

Iraq Health Information System  
Review and Assessment

# IRAQ

Country report July 2011, Iraq

By: Ministry of Health, Ministry Of  
Higher Education, Ministry Of  
Planning/ Center Statistic Office,  
Ministry Of Development, World  
Health Organization



World Health  
Organization



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**Review and Assessment**  
**July, 2011**

**By:**

Ministry of Health, MOHE, MOP/CSO, MOD, WHO

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This report describes the current status of the National Health Information System (NHIS) in Iraq. The assessment of the NHIS was carried out by the HIS Stakeholders Working Group in Baghdad, Iraq from 8-10 March 2011

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## List of Acronyms

<u>Abbreviation</u>	<u>Description</u>
AIDS / HIV	Acquired Immunodeficiency Syndromes / Human Immunodeficiency Virus
AR	Annual Report
BHSP	Basic Health Services Package
CD	Compact Disk
CDC	Communicable Diseases Control center
CR&VS/S	Civil Registration and Vital Statistics / Systems
CSO	Center Statistical Office
DOH	Directorate Of Health in Governorates
DPRD	Directorate of Planning & Resource Development
GGHE	General Government Health Expenditure
GIS / GPS	Geographical Information System / Global Positioning System
GP	General Practitioner
HIS/NHIS	Health Information System/ National Health Information System
HMN	Health Metrics Network
HRH	Human Resource for Health
HVS/D/S	Health & Vital Statistics / Department / Section
ICD/10	International Classification of Diseases / 10 <sup>th</sup> version
ICT	Information and Communication Technology
IMCI	Integrated Management of Childhood Illnesses
I-PSM	Iraq Public Sector Modernization project
ITC	Information Technology Center
KIMADIA	Iraqi State Company for Import. & Distribution of Drugs & Medical Appliances
KRG	Kurdistan Region
LAN	Local Area Network
MDG	Millennium Development Goals
MOD	Ministry of Defense
MOH	Ministry of Health
MOHE	Ministry of Higher Education & Scientific Research
MOI	Ministry Of Interior
MOLSA	Ministry of Labor & Social Affairs
MOO	Ministry of Oil
MOP	Ministry of Planning
MOVE-IT	Monitoring of Vital Events using Information Technology
MSSD	Medical & Specialized Services Directorate
NGO	Non-Governmental Organization
NHA	National Health Account
NHS	National Health Statistics
PHC / D	Primary Health Care / Department
PRD	Planning & Resource Development department
RA	Rapid Assessment
SCTB	Specialized Center of Tuberculosis & Chest Diseases
STC	Statistical Technical Committee (MOH & MOP/ Center of Statistics)
SWISH	State of the World's Information Systems for Health
TB / DOTS	Tuberculosis / Directly Observed Treatment Short-course
TOT	Training Of Trainers

<u>Abbreviation</u>	<u>Description</u>
UNDG-ITF	United Nations Development Group – Iraq Trust Fund
WHO	World Health Organization

## Foreword

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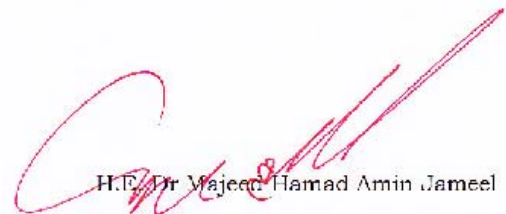
The Ministry of Health (MoH) is pleased to present the Iraq Health Information System (HIS) Review and Assessment, which will contribute in paving the way for the successful reform of the health care system and in achieving the MoH goal of transforming an inefficient, centrally-planned and curative care-based health service into a new system based on preventive and evidence-based, equitable, high quality and affordable primary health care.

HIS is one of the Building Blocks of the Health system. It is the corner stone of health system planning, implementation, management, monitoring & evaluation. Therefore, in the last few years, enormous investments have been made into health information systems in terms of provision of hardware, software and technical expertise; however, these efforts were lacking the required coherence. The frequent unplanned efforts to put right the various components of health information systems have had little tangible effects, particularly in the area of producing quality information that could adequately support evidence-based health care planning and decision making, this shortcoming attributed to lack of a clear HIS vision, policy and strategy.

Obviously, assessment of the existing situations was the first step toward HIS strategic planning. This assessment report will be used as the basis for prioritizing investments in HIS, and contribute to enabling Iraq to meet Millennium Development Goals (MDGs), and National Development Strategy (NDS).

I would like to extend my gratitude to the UNDG ITF for funding the process of developing the Health Information System Review and Assessment. I would also like to acknowledge the support and technical assistance provided by the World Health Organization and the various departments of MoH which contributed to the finalization of this report.

Let us commit ourselves and join our hands together to achieve the noble cause of establishing a responsive and modern health care system that meets needs and aspirations of the Iraqi people.



H.E. Dr. Majeed Hamad Amin Jameel  
Minister of Health

## **Acknowledgement**

This assessment document is the result of a collaborative efforts from several stakeholders - the Ministry of Health (MOH), Ministry of Health in Kurdistan Region, the Ministry of Higher Education (MOHE) , the Ministry of Planning/CSO, and the Ministry of Defense (MOD).

The assessment has been supported by WHO to further develop and enhance HIS in Iraq.

The assessment of the HIS enjoyed the full support at the highest levels from H.E Dr. Majeed Hammed Ameen, Minister of Health, H.E. Dr. Taher Abdullah Hawarami, Minister of Health in Kurdistan Region, H.E. Dr. Essam Namiq Abdullah, Senior Deputy Minister and Dr. Hasan Hadi Baqir, Director General of the Planning & Resource Development Directorate that the Statistic department is part of his Directorate.

The aforementioned members encouraged the team to further the idea and that finally resulted in this assessment.

The assessment was based on the input given by distinguished and qualified workers in all directorates of the Ministry in central level and other health directorates in the governorates and other related stakeholders through a number of workshops. All participants of the workshops gave their time and efforts and have contributed greatly to the findings of the assessment. Without their valuable contributions the assessment would have not been possible.

Tremendous efforts were made by the staff of Health Statistic Department in Ministry of Health to study the assessment tool and guide participants through it. The results of the last assessment workshop were instantly presented and discussed making most use of the participants' contributions. They have also given their time and efforts to use the formal documents that related to the Ministry's legislations.

## Executive summary

Iraq has embarked upon improving and modernizing its healthcare delivery system. Under the administration of the Ministry of Health (MOH) in Iraq, there are 229 hospitals (general and specialized) including 61 teaching hospitals. The number of primary health centers, headed by medical doctors, is 1185 and the number of primary health centers, headed by mid-level health workers, is 1146.

Although, the MOH is as the main health care provider in Iraq, there are currently 92 private hospitals and the private health care system is expanding rapidly, lately.

The MOH is also the main player in managing health information system in Iraq. Other stakeholders of HIS include the MOP/CSO and MOI. Despite the Health and Vital Statistics Sections (HVSS) being responsible for managing information at DOH level, usually they do not get information on all health events in their areas, especially from the private sector and some vertical programmes.

In the last few years, enormous investment has gone into health information systems in terms of both hardware and software, but in a fragmented manner. Due to lack of a clear vision, policy and strategy, the results of these efforts have not been so fruitful.

In October 2010, WHO convened a workshop in Amman, Jordan, inviting all the HIS stakeholders from various levels of the relevant ministries to conduct stakeholder analysis and to discuss ways how to strengthen HIS in Iraq. The October 2010 workshop's agreement on conducting the Iraqi HIS assessment, using the Health Metrics Network (HMN) framework for assessment, as well as the subsequent training and preparatory workshops in Iraq, resulted in the 8-10 March 2011 assessment workshop in Baghdad.

The assessment results, as summarized in the below table, put the NHIS in Iraq is in the Adequate (62%) range. This is interpreted as weak with most of the elements function poorly.

Categories	Scores		Percentage (%)
	Maximum	Assessed	
1. Resources	75	33.5	Present but not adequate (45%)
2. Essential Health Indicators	15	10.0	Adequate (67%)
3. Data sources	228	135.5	Adequate (60%)
4. Data management	15	8.0	Adequate (53%)
5. Information products	207	151.0	Adequate (73%)
6. Dissemination and use	30	15.0	Adequate (50%)
<b>Overall HIS</b>	<b>570</b>	<b>353.0</b>	<b>Adequate (62%)</b>

Table (1)



The below chart present the above results graphically. It clearly indicates that all components of the HIS need interventions for improvements.

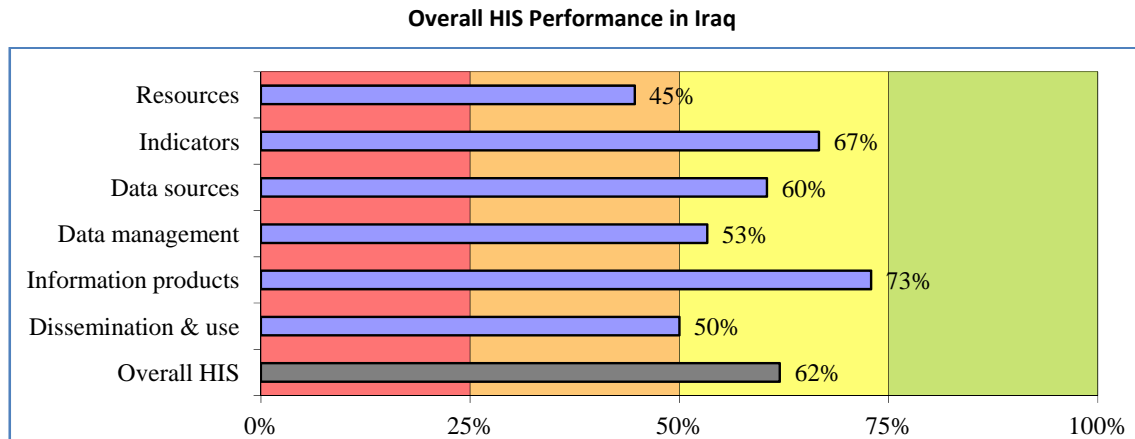


Chart (1)

At present, the HIS does not produce quality information that is required in a timely manner to enhance efficiency in managing health programs. Lack of effective coordination among various departments within the MOH and also among different concerned ministries and statistical institutions, have contributed to the weakness of the system in terms of data incompleteness as well as their management at all levels.

Although the surveys and special studies are generating valuable information, they are not optimally utilized in enhancing efficiency in managing the health system. Information dissemination & use is the second weakest component according to the assessment findings.

Iraq is lacking clear HIS legislation and policies. Available legislations are also not fully enforced. Thus, the current HIS indeed has a multitude of problems. In this context, the results of this assessment would have the following **policy implications**:

1. Enactment and enforcement of HIS laws and regulations,
2. Enforcement of a mechanism for coordinating of data collection activities, required for management of health system,
3. Provision of harmonized data collection, processing and dissemination of tools and supporting guidelines,
4. Establishment of health and related data repositories at national and governorate levels,
5. Provision of pre-service and continuous in-service or on the job training in data management and information use,
6. Provision and enforcement of a comprehensive national health information strategy, and
7. Provision and endorsement of standard operating procedures for data management & use.

The assessment has identified a number of issues, problems and gaps in the existing HIS. Each of those needs to be minutely scrutinized from various perspectives with an aim of producing quality information in a timely manner and ensuring their adequate use by all relevant stakeholders. A clearly developed HIS strategic plan would provide a solid foundation for development of a responsive health information system.

The next step in the process of establishing a robust national health information system would be the development of a national HIS strategic plan that fully embraces national health policy guidelines and critical findings of this assessment.



- In 1952, the Ministry of Health established as an independent Ministry. Since then it is responsible for delivering preventive and curative health services to Iraqi population.

There is also private sector, delivering health services through private hospitals, clinics, pharmacies and medical laboratories, yet it is weak and provide mainly curative health services.

Concerning Human Resource for Health (HRH), there is no separation between public and private sectors; the same personnel work in both sectors.

## I.2. Organizational chart of the Ministry of Health

The Administrative Structure of the central Ministry consists of many directorates

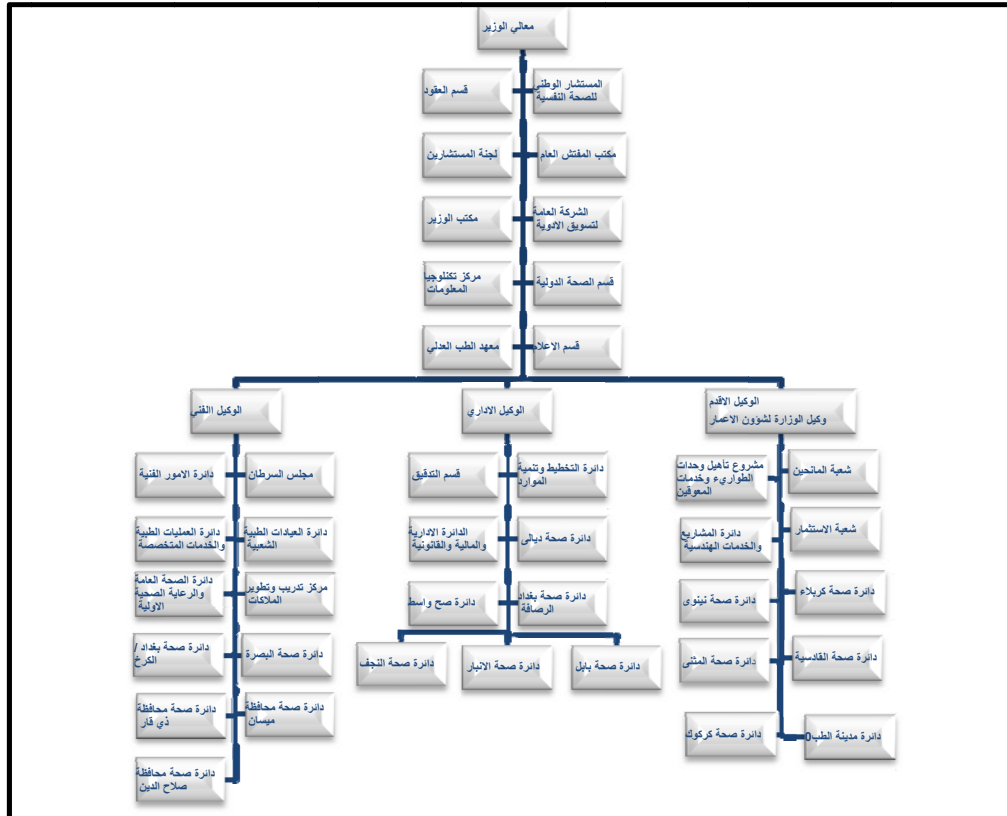


Figure (2)

Each one of the (18) governorates has a Directorate of Health (DOH), except for Baghdad, which has three Health Directorates. Every DOH supervises many health facilities that includes hospitals and several main & sub primary health centers. The number of these facilities is shown in [Table 1](#).

General and specialized public hospitals	168
Teaching hospitals (General & specialized)	61
Private hospital	92
Primary health centers, headed by medical doctors	1185
Primary health centers, headed by health workers	1146
<b>Total Number of Iraqi facilities</b>	<b>2,652</b>

Table 1: Health care facilities in Republic of Iraq, 2010

Total hospitals in Iraq with KRG are (229), of these (150) general hospitals & (79) specialized hospitals.

In 2004, the Ministry of Health began a process to determine the major issues in the development of the national health system. This process resulted in a number of key policy initiatives, including the National Health Strategy 2004-2008, and the updated one (2009-2013) that includes 26 goals. These strategies and other issues were reflected in a conference of national health system in Baghdad in 2008, setting priorities and the development of the following interventions:

1. Basic Health Services Package (BHSP), supported technically by WHO and funded by UNDG-ITF, European Fund. The package approved in Feb. 2010.
2. Iraqi Public System Modernization (I-PSM) that begun in April, 2010.
3. National Health Account (NHA) whose results will be released in National Conference in September 2011.
4. Apply family medicine system in selected main primary health centers in every governorate
5. Apply referral system.

Planning, monitoring and evaluation are key functions of the ministry to effectively fulfill its responsibilities. A focus on health outcomes and a results-based culture can only be achieved when relevant, accurate, and accessible evidence and information on performance of the health system are available. Effectiveness of policies, strategies and program implementation cannot be evaluated without sound evidence. The MOH fulfils these responsibilities in a number of ways, including looking at policies in health, priorities and resource generation and their implications, information needs, and generating appropriate data for decision making.

### **I.3. National Health Statistics (NHS):**

#### **I.3.1. Historical Background on statistical department in MOH**

- In 1949, the statistics section was established in the Public Health Directorate in the Ministry of Social Affairs;
- In 1952, the section was upgraded to a Department level;
- In 1958, the statistics department became a Directorate named "Health & Vital Statistics" in MOH;
- In 1972, the statistics directorate was linked to the Minister's Office in the MOH;
- In 1973, the statistics directorate was attached to the Public Medical Services Directorate;

- In 1983, the statistics directorate was turned in to a Department of Health & Vital Statistics (HVSD), linked to the planning & monitoring directorate;
- In 1985, the statistics department was linked with the Planning & Health Education Directorate, which was renamed into the “Planning & Resource Development” (PRD) Directorate as it is currently named;
- On 16 May 2000, in order to enhance the statistics systems, two statistics units were established; studies & statistical planning unit and statistical studies unit;
- In 2009, the two units joined and became Statistical Planning, Studies and Systems Section, which is responsible for receiving the statistical researches & studies from DOHs as well as receiving monthly performance evaluation reports from Health & Vital Statistics Sections (HVSS) in DOHs.

### **I.3.2. Health & Vital Statistic Department (HVSD)**

The National Health Statistics (NHS) is represented by HVSD in the Directorate of Planning and Resource Development (PRD), Ministry of Health. The HVSD is represented in all Directorates of Health in the Governorates (DOH) by a Health & Vital Statistics Section. These sections receive health and health related data from health facilities, arranging them in special designed Statistical tables, sending them on fixed date to the HVSD, electrically in CDs and manually in typed statistical tables.

Moreover, there are births & deaths registration offices located in the districts in all Iraqi Governorates, responsible for registering birth & death events in their surrounding areas. As mentioned earlier in this report, there is also private health sector, which delivers health services through private hospitals, clinics, pharmacies and medical laboratories. Yet it is weak and providing mainly curative health services. The MOH doesn't have any law for regulating to capture health data from the private sector, except for the numbers of inpatients and their causes of admission, which the private hospitals report to the HVSD. Concerning the registration of birth & death events that took place in private sectors, they ought to be recorded in the same birth & death certificate which are used in public health facilities, and then endorsed in the birth & death offices of MOH.

HVSD is mainly concerned with collecting statistical data, analyzing them and producing Annual Report (AR), a matter that makes health information available.

In order to obtain accurate, reliable, relevant, up-to-date and timely health and health related information and make it available and accessible for health managers at different levels of the health system, HVSD developed & distributed the following guidelines to all statistical sections in DOH to be used in filling the statistical reports:

1. Guidance for registration of births, still births and deaths, 2009;
2. Guidance for the use of workers in medical records of health facilities in the ministry, published by WHO, 2005.

The available information should be able to:

- Support decision making at different levels of health management;
- Permit the formulation of health policies, plans and strategies;
- Permit monitoring and evaluation of implementations of health plans;
- Permit health services management at macro levels;
- Allow measuring health status of the population and monitoring trends and changes;
- Allow to identify health and health related problems and their prioritization;
- Permit identification of health care and medical needs
- Permit the evaluation of effectiveness of the health system performance
- Permit the evaluation of health status and health system performance in comparison with other relevant and neighboring countries.

Although, the NHS in Iraq has made progresses over the years; still there are deficiencies in data dissemination and use. There are a number of gaps and weak areas, which need to be identified and addressed. The development of statistical skills of the statisticians & IT staff at the central and governorates levels is regarded as one of the priorities that the MOH needs to tackle.

In the updated health strategy, the decision makers confirm that developing an evidence-based HIS is one of the strategic goals that must be achieved in the coming five years.

This review and assessment of HIS clarify the reality of current situation in order to create strategic plan that contributes to enhance HIS, to enable us to plan and monitor health system with quality and timely data and information.

#### **I.4. Organization of the existing Health Information Systems - an overview**

##### **I.4.1. Context and Resources**

Before 2003, Iraq was completely isolated from the world. All public & private sectors were suffering due to deficiency in the communication and development systems & programs. Health information systems were completely paper-based and manually processed because of the lack of computers, network systems and personnel capacity. Since 2004, MOH realized the importance of information technology (IT) in collecting & processing health information. So, the MOH initiated the use of modern technology in its health facilities at the central and provincial levels.

In *Phase I* of *Strengthening Primary Health Care Project*, many statistical & Information Technology (IT) staff working in MOH has been trained on how to use computers and design special programs that would contribute to strengthening the HIS. Also, numerous computers and servers were provided to DOHs in Baghdad and other governorates. The Information Technology Center (ITC) designed many computer programs for entering data from special health programs (Health Visitor, Family Medicine), linking electronically Primary Health Centers (PHCs) with DOHs. This system is currently used in about 300 PHCs in Iraq and notably reflected in Maysan DOH.

Certain public hospitals developed Patient Management Programs that follow patients from their entry to the hospital record system until receiving medicine from the pharmacy. Ibn AL-Rushed Mental Hospital in Baghdad, AL-Rusafa DOH, is one of the health facilities having such a system.

There are fragmented software programs that deal with some health-related data management including management and maintenance of medical devices in three hospitals in different governorates. Yet these programs need to be optimized and become part of the MOH.

The MOH planned to carry out assessment of the current situation of HIS in Iraq, identify priority areas for intervention within the six HIS components and fill the gaps. This process is also intended to lead to development of a HIS strategic plan for Iraq to strengthen HIS that will eventually result into improved and evidence-based decision-making system. One of the goals of the Strategic plan is to link all health facilities in the country through a network in order to capture accurate and timely health information.

##### **I.4.2. Policy and Planning**

As mentioned above, the NHS is run by MOH, therefore objectives, strategies and procedures for all components of HIS that are laid out and documented, are applicable only to MOH health facilities. There are a number of operational and policy documents and functioning committees that regulate and control the functions and mechanisms of the NHS. These include:

- Health Laws, Regulations and Guidelines 2009, the complete collections of health legislation;
- Births and Deaths Registration law No. 148. 1971;
- Guidance for Registration of Births, Still-births, and Deaths, 2009;
- Public Health Law, 2009

- Guidance for the workers in Medical Records applied in the Health Facilities in the Ministry, published by WHO, 2005; and
- Annual Report (AR) , 2009

#### I.4.3. HIS institutions, human resources and financing

The HIS is the responsibility of HVSD within the Directorate of Planning & Resource Development (PRD) of MOH (refer to fig. 2 - organizational chart of the MOH). The HVSD is a separate body within the PRD in MOH. It is fully equipped with computers, printers, scanners, CD writers and communication facilities including telephone lines, and internet accessibility. The HVSD has units in the planning departments of all Directorates of Health (DOH) at governorate level, called Health and Vital Statistics Section (HVSS).

The following table shows the staffing pattern of HIS or health & vital statistics related staff in Iraq.

Location	Number of staff
HVSD at the central level	48
HVSS at Governorate level	15-20
Health care at district level	2-3
Hospital statistics units	15-20
Health statistics related staff at health center level	1-2
Birth and deaths registration offices	6-8

Table (3)

The below table shows the current actual number of HIS/statistics related staff in Iraq.

Registration of births and deaths at the governorates	Current number of staff
1. Karkh Office of Health	13
2. Rusafa Health Offices	22
3. Basra Health offices	7
4. Nineveh Health offices	30
5. Maysan Health Office	13
6. Diwaniya offices	6
7. Diyala offices	18
8. Anbar, offices	18
9. Babel Office	15
10. Karbala offices	7
11. Kirkuk Office	11
12. Wasit Office	14
13. Dhi Qar Office	19
14. Muthanna offices	8
15. Salah al-Din offices	9
16. Najaf offices	8
All Offices (total)	218

Table (4)

Communications among HVSD and HVSSs are established via telephone and fax. There is no Wide Area Network (WAN); however, data exchanges take place through manual reports, exchange of CDs and occasionally through emails.

Data collected from various health facilities at the field level is sent to the respective DOH/HVSS at the governorate level. The HVSS compiles and arrange these data in specially designed statistical tables and then send it on fixed dates, electrically in CDs and also hard copies of the statistical tables for further aggregation and analysis to the HVSD at national level.

Private hospitals and health care providers other than the MOH, although, have statistical units, but these units are not well established as those in the MOH. Communication between the non-government health care providers and the MOH is very limited. More coordination is required to further enhance communications and data exchange.

In addition to HVSD and HVSSs, other units within MOH also capture some health and health related data. These are mainly specialized units in certain health domains e.g. section of non-communicable diseases, which hosts diabetes, hypertension & cardiovascular diseases; Cancer Registering Council that hosts cancer registry; Communicable Diseases Control center (CDC) that hosts communicable disease surveillance; Specialized Center for Tuberculosis and Chest diseases that host the tuberculosis registry; National AIDS center that hosts HIV registry; Medical & Specialized Services Directorate (MSSD) and Emergency Medicine Department, which host data sets for occupational injuries, poisoning registry, and road traffic accidents data.

Other sources of health related information come from organizations other than health organizations e.g. Medical Affairs Directorate in Ministry of Defense (MOD), Ministry of Labor & Social Affairs (MOLSA), Ministry of Oil (MoO), Ministry of Interior (MOI).

In summary, there are multiple sources of health information, within and outside the MOH, making the health information system partially fragmented. Although there are links among such units and HVSD hosting the National Health Statistics (NHS), more coordination is required. Coordination should help to make data timely and accurately available to HVSD and to reduce burden of data management for non-statistical units.

Statistical units in the country, comprising the NHS, are run by physicians, statisticians, IT programmers, in addition to administrative staff. They are trained on how to deal with health related data through on job training and training courses in collaboration with non-governmental organizations, donors, local specialized institutions in Baghdad and AL-Mustanseriya Universities, Ministry of Higher Education & Scientific Research.

In 2008, the International Classification of Diseases (ICD) has been applied in filling the statistical tables in MOH. In 2007, 2009 and 2010, in collaboration with WHO, several international training courses on ICD-10 were conducted in Amman and Istanbul as Training of Trainers (TOT). In addition, many national training courses on ICD were conducted that comprise 25% of the workers in the HVSD & HVSSs in all Iraqi provinces including Kurdistan Region.

There are no epidemiologists assigned in the statistical services of the MOH. Physicians who are specialized in community medicine and General Practitioners (GP) work mainly as directors of the department. The use of data and information is mainly at the discretion of those directors. There is a need to further strengthen the coordination among the directors and other staff who work in the statistical units.

Coordination should be established and brought to all steps of capturing, processing, analyzing and reporting health data and not merely for directors to use the outputs. More strong coordination among HVSD and ITC is required and is considered a crucial element for further development of HIS.

HVSD supervising the HVSSs does not have an independent budget but financed through the recurrent budget of MOH. All equipments, human resources and software requirements are planned and incurred through MOH procurement mechanisms.



#### **I.4.4. HIS Infrastructure**

As mentioned earlier, HVSD & HVSSs are fully equipped with computers, printers, scanner, CD writers and other communication facilities including telephone lines, and in some cases internet accessibility. The HVSD is housed in the MOH main building. The MOH main building has a Local Area Network (LAN). This LAN is being used for certain programs that are designed by ITC staff e.g. Electronic Archiving System that currently works in the Administrative Directorate of Hospital Recording System. Moreover, certain MOH Directorates e.g. the State Company of Marketing Drugs & Medical Supplies (KIMADIA) has an electronic link between MOH & some of Drug Stores and applied inventory system.

## **II. The HIS assessment**

### **II.1. The rationale**

In the last few years, enormous investments have been made into health information systems in terms of provision of hardware, software and technical expertise, but in a rather fragmented manner. The frequent ad-hoc efforts to revamp the various components of health information systems have had little tangible effects, particularly in the area of producing quality information that could adequately support evidence-based health care planning and decision making. This drawback is attributed, to a large extent, to lack of a clear HIS vision, policy and strategy.

The call for an enhanced HIS was further necessitated by the need to prioritize and streamline the inflow of resources into the healthcare system for bringing about quality and measureable outputs and outcomes. Obviously, assessment of the existing situations was the first step toward HIS strategic planning. This assessment report will be used as the basis for prioritizing investments in HIS.

### **II.2. The objectives**

The main objective of the HIS assessment was to create understanding, enhance availability and quality, and foster use of health information for improvement of the healthcare system in Iraq. The specific objectives of the exercise were to:

- *Establish* an objective baseline for subsequent follow-up evaluations – assessment findings should therefore be comparable over time;
- *Inform* stakeholders of aspects of the HIS with which they may not be familiar;
- *Build* stakeholder consensus and understanding around the priority needs for health information system strengthening; and
- *Mobilize* joint technical and financial support for the development and implementation of a national HIS strategic plan.

### **II.3. The methodology**

The assessment of HIS in Iraq was carried out in collaboration with other stakeholders. The process of assessment was first discussed with the stakeholders through a workshop in Amman in Oct. 2010. Following the workshop, two committees (HIS Steering Committee and Assessment Implementation Committee), headed by H.E the Minister of Health, were established. The assessment Implementing Committee held several meetings on the subject and presented their reports to the Steering Committee. During the discussions, consensus was reached on the key roles of the stakeholders in the HIS assessment, as they are the participants of those activities to be assessed in the process.

Assessment of the HIS took place over a period of 6 months; through a series of workshops and consultation meetings. The last consultation took place in Erbil in Feb. 2011 where the assessment

implementation committee reviewed and finalized the assessment plan. The final assessment took place through a stakeholder’s workshop in Baghdad in March 2011.

Technical support from WHO consultant Mr. Khan Aseel was provided in the form of training of the assessment implementing committee members on how to divide the stakeholders into groups according to themes for the assessment exercise as well as on the methodology for review and scoring the assessment questions, provided in the Health Metrics Network (HMN) assessment tool for HIS (*Annex I: The HMN/HIS Assessment Tool*).

HIS assessment tool, which is based on the HMN ‘HIS Framework and Standards for Country Health Information Systems’, is a questionnaire with 197 questions divided on the six HIS components as the following:

HIS component			No. of questions
<b>Input</b>	1. Resources	Includes: <ul style="list-style-type: none"> <li>• Policy and Planning</li> <li>• HIS institutions, human resources and financing</li> <li>• HIS Infrastructure</li> </ul>	25
	2. Indicators	To cover three domains: <ol style="list-style-type: none"> <li>1. determinants of health;</li> <li>2. health system;</li> <li>3. health status</li> </ol>	5
<b>Process</b>	3. Data Sources	<b>Population-based</b> <ol style="list-style-type: none"> <li>1. Censuses</li> <li>2. Civil registration</li> <li>3. Population surveys</li> </ol> <b>Institution-based</b> <ol style="list-style-type: none"> <li>4. Individual records</li> <li>5. Service records</li> <li>6. Resource records</li> </ol>	83
	4. Data Management	Comprises: <ul style="list-style-type: none"> <li>• data collection,</li> <li>• storage,</li> <li>• analysis</li> <li>• process &amp; compilation</li> </ul>	5
<b>Output</b>	5. Information products	These qualities to be assessed: <ul style="list-style-type: none"> <li>• Data-collection method</li> <li>• Timeliness</li> <li>• Periodicity</li> <li>• Consistency</li> <li>• Representativeness</li> <li>• Disaggregation</li> <li>• Adjustment method</li> </ul>	69
	6. Dissemination and Use		10
<b>Total</b>			<b>197</b>

Table (5)

For each question four (4) mutually exclusive scenarios are proposed with scores from 3,2,1,0 as shown in the below chart.

Highly adequate	Adequate	Present but not adequate	Not adequate at all
3	2	1	0

Chart (2)

The method for scoring is so that one of the participants read a question out loud with the four proposed scenarios for that specific question. The participants discuss the question and refer to the relevant documents, if any, and reach to consensus on a score. The concerned score is then recorded. This method is repeated for every question.

If a question is not relevant or none of the participants knows the answer, then that question is escaped and not scored, which means the situation related to that specific question was not assessed and therefore no score will be added to the total scores. The same question will also be excluded from the denominator for calculating average score for a section.

During the March 2011 assessment, out of the total 197 questions, only 7 questions, which were related to population census, were not assessed.

Also, this needs to be mentioned here that the assessment of the National Civil Registration and Vital Statistics Systems in Iraq were assessed in the same sitting, using the “WHO Framework for Rapid Assessment of National Civil Registration and Vital Statistics Systems”.

#### II.4. The workshops

The assessment workshop had targeted different users and producers of health information as well as different levels of decision makers. The Health Metrics Network (HMN) assessment tool was used without modification.

One assessment workshop was performed from 8-10 March 2011 with the participation of 38 participants from different stakeholders, using the HMN assessment tool to assess the HIS as a whole, but the last day of the workshop was devoted to assess the Civil Registration and Vital Statistics Systems specifically.

In fact, the large team of 38 people was formed out of the eight different groups, as recommended by the HMN Group-Building tool for answering different parts of the HMN assessment questionnaire. The assessment team was lead by the Director of Donors Affairs Section of the MOH. The Team Secretaries included two persons from the Health & Vital Statistic Department of the Ministry of Health. (*Annex II: list of the workshop’s participating stakeholders.*)

### III. Findings of the HIS assessment

For the sake of consistency, the results from the 8-10 March 2011 HIS assessment workshop in Baghdad, are presented here in the order of the six components as presented in the HIS assessment tool.

#### III.1. Resources

According to the HIS framework, component of **resources** is further divided into three groups including:

- A. Policy and Planning
- B. HIS institutions, human resources and financing
- C. HIS Infrastructure

There are 25 questions for covering assessing the three groups related to **resources**. All the questions were scored during the assessment.

Categories	Scores		Percent (%)
	Maximum	Assessed	
A. Policy and Planning	21	9.0	Present but not adequate (43%)
B. HIS institutions, human resources and financing	39	14.0	Present but not adequate (36%)
C. HIS Infrastructure	15	10.5	Adequate (70%)
Total	75	33.5	Present but not adequate (45%)

Table (6)

As indicated in the summary table above, the combined average score of the three groups related to **resources** component falls in the **present but not adequate (45%)** status. The two most import groups of the **resources** component including “policy and planning” and “institutions, human & finance resources”, which comprise the backbone of a national health information system, are very weak.

However, the “HIS infrastructure” group, which includes data recording and reporting materials, information processing and communication equipment and technologies, is comparatively good with **adequate (70%)** scoring. See the below chart for graphic presentation of the summary findings.

### 1. Resources

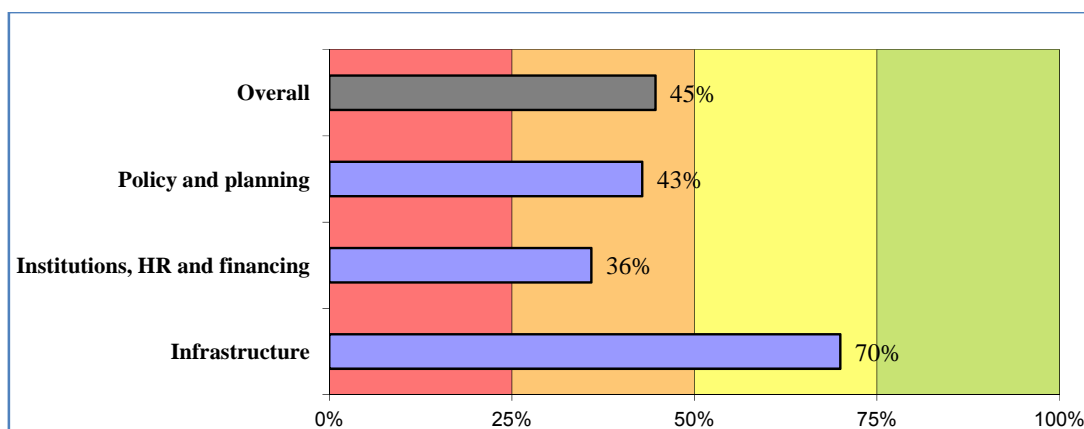


Chart (3)

### III.2. Essential Health Indicator

Core indicators are needed to assess change in three major domains:

**Determinants of health** – these include socioeconomic, environmental, behavioral, demographic and genetic determinants or risk factors. Such indicators characterize the contextual environments in which the health system operates. Much of the information is generated through other sectors, such as agriculture, environment and labor.

**Health system** – indicators include inputs to a health system and related processes such as policy, organization, human resources, financial resources, health infrastructure, equipment and supplies. There are also output indicators such as health service availability and quality, as well as information availability and quality. Finally there are immediate health system outcome indicators such as service coverage and utilization.

**Health status** – indicators include levels of mortality, morbidity, disability and wellbeing. Health status variables depend upon the efficacy and coverage of interventions and determinants of health that may influence health outcomes independently of health service coverage. Health status indicators should be available stratified or disaggregated by variables such as sex, socioeconomic status, ethnic group and geographical location in order to capture the patterns of health in the population.

Categories	Scores		Percent (%)
	Maximum	Assessed	
Essential Health Indicators	15	10.0	Adequate (67%)

Table (7)

For assessing the *indicators'* component, there are five questions, which all the five were scored during the assessment. The assessment score as presented in the above table puts the current status of *indicators* in **adequate (67%)** status.

## 2. Indicators

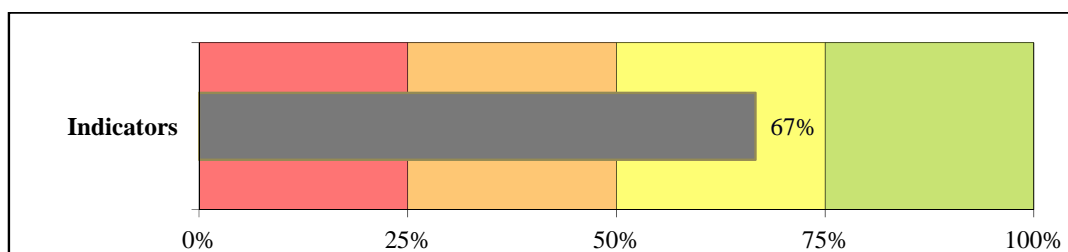


Chart (4)

Despite the assessment findings of indicators as adequate, the participants of the assessment workshop were of the opinion that additional indicators for measuring changes in fields such as economy, environmental health, occupational hazards and MDG, would need to be defined.

### III.3. Data Sources

There are different sources of data for an HIS. According to the HMN framework, these sources are classified into the following two main categories:

- **Population-based**
  1. Censuses
  2. Civil registration (vital statistics)
  3. Population surveys
- **Institution-based**
  4. Individual records (health and diseases record including surveillance)
  5. Health service records
  6. Resource records

The assessment of the six data sources looked into whether;

- a. Content of the data being collected were relevant and also sufficient to the needs,
- b. The country has adequate capacity and practices in handling data from sources,
- c. Information and reports generated from the sources are disseminated and on timely basis,
- d. Various pieces of data/information integrated and utilized.

During the assessment, 76 out of the total 83 questions related to **data sources** component of the NHIS Iraq were assessed and scored. The seven questions that were skipped during the assessment were related to population census and vital registration and were not relevant to the situations.

Data Source	Contents	Capacity & Practices	Dissemination	Integration and use	Total
1. Census	Not assessed ---	Present but not adequate 33% (4.0/12)	Adequate 50% (3.0/6)	Not assessed ---	Present but not adequate (42%)
2. Vital statistics	Highly adequate 100% (9.0/9)	Adequate 60% (9.0/15)	Highly adequate 100% (3.0/3)	Highly adequate 100% (3.0/3)	Highly adequate (90%)
3. Population-based surveys	Highly adequate 100% (9.0/9)	Highly adequate 100% (12.0/12)	Highly adequate 100% (6.0/6)	Highly adequate 100% (6.0/6)	Highly adequate (100%)
4. Health and disease records (incl. surveillance)	Adequate 67% (6.0/9)	Highly adequate 79% (16.5/21)	Present but not adequate 33% (1.0/3)	Highly adequate 83% (5.0/6)	Adequate (65%)
5. Health service records	Not adequate at all 0% (0.0/6)	Present but not adequate 29% (3.5/12)	Adequate 50% (3.0/6)	Adequate 56% (5.0/9)	Present but not adequate (34%)
6. Resource records	Adequate 60% (14.5/24)	Present but not adequate 42% (14.0/33)	Not adequate at all 0% (0.0/6)	Present but not adequate 25% (3.0/12)	Present but not adequate (32%)
Total					Adequate (60%)

Table (8)

The summary assessment results, as shown in the above table, suggest that generally the **data sources** are **adequate (60%)**, but weak. The same table shows that “population surveys” and “vital statistics” are the two well-functioning data sources, while the “resource records” and “health service records” are the most inadequate and rarely used sources of data for the national HIS in Iraq.

The “**vital statistics**” functions were assessed as **highly adequate (90%)**. The reason is, most probably, that; birth and death registration law no. 148, 1971 is obligatory, which should be strictly followed by all related Iraqi institutions whether public or private.

However, the absences of detailed data about births and deaths that take place outside health facilities represent an important obstacle, though it represents about 10% of early neonatal deaths and still births. The HVSD regularly produces special statistical reports comprises birth, still birth and death.

Below graph depicts the HIS assessment findings for the data sources.

### 3. Data sources

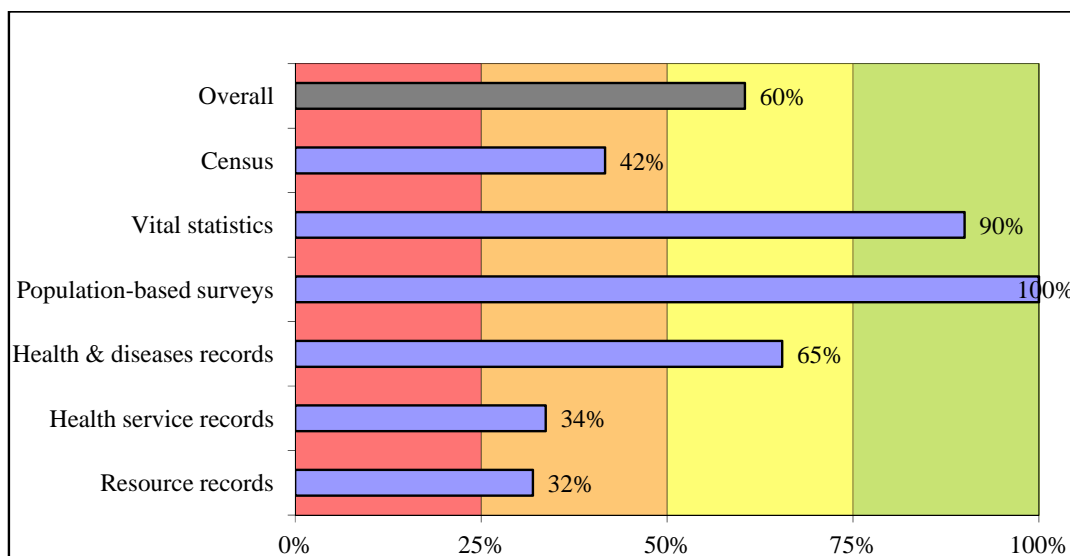


Chart (5)

There are other sources of information that are considered important and are being regularly used but do not constitute part of the information reported by HIS. These include:

- Records from other ministries, e.g. Ministry of Social Affairs, Ministry of Higher Education & Scientific Research and others
- Records from Ministry of Environment, Ministry of Municipality (water and sanitation reports)
- Health researches and studies published in peer and non-peer journals

#### III.3.1. Population census

The last *census* in Iraq was conducted in 1997, more than 10 years ago. However, the next round of census, which was originally planned for October 2009, has been rescheduled several times, with the latest to undefined date in 2011.

#### III.3.2. Civil Registration and Vital Statistics Systems

It is worth mentioning here that because of the importance of “Civil Registration and Vital Statistics (CR&VS) Systems” as well as a global special focus on strengthening CR&VS systems as part of the “*Monitoring of Vital Events using Information Technology (MOVE-IT)*” initiative to assess progress towards the MDG, the last day of the (8-10 Mar, 2011) assessment workshop was allocated for assessing the CR&VS Systems, using the WHO framework “Rapid Assessment of National Civil Registration and Vital Statistics Systems”.

The CR&VS rapid assessment tool has 25 questions in 11 different areas related to the subject. The assessing method is the same as the HMN/HIS assessment tool where there are four scenarios for each question and the scoring order is 3 (highest), 2, 1 and 0 (lowest).

Through the assessment, the scores gained were 54 out of 75 or 72%. According to the WHO framework for CR&VS rapid assessment, scores between 65% and 84% indicate that CR&VSS function but with some elements that function poorly. (*Annex III: the assessment results of the CR&VS systems of Iraq*).

### III.4. Data management

**Data management**, according to the HMN framework, covers all aspects of data handling from collection, storage, quality-assurance and flow, to processing, compilation and analysis. Specific requirements for periodicity and timeliness are defined where critical – as in the case of disease surveillance.

For assessing the **data management**, there are five questions in the assessment tool with maximum total scores of 15.

Categories	Scores		Percent (%)
	Maximum	Assessed	
Data management	15	8.0	Adequate (53%)

Table (9)

The assessment results for **data management**, as shown in the above table, are in the lower range of **adequate (53%)**. This score indicates that several elements of the **data management** are weak and need to be strengthened.

The below chart is the graphic presentation of data management in HIS Iraq.

#### 4. Data management

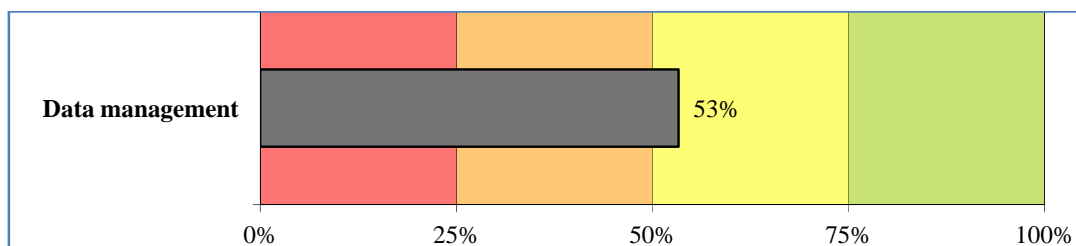


Chart (6)

The current data management practices include:

1. At the level of health facilities (PHCs, hospitals) a record of all services & activities are collected monthly, through filling special statistical tables and then sent to HVSSs in DOHs.
2. HVSSs in DOHs collect the data that comes from all health facilities, unify them and then send them to HVSD as hard copies of the statistical tables & CDs on regular basis.
3. HVSD also receives health data from specialized health facilities and from other ministries and private sectors, analyzes those data, discusses the current situation of health and produce annual report.
4. Concerning notifiable diseases data, they are reported by the health facility as soon as the event occurs by any communication means; telephone, email, or written report to DOH and MOH and they in turn are supposed to take appropriate measures to respond to the problem.

Although, health workers in all health facilities, HVSSs and HVSD are actively involved in collecting data, analyzing them and provide reports to decision makers, the 53% assessment score implies that there is a need to further strengthen the data management component of HIS in Iraq.

### III.5. Information Products (HIS data quality)

The assessment questionnaire has 69 questions under the **information products (HIS data quality)** component. Those questions cover quality assessment related to the following information products (indicators):

- a) Under-5 mortality (all causes)
- b) Maternal mortality



- c) HIV prevalence
- d) Measles vaccination coverage by 12 months of age
- e) Deliveries attended by skilled health professionals
- f) Tuberculosis (TB) treatment success rate under DOTS
- g) General government health expenditure (GGHE) per capita (ministry of health, other ministries and social security, regional and local governments, extra budgetary entities)
- h) Private expenditure on health per capita (households' out-of-pocket, private health insurance, NGOs, firms and corporations)
- i) Density of health workforce (total and by professional category) by 1,000 population
- j) Smoking prevalence (15 years and older)

The following quality attributes were included in the assessment of the above indicators:

- Data-collection method,
- Timeliness,
- Periodicity,
- Consistency,
- Representativeness,
- Disaggregation, and
- Adjustment method)

The assessment summary results for the **information products (HIS data quality)** are presented in the following cross-table.

Quality attribute ----- Indicator (Info. Product)	Data collection method	Timeliness	Periodicity	Consistency	Representati veness	Disaggregati on	Adjustment method	Overall
a) <5 mortality (all causes)	100%	67%	100%	100%	100%	100%	100%	95%
b) Maternal mortality	100%	67%	100%	100%	100%	100%	100%	95%
c) HIV prevalence	33%	100%	100%	100%	67%	100%	NA	83%
d) Measles vacc. coverage	67%	0%	100%	33%	100%	100%	NA	67%
e) Deliveries by skilled h. prof.	100%	100%	100%	100%	100%	100%	NA	100%
f) TB treat. DOTS success rate	100%	100%	100%	100%	100%	100%	NA	100%
g) GGHE) per capita	33%	0%	0%	33%	0%	17%	67%	21%
h) Private h. expend. per capita	33%	33%	33%	33%	67%	50%	67%	45%
i) H. workforce/1,000 popul.	33%	100%	100%	100%	NA	83%	NA	83%
j) Smoking preval. (>15 years)	0%	67%	100%	67%	100%	100%	NA	72%
<b>All indicators</b>	<b>56%</b>	<b>63%</b>	<b>81%</b>	<b>74%</b>	<b>79%</b>	<b>83%</b>	<b>78%</b>	<b>73%</b>

*Note: While the color scheme in the table follows the same trend as before, a blank cell means that assessing the indicator against the specific quality was not applicable.*

Table (10)

#### 5. HIS data quality (by information product/indicator)

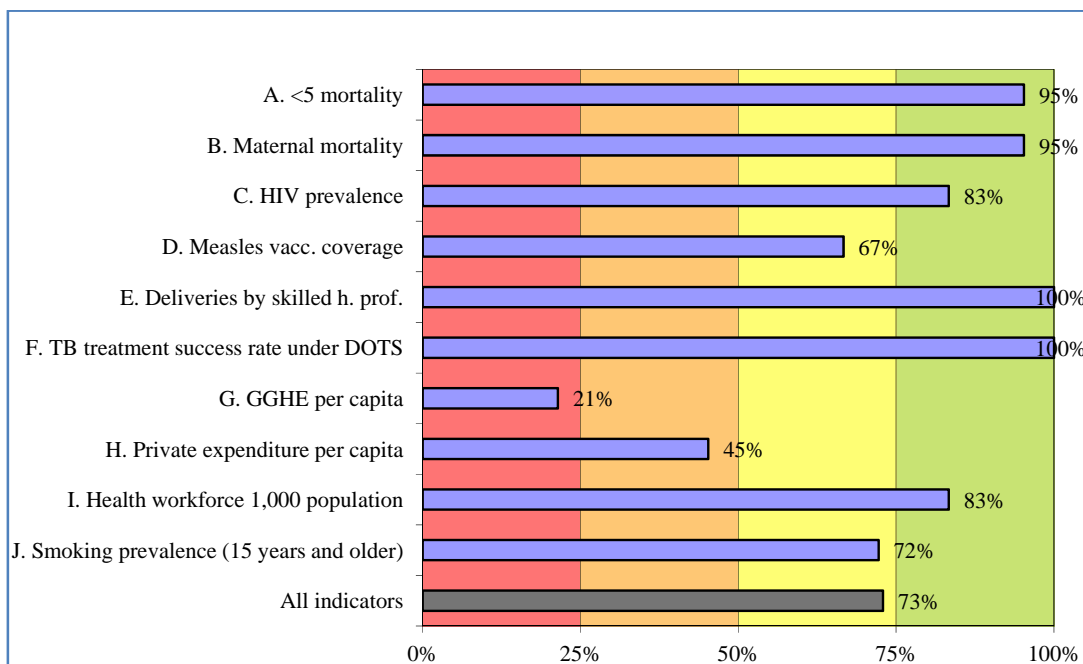


Chart (7)

Results of the summary cross-table (above) and the chart below indicate that except for the health expenditure indicators (**g.** General government health expenditure (GGHE) and **h.** Private expenditure on health), the rest of the information products are well-maintained and regularly checked for the perceived quality attributes.

#### 5. HIS data quality (by quality attribute)

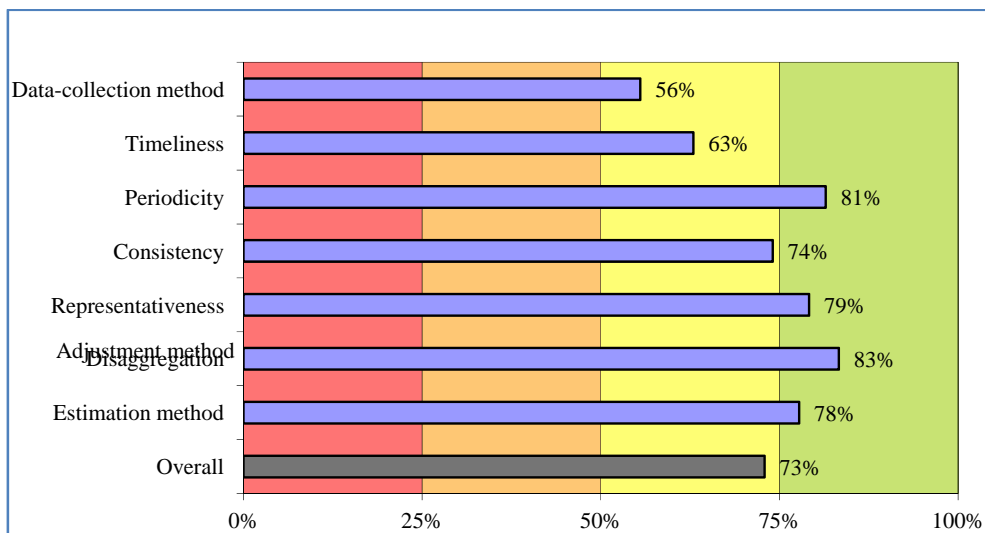


Chart (8)

The above chart indicates that in comparison to the other attributes, **Data collection method** and **Timeliness** are the two relatively weak qualities of the information products in the NHIS in Iraq.

### III.5.1 Morbidity Indicators

Morbidity indicators are calculated from different sources – health and diseases records collected on monthly basis (part of routine health information system) and from health surveys. Health and diseases records of MOH facilities constitute the main source of morbidity from routine health information system. Records of health care providers other than MOH are not easily accessible to be obtained as they do not have strong information or statistical units.

The health services in Iraq is provided free of charge to all citizens. This is in favor of high coverage for morbidity, if captured from health care facilities. The routine health information system ensures the availability of morbidity statistics (with its limited coverage) on monthly basis. In addition, data are validated and checked regularly for completeness and accuracy.

### III.5.2 Mortality Indicators

Mortality indicators are produced using data from different sources – the health and diseases records which provide data on inpatient (hospital deaths), cases that are brought dead and deaths happening in accident and emergency departments. It also provides cause specific deaths, e.g. deaths because of acute respiratory diseases, protein energy malnutrition, tuberculosis and HIV. Mortality data are available on monthly basis from MOH facilities. Health and diseases records for care providers other than MOH are also obtained on regular basis for deaths, but only on annual basis.

Vital registration system and notifications of deaths is another important source.

### III.5.3 Health System Indicators

The routine information system captures data regularly on monthly basis that describe health system resources, utilization and outputs. Data are regularly validated and checked for appropriateness and consistency. These applied in all MOH health facilities.

### III.5.4 Risk factors indicators

Health surveys and studies are the main source of information on indicators that describe determinants of health. As described earlier in the report, a large scale, multiple-indicator survey is executed every 4-5 years in addition to other individual studies. Efforts are made such that health surveys are executed with proper and representative samples that would ensure the results can be generalized to the target population.

## III.6. Dissemination and use

Under the *dissemination and use* component, there are 10 questions in the assessment questionnaire, covering five related areas. These include:

- a) Analysis and use of information,
  - **Demand** from senior managers and policy-makers for complete, timely, accurate, relevant and validated HIS information,
  - Wider use of up-to-date and clearly understood graphs for displaying information at sub-national health administrative offices and health facilities,
  - Wider use of up-to-date and clearly understood **maps for displaying information** at sub-national health administrative offices and health facilities.
- b) Information use for policy and advocacy,

- Regular **distribution of integrated HIS summary reports** including information on a minimum set of core indicators (including those used to measure progress towards achieving the MDGs and those used by Global Health Partnerships, if applicable) to all relevant parties.
- c) Information use for planning and priority setting,
- Demonstrable **use of health information** (population health status, health system, risk factors) in the **planning** and in the **resource allocation** processes (e.g. for annual integrated development plans, medium-term expenditure frameworks, long-term strategic plans, and annual health sector reviews).
- d) Information use for resource allocation,
- Wider use of HIS information is by district and sub-national management teams for **setting resource allocations** in the annual budget processes,
  - **Use of HIS information in advocating for equity** and increased resources to disadvantaged groups and communities (e.g., by documenting their disease burden and poor access to services).
- e) Information use for implementation and action.
- **Use of health information by managers** at health administrative offices at all levels (national, regional/provincial, district) for health service delivery management, continuous monitoring and periodic evaluation,
  - **Use of health information by care providers** at all levels (national, regional/provincial, district hospitals and health centers) for health service delivery management, continuous monitoring and periodic evaluation,
  - Systematic use of information on health risk factors in advocacy for the adoption of lower-risk behaviors by the general public and by targeted vulnerable groups.

During the assessment, all the 10 questions were answered, scoring a total of 15.0 out of 30 or **adequate (50%)**. This is just the border line between Adequate and Not Adequate.

Categories	Scores		Percent (%)
	Maximum	Assessed	
a. Analysis and use of information	9	6.0	Adequate (67%)
b. Information use for policy and advocacy	3	2.0	Adequate (67%)
c. Information use for planning and priority setting	3	2.0	Adequate (67%)
d. Information use for resource allocation	6	2.0	Present but not adequate (33%)
e. Information use for implementation and action	9	3.0	Present but not adequate (33%)
Total	30	15.0	Adequate (50%)

Table (11)

Results in the above table reveal that uses of information in the two areas of “Information use for resource allocation” and “Information use for implementation and action”, in particularly, are very weak. This affects the achievement of goals of the national health strategy and, therefore, more focus need to concentrate on enhancing information in these areas.

## 6. Dissemination and use

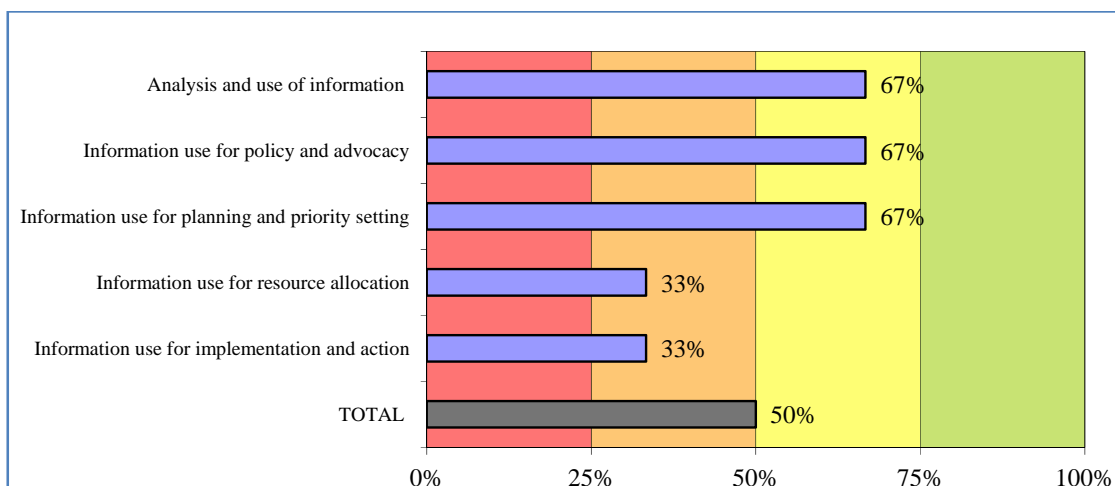


Chart (9)

### III. Overall HIS

Summary of the assessment findings for the six HIS components, which were elaborated under their individual headings in the current section (Sec. III), are presented in the below table.

Categories	Scores		Percentage (%)
	Maximum	Assessed	
1. Resources	75	33.5	Present but not adequate (45%)
2. Essential Health Indicators	15	10.0	Adequate (67%)
3. Data sources	228	135.5	Adequate (60%)
4. Data management	15	8.0	Adequate (53%)
5. Information products	207	151.0	Adequate (73%)
6. Dissemination and use	30	15.0	Adequate (50%)
<b>Overall HIS</b>	<b>570</b>	<b>353.0</b>	<b>Adequate (62%)</b>

Table (12)

As per the results of the summary table, **resources** component, which is an input to the whole HIS process, is the weakest link in the Iraqi NHIS cycle. Similarly, the **dissemination & use** component, as the output of the HIS process, has also been assessed very weak.

The following chart represents summary status of the six components and as well as the overall status of NHIS in Iraq graphically.

### Overall HIS

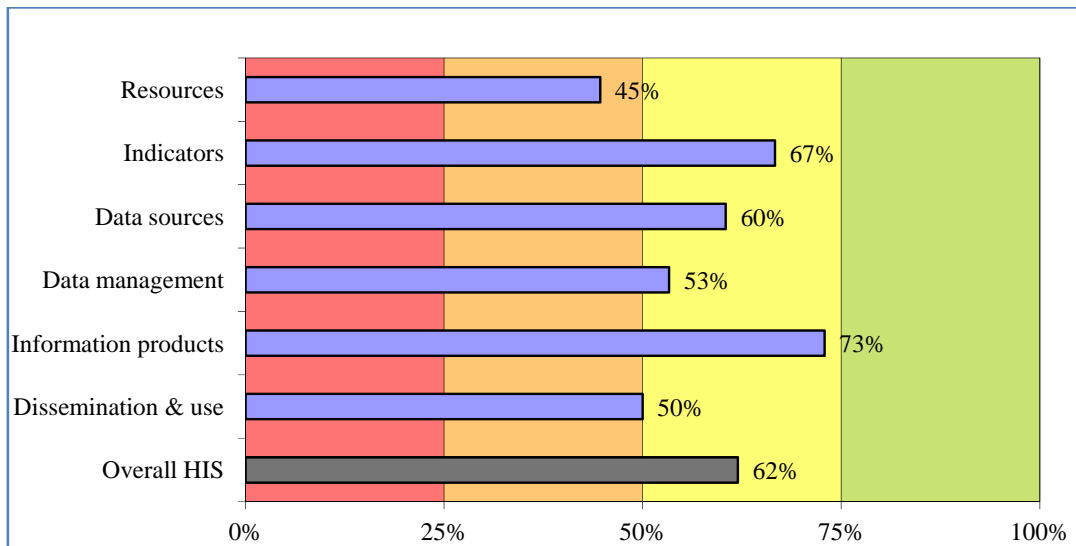


Table (10)

In summary, the status of overall NHIS in Iraq, according to the 8-10 March 2011 assessment, being in the **adequate (62%)** range, is considered to be weak with most of its comprising components functions poorly. It is, therefore, concluded that systematic efforts are needed to improve and enhance the HISs to meet the information needs of the Iraqi health system for evidence-based decision making in all aspects of health.

#### IV. Strengths and weaknesses of the HIS

There have been some achievements in improving the functions of national health information system in Iraq in the past few years. However, the 8-10 March 2011 assessment, which thoroughly reviewed the various components of the national HIS, has listed a number of strengths and weaknesses. The existing strengths and weaknesses have to be taken into account when embarking upon the HIS reform process.

##### IV.1. Strengths

1. Presence of a political will and support for strengthening the HIS for its use in evidence-based decision-making;
2. Relatively strong routine health information system within MOH that reviews almost all relevant administrative and health and diseases records in MOH institutions on monthly basis;
3. Relatively well-established HIS infrastructure, which will be sufficient to meet the system's immediate and the near future needs;
4. Well-functioning Vital Registration system for births and deaths registration;
5. Well documented and regular annual reporting on health system, morbidity and mortality indicators.

##### IV.2. Weaknesses

1. Despite the presence of political will and support, the statistical law and strategy does not show enough support to HIS. This could affect data collection and compilation from different health care providers and thus affects representativeness of the information;

2. The Ministry of Health has made tremendous efforts to develop HVSD. Other health care providers are not similarly developed in statistical services. This makes it difficult to compile the health data that will portray the national picture;
3. Relatively weak coordination among statisticians in HVSS at the DOH level and its related units in the districts, PHCs, and hospitals.
4. The HVSD and Information Technology Center (ITC) are two separate bodies. Currently, the coordination among these two bodies is inadequate;
5. Although major health surveys and studies are listed and their findings are available, these surveys and studies need to be electronically documented for easy dissemination, and for easy information extraction;
6. Physicians and relevant health workers lack proper training in recording cause of death, coding morbidity and the optimum use of information;
7. There is lack of statisticians' within MOH to run the HIS; and
8. There are no special institutions for medical/health recording training;
9. Weaknesses of morbidity and mortality coding according to ICD10 by physicians;
10. Poor feedback from private health sectors because of poor coordination and collaboration between public and private sectors and the absence of the regulations that control these issues.

## V. Recommendations

In light of the assessment findings, the following are recommended:

1. Establish National HIS committee, including Federal MoH, KRG MoH, line ministries, private sectors and other HIS stakeholders;
2. The coordination mechanisms between the HIS stakeholders should be improved, especially between the MOP/CSO and the MOH;
3. Legislations covering private sector data should be made and/or enforced;
4. The MOH staff capacity should be developed in core health information sciences (epidemiology, demography, statistics, information and ICT);
5. Revise the indicators list to include all categories (determinants of health, health system inputs, outputs, outcomes and health status) as well as for measuring health related MDGs;
6. Allocation of adequate resources for strengthening HIS activities at various levels of the MOH;
7. Designation of full time HIS Officers at the HVS offices at national and governorate levels;
8. Address the problem of frequent turnover of the HIS and statistical staff;
9. Provision of computers and other ICT infrastructure (telephone, internet, and emails) to different levels of the MOH;
10. Population census needs to be done periodically every 10 years and data be processed in time and relevant data made available to the MOH;
11. Capacity-building of district and health facility levels in timely reporting of notifiable diseases and surveillance report and integration of the fragmented and vertical reporting systems into a single and unified NHIS;
12. Development of strong GIS system and mapping services to map all health services and availability of GPS to all health facilities;
13. Develop metadata dictionary;

14. The HVSD at national level and the HVSSs at the sub-national level should have an integrated data warehouse, containing data from all population-based and institution-based sources including the key health programs with a user friendly reporting utility accessible to all relevant users and linking, electronically, of the HVSD & HVSSs databases;
15. Regular publishing of information bulletin on surveillance of epidemic prone diseases;
16. Information should be widely used for resource allocations and also for advocacy for equity and increased resources to disadvantaged groups and communities (e.g. by documenting their disease burden and poor access to services)
17. Health care providers and managers at all levels (national, regional/provincial, district, hospitals and health centers) should use health information for health service delivery management, continuous monitoring and periodic evaluation.

To conclude:

The NHIS in Iraq was assessed **adequate (62%)**. This score is interpreted as weak NHIS. To serve its perceived objectives, the system needs to be reformed and strengthened. Therefore, it is recommended that the current assessment exercise should lead to developing a **HIS Strategic Plan for Iraq**, as soon as possible. The Strategic Plan should reflect the findings of this report and the above recommendations.



**Annex I: HIS Assessment Tool**

**Annex II:** List of the stakeholders who participated the workshop

The participants of the 8-10 March 2011 workshop in Baghdad, Iraq

<b>S.N</b>	<b>Participating stakeholder department and agency</b>	<b>Number of persons</b>
1.	Director of HVSD, Planning Directorate, MOH	1
2.	Director of Human Power Department, Planning Directorate, MOH	1
3.	Director of Policy & Planning Department, Planning Directorate, MOH	1
4.	Director of Information Technology Center (ITC), MOH	1
5.	Director of Vital Statistic Section, Planning Directorate, MOH	1
6.	Senior Statistician in Census, Center of Statistics, Ministry of Planning	1
7.	Director of Health Statistic in Center of Statistics, Ministry of Planning	1
8.	A representative of Medical Affairs Directorate, Ministry of Defense	1
9.	A representative of statistical and information department in the Ministry of Higher Education & Scientific Research	1
10.	Director of Planning Department, Kirkuk DOH	1
11.	Director of Primary Health Care Department, Public Health Directorate/ MOH	1
12.	Assistant Director of emergency Department, MOH	1
13.	Responsible for HIS Program in Maysan DOH	1
14.	Responsible for HIS Program in Karbala DOH	1
15.	Director of Statistical Department in Erbil DOH, Kurdistan Region	1
16.	Assistant Director of Legal Department, Administrative Directorate, MOH	1
17.	Director of Legal Department, KIMADIA, MOH	1
18.	Programmers from Statistics Department, Planning Directorate, MOH	3
19.	Director of PHC Section, Public Health Directorate, MOH	1
20.	Director of IMCI Section, Public Health Directorate, MOH	1
21.	Assistant Director of Specialized Center for Tuberculosis & Chest Diseases Public Health Directorate (TB), MOH	1
22.	Donors Affairs Section Staff	5
23.	Assistant Director of Financial Planning, Planning Directorate	1
24.	Responsible for HIS Program in Project & Engineering Services Directorate, MOH	1
25.	Representatives of HIS Committee with I-Tech company, Senior Deputy Minister's Office	2
26.	Director of Performance Evaluation Section, Planning Directorate, MOH	1
27.	Director of Curative Services Department, Technical Affairs Directorate	1
28.	Director of Pharmaceutical Services Department, Technical Affairs Directorate	1
29.	Representative of WHO Iraq, Baghdad Sub-office	1

**Rapid Assessment of  
The Civil Registration and Vital Statistics (CR&VS) Systems  
In Iraq, using the WHO Framework – March 2011**

No.	Question	Score
<b>Legal framework</b>		
<b>1</b>	<b>Does the country have legislation that states that birth and death registration is compulsory?</b>	
a	Yes – the country has adequate and enforced legislation on civil registration stating that registration of births and deaths is compulsory;	3
b	Yes - the country has legislation on civil registration stating that registration of births and deaths is compulsory, but it is in need of amendment ;	
c	Legislation exists but is not enforced; or	
d	No – there is no law that makes it obligatory to register births and deaths.	
<b>2</b>	<b>Does the country have regulations that oblige medical establishments to report all vital events to the vital statistics system within a given time?</b>	
a	Yes – all medical establishments (public, private, social insurance and others) report these events to the vital statistics system in a timely manner;	3
b	Regulations exist but not all medical establishments report the events;	
c	Regulations only cover public medical establishments;	
d	No regulations exist.	
<b>3</b>	<b>Does the country have legislation that states that death has to be certified by cause, and specifies those who can certify the cause of death?</b>	
a	Yes – cause of death must be indicated on the death certificate according to ICD rules and procedures and can only be certified by a medical doctor;	3
b	Cause of death must be stated on the death certificate but it is not specified who can certify the cause;	
c	Cause of death must be indicated but only broad categories are necessary and the (non-medical) registrar or another local official is usually the certifier;	
d	No – it is not necessary to indicate the cause of death on the death certificate or at any stage of the registration of death.	
<b>Registration infrastructure and resources</b>		
<b>4</b>	<b>Are there adequate numbers of civil registration offices/points to cover the whole country?</b>	
a	Yes – the country is adequately covered with places where citizens can register births and deaths;	3
b	The urban areas are well covered with partial coverage of rural areas	
c	Only the urban areas are well covered	
d	No – only the capital city has registration offices.	
<b>5</b>	<b>Do civil registration offices have adequate equipment to carry out their functions (for example, forms, telephones, photocopiers and computers)?</b>	
a	Yes – necessary supplies such as forms, paper, and pens are adequate and technical equipment such as telephones, photocopiers and computers is widely available;	
b	Supplies such as forms, paper, and pens are generally available everywhere but there are widespread shortages of telephones, photocopiers and computers;	2
c	In peripheral offices supplies are often short and only the central/provincial offices have telephones, photocopiers and computers;	
d	Both availability of both supplies and technical equipment is a problem in all civil registration offices.	

No.	Question	Score
<b>6</b>	<b>Have registrars received training to carry out their functions?</b>	
a	Yes – all registrars have received adequate training;	
b	All registrars receive some training but it is insufficient and skills and knowledge are largely acquired on-the-job;	
c	Most registrars (particularly in smaller offices) receive only on-the-job training;	<b>1</b>
d	No – lack of training is a serious problem and has a negative impact on the functioning of civil registration.	
<b>Organization and functioning of the vital statistics system</b>		
<b>7</b>	<b>How well do the different government agencies and departments responsible for civil registration and vital statistics systems collaborate (includes ministries of health, justice, interior, local government, statistics offices, etc.)?</b>	
a	The involved agencies collaborate very well and an inter-agency committee exists and ensures that the interface between the civil registration and vital statistics systems is seamless;	
b	Although there is no formal inter-agency committee, the agencies involved have regular meetings to identify and resolve problems as they arise;	
c	No inter-agency committee exists and problems are solved in an ad hoc fashion which delays efforts to resolve problems and can lead to serious bottlenecks in data transfer;	<b>1</b>
d	There is little inter-agency collaboration, with the various agencies functioning independently resulting in problems, e.g. duplication of work and inconsistencies in the estimates of vital statistics issued by each agency.	
<b>8</b>	<b>Is the vital statistics system able to generate both national and sub-national statistics on births and deaths annually?</b>	
a	Yes – annual statistics are generated on births, deaths and causes of death by sex and age at both national and sub-national levels;	<b>3</b>
b	Annual statistics of births and death by sex and age are generated at the national and sub national levels but cause-of-death statistics by sex and age are only available nationally;	
c	The vital statistics systems can only generate births and deaths by sex and age for reporting regions and not for the whole country; cause-of-death data are obtained from hospitals only;	
d	No - the information collected by the civil registration system is not compiled for statistical purposes.	
<b>Coverage of birth and death registration</b>		
<b>9</b>	<b>According to the most recent evaluation, how complete is birth registration in your country? (if no national evaluation exists, use the simple method of calculating completeness shown in Box 1)</b>	
a	A recent evaluation showed that coverage of birth registration was 90% or higher (specify the date and method used to calculate completeness, see Box 1);	<b>3</b>
b	A recent evaluation showed that coverage of birth registration was between 70% and 89% (specify the date and method used to calculate completeness, see Box 1);	
c	A recent evaluation suggests that completeness of birth registration was between 50% and 69% (specify the date and method used to calculate completeness, see Box 1);	
d	A recent evaluation showed that less than half of all births were registered, or there has been no recent evaluation of the completeness of birth registration	
<b>10</b>	<b>According to the most recent evaluation, how complete is death registration in your country? (if no national evaluation exists, use the simple method of calculating completeness shown in Box 1)</b>	
a	A recent evaluation showed that coverage of death registration was 90% or higher (specify the date and method used to calculate completeness, see Box 1);	<b>3</b>
b	A recent evaluation showed that coverage of death registration was between 70% and 89% (specify the date and method used to calculate completeness, see Box 1);	
c	A recent evaluation suggests that completeness of death registration was between 50% and 69%	

No.	Question	Score
	(specify the date and method used to calculate completeness, see Box 1);	
d	A recent evaluation showed that less than half of all deaths were registered, or there has been no recent evaluation of the completeness of death registration	
<b>Data storage and transmission</b>		
<b>11</b>	<b>How are birth and death records transmitted from the periphery to a central storage in the capital city?</b>	
a	All information is exchanged electronically from local to regional to central office;	
b	Paper copies are sent to the regional office and processed there for electronic transmission to the central office ;	<b>2</b>
c	The system is still mainly paper-based with copies being sent to the regional office, from where they are scanned and sent to the central office for processing; or	
d	Paper copies are used throughout the system to transfer birth and death records to a central storage facility.	
<b>12</b>	<b>What procedures are in place to ensure that all local/regional offices report to the central office according to agreed timelines?</b>	
a	An agreed schedule for reporting to the central office exists with reporting deadlines taken very seriously and closely monitored – it is rarely necessary to send out reminders;	
b	An agreed schedule for reporting to the central office exists and this is largely adhered to – delays from the field are usually communicated to the central office;	<b>2</b>
c	Although a schedule of reporting from the periphery exists, this is not strictly adhered to and there is little that the central office can do to ensure the timely submission of data; or	
d	The local offices report in an ad hoc manner to the central office and little monitoring is done by the central office to encourage more timely and regular reporting.	
<b>ICD-compliant practices and certification in and outside hospitals</b>		
<b>13</b>	<b>Does the country use the standard International Form of Medical Certificate of Cause of Death for reporting?</b>	
a	Yes – the form is always used by doctors to verify cause-of-death;	<b>3</b>
b	The form is always used when deaths occur in health facilities throughout the country and where doctors certify death but is not generally used in other situations;	
c	The form is used to certify death only in major hospitals;	
d	No – the form is not used for certifying causes of death.	
<b>14</b>	<b>Where relevant, in the absence of medical certification, is verbal autopsy routinely used to determine the cause of death?</b>	
a	Yes, verbal autopsy is routinely applied to certify death using the international standard tool[1] or similar questionnaire;	
b	Verbal autopsy using the international standard tool is progressively being introduced but is not currently in general use;	
c	Verbal autopsy is used but is not based on the international standard tool;	
d	Verbal autopsy is not routinely used to determine cause-of-death in cases where the death is not certified by a physician.	<b>0</b>
<b>Practices affecting the quality of cause of death data</b>		
<b>15</b>	<b>What training do doctors receive for certifying the cause of death?</b>	
a	All medical students are introduced to the ICD during their studies and taught how to certify cause-of-death and correctly complete the death certificate;	
b	No special training in ICD or death certification is included in the medical curriculum, but all medical students learn about ICD and death certification during their internships;	
c	No special training in ICD or death certification is included in the medical curriculum and only limited on-the-job training is available during internships; or	<b>1</b>
d	No training or on-the-job instructions in ICD and death certification is given to doctors.	

No.	Question	Score
<b>16</b>	<b>What proportion of causes of death in your country is classified as ill defined?</b>	
a	<10%;	<b>3</b>
b	10–19%;	
c	20–39%; or	
d	40% or more	
<b>ICD coding practices</b>		
<b>17</b>	<b>In your country, is cause-of-death coded according to a national language version of the ICD?</b>	
a	Yes – ICD coding is done using a national language version or a nationally agreed international language;	<b>3</b>
b	ICD coding is done, but there is no national language version available which makes the coders' task more difficult;	
c	ICD coding is done according to a short list in the national language; or	
d	No – the ICD is not used.	
<b>Coder qualification and training, and quality of coding</b>		
<b>18</b>	<b>What qualifications do mortality coders have for coding mortality in accordance with ICD principles and rules?</b>	
a	Mortality coders must pass a formal test following a compulsory and intensive ICD-training course; additional courses are offered later as needed;	
b	All mortality coders are given a short training course in ICD and are then expected to learn on-the-job from more experienced coders;	
c	New coders are instructed by more experienced ones and given the ICD volumes and expected to learn by doing;	<b>1</b>
d	New coders are provided with minimal instructions from other coders and receive only incomplete ICD materials.	
<b>19</b>	<b>What quality assurance procedures are in place for checking the coding?</b>	
a	A national regular procedure is in place to review a random sample of coded certificates and feedback is given;	
b	National evaluation or a random sample of coded certificates takes place occasionally;	
c	Quality evaluation is left to the local supervisors who sometimes check the work of individual coders;	
d	No procedures exist and no evaluations of the quality of coding have been carried out.	<b>0</b>
<b>Data quality and plausibility checks</b>		
<b>20</b>	<b>What consistency and plausibility checks on fertility and mortality levels are carried out before the data are released?</b>	
a	Checks on overall levels of fertility and mortality rates based on the vital statistics data are made by calculating rates or ratios and comparing these over time, at sub national level, as well as to data derived from other sources (e.g. census, household surveys);	
b	Checks on the overall levels of fertility and mortality rates based on the vital statistics are undertaken by calculating rates or ratios and comparing these to earlier time series;	
c	Checks are limited to computer programmes that simply check for compilation errors before the data are published;	<b>1</b>
d	There are no specific data quality and plausibility checks routinely carried out on the birth and death statistics.	
<b>21</b>	<b>What consistency and plausibility checks are applied to cause-of-death data?</b>	
a	In addition to checking the stability of cause-of-death patterns over time, the proportion of ill-defined deaths is routinely monitored, and age and sex patterns of major causes of death are checked for plausibility;	
b	Routine checks of the consistency of cause-of-death patterns are made to ensure that mortality from any disease group does not vary significantly from year to year and that any fluctuations can	<b>2</b>

No.	Question	Score
	be explained;	
c	Checks are limited to automated checks for compilation and data entry errors;	
d	There are no consistency and plausibility checks routinely carried out on cause-of-death data.	

No.	Question	Score
<b>Data access, dissemination and use</b>		
<b>22</b>	<b>Does the country publish annual numbers of births disaggregated by sex, age and geographical or administrative region?</b>	
a	Yes – annual data on births are published by all three disaggregation (age, sex and geographic or administrative region);	<b>3</b>
b	Annual data on births are published by any two of the disaggregation;	
c	Annual data on births are available but disaggregated by sex only;	
d	No annual statistics on births are published.	
<b>23</b>	<b>Does the country publish annual numbers of deaths disaggregated by sex, age and geographical or administrative region?</b>	
a	Yes – annual data on deaths are published by all three disaggregation;	<b>3</b>
b	Annual data on deaths are published by two of the disaggregation;	
c	Annual data on deaths are available disaggregated by sex only;	
d	No annual statistics on death are published.	
<b>24</b>	<b>What is the delay between the reference years and the publication of detailed national statistics on cause-of-death classified by sex and age?</b>	
a	less than 2 years;	<b>3</b>
b	From 2 years but less than 3 years;	
c	From three years but less than 5 years;	
d	5 years or more	
<b>25</b>	<b>How are data on vital events being used for policy and programme purposes?</b>	
a	Data on births, deaths and causes of death are widely used for socio-economic planning and for monitoring the health status of the population, including the use of cause-of-death data for public health purposes;	
b	Data on births and deaths are used for reporting on health-related indicators such as the MDGs and other national health-related goals but cause-specific data are rarely used for public health purposes;	<b>2</b>
c	Only data on births are used for reporting on some indicators such as fertility;	
d	Data from the civil registration and vital statistics systems are not used for policy and programme purposes.	
<b>Total score</b>		<b>54</b>
<b>Percentage score</b>		<b>72%</b>

Scores between 65% and 84% indicate that CR&VSS function but with some elements that function poorly

Scores (%)	Functionality
<34	Dysfunctional
35-64	Weak
65-84	Functional but inadequate
85-100	Satisfactory



