

# **ITCS 430 Introduction to Health Informatics**

## **Essay Topic 2**

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### **Cost/Benefit Analysis of Electronic Health Records by Nurhazman Abdul Aziz**

#### **Introduction**

Information Technology is proving to be a vital element in the administration of healthcare industry, providing a new way to store vast amounts of information without requiring huge physical storage space. Electronic health records (eHR) system is a comprehensive database system used to store and access patient's healthcare information. Performance improvement throughout the industry remains a primary focus, as efforts to improve the quality of care and improve organisation performance. Soon, "no longer paper-based records systems will fulfill the needs of clinicians and related healthcare workers" (Koeller, 2002), as the industry advances. Information Technology will continue to be an instrument of change in the industry, as benefits of using electronic health records is being achieved. In contrast, several barriers, obstacles and disadvantages will be observed as a cost to implement such technology. In this essay, three related cases studies will be discuss to demonstrate the cos/benefit analysis of electronic health records. Thus, to determine this, determinants of cos/benefit analysis are defined beforehand as a general overview.

#### **Determine the Cost/Benefit Analysis of Electronic Health Records**

Cost has always been a major factor in the evaluation of information retrieval systems, but it has assumed increasing importance constraints and possible elimination of some services. In a related literature (as paraphrased from “Evaluating Information Retrieval System”, Eva Kiewitt, 1979), Kiewitt defined that an information retrieval system can be evaluated from three viewpoints. Firstly, it is effectiveness of the system where how well it is satisfying the demands place upon it. Second, it is cost-effectiveness evaluation where the determination efficiency (in term of costs) that satisfying its objective. Lastly, it is the determination and evaluation wherether the system justifies its existence (the system worth). (Kiewitt, 1979) By evaluating system worth, these are concerned with the cost benefits. Thus, the three viewpoints can be applicable to the implementation of electronic health record.

Apparently, the disadvantages are also contributing in the part cost analysis in electronic health record. These include items such as the start up cost and the training cost, which can be excessive. And, there is a substantial learning curve, where practitioners have to literacy in using the system, performance data entry as well as information retrieval. (Gurley and Rose, 2004) These were once a job of the clerks. Electronic health record designers have to consider the needs of the users. In other words, systems must be user friendly. Another contributions to the disadvantages, that every error on the records can have a major impact, as multiple users can access the record at once, further failures in hardware or software can results in loss of information. Lastly, the security measure has to be enforcing strictly to protect privacy and confidentiality in the system. (SEERI, 2004)

On the other hand, the benefits of an electronic health records, in terms of electronic storage, accessibility and availability (Powsner, Wyatt and Wright, 1998) of information to authorised practitioners are often combined with the benefits of an electronic healthcare system. These including enhanced access to medical information and greater efficiency, as well as allowing continuously data processing and up to date information (Powsner, Wyatt and Wright, 1998). A huge potential for cost savings and centralised administration have proven one of the distinct benefits using electronic health records

over paper health records. (Frolick, 2002) Furthermore, electronic health records allowed completed and accurate documentation of all clinical details and variances in treatments providing a single point of access.

In addition, information can be easily sorted or grouped according to certain priority and criteria, such as the treatment dates were performed. Electronic health records also allowed the user and practitioners to graph a set of results over time. For instance, a patient's blood pressure can be graphed over a short time period, thus allowing the practitioners or nurses to notice the trends that might be vital for special attention or proper care.

According to Powsner and Wyatt (1998) in their panel, here are a total of ten benefits in having an Electronic Health Records. One of the benefits mention before, continuously data processing is actually where the data are structured and coded in an unambiguous structure, programs can continuously check and filter the data for errors, summarise and interpret data. While the other seven benefits includes Electronic Health Records to be assisted search, tailored paper output, incorporation of electronic data, patient data confidentiality, flexible data layout, safer data and legibility of records.

### **Case Study 1**

#### **Spartanburg Regional Medical Center**

**Herald Journal, March 22, 2000 Cited By Scot Silverstein**

In the case of Spartanburg Regional Medical Center (reported on March 22, 2000 on Herald Journal, cited by Scot Silverstein), several staffs member observed malfunctions in the hospital computer system that stores patients' medical or health records are jeopardizing patient care. This incident have cost in a \$2.7 million system nurses use for clinical reports, the computer program that keeps electronic medical records and a database used by doctors to track patients' clinical progress.

Furthermore, the problems include difficulties retrieving medical histories, frequent error messages and failure of the system to post lab and pathology reports in patients' files, according to hospital documents. One of the possible cause specific numbers of errors that have occurred within the system and it might be due to either the technical problem or security.

This is one of the negative cost analyses that Spartanburg Regional Medical Center has to face after implementing the Electronic Health Record. This will worsen the situation with such incident in their Electronic Health Records, as the cost of the start up implementation of the system, including training the healthcare staff, is high. Moreover, adding the current problem to the situation.

<b>Case</b>	<b>Study</b>	<b>2</b>
<b>St. Jude Children's Research Hospital</b>		
<b>Using Electronic Medical Records to Improve Patient Care by Mark Frolick</b>		

The implementation of Electronic Health Records system at St. Jude Children's Research Hospital, in Tennessee addresses the problems that existed with the paper based health record and explores the benefits of electronic health records system. It is vitally important for St. Jude Children's Research Hospital to adopt such system, as it is dedicated to the treatment of children with catastrophic illness. The criteria for each protocol of treatment are carefully defined, which the aid of electronic health records complete and accurate documentation of all clinical details and variances in treatment must be maintained. Thus, St. Jude has decided to invest in the project of building an Electronic Health Records. In addition, this electronic health records provides a single point of access for all employees seeking information both for clinical treatment of patients and for research data collection. In a long process, St. Jude will benefit in a number of ways implementing such system, includes information that is more accessible and improve communication.

Now, all clinical laboratory and patient demographic information can be view at any terminal in the hospital, as long the employee has the security clearance. Data retrieval is

more accurate and efficient due to automated clinical documentation and protocol information being electronically linked to clinical report. These include the following: medical-error reduction and time saving due to the electronic record's availability and legibility; information sharing with patients; and support for clinical decision making.

From the case study, St Jude have fully benefited from the electronic health record system. St Jude have also observed a great improve and efficiency in the working professional.

**Case Study 3**  
**EHR Net Strategy**  
**By NSWHealth Council**

Another implementation project by NSW Health Council is to introduce electronic health records at a variety different location in Australia. The project has show a significant process in at least two areas within the first three years. There have been a number of key developments, where benefits are extended from immediate consumer, provider and organisation benefits.

Consumers are better informed about their health status, access to and control of health record and importantly can be actively involved in the creation of their own health record. While, provider can improved legibility and accountability as event summaries are electronically transmitted and few errors and duplication of treatment as episodes of care can be tracked across all health services. Lastly, organisational will obtained a best practice evidence based health system, better communication and access to information for audit and research purpose.

As for this case study, the benefits do not only have benefited the one party, but also in terms of consumers, providers and also organisational. This benefit will able to achieve and improve efficiency, safety and quality of care over paper based systems.

## Conclusion

These case studies have shown that cost/benefits analysis can results a vital role in the outcomes of the electronic health records. The benefits realized by the implementation of an electronic health records include efficiency and advantages in managing clinical information and improved quality of care and cost through decision support and management of patient care. In contrast, the cost analysis can have shown a number of disadvantages. Yet, it can be also useful tool for evaluation processes in implement such system. In the first case study, the implementation of electronic health records is not proper plan and evaluated from the three view points. In addition to the situation, the disadvantages can be observed. While, the other two case studies have benefited from the implementation of electronic health records and this is a good point for further development.

In conclusion, the decision to implement electronic health records in any setting requires a clear understanding of the potential cost-benefit. Electronic health records too have provided every sector in the health industry, with an extensive benefits and option for improving patient care. Information in the record now, is more accurate as well legible. Yet, keeping in mind even the benefits of using health electronic can be found, cost analysis too is a vital factor in implementing such systems.

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