

Remote Monitoring With the MetrikLink® Telehealth Device Improves Diabetes Care With Decreased Visit Frequency in Underserved, Ethnic Communities

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Background

Low income populations have difficulty accessing medical care. Diabetes care requires frequent communication to report self-monitoring of blood glucose (SMBG).

Aims

To provide an effective/efficient method of SMBG communication in underserved medical communities measured by HbA1c, visits, provider and patient reports.

Setting/Methods

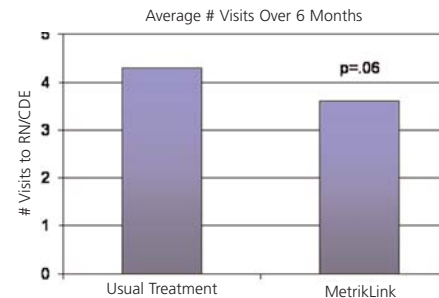
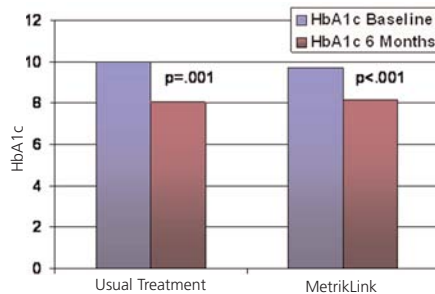
One hundred seventeen patients from the community-based Project Dulce Diabetes Program in San Diego, California were recruited and randomized to receive either a MetrikLink modem device and access to the "MediCompass®" website to record the results of their blood sugars for 6-months or to continue in the usual treatment and visit schedule of this diabetes program. Participants were instructed on how to use the modem to connect their blood glucose monitor to a telephone line. They were required to upload once every 2 weeks. There was no charge for this telephone connection. CDEs reviewed reports bi-weekly and called patients with adjustments to their diabetes regimen. The UT group continued with scheduled visits to adjust their regimen. A One Touch Ultra blood glucose monitor was used to record all their blood sugar readings throughout the course of the study.

During the study, whether or not participants received the device, they continued to receive the same treatments as usual at the Project Dulce Diabetes Program, including nursing and doctor's visits and dietary education. There were three study visits with the nurse: one on the first day was considered the baseline visit, and again at the end of the twelfth and twenty-fourth weeks. At each visit labs were drawn for a HbA1c. Participants' diabetes management was assessed at each visit and more frequent visits were scheduled if further blood glucose management was required.



Results

Demographic assessment reveals that all participants came from the community health care clinic setting and 65% of participants were Latino, 30% White and 5% African American, Filipino or other. Average annual incomes of this population are under \$20,000 and average education levels are below 8th grade. Mean age was 53 years old. 35% were male, 65% female. Baseline and follow up HbA1c levels and average number of visits over the 6 month period of the study are shown in the following graphs.



Baseline demographics and HbA1c were similar between the 2 groups. (HbA1c, MetrikLink-9.72%, UT-9.99%, p-NS) At the completion of 6 months both groups had a significant drop in the HbA1c values (MetrikLink-8.18% p<.001, UT-8.06% p=.001). The change in HbA1c between groups was similar and not significant. The mean number of visits was lower for the MetrikLink patients than the UT group (MetrikLink-3.6 vs UT-4.3, p=.06). CDEs reported a higher frequency of testing in the MetrikLink users, particularly Type 1 patients, and patients were more motivated to test when their results were reviewed regularly.

Conclusions

1. The use of telemetric blood glucose monitoring techniques with a low-cost (<\$100) telehealth device is acceptable in a diverse ethnic population with lower socio-economic status.
2. Enrollment of diabetic patients in a diabetes management/education program results in improved measures of glucose control.
3. Similar significant improvements of glycemic control were achieved with fewer resources and fewer in-person visits with the use of telemetric blood glucose monitoring.
4. This may represent an important new addition to our diabetes toolkit that will allow us to provide care for more patients with diabetes with existing staff. This may enhance cost effectiveness of and access to diabetes care.
5. This may be a valuable benefit to this patient population in particular, since transportation issues can act as barriers to optimal care.
6. Participants and RN/CDE providers reported increased satisfaction with the new care of diabetes by using the telemetric blood glucose monitoring techniques.

