



➤➤ Pharmacy MODULE  
Version 6.0



## **Pharmacy Module**

The Pharmacy system is an electronic web-based application designed with high flexibility and ease of usage, implemented in single clinics and polyclinics. It reflects a real pharmacy consisting of one central store and many pharmacies distributed in separate geographical locations altogether connected through a network. It is comprised of two applications:

### **1- PHARMACY STORE**

### **2- PHARMACY**

#### **Objectives:**

The main objective behind the development of a pharmacy system is to ameliorate simple or complex information search. It permits access by administrators and pharmacists to information needed to support their work, as well as generation of reports for monitoring the operations. Specific objectives include:

- Archiving of information (suppliers, medicament quantity and expiry dates)
- Reduction of paperwork flow
- Enhance communication between doctors and pharmacists
- Statistical data generation
- Financial containment of medications
- Organizing of medicament stock (specific for the pharmacy-store application)

#### **Functionality:**

- Dispensing of medications to all centers
- Replication of data among the centers

- Generation of transactions as printouts
- Integration with the Master Patient Index (MPI)
- Integration with the Clinician System
- Keyboard use for data entry is minimized, compensated by a drop-down list
- Search engine is available
- Arabic support is included for all user functions

### **Authentication and Authority:**

A- The system ensures high security, business integrity and confidentiality through full information log to the system by the administrator and stock manager. It is accessible by three different types of users: administrator, stock manager, pharmacist and clerk. Each type of user is given an ID, whereby depending on the userID, accessibility to specific pages is denied (e.g. the pharmacist is not allowed to view transaction reports as permitted by the stock manager). This is also applicable to pharmacists who are given a userID in relation to the center of their existence.

To contain business ethics, the administrator and stock manager are permitted to the pharmacy-store application, allowing them to retrieve reports of transactions. As well, the clerk has access to specific functionalities (e.g. dispensing of medications to centers) but has restriction to others (e.g. viewing reports); the system is defined by default according to user ID for access of information. Therefore, the pharmacy-store application is centralized and only accessible by defined users.

B- Security:

1- On Operating System Level:

- All processes on system are known through the user authentication
- Intranet-based, which disables accessibility to the network

## 2- On Application Level:

The database administration does not have access to user password because passwords are encrypted on a 64 bit function

### **Description:**

All drugs are entered by itemID to allow the unique identification of each drug, per drug code. Information regarding the generic and brand name of drug, the supplier and expiry date are all recorded on the system along with the itemID. Search can be done either by name or by itemID to facilitate selection, to view suppliers, keep track of items in shortage, and to find items provided by a given supplier and/or the supplier in relation to a specific item. Furthermore, the system favors a rapid identification of expiry dates of medicaments during a specified period the user opts for.

The system permits the detection of the minimum quantity per item that ought to be available in stock and in every center. Expired or unavailable drugs are deactivated by the system, thereby the physician will only choose from the list of pharmaceuticals in store. If the quantity specified is higher than the available quantity, a message will be displayed on screen, same applies for disposing of drugs: if the user enters a quantity (200) greater than the quantity available (100), a notification message will appear. Prescriptions assigned by the physicians are filled on the system and viewed on by the pharmacist. The pharmacist can accumulate several orders together, and dispense them all at one time, or may dispense orders

one by one to be perceived by patients. Only upon the validation of the pharmacist to allot medications that the quantity of the respective drug will appear less. If the patient is encountered several times for the same medications, the system is able to identify and prepare prescriptions at the due date of the drug. The pharmacist thus will be able to view and dispose the order ahead of time.

If the patient is assigned a discount rate, the system is capable of generating a discount to an invoice. For any discount, the user enters the number without the character '%', later to be displayed on the transaction of frequently encountered patients. Such a transaction, engendered as the patient report, beholds information associated with patient's ID, patient name, and the medicament quantity. To view and prepare patients' medications for disposal, the system furnishes the feature of assigning in-between dates, manually entered by the pharmacist.

The system is integrated with international packages, thus allowing to produce alarms for allergies, contraindications and/or complications, in relation with the medical profile of the patient. To further emphasize safe utilization and/or lack of complications, indications of use, along with the dosage and drug name and concentration are printed on drug labels handled to patients.

All orders performed can be accessed by the stock manager where he is capable of viewing them as reports. For every transaction, the system is apt to progenerate printouts with specified forms, as denoted by the nature of the order (e.g. reports on disposed items, sales, invoices, and store to center transactions). Only pertinent orders are allowed for transactions, hence available quantities irrespective of command. Each transaction performed is given an automatic number by the system, thereby facilitating statistical data, some of which are pertaining to managerial operations/workflow (e.g. number of prescriptions per physician).

The pharmacy store application, serving as the central store, is responsible for receiving orders from centers and delivering them. The user selects the destination center from the dropdown Center list.

The central store also imports all medicine from companies/suppliers to the stock system. The system allows for replication of data from store to all centers, as well as replication of information regarding new items introduced to the system.

Medicament information is encompassed of name of the supplier, item name, currency, expiry date, actual quantity, quantity, lot number, discounts and unit price in three different currencies.

The store is automatically informed by the system about the expiry date of any medicine one month in advance. The system takes into consideration the items to be distributed are those with the nearest expiry date, therefore allowing for an accurate control of inventory. The center also sends a request for disposing or returning items and waits for the approval from the central store, performed by the stock manager.

The system assents to returning items from the center to the store. To do so, the system requests a justification for return, which if confirmed by the stock manager, will be successfully established and displayed on screen.

Nevertheless, invoices may be canceled through a special form to be filled on the system. The user may choose to cancel an entire invoice or delete one or more items.