

General Data Dissemination System (GDDS) Project - Phase 2
Socio-Demographic Statistics Project for Anglophone Africa

Module on Health Statistics
Report on the Provision
of Technical Assistance to Mauritius

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Organizer:
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Consultant:
Arthur Heywood

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Health Information System assessment Mauritius

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By Arthur Heywood

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Background

Mauritius has an Health Information system widely recognized to be the best in Africa, but the Ministry of health and Quality of living (MOHQL) is not prepared to sit on its laurels and is moving to make the HIS more action-driven rather than data driven, to improve the quality of data analysis using indicators and to improve data dissemination and feedback. In December 2007 Mauritius asked the World Bank for assistance to make it fully compliant to the Health Metrics Network (HMN) framework. A multisectoral committee has been set up to oversee this process which is now meeting regularly and getting increasing top level support within the ministry for changing reporting flow, getting regional analysis and increasing feedback to data users.

A set of key performance indicators based on objectives and outputs has been developed as part of the Program Based Budgeting and there is pressure to ensure that the MoHQL monitors these regularly.

The MOHQL publishes two annual reports – *Work Performed in public health institutions* and *Annual Health Statistics* as well as a number of other program-related annual reports. These are to be increasingly focused on indicator analysis and improved in terms of quality of presentation.

This consultancy come as Mauritius is preparing to implement the E-Business strategic plan, develop an overall health Strategic Plan and is implementing a national ICT strategic plan. All of these obviously directly affect the Health Information System and any changes must be fully compliant with these proposals.

Methodology

The assessment was done over a period of three weeks 5-19th December 2008 and consisted of individual interviews, group interviews, group-work during a workshop, field trips and two steering committee meetings.

In all, over 100 people contributed to completing the HMN HIS assessment tool, which has 197 separate questions in six categories. Results are available electronically in an Excel spreadsheet and in a narrative report (Annex 1)

In addition, after discussion with the Hon Minister of Health and top officials, a proposal was made for a shift towards a decentralized, action-oriented, responsive and transparent information system. (Annex 3). These were widely discussed with various actors at all levels of the system and appear to respond to a strongly felt need for decentralization, Action orientation, increased Responsiveness and transparency.

Finally a way forward was proposed (Annex 4) through a strategic planning process planned for 2009, driven by a core team of managers and guided by a top-level steering committee.

The current HIS

There is already good HIS in place with good collaboration between different ministries and a willing and capable network of data capturers at all levels of the system. Vital registration is extensive, all facilities report regularly and quality data is available on computer at the MoHQL.

Strengths of the Mauritian HIS

Mauritius has a long tradition of Information collection since colonial time, which has been preserved and improved in recent years so that there is a great deal of timely and high quality data available for management of the health services.

There have been regular and high quality population censuses since 1846; the civil registration is excellent with complete births registration and causes of death data (judged to be the best in Africa) is all coded using ICD10.

Communicable diseases have been largely eliminated in the past 50 years and the surveillance system is excellent, strengthened after the 2006 Chikungunya epidemic and following the HIV epidemic very closely.

With the transition to diseases of longevity and affluence, NCD surveillance is being stepped up, surveys on risk factors are regular and diseases such as hypertension, diabetes, cancers and hypertension are closely monitored.

The hospital service has good data collection systems for outpatients and inpatients and all discharges are coded by ICD10. Data is regularly collected on OPD waiting times, surgery waiting lists, quality of laboratory service, cancer registration, patient satisfaction etc.

Data is used for central level monitoring, evaluation and management and there are regular reports put out by a number of different departments and units and published on the website (<http://health.gov.mu>).

The HIS has been reviewed internally and recent improvements include computerisation of Civil Status Office for births and deaths, application of the ICD-10 and training of staff, strengthened disease surveillance during the Chikungunya epidemic, recent improvement of Hospital medical records systems and increasing involvement of stakeholders at MoH through training.

Actions needed for full HMN compliance

The major challenge of the strategic planning process is to make an already strong HIS even stronger and to make Mauritius HMN fully compliant by 2010. This will require a few decisive actions, backed up by top-level commitment to a strategic plan based on the DART principles:

1. Decentralisation of the HIS to regions and improved analysis of PHC data
2. Action orientation to ensure that practical results come from data analysis
3. Responsiveness of the HIS to information needs of mid level managers and local users
4. Transparency of the system to improve dissemination using graphs and maps to inform all stakeholders and to strengthen the use in planning and monitoring the health sector

**Decentralised
Action orientated
Responsive
Transparent**

A critical review of the low-scoring questions in the assessment tool shows a few key areas where improvement IS possible without major restructuring.

Coordination, policy and planning

1. Ensure a top level intersectoral coordination mechanism that ensures political support from multiple ministries and the private sector
2. Write a HIS Strategic plan, integrated with the existing E-business plan and aligned with the national health strategy and the ICT strategy.
3. Set up a representative national HIS committee composed of interested stakeholders (including the private sector and the ICT developers) to develop and implement the HIS strategic plan
4. Implement existing policy requiring regular local level meetings to assess HIS data and take action
5. Appoint a national epidemiologist to drive the HIS
6. Get consensus on a core set of key performance indicators (including PBB and MDGs) and ensure that these are widely known and regularly analysed at local level

Data sources

7. Cross-check routine statistics through multiple indicator cluster survey methods
8. Improve training of record officers
9. Develop formal post-schooling courses (2 year) in-country and
10. Increase formal in-service training on data analysis and use
11. Set up a Geographical Information System with GPS coordinates of health facilities and maps of services and staff.
12. Develop database of human resources graduating and receiving formal in-service training
13. Ensure that the National Health Accounts (NHA) is done more regularly and that results and process are better known

Data management and computerisation

14. Strengthen computerization by building on existing well-functioning systems and expanding in an incremental manner in line with the E-business plan and ICT strategy
15. Develop a written set of procedures for data management including data collection, storage, cleaning, quality control, analysis and presentation for target audiences, and implement these throughout the country
16. Set up an integrated and flexible data warehouse at national and sub-national level containing data from all population-based and institution-based data sources (including all key health programs) with a user-friendly reporting utility accessible to various user audiences
17. Develop a metadata dictionary exists which provides comprehensive definitions about the data with information on data's use in indicators, specification of collection methods used, periodicity, geographical designations, analysis techniques used and possible biases
18. Use unique Identifier codes (or a complete relational table) to merge different databases

Data quality

1. Analyse data (under 5 mortality, maternal mortality, HIV, measles coverage, TB, attended deliveries etc) by socio-economic categories
2. Do regular surveys to cross-check routine service data quality

Data dissemination and use

1. Decentralise data analysis and use to a strengthened regional information office for monitoring and management of service delivery
2. Increase use of core indicators (PBB , MDGs) for analysis
3. Ensure regular and structured feedback of analysed information
4. Increase use of maps and graphs for display of information
5. Strengthen coordination of health data with CSO for MDG reporting
6. Improve analysis and use of AHC and CHC data for coverage and quality, workload and efficiency.

Coordination Structures

1. Committee that is empowered to drive development and implementation of Strategic Plan
 - High level political commitment to decentralised information use
 - Use HMN assessment tool framework to develop Strategic Plan
2. Decentralise data analysis and use to regions
 - Involve all stakeholders (data users / producers) for HIS Strengthening
3. Appoint a National epidemiologist
4. Develop a formal training course for Health Information Officers at a local institutions (e.g. MIH)

Annex 1 Results of HMN Assessment

Methodology

The approach was a combined one, with a mixture of group work at a workshop (70 participants in 4 groups) and a series of meetings with individual experts (TB, NHA, Immunisation, Vital registration etc) and groups of experts (medical records officers, HIS unit, CSO,) In addition, a number of sites were visited (Regional health offices, Hospitals, Area health Centres, community health Centres, CSO offices) to see the reality on the ground and to get an impression of the skills and needs of front-line workers, middle managers and policy makers

Groups were given the tool to complete and hand back with a combined score and detailed comments; with individuals the tool was followed as an interview tool and responses marked during a discussion.

All responses were scored and entered onto the Excel tool with different respondents in different columns and comments where appropriate.

Results with HMN tool

Overall the HIS in Mauritius is highly adequate, with particular strengths being the Census, Vital Registration system, surveys and disease record systems. Data quality and information products are excellent.

Detailed results are available electronically and the following is a summary of scores, followed by a narrative report

Resources	72%
Policy and planning	38%
Institutions, human resources & financing	85%
Infrastructure	87%
Indicators	70%
Data sources	80%
Census	82%
Vital statistics	99%
Population-based surveys	85%
Health & diseases records	88%
Health service records	62%
Resource records	64%
Data management	10%
Information products	90%
Dissemination & use	57%

The major area of concern is data management, though use of information for policy and planning is also weak and dissemination and use needs strengthening.

1 **National HIS resources**

Planning and policies

Legislation, regulations and procedures exist and are enforced, but enforcement in the private sector is a problem.

There is no specific HIS strategic plan but there is an overall E-business strategic plan that SHOULD cover HIS, but has not been developed with sufficient input from users. There is also an inter-ministerial ICT strategic plan.

There is no national or regional committee to monitor or coordinate HIS and HIS meetings are not regularly held ... yet the system functions well without it. The MoHQL put together meetings to organise this assessment, but it is not standard practice

Financial and human resources

Central Statistical Office (CSO) coordinates census and vital registration, is highly skilled and has more than adequate capacity to design, perform and analyse census and vital registration systems. They work closely with MoHQL, though formal structures are weak.

"Many of our staff do not understand basic medical terminology they work with every day"

Chief Records officer, Mr Monohur

Within the MoHQL, the HIS is split between medical records and Information, resulting in some duplication. There is adequate number of staff (>500) in the medical records office and in the statistical office.....), but overall leadership is weak as there is no epidemiologist in the country to manage the overall M&E framework.

Skill level appears reasonably good and there is acceptable turnover at all levels, though there is no national Epidemiologist to ensure data analysis from a health perspective. Training is mainly in-service training and there are no formal courses or advanced diploma or degree courses. Staff at all levels need more training on computers and data use, for technical staff to be more efficient

Infrastructure

The basic supplies and forms are there for data collection to function.

Computerisation is surprisingly weak, with no central data warehouse, old computers, databases 15 years old (Dbase 3) that do not "speak to each other" and local networking poor, though all regions have internet. Computers rarely break down, but when they do, in-house support sometimes takes a long time to act

Budget is adequate but need central permission to buy computers and basic networking equipment.

Way forward:

1. Ensure that the top level inter-sectoral committee continues to meet regularly to drive the implementation of the strategic plan
2. Set up technical committee to oversee M&E framework.

3. Develop overall HIS strategic plan to integrate with E-business plan and ICT strategic plan.
4. Appoint a national epidemiologist.
5. Strengthen decentralised data analysis and use
 - a. Modify data flow to go to regions for collation and analysis
 - b. Implement monthly report by hospitals and regions
 - c. Appoint epidemiologist to drive data use process
 - d. Train regions on data use
6. Upgrade computer system to provide
 - a. Immediate implementation of patient registration system
 - b. central data warehouse -
7. Training of staff at all levels on data use and computers

2 Indicators

The information system is data driven rather than action driven, and, though there are indicators, they are not selected according to explicit criteria and are not widely used, as evidenced by the fact that MDGs are not well known and do not form the core of the HIS. CSO does not have access to data on all MDGs for its reports.

"Our weakness is that, while we have the information, we do not provide feedback to the people who provide us with the data"
Chief Statistician, Mr Jeannody

Indicators are centrally selected and in practice not all stakeholders are involved ... particularly programs, regional directors, medical superintendents and NGOs, should have more say on developing indicators that are useful to them
Feedback is weak. Feedback should be as frequent as data submission - weekly or monthly, not only through ANNUAL reports.

Way forward

1. In collaboration with all stakeholders, develop a core set of indicators that are MDG-focused and useful at all levels
 - a. Monthly reports on these indicators from regions
 - b. Regular feedback from central and regional level on indicators
2. Training of staff to analyse and interpret indicators

3 Data sources

Census

There is a long tradition of census in Mauritius, with the first census performed in 1848 and a Census every 10 years since then, with the next census due in 2010. The vital registration system covers 98% of deaths and births so no mortality questions are included and there was no post enumeration survey, as household surveys do continuous cross checking.

Data is analysed and interpreted locally within a year, producing reports that break down data by age, gender, and locality with descriptive statistics available

down to district level. Micro-data are widely available for non-commercial purposes, with specific reports being produced on request. Census data is widely used at national and regional level, but not at district level.

Civil Registration

Civil registration for births and deaths dates back to the 18th century under French rule, with amendments in 1982 when marriages were added to the system. The system today is excellent and covers >98% of all births and deaths,

eliminating the need for census mortality questions and crosschecks. Doctors use ICD10 to certify cause of death, with an “ill-defined” category of only 6.5%. Registration data is collected, processed and analysed locally at 48 stations. Widely available 6 monthly reports break down data into age, gender and locality but not socio-economic status.

Again, continuous multiple households performing regular data quality control through continuous cross checking with local surveys and census

There is no need for sample registration system, Demographic surveillance system or verbal autopsy

“Vital registration in Mauritius is not just the best in Africa, it is among the best in the world”
Hamish Bundhoo, Director of Statistics

Population surveys

Mauritius relies mainly on reports from health services and does not do many health –related surveys, as it is felt that service data and vital registration is sufficiently good to not need surveys.

Surveys that have been done include a multipurpose survey, specific NCD and HIV surveys and an occupational health survey. These show excellent local survey capacity, done to full international compatibility with data available on request.

Ministries do collaborate, but coordination should be more structured to coordinate planning of surveys. This should be a key function of the multi-ministry technical committee. Socio-economic data is there but analysis does NOT disaggregate for socio economic status.

“Our routine service data and vital registration is so good that we feel there is no need to carry out special surveys”
Mrs Mootosamy Veelar, Statistician

Individual Record

There is an excellent disease surveillance system, further strengthened after the 2006 Chikungunya outbreak. There is a good notifiable disease system with excellent (100%) reporting from all levels of the system and epidemics dealt with at regional level. Laboratory results are reported for Hepatitis, syphilis, HIV and for outbreak verification. However the graphing and mapping culture is weak. Hospital records are excellent, with an impressive system of retrieving facility based records before patients come for follow up medical clinics, ICD10 classification of every hospital discharge and death Bulletins are published annually and widely available.

Integration of data capture forms is reasonable, but could be better standardized and coordinated into one composite form for each facility / reporting unit.

Service Records

The public sector data collection system is fine, but the private sector is a problem. Great emphasis is placed on hospitals, while the PHC units have a relatively weak system that collects only attendance.

Data analysis is very centralized. Supervision tends not to focus on information use and there has not been a facility survey to assess service quality. There are staff at all levels, but they do not have two year training or formal in-service training, though most of them get regular hands-on in-service training.

Feedback is very weak, coming only in the form of an **annual bulletin** published regularly every year. Proposals have been made (April 2007) to improve the format of the annual report by increasing analysis and changing layout.

Decentralized analysis and use at regional and institutional level should be the principal focus of the strategic plan

Resource Records

There is a facility database that is regularly updated, but there is no unique clinic identifier and no GPS coordinates (with ministry of housing but NOT used in MoHQL). Maps / GIS are not widely used to display health data. There is only one map with health facilities that is widely distributed, but staff and services are NOT mapped.

Human Resources

There is a regularly updated national human resources database that tracks the number of health professionals working in the public and the private sector by major professional category, but not the annual numbers graduating from health-training institutions.

There is however a problem to get data from the Private sector

Financing and expenditure

The NHA was conducted once, in 2006 for 2001/2. NHA findings are not widely known or easily accessible. All knowledge of this activity appears to be concentrated in the hands of one person.

"The NHA was very well done, but it was only once, and a long time ago"

HIS Statistician, Mr Rujjoo

Financial records are available on general government expenditure on health and private expenditure on health. There is a system for tracking budgets and expenditure by financial agents disaggregated by regional level
Inadequate numbers of qualified, long-term staff are deployed to work on the National Health Account (NHA).

Because it has only been done once, NHA has NOT been used for policy formulation and resource allocation. However it does provide information on financial sources, financial agents; providers; and functions and on health

expenditure by major diseases, health program areas, geographical and administrative region as well as target populations.

Equipment, supplies and commodities

Each public sector facility is required to report at least annually on the inventory and status of equipment and physical infrastructure and least quarterly on its level of supplies and commodities.

However **this system is weak** and periodicity and completeness of reporting is inadequate and there are NOT sufficient and adequately skilled human resources to manage the system.

Reporting systems for different supplies and commodities are not integrated and managers at national and regional levels are not able to routinely reconcile data on the consumption of commodities with data on cases of disease reported.

Way forward

1. A multiple indicator cluster survey to cross-check key service indicators
2. Analysis by socio-economic status for births and deaths and for individual and service records.
3. Improve private sector reporting
4. Empower regions to analyse and interpret service data using indicators
5. Improve data analysis from PHC units
6. Improve feedback of information to data users and collectors.
 - a. monthly written feedback to hospitals and programs
 - b. During supervision
7. Strengthen capacity of all HIS staff
 - a. Regular, formal training for HIS staff at all levels,
 - b. Continue current hands-on in-service training
 - c. Institutionalise formal, structured institutional training for HIS staff (Certificate, Diploma, Degree)
8. Facility database strengthened through
 - a. GPS coordinates and a unique identifier for each reporting unit
 - b. Infrastructure, Staff and equipment linked to facility
9. Geographical Information System linked to HMIS database to show
 - a. service, infrastructure and staff distribution
 - b. Population distribution related to infrastructure
10. NHA to be conducted annually and results better disseminated
11. An integrated and regular equipment and inventory reporting system for institutions managed by regions

4 **Data management and computerisation**

Data management is the weakest component of the Mauritian HIS, scoring only 10%

There is no written set of procedures for data management (data collection, storage, cleaning, quality control, analysis and presentation)

The country does not have an integrated data warehouse containing data from population-based and institutional data sources (including health programs) and there is no user-friendly reporting utility accessible to users

There is no metadata dictionary that provides definitions about data use in indicators, specification of collection methods used, periodicity, geographical designations (urban/rural), analysis techniques used and possible biases
Unique Identifier codes are not used in different databases and there is no complete relational table available to merge them.

"The JNH record system could be easily set up in this hospital and would make everyone more effective but we do not have the authority to implement it here"

Senior MR Officer Mr. Kedoo

Reports suggesting improved computerization have been circulating for years, and an expensive attempt was made at one hospital (Nehru) but was not adequately followed through and a lot of money was wasted. Everyone is now waiting for the E-business strategic plan, which is going to "solve all the problems" ... in the meantime, computerization is surprisingly weak for such a data-rich country and many small things such as simple local networking and developing gateways between systems, which could improve computerization are not being done, while everyone awaits the E-business plan.

"I use a computer at home, but at work I do not use one as I have not been taught to use the laboratory system "

Principal Technician Mrs Jugessur

Way forward

Computerisation should be tackled urgently, starting small and growing incrementally, building on the systems that exist already and using skills that are there already, rather than waiting for a "big bang" solution to all problems.

1. Stimulate a culture for computerising existing data by building on and supporting what already exists in the medical records office at Nehru Hospital and the cardiac centre e.g.
 - a. Networking existing computers
 - b. Making printed labels for clients attending special clinics
 - c. Linking laboratory and medical records
 - d. Putting computer use into the scope of work of OPD and ward staff
2. Develop written procedures for data management
3. Set up an integrated data warehouse at national and regional level

4. Develop a metadata dictionary with data definitions
5. Ensure that there are unique identifier codes for database elements
6. Develop human resource capacity to adequately manage data
7. Consideration should be given to Free open-source systems that can be locally adapted, rather than expensive “black box” commercial packages where the MoHQL does not have access to the source code.

5 Data Quality

Data quality is generally highly adequate for service delivery. Virtually the only weakness is the fact that there is a consistent lack of breakdown by socio-economic status. Data for health expenditure is hampered because there is no regular national Health Accounts

Under 5 Mortality

Under 5 mortality is captured by ongoing, international-standard vital registration of >98% of child deaths reported annually using ICD10 for the past 10 years, with minimal variation- a slow improvement from 19.4 in 1990 to 15.3 in 2008.

Reports are not broken down by socio-economic status

Maternal Mortality

Maternal mortality is also covered by 100% registration, followed by local investigation into causes and reported annually for the past 10 years, again showing consistent improvement but with some variations because the numbers are so small (6 maternal deaths in 2007). Data quality is cross-checked by civil Status data, police reports and household surveys.

HIV prevalence

HIV in Mauritius is mainly among injecting drug users, who have regular random sampling. In addition the ANC population (17,000 tests) is screened anonymously (0.25% in 15-24 year olds), blood is tested (40,000 tests) and approximately 10% of the population is screened voluntarily. Reports are published annually with no major discrepancies

“The socio-economic data is there if we want to analyse it, but it is not in the reports”
CSO Statistician Mrs CassimAli

Measles Vaccination

Coverage can be estimated from routine administrative statistics submitted by 90% of immunizing health facilities (7% private). These statistics are systematically reviewed at each level for completeness and consistency, and inconsistencies investigated and corrected. To calculate coverage, reliable estimates of population are available and projections are published monthly and annually.

Coverage has not been measured by household surveys in the past 5 years but an annual estimate is published, based on administrative statistics and data is consistent between reports

Coverage is based on 90% submission rates and is disaggregated by: sex, age and locality but NOT socioeconomic status (income, occupation, education of parents);

Attended deliveries

The percentage of deliveries attended by a skilled health professional can be estimated from routine administrative statistics submitted by 90% of health facilities and are reviewed at each level for completeness and consistency, with inconsistencies investigated and corrected.

The percentage of deliveries attended by a skilled health professional has NOT been measured by national household surveys in the past 5 years. However estimates have been published monthly for the past 10 years and datasets are remarkably consistent, being based upon 98% coverage. Most recent estimate disaggregated by age and locality but not socioeconomic status.

Tuberculosis Treatment

There are approximately 100 TB cases a year, mainly in diabetics and chronic alcoholics. Newly diagnosed cases are treated for 2-3 months in a special hospital during the intensive phase, after which they are treated on DOTS, supervised by both family and health workers.

Data from quarterly reports is regularly analysed and shows no discrepancies over time, except that the previous 2:1 male to female ratio is now increasing to 3:1. There is 9% HIV cross infection, a very low level and only 1 case of drug resistance has been identified.

Government health Expenditure

The NHA was done in 2006 for 2001-2 using international standards, using “off the shelf” records with consistent definitions of expenditure (audited reports) on health across components and over time, using ICHA codes. Another NHA is planned for 2009, but is plagued by staff shortages.

Disaggregated estimates of general government expenditure are available by regional level and include externally funded government expenditure by source of funding (only 0.4%). Detailed information on sources and statistical methodologies are available and departures from international guidelines, adjustments carried out and their estimates are recorded.

Thus a good NHA, but not done sufficiently regularly or sufficiently well known outside of the health Economist office.

Private Expenditure

This was carried out as part of the NHA in 2006 for 2001-2 and was done according to the same high international standards. A committee included all role players (including customs and private insurance) and used NHA guidelines throughout. Four matrices were produced according to ECSCA – HC standards as proposed in an Arusha workshop.

Workforce Density

This information is not widely known and this component needs to be addressed in the strategic plan. No informant was able to give reliable information about such a survey.

Risk factor

A population-based national **smoking** prevalence survey has been done annually for the past 10 years

Like all Mauritian surveys, these are not disaggregated by socioeconomic status but by demographic characteristics and locality.

Way Forward

1. NHA done at least every two years and results made more available
2. Multi-indicator cluster survey to cross-check service data results
3. Workforce survey needs to be done
4. Other surveys to be disaggregated by socio-economic status

6 Data dissemination and use

Data dissemination and use is weak, considering how much good quality is available. Promotion of a culture of information use through a process of decentralization, action orientation, responsiveness and transparency is highly recommended

"We have a good culture of collecting data, but we do not have a culture of using it"
Chief Demographer, Mr Sunkar

Demand and analysis

Graphs and Maps are **not** widely used to display information at administrative offices or at health facilities.

Policy and Advocacy

Integrated HIS summary reports on indicators (including MDGs) are distributed only annually and then not to all relevant parties

Planning and priority setting

Health information (population health status, health system, risk factors) is used in the National planning and resource allocation processes (e.g. annual integrated development plans, medium-term expenditure frameworks.)

"Every month we get asked for information we have already sent to head office"
MRO, Dr Jeeto Hospital

There is a program based budgeting process, but no long-term health strategic plan and no annual health sector review is performed

Resource Allocation

HIS information is used by some regional management teams to set resource allocations in the annual budget processes.

There is a strong tradition of using HIS information to advocate for equity and increased resources to disadvantaged groups and communities by documenting their disease burden and poor access to services

"Data flow is a one way street. We send the data to the ministry, but never hear what the results are"
Medical superintendent, Dr Rampete

Implementation and action

Managers at regional health offices do not regularly use health information for health service delivery management, continuous monitoring and periodic evaluation. This is done only at national level.

Similarly it is only at national level that health information is regularly used for health service delivery management, monitoring and evaluation and it is only at National level that information on health risk factors is systematically used to advocate for the adoption of lower-risk behaviours by the general public and by targeted vulnerable groups

Way Forward

1. There is an urgent need to decentralize the analysis and use of health information for management, monitoring and evaluation of service delivery.
2. Regional offices should be strengthened and Medical Records officers trained to do this analysis, rather than just sending data upwards
3. Graphs should be more used to present information locally
4. A Geographical Information System should be established as a matter of urgency to portray the vast amounts of available information on maps.
5. Feedback should be provided by all levels to the levels below, using key performance indicators (PBB and MDG) rather than raw data
6. Collaboration with CSO should be strengthened to enhance accuracy of MDG reporting
7. Annual budgeting (MTEF, resource allocation etc) at regional level should incorporate analysis of routine health data
8. Annual health reviews should be held at which there is active participation and presentation by regional and AHC staff as well as programs, planners and policy makers
9. The role of MOHQL should change from data entry and basic analysis to more sophisticated quality control, trend analysis and statistical projections
10. An epidemiologist or data use expert should be employed to guide this process. While a Mauritian is being trained, the MoHQL should consider employing an expatriate to support overall HIS strengthening.

Annex 2 List of persons Consulted

The following list includes persons with whom individual interviews were held and does NOT include participants at the two steering committee meetings or the HIS workshop.

MoHQL HMIS unit	Position
Mr Nasser Jeeanody	Head HIS unit
Mrs. Chutoo	Statistician
Mr Jose LaRhubarbe	Senior Health Statistician
Ms Purnima Ramnarain	Statistician
Mr Rujjoo	Statistical Officer
Ms Dhaneeswaree Woodhoo	Senior statistical Officer
Mrs Mootoosamy Veelar	Statistician
Ms Usha Bundhoo	Senior statistical Officer
Ms Rooranee Limbera	Statistical Officer
Ms Tawheeda Rosebully	Statistical Officer
Medical Records Section MoH	
Mr Monohur	Chief medical Records officer
Mr S. Borthosow	Principal medical Records officer
Mr Mohamed Salim	Principal medical Records officer
Mr Bheekun	Principal medical Records officer
Central Statistical Office	
Dr H Bundhoo	Director of Statistics
Mrs Cassimally	Senior Statistician
Mrs M. Ganoo	Principal Statistician
Ministry of Health HQ	
Dr Hon Rajesh Jeetah	Minister of health
Mrs R Veerapen	Senior Chief Executive
Dr Neerunjun. Gopee	Director General Health Services
Mr Dabeedin	Permanent Secretary
Dr K Pauvaday	Director Health Services
Mr S. Sobee	Assistant Secretary Administration
Sumil Kumarsingh Sohun	Chief health inspector
Mr Ramphul	Principal Health Economist
Dr Ahmed Saumtally	In charge AIDS unit
Mr Sunkur	Chief Demographer
Mrs M. Arnasala	Chief Midwife
Ms Akalu	Demographer
MoH Regions and districts	
Dr S.P.W. Maharaje	Regional Health Director
Dr Domah	Regional Health Director
Dr Bautjeewon	Regional Health Director
Dr Ramidyal	Regional Health Director
MoH Hospitals	

Dr M.F Rujeedawa	TB Consultant Chest Disease clinic
Dr Ramputh	Medical superintendent
Mr A.S. Kureemun	Senior health Records officer
Dr Purmessur	Acting MS Victoria hospital
Dr Chummun	Acting MS eye hospital
Mr Keedoo	Senior HRO Victoria Hosp
Dr Balacchi	Victoria hospital
Dr Rajkumo	O&G Victoria hospital
Mrs Bhugul	Medical Records officer JNH
Mrs Jugessur	Principal Technician, , JNH
Mr D. Shreedan	Haematology lab, JNH
AHC, CHCs	
Sheik Madar	CHEO community health Care Officer
Dr Lomesh Adnath	Medical Officer
Mr Nugrapen	Asst Med Records officer
Mr L Chowdry	Health Records officer
Mr Thomas	Health Records officer
Other organizations	
Dr Obdatty	UNAIDS
Constantine Chikosi	World bank

Annex 3: Towards an Action driven HIS

While Mauritius has an excellent data collection system there is a problem in that the data collected is not adequately used for evidence-based decision making.

The Health Metrics network (HMN) assessment found that, while the overall HIS is highly adequate, the areas of Data management, Data use for policy and planning and Dissemination and use are weak.

Way forward –

1 Indicator Set

Health managers need information to improve the quality of their work and to improve coordination and integration of services. An action-driven HIS with effective feedback mechanisms establishes a direct link between the production and dissemination of health intelligence to policy makers and managers. There is a need for stronger collective management and accountability of information, guided by a clear sense of overall strategic direction and purpose. The private sector should be included in this process.

In order to get ACTION, it is essential that middle and top managers analyse and interpret available data on at least a monthly basis, in order to monitor current priorities and to provide an “early warning” for future problems

A core set of key performance indicators will be selected with full collaboration of these managers. A proposed set is attached as annex 1, which is a ***DRAFT set of indicators and needs to be discussed with all roleplayers before being finalized and tested.***

1. Indicators will initially use only data that is already collected, and will incorporate
 - a. Performance Indicators from the performance Based Budget
 - b. The existing weekly return of hospitals
 - c. Key indicators from notifiable diseases and other priority programs
 - d. Millennium Development Goals (where appropriate)
2. Indicators will be selected on the basis of their Reliability, Action-orientation, Validity, Ease of collection, Specificity and Sensitivity.
3. These indicators will be analysed at regional level and reported to the MoH with comments on the actions that have been taken to improve service delivery
4. MoH Statistics unit will compile these indicators, disseminate them to HQ departments and provide monthly feedback to regions
5. After an initial 3-month trial period, the indicators will again be reviewed for their usefulness, and the list may be changed

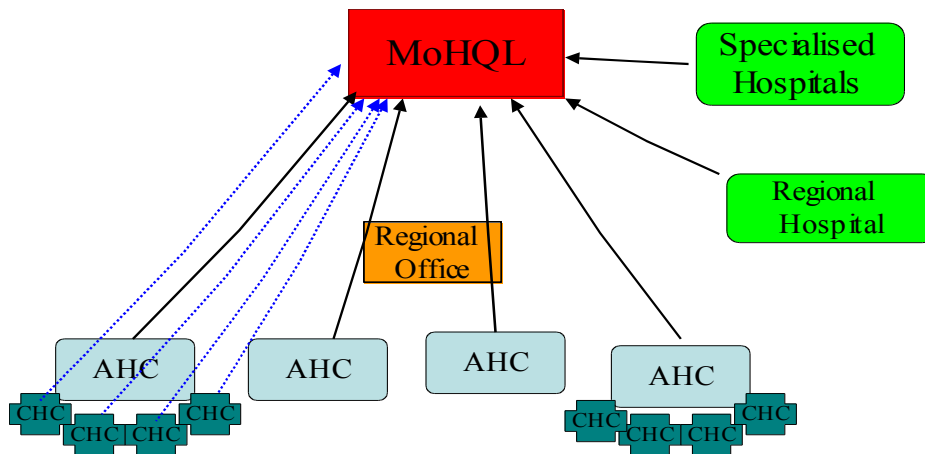
Proposed Activities

Activity	Date
Presentation of indicators and proposed data flow to Top Management committee	Monday 15 th December
In-depth discussion with Director-General	Tuesday 16 December
Presentation of indicators to Technical committee	Thursday 18 th December
Discussion with broader audience at Strategic Planning Workshop	January 2009
Testing of indicators in Region 3 (Flacq)	January 2009
Rollout of indicators to all regions	April 2009

2 Data flow rationalization

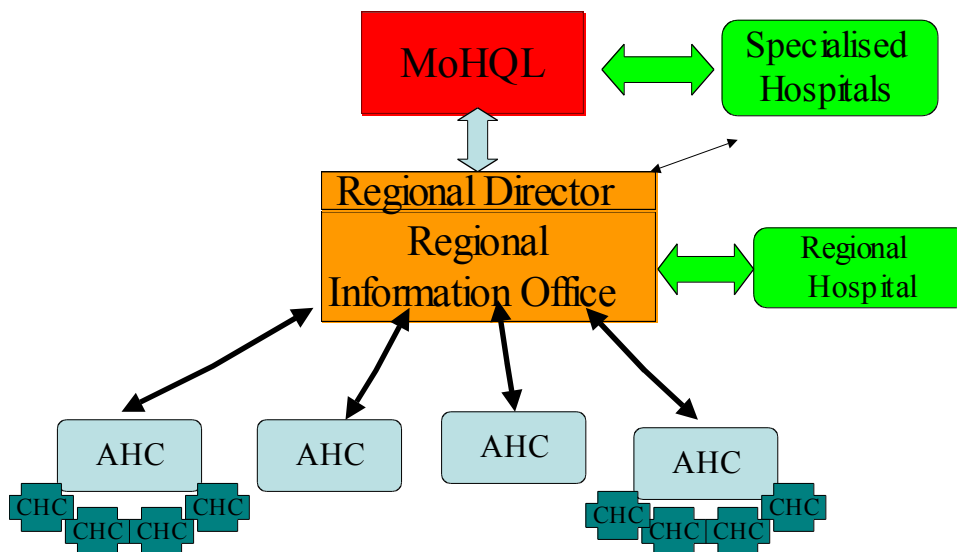
Data flow is currently one way to the MoHQL, bypassing the regions and without feedback to data providers and data users. The regional office is not part of the analysis process, gets minimal information and no regular feedback (as shown by the one-way arrows). PHC data from AHCs and CHCs is not analysed as all emphasis is placed on hospital data. The Private sector is not fully involved in the process and as a result does not participate actively.

Current data flow



The revised data flow sees a strengthened REGIONAL information office that collects all data from within the region, reports to the MoHQL through a **single information channel** and provides regular feedback to Hospitals, AHCs and the CHCs as well as the private sector. This will require strengthening of the Regional office through creation of a Health Information Office headed by a senior Information Monitoring officer. Similarly AHCs would need dedicated staff to ensure reporting and analysis of PHC activities. The main locus of data analysis would shift from central Ministry to Region and all reporting units would have regular written feedback.

Revised data flow proposal



In the short term, these performance indicators should be implemented and tested in at least one region, where the management is willing to participate (e.g. Flacq Region)

3 **Strengthening Medical Records section**

A number of “**low hanging Fruit**” should be plucked within the medical records offices at local level such as:

1. Implementation at all hospitals of the Medical Records module currently functioning at JNH and the cardiac centre
2. Network existing computers locally and improving AHC computerisation
3. Encouraging regions to collaborate with local PRIVATE institutions to submit data
4. Make a gateway between medical records and the output of the laboratory computers
5. Training of hospital medical records officers in data analysis so that they can start analysis
6. Posting of Medical records staff to AHCs to strengthen the data collection capacity there
7. Providing monthly feedback to regions from the MOHQL
8. Encouraging Hospitals and Regions to collect and **analyse** data locally and to report to MOHQL
9. etc etc ... up to local initiative!

This would give immediate, good results with a minimum of expense and effort, and create a happy, fulfilled workforce.

4 **Strategic planning**

In the **longer term**, the strategic plan to be drawn up (January 2009) will address the wider issues identified in the assessment such as written guidelines, computerization, health surveys. This strategic plan should be integrated with the wider context of the E-business plan, the health sector Strategic plan and the ICT strategic plan.

Details of this proposal are on another document “Proposals for Strategic planning”, also annexed to the Assessment report

**“We have 21st century skills
but 20th century tools”
Mr Thomas, Records officer**

Annex 1 Key performance Indicators

Table 1 Hospital Report

HOSPITAL REPORT - Monthly Performance Indicators				
	Indicator	SOURCE	NUMERATOR	DENOMINATOR
OUTPATIENT DEPARTMENT				
1	OPD attendance per capita	MRO	OPD attendance total	Total population
2	OPD attendance under 5 per capita ¹	MRO	OPD attendance under 5 total	Total population under 5
3	% Accident emergency attendance	MRO	Accident emergency attendance	OPD attendance total
4	% Sorted OPD attendance	MRO	Sorted OPD attendance	OPD attendance total
5	% Unsorted OPD attendance	MRO	Unsorted OPD attendance	OPD attendance total
6	Specialist clinics held total	MRO	Specialist clinics held total	OPD attendance total
7	Cases per specialist clinic	MRO	Attendance specialist clinics	Specialist clinics held total
8	% Assault cases	MRO	Assault cases	A&E attendance
9	% Sexual Assaults	MRO	Sexual assaults	A&E attendance
10	% Road Traffic Accidents		Road Traffic Accidents	A&E attendance
11	URTI incidence	MRO	URTI	Total population
12	Cancer incidence	Canc Reg	New cancer cases	Population over 15 years
INPATIENT DEPARTMENT				
13	Admissions rate	MRO	Total admissions	Total population
14	Bed occupancy rate	MRO	Total midnight headcount	Approved beds
15	Average Length of Stay	MRO	Total midnight headcount	Admissions total
16	Admissions per ward nurse	MRO	Admissions total	Nurses employed
17	Admissions per doctor	MRO	Admissions total	doctors employed
18	% DM discharged	MRO	DM discharged	Total discharges

¹ This is NOT currently collected, but should be in order to monitor under 5 morbidity

19	Circulatory diseases discharged	MRO	Circulatory diseases discharged	Total discharges
20	Alcohol related cases	MRO	All alcohol-related cases	Total discharges
	MATERNITY			
21	% Deliveries by midwives	Maternity	Deliveries by midwives	Expected deliveries
22	% Deliveries by doctors	Maternity	Deliveries by Doctors	Expected deliveries
23	%Complications reported ²	Maternity	%Complications reported	Total deliveries
24	% Low birth weight	Maternity	Birth weight undrer 2500 gms	Total live births
25	Caesarean Section Rate	Maternity	Caesarean Section Rate	Total deliveries
	DEATHS			
26	Perinatal mortality rate	MRO	Stillbirth + deaths 0-7 days	Total deliveries
27	Maternal deaths	MRO	Maternal Deaths	
28	?? Maternal death audits performed	Med Sup	Maternal death Audits performed	Maternal Deaths
29	Crude Death Rate (Inpatient)	MRO	Total Deaths	Total Admissions
30	Death rate for Diabetes	MRO	Total Deaths DM	Total Admissions DM
31	Death rate for Circulatory disease	MRO	Total Deaths Circulatory disease	Total Admissions Circ
32	Death rate for ???	MRO	Total Deaths ??	Total Admissions ??
	SURGERY			
33	% Operations performed planned	Theatre	Operations performed cold	Operations performed total
34	% Operations performed emergency	Theatre	Operations performed emergency	Operations performed total
35	Minor Operations performed		Minor Operations performed	
36	Operations per surgeon	Theatre	Operations performed total	Surgeons employed
37	DM Amputations performed	Theatre	DM Amputations performed	1
38	Cataracts Performed		Cataract operations performed	1
39	% Cases on surgical waiting list	Theatre	Cases on surgical waiting list	Operations performed total
	DIAGNOSTICS / BLOOD BANK			

² Again NOT collected currently but should be to see WHY som many C/S and why MMR is increasing

40	Laboratory tests per patient	Lab	Total laboratory tests performed	OPD attendances+ admissions
41	Laboratory tests per staff	Lab	Total laboratory tests performed	Laboratory staff employed
42	Total blood units cross matched	Bl. bank	Total blood units cross matched	1
43	Total blood transfusions performed	Bl. bank	Total blood transfusions performed	1
44	Xrays performed total	Xray	Xrays performed total	1
45	ECG performed	ECG	ECG performed	1
	PHARMACY			
46	Pharmacy Items bought locally	Pharm	Items bought because of stockout	
	OTHERS .. for discussion			

Table 2 – Regional Report

REGIONAL REPORT - Monthly PHC Performance Indicators				
	ATTENDANCE	SOURCE	Numerator	Denominator
1	Attendances over 5 per capita	MRO	Total attendances over 5	Total population over 5
2	OPD attendance under 5 per capita ³	MRO	OPD attendance under 5 total	Total population under 5
3	Average consultations per doctor	MRO	Total consultations by doctors	Doctors employed OPD
MATERNAL HEALTH				
4	Antenatal care first visit coverage	MCH	ANC 1st attendances	Expected pregnancies
5	% Antenatal care before 3 months	MCH	ANC 1st attendances < 3 months	ANC first attendances
6	ANC with Haemoglobin < 11 Gram %	Lab	ANC Hb < 11 gm %	ANC HB tested
7	ANC tested for HIV	Lab	ANC HIV tested	ANC first attendances
8	% Births by skilled attendants	MCH	% Births by skilled attendants	Expected deliveries
9	% Low birth weight	MCH	Total Deliveries <2500 gms	Total deliveries weighed
10	FP % Current users	FP	Total FP users	Female pop. 15-49 yrs
	FP % New attendances	FP	Family Planning New attendances	Total FP users
CHILD HEALTH				
11	% Underweight under 5 years	Nutrition	Underweight under 5 years	Total children weighed
12	% Overweight under 5 years ⁴	Nutrition	Overweight under 5 years	Total children weighed
13	BCG coverage under 1 year	EPI	BCG under 1 year	Population <1 year
13	DPT3 coverage under 1 year	EPI	DPT3 under 1 year	Population <1 year
14	Measles coverage under 1 year	EPI	Measles under 1 year	Population <1 year
15	DPT!-DPT3 dropout rate	EPI	DPT1-DPT3	DPT1
DENTAL				
14	Dental attendances per capita	Dental	Dental total attendances	Total Population

³ This is NOT currently collected, but should be in order to monitor under 5 morbidity

⁴ In line with international classification NOT the 50th centile line!

15	Filling to extraction ratio	Dental	Dental fillings performed	Dental extractions performed
16	Flouride distribution coverage	Dental	Flouride distribution	Target population
17	Attendance per dentist	Dental	Dental attendances	Dentists employed
	DEATHS			
16	Infant mortality Rate	MRO	Infant deaths (0-11 months)	Children <1 year
17	Under 5 mortality rate	MRO	Under 5 deaths (0-59 months)	Children <5 years
18	Maternal Deaths	MRO	Maternal deaths	
	NOTIFIABLE DISEASES			
19	Notifiable diseases reporting rate	Notif.Dis	Notifiable diseases	Total population
20	Outbreaks investigated	Notif.Dis	Outbreaks investigated	Outbreaks reported
21	Conjunctivitis incidence	Notif.Dis	Conjunctivitis cases new	Total population
22	URTI incidence	Notif.Dis	URTI cases new	Total population
23	Food poisoning incidence	Notif.Dis	Food poisoning cases new	Total population
24	Syphilis Laboratory confirmed cases	Lab	Lab. confirmed Syphilis cases	Total population
25	Hepatitis (A, B, C) Lab. confirmed cases	Lab	Lab. confirmed Hepatitis A,B,C cases	Total population
26	Meningitis Laboratory confirmed		Lab. confirmed Meningitis cases	Total population
27	Leptospirosis laboratory confirmed		Lab. confirmed Leptospirosis cases	Total population
28	HIV on Anti retroviral treatment	HIV	Cases on Anti retroviral treatment	Total population
29	HIV Positive ANC 15-24 years	Lab	% ANC 15-24 years HIV Positive	Total population
30	HIV incidence	Lab	HIV new cases notified	Total population
31	TB incidence	Lab	TB new cases notified	Total population
32	% IVDU Methadone treatment rate	??	Cases on Methadone treatment	Known IV drug users
	SCHOOL HEALTH			
33	% primary school children screened	Sch	Primary school children screened	1° school children total
34	% screened children referred	Sch	Primary school children referred	1° school children screened
	HEALTH INSPECTION			
35	% sites inspected	HI	Sites inspected	Inspections planned

36	% cases sentenced	HI	Cases sentenced	Transgressions
	DISABILITY			
37	Disabled identification rate	CBR	New cases of disabled identified	Total Population
38	Appliances delivery rate	CBR	Number of appliances delivered	Disabled needing appliances
	NON COMMUNICABLE DISEASES			
39	Diabetes detection rate	NCD	Diabetes new cases detected	Target Population
40	% DM cases under control	NCD	DM cases under control	DM cases total
41	Hypertension detection rate	NCD	Hypertension new cases detected	Target Population
42	% Hypertension cases under control	NCD	Hypertension cases under control	Hypertension cases total
43	Cardiovascular disease detection rate	NCD	Cardiovascular new cases detected	Target Population
	OTHERS			
44	% Staff days on training		Staff days away from post on training	Total staff days worked
45	Health and safety incidents reported		Health and safety incidents reported	1

Annex 4 Strategic planning Proposal

Proposal for development of an HIS Strategic Plan in Mauritius

January 5th to 16th 2009

Following the Assessment of the Mauritius HIS in December 2008, (Phase 1 in annex 1) it is proposed to follow it up with a further 2 week consultancy from 7th to 18th January in order to prepare for and develop a strategic plan (phase 2, Modules 1 and 2 in annex 1)

Activities

The preparation and implementation will follow the HMN *Guidance for the Health Information Systems (HIS) Strategic Planning Process*. Steps, Tools and Templates for HIS Systems Design and Strategic Planning (Version 4 - February, 2008) and will be conducted with full participation of a core team from the Mauritian government (MoHQL and CSO)

Planning Module 1 Preparing for HIS Strategic Planning

In steps 1-3 (Annex 2) the core team will review the assessment results, produce average scores for subsystems and assessment information categories; identify priority subsystems and define HIS problems

Produce an inventory of on-going HIS improvement efforts, assemble other information and prepare for strategic planning

Planning Module II Conducting Priority-setting and Strategic Planning

Confirming priority HIS subsystems and problems, visioning, objectives, strategic interventions, and implementation phasing

A three- day workshop will be held for approximately 40 key stakeholders from all levels of the HIS, using the HMN strategic planning approach

It is anticipated that, having completed module 2, the core team will then complete module 3, detailed HIS Strategic Planning and costing, as well as Phase 3 – Implementation (See annex 4)

Outputs:

To be produced in conjunction with the Core Team

- 1) Identification of priority subsystems
- 2) Definition of key problems
- 3) Clarification of HIS vision
- 4) Definition of objectives, strategic interventions,
- 5) Implementation phasing

Annex 4.1 HIS Strategy Development Process and Time-phasing

Phases, Modules and Steps	Optimum Implementation in Months											
	1	2	3	4	5	6	7	8	9	10	11	12
Phase 1 - Leadership, Coordination and Assessment												
Organization – Participation, Coordination, Roadmap												
HIS Assessment – Planning, Conduct and Report Preparation												
Phase 2 HIS Priority-setting and Planning												
<i>Planning Module I Preparing for HIS Strategic Planning</i>												
Step 1-2: Review the assessment results, produce average scores for subsystems and assessment information categories; identify priority sub-systems and define HIS problems												
Step 3 Inventory on-going HIS improvement efforts, assemble other information and prepare for strategic planning												
<i>Planning Module II Conducting Priority-setting and Strategic Planning</i>												
Steps 4 – 8 Confirming priority HIS subsystems and problems, visioning, objectives, strategic interventions, and implementation phasing												
<i>Planning Module III Detailed HIS Strategy Planning and Costing</i>												
Steps 9 – 12 Detailed strategy design, detailed implementation planning, intervention and activity costing, strategic plan document preparation, review and approval												
Phase 3 Implementation of HIS Strengthening Activities											Continuing →	

Annex 4.2: phases of Strategic plan preparation

Two major activities are carried out in Phase 1 of the HMN Strategy Design and Implementation Process for HIS Strengthening that are critical for setting the stage for the strategy design and planning process of Phase 2:

- 1) setting up the leadership, coordination, organization and management of the HIS strengthening process, and,
- 2) designing, conducting and reporting the results of the HIS Assessment.

Once the assessment of the HIS has been conducted, and the results have been enumerated using the HMN assessment spreadsheet tool, it becomes possible to begin preparing for the HIS Strategy Design, which is the purpose of Planning Module 1. There are 3 steps within Planning Module 1; all carried out by the staff of the Core Team, supplemented as necessary with staff support from various other offices and programs, particularly those that participated in the assessment.

Step 1 – Reviewing the HIS Assessment Results - This step may begin with the review and verification of the scores derived from the HIS assessment tool to identify and resolve any anomalies (missing or miss-coded values) in the scoring. If such review and verification was already carried out during the assessment analysis and report preparation, it does not need to be done here.

The main task of this step is to determine the average assessment scores for each assessment category, and HIS sub-system, and map the low-scoring questions (generally scores below 1.8 out of 3.0) across the HIS sub-systems in preparation for identifying priority HIS sub-systems and defining important problems.

Step 2 – Identify Priority HIS Subsystems and Define HIS Problems - By averaging the value of all responses in each HIS sub-system and identifying and **mapping the low-scoring questions**, it becomes possible to identify which HIS sub-systems and categories of information seem to most need attention for performance improvement. It is expected that when question responses are totaled and averaged, two to four of the eight HIS subsystems will likely be defined as Priority HIS Sub-systems for receiving attention during the strategy design. In addition, any low-scoring “Key HIS Assessment Questions” located in non-priority HIS subsystems will be identified, and listed in order that they will continue to receive attention. The low-scoring questions within each priority HIS subsystem and all low-scoring Key Questions will then be translated into HIS problem statements. Additional assessment results from other relevant assessments of health services and data may be considered in order to more fully define the HIS problems. If some priority HIS sub-systems have many constituent problems, the Core Team may wish apply selected criteria to establish relative priority among them. (A process for doing this is described in Annex C.) The result of this step is a listing of priority HIS Subsystems and all defined HIS problems, both within the priority HIS Sub-systems and for key problems outside of the priority subsystems. This list becomes the set of problems for which strategic interventions are to be designed in Planning Module II.

Step 3 - Prepare an inventory of on-going and planned HIS improvement efforts and assemble other information required for HIS Strategic Planning, including the planning programme process document -

A considerable amount of information is called for during the HIS Strategic Planning process in Planning Module II, the assembly of which should begin in Phase 1, as part of the HIS assessment, and then finalized during step 3 of Planning Module I. Critical among this material (which is enumerated in the following guide for this step) is the **current policy guidance** for national health sector and system development including:

- Health problems (risk factors, diseases and conditions) having a national priority for prevention and reduction, including national problem reduction objectives.
- Health services defined as essential for achieving the reduction and control of priority health problems, and for which coverage and quality targets have been set
- National health policy and strategy statements defining visions, principles and target population groups and communities

Additionally, it is important to enumerate on-going and planned HIS strengthening efforts, and their sources of financial and technical support. For this purpose, an inventory of on-going **HIS development projects and activities** is created at this point. Other materials as listed in the guidance for Step 3, are also desirable to the extent that they are available.

It is suggested that the Core Team review the titles and definitions of each Generic HIS Sub-system and identify the local subsystems and data sources related to each. A table can then be prepared for presenting these subsystems to the SWG early in the Strategic Planning programme

Finally, the HIS Strategy Design process, as carried out by the Stakeholder Working Group in Planning Module II, benefits from the preparation of detailed guidance, including supporting materials and recommended formats. This is referred to as the *HIS Strategy Planning Program* for which a generic version is attached as Annex D which must be tailored for the local schedule and participation, including the appropriate finalization and insertion of the above materials.

The assembly and preparation of this array of information takes time, and therefore, should begin early in Phase 1, as shown in Figure 2.

The following pages provide guidance for carrying out these three steps, along with recommended tasks, and formats, in the style of guidance that will be used in the HIS Strategy Planning Program and across all planning steps.

Annex 4.3: Program of the Core Team Workshop for the HIS Strategic Planning Process

Day and Timing	Session Topics	Responsible
Day 1		
(45 minutes)	1. Opening Plenary Briefings on: <ul style="list-style-type: none"> ▪ Background to the HIS Strategic Planning Process ▪ Objective of the HIS Strategy Planning Process ▪ Expected products ▪ Roadmap for the HIS Strategy Design and Planning ▪ Table of Generic HIS Subsystems and Local Titles ▪ Explanation of important terms 	
(30 minutes)	2. Health Sector Development Policy and Plan Framework Plenary Briefings on <ul style="list-style-type: none"> ▪ National Health Development Strategy and Plan ▪ National Health Development Objectives, Strategies, Values and Working Principles ▪ Priority Health Problems, Essential Health Services and Core Indicators 	
(60 minutes)	3. Step 4 - Priority HIS Subsystems and Problems Product: Consensus on Priority HIS Subsystems requiring strategic improvement and their constituent problems Presentation <ul style="list-style-type: none"> ▪ Results of the HIS Assessment and Prioritizing – HIS Subsystems and Problems most needing attention. 	
(120 minutes)	Sub-group Discussion – Priority HIS Subsystem and Problems Plenary Conclusions – Adjustments to and endorsement of the selection of Priority HIS Subsystems and their constituent problems	
(30 minutes)		
(20 minutes)	4. Step 5 - HIS Vision Product: HIS Vision Description Briefing	
(60 minutes)	Sub-group Work	
(30 minutes)	Plenary Sub-group Presentations	
(30 minutes)	Plenary Vision Discussion	
Day 2		
(45 minutes)	5. Step 6 - Current and Planned HIS Strengthening Efforts Products: Expanded inventory of ongoing HIS Strengthening Activities and support; Results of HIS SWOT Analysis; agreement on how to update the inventory Presentation: Current inventory of HIS Strengthening Activities and support, including briefings on the major efforts currently under implementation	
(60 minutes)	Plenary Discussion: Identification of additional on-going efforts to strengthen the HIS; earmarking of ongoing activities felt to support the strengthening of priority subsystems for inclusion in	

	the HIS Strategy; Discussion of HIS Strengths, Weaknesses, Opportunities and Threats; agreement on means for updating the inventory	
(15 minutes) (240 minutes)	6. Step 7 - Proposed HIS Objectives and Strategies Products: Improvement Objectives and Interventions for each priority HIS Information Category and Subsystem. Briefing Commence Sub-group work	
Day 3		
(60 minutes) (60 minutes)	1. Continuation of Step 7 Continuation of Sub-group work Plenary Presentations and Discussion	
(15 minutes) (60 minutes) (60 minutes)	8. Step 8 - Strategy Implementation Phasing Product: Confirmation of strategic interventions in support of the priority HIS subsystems, their placement into the recommended implementation sequence, and identification of responsible offices for each Briefing Sub-group Work Plenary Discussion and Adjustment	
(60 minutes)	Next Steps and Closing Product: Updated HIS Strategic Roadmap and confirmation of immediate next steps to finalize, review and approve the plan and staff/subgroup responsibility. Plenary Discussion and Closure	

Annex 4: Output of Module 3: The HIS Strategic Plan Document

Step 12 - The HIS Strategic Plan Document	
Participation: The members of the Core Team , possibly supplemented with technical writers who are familiar with the content of the plan	Estimated Time: Two weeks , although many pieces will have been drafted earlier in the planning process
Overview: This last step of Planning Module III prepares the major products of the HIS strategic planning process as a Strategic Plan document for presentation to the SWG and Steering Committee, along with other levels of the health sector and system and cooperating sectors, and to existing and potential funders and donors. The step also includes the process of reviewing the document, revising it for formal distribution and review, managing the review of the plan and moving it toward approval and funding	
Objective: The initial product of this step is a completed HIS Strategy and Plan document, which provides a full description and rationale for approving and funding the Strategy, and includes a number of annexes, which provide the details needed for decision-making and funding. This step also includes the tasks needed to obtain necessary policy and management support from the involved Ministries and Departments, and government and donor funding.	
Material:	
<ol style="list-style-type: none"> 1. Essentially, the products from all the steps of the HIS Strategic Planning Process. Some of the products are used in their entirety, often as annexes. 2. An illustrative annotated outline of the document 	

3. A note of guidance on preparing the Strategy and Planning Document

Tasks:

1. Early in the strategic planning process, it should be determined who will be the primary authors of the plan document. These staff should be present in the Core Team and/or SWG and fully participate in the steps of the planning process.
2. The intensive writing period should be set up and managed closely as were all preceding steps. It should be completed within 10 working days through the efforts of a small group of writers, supported by other members of the Core Team who will assist with the formulation and finalizing of each product of the planning process. The complete draft should be finished before the writing team is disbanded. The Core Team may then finalize the editing, formatting and document production.
3. The complete draft should be reviewed and commented on by a few selected members of the SWG who did not participate in its drafting, but who are fully familiar with the content of the strategy and plan and can offer suggestions for improving its accuracy and readability.
4. The Steering Committee and Core Team should devise and implement a modest plan review process aimed at simultaneously informing and obtaining feed-back and support from senior policy-makers in the Ministries supporting strategy implementation. This process should be scheduled for completion within two weeks of the final draft becoming available.
5. A similar process should be devised for meeting with serious potential donor agencies, known to have an interest in this subject, and particularly those who are already supporting HIS development. These meetings should be one-on-one, rather than in groups, and may need special presentations to be prepared.

Products:

1. A completed draft HIS Strategy and Plan document, including all annexes
2. A final document prepared for distribution, discussion and review.
3. Process and responsibilities for managing the process of plan review, approval and funding

Annex 5 Work Plan Arthur Heywood: Mauritius HIS Development:

Week - 1

Day	Activity	Agenda in brief
1	Meet Ms Meera Ganoo, Senior Statistician, CSO & Module Coordinator	Courtesy and Familiarization, CSO expectations out of the mission, Statistical standards, Metadata specs(?), Tabulation requirement and official publication schedules.
	Call on Mr Harish Bundhoo, Director CSO	
	Meet Mr Nasser Jeeanody, Chief Health Statistician	Courtesy and Familiarization, Ministry's expectation out of the mission, Information and Statistical needs for health policy, monitoring and evaluation.
	Call on the Chief Medical Officer	
	Call on the Senior Chief Executive and the Permanent Secretary, Ministry of Health & Quality of Life	
Meet Health Statisticians, Medical Records Organizer & his Assistants and Demographers in Ministry of Health	Understand calendar of statistical operations, Data collection and reporting practices, Tabulation plans and processes, Publication schedule and production process.	
2	CSO - Population Unit	Understand the Vital Statistics Tabulation and Production System
3	MOH Services Statistics Unit, Medical Records Division & Demography Unit	Understand the Health Services Statistics Tabulation and Production System, Medical Records System & Family Planning Services Statistics
4	National Workshop - all stakeholders meeting - group discussions etc- data producers but mainly data users	Situational analysis : data production and use; Inputs from all sectors for assessment of local HIS Identify data gaps Identify institutional constraints Propositions from Data users
5	Meeting with Steering Committee and/or Technical Committee	Discuss outcomes of National Workshop and collect further inputs from main stakeholders

Week - 2

Day	Activity	Agenda in brief
1	Field visits on registration of births, deaths.	Selected registrars in rural areas, urban areas; Selected tabulation centres for tabulation of birth and death reports from rural and urban areas.
2	Visit to hospitals on hospital service utilisation statistics	Selected regional / district / community hospitals: SSRN HOSPITAL, MIH, CARDIAC CENTRE etc
3	Visit to Health Centres	Selected Area Health Centres / Community Health Centre / Family Health Clinic/ MEDICLINIC
4	Review all data gaps identified (Technical Committee Members ?)	Discuss concrete proposals on how to address the data gap issues AND ITS IMPLICATION TOWARD THE HMN COMPLIANCE (if any)
5	Writing the Report on HIS Assessment(using HMN Templates)	

Week - 3

Day	Activity	Agenda in brief
1	Formulate HMN compliant HIS Review	
2	Initiate the implementation of strategic plan.	Develop written guidelines
3	Setting up implementation mechanism	Discussions with CSO & MOH officers regarding activity centres, key players and roles.
4	Outline for monitoring and evaluation framework for implementation of HIS Review strategic plan.	
5	Identification of standards and development of guidelines for improvement of the Health Information System	

Week - 4

Day	Activity	Agenda in brief
1	In-depth analysis of cause of death data	.Use of Statistical Software and/or use of database for analysis
2	Workshop on In-depth analysis of health service data and vital statistics	Health Service Statistics tabulation and production staff, Relevant faculty and personnel of MIH, and Health Care Service Manager
3	Workshop on producing better quality information for dissemination	MOH Statistics Personnel and CSO Officers
4	Training on Burden of Disease Study and/or Techniques to estimate incidence/prevalence using survey and routinely collected data	Participants : Principal Medical Officers / Health Statisticians / Senior/statisticians of CSO
5	Debriefing – Meeting with main Members of Steering Committee and Technical Committee	Meeting of all main stakeholders and in particulars the high level managers (principal decision makers) at Ministry of Health to discuss the following: <ul style="list-style-type: none"> - What next? - Compliance to HMN? - Distribution of responsibilities for follow-up activities? - Time frame for above etc