Introduction of Health Information Technology Professionals for Data Mining in Hospitals

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Dear Editor-in-Chief

The databases of the computer-based information systems in hospitals contain data which could be used well to assess the performance of hospital staff especially healthcare professionals by analyzing appropriately. According to the performance analysis results, the hospital staff performance can be maintained in a high level more than ever. Definitely, improvement of hospital staff performance has a key role in improving the provision of healthcare services to the patients and ultimately clients referred to healthcare centers (1-2).

In addition, the complete, accurate and appropriate data represent the personnel performance truly and can be utilized in scientific researches confidently. After ensuring that the data existing in the databases are regarded appropriate, complete and exact for an issue under study, the data mining techniques can be used to discover knowledge among the huge data existing in the databases of the computer-based information systems in hospitals in order to make timely and correct decisions about a specific issue or access to new knowledge in the field of apparent and hidden challenges in hospitals (3).

Regarding different steps of knowledge discovery, first non-assimilated and redundant data are removed among huge data (data cleaning), various data resources are combined (data integration), and target-related data are retrieved from databases (data selection). Further, data are converted to appropriate forms for extraction by using various operations (data transformation) such as summarizing. Furthermore, data patterns are extracted by using logical and wise methods (data mining). Finally, patterns are evaluated and knowledge presentation are performed (4-5).

Data mining step is considered as the auto search among large data resources to find patterns or data characteristics, which cannot be conducted by simple statistical analysis. Some techniques such as bayesian, decision tree, neural networks, nearest neighbor, fuzzy logic, and genetic algorithms models are used in the data mining step for discovering patterns and the relationships between data (5-6).

The extraction of knowledge among huge relevant data for identifying the methods of diseases prevention, the cause, diagnosis, anticipation and treatment of illness, the effectiveness of drugs and other relevant issues are considered as some

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purposes of data mining related to health area, which ultimately result in increasing longevity and making peace of mind among community individuals (7).

Hospital officials can utilize the skills of the professionals in health information technology department to analyze healthcare and managerial data. The professionals of health information technology department in hospital monitor the performance of hardware, software and network equipment in the electronic environment for the management and security of hospital information. These professionals with their specialty in software, hardware, networking, and health information technologies, play an important role in helping hospital officials regarding monitoring data collection, storage, analysis, and then presenting and disseminating information and knowledge. If professionals of health information technology department can increase their experiences and skills in data mining and its related subcategories such as text mining, web mining, and ultimately, data science thus they can have more valuable effects in the health area (8-9).

A number of abilities of health information technology professionals related to explore in data on the basis of their job titles (10) are presented in Table 1.

Table 1: Some job titles of health information technology professionals related to explore in data

Job Title	Job description summary
Data Analyst	Gathering data from several sources and interpret patterns and trends
System Analyst	Use analysis and design methods to solve business problems
Systems Engineer	Monitor the performance of systems and continually evaluate all stages of operations to ensure that a problem is solved
Analytics Manager	Use technical skills, industry understanding and knowledge of customers to provide and present information for decision making
Clinical System Analyst	Focuses on workflow analysis, software requirements, and design of the application to meet organizational specifications
Information Technology Business Analyst	Analyses the structure and design of technical systems, business models, processes and strategic business needs

Conflict of interest

The author declares that there is no conflict of interest.

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