

DIABETES MONITORING USING SMART DEVICE

[0001] This application claims priority of U.S. Ser. No. 61/656,826 filed on Jun. 7, 2012 in the U.S. Patent and Trademark Office, the entirety of which is incorporated by reference herein.

FIELD OF INVENTION

[0002] The present invention is directed to a system and methods for real-time diabetes monitoring, in particular to diabetes monitoring using a smart device and allowing secure communication between a patient and a diabetes care provider.

BACKGROUND OF INVENTION

[0003] Diabetes is a chronic disease that can lead to numerous complications including heart disease, eye disease, kidney disease, and neuropathy. Patients with diabetes may require multiple daily injections of insulin and frequent dose changes. In addition, they are constantly adjusting their insulin for their diet plan. Therefore, rapid and timely telehealth review of blood sugar logs to help patients change insulin doses is appealing. However, studies show that even with significant improvement in patient contacts with providers, there is no improvement in metabolic control, as measured by A1c and hypoglycemic (low blood sugar) and hyperglycemic (high blood sugar) episodes.

[0004] Participants in previous diabetes telemedicine intervention studies have reported 1) a need to make interaction between patients and clinicians easier, and 2) a need to provide more diet and nutritional educational material for different groups of patients. These themes were repeated in analysis of the highly publicized, randomized controlled Diabetes-STAR trial, which failed to show improvements in self-care behaviors in over 300 diabetic patients after using a customized website for patients to review their labs and records.

[0005] Given the high (and rising) incidence of diabetes in the world, improvements in diabetes outcomes are critical. Improved diabetes monitoring has the potential to save billions of dollars in healthcare expenditures due to the myriad of diabetes complications.

SUMMARY OF INVENTION

[0006] According to an aspect of the present invention, a method for communicating diabetes information to a diabetes care provider is provided comprising wirelessly transmitting diabetes readings from at least one diabetes device via a patient's smart device to a secure server; notifying a diabetes care giver of the transmitted diabetes readings; displaying the transmitted diabetes readings on a smart device of the diabetes care provider; and providing messaging between the patient and the diabetes care provider on the patient's smart device and the diabetes care provider's smart device.

[0007] According to another aspect of the present invention, a computer implemented method for communicating diabetes information to a diabetes care provider is provided comprising wirelessly receiving diabetes readings transmitted from at least one diabetes device via a patient's smart device; storing the transmitted diabetes readings on a secure server, said server being connected to a plurality of computers

via a network; and aggregating the transmitted diabetes readings and messages between the patient and the diabetes care giver.

[0008] According to yet another aspect of the present invention, a computer program product for communicating diabetes information to a care provider is provided comprising a non-transitory computer readable storage medium; first program instructions to wirelessly receive transmit diabetes readings from at least one diabetes device via a patient's smart device to a secure server; second program instructions to notify a diabetes care giver of the transmitted diabetes readings; third program instructions to display the transmitted diabetes readings on a smart device of the diabetes care provider; and fourth program instructions to provide messaging between the patient and the diabetes care provider on the patient's smart device and the diabetes care provider's smart device. At least one of the first, second, third, and fourth program instructions are stored on the non-transitory computer readable storage medium.

[0009] According to still another aspect of the present invention, a system for communicating diabetes information to a diabetes care provider comprises at least one diabetes device in wireless communication with a first smart device, the first smart device in wireless communication with a secure server, the first smart device receiving diabetes readings from the at least one diabetes device and transmitting the diabetes readings to the secure server; and a second smart device in wireless communication with the secure server for receiving and displaying the diabetes reading in a graphical user interface.

[0010] It is an advantage of the present invention to allow physicians to view diabetes information, such as blood sugar logs, with minimal patient intervention required, therefore more effectively monitoring patients and delivering care.

[0011] It is another advantage of the present invention to provide patients with timely access to review educational material as they encounter new health issues or problems associated with diabetes.

[0012] It is yet another advantage of the present invention that it may be used in areas or countries that have access to Internet technology through smart devices, but otherwise have limited telecommunication resources.

[0013] Given the following enabling description of the drawings, the system and methods of the present invention should become evident to a person of ordinary skill in the art.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is a schematic diagram of a system according to an embodiment of the present invention for the transmission of diabetes readings/data over the internet to a secure server.

[0015] FIG. 2 is an illustration of graphical user interface of a smart device showing secure communication between a physician and diabetes patient according to an embodiment of the present invention.

[0016] FIG. 3 is a flowchart showing a method according to an embodiment of the present invention.

[0017] FIG. 4 illustrates a computer program product and computer implementation according to an embodiment of the present invention.