PERSONALIZED HEALTHCARE FOR CHRONIC DISEASE MANAGEMENT: A PILOT WITH DIABETES

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INTRODUCTION

For many diabetics living without significant comorbidities, visits to the physician may occur as infrequently as 4 times a year to review the prior quarter's HbA1c test results. As these patients may have prolonged spans of unsupervised behavior intra-visit, awareness of their condition can be quite an important factor for a physician determining their future course of care. Unfortunately, without detailed intra-visit notes adjustments to a patient's treatment regimen can be quite difficult. While many physicians would prefer to follow-up with their patients more regularly, their schedule often times does not permit the time commitment that would be needed, particularly for those who work in often understaffed and over utilized community clinics.

For our work we aimed to improve the continuity of care by moving the responsibility of direct patient monitoring from the physician down to the community level. For this we utilized community health workers (CHW), the primary job of whom is to conduct outreach for medical personnel or health organizations to implement programs in the community that promote, maintain, and improve individual and community health. We created a two-part solution where CHW could manage all patients under their care from a web based portal linked to a companion smartphone application.

PILOT PROGRAM

In cooperation with the Bendix Clinic and the Michiana Health Info Network (MHIN)

- Patients would have been diagnosed with type-2 diabetes and have attended the Bendix diabetes educational class at least one time
- Patients will utilize the application for a period of 9 months, during which they will continue with their current care plans
- The CHWs and Bendix clinical staff will maintain the administration portal to monitor the patients progress
- The nutritional information will be tied to the Bendix diabetes educational class recommendations

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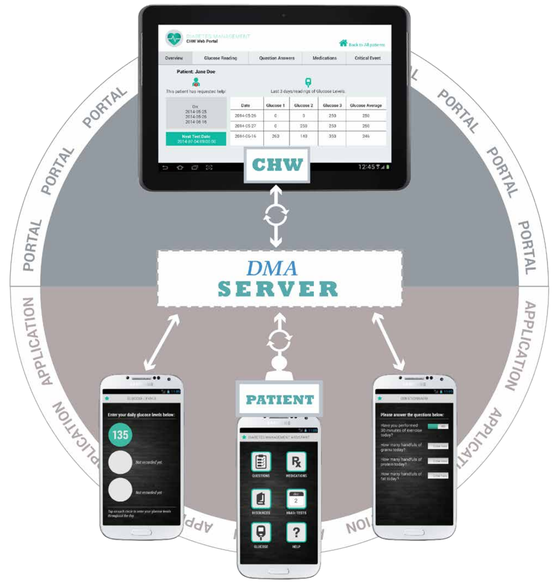
OUR APPROACH

We have created a two-part solution consisting of a smartphone application, and a counterpart web-based patient management portal for Community Health Workers (CHWs)

1) Smartphone application. The application will serve as a point of record for wellness information such as glucose levels, physical activity, over the counter medications and supplements, as well as nutritional information. It also provides reminders for the patient's scheduled HbA1c appointments and a list of all current medications drawn from the patient's Electronic Medical Record. Finally users have access to supportive resources, and the ability to request additional support from CHWs



2) Web-portal. The web portal allows community health workers (CHWs) to manage all patients under their care. They receive text alerts when patients glucose levels are recorded out of a safe range. From this interface CHWs will also have access to patient's recorded glucose and nutrition records, as well as their prescribed medications, and any OTC medication recorded. Providing the CHWs with the data needed to personalize their treatment recommendations

This tool will give providers the ability to have a continuity of care, allowing them to proactively reach out to noncompliant and high-risk patients between visits.

Welcome Screen

Information collected will be monitored by CHWs

Users can keep a daily track of their glucose levels.

A daily questionnaire will promote healthy living while tracking behavior.

Users can access their medication history and dosage.

Users can request additional support from CHWs.

WHY IT MATTERS

Diabetes is currently the 7th leading cause of the death in the United States and the 8th worldwide. Diabetes is one of only 3 diseases in the current top 10 W.H.O worldwide mortality statistic has increased over the past decade.

It is estimated that amongst the United States population 18.8 million individuals have been diagnosed with diabetes. If the trends continue **1 in every 3 U.S. adults** could have diabetes by the year 2050.[1]

Diabetes accounts for **15 million absent work days**; **120 million work days with reduced productivity**; and **107 million work days lost** due to diabetes-related unemployment.[4]

The American Diabetes Association (ADA) estimated diabetes accounted for around **1 in every 5 total healthcare dollars** spent in the United States.[2]

SUMMARY

Although community health workers may have more time to monitor patients, automated alerts, as well as visual cues for at risk patients were still essential to help the CHW focus their time effectively.

Despite the empirical data was being recorded and monitored by the CHW, there was still a disconnect with the physician during the patients subsequent clinic visits. It was not feasible for the CHW to update the physician for each patient visit, and due to the limited visit time frame physicians would not be able to review the CHW data even if they were given access.

To account for this those at the clinic believed that future work could include integration of a single page overview report for a patient could be included in their chart.

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