that the two sources of data on measles occurrence correlate in only one out of five prefectures (Lacs), assuming that the distribution of measles cases is uniform throughout the prefecture. The direction of the difference in reporting between the two sources of data is not consistent therefore it would be difficult to suggest which source is more accurate. The forms are filled out by the same dispensary nurse, based upon information from the daily patient register and therefore the most likely source of error is from filling out the data forms.

Similarly, the number of cases of meningitis, cholera, yellow fever, smallpox and typhus recorded by the weekly telegram should equal the number recorded on the monthly report. Table 11 lists the weekly reportable data for the month of January, 1985 compared to the data submitted on the monthly WHO bulletin. Only 10 out

of 21 prefectures reported anything during that month and only meningitis information was reported out of the 5 possible disease categories. More cases were reported on a weekly basis except in the prefecture of Tone in which twice as many cases were recorded on the monthly reports as were recorded on the weekly telegrams. Cases of yellow fever were recorded from two prefectures on the monthly report which were not reported by telegram. This discrepancy can be explained by the fact that many of the weekly reports include information only on cases which occur near to the hospital and which come to the attention of the MC. This reflects the difficulty in communicating between the dispensary and the MC on a rapid, weekly basis.

The monthly report should be the most comprehensive source of information on these 5 diseases but, in fact, in most instances the number of cases from the weekly report is greater. This suggests that 1) the cases which are being reported by telegram are patients which come directly to the hospital and which therefore are not recorded in the system and/or 2) that these patients are referals from other dispensaries which are not equipped to make these diagnoses and who have been diagnosed and recorded as having some other disease (i.e. misdiagnosed). In order to come up with a more accurate estimate of the number of cases of these 5 diseases, the telegram should indicate from which dispensary the case was recorded . In this way the hospital cases can be separated from dispensary cases in the annual publication and epidemics can be localized more precisely. This is presently done by some MC's but is not a national standard procedure.

TRAINING OF PERSONNEL

Health data is recorded and interpreted by many health professionals between the time that it is recorded and published. The kind and level of training that each of these professionals receives dictates the degree of sophistication at which they will be able to interpret and/or manage the health data.

Table 12 lists the training received by the various health professionals who currently handle the data. Public health coursework (including statistics and epidemiology) is currently part of the medical and nursing curriculum; some of the dispensary nurses and MC's, however, received their diplomas when this training was not included in the curriculum. A continuing education course therefore should be scheduled for these particular individuals in an effort to increase their interest in, and concern for, an accurate and timely HIS.

Four out of the 16 staff members presently working at the Statistics Office have had formal statistics training but only one of these has had any programming experience. There are at least 8 Statistics Office staff members who are available to receive additional training in programming or statistics and at least 4 others in the Division of Epidemiology (See Table 12b). There is personnel trained in programming who work for the Central Computer Office (CNT) but they are not under the direct supervision of the Statistics Office and therefore cannot be relied upon to complete routine data processing procedures. Limitations to timely and accurate data processing as a consequence of the level of training of the current staff are listed in Table 9. Recommendations for additional training to overcome these limitations are in Table 10.

COMPATIBILITY BETWEEN THE NATIONAL HIS AND THE CCCD OBJECTIVES

The CCCD Program focuses on those diseases which have the greatest affect on mortality and which can be controlled with coordinated efforts i.e. the vaccine-preventable diseases, malaria and diarrhea. Specifically the vaccine-preventable diseases include whooping cough, diptheria, tuberculosis, polio, tetanus and measles. The target population for CCCD activities is children under the age of 5 and pregnant women i.e. the groups at highest risk for mortality and morbidity.

Out of these 8 diseases only measles, diarrhea and malaria have proven to be appropriate for monitoring via a national disease reporting system in Togo. The incidence of diptheria is not large enough to offset inaccuracies in the data collection system. Tuberculosis is poorly diagnosed and questions remain regarding the efficacy of the BCG vaccine. Whooping cough is often misdiagnosed at the dispensary level, tetanus may be grossly underreported because cases die within the first few weeks of life, and polio is not routinely reported until later in life when the symptoms manifest (K. Murphy, personal communication). Mortality data is even more difficult to obtain via the national HIS because many patients die at home and therefore are never recorded by the system.

To supplement the information gathered via the national HIS, a series of morbidity and mortality surveys and special studies have been carried out by CCCD (and other health personnel in the MOH) and additional studies are planned. Table 13 lists some of the additional sources of data which are, or will be, available for use in evaluating CCCD program success. Other sources of health data may be required in the future for national health policies which remain, at present, only ideal goals.

In terms of specific CCCD targets, health data is currently collected which could be used to measure of the following objectives:

1. Increase malaria treatment of fever from 25-75% - Special studies have been launched to measure this objective (e.g. the study by M. Deming) but data are collected routinely by the MOH, Division of Malaria Control which could be used for this purpose (see Form 9). These data are not incorporated into the HIS but a carbon/xerox copy could be forwarded to the Statistics Office, if an official policy were established. The accuracy/completeness of these data is unknown but it is assumed to be high considering that the data are collected to document drug use.

2. Increase use of ORT in health facilities to 50% - Information on this objective has been collected via a KAP study but data are routinely collected by the Division of MCH, MOH which address this target (see Form 8). The assumptions discussed above regarding the treatment of malaria similarly cover these data. For both objectives the denominator (i.e. the total number of cases) must be estimated in order to calculate the proportion treated. This has been provided previously using a fixed formula (e.g. ____ number of episodes of diarrhea/child/year X the number of children under 5) but the denominator could also be estimated from the HIS national disease totals.

3. To reduce mortality of under 5's by 25% - This has previously been measured via a series of mortality surveys. Hospital mortality data will be available from future studies but no national mechanism exists for measuring total mortality. Dispensary level data on diarrhea mortality are recorded on Form 8 but this includes only cases treated by the nurse. In some dispensaries the nurse and/or midwife schedules home visits to check up on patients and thereby collects good village mortality data. This, however, is not a standard national procedure. In addition, the data are recorded only in the nurses daily register and are not reported to the national level except on Forms 8,10 or 11. All births and deaths are supposed to be registered with the nearest office of "etat-civil" but this system is not routinely enforced. An incentive exists to register births because a child cannot enter school without a formal certificate of birth. Deaths are usually formally confirmed by a MC and registered only for legal reasons i.e. to confirm that the death resulted from natural causes.

4. To increase vaccination coverage of under 1's from 10 - 50% - Currently yearly vaccination coverage surveys are conducted to measure progress towards this objective. Information is routinely collected, however, by the Division of Epidemiology (See Forms 4,5 and 7) which could be used to document this target. The vaccination supply is monitored relatively stringently and therefore it can be assumed that these data are fairly accurate.

5. To reduce measles morbidity by 50% - This objective can be measured directly from data from the national HIS. The quality of these data was discussed under the Section "Essential Characteristics of a Useful HIS" and recommendations to improve problems in the system are outlined in Table 10.

6. To reduce the incidence of low birth weight (LBW). This information is available only for hospital births and/or from an individual mother's health card if she took her baby to be weighed immediately after a home birth. Information on hospital-born premature infants is currently routinely collected (Form 10) but information on LBW is not recorded.

only cover hospital-born infants. Information on the trend in the proportion of hospital-born babies who are LBW would still be valuable, however, for monitoring the success of pre-natal and nutrition education program efforts.

The decision whether or not to launch special studies or to use routinely collected data to measure program objectives depends upon various factors. The quality of the data is one of the most important factors. A second important factor is the effort needed to obtain the data. At present, althought the data are collected, the information is not centralized and efforts would need to be formally coordinated to facilitate information-sharing at the national level.

A third factor which should be considered is the potential for continuity of the HIS. If the data are needed only to measure the success of short-term projects, special studies/surveys may be the most efficient and effective manner of documenting program progress. If, on the other hand, these data would be useful for monitoring long range programs (e.g. national health plans) and/or for ongoing epidemiologic surveillance, efforts to formalize the data collection would be justified.

USEFULNESS OF THE HIS DATA

The usefulness of data can be defined as how well the collected data quantify that which should be measured. Conversely, are data collected which quantify things which are not necessary to measure? The data which are collected on the monthly HIS form (Form I) include disease-specific information, broken down by age and sex, and the total number of new (incident) and old (prevalent) cases of all diseases together. The age breakdown of disease occurrence is important to know for focusing intervention efforts. A sex breakdown is more informative for disease occurrence in adults than children because differences in disease incidence by sex often suggest an occupational etiology. Denominators from census reporting should be included broken down by age and sex to permit age/sex specific rates to be calculated. Information on the number of prevalent versus incident cases is only useful if the information is disease-specific.

The WHO 900+ categories of disease classification should be used only for hospital data. An abridged version of the list should be provided for dispensaries/polyclinics with laboratory facilities. Classification of dispensary data should be restricted to a list of general disease categories to which more specific hospital data could be added for national totals.

e.g. I. diarrhea (general for national total)

A.
- i. unknown etiology (no further diagnosis)
- ii. protozoal
- iii. bacterial
- iv. viral
- v. malaria
- vi. malnutrition

B. dysentery (blood and/or mucus in stool)
- i. protozoal
- ii. bacterial
- iii. uknown etiology

C. gastro-enteritis (diarrhea plus vomiting)
- i. viral
- ii. bacterial
- iii. toxin

The hospitalization data form (See Form 2) is coded to provide information on approximately 15 variables. Additional information is recorded but does not have a fixed code format (e.g. diagnosis upon departure). Data on ethnic background, religion and sex is collected which could be useful for a descriptive epidemiologic study. Three spaces are provided for information on occupation but a dictionary of data elements was not available to investigate how appropriately the occupational categories were coded.

The date of entry and exit are coded but this information is also provided by the variable "number of days hospitalization". Information on diagnosis of exit should be coded in order to make the hospitalization data more useful for health services planning and disease surveillance. If the number of hospitalized cases/prefecture were added to the data set containing the total number of disease cases, an index of the trend in disease severity (i.e. the hospitalization rate) could be calculated and monitored.

Hospitalization rates are useful for monitoring the progress of intervention programs (such as the use of ORS) which focus on treating disease; whereas programs which focus on disease prevention (e.g. vaccination campaigns) measure success by a reduction in disease incidence, treatment intervention programs measure success by a reduction in the complications/severity of disease. (In fact, these efforts could initially produce an increase in the prevalence of disease if the disease without treatment is characterized by a high, rapid mortality rate).

The decision concerning which diseases to include in the recently distributed monthly HIS reference guide (Form 3) was agreed upon by a group of medical professionals and MOH staff. The logic used to order this list, however, is not apparent and the list is still inappropriate for dispensary level use. An abridged form should be provided for dispensary nurses which is pre-formatted and pre-coded to reduce coding errors and delays in the processing of data.

Information on the treatment of children with malaria and/or diarrhea (Forms 8 and 9) could be streamlined and included on the HIS form (Form 1) to reduce the duplication of health information currently recorded by the nurses. During a recent tour of the dispensaries, many nurses commented on the volume of reports they were required to fill out each month. Regardless of the amount of time that it takes (or should take) to fill in each report, if the nurses feel that they are overburdened by this task, then the quality of the data recorded will be affected.

One strategy to encourage increased nurse interest in, and concern for, filling in the reports would be to refine the system of data reporting. If the nurses realize that efforts are being made in their interest to reduce the burden of data reporting, it is likely that their attitude towards data collection would improve. In order to combine reports, a coordinated effort involving staff from various divisions within the MOH is necessary. A national display of committment to improve the HIS is mandatory, as an initial step, to encourage cooperation from other levels within the data collection system.

Currently the data are presented in table form and occasionally graphs are drawn, by hand, to facilitate data interpretation. If efforts were made to overcome some of the shortcomings of the HIS (as outlined in this report) the quality of the data would be good enough to justify computerizing the system at the level of the Office of Statistics/Epidemiology. A computer package which could provide basic descriptive statistics such as the following would be appropriate:

1. Time trend graphics
2. Comparisons of the incidence of 2+ diseases on one bar graph
3. Incident rates by birth cohort
4. Age-specific rates
5. Proportion of all cases hospitalized
6. Proportionate morbidity ratios
7. Standardized morbidity ratios

Obviously, in order to justify the resources needed to produce these epidemiologic statistics, a commitment from the Division of Epidemiology must be given to review the data on a timely basis and to interpret the statistics. In addition, a timely report should be forwarded to each MC (possibly in the form of a newsletter) with advice and comments from the Division of Epidemiology, as appropriate.

PROBLEM AREAS WITHIN THE CURRENT NATIONAL HIS AND RECOMMENDATIONS

Table 9 lists problem areas in the current morbidity reporting system, subdivided by level within the system. The parameters of a good system which are affected by these problems are noted in parentheses. This list summarizes information gathered during a tour of the dispensaries and regional hospitals.

Table 10 is a list of suggested recommendations to deal with the problems outlined above. The recommendations have been grouped to facilitate action into the following categories: supplies, training, organization and supervision. This list is not exhaustive and should be expanded, or adapted, as necessary. Efforts should be aimed at improving all levels of the recording system to ensure high quality reporting. Peripheral levels must be rewarded for, and encouraged to, improve reporting via a system of continuel feedback. These recommendations should be incorporated into a formal national health policy to maximize cooperation at all levels. A list of the specific objectives which are measured using this health information system should be devised (eg. reduction of measles cases) to ensure that all data that is being collected is useful and that necessary data is not missing.

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PREVIOUS AND CURRENT EFFORTS TO IMPROVE THE HIS

Many people involved in the processing of the health data, and others who use the health information, have recognized the need to improve the present HIS. Various efforts have been aimed at improving the completeness and timeliness of data collection but these efforts have been mostly piecemeal and lack coordination at the national level. The request by the Togolese MOH staff to evaluate the HIS (the results of which are outlined in this report) was an important display of commitment at the national level to improve the system. Additional efforts to modify the system are outlined below:

1. 3 years ago the coding/collection form was changed to the present form in an effort to save paper and to encourage the nurses to think about what they are recording.

2. Hospitalization data has been collected and entered onto a diskette since 1979 but no program exists to process the data. Many requests have been made to the Director of CNT to instruct the programmer to correct the problem. At present hospital data is forwarded to the Statistics Office in the form of an annual hospital publication.

3. Data entry has been postponed for the year 1984 onwards due to a backlog in the system. The diskettes become damaged if they are not used and numerous diskettes remain to be processed. A report for 1984 (which was requested by the DG) is being produced by hand until the processing of data is brought up to date.

4. The Head of the Statistics Office discussed the problem of the backlog at CNT with the Minister of Health. 3 months ago he was instructed to research the possibilities of installing his own computer system in the Statistics Office. Mr. Glikpo visited Wang computers in Lome to get estimates on the cost and training opportunities. He requested information from IBM, both in Togo and in Abidjan, but did not receive any reply. He submitted a request to WHO for the purchase of a computer and funds for training his staff.

5. Mr. Glikpo is interested in analyzing the data versus just collecting and tabulating the information. He would like to bring his annual reporting up to date and to then start a new system of his own. He would like to include hospitalization data to document severity in disease trends and to break the data up into subcategories e.g. dispensary versus polyclinic data.

6. Mr. Glikpo is concerned about the reliability of the data. During his recent sensibility tour of the dispensaries he asked the nurses to verify their data. He found that, in some instances, the data do not correspond to what is noted in the daily register. He brought this fact to the attention of the MC's and suggested that the nurses collect data on a more frequent basis (e.g. daily or weekly) to reduce errors in tabulating disease totals.

7. Mr. Glikpo would like to launch a formal study to determine the reliability of the data (e.g. a random sample of dispensaries) before considering installing a new computer system. He has asked for support to launch this kind of study.

8. Mensah from the Statistics Office recently attended a seminar in Dakar on computerization in the medical field.

9. The DG has expressed a desire to fund a program to retrain the Statistics Office staff in France or elsewhere. At present Dumanu is scheduled to leave for Abidjan for 4 years additional statistics training with support from an outside grant.

FORM I

MONTHLY DISEASE REPORTING FORM

SUBDIVISION SANITAIRE

HOPITAL DE SOKODE...........

CENTRE DE SANTE DE

SERVICE DE ....

(Rayer les mentions inutiles)

Relevé mensuel des consultants. Mois de ....Année............

CODE ONS 1965	M A L A D I E S	SEXE MASCULIN 0-	1-4	5-14	15-44	45+	SEXE FEMININ 0-	1-4	5-14	15-44	45+	TOTAL
Total des consultants nouveaux =												

Nombre de consultations données à des malades anciens sans distinction de diagnostic .... = ______

Nombre total de consultations données ______

TABLE 1

PERSONS IN NEED OF THE NATIONAL HEALTH DATA

International Level

WHO Geneva / WHO Afro BRZ

UNICEF

The surrounding African countries

National Level

Minister of Planning

Bureau des Etudes de Plan

Direccion du Plan des Gens Maritime

All other Ministries (e.g. Ministry of Education, Finance/Economy)

Le Centre d'alphabetisation

Les Centres d'education de la Sante

Division of Epidemiology (MOH)

Division of Maternal and Child Health (MOH)

Division of Malaria Control (MOH)

Researchers

Medical Students to write their theses

Students in public health

Medical assistants for their "memoires"

Various international researchers (e.g.to study meningitis)

TABLE 2

HEALTH CENTERS MISSING FROM THE NATIONAL HIS

Private clinics in Lome (listed in the phone book) - 20

Polyclinic in Lome - 1

Government Medical Centers in Lome - 11 (some send reports)

2 Centres de Sante (some years one or the other report)

Prefecture Hospitals - 15

Regional Hospitals - 5

Private Hospitals -2 (One Italian one in Lacs, one German one in Kloto)

Private dispensaries - 4 (One Baptist center in Kloto, one Adventist centerin Vo, one Red Cross center in Tchaudjo and one Adventist center in Ogou)

TABLE 2b

HEALTH CENTERS IN THE CITY OF LOME

1 polyclinic

1 CHU

Centre de Sante de Be

Centre de Sante de Lome

Centre Social de Gendarmerie

" " de Zongo

" " de Amoutive

" " de Tokoin

" " de RIT

" " de Maison pour Tous

" " de Casablanca

" " de Be

" " d'Adjangba Kome

" " d'Acceuil Kodjoviakope

" " de Croix Rouge

Dispensaire de Commune

" de CFT

" de Marche

" de Protestant

" de Bon Secours

FORM 2

INDIVIDUAL HOSPITALIZATION FORM

REGISTRE

Hôpital de _____

(TIMBRE HUMIDE)

Nom _____ Sexe m f

Prénom _____ Profession, grade, emploi

Ethnie _____

Né le _____ 19__ ou âge _____

A _____

Circonscription de _____

Fil de _____

et de _____

Domicilié à _____

Personne à prévenir _____

Personne ou administration pécunièrement responsable _____

Religion _____

Entré le _____ 19__

Sorti le _____ 19__

Guéri évadé décédé

Transféré à _____

Nombre de jours d'hospitalisation :

En catégorie _____

Service _____

Observations : _____

Pour _____

Diagnostic d'entrée

DIAGNOSTIC DE SORTIE : _____

Signature :

Classé selon :

Nomenclature intern. dét. _____ I

» » intermed _____ AI

»

TABLE 3

NUMBER OF CASES OF DISEASE TREATED AT THE REGIONAL HOSPITALS FOR CHILDREN UNDER 5 YEARS OF AGE

Malaria	Measles	Diarrhea	W Cough	
749 5	104* 627	1327	43 5	CHU(ped) (contag)
124	149	353		CH (Sokode)
	232		3	CH (Kara) (LT 15)
201	52 135	264	(contag)	CH(ped) (Atakpame)
1338	1519	2174	54	Total
102512	17503	54833	2508	Estimate 1984 cases
1.3%	8.6%**	3.96%	2.1%	% Missing

* There is a possible overlap in the number of cases due to transfers within the hospital.

**This may be an overestimate due to transfers.

TABLE 4

HOSPITAL OUTPATIENT DATA 1984

malaria	measles	diarrhea	hospital
155 (est)	155(est)	765(est)	CHU
350	68	160	CH Sokode(contag)
576	160	141	(pediatrics)
			(CH Dapaon included)
			(CH Atakpame no outpatients)
			(CH Kara no outpatients)
1081	383	1336	Total
1.0	2.1	2.4	% of total 1984 cases

TABLE 5

CITY OF LOME CENTRES SOCIAUX CASES 1979

measles	malaria	diarrhea	Center
4	18	71	Gendarmerie
23	72	174	Zongo
441	1753	1153	Amoutive
61	119	158	Tokoin
	5	20	RIT
25	90	130	Maison pour Tous
65	235	217	Casablanca
44	116	300	Be
57	111	390	d'Adjangba
720	2519	2613	Total
20147	315553	122988	Total 1979 cases
3.5	.79	2.1	% of total

TABLE 5b

CITY OF LOME PERCENT REPORTING COVERAGE

#in	#exp.	yr.	%coverage
100	228	1984	43.8
40	133	1985	30.0

19 Health Centers total

TABLE 6

MORBIDITY REPORT COMPLETENESS - 1984

Prefecture	#III	#Expected	#Disp.	%	
Bassar	187	204	17	91.66	*1
Amou	144	144	12	100.00	
Vo	159	168	14	94.60	
Golfe (minus Lome)	88	96	8	91.6	**1
Ogou	218	240	20	90.80	*2
Haho	86	132	11	65.15	**2
Wawa	138	156	13	88.46	*1
Soutouboau	176	180	15	97.77	
Yoto	96	96	8	100.00	
Zio	221	324	27	68.20	*1 **3 }
Kloto	286	432	36	89.35	
Keran	89	108	9	82.40	**1
Oti	106	108	9	98.14	
Tone	356	384	32	92.70	*1
Kozah	128	144	21	88.80	*1
Doufelgou	105	108	9	97.20	
Binah	106	108	9	98.14	
Tchaoudjo	77	84	7	91.60	**1
Assoli	42	48	4	87.50	
Lacs	183	240	20	76.25	*4
Total	3075	3393	308	90.62	

*=Missing data all from the same dispensary(s)
**=Missing data all from the same month(s)

TABLE 4

MORBIDITY REPORTING COMPLETENESS - 1985 (up to July)

Prefecture	#III	#Expected	#Disp	%	
Tchamba	49	49	0	100.00	
Sotouboua	90	105	15	85.7	**1
Lacs	122	140	20	87.10	
Tchaoudjo	60	63	9	95.20	
Assoli	28	35	5	80.00	
Bassar	74	119	17	62.18	**2
Tone	220	238	34	92.40	
Oti	35	58	9-8	60.3	**4
Kozah	101	154	22	65.50	**2
Doufelgou	71	77	11	92.20	
Wawa	68	91	13	74.70	**1
Haho	24	84	12	28.50	**5
Ogou	130	140	20	92.80	*1
Kloto	229	252	36	90.87	*2
Yoto	47	56	8	83.90	**1
Zio	0	189	27	00.00	*27
Vo	81	98	14	82.60	
Amou	77	84	12	91.60	*1
Binah	54	63	9	85.70	**1
Keran	34	63	9	53.90	**4
Golfe	41	56	8	73.20	**1
Total	1935	2214	316	87.39	

TABLE 8

STEPS AND TIME REQUIRED TO PROCESS THE HEALTH DATA

1. End of the month disease/services reporting by dispensary nurses
   Average # reports/dispensary - 5 (up to 8)

   Time needed to complete each report - 15 min. to 2 hrs.

   Time needed to complete all reports - approximately 5 hrs (up to 8 hrs)

2. Verification of disease reports by prefecture MC
   Average # dispensaries/prefecure - 15
   X 5 reports/prefecture

   75 reports

   15 min. to verify each report = 18 3/4 hrs.

3. Tabulation of monthly occurence of 37 diseases by prefecture for the monthly bulletin for the DG - 1-2 weeks

4. Typing of the 37 disease report on the official form and verification of the typing - 1 week (1-2 typists)

5. Coding of the remaining 950+ disease categories by 3 coders
   Average 15 dispensaries/prefecture with 1 page of disease listings

   2 days - 1 week/prefecture/worker
   X 21 prefectures

   21 weeks/1 worker or up to 3 1/2 weeks by 6 workers

6. Verification of the coding by the Statistics Office Programmer and correction of coding mistakes
   Average 1/2 - 1 hr/page
   X 316 dispensaries (with one page/dispensary)

   158 - 316 hrs. or up to 1 1/2 months working 7 hrs./day

7. Data entry on diskette by 4 data enterers working 6 hrs/day (if the worker is experienced and the information is legible and error-free)
   Average 30 pages/day/worker
   X 316 pages

   10.5 days/1 worker or 2.6 days by 4 workers

8. Writing a computer program to process the data (if the data are clean) - 2 weeks working full time.

9. Running the program - 1 day if there are no errors
10. Verifying the output - 3 statisticians working full time
    Average 1 hour/output page ?
    X 300 - 400 pages of output ?

    300 - 400 hours/1 worker or 100 - 130 hours by 3 workers

(If the data are obviously incorrect the MC's are sent a telegram to confirms the results. A response to the telegram could take anywhere from a few days to a few weeks)

11. Typing the computer output results in a form rearranged for publication - 1 month ?

12. Publication - a few weeks to months ?

TABLE 8a

CURRENT STATUS OF DATA REPORTING TIMELINESS

Aug. 1985 disease reports arrived by October for processing - 1 1/2-2 months delay (most recently arrived data for processing).

Monthly Bulletin - Aug. 1984 report (chosen at random) returned from the DG's office in March - 5 months delay.

Yearly Report - 1978 report published in Nov. 1980
1979 report published in April 1982
1980 " " in May 1983
1981 -1982 data unprocessed due to changes in the coding system; no program exists to accommodate the changes.
1983 report to be published by the end of 1985
1984 data is starting to be coded. Data entry has been postponed until the previous years' data is processed.

- Average time delay 2-2 1/2 years

FIGURE 1

MINIMUM TIME DELAY UNDER OPTIMAL CONDITIONS

25th of month - Dispensary reports tabulated

↓

5th - 10th of following month - Reports at Medecin Chefs' office

↓

Reports send in to Ministry of Health by middle of following month.

↓ Post? Two Weeks

Arrive Ministry of Health - end of following month

↓

Forwarded to the Division of Epidemiology - on a continual basis

↓

Data entry of important diseases of interest using pre-formatted computer program by dispensary (totals only) - 1 week

↓

Printout for review and comments by Head of Division of Epidemiology - Beginning of second week of following month.

↓

Copy of the Data Set to be sent to the Health Statistics Office along with the Original Morbidity Forms - Beginning of second week of the following month.

↓

Copy of Dispensary trends to be sent to the Medecin Chefs to compare with their own tabulations - By the end of the following month.

↓

Data entry of the first 37 Diseases(including age and sex breakdowns) to be sent to the Director General - By the middle or end of the second month following (i.e. 1 1/2 - 2 months later).

↓

Data entry of subsequent 999.9 WHO categories of disease for annual report and any later reports - on an ongoing basis.

↓

Addition of hospital data from the hospital reports - Within the first few months of the following year.

↓

Annual report ready for publication - By the middle of the following year.

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TABLE 9

Problems in the Current Health Information System

Dispensary Level

1. Nurses add up the number of cases at the end of the month from the daily patient register (Timeliness, Reliability).

2. Nurses lack statistics training and therefore are not motivated to use the data (Accuracy, Usefulness).

3. The supply of monthly forms frequently runs out (Timeliness

4. Nurses cannot get reports in on time due to the lack of transportation or bad weather (Timeliness).

5. Dispensaries are limited in laboratory equipment (Accuracy, Reliability).

6. Reports are not filled out during the nurses' vacation period (Completeness).

7. Dispensary staff are not consistent in how they classify diseases (Accuracy, Reliability).

8. Nurses have to fill in up to 8 forms per month, some of which contain duplicate information (Usefulness).

Prefecture Level

1. The Medecin Chefs do not schedule a fixed monthly date to meet with the nurses to discuss their monthly report (Timeliness, Completeness).

2. The accuracy of disease diagnoses recorded on the monthly report is not routinely verified or corrected by the Medecin Chef. Some reports contain entries which are difficult to read and/or code (Accuracy).

3. Dispensary data is not summarized at the prefecture level (by the Medecin Chef or his secretary) so that important changes in disease occurence are not quickly identified (Usefulness).

4. The Medecin Chefs wait for most of the dispensary reports to arrive before they are sent to the central level (Timeliness).

5. Some of the Medecin Chefs did not receive training in the importance of health statistics so they are not motivated to use the data (Usefulness).

6. Delays in the postal system retard the arrival of monthly reports (Timeliness).

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TABLE 9 (cont'd)

Central Level

1. The monthly reports pass through various offices before reaching the Health Statistics Office (Timeliness, Completeness).

2. When some disgnostic reports are missing from a prefecture, the stat office personnel must to tabulate the data (Completenes, Timeliness).

3. Coders are not trained in medecine and they have difficulty reading and interpreting some of the data entries to meet the WHO Classification of Disease (Accuracy, Timeliness).

4. The coding has to be verified and corrected before the data is entered (Timeliness).

5. If changes occur in the method of coding, the computer program will not run. The programmers lack the appropriate training to quickly adapt new programs (Timeliness).

6. Backups in the central computer processing cause delays in tabulations of the national health summaries (Timeliness, Usefulness).

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TABLE 10

RECOMMENDATIONS TO ACCELERATE THE FLOW OF INFORMATION IN THE HIS

A) Organization

1) Dispensary nurses should keep a weekly running record of the number of cases treated (on a blackboard or equivalent) to reduce the load of recording at the end of the month (See Centre de Sante de Lome example form).

2) The nurses should record the number of disease cases treated on a pre-coded (according to WHO classification) form using the same disease order for all months and for all dispensaries.

3) The nurses should be instructed to record the disease diagnoses only as precisely as the dispensary equipment facilitates.

4) Some of the data collection forms should be combined to reduce the amount of duplicate information which is recorded. Carbon copies of the report should be sent to the different central level services from which only necessary information is extracted.

5) The Medecin Chefs should send [illegible] as many reports as are available on a pre-established date each month, to the attention of the staff member ces pierd to enter the data at the Division of Epidemiology.

6) This person should enter the data on the diseases of immediate interest only and should know how to program to produce trend graphics and descriptive statistics.

7) The Medecin Chef or a trained secretary should tabulate prefecture totals and trend graphics for diseases of interest to that prefecture.

8) A program should be devised to calculate the running monthly average of the important diseases of interest by dispensary. If a dispensary report is missing for any one month, the running average should be substituted so that trends in prefecture totals can be identified. When the missing information is ultimately collected, the data should be entered into the corresponding monthly report.

9) The Director of the Division of Epidemiology should review the computer output for timely disease monitoring (eg.on a trimester basis)

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10) A copy of the corresponding prefecture output should be sent to the Medecin Chef with comments, as appropriate, from the Director of the Division of Epidemiology.

11) A copy of the original data set should be sent to the Health Statistics Office, along with the original morbidity forms, where the remaining data should be entered.

12) The data set should be formatted such that the first 37 diseases entered are those needed to complete the monthly WHO bulletin. After these data have been entered and tabulated, the results can be typed on the official form and forwarded to the Minister General's office.

13) Data on the remaining diseases reported in the annual publication and from any late reports should be added subsequently to the data set.

14) Morbidity report forms should be kept in a file cabinet by prefecture by month. A master list with the date that the data was received should be kept in the front of the file.

15) The Medecin Chef should provide a complete up-to-date list of the number of dispensaries functioning within his subdivision. Any change in this status should be documented on the master list.

16) Data from the annual hospital reports should be added to the data set at the end of the year to increase completeness of reporting and to provide information on trends in severity of disease (i.e. hospitalization rates).

B) SUPERVISION

1) The Medecin Chefs should meet with the nurses on the same date each month so that transportation can be pre-arranged. The meeting should be scheduled around the date of salary paycheck distribution to minimize the nurses' job disruption.

2) The Medecin Chefs should verify the quality of reporting individually with each nurse. The reports should form the basis for discussing dispensary problems. Dispensary disease totals should be compared to other months/years to identify important changes in occurence. Any corrections made should be marked in red on the report form to document improvements over time in reporting.

3) The Medecin Chef for his supervisory should record the date that each dispensary report is received so that nurses who are chronically late can be identified. A reminder note should

be sent to any nurses who does not turn in a report. A copy of this note should be included in with the monthly morbidity reports which are sent to the Ministry of Health.

4) The Directory of the Division of Epidemiology should contact the Medecin Chef concerning any important changes in disease occurence in his prefecture.

5) A team of representatives from the Division of Epidemiology and the Health Statistics Office should visit each prefecture once or twice a year to discuss problems concerning data reporting and to evaluate the usefulness of the data.

C) SUPPLIES (To be originally provided by the CCCD Program)

1) Chalkboards or re-usable pencil disease forms on which nurses can record on a daily or weekly basis the number of diseases treated.

2) Carbon paper for making duplicate reports.

3) A supply of pre-coded (according to the WHO classification), pre-ordered disease reporting forms.

4) Standardized reference guides for the nurses which describe how disease should be categorized/diagnosed at the dispensary level.

5) A supply of pre-addressed, pre-stamped envelopes in which the monthly reports can be sent.

6) One or two file cabinets for storage of the monthly reports at the Health Statistics Office.

7) One computer at the Division of Epidemiology and two at the Health Statistics Office which are compatible with the main computer at the Office of Statistics and Computers.

8) A large supply of computer printout paper.

D) TRAINING

1) The Medecin Chefs should be (re)trained regarding the use and importance of timely, accurate disease reporting. This could be in the form of a short workshop in Lome or during a sensitization tour by members of the Divison of Epidemiology and the Health Statistics Office.

2) The Medecin Chefs should share this information with their prefecture nurses during the following monthly meeting. The Medecin Chefs should be provided with specific guidelines to train the nurses including a standardized reference guide for diagnosing diseases at the dispensary level.

3) One staff member from the Division of Epidemiology and two staff members from the Health Statistics Office should be trained in the use of computers including data manipulation and data management.

FORM 3

MEMENTO POUR LE RELEVE MENSUEL DES MALDES CONSULTANTS

M A L A D I E S	SEXE MASCULIN					SEXE FEMININ						TOTAUX :
	0-	1-4	5-14	15-44	45+	0-	1-4	5-14	15-44	45+		
Choléra												
Fièvre typhoïde												
Toxi-infection alimentaire												
Amibiase												
Infections intestinales autres												
Diarrhées												
Tuberculose pulmonaire												
Autres tuberculoses												
Peste												
Charbon												
Lèpre												
Diphtérie												
Coqueluche												
Méningites à Méningocoques												
Tétanos												
Septicémie												
Poliomyélite aigue												
Variole												
Rougeole												
Fièvre jaune												
Hépatite Virale (Ictère)												
Rage												
Oreillons												
Trachome												
Paludisme												
Varicelle												
Zona												
Trypanosomiase												
Syphilis												
M T S (Maladies Transms. Sexuelle)												
Mycoses												
Schistosomiase												
Onchocercose												
Ankylostomiase												
Autres helminthiases												

M A L A D I E S	SEXE MASCULIN					SEXE FEMININ					TOTAUX
	0-	1-4	5-14	15-44	45+	0-	1-4	5-14	15-44	45+	
Tumeurs malignes											
Diabète											
Obésité											
Kwashiorkor											
Autres Malnut.protéino-calori.											
Avitaminoses											
Drépanocytoses											
Troubles mentaux											
Alcoolisme											
Méningites à autres germes											
Epilepsie											
Glaucome											
Cataracte											
Cécité et baisse de vision											
Conjonctivites											
Affections app. lacrymal											
Otites-Mastoïdites											
Surdités											
Rhumatisme articulaire aigue											
Doul.art.,Rhumatisme (sai)											
Hypertension artérielle											
AVC (Accidents vasculaires cérébr.)											
Troubles du rythme cardiaque											
Varices membres inférieurs											
Hémorroïdes											
Angine (Amygdalite aigue)											
Laryngite et trachéite aigues											
Bronchite											
Pneumonie											
Grippe											
Asthme											
Pleurésie											
Caries-dentaires											
Autre mal.dents et parotonde											
Maladies des maxilaires											
Ulcère estomac et duodénus											
Appendicite											

M A L A D I E S :	SEXE MASCULIN					SEXE FEMININ					TOTAUX :
	0-	1-4	5-14	15-44	45+	0-	1-4	5-14	15-44	45+	
Stérilité de l'homme											
Hydrocèle											
Autres mal.Org.Génito-uri.Homme											
Affectionsdu sein											
Salpingite et ovarite											
Prolapsus génital											
Trouble de la menstruation											
Stérilité de la femme											
Autres mal.Org.Génito-uri.Femme											
Avortement											
Accouchement normal											
Complication suites de couche											
Anomalies congénitales											
Fièvre d'origine inconnue,pyrexie											
Syndrome relatif au coeur											
Colicue rénale											
Rétention d'urine											
Symptôme de la mort subite du nour.											
Arrêt respiratoire											
Traumatismes											
Empoisonnement											
Morsure de Serpent											
Piqure de Scorpion											

Dr [illegible] HOUDAKOU-HOUANGBE
Directeur Général de la Santé Publique

REPUBLIQUE TOGOLAISE
Travail • Liberté • Patrie
Direction Générale de la Santé Publique du Togo

MINISANTE

SUBDIVISION SANITAIRE

Dispensaire de _____

REPUBLIQUE TOGOLAISE
Union-Paix-Solidarité

PROGRAMME ELARGI DE VACCINATION

Récapitulation Mensuelle

Mois de _____ 198_

	VACCINATIONS EFFECTUEES						TOTAL	Population Cible	Couverture Vaccinale en %
	Mois Passés			Ce Mois					
	0-11mois	12-47mois	Total	0-11mois	12-47m	Total	T1 + T2		
B C G									
DTC+P1									
DTC+P2									
DTC+P3									
DTC+P4									
TOTAL									
ROUGEOLE									
V.A.T. 1									
V.A.T. 2									
V.A.T. 3									
V.AT. 4									
TOTAL									
AMARIL									
MENINGO									

FORM 4

FORM 5

: RAPPORT MENSUEL DE SURVEILLANCE PEV

Etablissement sanitaire: _____ Mois: _____ Année: _____

Ville/Village: _____

Maladie	Groupe d'âge et situation vaccinale									Nombre total de cas
	0-11 mois			1-4 ans			5 ans et plus			
	Vacciné	Non Vacciné	Situation Vaccinale non connue	Vacciné	Non Vacciné	Situation Vaccinale non connue	Vacciné	Non Vacciné	Situation Vaccinale non connue	
Rougeole										
Coqueluche										
Poliomyélite										
Tétanos du Nouveau-né *										
Diphtérie										
Tuberculose										

* Etat vaccinal de la mère

Observations:

FORM 6

SURVEILLANCE DES MALADIES CIBLES DANS LES POSTES SENTINELLES DE LA REGION MARITIME

MOIS de .....

PREFECTURES	POSTES SENTINELLES	ROUGEOLE	COQUELUCHE	TETANOS Néo-natal	TETANOS Non Natal
GOLFE	BAGUIDA				
	SANGUERA				
	AGOENYIVE				
Commune de LOME	C.C. ADJANGBAKOME				
	C.de Santé de LOME				
	C.C. de TOKOIN				
	C.Sl. de CASSABLANCA				
	C.Sl. de BE				
LACS	ANEHO Centre				
	ATTITOGON				
	AGBODRAFO				
VO	TOGOVILLE				
	BADOUGBE				
	VOGAN				
YOTO	TABLIGBO Ville				
	AHEPE				
	KOUVE				
ZIO	Mission TOVE				
	NOEPE				
	LOKOEGBE				
	AGBELOUVE				

TABLE 11

WEEKLY TELEGRAM REPORTING COMPARED TO THE MONTHLY HIS

(4 weeks reporting of weekly telegram in January 1985)

meningitis		y.fever		prefecture
weekly	monthly	weekly	monthly	
1	0			Keran
6	1			Tchaudjo
24	42			Tone
5	0			Atakpame
1	0			Binah
1	0			Douffelgou
4	3			Kozah
0	1			Kloto
0	0	0	5	Wawa
0	0	0	5	Soutoumba

TABLE 11a

SENTINEL DATA COMPARED WITH MONTHLY HIS REPORTING

Sentinel Post Pref.	# cases	%pref. covered	#exp.	#reported monthly	%pref. covered	#exp.
Lacs	6	3/15=20	30	28	87	32
Vo	3	3/14=21	14	28	82	34
Yoto	162	3/8=37	32	131	84	156
Zio	46	3/27=11	414	0	0	?
Golfe	53	3/8=37	141	49	73	67

* Sentinel expected numbers were calculated by determining what proportion of the prefecture is represented by the sentinel post system and adjusting the numbers by the remaining proportion. The monthly expected numbers were calculated using the percent completeness of reporting of each prefecture (Table 7) and adjusting accordingly.

FORM 7

PROGRAMME ELARGI DE VACCINATION

SUBDIVISION SANITAIRE / _____ VACCINS EN STOCK DATE: _____

	DEBUT DU MOIS	DOTATIONS	VACCINES	EN DOSES	STOCK A LA FIN DU MOIS	DOSES	LOTS	DATE DE PEREMPTION
B.C.G.								
DTCcq								
POLIO ORAL								
ROUGEOLE								
FIEVRE JAUNE								
MENINGO								
V.A.T.								

MINISTERE DE LA SANTE PUBLIQUE
ET DES AFFAIRES SOCIALES

REPUBLIQUE TOGOLAISE
Union -Paix-Solidarité

Direction Générale de la Santé Publique
DIVISION DE LA MERE DE L'ENFANT

FICHE DE RAPPORT MENSUEL

(Les diarrhées chez les enfants âgés de 0 à 5 ans)

Mois de 19

Préfecture de :

Poste Sanitaire de :

Population - cible (estimation) du poste sanitaire :

Nombre total de cas de diarrhées :

1) - Nombre de cas chez les enfants âgés de moins de 6 mois :

Nombre de cas chez les enfants âgés de 6 mois à 2 ans :

Nombre de cas chez les enfants âgés de 2 ans à 5 ans :

2) - Nombre total de cas traités par SRO :

3) - Nombre de cas traités par autres méthodes :

Nombre total de décès :

1) Cas sous SRO

2) Cas sous autres méthodes :

3) Nombre total de décès par tranches d'âge

a) Moins de 6 Mois = =

B) Agés de 6 mois à 2 ans =

c) Agés de 2 ans à 5 ans =

Cause de décès
- Deshydratation ... .cas
- Malnutrition .....cas
- Autres (Rougeole) .....cas

Quantité totale de SRO reçue :

Quantité totale de SRO utilisée :

MINISTERE DE LA SANTE PUBLIQUE
DES AFFAIRES SOCIALES ET DE LA
CONDITION FEMININE

REPUBLIQUE TOGOLAISE
Union - Paix - Solidarité

DIRECTION GENERALE DE LA SANTE PUBLIQUE

SERVICE NATIONAL DU PALUDISME

Tél. 21-32-27

FICHE 1b

RAPPORT MENSUEL A ENVOYER AU SERVICE NATIONAL
DU PALUDISME - B.P. 518 LOME-TOGO

SUBDIVISION SANITAIRE DE _____

CENTRE/SOUS-SECTEUR _____ (1)

MOIS DE _____ 19 _____

NOM DU RESPONSABLE _____

CHIMIOTHERAPIE

(Paludisme + F. d'Origine indéterminée traitée à la chloroquine).

A G E	S E X E		Ttal (M+F)	* Comprimés utilisés
	M	F		
0 - 11 mois				
1 - 4 ans				
5 - 9 ans				
10 - 14 ans				
15 ans et plus				
Total				

Stock le premier du mois .....

Reçu pendant le mois .....

Total .....

* Chloroquine utilisée dans le mois .....

Stock le dernier jour du mois .....

Fait à .....,le .....
Signature,

NB.- N'oubliez pas de marquer la Subdivision Sanitaire, le Centre, la date et les comprimés utilisés.

(1) Barrer la mention inutile.

SUBDIVISION SANITAIRE DE : _____

MATERNITE DE : _____

REPUBLIQUE TOGOLAISE
Union-Paix-Solidarité

RAPPORT MENSUEL DES MATERNITES

Mois de _____ 19____

Etabli par _____ le _____ 19_____

CONSULTATIONS	Nouvelles Consultantes (A)	Anciennes Consultantes (B)	Total (A + B)
Consultations prénatales (femmes avant la naissance)	.....	.....	.....
Consultations postnatales (femmes après la naissance)	.....	.....	.....
Consultations des nouveaux-nés (jusqu'à 1 an)	.....	.....	.....
Consultations des petits enfants (1 jusqu'à 5 ans)	.....	.....	.....
Consultations à domicile :			
- femmes enceintes	.....	.....	.....
- nourrissons	.....	.....	.....
Total	.....	.....	.....

HOSPITALISATIONS	Nombre
Restantes au premier jour du mois	.....
Entrantes dans le mois	.....
Décédées	.....
Sortantes	.....
Restantes au dernier jour du mois	.....
Journées d'hospitalisation	.....
Femmes évacuées d'une autre formation	.....
Femmes évacuées sur une autre formation	.....

VACCINATIONS	
Vaccinations antitétaniques	.....
" Antipolio	.....
" antivarioliques	.....
" B.C.G.	.....

EDUCATION SANITAIRE	
Seances d'éducation sanitaire tenues :	
- à la maternité	.....
- publique	.....

NAISSANCES ET DECES	
Efants nés vivant	.....
Efants mort-nés	.....
Efants décédés dans les 10 premiers jours	.....
Dont : 1 seul enfant	.....
gémellaire	.....
prématuré 1 seul enfant	.....

ACCOUCHEMENTS	Nombre	DECES Enfants	DECES Mères	OBSERVATIONS
Accouchements normaux				
dont : 1 seul enfant				
gémellaire				
prématuré 1 seul enfant				
gémellaires prématurés				
Accouchements anormaux				
dont : 1 seul enfant				
gémellaire				
prématuré 1 seul enfant				
gémellaires prématurés				

INTERVENTIONS	
Versions	
Forceps	
Vaccumm	
Césariennes	
Laparatomie	
Hystérectomie	
Crâniotomie	XXXXXX
Curage digital	XXXXXX
Curettage	XXXXXX
Révision uterine	XXXXXX
Délivrance artificielle	XXXXXX

PATHOLOGIE	
Avortements spontanés	XXXXXX
Avortements provoqués	XXXXXX
Grossesse extra-utérine	XXXXXX
Placenta praevia	XXXXXX
Décollement prématuré du placenta	
Eclampsie	
Pré-éclampsie	
Albuminuriques	
Hémorragie de la délivrance	XXXXXX
Hémorragie après la délivrance	XXXXXX
Infection puerpérale	XXXXXX

MALFORMATIONS CONGENITALES	
Total malformations congénitales	
dont : Hydrocéphale	
Anencéphale	
Monstre	
Pied bot	
Bec de lièvre	

REMARQUES

FORM 11

RAPPORT MENSUEL DE P.M.I.

pour le mois de _____ 19___

Etabli par _____ le _____ 19__

CONSULTATIONS	Nouvelles Consultantes (A)	Anciennes Consultantes (B)	Total (A+B)
Consultations prénatales (femmes avant la naissance).....			
Consultations postnatales (femmes après la naissance).....			
Consultations des nouveaux-nés (jusqu'à 1 an)			
Consultations des petits enfants (1 jusqu'à 5 ans)			
Consultations à domicile:			
- femmes enceintes			
- Nourrissons			
Total			

ACCOUCHEMENTS ET DECES	Nombre	
Accouchements normaux		
anormaux		
Total		
au dispensaire		
à domicile		
Total		
Enfants nés vivants		
Enfants morts-nés et avortements		
Nouveaux-nés décédés (après la naissance).....		
Femmes décédées en couches (avant, pendant ou après l'accouchement).....		

AUTRES		
Vaccinations antitétaniques		
antipolio		
antivarioliques		
B.C.G.		
Séances d'éducation sanitaire tenues:.....		
au dispensaire		
publiques		

REMARQUES

Signature et titre:

TABLE 12

TRAINING OF HIS PERSONNEL

1. Dispensary nurse - Diplome d'infirmier d'etat
   Two years standard nursing training (previously)
   Currently 3 years training - statistics training (40 hrs. class plus 2 weeks practicum at the Statistics Office in the third year).

2. Medecin-Chef - Standard medical training plus 2-3 months at the WHO office in public health (as of 1985).

3. Secretary to the MC in the hospitals (responsible for forwarding all prefecture reports) - 6 year Certificate d'etude plus possibly a few years of secondary school. Typing training but no statistics.

4. Regional Hospital Director - University degree plus 1 month training at the WHO office in public health (for hospital data).

5. 3 statistics personnel - Diplome d'enginier adjoint d'estatistiques from Yaounde. 2 years training in statistics (=French bacc or U.S. High School). 1 of these (who is the liaison with CNT) received a few months training as a Cobalt programmer.

6. 4 coders - a few years of secondary school but no statistics or medical training.

7. 4 data enterers - Certificate d'etude plus 8 months training from CNT

8. 1 data preparer - trained in data entry. (responsible for submitting the computer jobs).

9. 1 CNT programmer - trained in Libreville and for 2 years in France. Able to program in Cobalt, Fortran, PLM, Assembly and RPGII.

10. Head of the Statistics Office - H.S. equivalent in statistics. One year public health training in Montreal.

11. Head of Epidemiology - M.D. in preventive medecine. A few months training in epidemiology in France.

12. Additional Division of Epidemiology staff - The staff member in charge of the Sentinel data has a master's degree in public health from France and is familiar with the CCCD Kaypro D-Base package.

TABLE 12b

STATISTICS OFFICE STAFF AND DUTIES

Mr. Glikpo - Head of Office
Mr. Mensah Kowadzo - liaison with CNT; works half time at each office Trained in Cobalt.
Mr Dumanu and Mr. Hossou-Atsouve - Prepare the monthly disease reports for the DG/WHO; they manage the other office workers and analyze the computer printouts to determine the accuracy of the data before it is prepared for publication.
6 coders- They are responsible for adding up the number of consultations and consultants per prefecture, for coding the diseases according to the WHO classification and adapting this for the computer program. They tabulate the PMI/Maternity reports by hand (See Forms 10 and 11) and at present they are preparing an intermediate report for the WHO which summarizes the number of cases of disease by dispensary by month (See Form 12).
1 secretary/receptionist/typist - types the WHO Bulletin and the annual report
1 messenger/typist
4 data enterers/coders - They are presently coding 1984 data. Data entry has been postponed until the previous years have been processed.

Total = 16 staff

1 programmer works for CNT and is responsible for all Health Data.

TABLE 13

ADDITIONAL SOURCES OF HEALTH DATA

2 Mortality Surveys (1 in Nov. 1983 in the Maritime Region, 1 in Sept. 1984 in the Plateaux Region)

1 Reliability Survey to compare the accuracy of the MUHS data (Sept.1985)

A report on the treatment of malaria in Kloto, Wawa and Haho (by M.Deming)

Joint WHO yearly vaccination coverage surveys

Annual Falciparum malaria surveillance studies for sensitivity of the organisim to chloraquine

A KAP survey on the use of ORS (on a subset of the MUHS population)(Plateaux Region, Nov.1984)

a Pre/post training evaluation on the use of ORS and nivaquine by trained health staff (Sept.1985)

A University of Benin study of the morbidity and mortality in Lome Hospital in 1982

A study of 5 Lome Sentinel posts for baseline statistics 1978-1983 (K. Murphy)

A study of 4 "Centres Sociaux" in Lome (K. Murphy)

Future studies:

Hospital morbidity/mortality data for under 5's - The University of Benin (ffrom all hospitals)

A meonatal tetanus survey - Joint Togo MOH/CCCD

A polio lameness survey - Joint Togo MOH/CCCD

Other routinely collected drug use and service data

3 EPI reports - Grandes Endemies (Forms 4,5,7)

1 ORS use report - MOH, MCH Division (Form 8)

1 nivaquine use report - MOH, Malaria Division (Form 9)

1 Sentinel Post report - CCCD (Form 6)

2 Maternity/PMI reports (Forms 10,11)

Annual reports by the MOH, Division of MCH, the Centres de Sante de Lome, the Centres Sociaux de Lome and the individual hospitals

FORM 12

SUBDIVISION SANITAIRE

HOPITAL DE .....

CENTRE DE SANTE DE

SERVICE DE .....

Relevé mensuel des consultants selon la cause

Mois / Maladies	Jan.	Fév.	Mars	Avr.	Mai.	Juin	Juil	Août	Sept	Oct.	Nov.	Déc.	TOTAL
Total des consult.N													
Consultations													
Total consultations													

BEST AVAILABLE