

OpenEHS

Systems and Software Requirements Specification

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Project Managers: Matthew Kimber & Austyn Mahoney

Team: Dahln Farnes, Cameron Harp, Peter Lister, JD Russell, Kevin Russon, Brian Sneddon

Sponsor: Prof. Richard Fry

Client: Korle Bu Teaching Hospital & Martin Luther King Memorial Clinic

Website: <http://kaizen.matthewkimber.com/>

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Preface

The purpose of this document is to define the functional and non-functional requirements associated with the details and behavior of the proposed software system. It will explain the processing and performance of the system as well as help in refining requirements as requested by stakeholders and potential users.

Version History

Date	Description	Author(s)
8-Jan-2011	Initial manual merge of the two SSRS documents.	JD Russell
9-Jan-2011	Added some formatting and table of contents.	Matthew Kimber
16-Jan-2011	Made changes to glossary and use cases	Austyn Mahoney
19-Jan-2011	Added and edited use cases	Austyn Mahoney
22-Jan-2011	Renumbered use cases and added diagrams.	Matthew Kimber & JD Russell
24-Jan-2011	Cleaned up the document for final approval.	Matthew Kimber

Introduction

Korle Bu Teaching Hospital is a large medical facility in Ghana, Africa. The hospital is comprised of several buildings spread across a large campus. Currently, their medical records are tracked using logbooks and paper charts, which are stored in a central records facility.

The Martin Luther King Memorial Clinic is a small medical practice located in Ghana, Africa. The staff there is currently using paper processes to manage all their information. They are currently storing and tracking most of their medical and administrative information in paper formats as well.

In both cases the current paper systems lead to many inefficiencies and errors. In many cases this affects the quality of patient care that both facilities are able to offer. For this reason a software system has been commissioned to help improve the efficiency and accuracy of the staff and raise the quality of service for patients in both facilities. The goal of this project is to develop a solution that can be used at both locations and possibly other medical facilities in the future. The proposed Electronic Healthcare System (EHS) will be composed of the functional and non-functional requirements specified within this document. Requirements for the EHS have been derived from the initial customer request and may require further expansion as more requirements of the system are discovered.

In order to accommodate the transition that must take place from a paper record to an EHS, there are two parts of the proposed system. The first part of the proposed system will allow for more efficient tracking of existing paper records. And the second half will allow for the capture of health information such as vital statistics, allergies, general notes, and diagnoses per patient. The system will also be capable of generating reports that provide facility administration and governmental organizations with statistical data relating to hospital and clinic operations. Both facilities can benefit from an increase in operational efficiency, which will allow staff to focus more on the care of patients and less on the manual work involved in keeping physical records.

System Requirements Specification

Functional Requirements

1. The system shall provide a user interface for physicians, nurses, and other staff members.
2. The system shall allow new patients to be added to the system.
3. The system shall allow a patient's personal information to be edited.
4. The system shall allow a patient to be removed from the system only by a physician.
5. The system shall permit the receptionist to print a new patient information sheet for the patient to fill out personal information and previous medical history.
6. The system shall allow data entry of the information given to the receptionist by the patient via the patient information sheet.
7. The system shall permit the receptionist to check-in a patient upon arrival to a specific department.
8. The system shall permit the receptionist to maintain patient information at check in.
9. The system shall allow nurses to record the vitals of a patient.
10. The system shall have the ability to record a patient's medical history.
11. The system shall allow a physician to review a patient's medical history.
12. The system shall allow a physician to add information to a patient's medical history.
13. The system shall allow a physician to edit information in a patient's medical history.
14. The system shall allow a physician to remove information from a patient's medical history.
15. The system shall allow physicians to record diagnoses of patients.
16. The system shall allow physicians to record notes regarding a patient.
17. The system shall allow physicians to prescribe medication for a patient.
18. The system shall allow the staff to pull up prescription orders for a patient.

19. The system shall allow a staff member to accept payments for services provided to a patient.
20. The system shall allow a staff member to accept payments for medication sold to a patient.
21. The system shall allow a staff member to accept payments for supplies (i.e. bandages, etc.).
22. The system shall track pharmacy inventory.
23. The system shall track supply inventory.
24. The system shall have the ability to generate and print reports on pharmacy inventory.
25. The system shall have the ability to generate and print reports on supplies inventory.
26. The system shall have the ability to automatically generate weekly pharmacy inventory reports.
27. The system shall have the ability to automatically generate weekly clinical supply inventory reports.
28. The system shall allow for the generation of clinical activity reports.
29. The system shall allow for the generation of clinical income reports.
30. The system shall have the ability to automatically generate weekly activity reports.
31. The system shall have the ability to automatically generate weekly income reports.
32. The system shall have the ability to check patient records out to a specific location.
33. A staff member merges two patient records.

Non-Functional Requirements

1. The system shall support different security roles and permissions for the physicians, nurses, and clerical staff.
2. The system shall be designed as an *n-tier* architecture for scalability.
3. The system shall have a *database* that will be used for information storage.

4. The system shall provide a server used to store *binaries* and related data.
5. The system shall be reliable; crashes and critical errors will be rare or non-existent.
6. The system shall be easy for non-technical users to learn and use.
7. The system shall respond quickly, without *lag*.
8. The system shall have measures for ensuring data integrity in the case of *environmental* or *hardware failures*.
9. The system shall be designed to work in a networked environment of at least two computers.
10. The system shall have the ability to scale up to at least 10 *client computers*.
11. The system shall be compatible with an *operating system* of Windows XP or greater.
12. The system shall create a *backup* each day.
13. The system shall be capable of retrieving data via laser scanner.

Glossary of Terms

Client Computer: A computer connected to the *server*. This computer allows staff to access the software and interact with the data stored on the *server*.

Communication (System Architecture): This is the module that handles the communication between the *server* and the *client computers*.

Data (System Architecture): This is the module that allows for the retrieval and storage of data entered by users. The main purpose of this piece of the *system architecture* is to interact with the *database*.

Database: A software system for efficient data management on a computer.

Domain (System Architecture): This is the module that defines the problem and the associated elements. An example of this would be the idea of a *patient* or *prescription*.

N-Tier: A system for developing software that divides up the aspects of the system among: data access, server processing, and presentation.

Operational Management (System Architecture): This is the module that records important information about the system. This system is useful when troubleshooting problems within the software.

Presentation (System Architecture): This is the module of the software that allows a user to visually interact and manipulate the stored data.

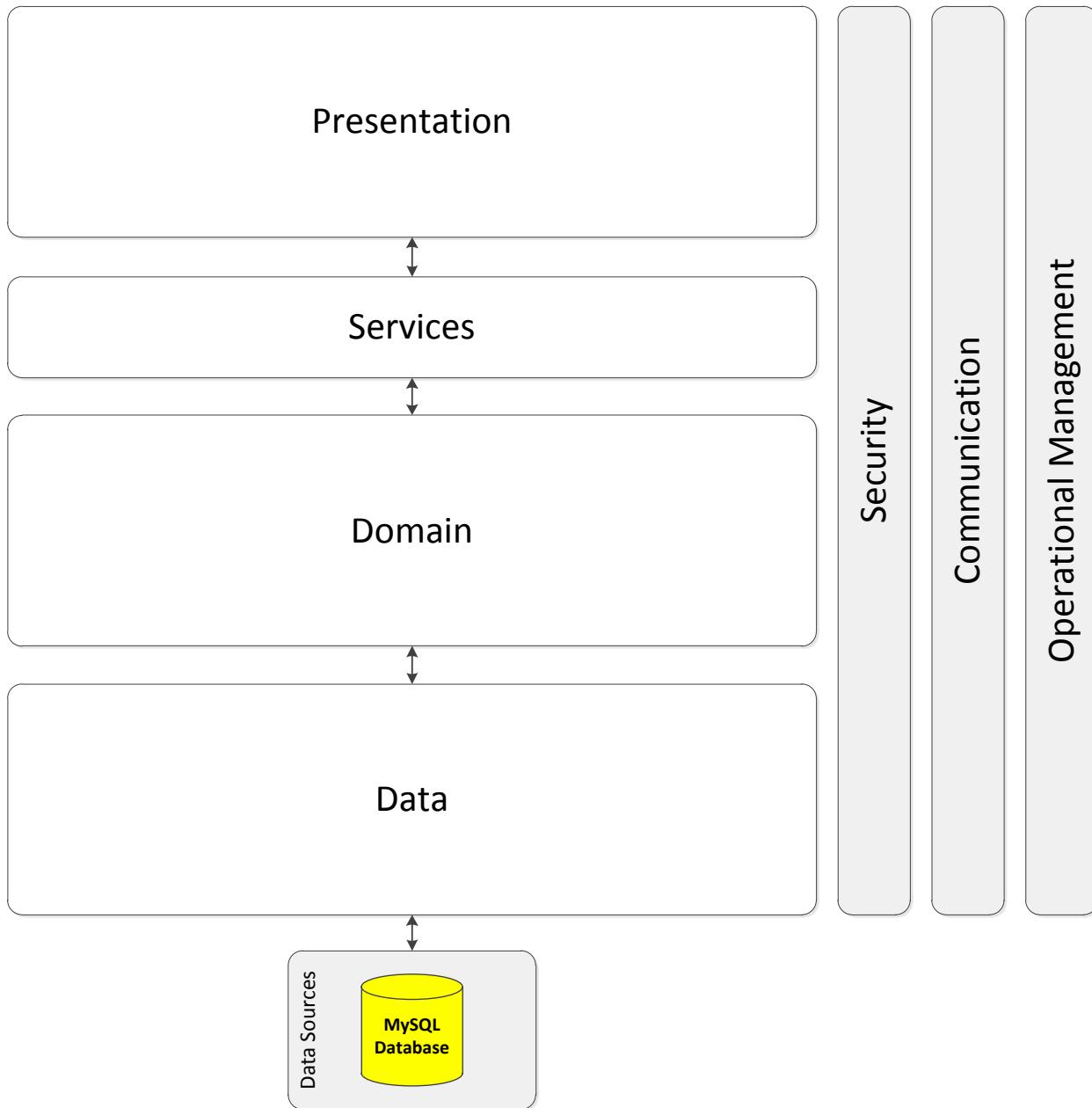
Security (System Architecture): This is the module that performs security checks on user access. For instance a *receptionist* or *clerk* may not be able to see the data a *physician* can see within the system.

Server: A central computer that stores data and performs computing over a networked connection.

Software: Computer programs that perform specific functions.

System: The software to be developed and all of its associated parts.

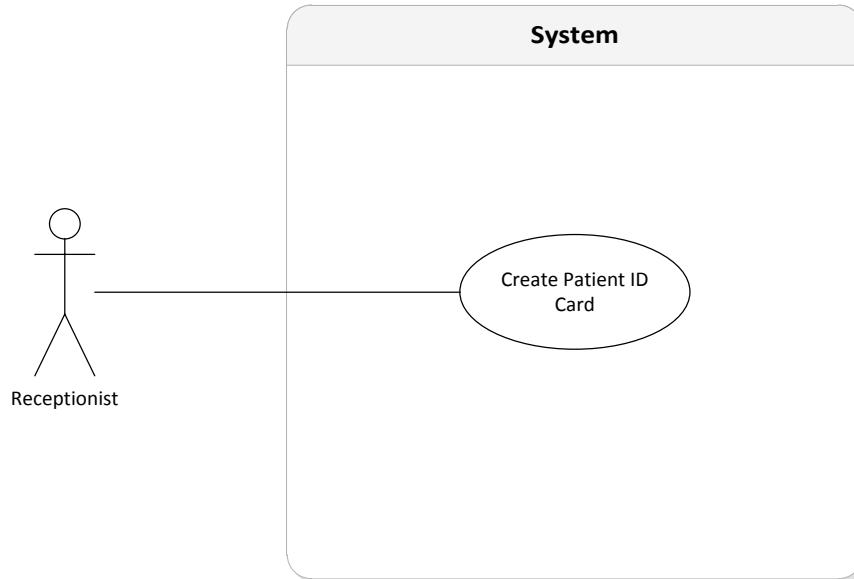
System Architecture



Use Cases

UC-01 - Create Patient ID Card

During the creation of a new patient or for a returning patient an identification card is generated from the given information and presented to the patient. This card serves as an identifier for quick look-up of patient information and speeds up the process of check-in.



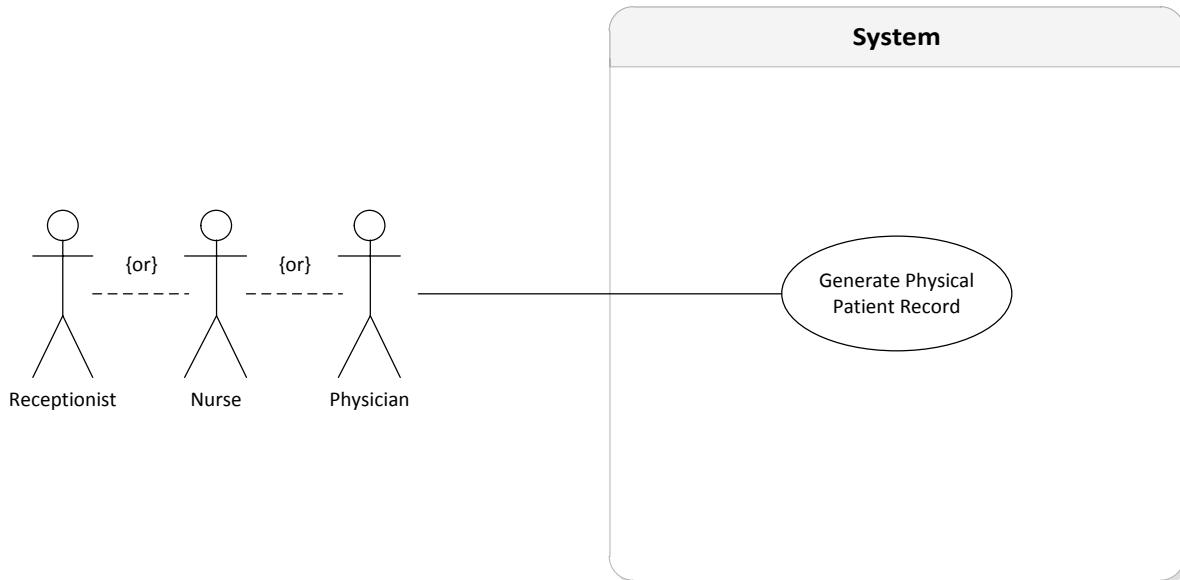
Identifier	UC-01
Description	Process to create a patient ID card.
Actor(s)	Receptionist
Preconditions	Patient does not have current ID card. (Either patient is newly registered or patient lost ID card.)
Flow of Events	<ol style="list-style-type: none"> 1. The staff member selects print patient ID card. 2. The card is printed. 3. The staff member gives the patient the new ID card.

Post Conditions

Patient now has ID card.

UC-02 - Generate Physical Patient Record

For certain purposes the facility would like to keep a physical copy of the patient's chart or record. A receptionist, nurse, or physician can produce this record while viewing the patient's information.

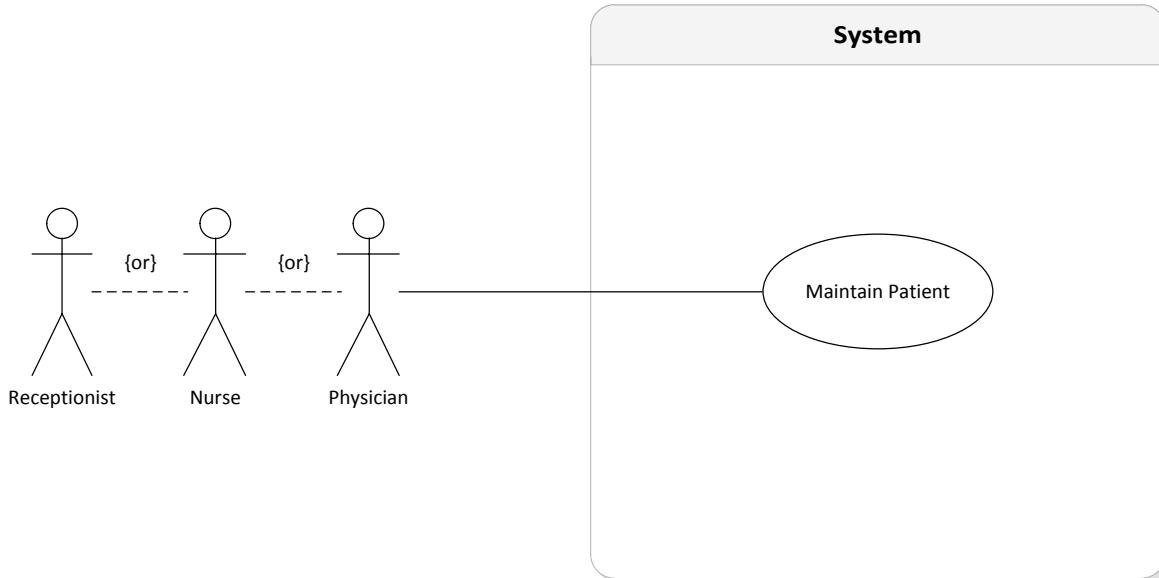


Identifier	UC-02
Description	Process to generate a physical copy of a patient record.
Actor(s)	Receptionist, Nurse, Physician
Preconditions	A digital record exists in the system for the patient
Flow of Events	<ol style="list-style-type: none"> 1. The user searches for an existing patient record. 2. The user selects to print a physical copy of the record. 3. A physical copy is printed with a date/time stamp to identify how recent the physical copy is.

Post Conditions	A physical copy of the patient record is created.
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UC-03 - Maintain Patient

For a patient to be treated in the hospital they must have an accurate patient record. When a patient is seen for the first time a staff member must create a record. For subsequent visits, information needs to be updated in order to maintain an accurate record.

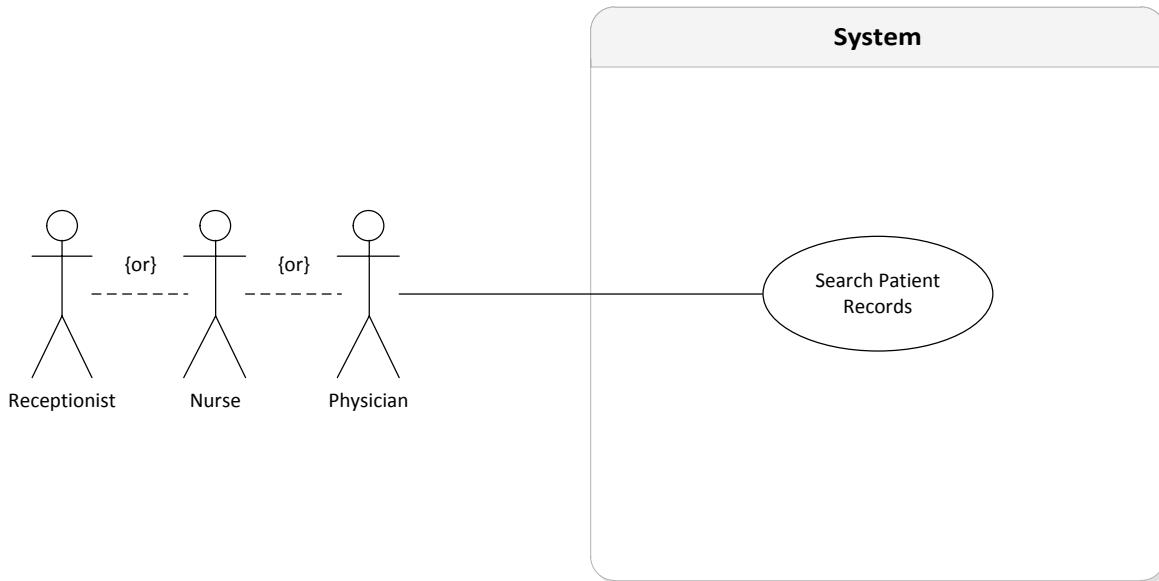


Identifier	UC-03
Description	Process to register a new patient or update an existing patient.
Actor(s)	Receptionist, Nurse, Physician
Preconditions	N/A
Flow of Events	<ol style="list-style-type: none"> 1. Staff member searches to see if patient already has record in system. 2. Staff member selects record to modify. 3. Staff member enters patient's information.
Alternative Flow –	2a. Staff member selects option to add new record.

New Patient	
Alternative Flow - Delete Patient	<p>3a. Physician or administrator selects option to deactivate patient record.</p> <p>3b. User is prompted to confirm action.</p> <p>3c. Patient is marked inactive in the system.</p>
Post Conditions	The patient has an up to date record in the system.

UC-04 – Search Patient Records

The receptionist or another staff member needs to search the system for a particular patient. This can be done using various data provided by a potentially existent patient.



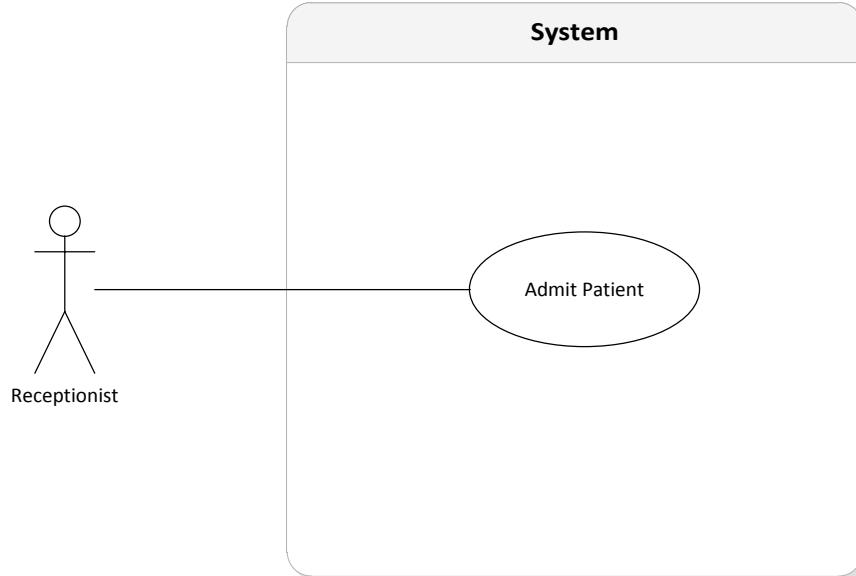
Identifier	UC-04
Description	A staff member searches for a patient based on previously provided demographic information.
Actor(s)	Receptionist, Nurse, Physician
Preconditions	N/A
Flow of Events	<ol style="list-style-type: none"> 1. Staff member enters search criteria into the system. 2. Staff member is returned a set of results based on search criteria. 3. Staff member identifies correct result from result set.
Alternate Flow	<ol style="list-style-type: none"> 1a. Staff member scans patient's bar code.

Post Conditions

The system will provide the user with zero to many results based on the search criteria.

UC-05 - Admit Patient

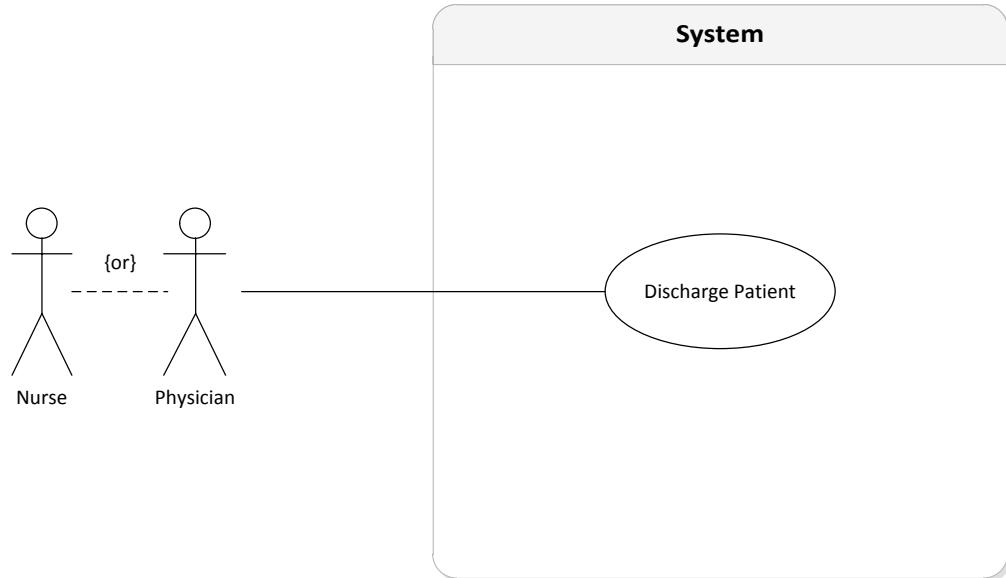
This is the process by which a patient is admitted to the facility for care.



Identifier	UC-05
Description	Collect and enter information about a patient being checked into the facility for care.
Actor(s)	Receptionist
Preconditions	N/A
Flow of Events	<ol style="list-style-type: none"> 1. Staff member completes UC-04 to find patient record. 2. Staff member records information about specific admission.
Alternative Flow	<ol style="list-style-type: none"> 1a. Staff member completes UC-03 to maintain a patient record.
Post Conditions	Patient is admitted to the facility.

UC-06 - Discharge Patient

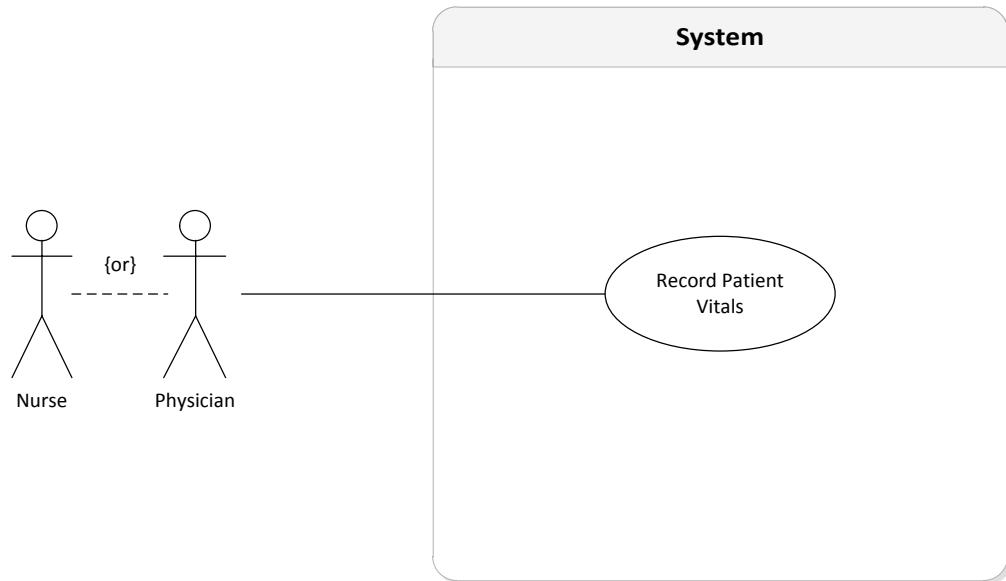
Care has been provided and the patient is to leave the facility.



Identifier	UC-06
Description	Patient is checked out of the facility.
Actor(s)	Nurse, Physician
Preconditions	Patient has been checked in.
Flow of Events	<ol style="list-style-type: none"> 1. Staff uses UC-04 to look up patient. 2. Staff records discharge information.
Post Conditions	Patient encounter is closed and discharge information is recorded.

UC-07 - Record Patient Vitals

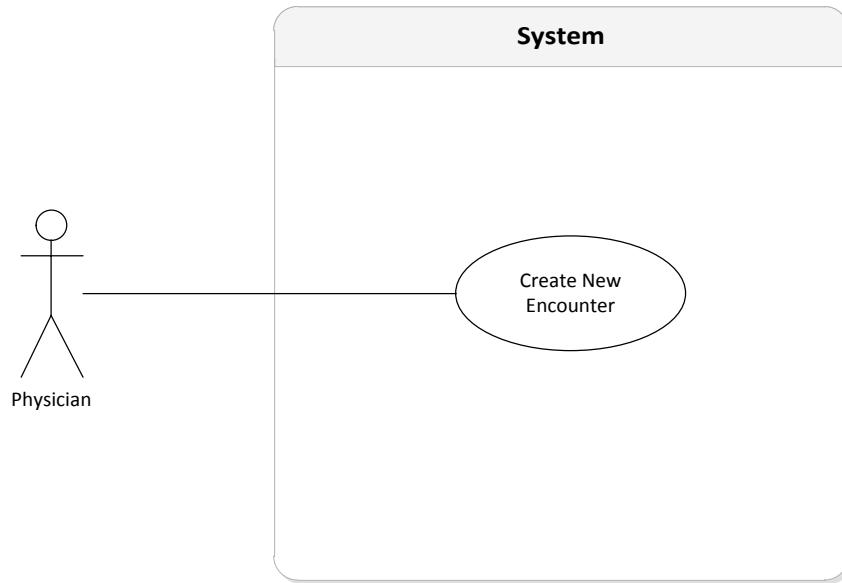
During a patient's stay at the facility a staff member will record their vitals initially and then on a regular basis.



Identifier	UC-07
Description	Process to take patient's vitals.
Actor(s)	Nurse, Physician
Preconditions	Patient is checked in.
Flow of Events	<ol style="list-style-type: none"> 1. Nurse takes all required vitals from the patient. 2. Nurse records vitals into the patient's record.
Post Conditions	Patient's vitals are associated with encounter.

UC-08 - Create New Encounter

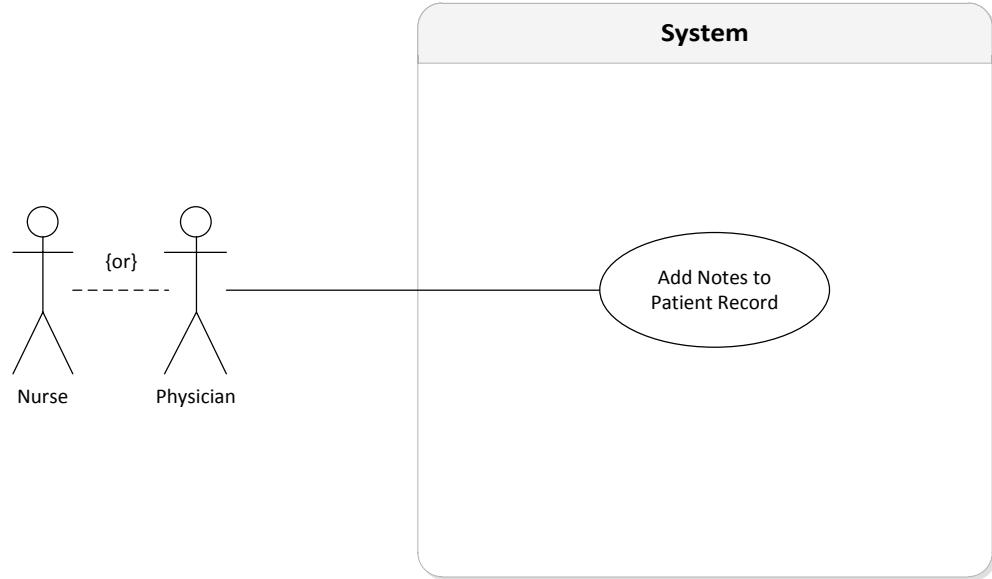
Each time the physician performs a significant visit with the patient he or she will create an encounter to record their impressions, take notes, perform diagnoses, and issue orders for the nursing staff.



Identifier	UC-08
Description	Process for adding an encounter to a patient.
Actor(s)	Physician
Preconditions	The patient must have a record in the system.
Flow of Events	<ol style="list-style-type: none"> 1. User searches for the patient's record. 2. User selects option to add an encounter for the patient. 3. User fills out information about the encounter and saves the record
Post Conditions	The patient record reflects the details from the newly inserted encounter

UC-09 - Add Notes to Patient Record

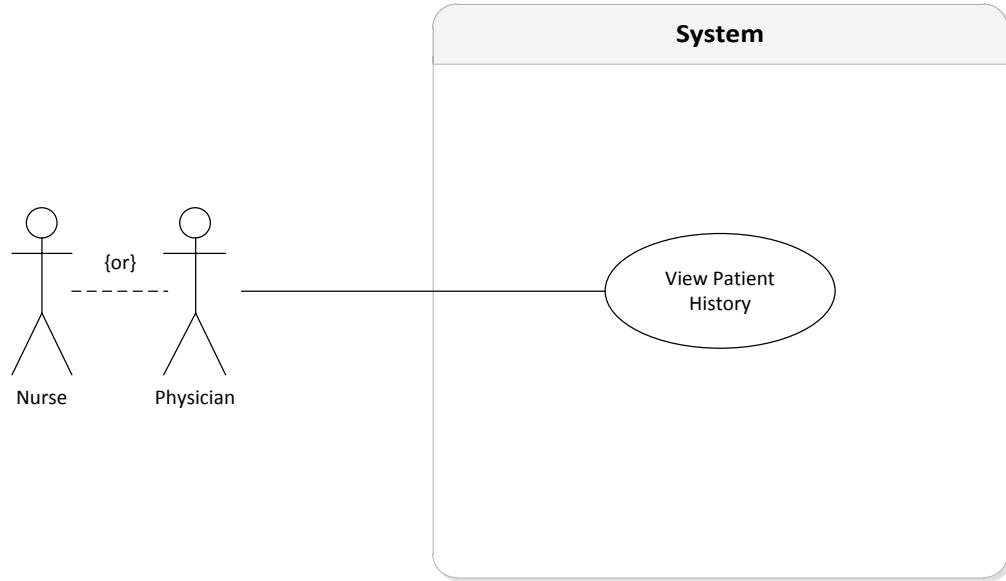
During an encounter between either a physician or a nurse and a patient notes may be taken in free form.



Identifier	UC-09
Description	Process to view and input clinical information into patient record.
Actor(s)	Nurse, Physician
Preconditions	Patient has been checked in.
Flow of Events	<ol style="list-style-type: none"> 1. Physician/nurse selects patient using UC-06. 2. Physician/nurse inputs clinical notes in free text form. 3. Physician/nurse saves clinical note.
Post Conditions	Patient record has clinical note associated with patient encounter.

UC-10 - View Patient History

A physician or nurse may view the patient's recorded medical history. This information would include past encounters and related notes, vital signs, and possibly symptoms.



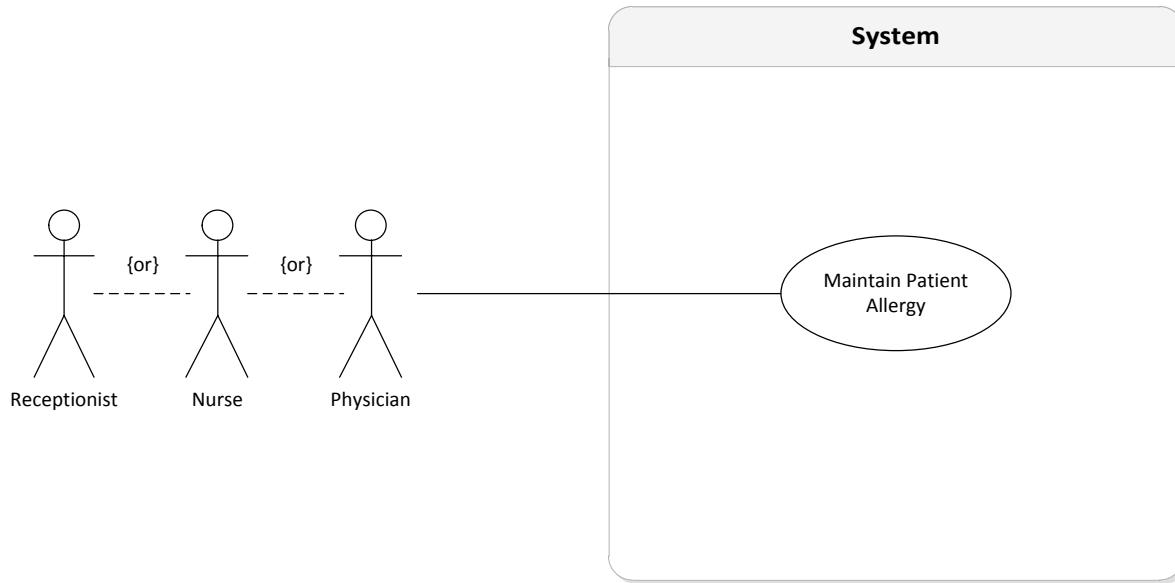
Identifier	UC-10
Description	Process by which medical staff views patient's historical clinical information.
Actor(s)	Nurse, Physician
Preconditions	Patient has record. Patient has medical history.
Flow of Events	<ol style="list-style-type: none"> 1. Physician/nurse selects patient using UC-04. 2. Physician/nurse is shown list of previous medical information including its date and type. 3. Physician/nurse selects which information they wish to view.

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	4. Physician/nurse is shown clinical information.
Post Conditions	N/A

UC-11 - Maintain Patient Allergy

During the first encounter, and possibly subsequent encounters, a staff member will interview the patient asking if there are any allergies to be concerned about. If there are allergies they will be recorded and attached to the patient's medical record.



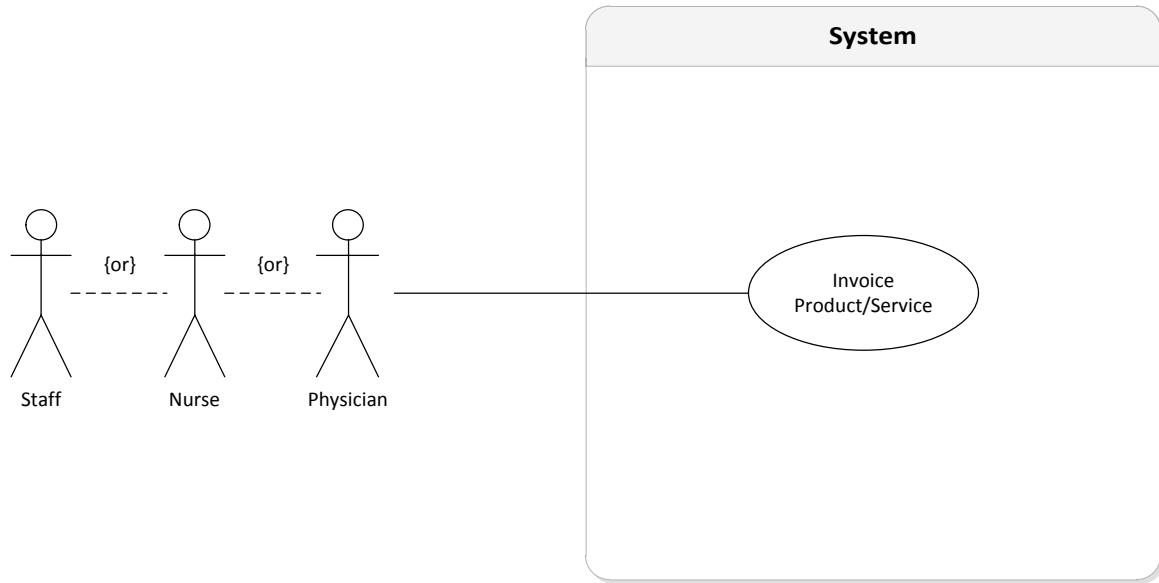
Identifier	UC-11
Description	Process to add or update an allergy on the patient's record.
Actor(s)	Receptionist, Nurse, Physician
Preconditions	Patient has been checked in.
Flow of Events	<ol style="list-style-type: none"> 1. Open the patient record 2. Identify any allergies the patient has 3. Ensure that the allergy is not already listed on the patient record 4. Verify if other existing allergies are still relevant to the patient 5. Add new allergies to the patient record by selecting option and entering

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	information about the patient's allergy
Post Conditions	The patient's allergies are linked to the patient record

UC-12 – Invoice Product/Service

As products and services are provided to patient they will be recorded against the patient's account.

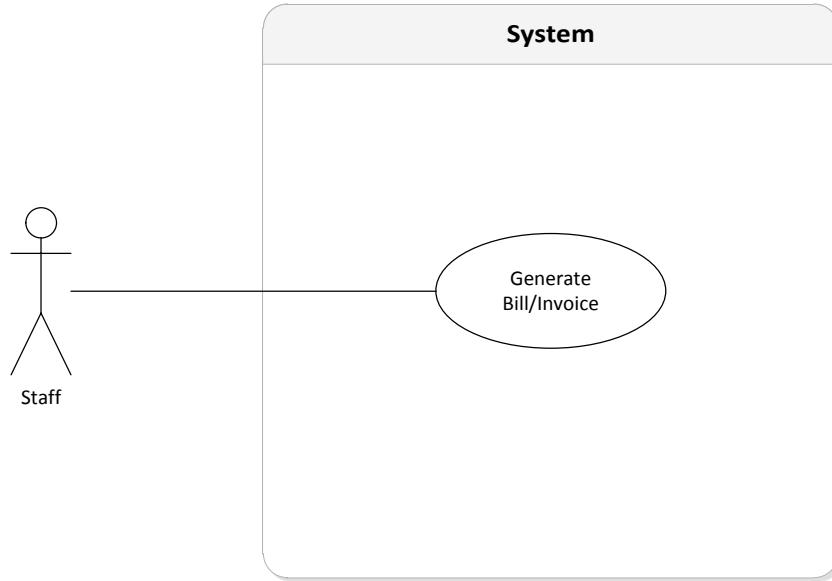


Identifier	UC-12
Description	Process to charge a patient for products and services.
Actor(s)	Staff, Nurse, Physician
Preconditions	Patient is checked in.
Flow of Events	<ol style="list-style-type: none"> 1. Staff/Nurse/Physician selects patient using UC-04. 2. Staff/Nurse/Physician searches for supply or service in database. 3. Staff/Nurse/Physician selects service or supply to add to patient's bill. 4. Staff/Nurse/Physician enters quantity to apply to patient's bill. 5. Staff/Nurse/Physician saves transaction.

Post Conditions	Item or service is recorded on patient's bill.
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UC-13 – Generate Bill/Invoice

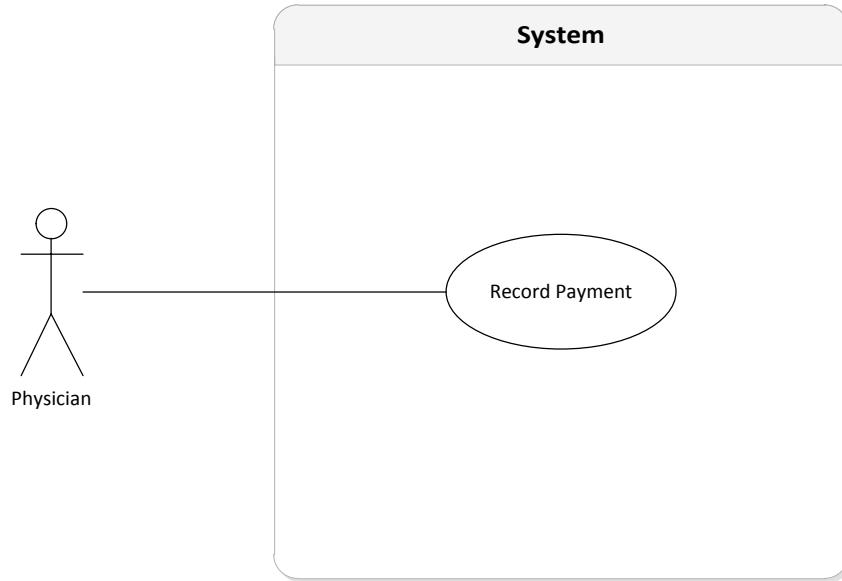
Once services have been provided to a patient a bill will be generated. The bill will include line items with charges for various supplies, medicines, and care.



Identifier	UC-13
Description	Process to generate bill for a patient.
Actor(s)	Staff
Preconditions	Patient has valid medical record.
Flow of Events	<ol style="list-style-type: none"> 1. Staff member looks up patient using UC-04. 2. Staff member selects option to print bill.
Post Conditions	N/A

UC-14 - Record Payment

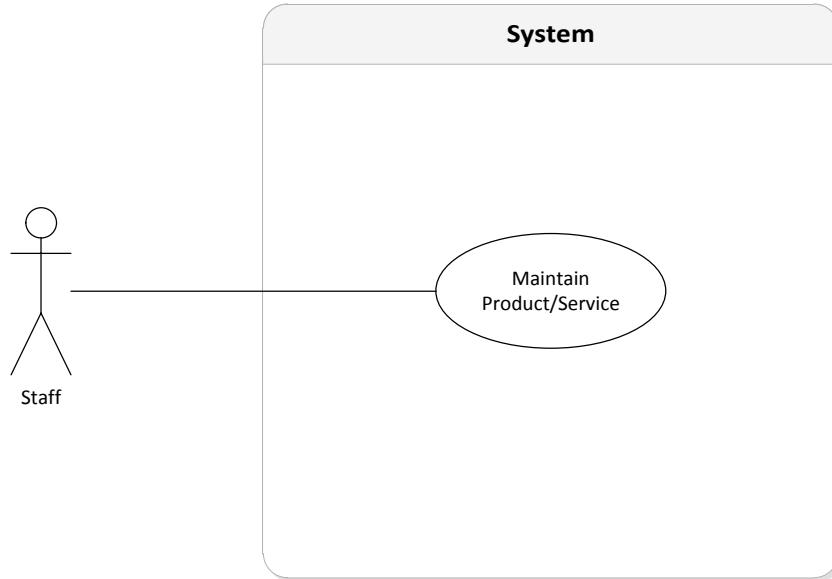
The patient may make periodic payments to the facility. These payments will be recorded and applied to a certain invoice/bill.



Identifier	UC-14
Description	Process to record payment to patient's account.
Actor(s)	Staff
Preconditions	Patient has balance owing on account.
Flow of Events	<ol style="list-style-type: none"> 1. Staff member looks up patient using UC-04. 2. Staff member receives payment. 3. Staff member records payment amount and type. 4. Staff member prints receipt.
Post Conditions	Amount paid is credited to the patient's account.

UC-15 - Maintain Product/Service

The facility staff will occasionally add new items such as supplies or medicines to the inventory. These items will track quantity as well as any pertinent information.



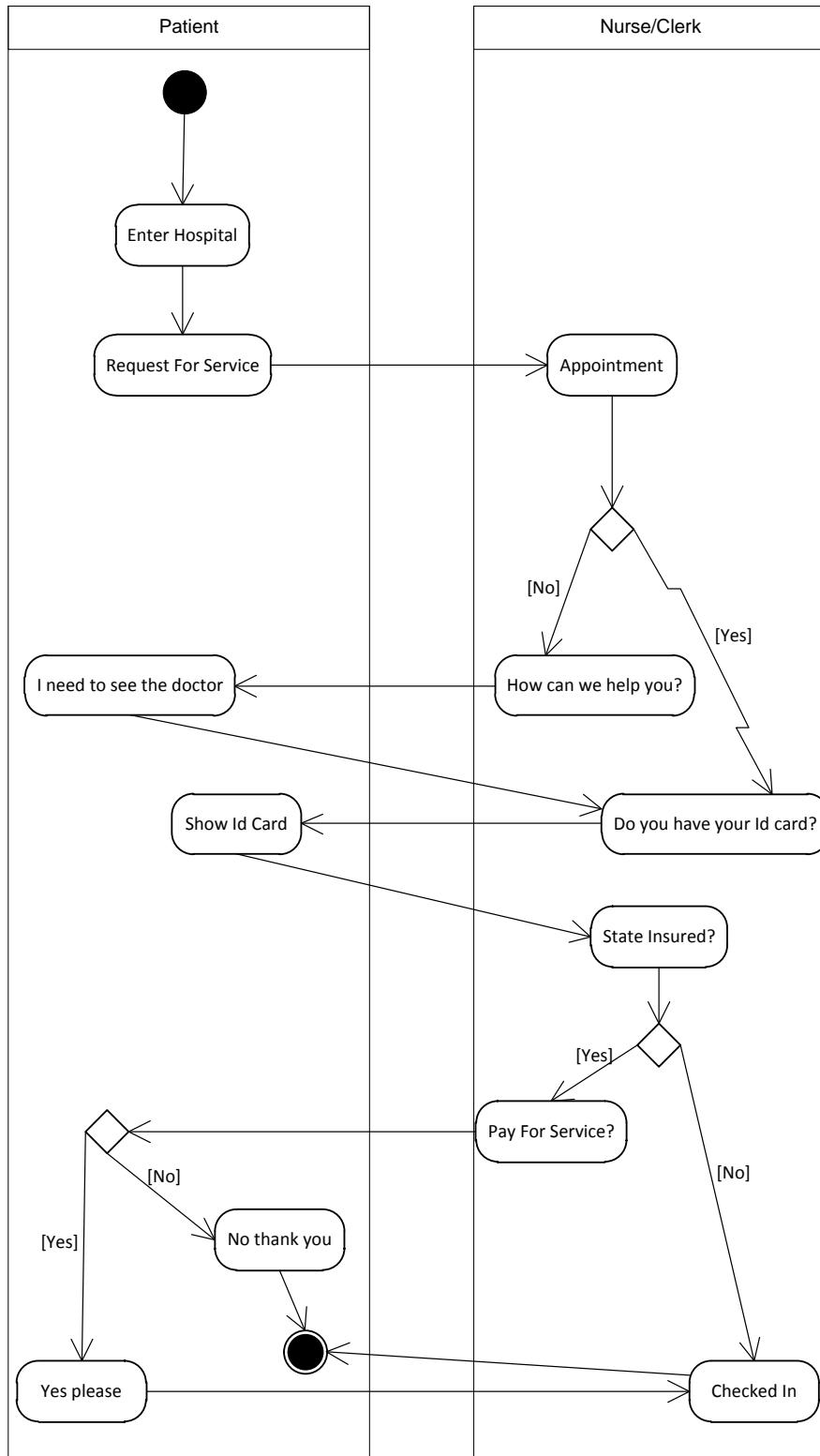
Identifier	UC-15
Description	Process to maintain product/service.
Actor(s)	Staff
Preconditions	N/A
Flow of Events	<ol style="list-style-type: none"> 1. Staff member searches for item in inventory. 2. Staff member selects item to view more details. 3. Staff member inputs information about item including cost, current inventory, name, etc.
Alternative Flow	2a. Staff member selects option to add new item.

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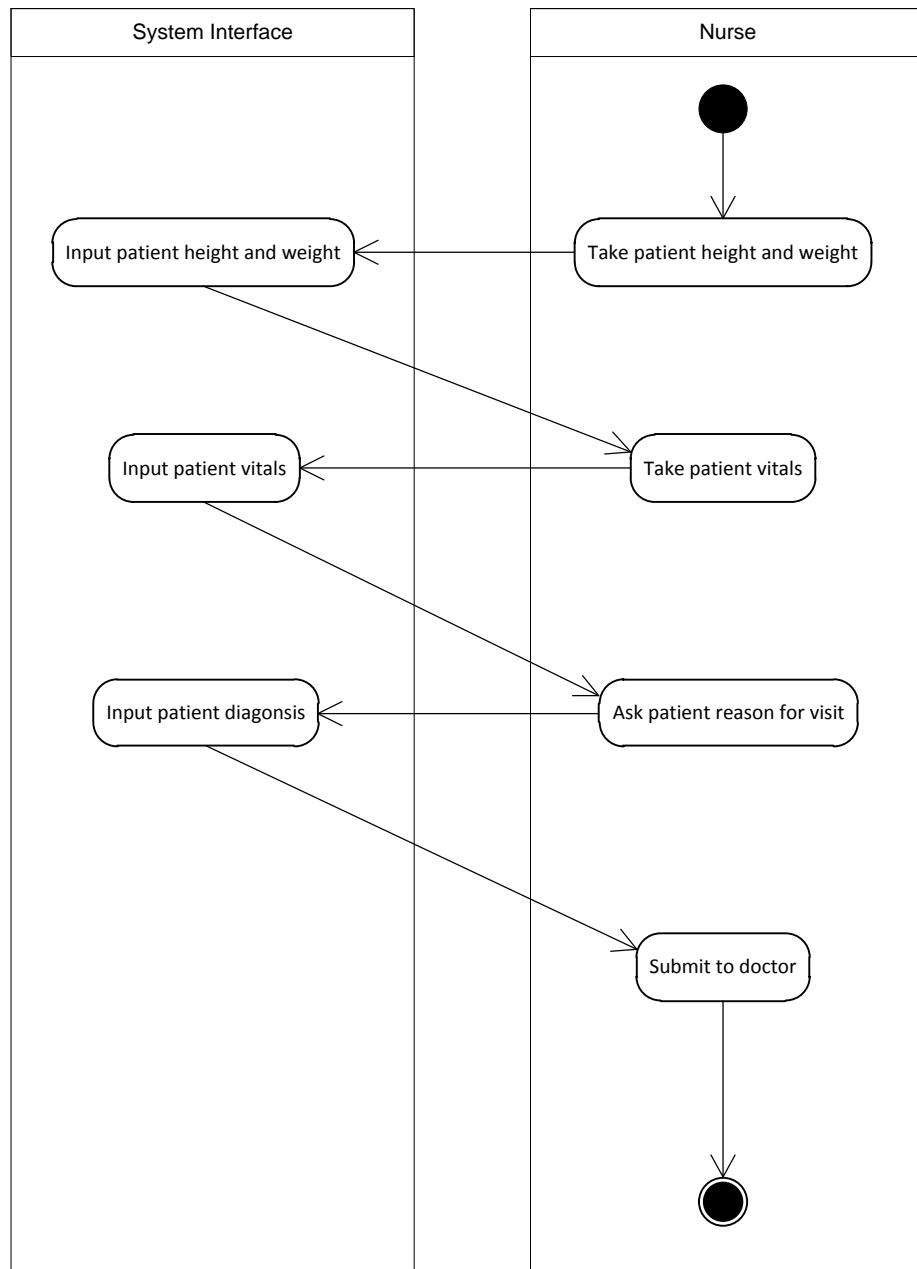
	3a. Staff member selects option to deactivate item.
Post Conditions	Inventory is updated to reflect new supply, availability, and cost.

System Models

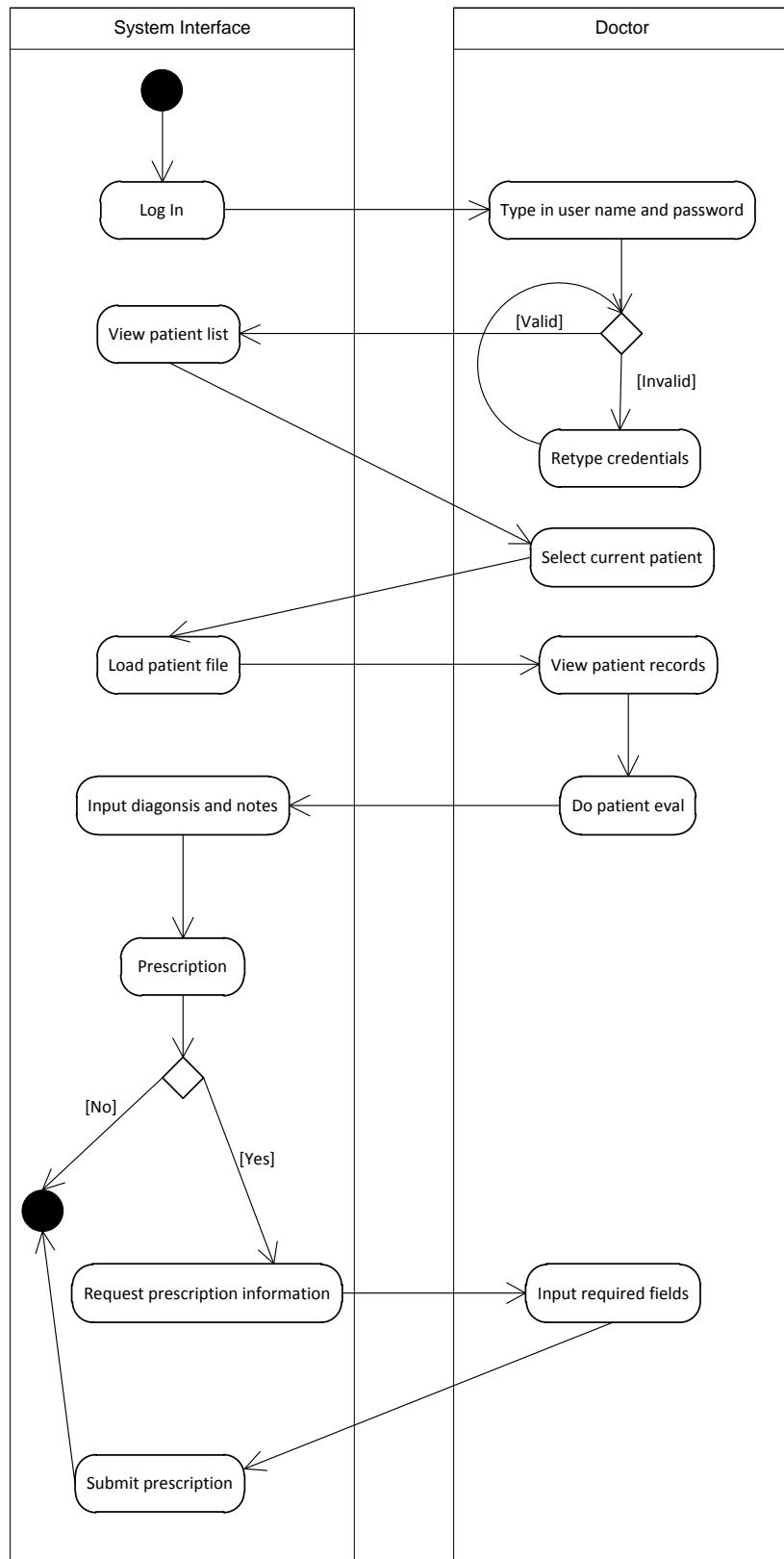
Registering a Patient



Record Patient's Vitals

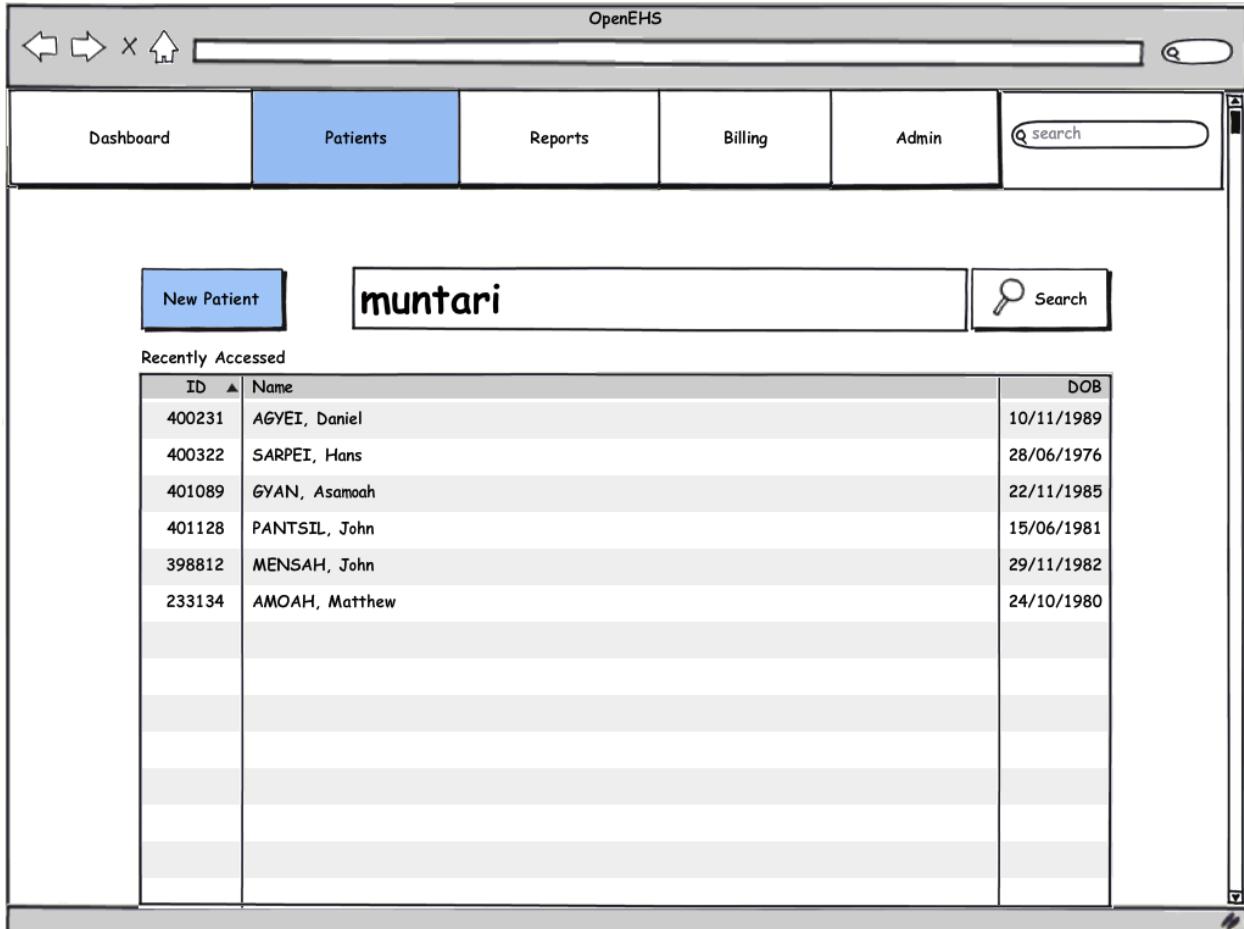


Visit with Physician



User Interface Mockups

Add Patient to System



The screenshot shows the OpenEHS software interface with a title bar "OpenEHS". The main menu bar includes "Dashboard", "Patients" (which is selected and highlighted in blue), "Reports", "Billing", "Admin", and a search bar. Below the menu is a section titled "New Patient" with three steps: "1. Basic Information", "2. Emergency Contact", and "3. Confirmation". The "Basic Information" step is active.

First Name	Middle Name	Last Name
Kevin	Prince	Boateng

Date of Birth: 06/03/1987 | Gender: Male

Telephone Number	Tribe/Race	Religion
233-30-2741-775	Ashanti	Christian

Address:

Street 1: Plot C11, Cnr. Spintex Rd & Tetteh

Street 2: Quarhsie Roundabout

City	Region
Accra	Greater Accra

Next

The screenshot shows the OpenEHS software interface with a title bar "OpenEHS" and a navigation menu with tabs: Dashboard, Patients (selected), Reports, Billing, Admin, and a search bar.

The main content area is titled "New Patient" and displays a three-step process:

1. Basic Information
2. Emergency Contact
3. Confirmation

The "Basic Information" step is active, showing the following fields:

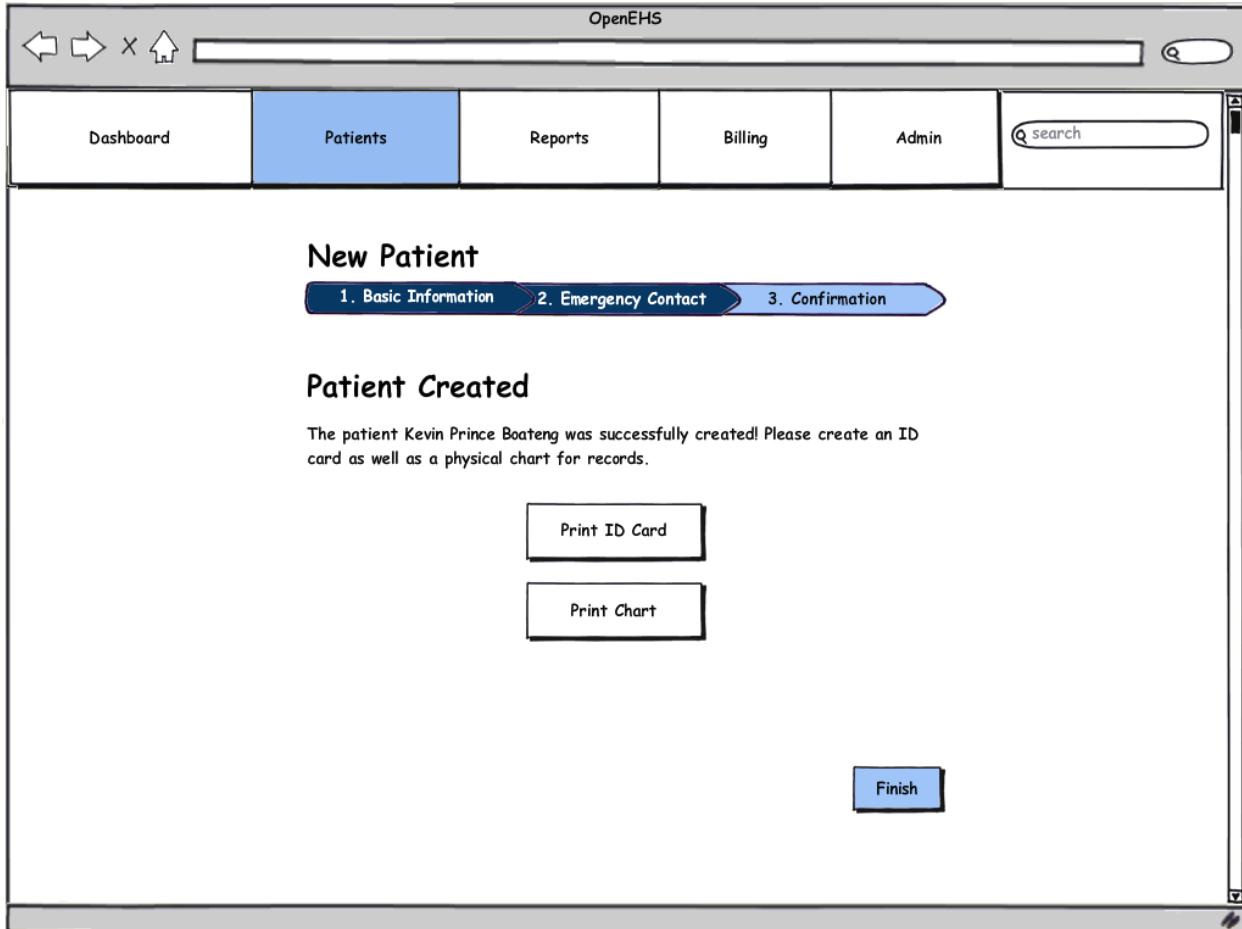
First Name	Middle Name	Last Name
Prince		Boateng
Telephone Number	Relationship	
233-30-2721-455	Father	▼

Below these fields is a "Address" section:

Street 1	Plot C11, Cnr. Spintex Rd & Tetteh
Street 2	Quarhsie Roundabout
City	Region
Accra	Greater Accra

At the bottom of the form are two buttons: "Previous" and "Save".

Systems and Software Requirements Specification



Search for Patient

MLKMC - Find Patient

Home	Appts	Find	Add/Edit	Vitals	Billing	Meds	Reports
------	-------	-------------	----------	--------	---------	------	---------

Find Patient Current Patient: None

Search by card number: Recent Patients

OR Search by name:

Name	Age	Address
John Smith	25	1234 Oak St
Sam Smith	54	4567 Cherry Rd
Gary Smith	32	7890 Pine St

1. Click the “Find” tab to reach the Find Patient screen.
2. Enter a card ID number OR enter a first or last name.
3. Click “Search” to bring up matching results.
4. Highlight a patient by clicking the corresponding row.
5. Click “Select Patient” to select the patient.

MLKMC - Confirm Patient

Home	Appts	Find	Add/Edit	Vitals	Billing	Meds	Reports
------	-------	------	----------	--------	---------	------	---------

Confirm Patient Current Patient: John Smith

The current patient is:
John Smith
Age 25
1234 Oak St
Suburb A, Accra
555-555-1234
Card #: 123456

Any function may now be used applying to the current patient selected.

Not the right patient? **Go Back**

6. The current patient is now set to the user's selection. All system tasks, when performed, will be applied to the current patient listed on the upper portion of the screen.
7. If the wrong patient was selected, click "Go Back" to return to the "Find Patient" screen.

Take Patient Vitals

MLKMC - Take Vitals

Home	Appts	Find	Add/Edit	Vitals	Billing	Meds	Reports
------	-------	------	----------	--------	---------	------	---------

Take Vitals *Current Patient: John Smith*

Height: _____
Weight: _____
Blood Pressure: _____
Heart Rate: _____
Respiratory Rate: _____
Tempurature: _____

Reason for visit:

Submit

1. Click the “Vitals” tab to reach the Take Vitals screen.
2. Enter all the vital statistics, pressing Tab or clicking to reach the next field.
3. Enter a brief description of the reason for the patients visit if necessary.
4. Click “Submit” to save the information, which the physician may see now from his computer.

Issue Medications

MLKMC - Medications

Home	Appts	Find	Add/Edit	Vitals	Billing	Meds	Reports
------	-------	------	----------	--------	---------	-------------	---------

Medications Current Patient: John Doe

Medications Prescribed

Drug	Type	Quantity	Cost	Date Issued
Aspirin	Pill	10	2.25	2/11/2010 (Today)
Tetracycline	Pill	5	3.50	2/11/2010 (Today)

Issue and add selected to bill

Issue and add all medications to bill

1. Click the “Meds” tab to reach the Medications screen.
2. A list of medications prescribed by the physician will be listed.
3. Click on a medication to highlight it, then click “Issue and add selected to bill” after medication has been filled. This takes the quantity of drugs out from the inventory, and also adds the cost of the drugs to the patient’s bill to be paid.
4. Or click “Issue and add all medications to bill”.

Bill Patient

MLKMC - Billing

Home	Appts	Find	Add/Edit	Vitals	Billing	Meds	Reports
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Billing Current Patient: John Doe

Total patient bill: 12.00 Pay Full Amount Partial Payment
Todays bill: 12.00
Unpaid bills: 0.00

Pay Partial

Bill Details

Description	Date	Cost
Patient Care	02/11/2010	6.25
Aspirin	02/11/2010	2.25
Tetracycline	02/11/2010	3.50

1. Click the “Billing” tab to reach the Billing screen.
2. Click “Pay Full Amount” if the patient has the money to pay the total bill.
3. Or enter an amount for partial payment, and click “Pay Partial”.

View Pharmacy Inventory Report

The screenshot shows a software window titled "MLKMC - Reports". Inside, there's a section labeled "Report Options" containing two dropdown menus: "Type of report:" and "Export as:". To the right of these are "Cancel" and "Help" buttons. Below the dropdowns is a "Create Report" button.

1. Click the “Reports” tab to reach the Reports screen.
2. Choose “Pharmacy Inventory Report” from the drop down list.
3. Choose a desired export option.
4. Click “Create Report”.

The report generated will be in the following form.

Pharmacy Inventory			
As of 06/11/2010			
Name	Type	Remaining	Last Ordered
Aspirin	Pill	22	11/10/2010
Tetracycline	Pill	45	Never
Penicillin	Pill	64	19/10/2010
Ampicillin	Pill	12	Never
Quinacrine	Shot	5	16/09/2010

View Pharmacy Sales Report

The screenshot shows a software window titled "MLKMC - Reports". Inside, there's a section labeled "Report Options" containing two dropdown menus: "Type of report:" and "Export as:". To the right of these are "Cancel" and "Help" buttons. Below the dropdowns is a "Create Report" button.

1. Click the “Reports” tab to reach the Reports screen.
2. Choose “Pharmacy Sales Report” from the drop down list.
3. Choose a desired export option.
4. Click “Create Report”.

The report generated will be in the following form.

The report is titled "Pharmacy Sales" and includes a date range "01/10/2010 - 31/10/2010". It shows a total sales amount of \$30.00. A table below lists individual sales items with columns for Date, Patient, Drug, Quantity, and Sale Amount.

Date	Patient	Drug	Quantity	Sale Amount
02/10/2010	William Smith	Tetracycline	10	\$4.50
03/10/2010	Julie Roberts	Aspirin	8	\$1.25
03/10/2010	Julie Roberts	Ibuprofen	5	\$0.75
05/10/2010	Sam Jackson	Penicillin	15	\$3.00

View Clinic Income Report

MLKMC - Reports

Report Options

Type of report:

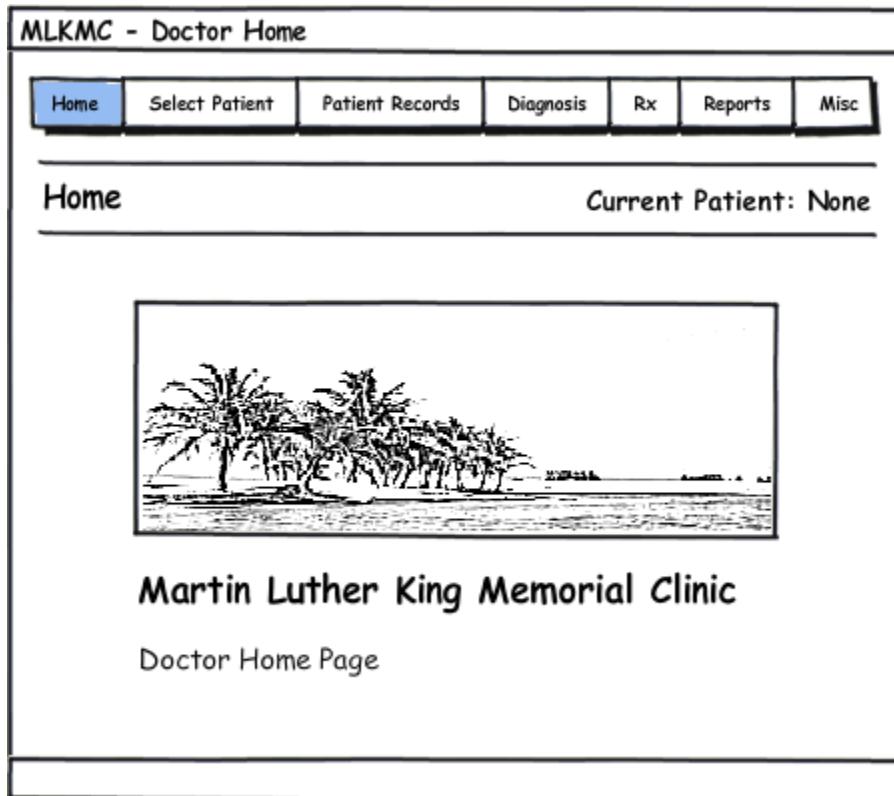
Export as:

1. Click the “Reports” tab to reach the Reports screen.
2. Choose “Clinic Income Report” from the drop down list.
3. Choose a desired export option.
4. Click “Create Report”.

The report generated will be in the following form.

Clinic Income			
01/10/2010 – 31/10/2010			
<u>Total income from patients: \$80.25</u> From patient care: \$50.25 From Rx sales: \$30.00			
Date	Name	Income Type	Amount
02/10/2010	William Smith	Care	\$5.50
02/10/2010	William Smith	Rx	\$4.50
03/10/2010	Julie Roberts	Rx	\$2.00
05/10/2010	Thomas Jones	Care	\$7.25

Select Patient to See



1. From the Physician Home Page, click the “Select Patient” tab on the top of the screen.

MLKMC - Select Patient

Home	Select Patient	Patient Records	Diagnosis	Rx	Reports	Misc
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Select Patient	Current Patient: None
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Patients Waiting

Name	Time Admitted	Reason For Visit
Jane Doe	11:30am	Stomach pains and fever
Steve Wilson	11:39am	Return checkup
Ashley Jenson	11:42am	Treatment for condition

Select Patient	Search Other Patients
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2. The patient waiting the longest amount of time will be shown and selected automatically on the top of the list.
3. Another patient may be highlighted for selection by clicking the row corresponding to their name.

Click “Select Patient” to select the highlighted patient, and begin using other system functions on them as the Current Patient.

View/Add Patient Records

MLKMC - Patient Records

Home	Select Patient	Patient Records	Diagnosis	Rx	Reports	Misc
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Patient Records Current Patient: Jane Doe

Records

27/11/2010
21/08/2010
16/01/2010
07/09/2009
28/02/2009

Jane Doe - 21/08/2010

Notes:
Patient notes displayed here...

Treatment:
Treatment description goes here...

Prescriptions:
Prescriptions displayed here...

Add New Record **Edit Record** **Delete Record**

1. Click the “Patient Records” tab to reach the Patient Records screen.
2. Click the record to view from the list of dates.
3. To add a new record, click “Add New Record”.
4. Enter notes for each section of the patient record.
5. Click “Save Record” to add a new record on today’s date for the patient.

View/Make Diagnosis

MLKMC - Diagnosis

Home	Select Patient	Patient Records	Diagnosis	Rx	Reports	Misc
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Diagnosis Current Patient: Jane Doe

Add new diagnosis:

Previous diagnosis

Condition	Date Diagnosed	Cured (y/n)
Strep Throat	30/09/2010	No
Influenza	06/08/2010	Yes
Broken Wrist	15/01/2009	Yes

1. Click the “Diagnosis” tab to reach the Diagnosis screen.
2. Any previous diagnosis can be removed, or toggled between cured and not cured with the two lower buttons.
3. To select a new diagnosis, choose a condition or disease from the list, or type the name of the condition or disease if it is not in the list.
4. Click “Add” to add the selected diagnosis to the patient’s record.

Prescribe Medicine

MLKMC - Prescriptions

Home	Select Patient	Patient Records	Diagnosis	Rx	Reports	Misc
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Prescriptions Current Patient: Jane Doe

Prescribe:

Quantity:

Refill Date:

Past Prescriptions

Drug	Date Issued	Quantity	Refill Date
Aspirin	21/09/2010	12	21/10/2010
Penicilin	16/07/2010	6	n/a

1. Click the “Rx” tab to reach the Prescriptions screen.
2. Select a medicine to prescribe from the clinic inventory by clicking In the drop down list.
3. Choose a quantity of the medicine to prescribe.
4. Select a refill date for the prescription.
5. Click “Issue Prescription” to issue the prescription to the patient. The front desk will now be able to see this prescription when the patient comes to receive it.

User Effort Estimation

Search for Patient

Navigation events to data entry events ratio is **1:3**.

1. **NAVIGATION:** total 1 mouse click, as follows
 - a. Click the “Find” tab.
2. **DATA ENTRY:** total 2 mouse clicks and 1 keyboard field entry, as follows
 - a. Type in Patient Card Number (or Tab to name and type name).
 - b. Click “Search” (or press Enter).
 - c. Click “Select Patient”.

NOTE: The above process of finding and selecting a patient can be circumvented by using the barcode scanner to simply scan the patient’s ID card.

Add Patient to System

Navigation events to data entry events ratio is **2:16**.

1. **NAVIGATION:** total 2 mouse clicks, as follows
 - a. Click the “Add/Edit” tab.
 - b. Click “Add New Patient”.
2. **DATA ENTRY:** total 2 mouse clicks, 7 Tabs to next field, and 7 keyboard field entries, as follows
 - a. Click “Sex: Male or Female”.
 - b. Tab and enter first name.
 - c. Tab and enter last name.
 - d. Tab and enter date of birth.
 - e. Tab and enter phone number.
 - f. Tab and enter house number.
 - g. Tab and enter area.
 - h. Tab and enter city.
 - i. Click “Create Patient”.

Take Vitals

Navigation events to data entry events ratio is **1:14**

1. **NAVIGATION:** total 1 mouse click, as follows
 - a. Click the “Vitals” tab.
2. **DATA ENTRY:** total 1 mouse click, 6 Tabs to next field, and 7 keyboard field entries, as follows
 - a. Enter height.
 - b. Tab and enter weight.
 - c. Tab and enter blood pressure.
 - d. Tab and enter heart rate.
 - e. Tab and enter respiratory rate.
 - f. Tab and enter temperature.
 - g. Tab and enter the reason for visit.
 - h. Click “Submit”.

Bill a Patient

Navigation events to data entry events ratio is either **1:1** or **1:3**, depending on the flow of events.

1. **NAVIGATION:** total 1 mouse click, as follows
 - a. Click the “Billing” tab.
2. **DATA ENTRY:** total 1-2 mouse clicks, and 0-1 keyboard field entries, as follows
 - a. Click “Pay Full Amount”.
 - b. Or, if partial payment is allowed, type in the amount to pay.
 - c. Click “Pay Partial”.

Select Patient to See

Navigation events to data entry events ratio is **1:1** or **1:2**, depending on the flow of events.

1. **NAVIGATION:** total 1 mouse click, as follows
 - a. Click the “Select Patient” tab.

2. **DATA ENTRY:** total 1-2 mouse clicks, as follows

- a. The patient waiting the longest is automatically highlighted at the top of the list.
If the physician wishes to see another patient first however, then click on that patient.
- b. Click “Select Patient” button.

Add a Patient Record

Navigation events to data entry events ratio is **2:8**.

1. **NAVIGATION:** total 2 mouse clicks, as follows
 - a. Click the “Patient Records” tab.
 - b. Click “Add New Record”.
2. **DATA ENTRY:** total 1 mouse click, 3 Tabs to next field, and 4 keyboard field entries, as follows
 - a. Enter patient notes.
 - b. Tab and enter treatment description.
 - c. Tab and enter prescription.
 - d. Tab and enter follow up notes.
 - e. Click “Save”.

View/Make Diagnosis

Navigation events to data entry events ratio is **1:3**.

1. **NAVIGATION:** total 1 mouse click, as follows
 - a. Click the “Diagnosis” tab (Diagnosis history is shown for viewing).
2. **DATA ENTRY:** total 3 mouse clicks, as follows
 - a. Click on “New Diagnosis” drop down list.
 - b. Click a condition or disease to select it or type in a new one.
 - c. Click “Add”.

Prescribe Medicine

Navigation events to data entry events ratio is **1:8**.

1. **NAVIGATION:** total 1 mouse click, as follows
 - a. Click “Rx” tab.
2. **DATA ENTRY:** total 3 mouse clicks, 2 Tabs to next field, and 3 keyboard field entries, as follows

- a. Click on “Prescribe” drop down list.
- b. Click a listed drug to select it.
- c. Tab and enter quantity.
- d. Tab and enter refill date.
- e. Click “Issue Prescription”.

Signatures

Client

Project Management