



There were a variety of limitations with this study, including the length (10 days) and the small participant population (50 subjects). It demonstrated that the use of a cell phone may be an option to increase adherence in the adolescent population. However, a longer study is needed for proven efficacy data since the long-term impact on adherence, blood glucose levels, and A1C rates are unknown.

A third study conducted in 2014 by Kumah-Crystal et al specifically assessed problem solving in 112 patients with type 1 diabetes using mobile applications, social technologies, and glucose software. The aim of the study was to assess if the interventions would result in a decreased A1C.

Results demonstrated that A1Cs did not improve; however, the patients were using the interventions retroactively rather than proactively. Using technology can help to correct issues with blood glucose numbers, but it should be used to prevent the highs or lows by encouraging regular testing and carbohydrate counting.

Top Apps to Improve Adolescent Adherence

Patients may utilize generic medication adherence apps (applications) if they choose, but there are many apps created for and targeted to patients

with diabetes. Carey and Cherney published a list of the best mobile applications of 2015 for diabetes (Table 1). Apps are available on iPhone and Android and are designed to easily track and log health information necessary to manage diabetes.

Factors influencing the ranking of Carey and Cherney's "best of" list included user ratings, cost, functionality, and relevance. It was important to the authors to select user-friendly apps that can track all vital health information needed to properly manage diabetes. Many are designed as games for younger patients in an attempt to instill enjoyment in managing their diabetes.

Carb Counting With Lenny U.S. is a free app created for users 6 years and older. It follows Lenny the lion through a storybook and introduces the child to games that engage the patient in the management of diabetes. Diabetes Logbook is another free app that contains a monster avatar to lead the user through the process of logging and tracking insulin administration, carb counting, blood glucose testing, and so on. Diabetes in Check is also a free application that contains healthy recipes, articles, and a platform to track health information. Glooko is an FDA-approved application that allows doctors and patients to track health information. Doctors can link their devices to this application and be alerted when medical emergencies arise. Diabetic Connect is a unique free application that allows patients with diabetes to connect with one another. They can share stories and help each other manage their disease state. This app can be used by users both young and old and brings social networking to the forefront.

What Part Do Parents Play?

Another vital component to successful diabetes management in adolescence is parental involvement. Parents play an important part in the continued adherence of their children to both medications and testing. However, this is an area that has not been studied in depth. Parental involvement and accessibility to applications is imperative. They should have access to medical information entered into the applications and should have the ability to track their child's adherence patterns.

Parents play an important part in the continued adherence of their children to both medications and testing.



This brings into question if the adolescents would feel watched over. These apps are designed to allow adolescents an easy way to track their progress, communicate with their providers, and also empower them so that they feel in control of their diabetes. Some adolescents may not feel comfortable with their parents being able to access their applications. This speaks to the fact that further studies need to be conducted in order to determine how much involvement parents would like to have versus how much involvement the adolescents would like their parents to have.

All of the aforementioned studies support the idea that the use of technology has the potential

to help improve adherence. However, each article called for longitudinal studies to be conducted. The trials had small enrollment sizes and short lengths of study. Some studies introduced bias. These limitations make it challenging to establish a relationship between A1C results and the use of technology. Also, the possibility for boredom to set in and a ect results cannot be determined based on the current studies.

Clinician Communication Counts

It is critical for providers to communicate effectively with adolescent patients. Establishing healthy eating patterns, improving blood glucose

Using technology and electronic devices to improve adherence could be a great way to reach the younger generation.



