

Patients Management subsystem - Requirements Document

Document id: PMSReq01

This document describes the requirements of the Patients Management Subsystem (PMS) of the Wellmeadows Hospital Management System (HMS). This requirements will serve as basis for designing and implementing the system.

A. Problem

The HMS will help the Wellmeadows Hospital follow staff rotation, the in and out patients and stocks supplies. The PMS is a part of the HMS for managing patients.

Patients are referred to the hospital by their Local Doctors. The PMS will help Staff keep track of their Patients, Patients' Medication and their location.

B. Background information

Background information about this project is provided in the domain analysis document *HMSD01*.

C. Environment and system models

The HMS system is to run as a client server system. The server part shall run on an application server. Information about patients, staff members, wards, supplies and suppliers shall be accessed from a data store. Clients shall access the system using web browsers.

D. Functional requirements

F1. The PMS shall allow any member of the medical staff to register patients.

F1.1. The following information shall be obtained for a Patient registration:

- Unique patient government insurance number
- First name
- Last name
- Address
- Telephone number
- Date of birth
- Gender
- Marital status
- External doctor (identifier)
- Patient's next-of-kin (full name, relationship to the patient, address, telephone number)

F2. The PMS shall allow medical staff members to update the registration information of patients (see F1.1)

F3. The PMS shall allow Charge Nurses to access information about divisions (wards and the out-patient clinic).

F3.1. Information provided shall include:

- Division identifier (for example, ward 11)
- Division name (for example, Orthopedic)
- Charge Nurse
- Location (for example, D Block),
- Total number of beds
- Telephone extension number (for example, ext 7713)
- A status of division such as *complete* or *incomplete*.

F3.2. A division's status shall be set up as *complete* if all its beds are occupied (see F3.1.)

F3.3. A division's status shall be set up as *incomplete* if it has some available beds (see F3.1.)

F3.4. The information about a division's charge nurse shall include:

- A name
- Telephone extension
- Bipper extension

F4. The PMS shall allow Charge Nurses to admit patients to their division.

F4.1. The following information shall be requested when admitting a patient

- Local doctor
- Room number
- Bed number
- Optional private insurance number

F5. The PMS shall allow Charge Nurses to request a patient admission to a division.

F5.1. The following information shall be requested when requesting a patient admission to a division

- Rational for request
- Priority assessment (on a scale of 1 to 10)
- Local doctor (at the division from which request is being made)

F6. The PMS shall allow Charge Nurses to admit patients subject of admission requests, in their division.

F7. The PMS shall allow Charge Nurses to dis-charge patients from their division.

F8. The PMS shall allow doctors to prescribe medication to their patients.

F8.1. Adding a prescription shall require the following information:

- Drug's number
- Drug's name
- Units by day
- Number of administration per day
- Listing of each administration time of day with number of units administered
- Method of administration
- Start and finish date

F9. The PMS shall prevent admitting a patient to a division with a *complete* status.

F10. The PMS shall allow adding new Users (e.g. Nurses, Doctors)

F10.1. A User registration shall include the following information:

- User identification (employee number)
- Login Password
- Name (First and Last)
- Email address

F11. The PMS shall allow any medical staff to consult the file of any patient.

F12. The PMS shall authenticate all access based on the User identification and Password

F13. The PMS shall log any access to a patient file with the identifier of the staff member who initiated the access.

E. Nonfunctional requirements and constraints

NF1. An inpatient shall not be admitted to more than one division.

NF2. Any interaction initiated at the server shall be completed within 6 seconds.

NF3. The HMS-PMS system shall be implemented using the Java EE platform.

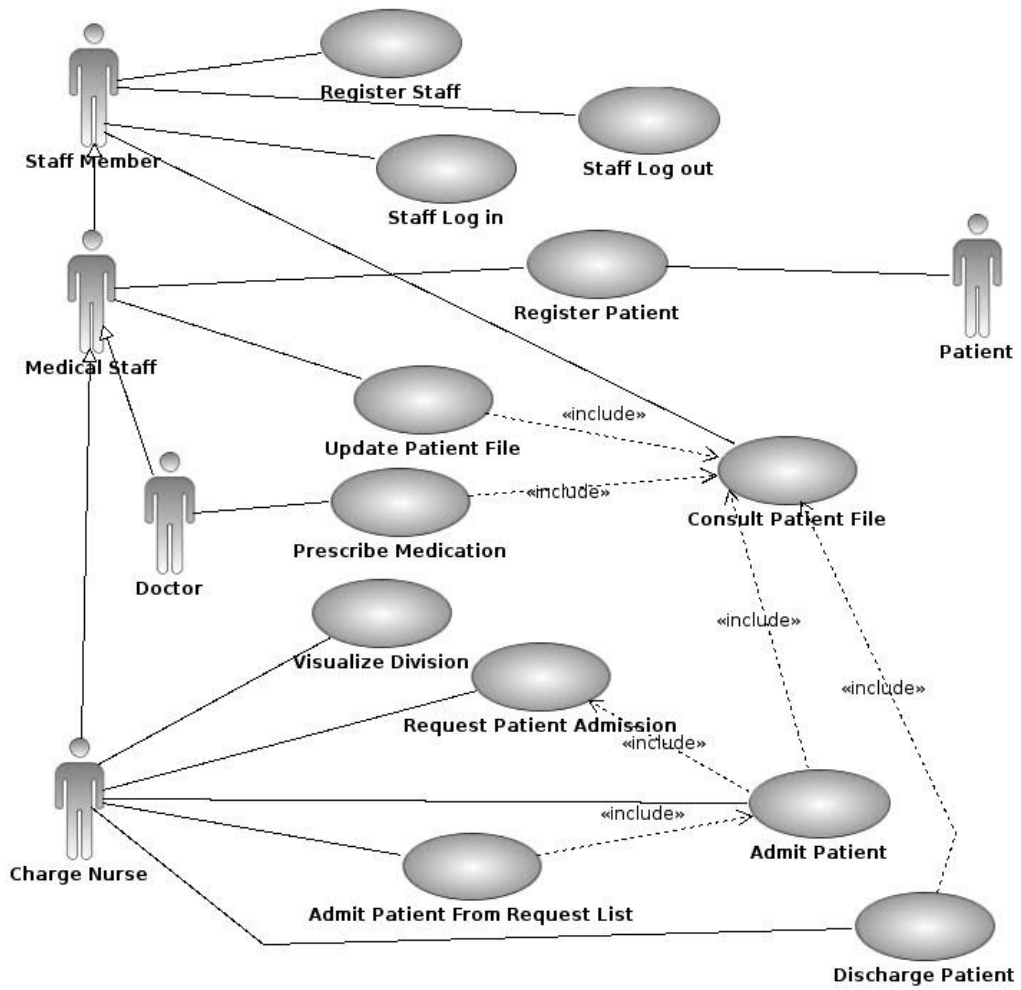
NF4. Access to the HMS system functions shall be possible using any [W3C HTML 4.01](#) compliant browser.

NF5. A working system satisfying requirements for the HMS-PMS component shall be delivered within 2 months.

NF5.1. Specific deliverables shall be produced according to document HMSG01.

F. Use Cases

Use Case Model



Use Cases description

UC1

Title: Register Staff

Primary Actor: Staff Member (Nurse, Doctor, Medical Director, Personnel Officer)

Linked Requirements: F10

Goal: A Staff Member wants to register to the HMS in order to identify himself to the system in order to use its functions

Precondition: The HMS is ON

Postcondition: The Staff Member is registered

Main Scenario

1. Staff Member selects to register
2. HMS asks for Staff Member information
3. Staff Member provides all the required information
4. HMS displays an acknowledgment message

Alternatives

3. a. Incomplete information is provided
 3. a. 1. HMS displays an incomplete information error message
- 3.b. User not found in the system
 3. b. 1. HMS displays an invalid user error message

UC2

Title: Staff log in

Primary Actor: Staff Member

Linked Requirements: F12

Goal: A Staff Member wants to identify himself to the system in order to use its functions

Precondition: The HMS is ON AND Staff member is not logged in

Postcondition: The Staff Member is logged in, the Staff Member's operation choice menu is being displayed with the right privileges

Main Scenario

1. Staff Member enters login information
2. HMS checks Staff Member authorization status
3. HMS displays Staff Member operation choices

Alternatives

2. a. Staff Member is not authorized to use system
 2. a. 1. HMS displays unauthorized access error message

UC3

Title: Staff log out

Primary Actor: Staff Member

Linked Requirements: F12

Precondition: The Staff Member is logged in

Postcondition: Staff Member is not logged in

Main Scenario

1. Staff Member selects to logs out
2. HMS displays log out acknowledgment

UC4

Title: Register Patient

Primary Actor: Medical Staff Member

Linked Requirements: F1

Goal: A Medical Staff Member wants to register a new Patient to the hospital. The Patient is issued a Patient's identifier to be used at the hospital

Precondition: The Medical Staff Member is logged in

Postcondition: The Patient is registered and assigned an identification number

Main Scenario

1. Medical Staff Member asks for new Patient registration
2. HMS asks for Patient's information
3. Medical Staff Member enters requested information
4. HMS issues a new identification number for Patient
5. HMS registers Patient

Alternatives

3. a. Information is incomplete
3. a. 1. HMS displays incomplete information error message

UC5

Title: Consult Patient File

Primary Actor: Staff Member

Linked Requirements: F11

Goal: A Staff Member wants to visualize a Patient file.

Precondition: The Staff Member is logged in

Postcondition: none

Main Scenario

1. Staff Member asks for viewing Patient registration
2. HMS asks for Patient identification number
3. Medical staff member enters Patient identification number
4. HMS shows the Patient registration information

Alternatives

3. a. Identification number is incorrect
3. a. 1. HMS displays Patient not found error message

UC6

Title: Update Patient File

Primary Actor: Medical Staff Member

Linked Requirements: F2

Goal: A Medical Staff Member wants to update Patient's information.

Precondition: The Medical Staff Member is logged in

Postcondition: The Patient's information is updated

Main Scenario

1. Include use case Consult Patient File
2. Medical Staff Member modifies information at will
3. Medical Staff Member resubmit
3. HMS updates Patient registration information

Alternatives

- 3. a. Medical Staff Member do not have enough privilege to modify
- 3. a. 1. HMS displays modification not allowed error message

UC7

Title: Visualize division

Primary Actor: Charge Nurse

Linked Requirements: F3

Precondition: The Charge Nurse is logged in

Postcondition: HMS is displaying information about a division

Main Scenario

1. Charge Nurse chooses to visualize division
2. HMS asks for division identifier
3. Charge Nurse enters division identifier or alternatively browse to select division
4. HMS displays information about division

Alternatives

- 3. a. Wrong division identifier
- 3. a. 1. HMS displays division not found error message

UC8

Title: Admit patient

Primary Actor: Charge Nurse

Linked Requirements: F4

Precondition: The Charge Nurse is logged in

Postcondition: A Patient is admitted to a division

Main Scenario

1. Include use case Consult File
2. Charge Nurse chooses to admit the patient
3. HMS asks for room and bed number
4. Charge Nurse enters room and bed number or alternatively browse through a list of available rooms and beds in the ward and makes a selection
5. HMS asks for remaining admission information
6. Charge Nurse enters requested information
7. HMS admits patient

Alternatives

- 3. a. Division is *complete*
- 3. a. 1. HMS notifies Charge Nurse that her division is complete
- 3. a. 2. HMS gives possibility to request an admission for Patient as in use case *Request Patient Admission*

Admission

UC9

Title: Request Patient Admission

Primary Actor: Charge Nurse

Linked Requirements: F5

Goal: a Charge Nurse wants to put a Patient in a request list for a bed at a division

Precondition: The Charge Nurse is logged in and a patient registration is being displayed

Postcondition: A Patient is in a request list for admission at the requested division

Main Scenario

1. Charge Nurse chooses to request patient admission
2. HMS asks for division in which request is to be made as well as additional information
3. Charge Nurse provides required information
4. HMS puts Patient in requested ward list of patients awaiting admission
5. HMS sends notification to requested ward Charge Nurse

Alternatives

3. a. Incorrect information provided
3. a. 1. HMS displays patient already in ward error message

UC10

Title: Admit patient from request list

Primary Actor: Charge Nurse

Linked Requirements: F6

Precondition: The Charge Nurse is logged in AND Patient is in request list

Postcondition: Patients in request list admitted

Main Scenario

1. Charge Nurse browses through list of Patients in request list and select one
2. HMS displays selected Patient registration
3. perform admission as in use case Admit Patient (steps 2 -)

Alternatives

3. a. Patient can not be admitted
3. a. 1. Charge Nurse denies Patient admission
3. a. 2. HMS sends notification to Charge Nurse who requested admission

UC11

Title: Discharge Patient

Primary Actor: Charge Nurse

Linked Requirements: F7

Precondition: The Charge Nurse is logged in

Postcondition: Patient is no longer admitted, Patient bed added to the division availabilities, Patient discharge information issued and copies slated to be sent to Patient external doctor, Patient invoice issued

Main Scenario

1. Include use case Consult File
2. Charge Nurse selects to discharge Patient
3. HMS updates bed availability
4. HMS prints discharge information
5. HMS prints Patient invoice

UC12

Title: Prescribe Medication

Primary Actor: Doctor

Linked Requirements: F8

Precondition: The Doctor is logged

Postcondition: Prescription has been added to the Patient file

Main Scenario

1. Include use case Consult File
2. Doctor asks to add a prescription to the selected patient
3. HMS asks for required information
4. Doctor enters required information
5. HMS records prescription in Patient's file
2. a. Selected Patient is not one of the Doctor's
2. a. 1. HMS notifies Doctor that Patient is not hers
4. a. Incorrect information entered
4. a. 1. HMS display incorrect prescription error message