

Health informatics and nursing term papers examples

[Health & Medicine](#), [Healthcare](#)



Abstract

Patients put immense trust in the healthcare providers, and in return expect safety in their hands. Healthcare Informatics, and electronic health records in particular goes a long way in ensuring their safety. The EHR improves care through safer, more accurate and complete information being shared among all the healthcare providers. Wait times for appointments - procedures, and access to community care facilities - are reduced. So are for the laboratory test results and clinical diagnosis. The electronic systems also ensure enhanced security of health information through encryption. It also allows doctors access to secured patients' information. These include patient physicals, lab reports and diagnostic imaging reports. It also allows them to coordinate and share data among different providers. And very importantly, it results in reduced medication errors due electronic prescribing and record keeping. It also improves practice efficiencies through automated workflows. Thereby, it gives clinicians more time to spend on patients, than they used to get previously. It also lowers the cost by avoiding duplicate tests, reducing physicians and specialist visits, and reducing burden on emergency and hospitals. This results in improved management of diseases, and decreased demand on the health care resources.

Introduction

Patients place their trust in the health care providers. In return, the patients have the right to expect safety during all aspect of care. However, studies have shown that patient safety is a global problem. Although improved nursing can prevent many adverse events, some amount of errors are

inevitable. In this context, Information Technology (IT) provides that cover of safety by improving communication and providing decision support. This has allowed it to become a cornerstone of patient safety . When it comes to patient safety, medical errors or adverse events, become the topmost issue. They are not because of the fault of the individuals delivering care, but a result of faulty policy or procedures of the system. It has been found from numerous studies that IT can help prevent such adverse events. In the context of nursing, IT plays a critical role by helping eliminate nursing mistakes, and also protecting nurses by reducing their negative exposure. Therefore, the key lies in effectively managing the people who use these tools. To be specific, it is critical, to eliminate the culture of blame, incorporate change management strategies, and to implement IT in harmony with the culture of the organization .

Against this background, we will examine how health care informatics makes nursing safer. By this, we mean safety for the patients and the nursing as a profession.

Patient Care

A critical component is improved care through, safer, more accurate and, complete information shared among all health care providers. It can also help reduce wait times for appointments, procedures and access to community care facilities. Further, it helps reduced wait times for laboratory test results and clinical diagnosis. Lastly, improved security of confidential health information is fulfilled, through modern encrypted data protection system.

Sharing of Accurate and Complete Information

They key attribute of safe care of the patient is preparing a comprehensive record of the patients and their problems. Also, identifying and organizing the biomedical information relevant to their condition, applying it effectively and appropriately, monitoring their progress over time, and detecting and preventing adverse drug events (ADEs).

The health informatics allows for accurate capturing of patient information in electronic format and allows for its sharing among different providers. Like in electronic format, the chances of it be tampered or being lost in communication are remote. Similarly, the electronic format allows for access at different places and time by potentially unlimited number of people. In addition, their portable and ease to access allow the clinical staff to access them from any given location. Just as in EHR, the Computerized Physician Order Entry (CPOE), which allows physicians to send out requisitions, assures timeliness, accuracy and reduction of errors and costs. Here the physician orders information electronically, rather than on paper. These orders are integrated with the patient's EHR and other laboratory results. This also allows for automatic screening for errors and other issues. Therefore, both EHR and CPOE, make it possible to detect “ drug reactions, allergies or overdoses”. Also, any information about a new drug entering the market and its interaction others is updated throughout the system. The system also prevents any confusion and possible adverse drug events (ADE), which are likely to happen between drugs with similar names. This system also facilitates improved communication, especially between physician, pharmacist, nurses, and laboratory technicians. All these improvements,

directly or indirectly, translate into improved efficiencies. These increased efficiencies, over time, translate into reduced costs.

Patients in Control

The healthcare informatics also allows the patients to take responsibility of their own healthcare. This greater access to the healthcare information, allows patients to seek access to preventive care, identify early signs of a problem, find out better treatment options, and ask more informed questions from their provider. This increased awareness allows patients to take full advantage of electronic systems. This translates into reduced wait-times for appointments and procedures. Also, as the no-shows are eliminated, it results in efficient use of nursing hours.

These computer systems also allow them to monitor their progress, particularly if they are suffering from chronic conditions. There are certain hardwares, with associated software that allow direct transmission of data such as – blood pressure, vital signs, etc. – directly to the physician or other healthcare professional. This allows the latter to catch early signs of deteriorating situation. Previously, patients had to wait for the next appointment before examined by a physician. That created a possibility where patient could suffer from significant negative health event.

Effect on Clinical Trials

Healthcare informatics comes in essential for clinical trials and outcomes research. This is because it allows for the collection of data, which can be analyzed, in contrast to the previous way of doing it manually. This also allows the physicians to observe trends in clinical trials, which they may not

have noticed previously. Data analysis using computer software also prevents calculation errors. This combination of electronic record keeping and clinical data allows the physicians to identify right patients for clinical trials. This method is also called Data Modelling technique.

Medical Research

Healthcare informatics can also be effectively used to monitor the progress of the clinical research. Currently, there is a wealth of information available and clinicians don't have the time review it. There are some healthcare information systems, which allow the clinician to enter symptoms or clinical presentation, and pull out all the relevant research. This will come in very useful in gathering information about clinical trials and new treatment modalities. Therefore, patients get access to best in evidence based practice.

Streamlining of Medical Records

They have also made medical records more accessible, something that was not possible when they were in paper format. Earlier, whenever a patient went to a specialist, they would order copies of their paper records from the primary care physicians. Upon arrival, those charts maybe illegible due to poor handwriting, unorganized, or arranged in a different system. While they are being sent to the physician, he might have to wait while the condition of the patient might have changes considerably since then. There also used to be fear that the information in the charts was inaccurate leading to misdiagnosis. The electronic health records (EHR) standardize the record keeping system and make all the information available to the physician. Thereby, reducing wait times and errors.

Telehealth

Health care informatics allows for the transmission of information from the patient's house to their physician or nurse. Typical data, which is transmitted, includes blood pressure, blood glucose levels, heart rate, and weight. Periodic recordings are sent to the physician. Telehealth, which is also called telemedicine, contributes significantly to patient satisfaction. The satisfaction is primarily derived from the fact that a physician can monitor and evaluate the patient's condition, across wide geographic areas. The physician can make treatment decisions within the hospital environment. Telemedicine has been particularly useful for certain kinds of patients, such as those living in rural areas where there isn't adequate delivery of health care. Also, for those with weakened immune system which are in danger of getting communicable diseases, greatly benefit from telemedicine. Finally, also those who are elderly and frail, this comes in very useful.

Security of Health Information

It is very important that the patient's healthcare information is kept private and confidential. In this regard, there is the Health Insurance Portability and Accountability Act of 1996 (HIPAA) so as to ensure that people have right over their own healthcare information. Specific legislations have also been made to safeguard information stored in EHRs. The measures include; access control via password protection to limit access of information; encryption to prevent hacking, such that information cannot be read or understood without decrypting; and means to audit the trail regarding who and when accessed the information and made changes.

The federal law also requires doctors, hospital systems, and other healthcare providers to notify of any security breach. The healthcare facility should notify the Secretary of Health and Human Services. In the case, the breach affects 500 or more patients of state or jurisdiction the health care system should notify the media. This allows the patients to know if something had gone wrong with the security of their information. At the same time, it allows the providers to be accountable and responsible for the information. In summary, patient's health care information is more secure under electronic format than under paper format.

More time for patient and overall better experience

Patient experience can be enhanced by physician allowing patient to view the screen and let them verify the information. Moreover, the use of computer as a tool, and not as something extra can help overcome the change. As the physician enters information or orders requisition, they can inform the patient about it, and that way involve the patient even further. Also logging off the terminal as the end of the session goes a long way in assuring the patient about the safety of their information.

Further, the patient portals that allow physicians and nurses to communicate easily with patients and allow them to access to appointment scheduling, prescription refill, and their medical history goes a long way in enhancing patient engagement. Therefore, it strengthens provider and patient relationship.

However, there is a strong need for change management, especially how physicians manage their time between the patients and EHR. Concerns have

been expressed that emergency doctors spend more time entering data into the computer, than with their patients. In a study done in this regards, it was found that the average amount of time spent by physicians on data entry was 43%, while only 28% directly interacting with the patients. The rest of the time was spent on reviewing records and talking to colleagues. In contrast, an electronic medication management system didn't alter the amount of time physicians spent with their patient. Also, in another study, it was found that CPOE averted 17.4 million errors in one year in the United States.

Electronic Medication Management System (EMMS)

It is known that error reduction in identifying and reducing drugs can help improve patient health. In a study conducted in 2006, by Institute of Medicine, an estimated ≥ 1.5 million patients are affected by medication errors. The resulting costs involved are billions of dollars. The EMMS is a computerized system that dispenses medications for the patients. It can be programmed to dispense individual doses of ten different drugs enough for up to one month's needs. This reduces the in-house medication management cost and also reduces the chances of medication errors and patient non-adherence injuries. Also, the remote monitoring by the system allow for which medication the patient takes and at what time. Therefore, when the patient is non-adherent, it can send a reminder to them. And in case of a missed dose, it can notify the family member and the attending physician. Also, each patient's medication schedule is programmed into electronic medication administration record (eMAR). This makes it possible to track

individual doses and do inventory, to ensure that medications have reached the patients. eMAR in conjunction with bar code technology significantly reduces transcription and medication administration errors, and avoids potential adverse drug events. The eMAR also electronically transfers information that is critical, to the healthcare provider. The information transmitted includes, medication schedules, dose changes, refills, and missed doses. The EMMA provides for continuous monitoring of patients, and their training & support. It also provides adherence reports.

Coming back to the bar-coding, it ensures that correct drugs are administered in a correct dose to the correct patient. And the medication orders appear electronically in the patient EHR automatically. The technology also alerts the nurse if the patient is overdue for the drug.

Elaborating on how it works at nursing unit level; before administering the drug, the nurse scans the bar code on patient's wrist band and then at the medication itself. And if both don't match for some reason, there is an error somewhere. It could be that it is not the right time for a dose, or it is an incorrect dose. Either way, an adverse event is avoided.

One research involved 6, 723 patients that did not have bar coded eMAR and 7, 318 who did. It was found that bar-coding linked with eMAR helped reduce 41% of non-timing administration errors and a 51% reduction in potential drug related adverse events. In bar-coded linked with eMAR errors in medications typically reduce by 27%, and transcription errors and the associated potential drug-related adverse events are pretty much eliminated. Further, decision support in conjunction with CPOE and bar-coded eMAR technology play a contemporary role in medication safety efforts.

Whereas, CPEO prevents error related to bad judgement, the bar code eMAR prevents errors due to memory lapse.

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