

Abstract

Background: Diabetes mellitus is a chronic disease requiring life time care. Globally diabetes has grown to a pandemic proportion. Majority (80%) of these patients reside in low and middle income countries including Sri Lanka.

Onset of diabetes can be slow and silent; it takes several years before a patient is diagnosed. Therefore many patients are diagnosed at late stages with complications. Early detection and proper management helps to reduce morbidity and mortality thus reducing the cost of care.

Due to the existing limitations in current diabetes care, provision of at least the basic care using conventional methods will be a challenging task. Thus it is mandatory to explore innovative methods to overcome these barriers.

Telemedicine can provide efficient transfer of information and receipt of feedback for caregivers and patients. It can be utilised across the whole spectrum of diabetes management from prevention, screening, diagnosis, treatment and follow up.

Proposed solution: This application is composed of following functionalities; a diabetes screening module, an automated response system, a decision support system, an electronic personal health record, a laboratory investigation module including self monitoring of blood glucose module and a diabetes education module.

Mobile and web based diabetes screening tool facilitates wider population screening. Interactive voice response technology used in the mobile platform is a new idea in diabetes screening. Automated response system with facilities to utilize store-forward and real time messaging can share information effectively. Underline decision support system assist the operation of the automated response system and the diabetes screening module.

Method: System was developed in collaboration with the Diabetes Research Unit of Department of Clinical Medicine, Faculty of Medicine, University of Colombo and Mobitel (Pvt) Ltd.

Development carried out by series of iterative processes namely requirement gathering, architecture designing, and development followed by testing.

Usability and acceptance testing of the mobile component of the screening module shown that the overall acceptance is high among the sample but there were few issues related to the usability such as long menu length and entering of data using key pad of the mobile phone.

Conclusion: Telemedicine can be considered as a viable alternative to conventional methods. In spite of expected positive outcome of the system demonstration of effectiveness of this application using a randomized control trial is required before wide scale implementation. In a prospective eSociety, implementation of this system will be a successful endeavour.

Key words: Telemedicine; Diabetes; Automated response system; screening module; Decision support system

