An MACHC White Paper

A1C Reduction in Patients with Insulin-Requiring Type 2 Diabetes via Remote Monitoring

By Kent Stoneking, Pharm.D. CDE

Abstract: In seeking diabetes solutions for its membership the Mid-America Coalition on Healthcare helped initiate a pilot program to test the real world efficacy of a blood glucose remote monitoring technology and care facilitation program developed by ALR Technologies. The Kansas City Metropolitan Physician Association (KCMPA), a Medicare approved ACO and MACHC member, and ALR Technologies Inc. enrolled 44 patients in a pilot program to test the effectiveness of the ALRT remote monitoring diabetes management program in a non-clinical trial, real-world setting. Patients were treated in KCMPA clinics throughout the Kansas City area. Patients were monitored for an average of 10 months. Average A1C reduction for those in the treatment group was -1.22% while patients who dropped from the program prior to the three month threshold saw A1C levels rise by +0.66%.

Introduction: Diabetes currently affects over 29 million Americans, putting them at risk for severe long-term health complications.[1] These include heart disease, kidney disease, and nerve disease, and often result in blindness, total kidney failure, limb amputation, and death.

The impact of diabetes is significant for employers as the cost of care for diabetes and its related complications exceeds $245B annually in the US.[2] Therefore, many employers are increasingly engaged in diabetes care, control, and prevention efforts.

Clinical data compellingly demonstrate that better A1C control results in fewer diabetes complications, longer and higher quality of life, and reduced costs of care.[3] In order to prevent the aforementioned clinical complications of diabetes, the American Diabetes Association (ADA) recommends keeping A1C levels below 7%.[4]

This white paper demonstrates the real-world effectiveness of a web-based, remote blood glucose monitoring service with clinical support and intervention in dramatically reducing A1C levels in patients with type 2 diabetes.

Background: The Mid-America Coalition on Healthcare was formed by the CEOs of the Kansas City region's largest employers as a vehicle to address the cost of health care and its membership was expanded to include hospitals, physicians, health plans, broker-consultants, public health, government, and academia.

More than a year ago, ALR Technologies approached MACHC leadership seeking sponsorship for a no-cost pilot program that would test the efficacy of ALRT's remote

monitoring and diabetes management technology. The Kansas City Metropolitan Physician Association, LLC (KCMPA), an MACHC member, agreed to participate in the pilot and identified patients from eight member clinics who had type 2 diabetes and were using insulin, yet whose baseline A1Cs exceeded 8%. These patients, many of whom were Medicare-eligible, were enrolled in a pilot study with ALR Technologies Inc. to measure the usefulness of the ALRT system, a HIPAA compliant and FDA-cleared remote blood glucose monitoring platform, on the reduction of their A1C values.

ALRT allows a patient to upload the data from a system-compatible blood glucose meter to their secure, individual profile on the ALRT monitoring site. ALRT's Diabetes Care Facilitators (DCFs), medical professionals in various disciplines who are also Certified Diabetes Educators (CDEs), remotely monitor the uploaded data. If the DCF identifies a blood glucose pattern that deviates from ADA targets, they notify the patient's physician so appropriate and timely medical intervention can occur.

Pilot Process: Patients were enrolled over a ten-month period, from September, 2014 through June, 2015. The average A1C at enrollment was 8.9%. Each enrolled patient was monitored for an average of 10 months. The clinic teams attempted to collect A1Cs every 90 days throughout the monitoring period, although some of the midpoint A1C measurements were missed.

The patients were asked to upload their blood glucose meters at least once every 14 days. The DCFs reviewed data within 24 hours of each upload, and responded to the patient, the clinic team, or both, depending on the blood glucose patterns that emerged. The DCFs remained in regular contact with patients and clinic teams throughout the monitoring period. They notified the clinics immediately upon recognizing blood glucose trends that required clinical attention. The DCFs frequently provided educational and motivational support to help the patients better manage their blood glucose. They also helped the patients understand and modify their behaviors that were preventing good control.

The MACHC Board of Directors requested to be kept informed about the results of the pilot as their companies all had an interest in creating healthier employees and reducing the costs associated with diabetes. This White Paper serves as the report to the Board on the results of the pilot program.

Results: There were 37 patients who participated for at least three months, the minimum period sufficient for endpoint evaluation. These patients comprised the Treatment Group. Another seven patients made up the Comparison Group. These were patients who began the program, but voluntarily withdrew prior to the 3-month participation threshold. Members of both groups had A1C tests performed at baseline and at the time of withdrawal from the program, or at 10 months post-enrollment, whichever came first. (A summary of the data is shown in Table 1.)

Table 1:

Group	Participants	Avg. Baseline A1C	Avg. Endpoint A1C	Avg. A1C Change
Treatment	37	8.95%	7.73%	-1.22%
Comparison	7	8.54%	9.20%	0.66%

Net endpoint A1C difference between groups = 1.88%

During the pilot, staff at the KCMPA medical clinics provided regular feedback to the ALRT Clinical Team about their experiences with viewing patient data and entering documentation on the ALRT platform. The ALRT Development Team readily responded to requests for modifications or enhancements to the platform, resulting in a more robust, clinically useful platform than in the original design. ALR Technologies is grateful for the partnership of KCMPA and the staff at the participating clinics.

Summary and Conclusions: The patients in the Treatment Group experienced an average reduction in A1C of -1.22% over the treatment period. Patients needed a system-compatible blood glucose meter and data cable, and a computer with Internet access in order to participate.

Some eligible patients chose not to participate because they did not wish to switch from using their blood glucose meter to one that was ALRT-compatible. (ALRT is compatible with glucose meters from Abbott, Lifescan, Bayer, Roche and Nipro.) Overall, the ALRT interface did not seem challenging for Medicare-age enrollees.

The DCFs made initial contact with the patients upon enrollment, and kept them engaged in diligent healthy self-care behaviors between office visits with their physician. Throughout the treatment period, the DCFs also provided diabetes information and coaching to keep the patients motivated. Factors that seem to have led to success in the pilot include: the behavioral impact of remote monitoring, a patient-friendly technology platform, and patient-focused clinical follow up.

From a clinical operations perspective, it is worth noting that the ALRT platform meets all of the key requirements of the new CCM reimbursement policy: most of the care provided during the KCMPA pilot, such as monitoring of blood glucose data, was provided outside of the physician's office; physicians have access to an electronic care plan for the patient; and, the amount of time clinicians spent, per-patient, is logged by the ALRT system.

The clinics where enrolled patients received medical care did not incur increased cost. Rather, by partnering with ALR Technologies to improve their patients' A1C levels, they realized the significant benefit of improved diabetes control for a high maintenance segment of their patient population. ALRT provides these practice settings with the tools to conduct Chronic Care Management as soon as they begin using it. Long-term expansion of this model may also help medical practices meet HEDIS targets, improve star ratings, and increase their revenue.

The ADA reports that every 1% reduction in A1C lowers the risk of long-term diabetes complications by 40%.[5] These pilot results demonstrate that the ALRT remote monitoring system is a useful tool in reducing the health burden and costs of diabetes by lowering the risk of

complications.

For some employers and health insurance companies, the ALRT diabetes management program may represent a genuinely cost-effective option for helping stem the diabetes pandemic in today's workforce. Depending upon the level of care management that is required, patients can be managed in the ALRT program for less than $10 per patient per month. This charge applies only to patients who are enrolled and being actively monitored, it is not pricing based upon the potential universe of patients as some "wellness" programs are. Moreover, the ALRT program has a hard metric to measure its success: the A1C levels of the population that is being managed. If the average A1C levels of the managed population is brought into a healthier range, there is overwhelming academic literature to suggest that this will translate into a more productive workforce and into considerable savings on employee healthcare.

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