A Model of Mobile Diabetes Management System Based on Diabetes Core Dataset

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Background
The integration of mobile devices and personal health records (PHR) provides a technology based solution that can promote self-management of people with chronic diseases including diabetes. Since one of the main principles in diabetes information management systems is the use of uniform and comparable data elements, this study aimed to develop a model of mobile personal healthcare system for diabetic patients according to standard core datasets for diabetes.

Methods
A review of the literature was performed to retrieve both original and review papers published from 2010 to 2015 that described the features and main data elements of mobile diabetes applications. Moreover electronic search was accompanied to find the latest reports on the best mobile diabetes apps. Data elements and features of mobile apps were extracted. To develop the model, we used the Personal Health Service Framework which is an open architecture for developing patient-centric health applications and monitoring systems.

Results
We developed the minimum data set for diabetes PHR and categorized them into 8 main categories: demographics, health history, general examinations, diabetes indicators, laboratory tests, medications, life styles and complications. In addition, we identified 22 features and data elements of mobile diabetes apps as the core features for diabetes self-management. A model was then developed based on the minimum data set for PHR and essential features and data elements of a mobile app for diabetes self-management.

Conclusion
This model enables the people with diabetes to improve their self-management, as well as communicate with their health care providers, and can inform the designers of mobile health apps with the required features and data elements for management of diabetes.

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