

## GUEST EDITORIAL PREFACE

# Special Issue on the International Conference on Electronic Health 2012

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## INTRODUCTION

The *International Conference on Electronic Health* (ICEH), Tehran, Iran, Nov 29-30, 2012, was the first international conference in Iran which specifically shed light on the topic of electronic health. This issue of the *International Journal of Reliable and Quality E-Healthcare* (IJRQEH) integrates the adapted and enhanced versions of four papers selected from among 240 works submitted to ICEH 2012 in which 30 percent of the submitted papers were accepted for either oral or poster presentation. More specifically, 47 oral presentations and 30 poster presentations were selected by our scientific committee made up of 21 prominent academic figures in cooperation with 150 experts and specialists. From the very beginning, the conference committee was focused on creating an atmosphere inspired by innovative and diverse nature of topics on electronic health.

## INSIDE THIS ISSUE

The issue includes four contributions to the discussion of the main topics, challenges, opportunities and developments related to advances in health and medical informatics. In the first paper, '*Robotics and Tele-rehabilitation: Recent Advancements and Future Trends*', Mobini, Behzadipouri, Saadat Foumani, provide an overview of the major studies in the field of tele-rehabilitation and compare their results to offer definitive answers to some of the main questions over this newly-introduced technology. Tele-rehabilitation is a flourishing field in electronic health developed by the combination of new communication systems and different rehabilitation devices. Furthermore, the authors have put to work their experience in this field to speculate future trends and progresses.

In '*An intelligent decision support system for nutrition therapy: Infrastructure, decision*

*support, and knowledge management design*', Fahmi, Dorostanian, Rezazadeh, Ostadrahimi present an expert system to support decision makers in nutrition planning. This system is an extended version of a fuzzy decision support system for nutrition therapy. Fuzzy rules empower their proposed system to be implemented more realistically. In addition, they exploit artificial neural network (ANN) in order to develop the knowledge management component. The integration of ANN with the expert system provides the possibility for a set of novel rules to be generated, and consequently, adds new knowledge to their system.

Microsoft Kinect is a motion capture sensor developed for the famous gaming console, Xbox. However, it has attracted a lot of attention in the area of rehabilitation and motion capturing due to its simplicity, and affordability. Measurement of motion indices using Kinect and analysis of the patient performance may open a new door in the development of smart devices for home-based rehabilitation.

In this regard, the third research study entitled '*Motion Performance Measurement using the Microsoft Kinect Sensor*', conducted by Fakhar, Behzadipour, Mobini, discusses motion performance indices based on the kinematics of upper body and compares these indices in order to be used in a home-based rehabilitation device. These indices are 1) Mean velocity, 2) Mean acceleration, and 3) Smoothness. A set of experiments has been designed and carried out in which, kinematic data of three patients has been recorded. The selected indices have been calculated, and the results were compared with those of a healthy subject. It has been shown that the mean velocity and acceleration values of a stroke patient do not differ from those of a healthy person while the smoothness index demonstrates a significant difference between a patient and a normal individual.

The emergence of the wireless body area network (WBAN) has a great potential to revolutionize the future remote health technologies. Although this technology has useful effects on human quality of life, researchers are still encountering numerous challenges. Evaluation

of previous works in WBAN security show different levels of threats and security solutions which must be considered in accordance with each level. In the last article, '*Wireless Body Area Network: From Electronic Health Security Perspective*', Kargar, Rahimi, Ghasemi present a comprehensive review of the security threats and current solutions for the Wireless Body Area Network considering the levels, evaluation of the security requirements and existing threats. In fact, because of the nature of body area networks, this study considers threats, the levels and solutions altogether. Furthermore, the paper is an effort to present security solutions to improve the present status of the wireless body area network.

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