

Design an electronic system for computer communication between hospital departments (card desk)

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Abstract

Today with the growing trend of electronic services, old and traditional systems have given their place to electronic ones. This would increase the quality of rendered service, decrease the expenses, easy and certain access to information and Since the sector of medical services is one of the most important sectors in any society and not only all the individuals of the society are involved in it, but in so many cases it has a vital importance as well. Therefore any kind of improvement in this sector can improve the health condition and in general improve the whole society.

Methodology: In this study we have worked on the files of a few patients (paper card desk) and approximately the probability of error and the wastage of the time of the personnel in this working system is equal to 25%, but with considering this system of work the personally job satisfaction has been between 90% to 95%.

Findings: in this research we used electronic card desk instead of paper ones in one of the hospitals. With studying this research approximately 95% of quality improvement in the medical services sector has been obtained.

Key words: electronic card desk, tablet PC/multi touch hardware system, medical pharmacology.

1. Introduction

Hospital records are in fact registration and documentation of the activities performed by the doctors team in the hospital or reflects the activities of doctors, nurses and other people involved in the doctors team. The hospitals Records can be used in legal cases for determining the medical errors and mistakes of the doctor team but in addition to this they are the most important source of gathering the

information of the patient and in qualitative and quantitative researches contains useful information for the researchers in the field of medical sciences. In a way that in so many of the diseases the accurate information for diagnosing the disease of the patient is only extractable from the hospital records and questioning patients regarding their type of disease can not be so much helpful [1,2].

Due to the above mentioned the accurate documentation and registrations of the hospital records is so much important and if there is any kind of neglect in them, it can have legal consequences for the doctors as well as it can decrease the speed of the researches about hospitals. It should be heeded that incomplete registration and documentation in addition to the two above mentioned problems can lead to insurance deduction and other financial loss. This has been mentioned in so many different studies [3] and in here the role of the doctors is so much important. Because doctors usually register more documentary information on the hospital records of the patients [4]. The purpose of presenting this system, is considerable increase of the quality of the services of the medical staff and also the possibility of increasing the better service provided to patients. Currently most of the time of the personnel or nurse, is wasted in writing and entering the order of doctor in the card desk of the patient and neglect and not entering the order of the doctor in the card desk of the patient, unreadable prescription of the doctor, misreading the prescription by the nurses are some instances that can create losses can not be compensated for the patient. With designing this software, when doctors will go to the bed of the patient they can use electronic card desk instead of paper ones. And instead of entering the information

of the patient (nursing and medical care) manually in the card desk they can enter it electronically and can save them. The history of importance and requirements of this design: 1- Increasing the level of performance of the hospital staff and increasing the accuracy of their work. 2- lack of error in medical records. 3- Increasing the satisfaction of the patients and nurses and the possibility of online continuous control by the doctor of the condition of the patient at any time and any place and consequently can issue the required orders according to the condition of the patient and sending it to the nursing station even from long distance places by the use of internet). 4- Gathering the statistical information and information regarding the medical, hospital performance and helping the staff to save and keep the medical documents and records of the patients. 5- Elimination of repetitive works and unnecessary ones such as (saving in the expenses of the hospital like papers), files and and saving of the space for keeping the files (elimination of the big paper files) and saving in time. 6- With using this system we can keep the result of non-clinical (examination, radiography, sonography (ultrasound), EEG, ECG, ...) in a virtual way (wireless flash memory, scan). Another advantage is that the problem of loss of the patient records while conveying them from the bed of the patient to other places will be solved. 7- In this system we can add the software of changing verbal sayings of the doctor to written text (typed) with the use of a small microphone to the system. 8- Having the option of drugs encyclopedia.

2. Methodology and material

The doctor with having the tablet and the special software of it, can use electronic card desk instead of paper one when he is going to the bed of the patient. In the electronic card desk all the medical records of the patients with their picture, results of examinations, radiology, sonography (ultrasound) and all the information related to the patient plus the software of medicine pharmacology and the software of converting speech to written and exists and the doctor can use it and by entering the software, for example, can select the work sheet of the infection section and then can enter the code number of the patient he wants to prescribe the medicine for. And this can be done automatically for each bed in case it has been designed like a network. Then the doctor selects the required sheet of his from the system and select the required orders, that a part of them are existing there by default, or type it or write it with a light pen. The orders of the doctor will be saved in the patient record and will be sent to the places that the doctors have checked (like nursing station). In this way the nurses no more need to write the orders

of the doctors into the patient record file and with connecting the cable of their device to the port of the specific patient bed or entering the number of the bed, and selecting their required sheet from the system, they can enter their required orders and send it to other places as they see fit. For example the doctor in his own system can send the record and necessary orders for the patient directly to the laboratory and the lab after sample and obtaining the result, will forward it directly to the doctor and in this way so many sources can be saved such as time and money Now imagine that the work of the doctor is completed, nurses will receive the orders of the doctor from the nursing room and will go to the patient for performing the orders. But one of the orders happens to be vague and unclear. Immediately the problem will be forwarded to the doctor from the nursing room and the doctor (wherever he might be) will receive the message by his tablet and will correct his order or explains it to the nurse.

Electronic card desk software is consisted of the following: chart of admission order, Emergency Records, chart of vital sign chart, chart of controlling vital sign, chart of intake and output fluid, chart of blood sugar level, chart of summary of records, chart of physical exam and condition history, chart of the disease progress, chart of doctor orders, chart of counseling request, chart of report of the nurse, chart of taking care of the nursing program, form of recovery sheet, chart of laboratory report, form of request for physiotherapy session, form of registering the medical services, form of registering the timing of medicine, form of the way of taking the medicine, ultrasound reports, form of electrocardiogram, radiology, reports of ECG, EEG, EMG, registering the Angiography film, writing order and

3. Discussion

In the end in some of the researches, they have studied the ways of completing the hospitals records on time. Including in the research of the Missouri university in America in 1996 the role of positive encouragement has been studied and it has proved that it has an effective role in completing the records [5] also, the use of the summary of electronic records in improving the quality and completing these sheets on time has a considerable effect. In a way that the results of different studies in US indicate that the use of electronic sheets of discharging, comparing to completing the same sheets manually includes more details such as registration of diagnose tests, cure progress, prescribe medicine while discharging the patient, plan of following up the disease, the results of counseling with the patient and his or her family and, also the electronic summary of records, comparing to non electronic ones, are completed in

less duration of time and access to them is more quicker [6,7] and also studying rendering or providing better quality services to patients in less time and also improving the condition of the hospital staff and decreasing the wastage of the time of the personnel and also increasing the rate of accuracy in providing services to patient are among the aims and purposes, that from past till now has been the discussion of so many scientific and medical associations. And the existing articles regarding the hospitals and medical centers electronic records which includes (software of managing medical services, software of clinical management, laboratory software, filming software, nutrition software, drugstore software, health card and ...) has been provided but they haven't been regarding the order writing of the doctor (card desk). With proposing this device we have tried to solve some of the existing problems in this field.

4. Results

Making the card desk of the hospital and medical centers, electronic will increase the accuracy of the staff and will decrease the financial expenses and human errors and in these centers.

Table1: The results obtained from the performed researches on the medical centers

Ward of hospitals	Saving in time	Decreasing probable errors	Increasing the accuracy of personnel	Rate of personnel satisfaction
ICU ward	90-95%	85-90%	90-95%	90-95%
Infection ward	90-95%	85-90%	90-95%	90-95%
ENT ward	85-90%	80-85%	90-95%	95-100%
Neurology surgical ward	90-95%	90-95%	90-95%	95-100%
General surgical ward	90-95%		90-95%	95-100%
Ward of Obstetrics and Gynecology	90-95%	85-90%	90-95%	95-100%
Gastroenterology	90-95%	85-90%	90-95%	95-100%

5. Conclusion

In this research we have tried to go more toward a better quality of services in the personnel of the hospital and medical sector " doctor, resident, supervisor and nurse". In this way that the information regarding the card desk has been become intelligent and electronic.

Among the findings and results of this research, it is possible to equip the wards of medical centers which

are the most important service providing sections in each society in the minimum time, that this would increase the quality of services, increase the expenses, easy and sure access to information and saving time, reducing the financial expenses, preventing human errors and helping to save and keep the documents and record of medical and of the patients and

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