Use of Smartphone, a Cellular Glucometer and Social Media App in the Management of Type 1 DM in the Adolescent Population: The Future of Diabetes Care

Rachel Rothenberg APN, Mary Zetelski LCSW, Javier Aisenberg MD, Mary-Ellen Riordan RN, Justine Zasa CCRP and Steven Ghanny MD
Department of Pediatrics, Joseph M. Sanzari Children's Hospital

Background

The integration of technology in health care has lead to improved medical care and better compliance, especially in chronic diseases such as diabetes. Despite these advances, compliance has always been an issue in caring for adolescents with diabetes. Text messaging has become a popular way to communicate with peers especially for teens. Multiple studies support the theory that texting is an easy and affordable resource that health care providers can utilize to educate youth about health care issues[1]. Other modalities such as web based apps, including social media apps that reinforce diabetes education, can also help patients.

Objectives

To use a smartphone, a cellular glucometer and social media app to help improve diabetes care in adolescents.

Methods

- Each participant received a smartphone and a cellular glucometer.
- The cellular glucometer automatically uploads blood sugars to a website portal that the participants and health care provider can access.
- We also created a private social media app, as a type of online support group.
- Each week, our group, which consists of a physician, nurse and social worker, reviewed the blood sugars and texted the participants advice to help improve their blood sugars.
- Each provider in our group carried a phone, so that participants could contact us.
- Hemoglobin A1C (HBA1C) values were measured at baseline and after study intervention.
- We enrolled 30 patients from 12-22 yrs. with Type 1 DM.

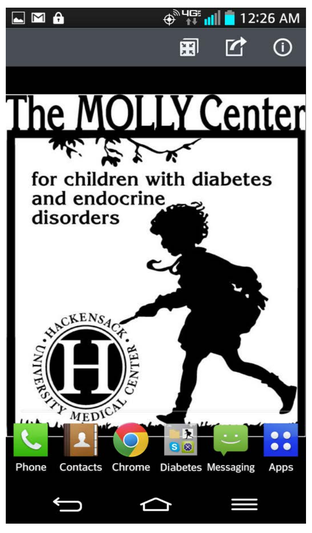
Results

Out of 30 participants: 1 withdrew; 12 had a decrease in HBA1C; 8 had an increase in HBA1C; 9 maintained their HBA1C. Survey done of participants who had a decrease in their HBA1C, directly attributed the improvement to the study.

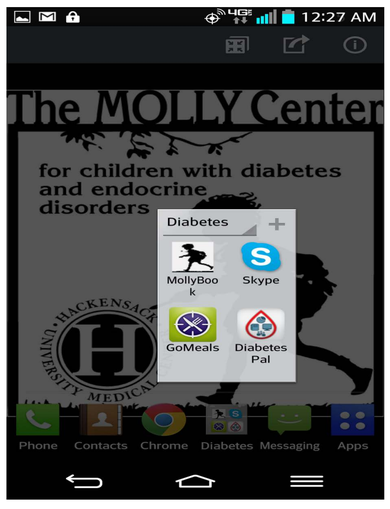
Subject	HbA1C (%) Prior to Study	HbA1C (%) After 3 months on Study
1	11.3	>14
2	10.4	9.1
3	>14	11.1
4	7.9	8.1
5	10.1	10.1
6	9.1	10
7	7.8	8.2
8	13.7	12.4
9	12.8	11.8
10	9.7	--
11	8	11.3
12	8.5	7.5
13	8.8	8.4
14	10.5	8.7
13	8.8	8.4
14	10.5	8.7
15	9.4	9
16	11.5	9.5
17	8.9	8.9
18	8.5	8.6
19	13.6	10.8
20	11.8	13.9
21	12	--
22	8.2	9.3
23	8.6	8.1
24	11	13.4
25	10.1	9.2
26	10.8	9.1
27	8.9	7.5
28	10.6	13.3
29	>14	11.7
30	8	7.8

Techonology System

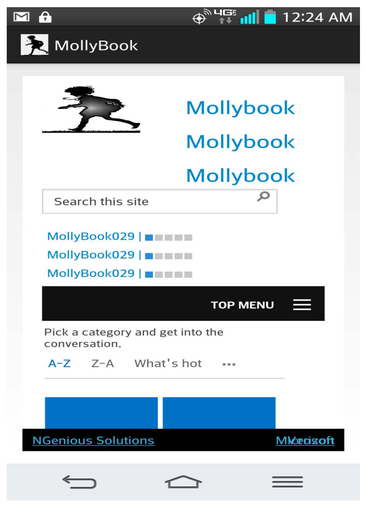
Smartphone



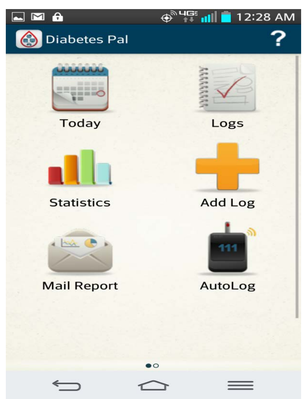
App



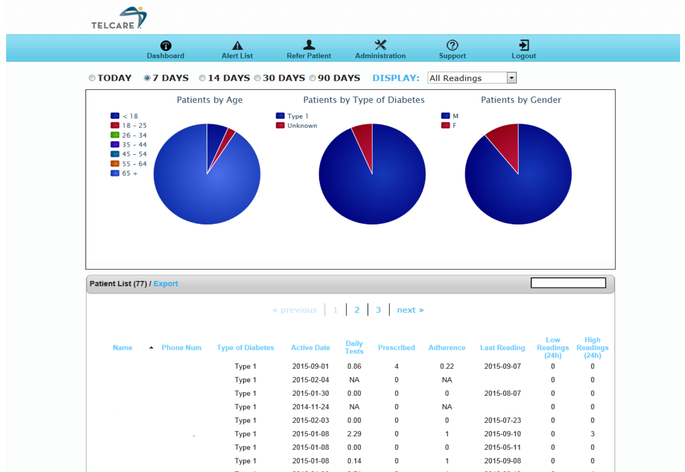
Social Media App



Cellular Glucometer



Health Care Provider Portal



Conclusions

This study demonstrates that an integrated technology program to aid in the management of Type 1 DM in adolescents can be used to help improve diabetes control in this population. Future studies will apply this technology program to the management of our younger Type 1 DM patients.

References

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