Proposing a Business Model in Healthcare Industry: E-Diagnosis

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ABSTRACT

In modern-day developing countries, there are certain key problems in the healthcare system that adds to a patient’s confusion. An example of these difficulties relates to choosing an appropriate medical specialty and among specialists. Owing to the lack of structural healthcare services, there is the need for guidance in selecting the most appropriate diagnosis and medicine for patients with various symptoms or physical disabilities, the need to educate patients on self-treatment procedures, the need to reduce the high cost of treatment and diagnosis, the need to address boring procedures of diagnosis and treatment, the lack of adequate strategic planning due to the absence of valuable information about patients, the problems connected with unnecessary traffic congestion, and many more. Together, these problems create a great opportunity for the expert analysts to ameliorate the healthcare system in these countries by applying new methods, such as using web-based programs and data mining (DM). This article focuses on the use of software, healthcare data warehouse and the application of DM to generate models for solving the aforementioned problems.

Keywords: Computer Assistance Healthcare System, Data Mining, Diagnosis Website, Electronic-Diagnosis, Healthcare Business Model

INTRODUCTION

While clinical diagnosis is a critical issue, there are some common problems associated with the diagnosis process in the healthcare system. These difficulties exist along a wide spectrum, for example, patients often meet with problems that are related to identifying an appropriate medical specialty and choosing among specialists. This challenge is further compounded with the added burden of unnecessary cost of healthcare system on diagnosis and treatment as well as the poorly organized health services delivery system. Over prescription and excessive consumption of chemical medicines is another critical issue in this system. E-Diagnosis is a framework which can handle some of these issues. E-Diagnosis applies data mining (DM) methods to diagnose diseases. In this paper, we describe E-Diagnosis by the business model.

DOI: 10.4018/jhisi.2013040104
ontology (BMO). To inference items in our BMO, we use content analysis in prior research about computer assisted diagnosis.

The paper has four sections: in the first section, the extant literature on electronic health records (EHR), applied DM for healthcare and a potential business model for health IT applications will be reviewed. In the second section, applied research method relevant to e-diagnosis will be introduced and explained. The third section discussed proposed DM method for this BMO. In the fourth section, the purpose of this paper and business model will be further rationalized. In the final section, we will conclude and summarize the paper discussions.

**LITERATURE REVIEW**

Owing to widespread use of traditional methods in the healthcare systems, a lot of inefficiencies and challenges have already existed. Examples of problems include the huge amount of paperwork involved in traditional care delivery record-keeping, the unwillingness of health experts who handle patient’s files like business records to share data, as well as disintegrated health data (Gates, 1999).

Fortunately, the electronic health record (EHR) can assist in many of these aforementioned problems although there are some larger problems, which cannot be solved by EHR, for example, the confusion often expressed by patients in selecting appropriate medical specialty and among specialists, the frustration with the lack of structural healthcare services, the uncertainty surrounding what would be the most appropriate diagnosis and medicine for patients with various symptoms or physical disabilities, and so on.

Essentially, the EHR system is a store of electronically sustained information about an individual’s lifetime health status and health care; in fact, the EHR is a core part of the patient information systems. As well, the EHR is often considered an instrument which can be used to improve the therapy of patients by dynamic processes (Schramm & Weber, 2001).

Research about online symptom processor showed that these computer assisted systems can greatly improve diagnostic effectiveness. These systems and clinician bring different but complementary types of knowledge to the diagnostic task (Fox, Barber, & Bardhan, 1979). Computers affect diagnosis by assisting a physician to analyze the patient’s data both efficiently and effectively (Bruce & Yarnall, 1966).

The previous suggested web-based models are able to determine the correct diagnosis in some of the cases. An advantage of those models is the usage of the Internet as a database with monitoring and updating capabilities. Furthermore, the mentioned models could assist in identifying some of the key issues in a patient’s medical records. As well, these data and models are able to provide insights on a possible diagnosis. Therefore, these e-tools are useful to assist the physician in his review of a patient’s medical records (Segev, Leshno, & Zviran, 2007).

One of the best computer assistance methods that can be helpful for healthcare decision-making is data mining (DM). Briefly, DM is the process of selecting, exploring and modeling large amounts of data in order to discover unknown patterns or relationships. These gained patterns are applied to provide a clear and useful result to the data analyst (Giudici, 2003).

The term ‘data mining’ has been increasingly used in the medical literature. DM tasks are classified into tasks of description and prediction. The utilization of predictive data mining in clinical medicine can help to derive models that can apply patient’s specific information to predict the outcome of clinical decision-making. In addition, DM technique can be used in the construction of decision models for procedures such as prognosis, diagnosis and treatment planning (Bellazzi & Zupen, 2008).

DM is now being used for a diffusing application in the healthcare system such as executing the health information system (HIS), forecasting a healthcare facility’s resources demand and treatment cases, e-governance structures in healthcare, health insurance, and so on. Finding appropriate solutions for questions
The Dynamics of IT Adoption in a Major Change Process in Healthcare Delivery
www.igi-global.com/chapter/dynamics-adoption-major-change-process/9040?camid=4v1a

Guided Test Case Generation for Enhanced ECG Bio-Sensors Functional Verification
*International Journal of E-Health and Medical Communications* (pp. 1-20).
www.igi-global.com/article/guided-test-case-generation-for-enhanced-ecg-bio-sensors-functional-verification/187053?camid=4v1a