CHALLENGES OF MANAGING HEALTH TECHNOLOGIES IN THE IOT

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Health technology management is an unavoidable part designing, managing and maintaining medical devices in clinical settings and everywhere else where health care is delivered. By moving the paradigm of health from just curing the disease to its prevention, and by introducing the empowerment of patients into health policies, health care and intensive use of numerous health devices for well –being, diagnostics, monitoring and treatment has entered life and homes of millions all over the world. All these new devices and technologies generated challenges to health care providers in managing the health care system and the data generated by the system. In addition to "classical" issues of health technology management, such as technology planning, selection, procurement, inspection, admittance, maintenance, and disposal, new technologies opened a series of considerations on accuracy, security and safety of medical data collected by new technologies. With the endeavor to build future health systems on Internet of Things (IoT), or better to say on Internet of Medical Things (IoMT), there is a lot to be agreed and put in order on technological side, as it is also on the legal and ethical part.

In the presentation, experience in introducing a nation-wide system for diabetes monitoring and self-management is presented as an example of possibly wide accepted case for a growing prelevance noncomunicable chronic disease with large impact on global health and budget in the health care system. Indeed, in its first Global report on diabetes, the WHO reports that the number of people with diabetes increased nearly fourfold since 1980 and is estimated to 422 million adults, especially due to rise in type 2 diabetes. WHO reports 1.5 million deaths caused by diabetes and warns that its complications often lead to heart attack, stroke, kidney failure, lower limb amputation and blindness. Patients are regularly advised to self-monitor their blood glucose level, insulin doses applied, weight, daily exercise and activity and/or blood pressure, all in order to achieve glycemic control, to prevent hypoglycemia and to unburden healthcare professionals in adjusting their treatment. WHO would like to adopt that approach in a way that health systems can, based on Information and Communication Technology (ICT) and mainly independently, diagnose, treat and care for people with diabetes as well as enable people in making healthy choices for diet and physical activity. Lately, the concept of the Internet of Things (IoT) was introduced into healthcare. Electronic devices connected to the cloud are used for monitoring and data acquisition, allowing automatic generation of messages and alerts. Many of those messages still seek intervention of healthcare professionals. Following that developments, and in order to help patients and healthcare professionals provide better self-management and management of diabetes, we have developed a system which is endorsed through the pilot project by Croatian health authorities and is introduced into several clinical settings. The system introduced into clinical settings comprises of a device for connecting and communicating with glucose meters, data management software for data acquisition and visualization, and database. The system allows connection of mobile units, which are a part of custom made personal wearable wireless network, and are the main device for monitoring patients' basic physiological functions. In addition to transferring the data on blood glucose measurements from the memory of glucometers, it monitors physiological parameters such as heart rate, ECG (on demand), breathing rate and physical activity. Also, the system enables connection of peripheral devices from different manufacturers (e.g. blood pressure management) or other custom made sensors to the cloud.