

Bridging the mHealth Adoption Gap with a Diabetes Management Solution

Introduction

AT&T is on the forefront of health information technology, showcasing an innovative mHealth solution that helps address key challenges facing chronic disease management in adult type 2 diabetes. As an employer that is self-insured for health insurance, AT&T has introduced – AT&T mHealth Solutions presents DiabetesManager® – to its own employees and dependents. DiabetesManager® is a solution that integrates clinical, behavioral, and motivational algorithms with everyday technologies, like the internet and mobile phone to help address the pressing need for an innovative approach to diabetes management.

This paper presents preliminary findings of the AT&T implementation which launched in June 2011. Further analysis of the over 25,000 health data entries is currently underway, representing one of the first large-scale data capture and implementations of mHealth technology in a real-world setting. Initial review of the data finds high adoption and engagement of the solution, with 81 percent of the program participants showing consistent use of the system.¹

Addressing mHealth Technology Adoption Challenges

As the nation looks for ways to improve chronic disease management, mobile health is becoming increasingly recognized as a promising solution for enhancing care and improving outcomes. However, despite enthusiasm from patients, providers and other care givers, adoption and continual engagement for these solutions is still a key barrier to fulfilling that promise. For example, a March 2011 survey conducted by Consumer Health Information Corporation (CHIC) found a high dropout rate for basic smartphone apps: 26 percent of apps are downloaded and used only once, with 74 percent dropping out by their 10th use.²

Effectively engaging end users with mHealth solutions is not solely about smartphones, gadgets or even apps. Many diabetes management apps do little more than routine, passive logging of blood sugar, providing the end user with minimal advantages over their existing paper records. Behavioral scientists hypothesize that in order for mHealth solutions to be engaging and change patient behavior, they should target motivational needs to promote behavioral change. In a CHIC survey of 395 consumers, about 80 percent said they would be more motivated to use an interactive mHealth solution that can analyze logged information and provide feedback.³ Preliminary findings of the AT&T employee implementation of DiabetesManager appear to support the solutions' potential for improved adoption and engagement.

AT&T mHealth Solutions Presents DiabetesManager®



DiabetesManager is an FDA-cleared, enterprise-ready mHealth solution that delivers tools to analyze and translate health data into valuable information and actionable knowledge for patients, healthcare providers, employers and disease management companies.

DiabetesManager for AT&T Employees and Dependents

To recruit participants for the DiabetesManager implementation, AT&T engaged one of its health plan administrators to incorporate the solution into its standard disease management activities for AT&T employees and dependents with high-risk type 2 diabetes. The administrator sent three sets of invitations to the identified eligible participants using a mix of regular mail and email. Communications to a universe of 1,420 identified possible participants began via a mailed letter on June 11, 2011, with a follow-up email sent on June 30 to the

485 possible participants of that universe for whom email addresses were available. Two more follow-up outreaches (both email and direct mail) were sent on August 8, 2011 and October 6, 2011. The October mailing was sent to a total audience of 1,885 due to an additional 465 employees and/or dependents becoming eligible for participation because they now fell into the "high risk" category.

The invitations provided an 800 number which was manned by an AT&T support team. Possible participants were instructed to call the 800 number to receive more information about the solution and provide their email address. When the interested participant's email address was captured, an email invitation to join the program was sent. That email contained a link to an FAQ with detailed information as well as a link to register.

Due to the limited number of devices supported at the time of this project, participants were provided a secondary mobile device to use during the program to capture, store and transmit in real-time their blood glucose levels, medication routine and carbohydrate intake. We anticipate that, both adoption and engagement rates will likely improve, once the solution is available on most major devices (currently scheduled later in 2012) and participants are able to use their existing phone.

Adoption

As of January 12, 2011, there were 181 participants registered to use DiabetesManager, making over 25,000 blood glucose, medication and carbohydrate entries since the program launched on June 11. Figure 1 shows the value of multiple communications touch points, showing large jumps in registrations following each invitation.

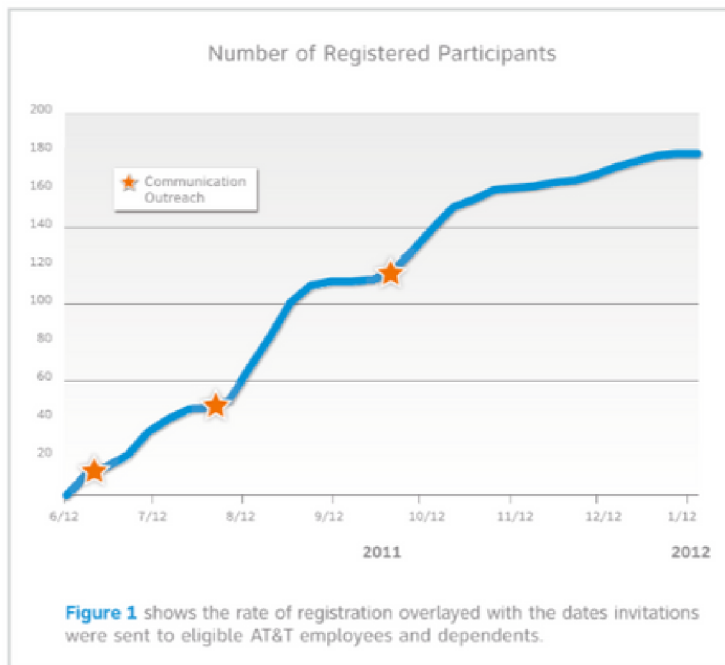


Figure 1 shows the rate of registration overlaid with the dates invitations were sent to eligible AT&T employees and dependents.

The response rate for the mostly direct mail campaign inviting registration was between 17 percent and 22 percent. This response rate is significantly greater than the Direct Marketing Association benchmark of 3.42 percent response rate for a letter-sized envelope sent to a "house" list (as opposed to a prospect list, which has a lower response rate).⁴ The open rates for the emails were in the 40 percent to 50 percent range, again representing a significant improvement over benchmark email open rates of 19.47 percent.⁵

The registration rate (the percentage of people who were sent invitations that became registered participants) is currently between 9.6 percent and 12.7 percent, once again achieving a conversion rate well over the typical 1.73 percent conversion rate for email (industry benchmarks for direct mail conversion rates are not reported).⁶

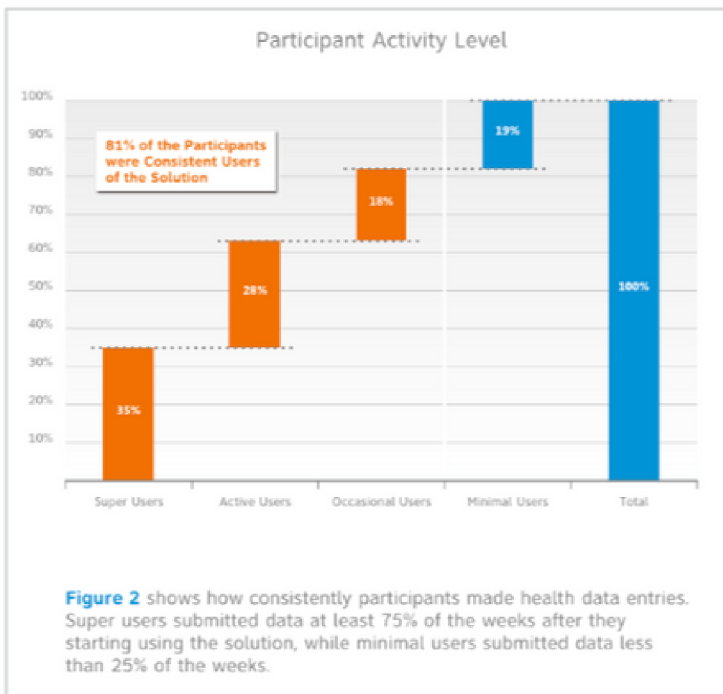
	DiabetesManager Outreach	Direct Marketing Association Benchmark
Response Rate	17% to 22%	3.42%
Email Open Rate	40% to 50%	19.47%
Registration (or conversion) Rate	9.6% to 12%	1.73%

The response and registration rates for DiabetesManager indicate that employers and disease management organizations can successfully drive adoption of mHealth solutions among their employees and/or members.

Participant Engagement

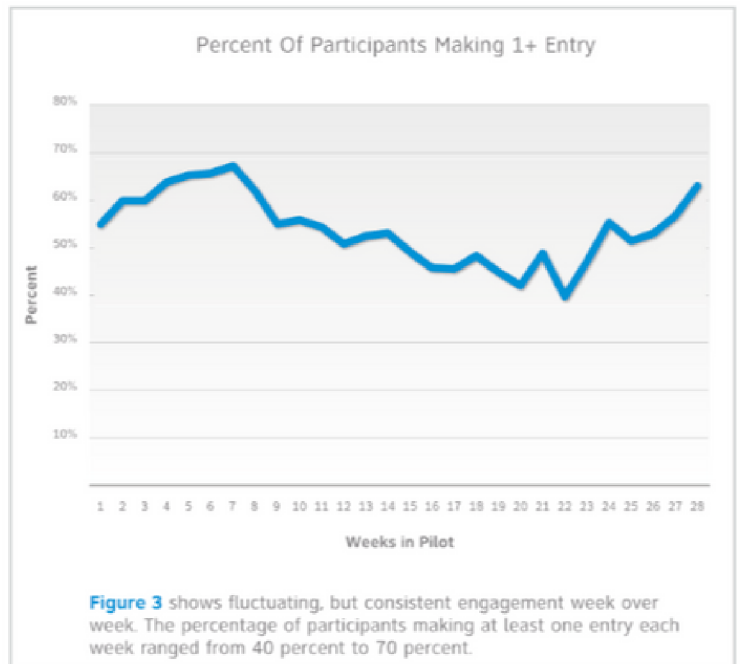
Adoption is just the first stage of defining a successful implementation of mHealth technology. Continuous and sustained engagement is required to realize the clinical and financial benefits that mobile solutions can deliver for type 2 diabetes.

A \$100 gift card was provided as incentive for participants to remain active for 90 days. Of the participants who were active for the 90 days required to receive the incentive gift card, 75.6 percent continued to submit health data entries even after the incentive period was over. This showcases sustained use and value for the system beyond the cash incentive.

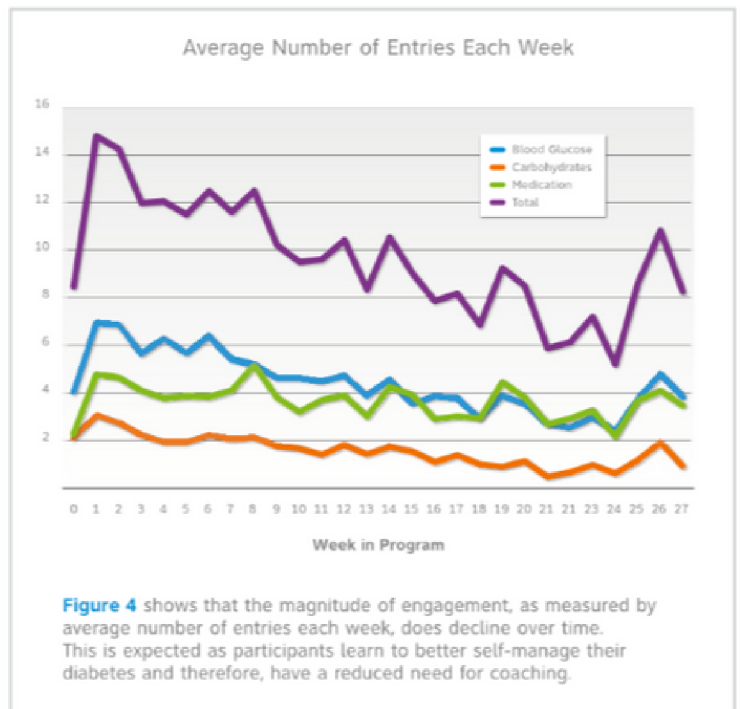


Of participants who used the system, 81 percent used the solution more than 25 percent of the time, 35 percent of participants used the system at least three-quarters of the time, and 18 percent of the participants made health data entries every week they participated in

the program (Figure 2). Engagement rates held week over week, with the percentage of participants who made at least one entry in a given week fluctuating in the 50 percent to 70 percent range (Figure 3).



The average number of entries made each week does show a decrease over time. This is expected, as DiabetesManager is intended to help educate people with type 2 diabetes about the proper management of their condition. AT&T hypothesizes that over time, the participants learned from the solution and thus gradually reduced their need for coaching. As shown in Figures 2 and 3, there is a consistent and sustainable use of DiabetesManager, with a decline only in the volume of entries (shown in Figure 4).

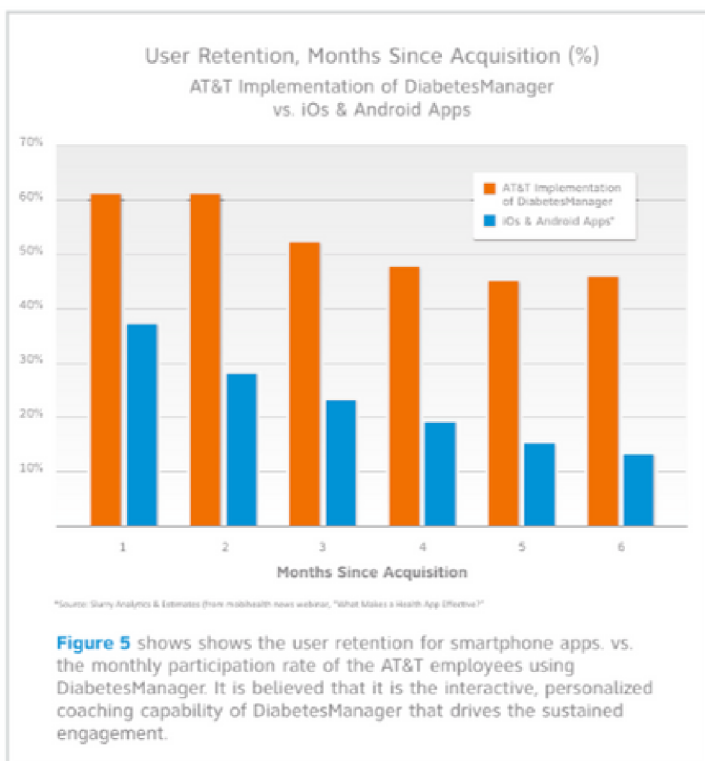


Implications and Observations

Further analysis of the data will look at the demographic impact on adoption and engagement, as well as participant feedback, to further learn how best to target potential participants to adopt and engage with mHealth solutions. However, there are several clear takeaways from the data presented to date.

mHealth Solutions Need to Go Beyond Simple Tracking to Engage and Retain Users

Adoption and engagement of DiabetesManager, an enterprise-ready mHealth solution that provides personalized coaching and education based on evidence, has shown success in the AT&T employee population. AT&T believes that it is the interactive, personalized coaching capability of DiabetesManager that drove the sustained engagement that has eluded basic apps for chronic disease management and in fact, has even resulted in engagement above and beyond all typical smartphone apps (see Figure 5).



Most disease management apps allow people to track various health data, but do not provide feedback, alerts or personalized education that helps guide the behavioral change required to successfully manage chronic diseases like type 2 diabetes. A recent study in Norway compared the features of approximately 290 mobile applications for diabetes care to clinical guideline recommendations for diabetes self-management. The most prevalent features of the diabetes apps was the capability to record data such as blood glucose, diet and medication, as well as data export and personal health record synchronization. The researchers noted that clinical guidelines widely referred to the importance of education, but this was missing from the top functionalities of the apps.⁷

DiabetesManager Can Enhance Disease Management Organization Efforts Without Requiring Additional Resources

Traditional disease management services rely on an expensive "high touch" approach, with case managers either calling or visiting patients on a periodic basis. This approach doesn't provide ongoing insight into the patients' condition, plus it depends upon large-scale engagement of a shrinking healthcare workforce. The AT&T employee implementation of DiabetesManager did not use proactive case manager outreach to gain registration or continued engagement of the participants, thus providing self-insured employers and disease management organizations the potential to increase their scale and effectiveness, and leverage their case worker teams more effectively.

The Opportunity for Even Greater Adoption and Engagement Rates Exists

There are a number of process improvements that are currently being addressed by AT&T will likely result in even better results.

- Direct mail was used to recruit participants because email addresses were not available and case managers were not involved. Direct mail is not necessarily the optimal communications vehicle and therefore, there are likely other communication strategies that can improve adoption.
- The employees who registered and participated had to take proactive action to enroll and stay engaged throughout the program (i.e., they were required to place a phone call to register, they had to take action to receive their secondary phone as well as receive their gift card for active participation). It is likely that a more automated and streamlined registration process would result in improved adoption.
- Employees were provided a second mobile device, which was considered to be an inconvenience. The ability to use their own phone will likely increase both adoption and engagement rates. AT&T is in the process of making the solution available on the majority of the installed phone base to enable participants to use the solution on their own phone.

Summary: Accelerating mHealth Adoption

The broad-scale implementation of DiabetesManager to AT&T employees has the potential to take mHealth solutions mainstream. This paper is a first step towards understanding how a robust, interactive mHealth solution for type 2 diabetes management supported by the enterprise scaling up capabilities from AT&T can be successful in real-world settings. A more extensive analysis and operational report of the data collected during this DiabetesManager implementation will be available later in 2012.

Notes

1. The information set forth herein reflect AT&T experiences with a limited number of enrollees over a limited amount of time. No representation or warranty is made as to the applicability of these results to other entities.
2. Consumer Health Information Corporation, March 2011 Survey, accessed online 12/15/2011 <http://www.consumer-health.com/press/2008/NewsReleaseSmartPhoneApps.php>.

3. Consumer Health Information Corporation, March 2011 Survey, accessed online 12/15/2011 <http://www.consumer-health.com/press/2008/NewsReleaseSmartPhoneApps.php>.

4. DMA Releases 2010 Response Rate Trend Report, accessed <http://www.the-dma.org/cgi/dispanouncements?article=1451> on January 25, 2012.

5. DMA Releases 2010 Response Rate Trend Report, accessed <http://www.the-dma.org/cgi/dispanouncements?article=1451> on January 25, 2012.

6. DMA Releases 2010 Response Rate Trend Report, accessed <http://www.the-dma.org/cgi/dispanouncements?article=1451> on January 25, 2012.

7. Taridzo Chomutare, Luis Fernandez-Luque, Eirik Årsand, Gunnar Hartvigsen, Features of Mobile Diabetes Applications: Review of the Literature and Analysis of Current Applications Compared Against Evidence-Based Guidelines. J med Internet Res 2011 Sep 22; 13(3).

For more information contact an AT&T Representative or visit www.corp.att.com/healthcare/wfm/dm.html.