HID INFOline

Kingdom of Bahrain
Ministry of Health

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إدارة المعلومات الصحية
Health Information Directorate

building on achivements 2005

Information is one of the pillars of a sound decision making, and we trust that it will play a significant role in transforming the health care of the nation. Therefore, we strive to implement projects that will have direct impact on patient care. Also, we are proud of wining the WSA Award for best Arab e-contant and look forward to more achievements through the implementation of the e-Government initiative.

Dr. Nada Hafadh
H. E. Minister of Health

Our vision for better Healthcare to all the Citizen of Bahrain includes the implementation of a comprehensive, integrated Health Information Technology System which addresses the needs of the Citizen, Health care providers and the stakeholders.

Dr. Abdul Aziz Hamza
H. E. Under Secretary, Ministry of Health

One of the enablers for better Planning in Healthcare is the utilization of Information Technology. We have worked during the last year on identifying the priorities of the Ministry. And as we realize the urgent need to move forward, a number of projects have been approved by the Executive Management and are aligned for year 2006.

Dr. Fawzi Amin
Assistant Under Secretary for Training and Planning

The Health Information Directorate recognizes the importance of IT as an enable for better healthcare Management and Administrative functions. Our objective is to introduce a comprehensive Integrated Health Care System for the Decision Makers and Users alike. With your support, HID looks forward to the challenges ahead.

Ebrahim Al-Nawakda
Acting Director, Health Infromation Directorate

We serve as the Ministry of Health's primary expert for computer technology and information

Network Platform Migration Project

The main objective of this project was to migrate from the Novell Platform to the Microsoft Platform. The new platform will enable HID to introduce the .NET development environment where the productivity is expected to increase in developing applications. Another advantage to migrate to Microsoft platform is the integration with E-Government and increase the compatibility with new applications, and future technologies.

In this project all users' accounts and data that reside on all MoH Novell servers were migrated to the new platform successfully. All PCs around MoH were migrated to use the new platform and the new email client (Microsoft Outlook) was installed and configured to use the new email Exchange 2003 server.

The new platform will provide the infrastructure to host new software like Work Flow and Microsoft Portal and MEL (Microsoft E-Learning Library).

Document Management Project

Document management system was implemented in the college of Health Science. The project implemented successfully and the following benefits were derived

1. Storing, viewing, and indexing the files electronically.
2. Reduce the physical storage area.
3. Protect the files from loss.
4. To archive and retrieve the files electronically.

Internet Intranet renovation

Promote MoH Internet/Intranet websites as means of communication and collaboration tools. By producing a total of 9 new websites on the Internet and Intranet, which have been designed based on the user requirements.

Time Attendance System Project in SMC

This project is aimed to provide a biometric time attendance system to a number of areas in SMC. These areas are Radiology, LAB, SMC and SMCD main entrance for time attendance and Ambulance Services in A/E, ward 207 and ward 208 for door access. This project has many benefits which are:

1. Record a full proof identification and attendance system.
2. Generate various reports providing useful information regarding staff attendance to management.
3. Possible future interface to payroll system. This project is in line with the direction to introduce an online Time Attendance System in all MoH directorates and sections.
4. Personalized and secured door access on entrances

Equipment 2005 Project

To furnish MoH with enough number of computer equipments thru leasing scheme. In addition, to resolve the issues with maintenance of old equipments by replacing them. This project been aimed to lease 500 PCs and about 80 Printers to fulfill the requirements of users around MoH. Thermal printers will be introduced as part of this project to solve the problems of normal old technology printers.

HID has purchased a number of new servers as part of Microsoft Platform Project. These servers were installed in HID data center and in Public Health Building computer room. The introduction of these servers will allow more users to connect and use network services like email and internet access.

We serve as the Ministry main data collection and management center, and ensure the safety and security of data

Ehancements to the Business Intelligence System

Admissions and discharges data for years 1984 to 2003 were added to the BI system. In addition, the Morbidity coding (ICD9 & ICD10) for the years 1984 to 2005 were added and the related cubes were generated. Now Admission, utilization and study reports are very easy to generate right from any desktop and access to this valuable information can be obtained for analysis studies.

Bed Control System

Two primary goals of a hospital bed management system are to optimize bed resources and reduce emergency department wait times. The existing bed control system consists of a number of modules, which include both bed placements and patient movement's capabilities. It also features booking occupied beds on wards by linking the Accident and Emergency (A/E) waiting list so patients in AE gets admission priority among elective admission .

The Ministry Dashboard (Pharmacy & Admissions)

A dashboard is an approach for linking decision making to organizational performance. Outcomes displayed include single metrics, graphical trend analysis, capacity gauges, and variance comparisons. A "Dashboard" type user interface design allows presentation of complex relationships and performance metrics in a formats that are easily understandable and digestible by time pressured managers. The Ministry of Health dashboard consist of various indicators pertaining to Admissions and shows gauges for total patients waiting for admission in AE department, total admissions and discharges, total deaths and some indicators for critical diseases such as TB & HIV. The dashboard also shows the no of outpatient visits for each Health Center for the previous day. Monthly statistics of drug consumption on SMC wards and departments is also added to Pharmacy dashboard.

System Backup and Security

To ensure system and data security the directorate has undertaken the following:

- Performing and maintaining regular backup of all platforms in HID data center. These backups are kept off-site in North Block.
- Regularly updating the virus database in all servers and PCs to protect the data in all servers in HID data center.

Health Information Main System Data Cleansing

This project was initiated to ensure that data validations in Health Information System (HIS) are adequate and data integrity is maintained. Several HIS modules were modified to correct existing problems, which caused inaccurate data to be accepted. The project was completed in May 2005.

System shutdown and Data Retrieving

Special programs were developed to retrieve data lost if sudden shutdown happened to the Health Information System (MDIS) system. The programs will recreate data from existing files to update the missing records in the outpatient (OPD), Admission Transfer and Discharge (ATD) and Patient Master Index (PMI) Systems.

Interim Oracle Control Environment

The Project is aimed at providing a means to control and monitor updates to the R.D.B.M.S. ORACLE Applications.

The following benefits were derived with the successful implementation of the project:

- A three-tier environment will be created which will include a new User Acceptance environment alongside the existing Development and Production environments.
- A formalised procedure, with the concomitant security, for moving data and ORACLE objects between the environments will be introduced.
- A formal version numbering mechanism will be introduced.

Patient's Demographic Data Updates

The Health Information System (HIS) registration modules were modified to get a refresh update of patient demographics from the Central Informatics Organization (CIO) database once a patient CPR is keyed in HIS. The update will be done automatically and does not require user intervention. Another feature was developed to force a refresh of the demographic data upon user's request.

building on achievements 2005

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We plan, development, documentation, installation, user training and operation of Ministry's software and computers

Health Centers Automation Project

The project was divided into two phases as following:

- Health Centers Automation Project (HCAP4)
  Automation of 6 Health Centers "Jidhafs, Kuwait, Hamad Town, Mohammed Jassim Kanoo, East Riffa and Budaiya" was successfully implemented by providing Electronic Registration, Outpatient Scheduling, Radiology, Laboratory and Pharmacy "Impress" systems.
- Health Centers Automation Project (HCAP5)
  This phase covers the automation of the new Dair health center by implementing systems such as: Patient Registration, Outpatient appointments, Radiology, Laboratory, Online Inventory Management System (OLIMS), Time Attendance System (TAS) and Mother and Child Health care System (MCH).

Waiting List System

The Accident and Emergency waiting list system is used to register patients waiting for admissions in the Accident & Emergency department. The system was fully used by the users in the beginning of year 2005. Some modifications were implemented on the system and more reports were added to it. Recently, the patients waiting for admissions in A/E were added to the doctor patient's list for better service utilization.

Patient's Merge System

The Patient's Merge System is used to merge all the data registered under a temporary medical record number to an actual medical record number. The registration of temporary medical record numbers is done when the actual CPR of a patient is unknown or still not issued. The merge program is used to maintain data consistency of a patient and prevents the duplicate of medical records for the same patients. The temporary medical record will be canceled after the merge process is completed.

Appointments Booking

The appointment booking in SMC complex was modified to:

- Update status of last appointment (attended/ cancelled) in order to get better statistics on number of attendances to SMC clinics.
- Allow booking only after three working days of current appointments.
- Stop booking of two appointments on the same day for the same patient (to enhance Medical records tracking update).

Pharmacy System

The Pharmacy module in the ministry main information system was customized to meet the Pharmacy user's requirements. As a beginning step the customized module was implemented in Dair Health Center, training was given to the user with continues support.

External Hospital Automation Project

This project covers automation of 3 maternity hospitals "Sitra, East Riffa and Westren Region" by providing MDIS Registration, Radiology, Laboratory and Pharmacy "Imprest" systems.

Persistent Operational Problems Project

This project covered a collection of application modification (33 requests) and new features to provide robust facilities that will eliminate the excessive amount of time which is being charged on operational work. This project was successfully completed in July 2005.

Medical Record Tracking

The Medical Record Tracking System was implemented in ORACLE platform to provide a facility to help Medical Records Section in Salmanya Medical Complex to track the movement of Patient Medical Records. The successful implementation of the project helps the main users to reduce the incidence of missing files and give them the ability to trace files which should have been returned from wards and clinics to the medical record's shelves.

Doctor Codes Issuance

Issuing doctor codes was moved from SMC Medical Records Department to Human Resources Directorate. Related programs on both systems were modified to process this change. Modifications included linking the Doctor CPR to Central Informatics Organization (CIO) database to get up-to-date demographics. Doctor codes are now issued in serial numbers. Termination of any doctor will cause automatic inactivation of his code to avoid using it in any activity.

Search for Patients CPRs by Address

A new search feature was developed in the main HIS system that allows searching for patients by address. User should insert the full address of a patient and the system will display all the residents under this address.

Smart card Project

The data structures were submitted to the Smart Card Project team in order to be prepared for smart card issuance, the structure helps Central Information Organization to reserve the required storage in the Smart Card memory for the Health data.

Radiology System

New programs were developed to provide new features for Radiology users at SMC and Health centers. e.g. automate printing of examination details labels on patient radiology file using same printer along with other labels. Also blocking procedures from use in A&E. On the other hand, Manual appointment scheduling at Naim HC was automated. New statistical reports and on-line access to examination reports were provided.

Enterprise Resource Planning

This definition project was initiated to determine the business requirements for Financial, Inventory and Human Recourse systems. Then, several project charters will be produced for the previous systems to select a solution for implementing a fully integrated system for Financial & Inventory Control , and Human Resource system that will fulfill Ministry of Health (MoH) requirements.

Pathology & Blood Bank Enhancemant

Laboratory Result Printing Project

Improving work for Laboratory users at Health Centers by providing on-line access to LRP features "multiple/selected printing of results" and providing all Health centers on-line access to SMC and Naim Lab Results.

Overseas Treatment Laboratory System

This covered automation of all manual work related to Overseas Treatment Lab. Statistics reports was also provided. This system was implemented successfully and running smoothly.

Genetic Disorder Lab System

This included automation of manual work at genetic disorder section at Al-Fateh building. The system was implemented successfully.

Laboratory Appointment scheduling System

Automation of all manual appointment scheduling at all sections of SMC Pathology by defining all the reference files Clinics, Firms, Doctors, Templates and Schedules. Also adding new feature to search easily for nearest appointment.

Blood Bank System

New programs were developed to add new features to Blood Bank System. e.g. allowing only authorized users to see patient Alerts, creating new screen for donor on Blood Camps, adding In-determined "IND" as a result code for intermediate, printing label along with issue slip, modifying existing screens by adding extra data, providing statistic report for OPD, Donor and Cross match sections, modifying & redesigning of the donor certificate.

Cytology/Histology System

New features added by making supplementary report retrievable in the same way and new statistical reports were provided.

Hematology Module

New programs were developed to provide facility to facilitate "Hold" and "Release" of Bone Marrow results, the new features were given to the consultant to help insuring the quality of the results.

Building on achievements 2005

We provide users support, training and help for software and computer work station, operation and design upon new user requirement.

Training

- Training of MoH staff on new applications and features like Sick Leave Managment System, Bed Control System, Waiting List System, Doctor Codes issuance and Medical Records Tracking System
- Train MoH staff on using Outlook (email system)
- Deploy a proof of concept to more than one site in the MoH and give the user the opportunity to try and examine the products, the prove of concept done for several requested application such as the document management system.
- Provide the training and the support to the Online MoH Project Management Application Users
- Provide the training and the support to the Letter Tracking Application Users.
- Conducting Industrial (onsite) training for four BSC Degree University of Bahrain students for two months. The training program include orientations sessions which covered all the business areas at HID, Specialization in a projects within the sections and presentation skill.
- Providing data and consultation for two master degree students' thesis.

Micro Soft Electronic Library Project

The project is aimed at implementing the MS e. learning package in HID and make it operable for HID as a shared centre for learning new concepts. The following benefits will be derived when implementation is completed.

- Establishing a centre for e. learning in HID.
- Reducing training cost of HID staff.
- Utilising the power of Micro Soft products to the benefit of HID.

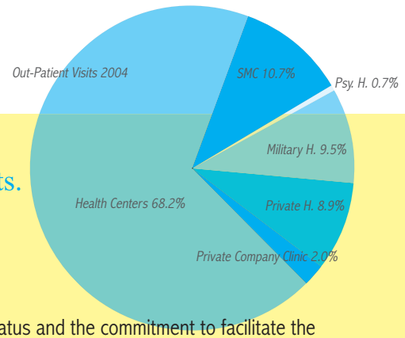
We develop and oversee the implementation of computerized and manual standards, techniques and policies pertaining to statistical data collection, validation, analysis and interpretation.

HID Manual

As a part of the MOH policy network, HID has implemented number of policies designed to provide an environment which is robust and resilient to all aspects of :-

- Deployment of health Information Technology
- Information Security
- Technical innovation, and
- Customer support.

These policies are supported by procedures & standards. The directorate initiated a project to create HID Manual that document all the functions/ processes in HID units. The manual serve as a reference for HID standards, procedures & guidelines and store in electronic media to house the developed HID standards, procedures & guidelines.



We produce and publish MOH routine and adhoc statistical reports.

The directorate played a major role in the production of the following MOH publications:

I) Health Statistics Annual Report and Leaflet - 2004.

Health Statistics Report contains statistics and Health indicators which illustrate the Health Status and the commitment to facilitate the provision of health care services to all nationals and residents of Bahrain. The published data highlights the population characteristics, their demographic, epidemics and health status. The directorate main concerns are data accuracy, thus, it is always necessary to review and evaluate the contents of the reports with the data sources to improve data quality. The release of the report was announced and publicize through the daily news papers.

II) Doctors & Dentists Telephone Directory

Doctors and Dentist Directory contained a list of doctors and dentists in Bahrain along with their contact addresses. The request of having a unified directory for all the doctors came from the Assistant Under-Secretary of Training and Planning . The directory is intended to provide details about doctors and dentists specialties. The directory is available both hardcopy and electronically on the MOH web site.

IV) MOH Publication

The directorate coordinate with other MoH directorates to facilitate the production of some of the publication by helping them in the design of their pamphlets, books and posters.

We coordinate with MOH directorates, Governmental, National and International organizations in matters related to health information including committee participation.

Participating in internal Committees:
HID staff were nominated by the Ministry's top management to be members in various committees as an Information Technology and information expertise such as:

I. Health System Performance

The main responsibilities of this committee are to review the current health status and implementing all systems monitoring and evaluation methods. As well as setup implementation plans, follow up and monitoring of the health programs, interventions and outcomes of health system delivery using the following methods:

- Burden of diseases
- National Health account
- Global health survey

II. Health Issues

Coordinate with committees as data and information provider such as:

- Ma'ameer abortion issue, infant death, primary health care medical records review, and HC. Monthly statistics enhancement group.
- Coordinate monthly meetings with different users from the whole ministry (admission and outpatient departments) in order to capture any issues related to the computer system and solve these issues.

III. Data Security

A committee was formed to ensure the security and safety of the data and enhance the procedures for handling safety and security of the data.

IV. Health Statistics Report Improvement

Under the direction of the Assistant under secretary of Training and Planning Dr. Fawzi Ameen the review committee was formed. The committee team acted as consultants and their main responsibilities were:

- Comprehensiveness: The report must cover all the functions and services of Health system
- Completeness of data with respect of health and economic burden of the diseases and conditions, detailed causes of death, cause specific morality, cancer, medical errors, hospital infections…etc.
- The presentation and structure of the report
- Timeliness: recommendation of dead lines for data submission from all data sources to HID

V. Comprehensive Employee Directory

The aim of this committee is to produce a comprehensive directory to help the employee strengthen their knowledge about the ministry of health structure and services in a way to ease their work to increase their loyalty

VI. Health Reinforcement

The main objective of this committee is to improve the health services delivery system in the kingdom as well as health awareness and education to the public.

VII. Hajj Committee

The role of HID in this committee is to provide IT facilities in terms of software, hardware and human resource in order to enable the Ministry's Hajj travelers capturing all health services provided through Hajj session.

VIII. HID and Directorate of Engineering and Maintenance committee

The committee ensures that projects are conducted to the maximum benefit of the MoH, to coordinate the efforts to minimize the cost of projects and minimize the duplication of efforts. The following are the responsibilities of the team:

i. Deciding the ownership of a project in case the deliverables of such project affects both HID and DEM.
ii. To coordinate requirements of cross functional projects and inter dependent projects from an operational standpoint.
iii. To coordinate the allocation of Resources (cost, time, and Human resource) required to run cross functional projects and inter dependent projects.

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Tele-Medicine

On Wednesday 28th Dec 2005, the first Tele-Medicine session took place in Al-Maaref Auditorium. The session was attended by Dr. Fawzi Amin (Assistant Undersecretary for Training & Planning), Ebrahim Al-Nawakda (Acting Director, HID), Mohammed Dhaif, and HID Heads.

The session was conducted with King Faisal Specialist Hospital (KFSH) with a topic of "Problems in Coronary Diseases", which was very successful in terms of clearance of picture and sound.

This is considered the first step in broadcasting all medical and non-medical events that are planned to take place in KFSH, hence this will open the door for many cooperation between the Ministry of Health and KFSH in the future.

Microsoft Certificate

Ministry of Health has been awarded Microsoft Bahrain 2005 award for best training program.

Our Mission

To provide the right information to the right people at the right time that will facilitate improvements to Ministry of Health staff and services to produce the best health results at reasonable cost.

Ministry of Health Website selected as the WSA Arab e-Content Award Winner

Ministry of Health Website (www.moh.gov.bh) was nominated by the eminent expert from Kingdom of Bahrain in the WSA 05 contest for best e-contents in the world. The WSA Grand Jury of experts from 35 countries met in Bahrain from September 3-10 to evaluate over 750 products which were nominated from 168 countries. During the evaluation, the WSA Grand Jury selected the five most outstanding products in each of the 8 WSA Categories as winners – the 40 WSA Best Contents Products.

Apart from the general selection, the Arab e-Content Award, as a sub-contest of the WSA, has held a separate jury, built of the WSA Experts from the Arab region. The selection and evaluation was based on the WSA rules and procedures.

Congratulations

"Ministry of Health Internet Website" has been selected by the Arab e-Content Award Jury as one of the outstanding e-Content examples in the category **"e-Health"** in the Arab Region.

Ministry of Health Internet Website will be promoted in all Arab e-content Awards participating countries state throughout 2006 and 2007 in the framework of numerous national, regional and international events, as well as in the Arab e-content Award Best Contents Catalogue 2005.

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