

International Institute of Health Management Research (IIHMR)
NEW DELHI
HIT 703 Requirement Management
Batch- 2017-2019
Term Exam

TOTAL TIME: 3.0 HOURS

MAXIMUM MARKS: 70

Read the following case and answer the questions provided.

1. Background

Mental Health Care Patient Management System (MHCPMS)

A regional health authority wishes to procure an information system to help manage the care of patients suffering from mental health problems.

The overall goals of the system are twofold:

1. To generate management information that allows health service managers to assess performance against local and government targets.
2. To provide medical staff with timely information to facilitate the treatment of patients.

The health authority has a number of clinics that patients may attend in different hospitals and in local health centers. Patients need not always attend the same clinic and some clinics may support 'drop in' as well as pre-arranged appointments. The nature of mental health problems is such that patients are often disorganized so may miss appointments, deliberately or accidentally lose prescriptions and medication, forget instructions and make unreasonable demands on medical staff. In a minority of cases, they may be a danger to themselves or to other people. They may regularly change address and may be homeless on a long-term or short-term basis. Where patients are dangerous, they may need to be 'sectioned' – confined to a secure hospital for treatment and observation. Users of the system include clinical staff (doctors, nurses, health visitors), receptionists who make appointments and medical records staff. Reports are generated for hospital management by medical records staff. Management have no direct access to the system. The system is affected by two pieces of legislation (in the UK, Acts of Parliament). These are the Data Protection Act that governs the confidentiality of personal information and the Mental Health Act that governs the compulsory detention of patients deemed to be a danger to themselves or others. The system is NOT a complete medical records system where all

information about a patients' medical treatment is maintained. It is solely intended to support mental health care so if a patient is suffering from some other unrelated condition (such as high blood pressure) this would not be formally recorded in the system.

2. Viewpoints and Concerns

Viewpoints reflect the requirements from different classes of system stakeholder. Concerns reflect organizational goals, constraints and external requirements.

2.1 Concerns: Concerns are intended to represent high-level organizational goals that are often vague and poorly specified. These are important to the success of the system and so the requirements engineering process must try to understand their implications for the system. However, the nature of concerns is such that some aspects will always be vague (e.g. the notion of 'reasonable' costs) and subject to individual interpretation. The principal concerns in the MHCPMS are:

1. The system must be used by a range of staff, often working under time pressure and with different levels of experience using computer-based information systems.
2. Patients may cause harm to themselves or others. The provisions of the Mental Health Act must be taken into account.
3. Patient privacy must be maintained according to the Data Protection Act and local ethical guidelines.
4. The operational costs of the system must be 'reasonable'.

2.2 Viewpoints: Viewpoints are a means of structuring the collection and documentation of requirements from classes of system stakeholder. Each viewpoint represents a partial specification of the system so the complete specification is created by integrating the requirements from each viewpoint. Viewpoints may either be interactor viewpoints representing stakeholders who interact directly with the system, indirect viewpoints representing stakeholders that require information from the system or are involved with the system management and domain viewpoints that represent There are four principal viewpoints that place requirements on this system.

1. Clinical staff interact directly with the system, looking up and modifying patient information. They are particularly concerned with maintaining a history of consultations and recording the treatment and medication prescribed to patients.
2. Receptionists interact directly with the system and use it in conjunction with a generic appointments system to record information about patient appointments. They need to record when appointments were made, the appointment date and whether or not patients attended appointments.
3. Medical records staff interact with the system to generate management reports and to link information in the system with more general patient health records.
4. These are indirect viewpoints as health service managers do not directly interact with the system. However, they do require reports generated from the system and so generate information requirements.

Based on the above answer the following questions:

1. Identify **six** major non- functional requirement of the system related to usability, safety and privacy (2 each). **12 marks**

Examples: Require systems to allow individual access to their personal records; Require all data that is maintained on an individual to be relevant for the purpose for which it is maintained. Therefore, it is unlikely that the Act would permit details of patient purchases from the hospital shop (for example) to be maintained in their medical record.

2. Identify the major stakeholders of the information system **5 marks**
3. Identify 10 functional requirements of the system considering all stakeholders **20 marks**

Example: The patient record in the MPCPMS shall include fields to record the diagnosis of the patient's condition and the treatment prescribed. If these are unchanged from a previous consultation, then only a confirmation shall be required. (Staff should not be required to re-enter information already in the system).

4. Draw three use case diagrams for one functional requirement each for clinicians, medical record staff and receptionist individually based on question no 3. **15 marks**
5. Take one use case diagram from question 4 and write use case description **8 marks**
6. Draw an activity diagram that involves clinician interaction with patient based on the case. **10 marks**