

Wellmeadows Hospital Management System – Domain Analysis

Document id: HMSD01

A) Background

This document describes background information about an envisioned system for managing patients, supplies and staff at the Wellmeadows Hospital.

The Wellmeadows Hospital is specialized in the provision of health care to elderly people. The goal of the project is to develop facilities for managing Patients, Supplies and Staff at the Wellmeadows Hospital. At the current time these functions are supported by separate systems that are not compatible one with the other. Moreover, the existing systems are not accessible using traditional web-browsers. The solution will provide an integrated management environment that will help rationalize and plan for resources. It will also provide a more convenient operation interface.

The Wellmeadows Hospital Management System (HMS) will consist in three main sub-systems: a Patient Management System (PMS), a Medical-Supply Management System (MMS) and a Staff Management System (SMS). The three sub-systems are functionally independent while accessing to common data-stores. This would allow added functionalities such as balancing staffing needs with wards occupancy.

The initial release of the HMS concerns a sub-set of the PMS according to the requirements in document *PMSReq01*. This initial release will serve as proof of concept for the whole project and set the ground for further development.

B) Glossary

- **Ward** – a division of an hospital specialized in a given type of care (e.g. infectious diseases). The Wellmeadows hospital has several Wards each with several beds available for short and long-term-patients.
- **Out-Patient Clinic** – division that may be attached to an hospital to deal with patients that do not require an overnight stay at the hospital. The Wellmeadows hospital has one out-patient clinic.
- **Medical Director** – a physician, member of the hospital staff responsible for the medical control and direction of the hospital.
- **Personnel officer** - A person member of the hospital staff in charge of employee relations and staffing issues. The personnel officer is responsible for hiring new staff and ensure each division has the right employees.

- **Local Doctor** – a physician, member of the hospital medical staff responsible to patients' care. Each doctor (except a doctor who is a specialist staff) is assigned to a ward or the out-patient clinic. Doctors are the only staff empowered to certain medical acts such as writing prescriptions.
- **External doctor** – a physician not a member of the hospital medical staff, who refers patients to the hospital.
- **Nurse** – a member of the hospital medical staff responsible for the administration of treatments decided by doctors to patients. Each nurse (except a nurse who is a specialist staff) is assigned to a ward or the out-patient clinic.
- **Auxiliary** - a member of the hospital staff responsible for non-medical tasks such as bedding or food service. Each auxiliary (except an auxiliary who is a specialist staff) is assigned to a ward or the out-patient clinic.
- **Shift** - division of the work day at the hospital. There are three shifts at Wellmeadows hospital. An early shift from 6:00am – 2:00pm, a late shift from 2:00pm – 10:00pm and a night shift from 10:00pm – 6:00am. Medical staff are assigned to wards and the out-patient clinic on shift basis.
- **Charge nurse** - A nurse with supervisory responsibility for the nurses in a particular ward or out-patient clinic. The charge nurse is allocated a budget and must ensure that all resources (staff, beds, and supplies) are used effectively in the care of patients.
- **Specialist staff** - hospital staff member who is not assigned to a particular ward of out-patient clinic but may intervene in different divisions.
- **Patient** – a person under the care of the hospital. A patient is admitted in a ward or the out-patient clinic. Each patient is uniquely identifiable and may be referred by an external doctor.
- **Out-patient** - a patient who stays home overnight while under the care of the hospital.
- **In-patient** - A patient who is supposed to stay overnight in the hospital during the treatment. An in-patient is allocated to a ward or is in the waiting list for a ward.
- **Patient's next-of-kin** - A person who is related to a patient and should be reached in case of emergency (e.g. to authorize some treatments when the patient is unable to).
- **Patient appointments** - When a patient is referred by an external doctor to the hospital, the patient is given an appointment for an examination by a hospital consultant.

- ***Medication prescription*** – order to a patient for the administration of medication as prescribed by a doctor. A prescription includes a drug identifier, a drug name, the number of drug administration per day, a method of administration (e.g. oral, intravenous), start and finish date. Each administration may include a time of day and number of unit of drug administered.
- ***Medical supply*** – material used to support the hospital operation including care to patients. Medical supplies include surgical supplies, pharmaceutical supplies and accessory supplies.
- ***Surgical supply*** – medical supply that need to be sterile (e.g. for surgeries). Examples of surgical supplies are syringes and sterile dressings.
- ***Pharmaceutical supply*** – medical supply administered as drug. Examples of pharmaceutical supplies are antibiotics and painkillers.
- ***Accessory supply*** – medical supply that are non-surgical and non-pharmaceutical. Examples of accessory supplies are plastic bags and aprons.
- ***Ward requisition*** - request by a charge nurse in order to obtain surgical, accessory and pharmaceutical supplies from the hospital central supply stock.

C) Customers and Users

The actual customers for this project are your SEG3102/SEG3502 courses instructors acting on behalf of the Medical Director of Wellmeadows Hospital.

Potential users include charge nurses, nurses, doctors, the personnel officer and the medical director at Wellmeadows Hospital.

- The medical director maintains control over the use of resources (staff, beds, and supplies).
- The personnel officer is responsible for ensuring that the appropriate number and type of staff are allocated to each ward and to the outpatient clinic.
- Charge nurses are responsible for overseeing the day-to-day operation of their ward or the clinic. For example, the charge Nurse is responsible for setting up a weekly staff rotation. In a given week, each member of staff is assigned to work an early, late, or night shift. She is also responsible for admitting a patient to a given ward or the outpatient clinic.
- Any medical staff member can register a patient at their particular division.

D) The environment

Members of the staff have access to computer systems in the hospital. Although a majority of these systems are MSWindows based Personal Computers, a significant minority of potential users use other platforms such as Linux and MacOS. An increasing number of users also use PDAs, Tablets and Smartphones with wireless capability. These computer systems are connected through a secured intranet system and run traditional web-browsers (e.g. Firefox, Explorer, Safari, Mobile-browsers). The hospital is also equipped with servers (database, web, email).

E) Tasks and Procedures

A summary of the general tasks and procedures at Wellmeadows Hospital is as follow:

- The personnel officer creates and maintains records about staff members. He/she has the capability to search for staff members with particular qualifications or work experience.
- Charge nurses and the personnel officer can list the details of staff allocated to each ward.
- Any medical staff member can record and maintain patients' records from his/her division.
- Charge nurses create and maintain records about patients referred to their division. She also creates and maintains records detailing requisitions for supplies for particular wards.
- Only Doctors can prescribe medication and only to their Patients.
- Charge nurses and the Medical director can list the details of patients who are currently located in a particular ward or referred to the outpatient clinic or in the waiting list of a particular ward. They can also produce a report listing the details of supplies provided to specific wards.
- The Medical director can create and maintain records detailing suppliers dealings with the hospital.