## Medical Information System (IT)

### 1) Basic Policy

a) General

- The overall type of IT system shall be “WEB Type” in order to access from any terminals in the hospital, to be easy to access from other hospitals, to be easy to maintain and to go along with the future perspective of the technology.

- IT system is separated into two systems. One is the Medical Information System mainly for medical professionals and the other is Administration System mainly for administrator.

- The Medical Information System shall be composed of Electrical Medical Record System, Hospitalization and Discharge Management System, Nursing Department System, Surgery Department System, Laboratory Department System, etc. and operated on 24/7 days.

- The Administration System shall be composed of Management System, Financial System, Account System, etc. and operated mainly business hour.

- Each system shall have functional linkage to avoide double input by the staff.

- Basically the system shall be operated in both Arabic and English.

- Every workflow shall be operated on one PC terminal. Each system can be used parallel and shall not exclude other user.

- Special equipment shall not be introduced because it can not be replaced in the emergency case.

- International Standard Master such as ICD-10 shall be used. However, the master shall be able to share with Iraqi domestic local cord through master table.

- Terms of Information Exchanging such as HL7 shall be conformed.

b) Expandability

- Equipments and system shall be expandable in data quantity about 100% from the quantity of the start of operation.

- About 50 % of expandability shall be secured for the number of terminals and connecting system.

c) Security and Safeness

- In case of system failures of equipments or software, failures shall be stopped in the occurred area and not affect other part as little as possible.

- In order to continue operation during system failures, server and network of Medical system shall be parallel control network.

- To identify the user, ID number, password, ID card and biometric identification, etc. shall be required.

- Adequate security system shall be introduced such as user authority setting, antivirus system, physical safeguards, and countermeasures to cyberattack.

d) Availability

- System shall be designed to prevent system failure as much as possible.

- Decentralization of danger shall be controlled by decentralized processing of server.

- System should be restored in short period in case of system failure.

- Because Medical system shall be operated on 24/7 days, durable equipment and software which does not need downtime should be introduced.

- System shall secure the sustainability of work during system failure.

- System shall secure interchangeability of terminals.

- The automated notification function, self-diagnosis function during ordinal period shall be equipped.

e) Flexibility

- Software shall be able to customize upon the requirement of each hospital.

- System components shall accept the layout change of equipments easily.

f) Operability

- Terminals shall equip rapid responsiveness (within 2 seconds) including Imaging.

- Design of display shall be unified among multiple systems.

- To have a portal function and every system shall be used from one terminal through login.

g) Apprication of Overall Requirement

- IT system shall be composed from software & hardware of operation system, connection between systems, service, network system, etc. and overall requirement shall be accepted by all systems.

### 2) Requirement of Medical Information System

a) List of introduced system

a-1) Core system (system used in almost all departments)

- Medical record system (record of treatment and nursing care)

- Order-Entry system

- Medical record reference system (diagnostic imaging, laboratory test, medicine information etc)

- OPD system

- Ward management system / Hospitalization and discharge management system

a-2) Department system (system used in each department)

- Obstetric Section system

- Accident & Emergency Department system

- Nutrition Section system

- Pharmacy Department system

- Clinical Laboratory Department system (laboratory test)

- Diagnostic Imaging Department system (radiotherapy imaging) (RIS, PACS, REPORT)

- Nursing Section system (service management of nurse)

- Surgery Department system (operation and anesthesia management)

a-3) Administration system (Management System)

- Patient account system

- Management system (finance, salary, human resources, account management)

- Data warehouse (for business analysis, medical analysis)

a-4) Internet and e-mail system (connection to outside network)

b) Condition of the system

b-1) Basically, core system, department system and administration system shall work in connection on the required data one another.

b-2) Every system shall work on every terminal (no terminal with special specification is required)

- Core system shall work on the all terminals

- Department system shall be used in each department but it shall work on specified terminals in other department.

- Administration system shall be used in Administration Department but it shall work on specified terminals in other department.

b-3) Server

- Core system shall use highly redundant server which is designed to work even in case of trouble.

- Server for departments and administration system shall be redundant under the characteristic of each department such as urgency or offsettability.

- It is allowed to use more than two systems on the same server.

c) The approximate number of terminals (16)

### 4) Policy of Facility Floor Planning

a) Wiring for medical information system

- LAN wiring between server room and necessary rooms for operating medical information system shall be connected.

- LAN wiring between server room and network computer shall be connected.

- LAN wiring for patient’s internet room shall be set up.

b) Server room and information management room

- IT Department shall manage and maintain medical information system (including LAN server, hospital network, computer terminals, etc) and electrical medical record.

- Srever rooms shall be clearly separated from patient flow and security measures (such as introducing admission and discharge control system) shall be considered.

- Medical record room shall be located next to doctor’s room for easy access to reference.

- Entrance area of server room shall have enough space for carring in/out server rack.

- Floor structure of server room shall be free access floor and be taken account of load bearing.

- Floor structure shall be taken account of setting up anchor for prevention of server rack fall.

- Air conditioning shall be set up to keep room temparatute under 20 degree.

- Air conditioning shall work by emergency power supply in case of power outage or disaster, and work again after recovering from power failer.

- Fire fighting equipment and smoke control system shall be installed.

- Server room shall be located in the appropriate space where a damage of fire, water leak, lightning strike, electric field, magnetic fild and air pollution can be avoided.

- Windows in server room shall be taken preventive measure against outside ligh and fire.

- Interior desigh in server room shall be used noncombustible matter and taken preventive measure for static electrical charge.

- Medical information system shall be connected to Uninterruptible Power System (UPS).

- Server room shall have enough capacity of space, electric power supply and air conditioning for the time of system renewal.