

Improving Diabetes Outcomes through Mobile Phone Interactions

Background:

According to the American Diabetes Association, 25.8 million Americans are diabetic. That number continues to increase as the population ages and the rate of obesity rises. The condition is estimated to cost the US about \$218 billion per year and the rate of diabetes is unfortunately higher in minority and underserved populations. The good news is that many studies demonstrate that diabetes can be managed if patients follow best practices and guidelines.

However, ~50% of patients do not follow their prescribed care plans, leading to higher costs and more serious outcomes (amputations, blindness, admissions to hospitals, etc.). Health Affairs magazine estimates that patients who are not well managed cost an average of \$4,400 per year more than those who are under control.

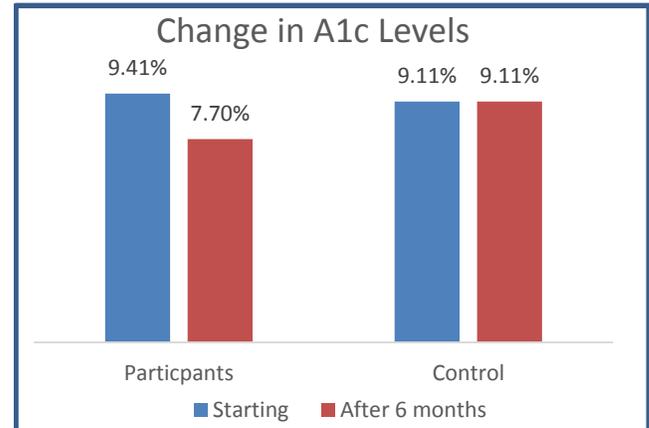
Since over 90% of people (91% of minorities) in the US own cell phones, this technology offers a low cost and pervasive way to manage diabetes.

Product Implemented in Study:

We use automated communication via mobile phones (text, mobile app or IVR voice) to engage patients in their personalized care plans, driving adherence. For scalability, the system is automated using decision making software that not only sends and receives messages, but also interprets patients' responses (biometrics and other data) to send follow-up messages and/or alert a healthcare provider. Our system can electronically capture a diabetic care plan (or other chronic condition care plan) that reflects current standards of care. The final piece is a web-based portal that allows healthcare providers to enroll patients at the point of care and track their progress.

Specific features of the system include enabling patients to measure glucose on a daily basis to see if it is in line with their goals and targets, and, the provider is informed when patients do not achieve these goals. The system includes safety rails so that if a patient reports numbers that are too low or too high they are immediately connected with a health care professional. In addition to glucose, the system checks on their insulin usage, and reminds them of appointments for follow-up care. The system also includes an outreach and engagement module allowing the provider to use the portal to communicate directly with the patients through their cell

phones. Finally, it integrates with the provider EMR sending key data directly to the medical record.



Method and Results:

To demonstrate the effectiveness of this approach, we partnered with 13 Sacramento (CA) Family clinics. These clinics were selected because they typify family practice clinics that serve Medi-Cal (Medicaid) patients and represent some of the most costly and under-managed diabetics. Over a 6-month period, 53 participants used our system while 64 non-participants did not. The average starting A1c (measure of blood sugar) of patients on our system was over 9.4% (normal is 6%). With our program we were able to reduce this number to 7.7%. This 1.7% improvement represents a significant improvement in health, which also leads to a reduction in medical costs.