

Abstract:

Background: Diabetes is a growing health problem in the world. Although it is used to be a disease among rich and was more common in the developed world a few years ago, now it has changed. A considerable proportion of the Sri Lankan population has also been affected by this chronic disease and the number is daily increasing.

Telemedicine is successfully being used for prevention, diagnosis and management of diabetes in many developed countries and some developing countries. Although telemedicine is not much used in Sri Lanka, Sri Lanka is at a leading position in ICT.

Sri Lanka can learn lessons by studying about both successful and unsuccessful telemedicine applications around the world. And there is a great possibility of successful implementation of mobile and web based telemedicine applications in Sri Lanka.

Objectives: To design and develop a mobile and web based telemedicine application to facilitate diabetes investigation and self monitoring of blood glucose levels.

Methods: After having informal discussions with key stake holders, mobile and web based telemedicine application was developed in collaboration with Diabetes Research Unit of Faculty of Medicine, University of Colombo and Mobitel (Pvt) Ltd. The system for laboratory investigation of diabetes and Self Monitoring of Blood Glucose was developed as a component of Telemedicine Application for prevention, detection, diagnosis and effective management of diabetes and its complications. Its other components are an electronic PHR and a DSS, which are designed and discussed by two other trainees of MSc in Bio Medical Informatics.

Mobile application was developed as an IVR. As IVR can be run even in a basic mobile phone without internet facility, this system can be used even in remote areas of Sri Lanka.

The system was first tested at the laboratory level. After obtaining ethical clearance, the system was tested for usability and acceptance by giving it to diabetes patients and general public. Their feedback was obtained through a closed ended questionnaire.

Results: Answers for the given questionnaire reflect that the system was in an acceptable level to the diabetes patients and the general public.

Conclusion: When a new technology is introduced into the health care system, several issues have to be anticipated. By addressing those issues mobile and web based telemedicine application for diabetes management can be made a successful endeavor.