HEALTH MANAGEMENT INFORMATION SYSTEM STRTEGIC PLAN
2013 - 2017

MINISTRY OF HEALTH

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ACRONYMS

ALAFA	Apparel Lesotho Alliance to Fight Aids
ANC	Antenatal Care
AJR	Annual Joint Review
ART	Antiretroviral Treatment
BOS	Lesotho Bureau of Statistics
CDC	Centers for Disease Control and Prevention
CEIP	Continues Education Implementation Plan
CHAL	Christian Health Association of Lesotho
DHMT	District Health Management Team
DHIO	District Health Information Officer
EMR	Electronic Medical Record
GDP	Gross Domestic Product
GNI	Gross National Income
GOL	Government of Lesotho
HIV/AIDS	Human immunodeficiency virus/ Acquired immune deficiency syndrome
HAART	Highly Active Anti-Retroviral Therapy
HMIS	Health Management Information System
HR	Human Resources
HSS	Health Systems Strengthening
HTC	HIV Testing and Counselling
ICAP	International Center for AIDS Care and Treatment Programs
ICT	Information Communication Technology
IHM	Institute of Health Measurement
IMCI	Integrated Management of Childhood Illnesses
IMR	Infant mortality rate
LAN	Local Area Network

MCA	Millennium Challenge Account
MCAL	Millennium Challenge Account Lesotho
MCC	Millennium Challenge Corporation
MCH	Mother and Child Health
MCST	Ministry of Communications, Science and Technology
M&E	Monitoring and Evaluation
NGO	Non Government Organisation
MOH	Ministry of Health
MOU	Memorandum of Understanding
OpenMRS	Open Medical Record System
OPD	Outpatient Department
ORT	Oral Rehydration Therapy
PEP	Post-exposure Prophylaxis
PEPFAR	The United States President's Emergency Plan for AIDS relief
PMTCT	Prevention mother-to-child transmission
TB	Tuberculosis
TWG	Technical Working Group
USG	United States Government
VOIP	Voice over Internet Protocol
VPN	Virtual Private Network
WAN	Wide Area Network

Introduction

Demographic profile of the population

The Kingdom of Lesotho is a landlocked country spread over thirty thousand square kilometres of land. Lesotho is the southernmost landlocked country in the world and is entirely surrounded by South Africa. The country is divided into four ecological zones - the lowlands, foothills, mountains and the Senqu River valley. It is the only independent state in the world that lies entirely above 1,400 metres (4,593 ft) in elevation. Because of its altitude, Lesotho remains cooler throughout the year than other regions at the same latitude. The winters are usually cold with the lowlands as low as −7 °C (19 °F) and the highlands reaching −18 °C (−0 °F) at times. Snow is common in the highlands between May and September.

*Lesotho administrative districts

The population of Lesotho is currently estimated at just over 1.9 million with a growth rate of 0.08% per annum according the 2006 census. Approximately 25% of the population lives in urban and 75% in rural areas. Lesotho is divided into ten administrative districts which the MOH also used as

catchment areas, since the Health Service Areas been discontinued. The table below presents the district catchment population per census year from 1966 to 2006[1].

District	Census Year				
	1966	1976	1986	1996	2006
Botha - Bothe	63,179	77,178	106,077	109,192	110,320
Leribe	161,493	206,558	273,678	300,160	293,369
Berea	118,248	146,124	148,794	240,754	250,006
Maseru	201,832	257,809	311,254	385,869	431,998
Mafeteng	119,087	154,339	204,553	211,970	192,621
Mohale's Hoek	109,927	136,311	173,,909	184,034	176,928
Quthing	72,746	88,491	119,766	126,342	124,048
Qacha's Nek	62,955	76,497	68,207	71,665	69,749
Mokhotlong	60,167	73,508	79,671	85,628	97,713
Thaba-Tseka	---------	----------	108,187	126,353	129,881
Total Population	969,634	1,216,815	1,595,096	1,841,967	1,876,633

The trend since 1966 census has shown a significant population growth rate (22% average) from 1966 to 1986. The 1996 census experienced a sharp decrease of population growth rate (13%). The 2006 census has indicated that the reason for this dramatic change is due to a high mortality rate and low fertility.

As for economic development, Lesotho has experienced modest growth in recent years with Gross Domestic Product (GDP) estimated at US$ 1.6 billion and a Gross National Income (GNI) per capita of $ 10,607. In the Human Development Index 2010, Lesotho is ranked 141stout of a total of 169 reviewed countries[2].

Slow economic growth and high poverty levels in Lesotho are aggravated by the fact that Lesotho is ranked as third highest HIV prevalence country in the world as well as by workforce migration. Key indicators for the sector are not encouraging. Life expectancy at birth has declined, whilst infant mortality, under-five mortality and maternal mortality have all increased. Increases in morbidity and mortality due to HIV and AIDS and other communicable diseases such as tuberculosis, as well as non-communicable diseases are all too evident.

[1] http://www.bos.gov.ls/
[2] http://hdrstats.undp.org/en/countries/profiles/LSO.html

Health profile of the population

The 2012 Lesotho MOH Annual Joint Review report on the following TB and HIV key central indicators:

INDICATOR	Year		
	2009	2010	2011
TB case notification rate	720 per 100,000	523 per 100,000	672 per 100,000
Proportion of all TB cases which are smear positive	29%	27%	29.6%
TB Defaulter rate among new smear positive TB client	9.8%	4.7%	8.0%
TB Failure rate among new smear positive TB client	3.4%	2.4%	2.0%
TB Clients not evaluated among new smear positive client	19.6%	10.2%	10.1%
TB Treatment Success rate among new smear positive client	73.5%	70%	68.9%
Proportion of TB clients who were tested for HIV	70.1%	83.7%	82.2%
Proportion of TB patient who were tested and found to be HIV positive	85.2%	76.9%	76.2%
Proportion of HIV positive TB clients enrolled on ART	27.6%	27%	39.8%
Proportion of HIV positive TB clients put on CPT	91.3%	96%	89.8%
Number of facilities providing ART	167	190	197
Number of facilities enrolling children on ART	No data	135	164
Proportion of clients alive 12 months after initiation and on ART	80%	74%	77%
Total number of clients who were tested for HIV (HTC)	221,616	256,526	272,819
Proportion of clients who tested positive (HTC)	21%	18%	15%
Number of facilities providing PMTCT	186	191	207
PMTCT coverage	71%	81%	71%
Number of babies who received ARV prophylaxis (Newly enrolled)	4240	5589	5031
Proportion of new mothers attending ANC who are HIV positive	33%	31%	30%

The country was headed towards attaining herd immunity levels in vaccination coverage before it experienced faltering in the past decade. Immunization coverage improvement during the first half of the decade showed decline from 67% to 61% (Lesotho Demographic Health Survey 2004 and 2009). Routine immunization coverage was 61% in 2012 (AJR 2012).

A Health Facility Survey was conducted in 2011 through the -Lesotho Health Sector Project (2009-2013) to establish baseline information that inform the Lesotho MOH of the status of key aspects of health service delivery. Some of the key findings were:

- All 145 health facilities surveyed confirmed that they provide HTC. The average number of adults tested for HIV during a month per health facility was 90.4. On average 78.0 were tested in the health centres, while the OPDs on average recorded 228.4 of adults tested per month. Of all adults tested for HIV across all health facilities, 15.2% is located in urban areas and 84.8% in rural areas. 89% of health facilities provide Post-exposure Prophylaxis (PEP). The average number of HIV+ adults and children per health facility on HAART treatment at the time of survey was 447.2 and 34.2 respectively.

- The majority of health facilities (85.5%) practice TB defaulter tracking, while TB Contact Forms are only available at a third of the health facilities. Almost all health facilities maintain a TB Suspect Register. The majority of health facilities (94.5%) offer HTC to TB patients.

- The average number of new antenatal clients at the health facilities during the previous month was 18.1 clients per facility. Of these new clients, 97.7% were tested for HIV. Almost all (97.2%) of ANC Clients with CD4 count below 350 cells/µL are initiated on HAART. On average two HIV+ pregnant women per facility per month were started on ART and 3.3 women were started on PMTCT Prophylaxis. While there is almost universal coverage of PMTCT, including PCR testing of infants, only three quarters of health facilities keep registers of infants in need of testing.

- On average, 85.6% of women were served for Family Planning per facility per month. A quarter of the facilities reported zero women served.

- Almost all health facilities (96.6%) use the bin card system for the management of pharmaceuticals. While tally sheets are the method of choice, about a third of the facilities do not use any system at all for dispensing medicine. One in eight health facilities (12.4%) has all the 'Essential Pharmaceuticals' in stock, as prescribed by the Standard Treatment Guidelines and Essential Medicine List for Lesotho. This low score is partly caused by the list including contraceptives, which are mostly not provided by CHAL facilities. Exclude contraceptives from the list of essentials, then 23.4% of health facilities qualified. Measles and Pentavalent vaccines were stocked at around 90% of the facilities. Those failing to have stock attributed this to the lack of a functioning vaccine refrigerator. The proportion of expired pharmaceuticals drawn from the Essential Pharmaceuticals list was 2.3%.

Life expectancy in Lesotho decreased from 50 years in 2000 to 47 years in 2008[3]. Infant mortality rate (IMR) stood at 61 deaths per 1000 live births in 2009, while under–five mortality rate decreased slightly to 84 per 1000 live births the same year[4]. The major causes of death include HIV and AIDS, respiratory infections, diarrhoea, malnutrition and anaemia. HIV and AIDS is endemic throughout the country and continues to be an alarming health threat. In 2010, the HIV prevalence rate among adults aged 15 to 49 years was estimated at 23.6%[5].

The MOH envisages Health Centres throughout the country as having 10-15 beds for deliveries and observation of patients providing Oral Rehydration Therapy (ORT), initiate intravenous treatment, treatment of childhood illness according to Integrated Management of Childhood Illnesses (IMCI)

[3] http://apps.who.int/ghodata/
[4] Ibid.
[5] UNAIDS Report on the Global Aids Epidemic, 2010, pp181

guidelines, provide health education on common illness and refer severely ill patients[6]. Limited laboratory services will also be provided in the Health Centres.

Background

Resource Policy and Regulation

Lesotho has developed the National HMIS Policy (2003) and Strategic Plan (2008-2012). Key legal instruments governing statistics and information include the National Statistics Act (2001) and the Registration of Births and Deaths Act (1973). Because reporting of births and deaths is mandatory, but not enforced, implementation of the Registration of Births and Death Act is not effective, and the vital registration system performs poorly (HMN &MOH 2007). The Bureau of Statistics delegates collection, processing, analysis, and use of health data to the MOH. With respect to facility-based routine reporting, the CHAL/GOL Memorandum of Understanding (MOU) supports routine reporting, and CHAL facilities use the standardized data collection tools developed by the MOH. Policies and regulations governing health information have been updated given the provisions of the decentralization law (Local Government Act, 1997), especially as it relates to local government responsibilities for delivery and management of health.

The MOH of Lesotho has a dedicated statistics unit (within the Department of Planning). The mandate of the unit covers among others the following:

1. Collection of relevant and reliable statistics on health service delivery, health status, utilization of health services, and distribution of health resources.
2. Timely production and dissemination of health statistics reports.
3. Promotion of collaboration among producers of health information (for production and use).
4. Training of health workers in health statistics to enhance use of data in management, planning, and research.

Financial Resources to support HMIS

Similarly to many countries in the region, the Lesotho HMIS unit at the central level falls under the general administration budget of the Department of Planning and Statistics. As such, the unit does not have a specific line item within the MOH budget. This is attributed in large part to delays in budget allocation from the Ministry of Finance and the low budget utilization rate of the MOH due to bottlenecks in the system. According to the MOH Finance Department, the budget execution rate of the Department of Planning and Statistics as of November 2009 was 17 percent. District-level budgets follow a similar pattern to their central-level counterparts' in as far as they do not have specific budgets for HMIS expenditures.

In addition, external funding support for the Lesotho HMIS has significantly increased over the last three years. The major health partners (USG–PEPFAR and MCC) and the World Bank have provided resources for HMIS strengthening. Institute of Health Measurement (IHM) is the main PEPFAR partner providing technical for HMIS strengthening in Lesotho. Additionally, the World Bank-funded Health sector reform project; provided equipment and seconded personnel to health districts i.e.

[6] Lesotho Health Policy, MOH, 2011

District Health Information Officers (DHIOs). MCAL is strengthening HMIS through designing and implementing an improved and integrated new electronic system. Other partners, such as the Clinton Foundation who's support ended in 2011 and replaced by CDC and the Global Fund (round 8, capacity building), are paying for HMIS personnel (Data clerks) in facilities.

Although opportunities and goodwill abound, support for HMIS in Lesotho is fragmented and uneven.

Current Developments in HMIS

Existing Health Information Systems

Management of chronic diseases, such as HIV, requires information systems capable of tracking patients over the long term (longitudinal tracking systems). Additionally, information on essential supplies, such as drugs and laboratory commodities, is critical for long-term management of HIV and other chronic diseases.

TB and HIV/AIDS have their own M&E officers at central level, and therefore also a separate reporting flow. For example, routine HMIS reports are prepared by facilities, submitted to the DHIO, who subsequently submits the reports to the MOH Department of Planning and Statistics. for analysis. Analysis is also done at district level and the central level consolidate the data and does analyses of data for the whole country. For HIV and AIDS, reports are prepared by facilities and submitted to a district AIDS officer. This person in turn submits the report to the DHMT, which submits a compilation of district HIV and AIDS reports to the central-level HIV and AIDS directorate.

Lesotho has made great strides in instituting harmonized reporting forms for HIV. A national patient card is available and all monthly reports have been standardized. However, the sheer number of forms and reports that staff is expected to complete is overwhelming. For example, the national HIV program has three registers (pre-ART, ART, and counselling and testing register); three reporting forms (HTC, ART, and pre-ART); multiple referral forms (chronic HIV, community-based counselling, HTC, PMTCT, etc.); and each subprogram has a specific patient card.

While there are various partners involved in the collection of health data, IHM is one organisation designed to prime in Strategic Information. The program works closely with the MOH to strengthen among others existing SI capacities, strengthen data flow and reporting while also proving technical assistance to institutionalize Routine Data Quality Assessment (RDQA) at the MOH. GoL (IFMIS) and several other partners, including PIH (OpenMRS), MSH (RxSolution), HAAR (HRIS) and ICAP (Careware), have implemented electronic systems to ease data management and facilitate reporting at the facility level. Even these systems are not fully utilized across the country. This coupled with the fact that Lesotho has no standards for electronic patient monitoring systems leaves much to be desired for. As such, exchanging data across systems, implementing automated reporting (for production of monthly statistics), and harmonizing support for these systems is currently not possible.

Anticipated Integrated HMIS solution for the country

Lesotho has a hybrid HMIS, with a mix of integrated and stand-alone data systems. Conversely, the major disease control programs (HIV, TB), as well as notifiable diseases, and human resources, have separate, vertical data systems.

Table: Current Lesotho Data Systems

Integrated systems (routine)	Outpatients Inpatients Delivery Mental Health ANC Oral Health MCH Under-Five
Vertical systems	HIV (ART) TB Notifiable Diseases Family Planning (part of the MCH/FP report)
Partial / no systems	Finances Human Resources for Health Drug and Logistics Management Laboratory services

Source: Lesotho Health Systems Assessment 2010 by 'The Health Systems 20/20'

The MOH developed their own integrated HMIS software solution through a local MOH IT Development Team and the support from an IT engineer. Work started in January 2011 at the MOH headquarters. In total, 1200 hours of mentoring has been conducted during the development phase in order to provide the necessary support to the MOH IT staff to develop their own integrated HMIS software solution. This work was completed and is ready to be implemented as soon as MCA funded hardware has been procured and installed.

The integrated HMIS software solution for the country is a browser (web-based) system that will be hosted at the Lesotho Ministry of Communications, Science and Technology (MCST). In basic terms, the system lives in a central location at the MCST, but will be accessible by all 10 Districts at the same time. The DHMT system has a single database that will contain all data for every database in every district office. Here are some of the core features of the system:

- The System has access control. Each user will have a unique username and password.
- The central database lives in a secure environment. The database will be backed up regularly by professional system administrators.
- Users of the data will use the same data, a "single version of the truth" if you will. Reports can be access using a normal internet browser by any one on the MOC network, including district offices and hospitals.

- The system mimics existing registers and summary sheets, thus making it easy for users to capture the data.
- Data quality controls have been implemented and will force the user to capture complete and accurate data at input.
- No further need for couriers or time consuming integration of different databases and spreadsheets.
- The system is very scalable and easy to maintain. Changes and updates to the system only needs to be applied once to the central server, and all users will automatically be using the new system without any effort required from them.
- This system now integrated many more datasets and sources than before. The HMIS software solution now also includes data capture, analysis and reporting on HIV, HTC and TB Register data. This means no more separate databases for these systems are required.
- The system has a large number of reports, all available through the HMIS software solution web interface.

Data clerks, information officers at district offices and users at the MOH office in Maseru will be able to access the HMIS software solution system as long as they are connected to the MCST's wide area network. Data captured on the system will immediately be stored on a central server. Users will also be able to download and view reports from anywhere.

The expectation is that this newly developed information technology will greatly enhance and expedite data processing and the presentation of information in the health information system. It will greatly reduce the time required for processing data at the district and central levels, as well as reducing the errors that are inherent in a manual process. Data quality is also to be assured by a number of built-in-computer tools and techniques designed to check the reliability and accuracy of data.

Electronic Medical Record System for Lesotho OPDs

Lesotho has a hybrid HIS, with a mix of integrated and stand-alone data systems.

An Open Medical Record System (OpenMRS) has been implemented in selected sites in Lesotho by Partners in Health, namely Nohana, Bobete, Nkau, Lebakeng, Tlhanyaku, Methalaneng and Manamaneng. OpenMRS is not implemented as an electronic medical record system but rather as an electronic register. All patient transactions are paper-based and a data capturer enters all the data in the system after each encounter. Health workers are thus not utilizing the system to track patient care and clinical outcomes. The server is hosted off-shore in Boston and all data entered into the system is thus in Boston.

An EMR pilot project is in progress with PEPFAR funding at the Makoanyane Military Hospital. The system is web-based with the ability to operate off-line with upload to the central database once back in range. It is open source and freeware with the source code available. The development is designed to replicate the ART workflow process and paper forms.

The BookWise HIV and Aids Clinic Management System is an Integrated Clinic Management System designed to assist with the management of the ART antiretroviral treatment programme. The system has been implemented in selected sites in Lesotho. The EMR ARV is running at the ALAFA (Apparel

Lesotho Alliance to Fight Aids) NGO to manage the treatment programmes for employees in the textile industry in Lesotho.

The RxSolution, an integrated computerised pharmaceutical management system, is currently in various stages of implementation in hospitals in Lesotho. The system was designed by pharmacists for pharmacists and is specifically designed to manage pharmaceuticals and medical supplies, from procurement to dispensing to patients. The RxSolution is implemented as a stand-alone system currently with a LAN to a computer used for registering patients. Patients get a computer generated number which might be different from any other hospital or patient number.

A plan was commissioned in 2012 for the implementation of an Electronic Medical Record (EMR) system in Lesotho Outpatient Departments (OPDs). This low cost point-of-care EMR system includes fully integrated comprehensive Pharmacy Management system, Chronic Disease Clinic Management Systems (including an HIV & Aids Integrated Clinical Management System), as well as Data Management Solutions and Services. All data is kept in a central data repository that is a secure environment, with professional safeguarding and backup of data and servers. It is possible to incorporate new data from existing stand-alone EMR systems into the data repository, and hence into the EMR. The stand-alone systems would have to be linked to the Master Patient Index, and derive their identifier from the Index. This means a gradual replacement of stand-alone systems in the country, as and when their functionality is incorporated into the system.

ICT infrastructure

The country has benefited from a substantial influx of resources for health development in the last five years. Lesotho is in the midst of implementing a sector wide approach for health. As such, availability of increased resources for health development offers opportunities to strengthen 'Strategic Information'. The most promising opportunity for HIS development derives from the rapid and widespread expansion of ICT in Lesotho, particularly with respect to infrastructure and solutions. A Voice over Internet Protocol (VOIP) system is currently being implemented in Lesotho MOH headquarters, DHMT offices and hospitals. Thin Client computers will be provided to DHMT office and hospital staff, linked to a central server in Maseru. The current network is being upgraded to a four MB fibre WAN star topology structure with SLA's but with no redundancy.

Situation Analysis

Data Collection

Routine health activity data are recorded daily in all GOL, CHAL and private health facilities using standardised registers and record forms. There are currently no legal provisions requiring private facilities to report on any diseases. As CHAL and GOL facilities account for more than 95 percent of service provision in Lesotho, these data provide a fairly comprehensive picture of the HMIS in Lesotho.

At the community level the CHWs collect some indicators and submit monthly reports to their supervising health centres. The health centres validate and incorporate data from the CHWs into the health facility data. Data from the health centres and hospitals is expected to be submitted to the District Health Management Team (DHMT), the office of the District Health Information Officer

(DHIO), on the second week of the following month. DHIOs are responsible for managing data at the district level, as well as submitting the data to the central level on month end (HMIS information that excludes data from vertical programs such as TB, HIV,). All hospitals and health centres where data is been collected are expected to verify completeness, accuracy, and relevance. Inadequate access to transportation and communication infrastructure impedes timely submission of reports at all levels. Additionally, the substantial workload tied to data collation causes facilities to report late, which in turn affects the timeliness of district reports.

The Ministry is in the process of determining district catchment area population for health facilities especially at the community level. The population denominators at those levels will assist the health centres in benchmarking, target setting and calculating different indicators like; the Under Ones, Under Fives, Child Mortality, child bearing age women and expected pregnancies proved to be a challenge. USAID has funded the IHM to determine health facility catchment populations through the Enhancing Strategic Information (ESI) project.

Great variations on reporting were found to exist between the districts, and they routinely reported late to the national level. The degree of lateness varied by district, but none was able to submit its reports on time. The latest completeness rate of monthly data of selected datasets however showed overall improvement while Maseru district still needs attention.

Table: Completeness rates - 2011

DISTRICT	MENTAL	DELIVERY	INPATIENT	OPD	ANC
Mohale's Hoek	99%	83%	100%	99%	97%
Quthing	100%	100%	100%	95%	98%
Mafeteng	100%	96%	100%	99%	100%
Qacha's Nek	100%	98%	100%	90%	100%
Maseru	100%	69%	100%	86%	87%
Butha - Buthe	100%	100%	100%	95%	98%
Mokhotlong	100%	100%	96%	100%	100%
Thaba-Tseka	100%	100%	100%	94%	97%
Berea	100%	100%	100%	94%	96%
Leribe	100%	100%	100%	91%	97%
National Completeness Rate	99.9%	95%	99.6%	94%	97%

Source: The Lesotho MOH 2012 Annual Joint Review

Data Analysis

National minimum core indicators, which account for most Millennium Development Goals (MDGs), have been developed for national and district levels.

The MOH Strategic Plan and MTEF are linked and identify district core indicators. The core indicators are cored in this plan on an annual basis. All programs, departments and DHMTs develop

annual operational plan which constitute the basis of monitoring. At the end of each quarter, progress reports in a standardized format are developed by all departments and DHMTs, shared and discussed internally while copies are send to M&E Central Unit. District and national reflection meetings are held quarterly, with a combined district and national level taking place semi-annually and at the Annual Joint Review (AJR). The DHIO typically compiles and transmits data from facilities in their catchment area, followed by the use of the information for Quarterly Review Meetings as described above. It should be noted that Lesotho is in the early phases of effective decentralization in the health sector, and as this initiative ramps up, DHIOs will be expected to play a greater role in analysis and use of information at the local level.

The MOH has data feedback mechanisms in place, such as the Annual Joint Review (AJR), national and district level quarterly reviews. International partners that support selected facilities for provision of specific services (EPI, HIV, etc.) regularly use data for supervision and monitoring purposes. The lack of timely reporting alluded to previously, has a negative impact on feedback.

Reporting Guidelines for HMIS

Standards and guidelines for reporting are in place. The expectation is that facilities are to submit their monthly reports on or before the seventh day of the following month to their district office. Subsequently, the district office has until the end of the subsequent month to compile and submit the data to the national level. However, a standard operating procedure document or formal manual/guideline on reporting is not available. The only semi-official guidance documentation provided are the presentation handouts distributed to DHIOs at their training sessions with the MOH.

Capacity building and training material for HMIS

The HMIS trainings below were included in the MOH's 2012 Continues Education Implementation Plan (CEIP).

Table: HMIS foundation trainings

Title	Target Group
Data Management	Information Officers & Data Clerks
Use of Information for Management	Health Managers

Table: EMR and HMIS software trainings

Title	Target Group
Basic Computer Literacy	EMR Users (OPD)
EMR Software for OPDs	EMR Users (OPD)
EMR Software: ICD 10	EMR Users (OPD)
DHMT Software: Data Capturing	Information Officers & Data Clerks
DHMT Software: Data Flow and Reporting	Information Officers & Data Clerks
DHMT Software: Super User	Information Officers
SQL Server Advance Administration	Central IT Team
SharePoint Administration	Central IT Team
Developing Web Applications using ASP.NET	Central IT Team

Training materials for the courses above was also developed:

- Data Management Training Manual for Data Clerks
- Use of Information for Management Manual for Health Managers
- Electronic Medical Record Systems Manual for EMR Users
- Basic Computer Literacy Manual and Online Course at www.itdrivinglicence.com

SWOT Analysis

The Lesotho HMIS has the potential to build on its strengths derived from harmonized reporting formats and a high level commitment to HMIS within the MOH. Strength of the Lesotho HMIS is its technically competent core HMIS staff at the central level.

The political and administrative decentralization underway in Lesotho offers an opportunity to strengthen the HMIS from several perspectives. First, data needs of district health management teams will inform the revision of indicators and routine HMIS reports. This, in theory, will allow the central-level HMIS team to devote its attention to higher-level coordination/policy/data use issues. Second, the GOL and its development partners are investing, and will continue to invest, substantial resources in decentralized structures. The country is currently building a national data link that will connect all districts to the government data network. Third, the MOH has recruited ten DHIOs who will be responsible for the collection, analysis, and reporting of health information to the central level. This presents opportunities to strengthen the use of data for supervising, monitoring, and making decisions at the district level.

Lesotho has benefited from a substantial influx of resources for health development in the last five years. Official development assistance for health has increased from 10 percent to 30 percent of the overall health budget. Lesotho is in the midst of implementing a sector wide approach for health. As such, availability of increased resources for health development offers opportunities to strengthen HMIS.

The most promising opportunity for HMIS development derives from the rapid and widespread expansion of ICT in Lesotho, particularly with respect to infrastructure and solutions. As indicated earlier, geographical considerations (i.e., rough terrain) have historically posed a major challenge to the delivery of social services and have impeded the ability to provide timely data.

The HMIS strengths, weaknesses, opportunities and threats were discussed during a HMIS strategic planning workshop (March 2013), represented by key MOH HMIS staff at central and district level and health partner representatives, and are summarised below.

Table: SWOT analysis summary

Strengths	Weaknesses
• Policy in existence, governing HMIS • Planning and Statistics Department in place and functional • National and District Core Indicators defined • Annual report that pulls together critical data from sub-systems • Harmonized reporting forms and use of patient cards (Bukana)	• Insufficient human resources for HMIS • No dedicated budget for HMIS • Parallel reporting systems • Untimely reporting by health facilities • Irregular / No feedback from district to facility level • Evidence-based decision making is constrained • Training material not in place • Current HMIS software functionality not meeting user requirements • Insufficient coordination of HMIS partners
Opportunities	**Threats**
• Decentralization provides opportunity for strengthening HMIS • Health Partners in place to support the HMIS • MOH website substantially increase HMIS advocacy • Strengthen integrated data processing and use at District level • Improve medical recording and reporting using ICD-10 codes • Implement National Health Accounts, HRMIS, FMIS and other related information subsystems integrated within the HMIS • Review Legislation and Regulations to optimize Vital Registration • Integrated HMIS Software solution developed with central data repository and reporting facility, ready for implementation • Fully packaged Electronic Medical Record system developed for Outpatient Department, ready for roll-out • ICT infrastructure to computerise HMIS from district to central level in place • HMIS training materials distributed to districts / facilities	• Excessive donor reporting requirements • Lack of harmonization IT systems • Unregulated and unsupervised private health facilities posing a challenge to Monitoring and Evaluating health services (coverage and quality of care) • Donor funded positions not sustainable • Data on mortality and births based indicators is dependent on surveys because of a weak Vital Registration System

Guiding Principles

Vision

A Health Management Information Systems (HMIS) with capacity to maintain continuous support for sector planning and performance measurement at all levels for knowledge, accountability and judgement about the efficiency, effectiveness as well as sustainability of the health care system.

Mission

To provide timely, relevant, accurate as well as complete information on a sustainable and integrated manner, by well trained and highly motivated staff with necessary resources and appropriate technology.

Values

The values are:

1. Confidentiality – entrusted private and linked data will be kept that way.
2. Integrity – technical competence, openness, ethics and scientific soundness will be observed in all operations.
3. Equity - Gender sensitivity, fairness and universal coverage will be ensured.

Strategic orientations

Specific strategic orientations related to the health information system are:

1. Review, indentify and design appropriate policies, manuals and instruments for data collection processing and dissemination systems for health.
2. Establish data information flow between producers and users at different levels, including other stakeholders that use data but not involved in the collection e.g. development partners, NGOs and CBOs.
3. Advocate for creation of positions and retention of key HMIS positions.
4. Harmonize Health Information subsystems with a view towards integration using HMIS as a starting point (IDSR, Programmes, Census and Surveys, Vital Registration).
5. Advocate for inter-collaboration between HMIS key role players including Ministries and partners.

Goals and Expected Outcomes

GOALS	EXPECTED OUTOMES	ASSUMPTIONS
1. To strengthen coordination and management of the health information system	A Functional client centred HMIS by 2017 in all 10 districts	MOH Management Support: • HMIS policies, procedures, guidelines and SOPs implemented • HR for HMIS, including HMIS staff performance agreement & appraisal • HMIS & IT capacity at all levels
2. To improve health data management at all levels	Timely reliable data available that meets International Gold Standards by 2017	• ICT maintenance support; • Partner coordination through regular SI TWG meetings Health Partners Support: • Gear funding towards meeting MOH HMIS strategic goals
3. To strengthen data analysis, dissemination and use	Evidence-based information used to achieve desired results at all levels by 2017	• Align work plans with MOH HMIS strategy • Representation in the SI TWG

Monitoring and Evaluation

This plan shall be implemented by a variety of stakeholders working collaboratively as , guided by the MOH Strategic Information (SI) Technical Working Group.

The MOH Monitoring and Evaluation section shall ensure that programmes and projects facilitate the process of evaluation in the same manner that the log frame has been utilized in the Strategic Plan. Routine Monitoring and Evaluation activities shall be periodical as stipulated in SI TWG TOR.

Strategic Priorities and Logical Framework Matrix

GOAL 1: Strengthen coordination and management of the health information system

Objective 1: To review relevant regulatory arrangements in order to maximize health data recording, reporting, processing and sharing by all data sources – public and private.

PROGRAMME OUTPUT	INTERVENTION	VERIFIABLE INDICATOR	BASELINE 2012	TARGET	TARGET DATE
Legal Framework governing HMIS updated	To update Legal Framework governing HMIS data collection, processing, dissemination and use	Existence of legal framework • HMIS policy • HMIS SOPs	Have HMIS policy	HMIS policy reviewed & SOPs developed for district & fac level	2014
Private Sector Health Providers report on heath data to DHMTs in districts of residence.	To enforce by authority for the Health Providers particularly the Private Sector to report on heath data to DHMTs in districts of residence	% of private sector health providers reporting health data to the DHMT % of public health facilities reporting health data to the DHMT			
National Personal Identifier Code to improve data linkage and quality.	To adopt a National Personal Identifier Code to improve data linkage and quality at hospital and health centre levels	% of hospitals and health centres where National Personal Identifier Code has been implemented			
Health Partner Coordination	To establish a SI Technical Working	TORs of HMIS TWG	ToR being		

	Group with clear mandate (Terms of Reference)	% of meetings of HMIS TWG held	finalised No of meetings		

Objective 2: To strengthen partnership with SI partners and private facilities for improved health data collection, management and use

PROGRAMME OUTPUT	INTERVENTION	VERIFIABLE INDICATOR	BASELINE 2012	TARGET	TARGET DATE
District and central level data warehouse with capacity to respond to the information needs and data sharing for various stakeholders, established.	To define critical indicators, data sets, responsibilities as well as software for a central data warehouse. To establishment a robust central level data warehouse with capacity to respond to the information needs and data sharing for various stakeholders.	Functional and available data Warehouse at MOH HQ that captures data synthesis for 100% of core and district indicators			
MOU on data collection, data flow and sharing drawn	To draw a MOU between MOH and all stakeholders on data collection, data flow and sharing.	MOU signed by all stakeholders			
Standard Operation Procedures (SOPs) for data management developed	To define and enforce roles and Standard Operation Procedures (SOPs) for data collection and sharing between providers and users.	SOPs developed and implemented			

Objective 3: To establish the capacity to generate, process and disseminate information at all levels.

PROGRAMME OUTPUT	INTERVENTION	VERIFIABLE INDICATOR	BASELINE 2012	TARGET	TARGET DATE
Appropriate Human Resources for HMIS at central, district and facility levels created and occupied	To create positions and recruit relevant HMIS personnel at all levels	Number of vacant HMIs positions	is one vacant position at central level and five positions at districts level	every district to have at least two officers	2014
Appropriate HMIS personnel skills and training assessed at all levels	Assess HMIS human resource needs and trainings needs assessment Develop capacity development/training plan	Proportion of appropriate skilled HMIS personnel in need in training Proportion of HMIS personnel received required training	No assessment has been done		
Health staff computer literacy improved	To expand computer literacy for graduates of Health Institutions through provision of institutional computer labs and IT tutors as well as modification of training curricula.	Proportion of computer literate HMIS personnel in place for all levels	No baseline as yet		
Sufficient office space, equipment and data personnel at DHMT, hospital and health center levels provided	To facilitate provision for office space, equipment as well as recruitment and deployment of critical data personnel at DHMT, hospital and health center levels.	Number of DHMT, hospital and health center without sufficient office space, equipment and data personnel			
Health Information Units in GOL and CHAL hospitals established and strengthened	To establish District M&E Teams in GOL, Red Cross and CHAL hospitals to facilitate the inception of Clinical	Proportion of GOL and CHAL hospitals with District M&E Teams	0		

	Information Systems				
Electronic Medical Recording System rolled-out in hospitals	To establish Electronic Medical Recording Systems in health facilities	Proportion of GOL and CHAL hospitals with operational Electronic Medical RecordingSystem	1	18	2014
Hospital Records Storage and Retrieval System strengthened	To strengthening hospital records storage and retrieval system	Proportion of GOL and CHAL hospitals with functional Hospital Records Storage and Retrieval System	0	100%	

GOAL 2: Improve health data management at district levels

Objective 1: To institutionalize periodic review of operational data sources, to identify duplication, identify unmet needs and devise mechanisms for correction while controlling proliferation of data collection systems.

PROGRAMME OUTPUT	INTERVENTION	VERIFIABLE INDICATOR	BASELINE 2012	TARGET	TARGET DATE
Conducted interventions	To strengthen supervision, quality control and verification of the health data collection, processing, dissemination	Since there are process indicators all elements can be taken in intervention column	Partially done	Complete done	2017
All inclusive and integrated central and district data set developed and implemented	Through customer surveys, assess the current data needs, secure agreements on integration and expansion of data elements to include environmental health medical equipment, HR and physical infrastructure.			All done	2017
Third Demographic and Health Survey (DHS) implemented	To implement the third Demographic and Health Survey	The third DHS Implemented by 2014 and datasets available	2004 & 2009 DHS	Remaining one done	2015
System for registration and authorization of new data collection instruments developed and implemented	To establish systems of registration and authorization of new data collection instruments	How can this be done?	0	Done	2017

Objective 2: To institutionalize a unified health service and disease data collection, capture, processing as well as analysis at district level.

PROGRAMME OUTPUT	INTERVENTION	VERIFIABLE INDICATOR	BASELINE 2012	TARGET	TARGET DATE
District departmental HMIS Committee established and strengthened	Formation of District Multi-sectoral HMIS Committee to oversee the coordination of generation, sharing and utilization of the HMIS products.	Number and proportion of districts with District departmental HMIS Committees	0	Done	2015
SOPs for the introduction of new data collection forms developed and implemented	To develop Standard Operating Procedures (SOPs) to be followed by all programme managers in the vent of introducing new data collection forms		SOPs partially exist	Done	2017
Minimum data set and Standard Data Flow.	To develop, build consensus and publish minimum data set and implement a standard Data Flow.	Minimum data sets are defined and 100 % of identified gaps filled	Data flow exist	Done	2017
HMIS Guidelines and Manuals for data analysis at district level	To develop/Update HMIS Guidelines and Manual for data analysis at district level	HMIS Guidelines and Manuals developed	Nil	Done	2017

Objective 3: To establish National Data Standards and institutionalize periodic quality assessment and data verification.

PROGRAMME OUTPUT	INTERVENTION	VERIFIABLE INDICATOR	BASELINE 2012	TARGET	TARGET DATE
National Health Data Quality Standards defined	To define National Health Data Quality Standards in line with international Gold Standards for all data sets	Proportion of data sets or sources that meet the National Data Quality Standards.	Nil	All data sets	2017
Standard data dictionary for all data sets developed and published	To Develop and publish standard data dictionary for all data sets	Standard data dictionary for all data sets developed and available at all levels	Nil	Data dictionary developed	2015
Data Quality Review Guideline developed	To develop Data Quality Review Guidelines	Data Quality Review Guideline developed and available at all levels	Nil	Guidelines developed	2017
National Data Quality Manager and Routine data quality assessments conducted	To appoint a National Data Quality Manager and institute routine data quality assessments.	National Data Quality Manager appointed	Nil	Manager appointed	2016
Training on data quality conducted	Institute continues training on data quality, data cleaning and data verification in all collection and processing stations.	Number of staff training	Done but not sure how many	Done	2017

Objective 4: To strengthen district based Integrated Disease Surveillance and Response (IDSR)

PROGRAMME OUTPUT	INTERVENTION	VERIFIABLE INDICATOR	BASELINE 2012	TARGET	TARGET DATE
Notification instruments updated	To review and update notification instruments and strengthen utilization surveillance of priority diseases at district levels	Updated Notification Instruments implemented	0	all	2017
Notifiable diseases database at district levels established	To establish priority notifiable diseases database at district levels	Notifiable diseases database developed and implemented	0	0	Done
DHMT staff enhanced with capacity for IDS data analysis and use	To provide periodic training for DHMTs on IDS data analysis and use	Number of DHMT staff trained on IDS data analysis and use	0	0	Done

Objective 5: To participate in improving Vital Registration coverage and capacity building for the subsystem.

PROGRAMME OUTPUT	INTERVENTION	VERIFIABLE INDICATOR	BASELINE 2012	TARGET	TARGET DATE
Vital events are registered and reported timely and in a manner that supports data quality and integrity	To work with other stakeholders to ensure that vital events are registered and reported timely and in a manner that supports data quality and integrity	Proportion of districts with Vital Registration coverage of 80% by 2017	0	Done	2017
Agreement and consensus on collection, processing analysis and publication between Vital Statistics agencies established	To develop a set of agreements on collection, processing analysis and publication between Vital Statistics agencies that enhances timely and complete registration of vital events	Agreement available	Done	Done	2016
ICT infrastructure to enable vital statistics interoperability put in place	To provide necessary ICT infrastructure to enable vital statistics interoperability	ICT infrastructure in place	Partially available	Done	2017
System of linking the vital event information to other health care information sets established	To establish a system of linking the vital event information to other health care information sets for benchmark performance and people's health	System of linking the vital event information to other health care information sets	Nil	Done	2017

Objective 6: To improve recording, transcribing, reporting, archiving and retrieval at facility level through establishment of Electronic Medical Recording.

PROGRAMME OUTPUT	INTERVENTION	VERIFIABLE INDICATOR	BASELINE 2012	TARGET	TARGET DATE
National Strategy for strengthening EMR developed	To develop a National Strategy for strengthening EMR in Lesotho	National Strategy for strengthening EMR in Lesotho developed	0		
Guidelines for electronic data management developed	To develop guidelines for electronic data management including ethics, confidentiality and access.	Guidelines for electronic data management developed	0		
EMR software standardized	To standardize EMR software to ensure compatibility and seamlessness as well as computerization of patient registration at hospital levels.	EMR software standardised	0		
EMR for essential programmes strengthened	To strengthen EMR for essential programmes	Number of Clinical Programmes at hospital levels using Electronic Recording	0		

Objective 7: To improve data use at the point of collection

PROGRAMME OUTPUT	INTERVENTION	VERIFIABLE INDICATOR	BASELINE 2012	TARGET	TARGET DATE
Quarterly HMIS reports produced by all DHMTs	To ensure production of quarterly HMIS reports by all DHMTs	Proportion of DHMTs producing Quarterly HMIS report in time	Partially done	Done	2014
Wall Charts depicting trends for important programme performances available in all Health Centres	To introduce Wall Charts depicting trends for important programme performances in all Health Centres	Proportion of health centres with Wall Charts depicting trends for important programme performances	0	All	2014
Training on data analysis conducted	To provide training on data analysis on all facilities	Proportion of facilities received training on data analysis	Partially done	All	2014

GOAL 3: Strengthen data analysis, dissemination and use at the point of collection

Objective 1: To enhance knowledge management through strengthening capacity for data analysis and use at all levels

PROGRAMME OUTPUT	INTERVENTION	VERIFIABLE INDICATOR	BASELINE 2012	TARGET	TARGET DATE
Health data as basis for allocation of resources utilised	To use health data as a basis for allocation of resources	Health data used for allocation of resources			
Performance based funds disbursement and allocation system introduced	To introduce performance based funds disbursement and allocation system	Performance based funds disbursement and allocation system developed and implemented	2 districts piloting PBF	10 districts	2014
Updated data analysis and interpretation manual for district managers updated	To update data analysis and interpretation manual for district managers	Data analysis and interpretation manual for district managers updated	0	1 manual	2014
Data analysis in courses for HMIS workers undertaken	To introduce data analysis in pre-service and in services courses for health workers	Proportion of Health workers trained in data analysis	0	10	??

Objective 2: To improve data use by strengthening the M&E system at district level.

PROGRAMME OUTPUT	INTERVENTION	VERIFIABLE INDICATOR	BASELINE 2012	TARGET	TARGET DATE
District strategic plans developed	To develop district strategic plans in line with national objectives	Number and proportion of DHMTs developing district strategic plans in line with national objectives	0	100%	2015
Essential District Indicators for performance monitoring identified	To identify Essential District Indicators and use them for performance monitoring	Number and Proportion of DHMTs using Essential District Indicators for performance monitoring	100 (need to be reviewed	100%	-
Comprehensive M&E training conducted at district level	To conduct comprehensive training on M&E at district levels	Proportion of districts trained on M&E	100%	100%	-
DHMTs monitoring Operational Plan (OP) developed	To support all DHMTs to conduct local monitoring of their Operational Plan (OP) and organize local reflection meetings	Number and proportion DHMTs conducting local monitoring of OP	Being done already	100%	2013/14

Objective 3: To establish and promote mechanisms for effective interaction between data users and providers.

PROGRAMME OUTPUT	INTERVENTION	VERIFIABLE INDICATOR	BASELINE 2012	TARGET	TARGET DATE
Annual National HMIS Dissemination Conference undertaken	To establish Annual National HMIS Dissemination Conference	Number of National Conference to disseminate HMIS report	0	2	2017
National and District HMIS coordinating Committees established	To establish National and District HMIS coordinating Committees	Number of National and District HMIS coordinating Committees	0	11	2017
MOH Annual Report produced	Productions of MOH Annual Report	MOH Annual Report produced and disseminated	1	5	2017

Objective 4: To strengthen local and international networks on HMIS

PROGRAMME OUTPUT	INTERVENTION	VERIFIABLE INDICATOR	BASELINE 2012	TARGET	TARGET DATE
Information Clearinghouses established at all levels	To define Information Clearinghouses for district and Central levels to facilitate information sharing at these levels	Information Clearinghouses established	0	11	2017
MOH membership of the HMN	To promote and strengthen MOH membership of the HMN	MOH member of the HMN			
Regular Lesotho HMIS Stakeholders Meetings	To maintain the Lesotho HMIS Stakeholders Meetings	Number of Lesotho HMIS Stakeholders Meetings		16 meetings	2017
Products of HMIS published on MOH web site	To use MOH Web Site to publicize the products of HMIS	Number of products of HMIS published on MOH web site		16 products	2017