



## ELECTRONIC CLINIC

Presented by:

- 1-Mohamed Badwy Mohamed
- 2-Riham Said Saleh
- 3-Manal Alaa Fathy
- 4-Esraa Mohiey Abdallah
- 5-Shaimaa Fathy Esmaiel

SUPERVISOR

Professor Dr.: Ibrahim Elhenawy

## Chapter 1 Introduction

**1- Front End: PHP**

**2- Back End: MySQL**

**Project Scope**

**Overall description**

**Product Features**

**User Classes and Characteristics**

**Design and Implementation Constraints**

**1- Login Account**

**2. Admin**

**3- Online appointment**

**4- Doctors Module:**

**5- Billing and Maintenance**

**ExternalInterfaceRequirement**

**Other Non-functionalRequirements**

**Other Requirements**

## chapter 2 Description

**Functions of the System**

**1- Patient Function**

**2- Staff (Doctor & nurse) Function**

**3- Administrator's Function**

**Meeting Query Policy**

**DATA DICTIONARY**

**Process Dictionary**

**a) Make Appointment Process**

**b) Consultation Process**

**c) Make Prescription Process**

**d) Medicines Inventory Control Process**

**Level 1 – 1.0 Make appointment**

**Level 1 – 2.0 Consultation**

**Level 1 – 3.0 Make prescriptions**

**Level 1 – 4.0 Medicines Inventory Control**

**Level 2 – 1.0 Make Appointment Data Flow**

**Level 2 – 2.0 Consultation Data Flow**

**Level 2 – 3.0 Make Prescription Data Flow**

## **Level 2 – 4.0 Medicines Inventory Control Data Flow**

### **PART III – DATA ANALYSIS**

#### **Systems Analysis and Design of Clinic Management System**

### **Chapter 3 Business Objectives**

- 1- Add Doctor Info.**
- 2- Add Patient Info.**
- 3- Surgical Operation.**
- 4- Follow up Patient medical issues.**
- 5- Add Prescription**
- 6- Add Referral Letter.**
- 7- User Permissions.**
- 8- Site Administration.**

### **Chapter 4 System Functionality**

- 1. Main Menu**
- 2. HotLinks**
- 3. Surgery Operations**
- 4. Videos**
- 5. Photo Gallery**
- 6. Search Engine**
- 7. Register Patient**
- 8. View patient info**
- 9. k. Patient Photos**
- 10. k. Patient Prescriptions**
- 11. Print Patient Prescription**

#### **--Back Office----System Admin-----**

- 12. Add Patient**
- 13. -Edit , Delete patient**
- 14. -Add Patient photos**
- 15. Add patient videos**
- 16. Add prescriptions**
- 17. Add referral letter**
- 18. Print patient data**
- 19. Edit Customer Photos**
- 20. Edit Customer Videos**
- 21. Edit Referral Letter**

- 22. *Print Referral Letter*
- 23. *Edit Prescriptions*
- 24. *View all patient Prescriptions*
- 25. *Add , Edit Medicine*
- 26. *Add user with privilege*
- 27. *Edit and delete users*
- 28. *System Statistics*

### **----Back Office -----Site Admin-----**

- 29. *Add News*
- 30. *Edit and Delete News*
- 31. *Add photo gallery*
- 32. *Edit and photo gallery*
- 33. *Add Videos*
- 34. *Edit Videos*
- 35. *Check Consults*
- 36. *Alarm For New Consult*
- 37. *Site Statistics*

## **Chapter 5**

### **Emergence of online doctoring**

**Online healthcare system**

**Potential harm**

**Past and future developments**

**References**

## Chapter 1

### Introduction

#### Objectives

The main objective is to develop the software that covers all the aspects of management and operations of clinics. It enables healthcare providers to improve operational effectiveness, reduce costs, reduce medical errors, reduce time consumption and enhance delivery of quality of care.

#### Project category:

Web based software

#### Languages to be used:

##### 1- Front End: PHP

PHP is a server-side, cross-platform, HTML-embedded scripting language. PHP (recursive acronym for PHP: Hypertext Preprocessor) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.

Currently there are over half a million domains running PHP. Much of PHP's syntax is borrowed from C, Java and Pearl with a couple of unique PHP-specific features thrown in. The goal of the language is to allow web developers to write dynamically generated pages quickly. PHP eliminates the need for numerous small cgi programs by allowing you to place simple scripts directly in your HTML files. It also makes it easier to manage large web sites by placing all components of a web page in a single html file.

PHP is mainly focused on server-side scripting, so you can do anything any other CGI program can do, such as collect form data 'generate dynamic page content, or send and receive cookies.

PHP can be used on all major operating systems, including Linux, many Unix variants (including HP-UX, Solaris and OpenBSD), Microsoft Windows, Mac OS X, RISC OS, and probably others. PHP has also support for most of the web servers today.

One of the strongest and most significant features in PHP is its support for a wide range of databases. Writing a database-enabled web page is incredibly simple using one of the database specific extensions (e.g., for mysql), or using an abstraction layer like PDO, or connect to any database supporting the Open Database Connection standard via the ODBC extension. Other databases may utilize URL or sockets, like Couch DB.

## 2- Back End: MySQL

MySQL is the world's most popular open source database software, with over 100 million copies of its software downloaded or distributed throughout it's history. With its superior speed, reliability, and ease of use, MySQL has become the preferred choice for Web, Web 2.0, SaaS, ISV, Telecom companies and forward-thinking corporate IT Managers because it eliminates the major problems associated with downtime, maintenance and administration for modern, online applications

MySQL is a open source Relational Database Management System. MySQL is very fast reliable and flexible Database Management System. It provides a very high performance and it is multi-threaded and multi user Relational Database management system.

MySQL is one of the most popular relational database Management System on the web. The MySQL Database has become the world's most popular open source Database, because it is free and available on almost all the platforms. The MySQL can run on Unix , window, and Mac OS. MySQL is used for the internet applications as it provides good speed and is very secure. MySQL was developed to manage large volumes of data at very high speed to overcome the problems of existing solutions. MySQL

can be used for variety of applications but it is mostly used for the web applications on the internet.

### **Application Server: Xampp Server**

XAMPP is a free and open source cross-platform web server solution stack package, consisting mainly of the Apache HTTP Server, MySQL database, and interpreters for scripts written in the PHP and Perl programming languages.

XAMPP's name is an acronym for- X (to be read as "cross", meaning cross- platform), ApacheHTTP Server, MySQL, PHP, Perl.

The program is released under the terms of the GNU General Public License and acts as a free web server capable of serving dynamic pages. XAMPP is available for Microsoft Windows, Linux, Solaris, and Mac OS X, and is mainly used for web development projects. This software is useful while you are creating dynamic webpages using programming languages like PHP, JSP, Servlets.

#### **Requirements and features:**

XAMPP requires only one zip, tar, 7z, or exe file to be downloaded and run, and little or no configuration of the various components that make up the web server is required. XAMPP is regularly updated to incorporate the latest releases of Apache/ MySQL/PHP and Perl. It also comes with a number of other modules including OpenSSL and phpMyAdmin.

Installing XAMPP takes less time than installing each of its components separately. Self-contained, multiple instances of XAMPP can exist on a single computer, and any given instance can be copied from one computer to another. It is offered in both a full, standard version and a smaller version.

**Use:** Officially, XAMPP's designers intended it for use only as a development tool, to allow website designers and programmers to test their work on their own computers without any access to the Internet. To make this as easy as possible, many important security features are disabled by

default. In practice, however, XAMPP is sometimes used to actually serve web pages on the World Wide Web. A special tool is provided to password-protect the most important parts of the package.

### **(IntegratedDevelopmentEnvironment)**

An integrated development environment (IDE) (also known as integrated design environment, integrated debugging environment or interactive development environment) is a software application that provides comprehensive facilities to computer programmers for software development. An IDE normally consists of:

- a source code editor
- a compiler and/or an interpreter
- build automation tools
- a debugger

The boundary between an integrated development environment and other parts of the broader software development environment is not well-defined. Sometimes a version control system and various tools are integrated to simplify the construction of a GUI. Many modern IDEs also have a class browser, an object inspector, and a class hierarchy diagram, for use with object-oriented software development.

We are using Dreamweaver as an IDE

### **Software to be used in Project:**

Front End	:PHP Back
End	:My SQL
Application Server	:Xampp Server
Operating System	:Windows, Linux.

### **Hardware Requirements of the Project :**

Processor	:Pentium-4 or above
Processor Speed	:2.00GHz CPU
RAM	:512MB or above

Hard Disk Utilization :40GB or above

### **Structure of the Program:**

PolyClinic is web based application which covers all aspects of management and operations of clinics. This website covers features of Doctors Details, Patients Records, Online appointments, Patient reports, billings, Clinical tests, Medical store billings etc.

The project supports to administrator to access complete application, Patient takes appointment through Online/Offline, Doctors manages patient reports, Receptionist approves patient's appointment and makes bill, and medical Store Administrator can view suggested prescription.

Each patients of the Polyclinic has a unique patient ID and password. By entering User ID and password patient can login to the polyclinic website and patient can view Appointment details, Patient reports, clinical tests, Billing, etc.

### **Speciality of health care center:**

- Endoscopic Snus Surgery
- Micro-Ear Surgery
- Micro-Laryngeal Surgery
- Laser ENT Surgery
- Thyroid Surgery

### **Facilities provided by health care center:**

- Consultation of 21 different specialists
- Full-Fledged Laboratory & Diagnosis center
- ECG & TMT facility
- Ultrasonography
- Digital X-ray
- Pulmonary Function Test

Over the years Arogya Multi speciality clinic as shown tremendous interest and services towards public by conducting serveral camps like

diabetic camp, cancer camp, joint pain camp to bring awareness among the masses. And it also provides a medical check-up facility called ‘Arogya Check-up’ for a comprehensive Health check up programme. In future rural camps will be conducted by the Arogya Multispeciality doctors for the benefit of poor patients.

### **Future Scope of the Project:**

SMS features: If patient takes appointment or treatment SMS goes to Patients Cell Phone.

Medical Store: Medical Store Administrator can view suggested prescription through online by entering polyclinic patient ID.

- Patients can view reports, billing ,
- Consumes less time and reduces human errors.
- Doctors can view patient’s old reports
- Medical store administrator can view suggested prescription through online by entering patients ID.
- User frindly

### **Purpose:**

This document is to describe all the software requirement specification (SRS) for the Clinic-O-Sight (COS). The system aims to help the patients to take appointment online through internet and track their records through it.Polyclinic has been facing problems due to its paper-based appointment system. With the increase in the number of patients visiting, it has become difficult to manage the appointment system manually.The purpose of this project is to solve these complications by creating custom-built database software to manage the appointment system. For the receptionist it makes easy to set date and time for the treatment of the patient to the relevant doctor.Doctor enters medical prescription and receptionist takes the print.It also helps to maintain

doctor's consultation fee, Laboratories and Testing charges automatically. And maintaining the employee salary and its expenses.

## Document conventions

When writing this document it was inherited that all requirements have the different priority levels. The levels of authentication are provided in four different aspects i.e. The Admin, the Receptionist, The Doctors and The Patients.

## Intended users and readingSuggestions

• **Developers:** in order to be sure they are developing the right project that fulfills requirements provided in this document.

• **Testers:** in order to have an exact list of the features and functions that has to respond according to requirements and provided diagrams.

• **Users:** in order to get familiar with the idea of the project and suggest other features that would make it even more functional.

• **Documentation writers:** to know what features and in what way they have to explain.

What security technologies are required, how the system will response in each user's action etc.

• **Admin, Receptionist, Doctors and patients:** in order to know exactly what they have to expect from the system, right inputs and outputs and response in error situations.

## Project Scope

The system has been facing problems due to its paper-based appointment system. With the increase in the number of patients visiting, it has become difficult to manage the appointment system manually. Recording of appointments and creating registers by pen and paper has become a tedious task. And also its difficult to manage huge number of patient database.

The COS web-application gives solution to the polyclinic patients and employees. This system which manages complete polyclinic details in a single application and in a single database. The users will use this system to handle all the functionalities easily. Doctors will also use the system to keep track of the patients consulting to them. The intentions of the system are to reduce over-time pay and increase the number of patients that can be treated accurately. Requirements statements in this document are both functional and non-functional.

## **Overall description**

### **Product Perspective**

Product perspective is essentially the relationship of the product to the other products, defining if the product is independent or is part of a larger product (dependent), and what the principal interfaces of the product are.

This software is totally independent system that manages activities of the COS as taking appointments, generating patient reports, personnel management and administrative issues.

In this project all the records are stored in single database. Different users have different permission to access this web application. Each user has unique id. If any data is lost user is having option to recovery. User's don't have right to alter records after particular time period and also it is not having option to alter other patient records.

### **Product Features**

- Authentication for different users.
- Real-time validation of all fields and database to prevent errors.
- Printing of prescription, certificate.
- History of patients recorded in database.
- Maintaining the billing section of the polyclinic.
- Maintains the salary and expenses.

- Built in backup and restore facilities.
- LAN compatible.
- Compatible with any platform.

## User Classes and Characteristics

The admin, doctors, receptionists and patients will be the main users. The system is also designed to be user-friendly.

- |           |                |
|-----------|----------------|
| ● Admin   | ● Receptionist |
| ● Doctors | ● Patients     |

**Admin:** Admin should have prior knowledge of the system. Admin is able to control the whole system. He/she can add, delete, update and modify the system.

**Receptionists:** in order to add or delete the details of the patients come for the treatment and accordingly provides identity to them.

**Doctors:** Doctor should fairly know about the usage of the system. Doctors are able to see the respective appointments taken. And also can view patient's details and records.

**Casual users:** Anyone can view the information of the polyclinic. Patients can view their own records and doctors details and timings. And also can take appointment online.

## Operating Environment

This proposed software will be used in Windows platform in the version of Windows 7. MySQL will be used for the database to hold the patients, doctors and other employees' details.

- **Operating system: Windows platform, linux, Mac OS**
- **Processor: Pentium 4**
- **Processor speed: 2.5 GHz**
- **RAM: 512MB**
- **Hard disk drive: 40GB**

## **Design and Implementation Constraints**

The COS system shall be a web based application system running in a windows environment. The system shall be developed using PHP and MySQL server.

A person who has no knowledge of computers will find it difficult to understand the system. But with a little knowledge it will be very easy to handle the project.

Standard compliances. This document follows IEEE standard for software requirement specification.

## **User Documentation**

- A HTML Help file with a tutorial and full help on all features provided.
- Help pages will be providing document with screen shots.
- If the user has more queries regarding this website then he/she can contact with the administrator through contact us page.

## **Assumptions and Dependencies**

- The code should be free with compilation errors/syntax errors.
- The product must have an interface which is simple enough to understand.

### **System Features**

#### **1- Login Account**

##### **1.1 Description:**

To open the user account the users have to enter login information.

##### **1.2 Stimulus/response**

User must enter valid user id and password to open user page. If it is valid then it links to user account page. If the user is new to the polyclinic he/she has to register.

##### **1.3 Basic data flow**

- Here first the user enters login id and password.

- After entering the login information system checks whether entered login id and password is valid or not.
- If it is valid then it is linked to the user account.
- If the user doesn't have user account then user needs to register.

## **1.4 Functional requirements**

Here administrator, receptionist, doctors and patients are using the different login pages.

### **2. Admin**

#### **2.1 Description**

Admin is a super-user. He/she is able to control the whole system. Admin can add, delete, update and modify the system.

#### **2.2 Stimulus and response**

Admin logs into the admin account and do the relevant changes daily. Admin keeps the system up-to-date.

#### **2.3 Basic data flow**

- Admin logs into the system.
- Can add/delete/update/modify records
- He/she controls the entire system.

#### **2.4 Functional requirements**

Admin has got the rights to add/delete the doctor, employees, old records and can view the entire system.

### **3- Online appointment**

#### **3.1 Description:**

Patients can take appointments through online by entering Date and Time. Receptionist approves this depending on doctors. Patient has to register or login to take appointment through online.

### **3.2 Stimulus/response**

Patients should enter valid information to take appointment online. After entering appointment details receptionist verifies the information and gives date and timings.

### **3.3 Basic data flow**

- Patient first logs into the website.
- After logging in, the patient enters the appointment information.
- Patient receives the approval message with date and time.

### **3.4 Functional requirements**

- Patients can take appointment online or through phone call.
- patient can view the old appointment details and their records.

## **4- Doctors Module:**

### **4.1 Description:**

Doctors can check appointments taken by patients. Doctors can view Patients Test reports and he can enter and view suggested prescription details. And also can check billing and monthly salary details.

### **4.2 Stimulus/responses:**

Here doctor enters the patient report and enters prescription details.

#### **4.3 Basic data flow**

- doctor logins to the website.
- Doctor checks old record and appointment details.
- Doctor enters prescription and test reports.
- He can view salary and billing details.

### **4.4 Functional requirements**

Doctor can view patient appointment, old records, prescription, payment details. And also can view his monthly salary.

## **5- Billing and Maintenance**

### **5.1 Description:**

In this page receptionist enters doctors consultancy fee, laboratory charge, etc. Maintenance page which calculates employee salary, expenses. Every month it calculates employee salary, total expenses. Expense and receptionist salary will be shared equally by each doctors.

### **5.2 Stimulus/response**

Receptionist enters consultancy fee, laboratory fee, etc of each patient. Every month system calculates automatically doctor's earnings, expenses, employee salary etc.

### **5.3 Basic dataflow**

- Receptionist enters the consultancy fee and laboratory fee
- Receptionist enters the daily expenses, maintenance fee.
- Every month system generates employee salary , expenses, patients bill, etc. salary and expenses will be shared equally by each doctors
  - System checks doctors earnings

### **5.4 Functional Requirements**

- Consultancy fee
- Daily Expenses
- Employee Salary
- Doctors earnings

### **External Interface Requirement**

All the interactions of the software with patients, doctors, receptionist, hardware and software are specified here.

### **User Interfaces**

The user interface is designed in PHP. The developer will have to study the designing of the product. The use of the controls and the component from the Add items feature of the PHP. The user of the product will get very user friendly web page which will be very easy to work with.

## **Hardware Interfaces**

This system doesn't require any hardware interface. The one used here is monitor, keyboard and mouse.

The system should have these hardware requirements:

- Processor: Intel Pentium4 3.2GHz or above
- Memory: 512MB or above
- Hard Disk Drive: 40GB or above

## **Software Interfaces**

- Operating System: Windows, Linux, Mac OS
- Front End: PHP(Hypertext Preprocessor)
- Back End: MySQL

Communications Interfaces

Communication is done through internet and intranet.

## **Other Non-functional Requirements**

### **Performance Requirements**

Cos manages facilities required by the casual users quickly and easily. It offers to take appointments faster through online. It takes appointment details from the patients and send the appointment date and timings to the particular patient.

### **Safety Requirements**

- In case the user forgets or loses Password, the repair functionality helps by choosing “forgot password” option in the main login window.
- To avoid this kind of situations, backups can be done regularly.
- While typing the password, if the caps lock is on it must be notified.
- If the system is kept idle for 10 min the session will expire.

### **Security Requirements**

This system is provided with authentication without which no user can pass. So only the legitimate users are allowed to use the application.

If the legitimate user's share the authentication information then the system is open to outsiders.

## Software Quality Attributes

**Reliability:** Good validations of user inputs will be done to avoid incorrect storage of records.

**Maintainability:** During the maintenance stage, SRS document can be referred for any validations.

**Portability:** This system can be installed in any personal computers supporting windows operating system platform.

**Flexibility:** The system keeps on updating the data according to the transactions that takes place.

**Timeless:** The system carries out all the operations with consumption of very less time. Security: Security of the system is maintained by giving access to only authenticated user id and password.

## Other Requirements

### Other Requirements

**Database:** The records of all operations are stored in database.

Description

**chapter**

**2**

# **ONLINE CLINIC**

# **MANAGEMENT**

# **SYSTEM**

**Online doctor** is a term that emerged during the 2000s, used by both the media and academics, to describe a generation of physicians and health practitioners who deliver healthcare, including drug prescription, over the internet.

### Description

This is a medical management system, assisting user to administer a huge data in clinic. In addition, another function is allowing doctor, nurses and the administrative staff. On the client point of view, this is a faster and useful way to link to the healthcare service by using the system.

‘Clinic Management System - CMS’ is specially designed for general clinic, this system let them have a high efficiency management tools, computerize and systematic patients record, detail of drug information, this is the first achievements of the medical services.

Medical services computerize is an irresistible general trend, this web site will provide medical information for the client, the user can find out a message they care.

CMS provide on line appointment feature, which allow patients to make the appointment through Internet. Furthermore, doctors can manage the clinic daily work by using CMS.

### Functions of the System

#### 1- Patient Function

CMS – allow patients to browse the doctor’s schedule. In order to supply a direct appointment way on web, this feature provide a convenience practice which can avoid telephone line busy, or time consuming which cause by forming line at the clinic. CMS will show out the doctors’ schedule of the current month, the patients only need to select the appropriate doctor whom they want to see. The patient will clearly know their occupied time.

Making appointment is several simple steps. The patients can log in using the User ID and Password, which are written on the consultation card . For the first time to log in, the patients can register on the by web site and get their own ID and Password.

Each patient owns his consultation card, Doctors and patients can use their consultation card number to check and review the Medical history.

The Patients can check their own Medical history through the web browser, which include the patient info, such as Name, address, age, sex, blood group, record of diagnose, any allergic reaction.

## **2- Staff (Doctor & nurse) Function**

CMS provides the calendar for the doctors, to check the calendar and appointment.

In addition, the medical history are stored in the database. The doctor can use the hyperlink through the patients' names to the patient personal data and medical history.

The calendar allows the staff to apply different kind of leave. For instance, annual leave or non-paid leave, etc.

By using the system, the medicine records can be checked; they can view the information of the medicines such as Medicines name, Expired date, Prices, Supplier info (Address and contact number) and Description.

During the meeting, the doctor can store the patient treatment into the database, such as patient diagnosis, medicines, drug allergy, chronic disease. After the meeting or checking, the doctor will input the information and status in the system. If the patients are needed the injection, the updated records will transfer to the nurse for preparation. Finally the system will calculate the total amount and print out the receipts.

Computerize and centralize the patient's medical history in the database.

### 3- Administrator's Function

The system divides different level of rights. For the administrator, he can control and amend the user information such as user's name, password, and user rights. In addition, the administrator has the right to change any scheduled of appointment or duty of the staffs.

The system provides many kind of reports for administrator to manage and coordinate, such as Medical history report, medicines report, patient reports.

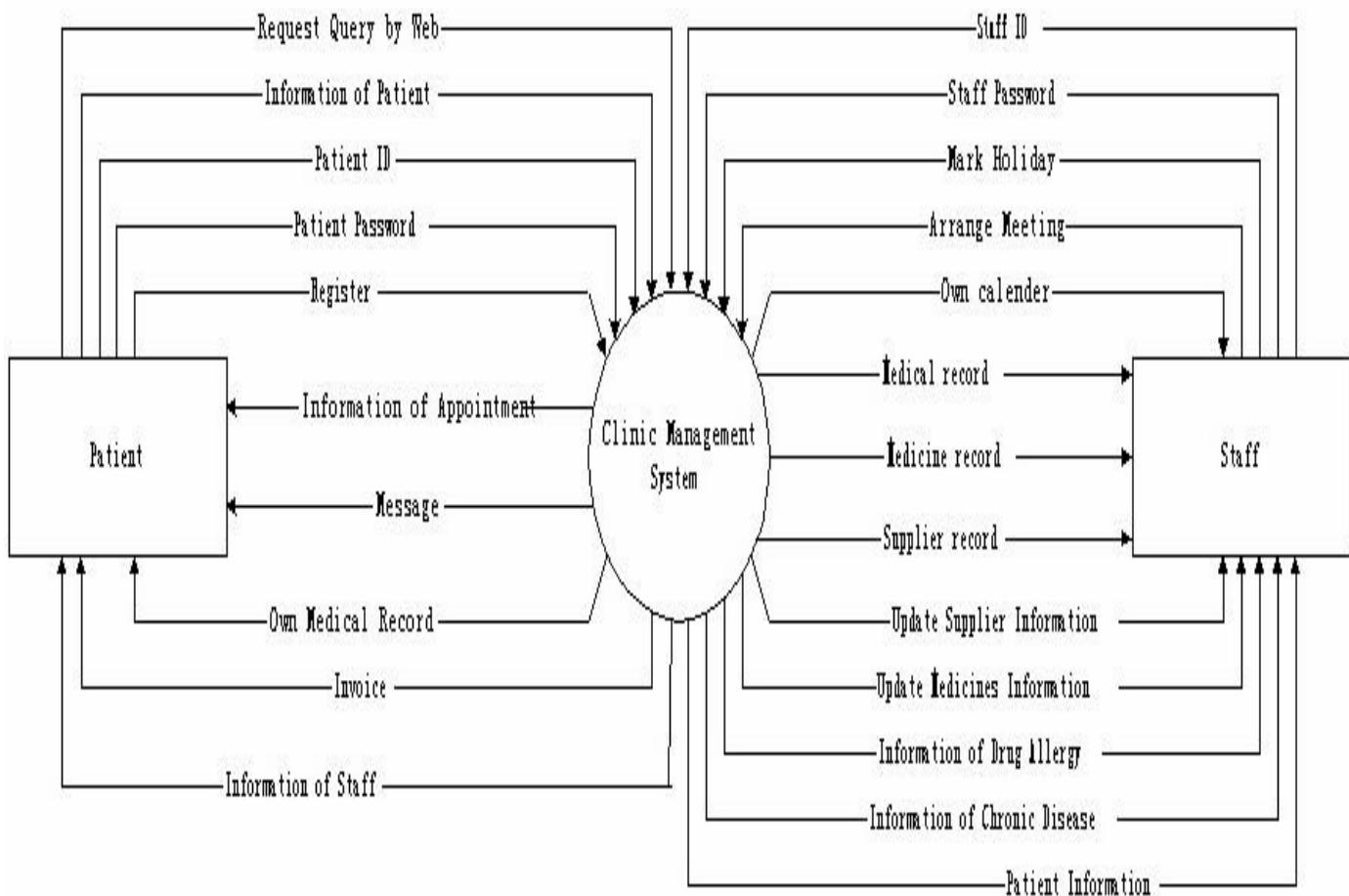
Administrators allow doing the backup for the system (scheduling or customizing). Note: If any user wants to change the password of the login ID. He or she can change his or her password on the Web site. If the user forgot the password, which condition is kept to administrator to reset.

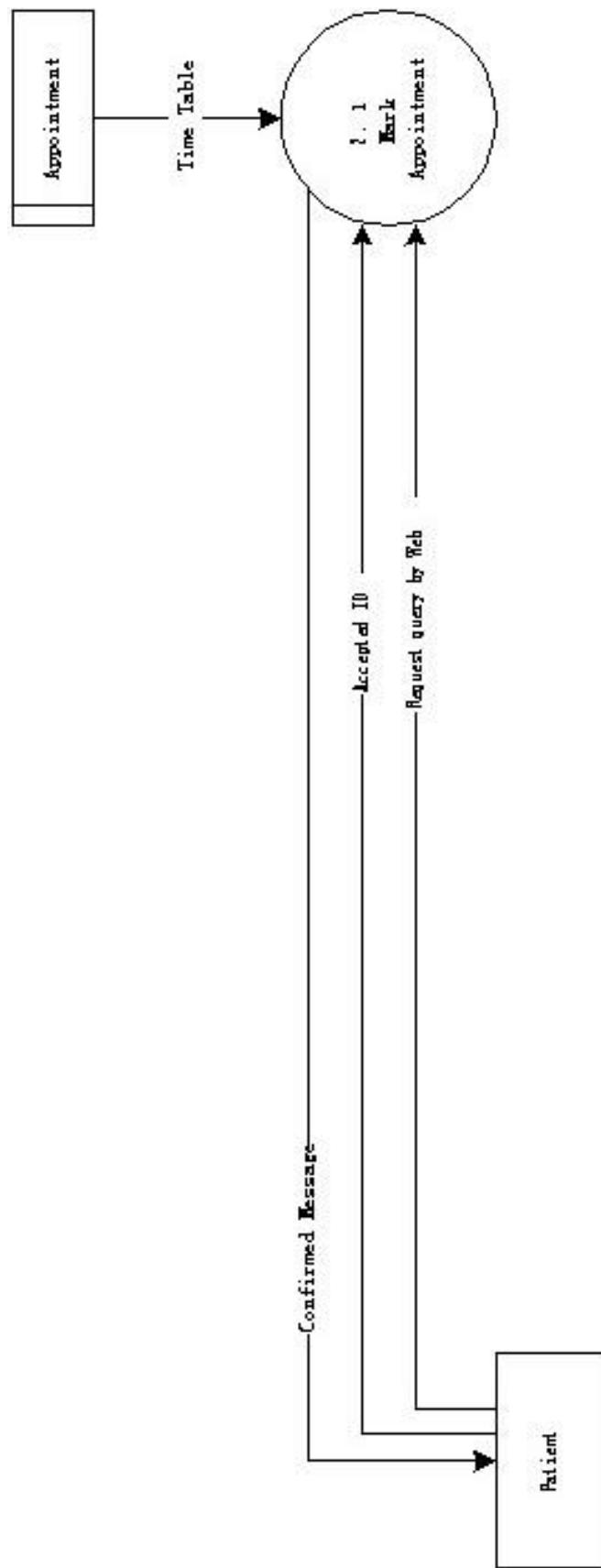
### Meeting Query Policy

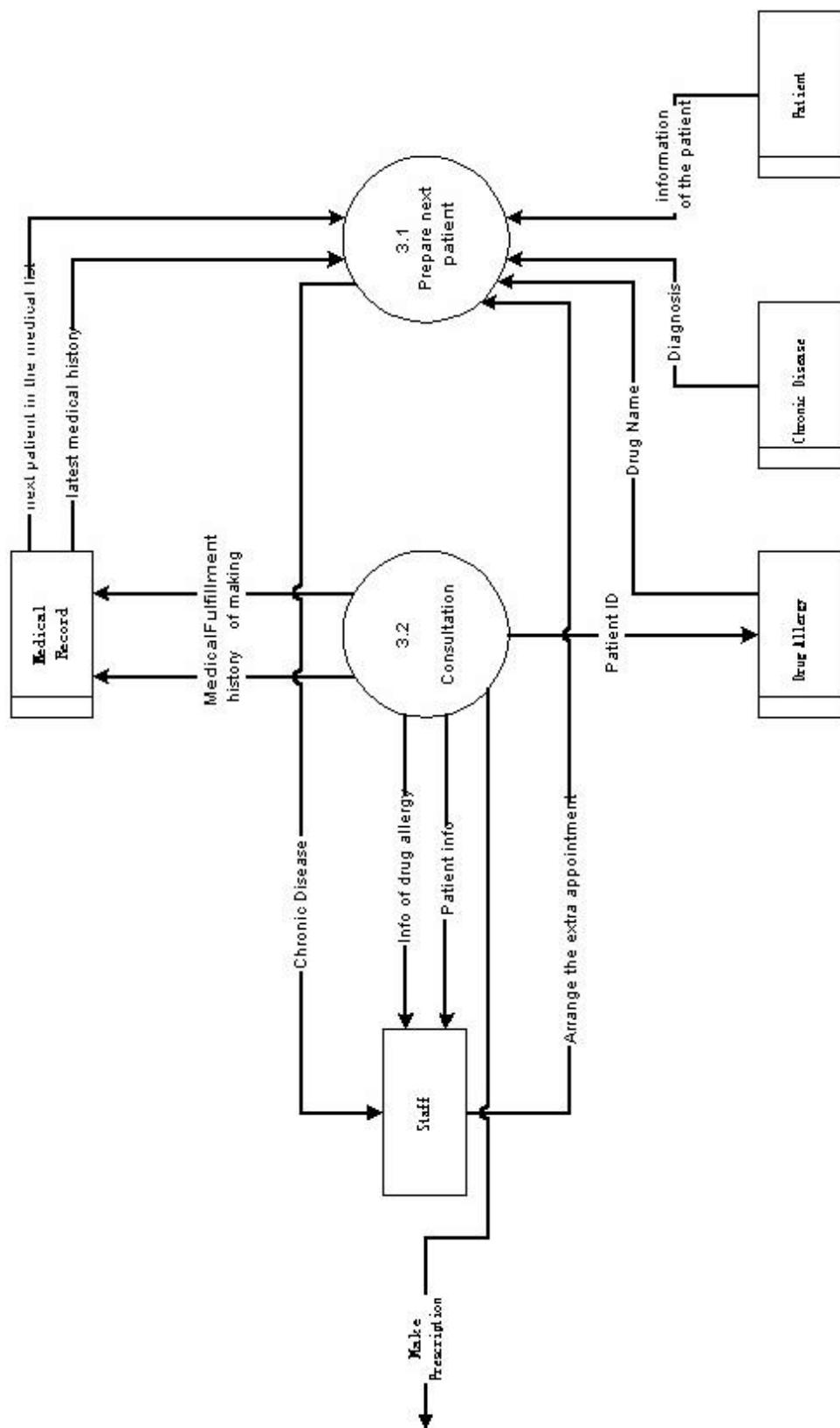
**•For Patient.** If the patient is late, the vacancy automatically gave to another following patient. Then his appointment will schedule to the end of the queue, or if the middle of the queue has a hole (that's means the patient also came late or that time has no booking) then the patient could insert into the middle of the queue. Otherwise the patient arrived early and has a vacancy, he or she could meet the doctor immediately otherwise he will wait at your own time. If the Patient does not appeared in the surgery on the date of booked appointment, the system would automatically cancel the record of the appointment.

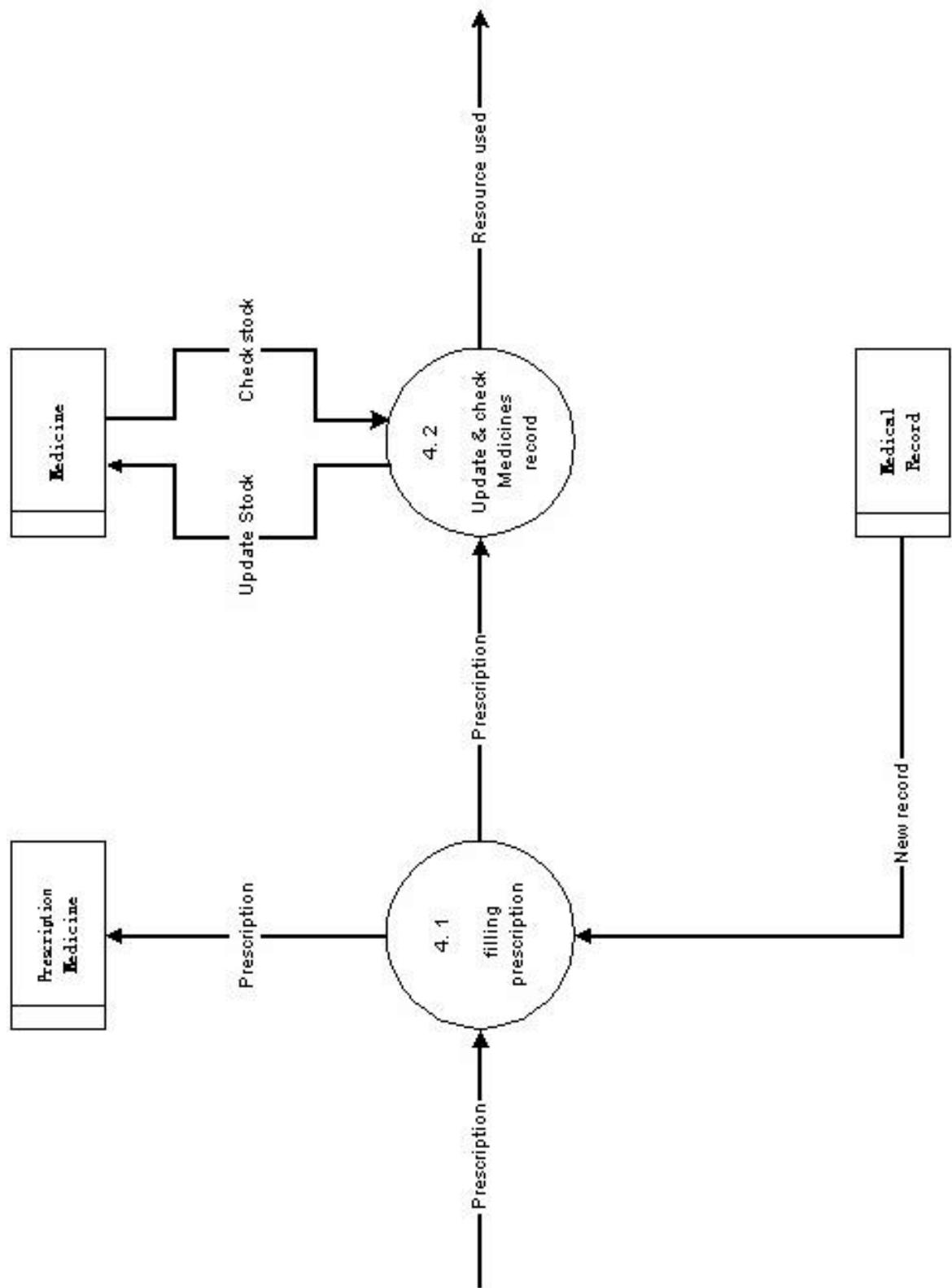
**•For Doctor.** When a doctor has arrived late or has not appeared in the surgery, the process will be manually control, that's the doctor must be arranged with patients to book to another time or date.

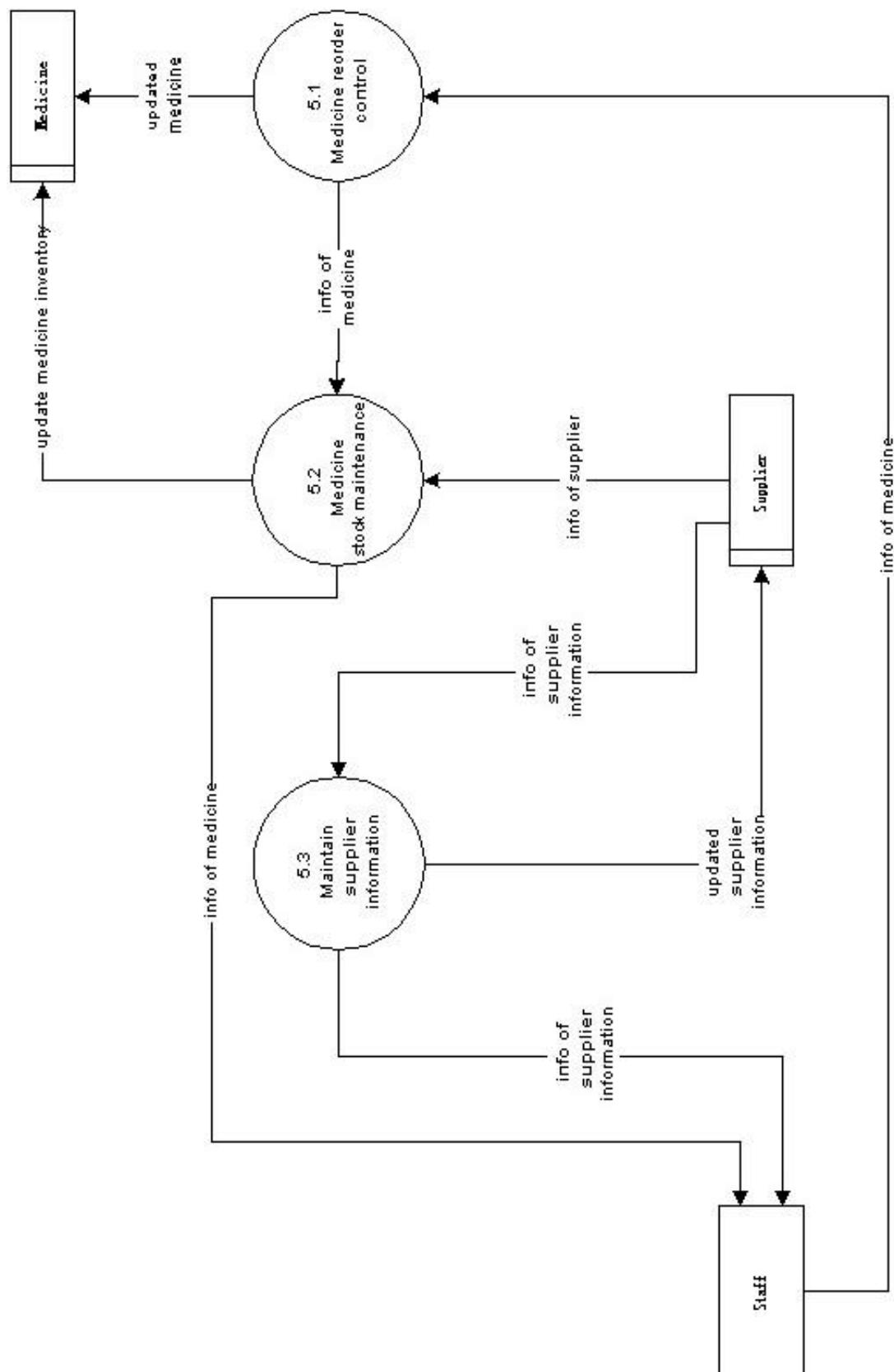
•**For Nurse.** When a nurse has arrived late or has not appeared in the surgery, the process of the nurse could be controlled or accessed by doctor.











**DATA DICTIONARY****Process Dictionary****Level 1**

Name:	1.0 Access to Online Information
Description:	Provide the medical information for each patient by

Name:	2.0 Make Appointment
Description:	Patient requirement is received and is confirmed for

Name:	3.0 Consultation
Description:	Provide the consultation for each patient.

Name:	4.0 Make Prescription
Description:	Keep the record of medicines of each patient.

Name:	5.0 Medicines inventory control.
Description:	Updates the medicine receives file and control the

**Level 2****a) Make Appointment Process**

Name:	2.1 Mark Appointment
Description:	Mark the available date and time, based on the timetable.

**b) Consultation Process**

Name:	3.1 Prepare next patient
Description:	Show the information of next patient after each
Name:	3.2 Consultation
Description:	Doctor provides the consultation.

**c) Make Prescription Process**

Name:	4.1 Filling prescription
Description:	Filling prescription to each patient.
Name:	4.2 Update & check medicines record
Description:	Update & check the medicines, which is

**d) Medicines Inventory Control Process**

Name:	5.1 Medicine reorder control
Description:	Control the medicines reorder point and update the medicine received file.
Inbound Data Flow:	Medicine data
Outbound Data Flow:	Medicine received data

Name:	5.2 Medicine stock maintenance
Description:	Maintain the medicine stock data.
Inbound Data Flow:	Medicine received data
Outbound Data Flow:	Medicine data

Name:	5.3 Maintain suppliers information
Description:	Maintain the information of supplier.
Inbound Data Flow:	Information of medicine received
Outbound Data Flow:	Supplier data

**Level 1 – 1.0 Make appointment**

Name:	Confirmation
Description:	After the booking of appointment the system will prompt a message to confirm that booking is booked.
Data Structure:	Day off, Appointment

Name:	Checking
Description:	Check the appointment file to confirm the doctor is available or not.
Data Structure:	Staff ID, Date, Time

**Electronic Clinic**

Name:	Adding
Description:	Mark the time reserve to that patient.
Data Structure:	Staff ID, Date, Time, Patient ID

Name:	Old patient
Description:	Confirm the patient ID's existence.
Data Structure:	Patient ID.

Name:	New patient
Description:	Add the personnel detail of the new patient.
Data Structure:	Patient ID, Patient detail.

Name:	Add appointment
Description:	The Nurse in the detail of each appointment.
Data Structure:	Patient ID, Date, Time, Staff ID.

Name:	Check information
Description:	Check the doctor ID while making the appointment.
Data Structure:	Staff ID.

Name:	Adding Information
Description:	Add, delete or update information of the staff file.
Data Structure:	Staff ID, Staff detail.

Name:	Check available date
Description:	Check the day of the doctor's available.
Data Structure:	Staff ID, Date, Shift.

Name:	Check holiday
Description:	Check the appointment date is public holiday or not. No service
Data Structure:	Date.

### **Level 1 – 2.0 Consultation**

Name:	Old information
Description:	Retrieve the patient's diagnosis while doing consultation.
Data Structure:	Patient ID, Patient diagnosis.

Name:	New information
Description:	Update the patient's diagnosis after consultation.
Data Structure:	Patient ID, Patient diagnosis.

Name:	Current patient history
Description:	Hardcopy of patient medical history to the nurse
Data Structure:	Medical record.

Name:	New patient history
Description:	Nurse type in the new medical history after consultation.
Data Structure:	Medical record.

**Electronic Clinic**

Name:	Old record
Description:	Retrieve the last medical history of that patient while consultation.
Data Structure:	Medical record.

Name:	New record
Description:	Add the new medical history of that patient.
Data Structure:	Medical record.

Name:	Consultation done
Description:	Mark the appointment file after consultation done.
Data Structure:	Consultation Done.

Name:	Next appointment
Description:	Check the next appointment.
Data Structure:	Appointment data.

Name:	Patient ID
Description:	Check the Patient has any drug allergy.
Data Structure:	Drug allergy

Name:	Drug Allergy
Description:	Show the patient which drug has allergy
Data Structure:	Drug allergy

## Level 1 – 3.0 Make prescriptions

Name:	Check stock
Description:	Check the stock of each medicine while doctor issue. If out of stock, give a message.
Data Structure:	Medicine data.

Name:	Update stock
Description:	After doctor confirm to issue each medicine update the stock automatically.
Data Structure:	Medicine Stock.

Name:	Prescription
Description:	Add the medicine used data while doctor prescribe a medicine.
Data Structure:	Medicine Used Detail.

Name:	New record
Description:	Get the medical record after the consultation
Data Structure:	Medicine data

Name:	Resource used
Description:	Record what source the patient used
Data Structure:	Resource Used Detail.

## Level 1 – 4.0 Medicines Inventory Control

Name:	Updated medicine stock
Description:	Add, delete and update the information of medicine file.
Data Structure:	Medicine Detail, Stock.

Name:	Check medicine stock
Description:	Confirm the stock while the doctor issues each medicine.
Data Structure:	Medicine Detail, Stock.

Name:	Check purchased medicines
Description:	Check the reorder point of each medicine each period.
Data Structure:	Medicine Received Data.

Name:	Medicine received
Description:	After medicine received, update the medicine received file.
Data Structure:	Medicine Received Detail.

Name:	Resource used
Description:	Provide the detail of resource used.
Data Structure:	Resource used detail.

Name:	Existing suppliers
Description:	Provide the detail of the existing supplier.
Data Structure:	Supplier ID, Supplier Detail.

Name:	New suppliers
-------	---------------

**Electronic Clinic**

Description:	Add, delete & update the details of supplier.
Data Structure:	Supplier ID, Supplier Data.

Name:	Stock status
Description:	Print the report about the stock status of each medicine weekly.
Data Structure:	Medicine detail.

## Level 2 – 1.0 Make Appointment Data Flow

Name:	Request by Web
Description:	Patient requires to make an appointment.
Data Structure:	Patient

Name:	Confirmed message
Description:	After the booking of appointment the system will prompt a message to confirm that booking is
Data Structure:	Day off, Appointment

Name:	Accepted ID
Description:	Confirm the patient's existing.
Data Structure:	Patient Data.

Name:	Time table
Description:	Which timetable is combined with Day off of each doctor and booked appointment.
Data Structure:	Day off table, appointment.

## Level 2 – 2.0 Consultation Data Flow

**Electronic Clinic**

Name:	Old information of the patient
Description:	Retrieve the patient diagnosis.
Data Structure:	Patient ID, Patient Diagnosis.

Name:	Next patient in the appointment list
Description:	Check the next appointment.
Data Structure:	Appointment Data.

Name:	Diagnosis information of the patient
Description:	Ready to do the consultation.
Data Structure:	Appointment Data.

Name:	Fulfillment of mark
Description:	Mark the appointment file after consultation
Data Structure:	Consultation Done.

Name:	Update patient info after consultation
Description:	Update the patient diagnosis of after consultation.
Data Structure:	Patient ID, Patient Diagnosis.

Name:	Latest medical history
Description:	Retrieve the latest medical history of that patient
Data Structure:	Medical History.

Name:	Undated medical history
Description:	Add the new medical history of that patient.
Data Structure:	Medical History.

Name:	Drug Name
Description:	When in consultation, check the information
Data Structure:	Drug Allergy.

Name:	Patient Name
Description:	Check the patient about the drug allergy
Data Structure:	Drug Allergy.

Name:	Chronic Disease
Description:	When in consultation, check the information
Data Structure:	Medical record.

## Electronic Clinic

Name:	Info of drug allergy
Description:	When in consultation, check the information
Data Structure:	Drug allergy

Name:	Patient info
Description:	When in consultation, check the information
Data Structure:	Patient data

### Level 2 – 3.0 Make Prescription Data Flow

Name:	Prescription
Description:	Undate the new prescription for each patient
Data Structure:	Prescription medicines

Name:	Prescription
Description:	Pass the prescription in the next process
Data Structure:	Prescription medicines

Name:	New record
Description:	After the consultation record the patient condition
Data Structure:	Prescription medicines

Name:	Check stock
Description:	Check the stock of each medicine while doctor
Data Structure:	Medicine Data.

Name:	Undate stock
Description:	After doctor confirm to issue each medicine
Data Structure:	Medicine Stock.

Name:	Resource used
Description:	After the update & check medicines record pass
Data Structure:	Medicines stock

### Level 2 – 4.0 Medicines Inventory Control Data Flow

Name:	Check medicine in stock
Description:	Check the stock while the doctor issues each
Data Structure:	Medicine Data

**Electronic Clinic**

Name:	Update medicine received
Description:	After medicine received, update the medicine-
Data Structure:	Medicine Received Detail

Name:	Update medicine inventory
Description:	Add, delete and update the information of
Data Structure:	Medicine Detail

Name:	Check what medicine is received
Description:	Provide the medicine-received information to
Data Structure:	Medicine Received Data

Name:	Medicine stock report
Description:	Print the report about the stock status of each
Data Structure:	Medicine Detail.

Name:	Update suppliers information
Description:	Add, delete and update the details of suppliers.
Data Structure:	Supplier ID, Supplier Data.

Name:	Maintain suppliers information
Description:	Add, delete and update the details of supplier's
Data Structure:	Supplier ID, Supplier Data.

Name:	Medicine quantity
Description:	Provide the detail of medicine file to print the
Data Structure:	Medicine Detail.

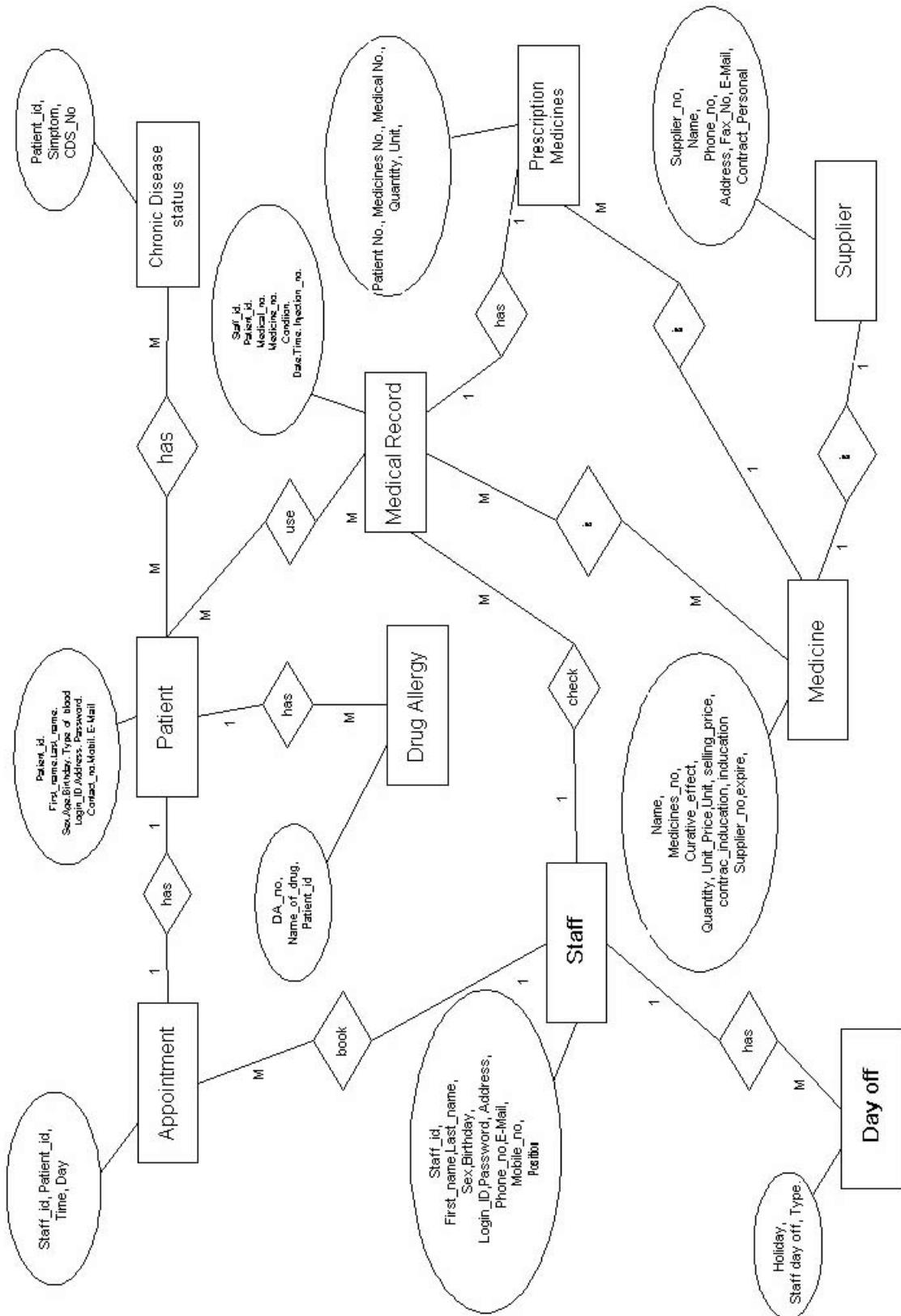
Name:	Retrieve suppliers information
Description:	Provide the detail of the existing supplier.
Data Structure:	Supplier ID, Supplier Detail.

Name:	Medicine stock report
Description:	Print the medicine stock report to the nurse to
Data Structure:	Medicine Detail.

Name:	Medicine stock report
Description:	Print the medicine stock report to the doctor for
Data Structure:	Medicine Detail.

## PART III – DATA ANALYSIS

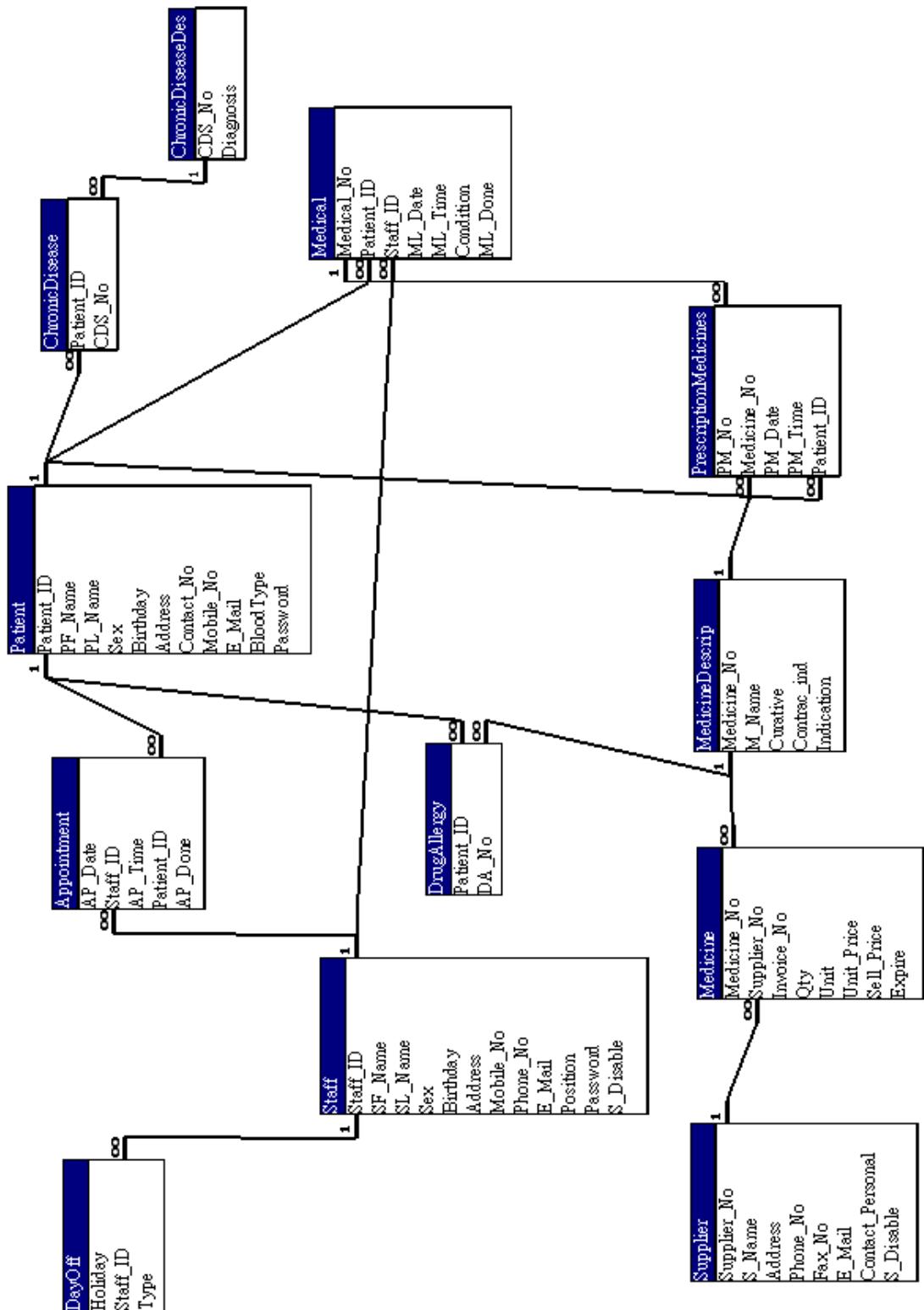
### Systems Analysis and Design of Clinic Management System





## Systems Analysis and Design of Clinic Management System

### ER Diagram



**Systems Analysis and Design of Clinic Management System****TABLE STRUCTURE****DayOff Table**

<b>Field</b>	<b>Type</b>	<b>Validation rules</b>
<b>Holiday</b>	Date/Tim	YYYYMMDD
<b>Type</b>	Char (1)	D/N/O/A/P
<b>Staff_ID</b>	Char (5)	Between D/N/O0001 and D/N/O9999

**Staff Table**

<b>Field</b>	<b>Type</b>	<b>Validation rules</b>
<b>Staff_ID</b>	Char (5)	Between D/N/O/A0001 and
SF_Name	Char (15)	
SL_Name	Char (15)	
Sex	Char (1)	M or F
Birthday	Date/Tim	YYYYMMDD
Address	Char (40)	
Mobile_No	Integer(1)	
Phone_No	Integer(1)	
E-mail	Char (30)	Should be in “@”
Position	Char (20)	
Password	Char (10)	Not Null
S_Disable	Boolean	T or F

**Appointment Table**

<b>Field</b>	<b>Type</b>	<b>Validation rules</b>
<b>AP_Date</b>	Date/Tim	YYYYMMDD
<b>AP_Time</b>	Date/Tim	HHMM
<b>Staff_ID</b>	Char (5)	Between D/N/O0001 and D/N/O9999 is Primary Key

Patient_ID	Char (8)	Between P0000001 and P9999999
AP_Done	Boolean	T or F

**Systems Analysis and Design of Clinic Management System****Supplier Table**

<b>Field</b>	<b>Type</b>	<b>Validation rules</b>
<b>Supplier_No</b>	Char (3)	Between S01
S_Name	Char (20)	
Phone_No	Integer(1)	
Address	Char (40)	
Fax_No	Integer(1)	
E_Mail	Char (30)	Should be in “@”
Contact_Pers	Char (20)	
S_Disable	Boolean	T or F

**PatientTable**

<b>Field</b>	<b>Type</b>	<b>Validation rules</b>
<b>Patient_ID</b>	Char (8)	Between P0000001 and
PF_Name	Char (15)	
PL_Name	Char (15)	
Sex	Char (1)	M or F
Birthday	Date/Tim	YYYYMMDD
Address	Char (40)	
Contact_No	Integer(1)	
Mobile_No	Integer(1)	
E_Mail	Char (30)	Should be in “@”
BloodType	Char (2)	A. A+. B. B+. AB. O. O+
Login_ID	Char (8)	
Password	Char (10)	Not Null

**Medicine Table**

<b>Field</b>	<b>Type</b>	<b>Validation rules</b>
Medicine_N	Char (8)	Between AAA00001 and
Invoice_No	Char(	Between AAA0001 and ZZZ0001
Otv	Integer	Between 001 and 999
Unit	Char (5)	PCS, DOZ, ML, C.C.
Unit_Price	Float	Between 0000.01 and 9999.99
Sell_Price	Float	Between 00000.1 and 99999.9
Supplier_No	Char (3)	Between S01 and S99
Expire	Date/Tim	YYYYMMDD

**Systems Analysis and Design of Clinic Management System****MedicineDescrip Table**

<b>Field</b>	<b>Type</b>	<b>Validation rules</b>
Medicine_N	Char (8)	Between AAA00001 and
M_Name	Char (30)	
Curative	Char (20)	
Contrac_ind	Memo	
Indication	Memo	

**Prescription Medicines Table**

<b>Field</b>	<b>Type</b>	<b>Validation rules</b>
PM_No	Char (8)	Between PM000001 and
Patient_ID	Char (8)	Between P0000001 and P9999999
Medicine_No	Char (8)	Between AAA00001 and ZZZ99999
Medical_No	Integer	Between 00000001 and 99999999 is
PM_Date	Date/Tim	YYYYMMDD
PM_Time	Date/Tim	HH:MM
Otv	Integer	Between 001 and 999
Unit	Char (5)	PCS, DOZ, ML, C.C.

**Chronic Disease Table**

<b>Field</b>	<b>Type</b>	<b>Validation rules</b>
<b>Patient_ID</b>	Char (8)	Between P0000001 and P9999999 is Primary Key
<b>CDS_No</b>	Char (8)	Between C0000001 and C9999999

**Chronic Disease Descrip Table**

<b>Field</b>	<b>Type</b>	<b>Validation rules</b>
<b>CDS_No</b>	Char (8)	Between C0000001 and
<b>Diagnosis</b>	Memo	

**Drug Allergy Table**

<b>Field</b>	<b>Type</b>	<b>Validation rules</b>
<b>Patient_ID</b>	Char (8)	Between P0000001 and P9999999 is Primary Key
<b>DA_No</b>	Char (8)	Between DA000001 and DA999999

## Systems Analysis and Design of Clinic Management System

### Medical Table

<b>Field</b>	<b>Type</b>	<b>Validation rules</b>
<b>Medical_No</b>	Integer	Between 00000001 and
Patient_ID	Char (8)	Between P0000001 and P9999999
Staff_ID	Char (5)	Between D/N/O0001 and D/N/O9999
ML_Date	Date/Tim	YYYYMMDD
ML_Time	Date/Tim	HHMM
Condition	Memo	
ML_Done	Boolean	T or F

## Chapter 3

### Business Objectives

#### **1- Add Doctor Info.**

The Doctor of Information Technology offers the research opportunity to extend knowledge of the discipline of information and communication technology and develops the attributes required to successfully identify, investigate and resolve problems and opportunities in today's IT industry.

#### **2- Add Patient Info.**

Information is an important part of the patient journey. It is central to the overall quality of each patient's experience of the NHS.

The NHS puts patients at the centre of service design and delivery. By providing good quality information, we can help to ensure that patients have greater power, protection and choice in key aspects of their healthcare.

#### **3- Surgical Operation.**

a medical procedure involving an incision with instruments; performed to repair damage or arrest disease in a living body; "they will schedule the operation as soon as an operating room is available"; "he died while undergoing surgery"

Definition: Operation is a synonym for surgery, meaning exactly the same thing in regards to surgery. An operation, or a surgical procedure, is when a trained physician opens the body to provide therapy or to repair a problem within the body.

The operating room is where surgery takes place, just as the term "post-operative" means the time immediately after surgery.

#### **4- Follow up Patient medical issues.**

How to effectively follow a patient's multiple medical problems?

How to effectively keep tabs on a patient's multiple medical problems? And how to do so without losing sight of the whole person?

The first question is the one I wrote about in a recent blog post. The second was the theme of many of the responses and also LinkedIn.

I love this second question; it's an issue that's always been of interest to me. Plus it's especially relevant in geriatrics, where we are constantly re-orienting our approach to problems based on what seems to be happening with the whole person. (Good PCPs do this too).

And it's an issue that good hospitalists think about too: several people brought up Bob Wachter's post from last fall, in which he noted how using EPIC's problem-based charting at UCSF's hospital was having the unintended effect of making it harder for all clinicians to understand what the heck was going on overall with the patient.

#### **5- Add Prescription**

A prescription (Rx) is a health-care programme that governs the plan of care for an individual patient and is implemented by a qualified practitioner. A qualified practitioner might be a physician, dentist, nurse practitioner, pharmacist, psychologist, or other health care providers. Prescriptions may include orders to be performed by a patient, caretaker, nurse, pharmacist, physician, other therapist, or by automated equipment, such as an intravenous infusion pump. Formerly, prescriptions often included detailed instructions regarding compounding of medications but as medications have increasingly become pre-packaged manufactured products, the term "prescription" now usually refers to an order that a pharmacist dispense and that a patient take certain medications. Prescriptions have legal implications, as they may indicate that the

prescriber takes responsibility for the clinical care of the patient and in particular for monitoring efficacy and safety. As medical practice has become increasingly complex, the scope of meaning of the term "prescription" has broadened to also include clinical assessments, laboratory tests, and imaging studies relevant to optimizing the safety or efficacy of medical treatment.

### **Format and definition**



Prescription symbol U+211E RPREScription TAKE (HTML: &#8478;)

Prescriptions may be entered into an electronic medical record system and transmitted electronically to a pharmacy. Alternatively, a prescription may be handwritten on preprinted prescription forms that are assembled into pads, or printed onto similar forms using a computer printer. The content of a prescription includes the name and address of the prescribing provider and any other legal requirement such as a registration number (e.g. DEA Number in the United States). Unique for each prescription is the name of the patient. In the United Kingdom and Ireland, the patient's name and address must also be recorded. Each prescription is dated and some jurisdictions may place a time limit on the prescription.[2] In the past, prescriptions contained instructions for the pharmacist to use for compounding the pharmaceutical product but most prescriptions now specify pharmaceutical products that were manufactured and require little or no preparation by the pharmacist.

Prescriptions also contain directions for the patient to follow when taking the drug. These directions are printed on the label of the pharmaceutical product.

R is a symbol meaning "prescription". It is sometimes transliterated as "Rx" or just "Rx". This symbol originated in medieval manuscripts as an abbreviation of the Late Latin verb *recipe*, the imperative form of *recipere*, "to take" or "take thus". Literally, the Latin word *recipe* means simply "Take...." and medieval prescriptions invariably began with the command to "take" certain materials and compound them in specified ways. Today, when a medical practitioner writes a prescription beginning with "R", he or she is completing the command.

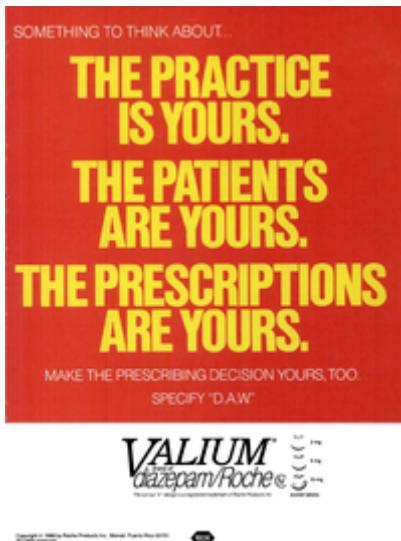
Folk theories about the origin of the symbol R note its similarity to the Eye of Horus, or to the ancient symbol for Zeus or Jupiter, (Ω), gods whose protection may have been sought in medical contexts.

The word "prescription", from "pre-" ("before") and "script" ("writing, written"), refers to the fact that the prescription is an order that must be written down before a compound drug can be prepared. Those within the industry will often call prescriptions simply "scripts."

The fact that a prescription instructs someone to "take" rather than "give" is not a trivial distinction, but makes clear it is directed at the patient, and is not directly an instruction to anyone else. In certain states medical marijuana legislation has been drafted calling for a health care professional's written or oral "recommendation", in the belief that a written one would be legally distinguishable from a prescription, but since written advice to a patient is what a prescription is, that belief is mistaken. Jurisdictions may adopt a statutory definition of "prescription" which is applicable as a term of art only to the operation of that statute (see below about prescriptions that may legally be filled with

prescription-only items), but the general legal definition of the word is this broad one.

## Contents



Drug companies use direct-to-prescriber advertising in an effort to convince prescribers to dispense as written with brand-name products rather than generic drugs.

Many brand name drugs have cheaper generic drug substitutes that are therapeutically and biochemically equivalent. Prescriptions will also contain instructions on whether the prescriber will allow the pharmacist to substitute a generic version of the drug. This instruction is communicated in a number of ways.

In some jurisdictions, the preprinted prescription contains two signature lines: one line has "dispense as written" printed underneath; the other line has "substitution permitted" underneath. Some have a preprinted box "dispense as written" for the prescriber to check off (but this is easily checked off by anyone with access to the prescription). Other jurisdictions the protocol is for the prescriber to handwrite one of the following phrases: "dispense as written", "DAW", "brand necessary", "do not substitute", "no substitution", "medically necessary", "do not interchange". In other jurisdictions may they use completely different

languages, never mind a different formula of words. In some jurisdictions, it may be a legal requirement to include the age of child on the prescription. For pediatric prescriptions some advise the inclusion of the age of the child if the patient is less than twelve and the age and months if less than five. (In general, including the age on the prescription is helpful.) Adding the weight of the child is also helpful.

Prescriptions often have a "label" box. When checked, the pharmacist is instructed to label the medication. When not checked, the patient only receives instructions for taking the medication and no information about the prescription itself.

Some prescribers further inform the patient and pharmacist by providing the indicator for the medication; i.e. what is being treated. This assists the pharmacist in checking for errors as many common medications can be used for multiple medical conditions.

Some prescriptions will specify whether and how many "repeats" or "refills" are allowed; that is whether the patient may obtain more of the same medication without getting a new prescription from the medical practitioner. Regulations may restrict some types of drugs from being refilled.

In group practices, the preprinted portion of the prescription may contain multiple prescribers' names. Prescribers typically circle themselves to indicate who is prescribing or there may be a checkbox next to their name.

## **Writing prescriptions**

Who can write prescriptions (that may legally be filled with prescription-only items)

Any jurisdiction that allows freedom of written communication generally must therefore allow anybody to write a prescription to

anybody, inasmuch as the prescription itself is just written advice. Therefore "who can write prescriptions" will be explained below as shorthand for "whose prescriptions may legally be filled with items restricted to dispensing via the order of certain persons."

National or local (i.e. state or provincial) legislation governs who can write a prescription. In North America, physicians (either M.D. or D.O.) have the broadest prescriptive authority. All 50 States and the District of Columbia allow licensed certified Physician Assistants (PAs) prescription authority (with some limitations to controlled substances). All 50 States allow registered certified nurse practitioners and other advanced practice registered nurses (such as certified nurse-midwives) prescription power (with some states including limitations to controlled substances). Many other healthcare professions also have prescriptive authority related to their area of practice. Veterinarians, dentists, and podiatrists have prescribing power in all 50 states and the District of Columbia. Clinical pharmacists are allowed to prescribe in some states through the use of a drug formulary or collaboration agreements. Florida Pharmacists can write prescriptions for a limited set of drugs. In all states, optometrists prescribe medications to treat certain eye diseases, and also issue spectacle and contact lens prescriptions for corrective eyewear. Several states have passed RxP legislation, allowing clinical psychologists (PhD's or PsyD's) who are registered as medical psychologists and have also undergone specialized training in script-writing to prescribe drugs to treat emotional and mental disorders. Physicians who practice chiropractic medicine may have the ability to write a prescription, depending on scope of practice laws in a jurisdiction.

## **Legibility**

Prescriptions, when handwritten, are notorious for being often illegible. In the US, medical practitioners' sloppy handwriting kills more than 7,000 people annually,[neutrality is disputed] according to a July 2006 report from the National Academies of Science's Institute of Medicine (IOM). Historically, physicians used Latin words and abbreviations to convey the entire prescription to the pharmacist. Today, many of the abbreviations are still widely used and must be understood to interpret prescriptions. At other times, even though some of the individual letters are illegible, the position of the legible letters and length of the word is sufficient to distinguish the medication based on the knowledge of the pharmacist. When in doubt, pharmacists call the medical practitioner. Some jurisdictions have legislated legible prescriptions (e.g. Florida). Some have advocated the elimination of handwritten prescriptions altogether and computer printed prescriptions are becoming increasingly common in some places.

## **Conventions for avoiding ambiguity**

Over the years, prescribers have developed many conventions for prescription-writing, with the goal of avoiding ambiguities or misinterpretation. These include:

Careful use of decimal points to avoid ambiguity :

O Avoiding unnecessary decimal points: a prescription will be written as 5 mL instead of 5.0 mL to avoid possible misinterpretation of 5.0 as 50.

O Always using zero prefix decimals: e.g. 0.5 instead of .5 to avoid misinterpretation of .5 as 5.

O Avoiding trailing zeros on decimals: e.g. 0.5 instead of .50 to avoid misinterpretation of .50 as 50.

- "mL" is used instead of "cc" or "cm<sup>3</sup>" even though they are technically equivalent to avoid misinterpretation of 'c' as '0' or the common medical abbreviation for "with" (the Latin "cum"), which is written as a 'c' with a bar above the letter. Further, cc could be misinterpreted as "c.c.", which is an uncommonly used abbreviation for "take with meals" (the Latin "cum cibo").

- Directions written out in full in English (although some common Latin abbreviations are listed below).

- Quantities given directly or implied by the frequency and duration of the directions.

- Where the directions are "as needed", the quantity should always be specified.

- Where possible, usage directions should specify times (7 am, 3 pm, 11 pm) rather than simply frequency (three times a day) and especially relationship to meals for orally consumed medication.

- The use of permanent ink.

- Avoiding units such as "teaspoons" or "tablespoons".

- Writing out numbers as words and numerals ("dispense #30 (thirty)") as in a bank draft or cheque.

- The use of apothecary/avoirdupois units and symbols of measure -- pints (O), ounces (ʒ), drams (ʒ), scruples (ʒ), grains (gr), and minims (ℳ) -- is discouraged given the potential for confusion. For example, the abbreviation for a grain ("gr") can be confused with the gram, abbreviated g, and the symbol for minims (ℳ), which looks almost identical to an 'm', can be confused with micrograms or metres. Also, the symbols for ounce (ʒ) and dram (ʒ) can easily be confused with the numeral '3', and the symbol for pint (O) can be easily read as a '0'. Given the potential for errors, metric equivalents should always be used.

- The use of the degree symbol ( $^{\circ}$ ), which is commonly used as an abbreviation for hours (e.g., "q 2-4 $^{\circ}$ " for every 2 – 4 hours), should not be used, since it can be confused with a '0'. Further, the use of the degree symbol for primary, secondary, and tertiary (1 $^{\circ}$ , 2 $^{\circ}$ , and 3 $^{\circ}$ ) is discouraged, since the former could be confused with quantities (i.e. 10, 20 and 30, respectively).

### **Abbreviations**

See list of abbreviations used in medical prescriptions. Many abbreviations are derived from Latin phrases. Hospital pharmacies have more abbreviations, some specific to the hospital. Different jurisdictions follow different conventions on what is abbreviated or not. Prescriptions that don't follow area conventions may be flagged as possible forgeries.

Some abbreviations which are ambiguous, or which in their written form might be confused with something else, are not recommended and should be avoided. These are included in a separate list in Appendix 1. However, all abbreviations carry an increased risk for confusion and misinterpretation and should be used cautiously.

### **6- Add Referral Letter.**

Adding Letters to the online recommendation

Note: The following only applies if you have not yet submitted your recommendation. Once submitted and received by the university, your recommendation can no longer be modified. You must contact the institution directly to make updates or additions.

If your online recommendation form has a page to enter a letter of recommendation, you may either:

- Manually type in a letter, or
- Upload the letter as a file from your computer (recommended)

Please note that if your online recommendation does not have a page for entering or uploading a letter of recommendation, then the school does not require or allow one.

### **Manually Entering Your Letter**

To manually enter your letter of recommendation, click on the link in the sentence, "If you wish to manually enter your essay, click here to access the text entry field", below the red Upload Essay button. Enter your text and click "Save" when you are finished.

There is a 40-minute time limit per page and your essay will NOT save properly if you do not complete it within the time allotment. Saving your work will upload your letter to the online recommendation as a final copy. If you want to edit your letter after you have saved, then you will have to delete the current letter and start over again .

Unless you can complete your recommendation within the 40 minute time limit, we strongly encourage you to compose your letter offline using a text editor program such as Microsoft Word and upload the final document.

### **Upload Your Letter**

To upload your letter, please follow the steps below:

1- Click on the Browse button, select the file you are uploading, and click on Open. The file name should appear in the textbox to the left of the Browse button.

2- Click on the Upload button to start the upload process.

3- Your letter will be sent to our document processing servers. A screen with the message, "We are currently processing your document. Thank you for your patience." will appear.

### **.▼ User Permissions.**

The new user permissions you can apply in Analytics let you have more discrete control over the access levels your users have. Rather than

the previous Administrator and User designations, Analytics now offers three different permissions that you can apply singly or in combination:

- **Manage Users:** Can manage account users (add/delete users, assign permissions). Does not include Edit, Collaborate, or View & Analyze.

- **Edit:** Can perform administrative and report-related functions (e.g., add/edit/delete accounts, properties, views, filters, goals, etc., but not manage users), and see report data. Includes Collaborate.

- **Collaborate:** Can create personal assets, and share them. Includes View & Analyze.

- **View & Analyze:** Can see report and configuration data; can manipulate data within reports (e.g., filter a table, add a secondary dimension, create a segment); can create personal assets, but cannot share them.

Parent permissions are inherited by default (account > property > view). For example, when you set permissions for a user at the account level, that user then has those same permissions for all the properties and views in that account.

Permissions set for a child supercede permissions set for the parent.

As you progress down the hierarchy, you can give more permissions, but not fewer, e.g., if a user has View permission at the account level, you can then also grantEdit permission at the property or view level; but if a user has Edit permission at the account level, you can't limit permission to just View at the property level.

You can assign user permissions at the account, property, and view levels. At any of those levels, simply click User Management.

To change permissions for an existing user, click the corresponding menu in the Permissions column.

Select the permission you want to add, or clear the permission you want to remove, then click Save.

To add permissions for a new user, enter the user's email address in the Add permissions for field, assign permissions via the menu, then click Add:

If you do not see the new permissions in your account yet, continue to use the previous designations of administrator and user.

## **8- Site Administration.**

Administrator rights are granted by the community at Requests for Adminship (RfA). The RfA process involves considerable discussion and examination of their activities as an editor. Users who are members of the 'sysop' user group have access to a number of tools to allow them to carry out certain functions on the wiki. The tools cover processes such as page deletion, page protection, blocking and unblocking, access to modify fully protected pages and the Mediawiki interface. Administrators also have the ability to grant and remove account creator, rollback, ipblock-exempt rights, confirmed user, auto-reviewer, and edit filter manager rights to other users, and to their own alternate accounts. Administrators are otherwise no different from any other editor.

Administrators are also known historically as "sysops" (system operators). The two terms are used interchangeably.

See Special>ListUsers/sysop for a list of users in this group.

### 1- Consultants.



is a professional who provides professional or expert advice in a particular area such as security (electronic or physical), management, accountancy, law (tax law, in particular), human resources, marketing (and public relations), finance, engineering, or any of many other specialized fields.

A consultant is usually an expert or a professional in a specific field and has a wide knowledge of the subject matter. The role of consultant outside the medical sphere (where the term is used specifically for a grade of doctor) can fall under one of two general categories:

- Internal Consultant - someone who operates within an organization but is available to be consulted on areas of specialism by other departments or individuals (acting as clients); or
- External Consultant - someone who is employed externally (either by a firm or some other agency) whose expertise is provided on a temporary basis, usually for a fee. As such this type of consultant generally engages with multiple and changing clients.

The overall impact of a consultant is that clients have access to deeper levels of expertise than would be feasible for them to retain in-house, and may purchase only as much service from the outside consultant as desired.

'Consultant' is also the term used to denote the most senior medical position in the United Kingdom, Australia and Ireland (e.g., a consultant surgeon).

## **2- Statistics.**



is the study of the collection, organization, analysis, interpretation and presentation of data. It deals with all aspects of data, including the planning of data collection in terms of the design of surveys and experiments.

The word statistics, when referring to the scientific discipline, is singular, as in "Statistics is an art." This should not be confused with the word statistic, referring to a quantity (such as mean or median) calculated from a set of data, whose plural is statistics ("this statistic seems wrong" or "these statistics are misleading.")

**3- Gallery**





**Chapter 4**  
**System Functionality**

***1. Main Menu***



**- Site News**



## 2. HotLinks

**إتحاد طلاب حاسبيات ومعلومات الرقاقي**

يمكنك مشاهدة صور العمليات الجراحية وملاحظة الفرق قبل وبعد العملية من خلال [عرض الصور](#).

**معرض الصور**

يمكنك مشاهدة صور العمليات الجراحية وملاحظة الفرق قبل وبعد العملية من خلال [عرض الصور](#).

**استشارة عاجلة**

الآن يمكنك التواصل والاستفسار [من هنا](#) وسوف يتم الرد باقصى سرعة ممكنه.

**تابعنا على**

يمكنك متابعتنا اون لاين من خلال موقع التواصل الاجتماعي .

Developed by Team Work .

جميع الحقوق © محفوظة لدى دكتور اون لاين .

## 3. Surgery Operations

اتصل بنا تسجيل الدخول

# Doctor.Online

doctor online

ابحث بالموقع

المريض التاريخ العلاجي

المعرض صور العمليات

الاستوديو فيديوهات العمليات

العمليات عن العمليات

الرئيسية الصفحة الرئيسية

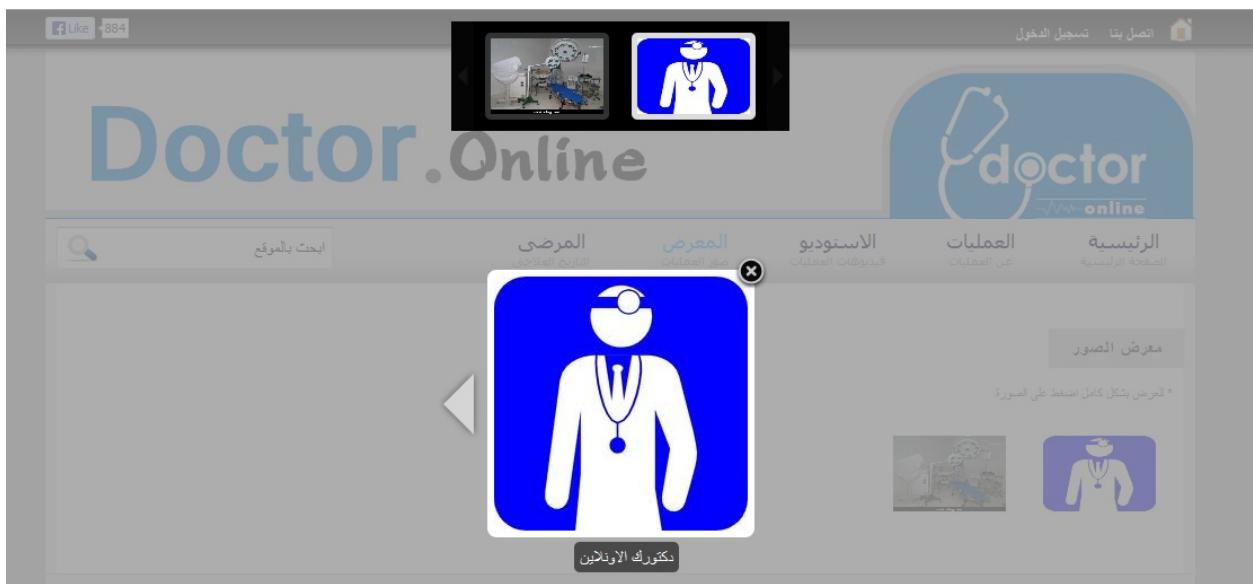
العمليات الجراحية

- هنا امتلة لبعض العمليات.

## 4. Videos



## 5. Photo Gallery



## 6. Search Engine



## 7. Register Patient



## 8. View patient info

اتصل بنا 

مرحبا بك : ابراهيم محمد محمود

\* من فضلك قم بمراجعة بيانات التخصية و البيانات العلاجية و التخفيضات  
في حالة وجود أي بيانات خاطئة أو أي استفسار من فضلك قم بالاتصال بنا من هنا

 <p>لا توجد صورة شخصية</p>	<b>العنوان</b> : كفر طلحة - مركز بنها - القليوبية <b>كود المريض</b> : 1000 <b>السن</b> : 26 سنة <b>تليفون المنزل</b> : لا يوجد <b>تليفون محمول</b> : 0164226306 <b>الوظيفة</b> : محاسب <b>الشکووى</b> : Special Pain One <b>.No</b> : <b>التشخيص النهائي</b> : Diagnosis One
---	--

[الوصفات العلاجية](#)      [الصور العلاجية](#)

## 9. k. Patient Photos

مرحبا بك : ابراهيم محمد محمود

الصور العلاجية

للعرض بشكل كامل اضغط على الصورة \*




## 10. k. Patient Prescriptions

The screenshot shows the homepage of Doctor.Online. At the top, there is a banner with the text "تم تسجيل الدخول بتاريخ 27-Apr-2013 تسجيل الخروج" and "مرحبا : hema". On the right, there is a "Print" button and a house icon. The main header is "Doctor.Online" with a "doctor online" logo. Below the header, there is a navigation menu with links: "ابحث بالموقع", "المرضى", "المعرض", "الاستوديو", "العمليات", and "الرئيسية". A search bar is also present. On the right side, there is a message "مرحبا بك : ابراهيم محمد محمود" and a link "الوصفات العلاجية". Below this, there is a table titled "الوصفات العلاجية" showing four rows of prescription details:

مسلسل	تاريخ الوصفة العلاجية	طباعة
1	3/5/2013	[Print]
2	19/03/2013	[Print]
3	19/03/2013	[Print]
4	19/03/2013	[Print]

## 11. Print Patient Prescription

The screenshot shows a sample patient prescription. At the top, it says "Dr Doctor's name example" and "Professor of some medicine field". Below this is a red stylized doctor logo. To the right, there is Arabic text: "دكتور هنا مثال لاسم الدكتور" and "هذا النزعة الطبية للدكتور". Further down, there is more Arabic text: "هذا بعض التفاصيل عن الدكتور هنا بعض التفاصيل عن الدكتور هنا بعض التفاصيل عن الدكتور هنا بعض التفاصيل عن الدكتور ،". The prescription details are listed in a table:

سن: 26	المن: ابراهيم محمد محمود	الأسم:
Diagnosis One	التاريخ: 19/04/2013	التاريخ:

Below the table, there is a signature "R/" and the text "مرئي يوميا". At the bottom, there are contact details: "Tel : 0550000000 Mob : 01000000000", "Mail : example@example.com", "Website : www.example.com", and a "Print" button.

--Back Office---System Admin-----1. Add Patient

**Add Customer**

**Personal Data**

Name :	<input type="text"/>	Age :	<input type="text"/>
Address :	<input type="text"/>	Phone No. :	<input type="text"/>
Mobile :	<input type="text"/>	Visite Date :	<input type="text"/>

Type :  Contract  Special  Charitable

**Medical Examination Data**

Sex : <input type="radio"/> Male <input checked="" type="radio"/> Female	Dominated Hand : <input type="radio"/> Right <input checked="" type="radio"/> Left
Type: Choose ...	Occupation : <input type="text"/>
Special Habits : <input type="text"/>	Complaint : <input type="text"/>
Examination : <input type="text"/>	Operative Finding : <input type="text"/>

2. -Edit , Delete patient

**Edit Customers Data** There is : 4 Customers

No.	Name	Code	Photo	Video	Prescription	Referral Letter	Print	Edit Data	Delete Data
1	ابراهيم محمد محمود	1000							
2	محمد عبد الفقار سيد أحمد	1001							
3	محمد احمد السيد	1002							
4	زنكي عبدالسلام	1003							

**3. -Add Patient photos**

Edit Customers Data      There is : 4 Customers

Search Keyword :  Search

ALL  Code  Name

No.	Name	Code	Photo	Video	Prescription	Referral Letter	Print	Edit Data	Delete Data
1	ابراهيم محمد محمود	1000							
2	محمد عبد الغفار سيد أحمد	1001							
3	محمد احمد السيد	1002							
4	زكي عبدالسلام	1003							

**4. Add patient videos**

Edit Customers Data      There is : 4 Customers

Search Keyword :  Search

ALL  Code  Name

No.	Name	Code	Photo	Video	Prescription	Referral Letter	Print	Edit Data	Delete Data
1	ابراهيم محمد محمود	1000							
2	محمد عبد الغفار سيد أحمد	1001							
3	محمد احمد السيد	1002							
4	زكي عبدالسلام	1003							

**5. Add prescriptions**

Edit Customers Data      There is : 4 Customers

Search Keyword :

ALL  Code  Name

No.	Name	Code	Photo	Video	Prescription	Referral Letter	Print	Edit Data	Delete Data
1	ابراهيم محمد محمود	1000							
2	محمد عبد الغفار سيد أحمد	1001							
3	محمد احمد السيد	1002							
4	زكى عبدالسلام	1003							

**6. Add referral letter**

Edit Customers Data      There is : 4 Customers

Search Keyword :

ALL  Code  Name

No.	Name	Code	Photo	Video	Prescription	Referral Letter	Print	Edit Data	Delete Data
1	ابراهيم محمد محمود	1000							
2	محمد عبد الغفار سيد أحمد	1001							
3	محمد احمد السيد	1002							
4	زكى عبدالسلام	1003							

**7. Print patient data**

Edit Customers Data      There is : 4 Customers

Search Keyword :

ALL  Code  Name

No.	Name	Code	Photo	Video	Prescription	Referral Letter	Print	Edit Data	Delete Data
1	ابراهيم محمد محمود	1000							
2	محمد عبد القفار سيد أحمد	1001							
3	محمد احمد السيد	1002							
4	نكمي عبدالسلام	1003							

**8. Edit Customer Photos**

Edit Customer Photos      Display Cutomer: ابراهيم محمد محمود Data

Photo :

Code :

No.	Photo Title	Display Photo	Edit Data	Delete Data
1	Photo One			

## **9. Edit Customer Videos**

Edit Customer Videos      Videos For Customer: ابراهيم محمد محمود

Customer Code : 1000      Search

No.	Video Title	Download Video	Edit Data	Delete Data
1	test	<a href="#">Download</a>		

## **10. Edit Referral Letter**

Edit Referral Letter      Prescription Reports for Customer: ابراهيم محمد محمود

Customer Code : 1000      Search

No.	Customer Code	Customer Name	Print	Edit	Delete Data
1	1000	ابراهيم محمد محمود			
2	1000	ابراهيم محمد محمود			

**11. Print Referral Letter**

<p>Dr <b>Doctor's name example</b></p> <p>Professor of some medicine field</p> <p>here is some deals about doctor here is some deals about doctor here is some deals about doctor here is some deals about doctor.</p>	 <p>دكتور <b>هذا مثال لاسم الدكتور</b></p> <p>هذا الدرجة العلمية للدكتور</p> <p>هذا بعض التفاصيل عن الدكتور هنا بعض التفاصيل عن الدكتور هنا بعض التفاصيل عن الدكتور هنا بعض التفاصيل عن الدكتور .</p>	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">سن: 26</td> <td style="width: 25%;">الاسم: ابراهيم محمد محمود</td> </tr> <tr> <td>Diagnosis One</td> <td>التاريخ: 3/15/2013</td> </tr> </table> <p style="text-align: center; margin-top: 20px;">السلام عليكم ورحمة الله وبركاته نرجو من سعادتكم قبول الحالة واتخاذ الإجراءات اللازمة د : اسم الدكتور</p>	سن: 26	الاسم: ابراهيم محمد محمود	Diagnosis One	التاريخ: 3/15/2013
سن: 26	الاسم: ابراهيم محمد محمود					
Diagnosis One	التاريخ: 3/15/2013					
<p>Tel : 0550000000 Mob : 01000000000 Mail : example@example.com Website : www.example.com</p> <p style="margin-top: 20px;"><b>Print</b></p>						

**12. Edit Prescriptions**

Edit Prescriptions		Prescription Reports for Customer: ابراهيم محمد محمود				
Customer Code :	<input type="text"/>	<b>Search</b>				
No.	Customer Name	Date	Print	Edit Data	Delete Data	
1	ابراهيم محمد محمود	19/04/2013				

### **13. View all patient Prescriptions**

All Cust. Prescriptions      Prescription Reports for Customer: ابراهيم محمد محمود

No.	Date	Name	Description
1	19/04/2013	22hh	مرتين يوميا

### **14. Add , Edit Medicine**

Add , Edit Medicine

Name :	<input type="text"/>		
Description :	<input type="text"/>		
<input type="button" value="Save"/> <input type="button" value="Reset"/>			
No.	Name	Edit Data	Delete Data
1	22hh		
2	22		

## 15. Add user with privilege

Add User

UserName:	<input type="text"/>	Permission:	<input type="text" value="Admin"/> 
Password:	<input type="password"/>	Confirm Password:	<input type="password"/>
Email:	<input type="text"/>	Confirm Email:	<input type="text"/>
Patient ID:	<input type="text"/>	Publish:	<input type="checkbox"/>

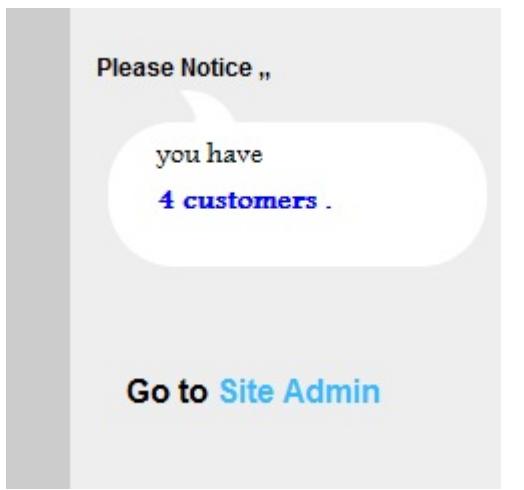
**Save**

## 16. Edit and delete users

Edit User      Number of Admin users : 1 user .

Permission :	<input type="text" value="Admin"/> 	<b>Search</b>	
No.	User Name	Edit Data	Delete Data
1	Admin		

## 17. System Statistics



----Back Office -----Site Admin-----

### 1. Add News

Add News

Picture:

Title (ar):

Brief (ar):

Title (en):

Brief (en):

Content (ar):

From the right side of the title input field, there is a red note in Arabic:

من قصلك تاكه من  
ان يكون الملف  
صورة ويطلول  
وعرض مناسبين

The rich text editor toolbar at the bottom includes icons for Source, Bold, Italic, Underline, ABC, x<sup>2</sup>, x<sup>3</sup>, etc., along with other standard editing tools.

## 2. Edit and Delete News

Edit News      3 News Exist

No.	Title (ar)	Title (en)	Edit Data	Options
1	وحدة الرعاية المصححة بالعيادة	وحدة الرعاية المصححة بالعيادة		
2	مع افضل وحدات الرعاية المصححة	مع افضل وحدات الرعاية المصححة		
3	اعلى الخبرات الطبية والتقنية العالمية	اعلى الخبرات الطبية والتقنية العالمية		

## 3. Add photo gallery

Add Photo

من فضلك تأكيد من  
أن تكون الملف  
صورة ويطوى  
وعرض مناسبين

Photo Path:

Photo Title (ar):  Photo Title (en):

Publish:

## 4. Edit and photo gallery

Edit Photos      There is: 2 Photo Album

No.	Photo Title	Edit Data	Delete Data
1	دكتورك الالكتروني		
2	وحدة الاشعة		

## 5. Add Videos

Add Video

Video Title:

Video URL:

Publish:

**Save**

## 6. Edit Videos

Edit Videos      There is: 2 Youtube Video

No.	Video Title	Edit Data	Delete Data
1	العيادة: قراءة التحاليل الطبية		
2	العيادة الطبية لمؤتمر الحوار الوطني تستقبل عشرات الحالات يومياً		

## 7. Check Consults

Check Consults

You have : 1 unneeded consults

All Consults

No.	Name	View Cons.	Options
1	محمد البهري		

## 8. Alarm For New Consult

Please Notice ,,

you have 3 news  
and 2 photos  
and 2 videos  
and 1 Consults .

And Notice ,,

you have 1 Consults not confirmed . [check now ?](#)

[Go to System Admin](#)

## 9. Site Statistics

Please Notice ,,

you have 3 news  
and 2 photos  
and 2 videos  
and 1 Consults .

And Notice ,,

you have 1 Consults not confirmed . [check now ?](#)

[Go to System Admin](#)



## Chapter 5

### Emergence of online doctoring

In the 2000s, many people came to treat the internet as a first, or at least a major, source of information and communication. Health advice is now the second-most popular topic, after pornography, that people search for on the internet. With the advent of broadband and videoconferencing, many individuals have turned to online doctors to receive online consultations and purchase prescription drugs. Use of this technology has many advantages for both the doctor and the patient, including cost savings, convenience, accessibility, and improved privacy and communication.

In the US, a 2006 study found that searching for information on prescription or over-the-counter drugs was the fifth most popular search topic, and a 2004 study found that 4% of Americans had purchased prescription medications online. A 2009 survey conducted by Geneva-based Health On the Net Foundation<sup>[7]</sup> found one-in-ten Europeans buys medicines from websites and one-third claim to use online consultation In Germany, approximately seven million people buy from mail-order pharmacies, and mail-order sales account for approximately 8–10% of total pharmaceutical sales In 2008, the Royal Pharmaceutical Society of Great Britain reported that approximately two million people in Great Britain were regularly purchasing pharmaceuticals online (both with a prescription from registered online UK doctors and without prescriptions from other websites) A recent survey commissioned by Pfizer, the Medicines and Healthcare products Regulatory Agency, RPSGB, the

Patients Association and HEART UK found that 15% of the British adults asked had bought a prescription-only medicine online.

In developed countries, many online doctors prescribe so-called 'lifestyle drugs', such as for weight loss, hair loss or erectile dysfunction. The RPSGB has identified the most popular products prescribed online as Prozac (an antidepressant), Viagra (for erectile dysfunction), Valium (a tranquiliser), Ritalin (a psychostimulant), Serostim (a synthetic growth hormone) and Provigil (a psychostimulant). A study in the USA has also shown that antibiotics are commonly available online without prescription.

### **Online healthcare system**

being more popular in Bangladesh. Digital health care service and drugs information is now the most fashionable theme that people search on the internet. Nowadays a growing number of specialist metropolitan doctors in Bangladesh are using internet to give immediate online health tips and advice in rural areas through the internet broadband and videoconferencing system, and alternatively many doctors to give satisfactory online prescription their patient by using email and online chat through health and medical website, portal, blog and forum. As a result, a physician can play a vital role in contribution medical health care system by using online digital technology.

### **Potential harm**

Traditionalist critics of online doctors argue that an online doctor cannot provide proper examinations or diagnosis either by email or video call. Such consultations, they argue, will always be dangerous, with the potential for serious disease to be missed. There are also concerns that the

absence of proximity leads to treatment by unqualified doctors or patients using false information to secure dangerous drugs.

Proponents argue there is little difference between an e-mail consultation and the sort of telephone assessment and advice that doctors regularly make out of hours or in circumstances where doctors cannot physically examine a patient (e.g., jungle medicine).

Laurence Buckman, chairman of the British Medical Association's GPs' committee, says that online consultations make life easier for doctors and patients when used properly. "Many GPs will be very happy with it and it could be useful. When it's a regular patient you know well, it follows on from telephone consulting. Voice is essential, vision is desirable. The problem comes when I don't know the patient". Niall Dickson, chief executive of the General Medical Council, says: "We trust doctors to use their judgement to decide whether they should see a patient in person. Online consultations will be appropriate for some patients, whereas other patients will need a physical examination or may benefit from seeing their doctor in person".

## Past and future developments

The first medical consulting website in the US was WebMD, founded in 1996 by Jim Clark (one of the founders of Netscape) and Pavan Nigam as Healthscape. Currently, its website carries information regarding health and health care, including a symptom checklist, pharmacy information, drug information, blogs of physicians with specific topics, and a place to store personal medical information. As of February 2011, WebMD's network of sites reaches an average of 86.4

million visitors per month and is the leading health portal in the United States.

Other popular US healthcare and medical consulting sites include NIH.gov, MSN Health, Yahoo! Health, EverydayHealth, WomensHealth.gov, and MayoClinic, and many have experienced dramatic growth. (Healthline, launched in 2005, grew by 269% to 2.7 million average monthly unique visitors in Q1 2007 from 0.8 million average monthly unique visitors in Q1 2006). Niche consulting sites are also popular including SeniorNet, which deals with age-related syndromes and 4collegewomen.org and GirlsHealth.gov, which target young women. Several American online doctor companies, including Teladoc, American Well, MeMD, and Ringadoc, provide consultations with doctors over the phone or the Internet. Prominent San Francisco-based venture capital firm Founders Fund called such services "extraordinarily fast" and predicted that they will "bring relief to thousands of people with immediate medical needs."

In the UK, e-med was the first online health site to offer both a diagnosis and prescriptions to patients over the Internet. It was established in March 2000 by Dr. Julian Eden, drawing on his experience as a doctor serving the world SCUBA and dive population. In 2011, e-med served 100,000 online patients. NHS Direct is the free health advice and information service provided by the National Health Service (NHS) for residents and visitors in the UK, with advice offered 24 hours a day via telephone and web contact. Over 1.5 million patients visit the website every month. More recently, a number of online doctors have emerged in the country, firms such as Dr Fox Pharmacy, DrThom, DoctorSpring and Lloyds Pharmacy offer consultation and prescriptions regularly via the Internet.

New advances in digital information technology mean that in future online doctors and healthcare websites may offer advanced scanning and diagnostic services over the internet. The Nuffield Council on Bioethics identifies such services as direct-to-consumer body imaging (such as CT and MRI scans) and personal genetic profiling for individual susceptibility to disease. Professor Sir Bruce Keogh, the medical director of the UK NHS, is drawing up plans to introduce online consultations via Skype and has said IT will "completely change the way [doctors] deliver medicine."

## References

1. Are online doctors the best medicine?, *USA Today*, 20th November 2010
2. Medical profiling and online medicine: the ethics of 'personalised healthcare' in a consumer age Report, *Nuffield Council on Bioethics*, October 2010
3. Nuffield p.VIII
4. " House call - No appointments, no waiting, speedy diagnosis and prescription - online doctors are flourishing. But are they safe?, *The Guardian*, 4th June 2000
5. Buying Drugs Online: It's Convenient and Private, But Beware of 'Rogue Sites'*Food and Drug Administration*, U.S. Department of Agriculture, 2001
6. Online health search S. Fox, 2006. Prescription drugs online S. Fox, 2004
7. [www.hon.ch]
8. Online Patient Safety Climate Survey: Tool Development and Lessons Learned, Lynne M. Connelly and Judy L. Powers, U.S. *National Library of Medicine National Institutes of Health*
9. Mail-order trade in medicines in Europe: a guide for legislators to protect consumers, NJ Seeberg-Elverfeldt *European Journal of Health Law* 16: 351–66, 2009
10. Millions risk health buying drugs online *Royal Pharmaceutical Society of Great Britain*, 2008
11. Get Real, Get a Prescription' campaign *Royal Pharmaceutical Society of Great Britain*, 2009

12. **Medicalisation: The role of e-pharmacies in iatrogenic harm,**  
**N. Glover-Thomas and J. Fanning, *Medical Law Review* 18(1): 28–55, 2010**
13. **RPSGB p.12**
14. **Availability of antibiotics for purchase without a prescription on the internet, AG Mainous , CJ Everett , RE Post, VA Diaz and WJ Hueston, *Annals of Family Medicine* 7(5): 431–5, 2009**
15. **Consulting Online *Financial Times*, 1st September 2000**
16. **Are Online Doctors The Best Medicine?, *USA Today* quoting Roland Goertz of the American Academy of Family Physicians, 20th November, 2010**
17. **USA Today**
18. **Online doctor put patients at risk, hearing told *The Guardian*, 3rd February, 2007**
19. **The doctor will see you now . . . over the internet *The Times* quoting Professor Sir Bruce Keogh, NHS Medical Director, 29th August 2011**
20. **<sup>a b c</sup> The Times**
21. **Corporate History History of WebMD**
22. **History of WebMD**
23. **comScore Media Metrix rating *Web 3.0 & Online Health*, comScore Media Metrix rating 2011**
24. **comScore Media Metrix**
25. ***TechCrunch*, retrieved 22nd June 2012**
26. **GP treats patients 'over the internet' *BBC*, 23rd July, 2000**
27. **British websites are pushing boundaries of online medicine 'USA Today', 8th July 2011**
28. **History of NHS Direct *NHS Direct*, retrieved 14th January 2009**
29. **Nuffield p.22**