

Chapter 3

Healthcare Applications for Clinicians

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ABSTRACT

Computer-based applications at diverse healthcare sites have led to many improvements over a prolonged period of time. Some of these advances include efficiency (in comparison to paper based data), effectiveness (in terms of support in the various processes carried out at the healthcare setting), and more categorized data. The application built for a particular healthcare setting should complement the workflow in progress. Some of the issues that one would be concerned about at some point of designing such an application consist of data privacy, minimal bias offered by a system (i.e. in terms of searching and decision-making), a user friendly GUI, and an efficient integration of the new system with the existing standard application at the health based setting being considered. Clinical Informaticians have been considerably effective at replacing paper-based medical data with healthcare applications. Presently, the theme of interest for biomedical IT systems comprises of Web based and wireless healthcare provisions. To explore into this area of research, we begin by familiarizing the audience with the theme of healthcare applications in Section 1. This is followed by listing and discussing the advantages provided by generic computerized systems developed primarily for the assistance of physicians in Section 2.1. In Section 2.2, we consider possible challenges that these applications induce. Section 3.1 comprises of

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the possible benefits offered by Web-based applications for clinicians, whereas Section 3.2 focuses on the challenges offered by Web-based applications. Section 4.1 delivers an overview on the subject of wireless healthcare technology in regard to physicians whereas Section 4.2 lists and defines its benefits in detail. Section 4.3 gives a brief coverage to wireless healthcare devices that could be of significance to clinicians.

Furthermore, Section 4.4 consists of a clarified consideration of wireless applications that currently provide assistance to certified physicians, followed by Section 4.5, focusing on its challenges. We conclude this chapter in Section 5, providing an insight of how the future of generic, Web-based, and wireless technologies could lead to added development in our lives as clinicians or patients.

1. INTRODUCTION

Over the years, interactive computer-based systems have provided crucial support to clinics, hospitals and other health-based centers. These systems have continued to influence the manner in which clinical tasks are organized and fulfilled in terms of performing tests, diagnosis procedures, treatment methods, as well as storing, analyzing and accessing patient and staff information. At the present time, the computer-based systems used in healthcare settings of high standards are the result of joint efforts of clinicians, software developers and clinical informaticians hence triggering the outcome of the desired system to outdo that of existing applications. (Pagliari, 2007) Acquiring input from professionals of diverse qualifications and expertise who aim towards the same goal, offer various advantages as the result of added involvement.

Healthcare systems, whether in the form of desktop applications or mobile applications, have managed to replace paper-based systems to a large extent. One of the major themes of interest for biomedical IT systems, in today's time, comprises of web-based and wireless healthcare facilities. Reasons include wide access vicinity, and quick and easy access of information.

2. COMPUTER-BASED HEALTHCARE APPLICATIONS FOR CLINICIANS

2.1. Benefits

BioTIFF

Health specialists radically benefit by a means of having their medical data of interest to be organized with relevance. The BioTIFF holds various such advantages. The BioTIFF is an application which comprises of encapsulating a number of images of standard TIFF (Tagged Image File Format) in a computerized 'envelope' or a 'container'. For instance if a set of 20 photographs of a blood cancer patient are to be obtained, the entire set of 20 photographs would then be placed in an envelope named 'bloodcancer.tif'. (2006) Within the envelope, one will find the images bloodcancer1.tif, bloodcancer2.tif, and so on. (2006) Further, elements within the envelope can locate the affected or damaged areas and are able to record the observed findings. (Medicine 2.0, 2008) According to (Medicine 2.0, 2008), the BioTIFF technology comprises of "... molecular, cellular, anatomical, and biomedical coordinate systems..." (Pagliari, 2007) which aid in measuring the improving health of the involved patients

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