The National Social Health Insurance Information Systems (SEHATI-IT)

Contents

National Social Health Insurance Program (SEHATI)

The National Health Plan (2016-2025), which was endorsed by Cabinet, came to pave the way forward for the health industry in the Kingdom of Bahrain for the coming 10 years. The Plan provides the building blocks for the provision of high quality health services, healthcare sustainability, and securing the necessary manpower and infrastructure, to achieve the set goals of the Economic Vision 2030.

One of the main objectives of the National Health Plan (2016-2025), is the adoption of the Social Health Insurance Program (SEHATI), to develop the quality of the current health system and ensure sustainability. This system is meant to revolutionize the local health sector through better utilizing the available resources, while overcoming pressing challenges, which are mainly due to the rapid increase in population and shifting demographics. This Phenomenon is increasing the burden and demand on health services.

National Social Health Insurance Information Systems (SEHATI-IT)

Health Information and Knowledge Management Agency (HIKMA) will be established under the new system. HIKMA, under the Supreme Council of Health, will aim to monitor and direct the healthcare industry. Health information will be readily available to all health-related institutes and will be based on the following new systems:

a.   National Electronic Medical Record (NEMR):

Currently, public and private health facilities work with independent health information systems. In an attempt to unify these systems, a National Health Data Dictionary (NHDD) has been designed as a basis for NEMR. NEMR will gather all information in a single data warehouse, that is accessible by healthcare workers in all institutes. This also provides a basis for monitoring the outcomes of treatment as per the directives of the quality control committee. It will also act as a tool to limit the overuse of services, such as repeating unnecessary diagnostic tests or the over prescription of medication

National Social Health Insurance Information Systems (SEHATI-IT)

b. National Health Insurance Information System (NHIIS)

This system will oversee the claims raised from service providers(hospital and clinic)s to service byers (SHIFA OR INSURANCE COMPAINE)S it involves filling up sample forms that specify the type of service diagnosis requested tests, procedures if any, and length of stay the system provides an audit for the compatibility of the provided information as per the insurance regulation and would flag any discrepancies thus providing a resourceful tool to control health expenditure.

c. Drug Utilization Review (DUR)

This system will review all drugs and pharmaceuticals that enter the kingdom from port of entry to distribution amongst pharmacies and dispensing to patients as per approved prescription. the system will provide a tool to ensure the safe use of pharmaceuticals in appropriate doses and drug-drug interactions, as well flagging allergies if present. it will also allow for the dispensing of drugs from any participating pharmacy, with claims raised to service buyers are per the agreed contracts.

National Social Health Insurance Information Systems (SEHATI-IT)

d. Smart Utilization Review (SUN)

 The system will generate periodic reports from the information system for use by decision- makers and policy setters based on evidence and studies
HIKMA will be self-financed by these services provide ed to the mail stakeholders (health institutes, insurance companies, pharmacies, SHIFA).

e. Personal Health Record (PHR)

It's a portal designed for all citizen and resident holding a valid eKey to view their electronic health information stored in National Electronic Medical Repository (NEMR) such as patient profile, appointments, hospital Visits summary, prescribed medication, Body Mass Index (BMI), Diagnostic examinations status such as Laboratory, Imaging and Functional tests.

I. Project Overview (SEHATI-IT Project)

Reform Bahrain's national health care system and build an advanced IT system for efficient operation of health insurance

▶ **Project Name** **Bahrain National Health Insurance System Reform Joint Project** (Bahrain SEHATI-IT Project)

▶ **Project Period**
- ✓ System Implementation 26 Months (06/2017 ~ 07/2019)
- ✓ Maintenance and Enhancement Contract (08/2019)

▶ **Project Scope**
- ✓ DUR (Drug Utilization Review) System Implementation for the safety and distribution management of medicines
- ✓ NHIIS (National Health Insurance Information System) Implementation for health insurance claims
- ✓ SUN (Smart Utilization of NEMR) System Implementation for analysis and utilization of national health medical data
- ✓ NEMR (National Electronic Medical Repository) Implementation for national medical information storage
- ✓ PHR (Personal Health Record) Implementation for personal health information repository

▶ **Project Milestones**

DUR Go-Live (09/2018) > NEMR Go-live (01/2019) > NHIIS, SUN Go-live (05/2019) > PHR Go-live (12/2019)

Roadmap of Bahrain National Social Health Insurance Information Systems in line with the Kingdom of Bahrain Health Insurance Law

Project Establishment

- Reforming the Bahrain health care environment through the establishment of a National Social Health Insurance Health Information Systems

Project Management

- The design and construction of the SEHATI-IT system in Bahrain in collaboration with HIRA

Business Process Design

- Design work processes for the implementation of the health insurance system in Bahrain

Health Data Standardization

- Standardization of Health Data by applying national drug codes, health standard codes and developing forms for collecting information
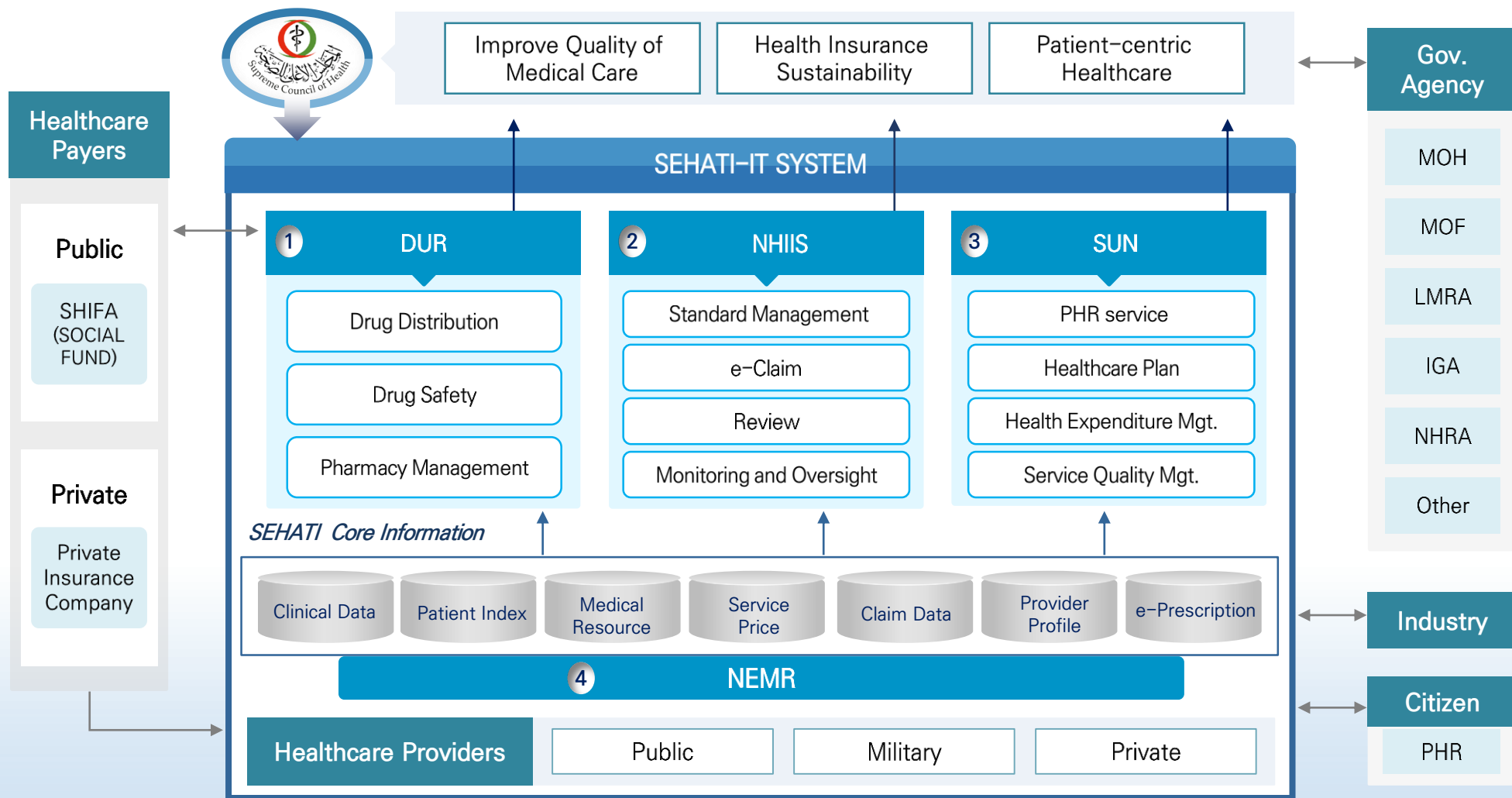
Infrastructure Configuration

- Configure a cloud-based Amazon Web Service (AWS) environment for cost savings, security, and productivity

Design of the National Social Health Insurance Information Systems

Improve Quality of Medical Care

Health Insurance Sustainability

Patient-centric Healthcare

Gov. Agency

Healthcare Payers

Public

SHIFA (SOCIAL FUND)

Private

Private Insurance Company

SEHATI-IT SYSTEM

① DUR

Drug Distribution

Drug Safety

Pharmacy Management

② NHIIS

Standard Management

e-Claim

Review

Monitoring and Oversight

③ SUN

PHR service

Healthcare Plan

Health Expenditure Mgt.

Service Quality Mgt.

SEHATI Core Information

Clinical Data

Patient Index

Medical Resource

Service Price

Claim Data

Provider Profile

e-Prescription

④ NEMR

Healthcare Providers

Public

Military

Private

MOH

MOF

LMRA

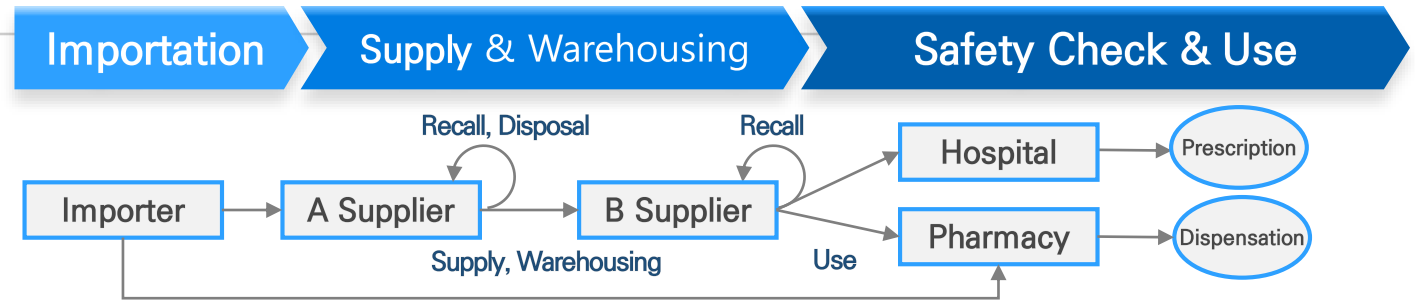IGA

NHRA

Other

Industry

Citizen

PHR

III. DUR System (Drug Utilization Review)

Establishing an environment for safe use of drugs and integrated distribution system

DUR Major Function

[1] Drug Distribution Management
- Manage drug invoice & distribution report
- Manage integrated distribution system from import to use
- Manage standard of controlled drug

[2] Recall Drug & Inventory Management
- Automatic inventory processing for each distribution system
- Proper inventory setting and monitoring
- National Inventory Monitoring
- Recall Drug Management

[3] Drug Safety check & Prescription/Dispensation
- Provide interface for prescription and dispensation
- Provide interface for patient allergy information
- Provide real-time safety check and prescription/dispensation

Importation → Supply & Warehousing → Safety Check & Use

Importer → A Supplier → B Supplier → Hospital → Prescription

Recall, Disposal

Recall

Supply, Warehousing

Use

Pharmacy → Dispensation

Drug Distribution Management

Drug Distribution Declaration Standardization

Agent Information + Drug Information + Distribution Information

Confirm the consistency between declarations

Supply Report ↔ Warehousing Report ↔ Usage Report (Prescription/Dispensation)

Information Analysis
- Warehousing Quantity
- Controlled Drug Distribution
- Prescription, Dispensation Comparison

Proper Inventory Management

- Approve inventory application
- Estimate appropriate inventory
- Drug Inventory Calculation

A Drug Inventory Shortage

Drug Shortage Alarm

Drug Safety Check

Customized Service considering facility environment

Computerized environment Web Service

Non-Computerized environment Portal Register

Various status and statistics functions

Status by Drug Safety Check Type

Drug Inventory Status

Prescription/Medication/Pharmacy Information

Standardization of baseline data provides a basis for notifying e-Claim's prompt and accurate review and processing results

NHIIS Major Functions
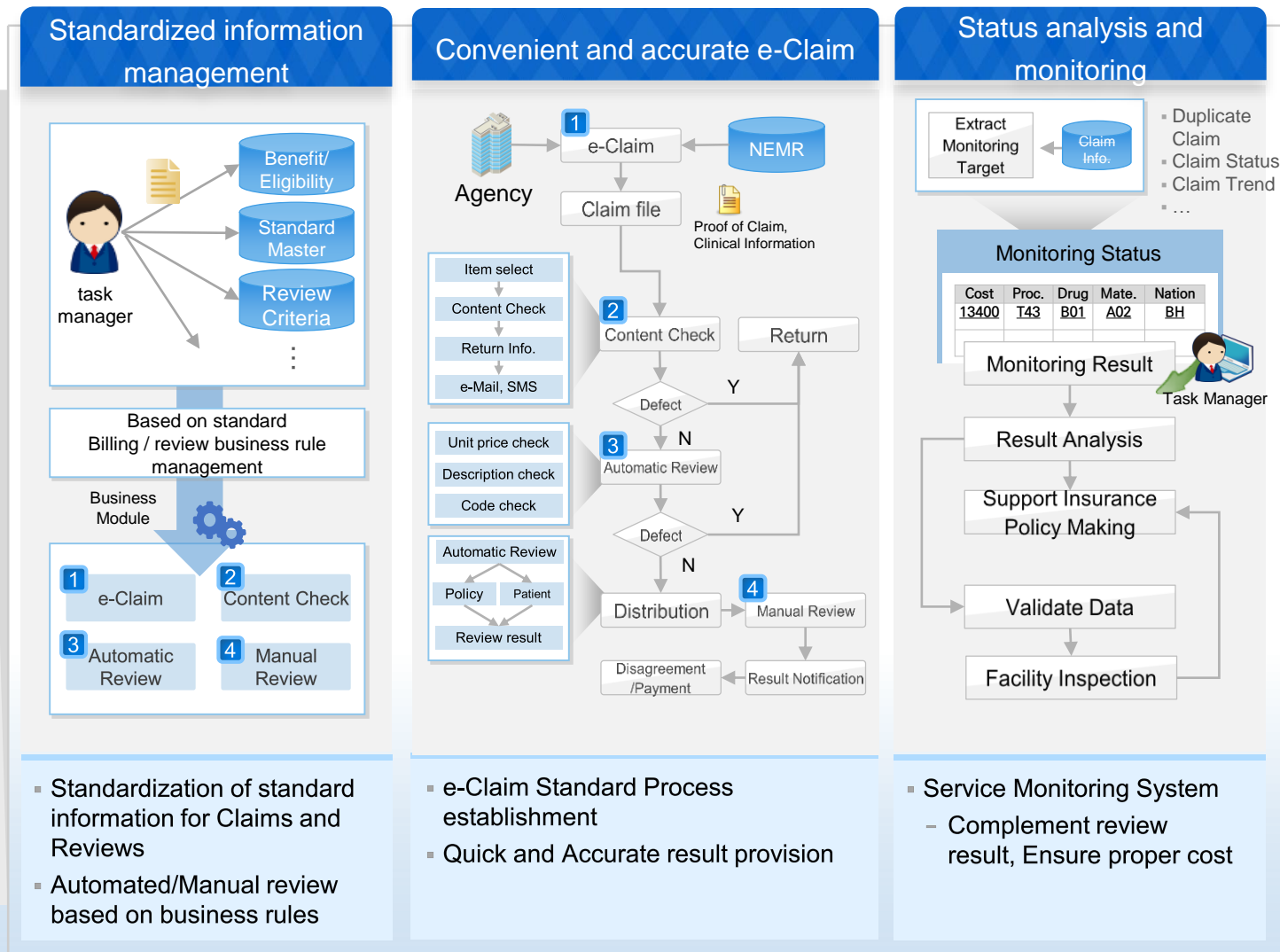
1 Standard Management
- Benefit Package management
- Patient Eligibility Management
- Master Information Management (Diseases, Procedures, DRG)
- Review Criteria Management

2 e-Claim and Review
- Manage receipts and send receipts for returns
- Automatic Review Process
- Assignment of reviewers and management of processing status by auditors

3 Statistics and Monitoring
- Analyze billing information and provide statistics, such as medical trends for specific items
- Provides cost monitoring function for diseases and procedures

Standardized information management

task manager → Benefit/Eligibility, Standard Master, Review Criteria

Based on standard Billing / review business rule management

Business Module
- 1 e-Claim
- 2 Content Check
- 3 Automatic Review
- 4 Manual Review

- Standardization of standard information for Claims and Reviews
- Automated/Manual review based on business rules

Convenient and accurate e-Claim

Agency → 1 e-Claim ← NEMR
Claim file
Proof of Claim, Clinical Information

- Item select
- Content Check
- Return Info.
- e-Mail, SMS

2 Content Check → Return
Defect — Y / N

- Unit price check
- Description check
- Code check

3 Automatic Review
Defect — Y / N

- Automatic Review
- Policy / Patient
- Review result

Distribution → 4 Manual Review
Disagreement/Payment → Result Notification

- e-Claim Standard Process establishment
- Quick and Accurate result provision

Status analysis and monitoring

Extract Monitoring Target → Claim Info.
- Duplicate Claim
- Claim Status
- Claim Trend
- …

Monitoring Status

Cost	Proc.	Drug	Mate.	Nation
13400	T43	B01	A02	BH

Monitoring Result (Task Manager)
→ Result Analysis
→ Support Insurance Policy Making
→ Validate Data
→ Facility Inspection

- Service Monitoring System
  - Complement review result, Ensure proper cost

III. SUN System (Smart Utilization of NEMR)

Sustainable medical policy establishment Support through integrated analysis of national data

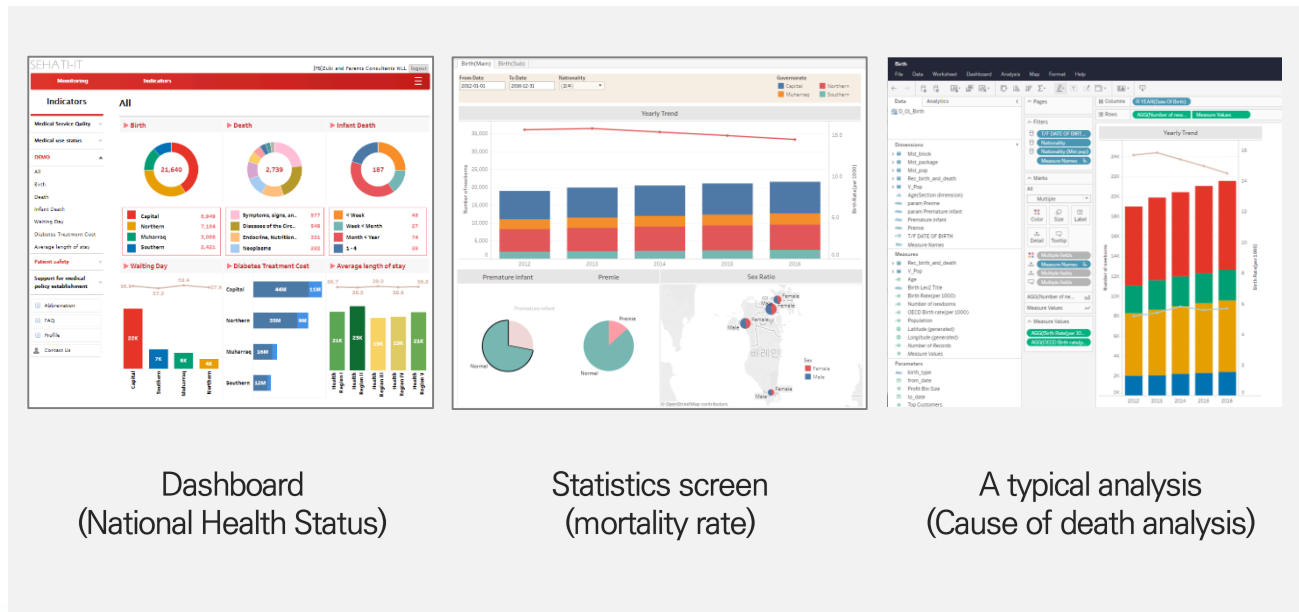### Basis of National healthcare data analysis

SUN Major Functions

1. Medical policy establishment support through data analysis

- Foundation of medical data integration
- Statistical information provision
- Minimize redundancy of requested reports

2. Information provision for the public and organizations

- Providing contents and delivery channel according to user type
- Providing public health information services, such as personal health records (PHR)

Dashboard
(National Health Status)

Statistics screen
(mortality rate)

A typical analysis
(Cause of death analysis)

☑ **Information connectivity by integrating national medical data**

☑ **Providing contents(report/data etc.) considering various users such as decision makers and citizens**

III. NEMR System (National Electronic Medical Repository)

Integrity and utilization all of Bahrain's national medical information based on the National Health Data Dictionary standard (NHDD)

Major function

1 NEMR DB design for claim and clinical information

- DB of claim information for billing and Insurance information
- DB of clinical information such as patient information, diagnosis, medication, medical service and medical record information
- DB of information for SUN indicator

2 Function for data interface

- Sending and receiving data using web service
- Integrity, verification and validation of data and storing data into NEMR DB
- Log data management and detail log inquiry

3 Data management and inquiry

- Change history management and inquiry of interface data
- Interface status statistics
- Clinical information viewer

National Electronic Medical Repository

Implementation Scope

HIS (Public Hospitals)

Interface Module(Client Side)
- Send Data and Receive Result
- Generate Transmission Data
- Code Mapping

Terminology Mapping Data
- e-Claim Data Extraction
- Clinical Data Extraction

EMR DB

② Send Data

HTTPS/ XML(JSON)

③ Response Result

① Providing Information

Interface Server
- Receive Data & Send Result
- Sender Identification
- Parsing Received Data
- Extract and Validate Data
- Interface Log Generation
- Log Monitoring and Mgmt.
- Save Data into DB

Analysis & Design
- Defining Data Format
- Defining RESTful Protocol
- Designing/Creating NEMR DB

④ Saving Data

SEHATI-IT System

DUR / NHIIS
- eClaim
- Review Clinical

SUN
- Analysis DB

NEMR

Internet Portal

Intranet / BI System

Insurance (TPA)

Pharmacy

MOH, NHRA

III. PHR Service (Personal Health Record)

Providing PHR services to look up personal health information such as disease information, prescription/dispensation and medical information

Major function

[1] Providing personal health care information

- Allergy information and disease information such as chronic and infectious, congenital disease
- Vaccinations information
- BMI Information management

[2] Drug prescription /dispensation and medical information

- Drug prescription and dispensation information
- Visit and appointment information for Health facility
- Test scheduling and result information(Imaging, Lab etc.)
- Sick leave certification and issued history

Personal health care through PHR services

SEHATI-PORTAL Logout. A+ A-   Public_User_2 Search

HOME   PHR   ABOUT   E-SERVICES   STANDARDS   MEDIA

Home | Patient Profile | BMI | Visits | Imaging Test | Lab. Test | Medication | Sick Leave

PHR (Personal Health Records)

Dear **Public User Test Name Number 2** , Your last visit was on : King Hamad University Hospital - Nephrology, click here to get the details   Help Guide

Patient Profile	
Profile Item	Allergies/Chronic Diseases
A Allergy	PIOGLITAZONE HYDROCHLORIDE
C Chronic	Type 1 diabetes mellitus w multiple comp

View More

Completed Visits		
Visit Date	Hospital	Medical Specialty
23/05/2019	King Hamad University Hospital	Nephrology
13/05/2019	King Hamad University Hospital	Medical Oncology
06/05/2019	King Hamad University Hospital	ENT
15/10/2018	King Hamad University Hospital	Internal Medicine
	King Hamad University	

View More

Body Mass Index	Sick Leaves

Please enter your information

Height ___ cm   Weight ___ kg   Run

Best Weight
Current BMI
Healthy BMI   18.5 ~ 24.9
Healthy Status

Save   View More

Medication		
Dispense Date	Medication	Admin. Days
17/09/2019	BYDUREON	90
17/09/2019	COVERAM	90
17/09/2019	CRESTOR	90
17/09/2019	GLUCOPHAGE	90
17/09/2019	JUSPRIN	90

View More

Imaging Tests		Functional Tests
Test Date	Status	Hospital
06/05/2019	Ready	King Hamad University Hospital
06/10/2018	Ready	King Hamad University Hospital

View More

Laboratory Tests		
Test Date	Status	Hospital
23/05/2019	Ready	King Hamad University Hospital
23/05/2019	Ready	King Hamad University Hospital
23/05/2019	Ready	King Hamad University Hospital
23/05/2019	Ready	King Hamad University Hospital
23/05/2019	Ready	King Hamad University Hospital

View More

☑ Providing personal health care information such as disease information, vaccinations, BMI

☑ Providing medical information for drug prescription and dispensation, visit, scheduled test and test result information

High-quality Health Service

Efficient Operation of the National Health System

Health Insurance Innovation in Bahrain

Supreme Council of Health