ADMISSION, DISCHARGE AND TRANSFER SYSTEM

Taha Alanezi 819

Yasir Khan 845

Fall 2017/2018

Libyan International University

Faculty of Information Technology

Department of Health Informatics

INTRODUCTION

1 General Introduction

An admission, discharge and transfer (ADT) system is a backbone system for the structure of other types of business systems and is one of the four core business systems that are used in healthcare facility for financial payments and quality improvement. It verifies when a patient is admitted, released or transferred between the hospital departments as well as collecting and storing client identification and demographic data that are verified and updated at the time of each visit. A patient can be verified through an ADT system by using his or her own unique identification code.

Briefly, it is a software application used by healthcare facilities to track patients from the point of arrival at a hospital until departure by transfer, discharge, or death.

This system is usually the foundation for other types of health care information systems because it holds valuable patient information such as a medical record number, age, name, and contact information.

The ADT process helps in organizing inpatient data, carrying out statistics, improving the efficiency and effectiveness of a healthcare facility as well as many other things that revolve around delivering healthcare services. Using this system, we can know the quantity of patients that are admitted, transferred or discharged from the hospital which in turn can help in the statistics process. We can also know which of the hospitals are working well and which needs further improvement through the use of this system.

Admission is the act of transferring care from community or another environment to a trust inpatient service. Transfer is defined as the movement of a patient, their care and treatment needs from one in-patient unit to another (of any in-patient care setting), or a community-based service for continuation of care. This may be because the needs of a certain patient are best met at another

in-patient or care setting. Discharge is the act of concluding an episode of care within an in-patient setting and handing over responsibility of the care to another service or care provider.

The admission stage is where the patient is admitted or visits the hospital or clinic and this consists of two types, the inpatient admission and the outpatient admission. The inpatient admission generally lasts for more than 24 hours whilst the outpatient admission is less than 24 hours. [1] During this stage, the administration of the hospital must identify who their client is and other personal information that is related to the reason of admission. For example, from a nurse's perspective, "this process includes performing the initial interview and obtaining a full history of the patient and family, the assessment of vital signs and performance of a full physical assessment, identifying nurse's diagnoses and formulating goals and a care plan for the patient as well as documenting all findings and the care plan in the computerized nursing documentation system". [1]

In a hospital setting, the availability of the number of inpatient beds and rooms is very important to keep track of because of hospital overcrowding.

Before the person is taken to their room, admitting procedures are performed. Personal data concerning the patient is recorded and entered into the hospital's computer system.

There may be several forms to fill out. One form may be a detailed medical, medication history and will include past hospitalizations and surgeries. Having this information readily available will make the process move faster, and can allow a family member or friend who is accompanying the person to help fill out the forms more easily. [2]

The transfer stage is an optional process where the patient can be transferred to another department to provide a continuation of their care. He or she can be transferred for a variety of reasons and the

transfer can be for a short or long duration. Not all hospitals have a full range of diagnostic or treatment equipment and a patient transfer is often arranged to transport a patient from the hospital they are in, to another hospital for medical procedures such as CT scans, MRI's, radiation treatments, dialysis sessions or cardiac diagnostics.

At other times a patient transfer is booked for a patient who has been receiving care at one hospital and requires a transfer to another that provides a different level of care. For example, a patient may be admitted to an orthopedic hospital for a knee replacement and following the operation, transferred to a convalescent hospital (nursing home) to recover and receive physiotherapy.

The discharge stage is the last stage where the patient has permission to leave the healthcare facility. Planning for discharge actually begins on admission, when information about the patient is collected and documented. The key to successful discharge planning is an exchange of information among the patient, the caregivers as well as those responsible for care while the patient is in the acute care setting and after the patient returns home. This coordination of care is usually the nurse's responsibility.

He or she is not immediately discharged because the nurse or doctor must review the patient's medical record and follow a set of instructions such as assigning their prescriptions and giving medication instructions to the patient and their family member. The physician assesses the legal guardian's verbal understanding of the discharge instructions, confirms the plan for any follow-up education or appointments for the patient or family, ensures that all discharge documents are signed by legal guardians as well as documenting the patient's and family's response to the discharge. Furthermore, the nurse will then make a copy of the discharge instructions after all signatures are obtained for the permanent record in the chart. [2]

1.1. Motivation

Admission, discharge and transfer process helps with tracking patient activities from the point of arrival at a hospital until departure by discharge or death but unfortunately, this is not the case in our healthcare facilities.

All of our healthcare facilities should be able to operate with ADTs because if they were implemented then it would be much easier for different healthcare facilities to keep track of patient movements which in turn enables several things including the reduction of patient data loss due to it being on paper.

The motivation for this project would be to improve the delivery of healthcare services in terms of efficiency, quality and effectiveness.

1.2. Problem Statement

Healthcare facilities have an obligation towards counting and labeling inpatient movements in a consistent and meaningful way. Keeping track of patient movements is almost impossible due to most of the healthcare facilities being paper based systems which is a root cause of the problems that are faced.

Data quality measures of an ADT system address the quality of information being transmitted by that system. Understanding and maintaining high-quality data enables participating clinicians to use appropriate, patient-specific information to enhance patient care. The clinicians receiving incomplete, inaccurate, or irrelevant information are unlikely to find value in their participation.

In addition, healthcare services are nowhere near improved because not enough information is offered on the quantity of patients being admitted, discharged or transferred from the facility which

in turn should provide the healthcare facility administration with feedback on the services provided by their facility.

In conclusion, clinical outcomes could never be improved at a significant rate unless an ADT system is developed.

1.3. Objectives

To address the above problem, a system is initialized which helps in organizing patient data, carrying out statistics, eliminating data redundancy and inaccurate information, organizing medical record data safely and securely so that minimal or no data is lost and security is not put at risk which in turn improves the efficiency and effectiveness of a healthcare facility and its services.

- Develop a system which collects and stores demographic and clinical data that are verified and updated at the time of each visit or discharge.
- Improve clinical outcomes and care coordination

1.4. Scope and limitation

Hundreds of people shift through doctor's offices and enter hospitals on a weekly basis. In the age of technological evolution, multiple health practices have started to use databases to facilitate these records. Databases in a clinic or hospital have significant usefulness for all users and therefore are a focal point in daily operation. ADT databases specifically are useful because they integrate departments, provide accessibility of information for staff and store large volumes of data in a secured, organized manner.

The community in which the ADT system is supposed to function within, does not have Health Information Exchange (HIE) capabilities and therefore must work towards developing appropriate

Data Use Agreements (DUAs) such as integrity, confidentiality, privacy, security and so on since these are critical for developing an ADT system.

Several structural elements are essential for the development of this system and these are leadership and governance, sustainability, quality improvement, user's attitudes towards the system, performance measurement and evaluation, health IT professionals and infrastructure.

Chapter II

Feasibility Study

This chapter aims to study the various aspects of the system to be developed and serves as a solid foundation for constructing the project, as well as attempting to answer two main questions which are, will the idea work and should we proceed with it.

2 Feasibility Study

A feasibility study looks at the viability of an idea with an emphasis on identifying potential problems. It identifies all the things needed to make the project work.

Two types of feasibility studies were used to see whether the proposed system would be successful, by specifying its requirements whether they were hardware, software or functional, and these are:

2.1. Technical Feasibility

This study assesses the details of how the system is delivered, it's a tactical plan of how the system will produce, deliver and store its services. As well as being an evaluation of hardware, software and how it meets the need of the proposed system.

The system should:

- Operate on a PC with an operating system that is at least windows 8

- Be capable of operating whenever it is requested to

- Withstand high loads of work e.g. data transfer and so on

- Store and edit demographic data and clinical data at the time of admission, discharge or transfer

- Support creation for a Master Patient Index (MPI) and the MPI should have a capacity of at least 16 digits

- Make patient data available for all departments within the hospital

2.1.1. Software Requirements

This is a description of the system to be developed which tells the applications and software that are going to be used in the design and initiation of the project as well as providing the basis for development.

- Windows 8 or newer operating system

- Microsoft Access database

- Microsoft Visual Studio (VB.NET)

2.1.2. Hardware Requirements

This also describes the system to be developed but in terms of hardware specifications required for the system to run with the least amount of flaws capable.

For users such as doctors and so on, they would only need a personal computer that is capable of wireless network communication.

As for the administration, well they would need a super computer that is capable of:

- Being available 24-hours 7-days a week

- Carrying out any activities applied/requested by its user

- Functioning effortlessly despite the fact that large amounts of work are to be done by this computer

2.2. Economic Feasibility

Economic feasibility determines whether the system to be applied is capable of returning financial gains.

The start-up cost for an ADT system is expensive but the maintenance cost required throughout the time of which the system is up and running is of insubstantial amount.

Whatever the cost of initiating this system would be, it's little compared to the positive impact it would make on the hospital and the patients.

2.3. Requirement Gathering

In order to gather the information for the development of this system, first the current paper-based system will be evaluated for problems through communication with its users and then comes the process of specifying the requirements that solve the problem.

2.4. Functional Requirement

Functional requirements specify what the system should do, they are a statement of the intended function of a certain system. It helps the developer in defining the behavior that a system is expected to do at the time of a certain task.

- Extracting data from the host system

- Sending data to repository

- Developing interface to receive and manage data

Based on the previous studies in this chapter, the proposed project seems to be feasible and should be able to function without no or least amount of errors possible whatsoever.

Chapter III

Analysis

Chapter IV

Design

Chapter V

Development and testing

Chapter VI

Conclusion

References

1. Hebda, T., & Czar, P., (2013). Health information systems. In Handbook of Informatics for Nurses and Healthcare Professionals (5th ed.) Upper Saddle River, N.J: Pearson Prentice Hall

2. Giangiulio, M., Aurilio, L., Baker, P., Brienza, B., Moss, E., & Twinem, N., (2008). Initiation and Evaluation of an Admission, Discharge, Transfer (ADT) Nursing Program in a Pediatric Setting.4

3. Medicare improvement for patients & providers Act, Pub L No. 110-275, 112 Stat 2066 (2008)

4. A visiom, D.E & Fitzgerald G (2003) Information System development methodologies, techniques and tools (3rd ed), McGraw-Hill, London Chapters 20.1, 20.3

5. Chris Gane and Trish Sarson Structured Systems Analysis: Tools and techniques Mc Donnell Douglas Systems Integration company, 1977

6. Gebeyehu Damcha 1997. Clinical chemistry principles, procedures & interpretation