

## Chapter 2

# Cloud Computing as the Useful Resource for Application of the Medical Information System for Quality Assurance Purposes

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### **ABSTRACT**

*The eHealth is a rapidly evolving and changing field. The different models and protocols of medical information system (MIS) are now available. The MIS and its everyday usage is extremely beneficial for the healthcare sector, but its introduction in everyday practice is slow. Cloud computing is perspective field and it differs from the conventional distributed computing by its focus on large-scale sharing, innovative applications, and high-performance orientation. This paper defines “cloud computing” as flexible, secure, coordinated resource for data sharing among dynamic collections of individuals, institutions, and etc. It should be emphasized, that cloud computing can be reviewed as a useful tool for sharing of computing resources and services. The author expects that this technology has huge potential in health care and can improve health care services, as well as provide benefits for health care research. It is proposed that the solution is the widespread and routine implementation of the medical information system. The present article will discuss the application of cloud computing for the medical information system practical usage. The goal in the information age must be to create knowledge from medical information with less time managing medical information and data. The availability of adaptable technology and possibility of improvement of the infrastructure conditions is the basis for medical informatics applications. The routine application of MIS by healthcare organization holds the potential to improve, develop and realize medical service in the effective and comprehensive mode.*

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## **INTRODUCTION**

There is an obvious need for the intensive and routine application of information technology (IT) in healthcare. In most cases clinical workflow still depends largely on manual, paper-based medical record systems. This is economically inefficient schema which produces significant variances in medical outcomes. Medical information system (MIS) is at the heart of IT implementation policies in healthcare systems around the world (Clamp et al, 2007). Most of these policies are based on beliefs about the positive value of MIS rather than on the available empirical evidence; as a result, policy documents comprise aspirational statements rather than detailed and realistic expectations (Banta 2003).

It is obvious and well known that the field of healthcare informatics is rapidly evolving. The new models and protocols of MIS are developed. They are based on implementation of profiles such as HL7 and DICOM. Despite obvious advantages and benefits, practical application of MIS in everyday practice is slow (Detmar 2001; Clamp et al., 2007). Research and development projects are ongoing in several countries around the world to develop MIS: examples include Canada, Australia, England, the United States, and Finland. MIS is used primarily for setting objectives and planning patient care, documenting the delivery of care, and assessing the outcomes of care. It includes information regarding patient needs during episodes of care provided by different healthcare professionals. The amount and quality of information available to healthcare professionals in patient care has an impact on the outcomes of patient care and the continuity of care. The information included in MIS has several different functions in the decision-making process in patient care. It also supports decision making in management and in health policy (Lane 2006).

The term globalization involves a complex series of economic, social, technological and political changes seen as increasing interdependence and interaction between people and companies in disparate locations. The phenomenon of globalization has already reached the medical field, most importantly in the areas of knowledge, diagnosis and therapy. The access of as many people as possible to these areas should be guaranteed by a technically efficient man-machine interacting system and by an effective organization of specialists around the world. An efficiently operational and organized exchange of medical information increases the quality of diagnosis and therapy, and assures the training and continuous education of the medical personnel. The main task of a medical information system is to enable medical non-experts to gather, exchange and discuss relevant data at any time with experts at any place of the world. A wise conception of such a structured dialogue for consultations and continuing medical education is based on a user-friendly, fast, simple, efficient and sustainable system for the exchange of medical information (Detmer 2000; Detmer 2001).

Several years ago any talk related to the Internet would have to be proceeded by an explanation of what it is and how it works, but at present information and communication technologies (ICT) became the essential part of our life and practical activity. eHealth can be designated as a special form of ICT; as a method of delivering of medical services by electronic means of communication, with the provider and the recipient of these services being at different places.

Efficient, effective and reliable systems for medical data registration and management are the top requirements. However, solutions have so far proved elusive and the deployment of ICT in many health sectors has required major transformational changes. One of the major problems for a full potential delivery of medical service is to provide the tools for the world-wide access. Thus, it is necessary to make radical improvements in service productivity, access to medical services, and improved quality

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