

# University of Virginia

## Call2Health Program

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### *PROJECT OVERVIEW*

The University of Virginia's Call2Health program tested an innovative approach to managing the care of rural and underserved African-American women with diabetes. The multi-pronged approach included daily text message reminders, bi-weekly group visits emphasizing a strengths-based approach to self-care, and social and community supports. This program primarily sought to test the impact of daily text messages on diabetes self-management among a specific population of African-American women. The goal was to better understand whether daily text messages alone, or daily text messages coupled with a comprehensive diabetes self-management support program, could improve the health outcomes of underserved African-American women with diabetes.

### *CONTEXT AND PARTNERS*

This project engaged African-American women diagnosed with diabetes and receiving care at the University Medical Associates (UMA), part of the University of Virginia (UVA) medical system in Charlottesville, Virginia. University Medical Associates patients were selected since a majority of patients are from rural areas surrounding Charlottesville with limited access to primary care and health resources. Ninety-two percent of the patient population at UMA is uninsured or covered only by Medicare/Medicaid; 36% have less than a high school education. African-American women were the focus for this study because they experience higher rates of diabetes compared with the Caucasian patient population.

The core component of the Call2Health program was customized daily text messages to assist women in the self-management of their diabetes. Mobile phone-based technology offers the benefit of personalized behavior support in settings where access to regular clinical care or internet-based health tools may be limited. Short message service (SMS) reminders are relatively low in cost and widely accessible for mobile phone owners. Prior to implementation, investigators determined that approximately 90% of the potential study population owns a mobile phone, making this a feasible mechanism for delivery. The project partnered with Health Decision Technologies to use a web-based platform to deliver the daily text messages to each participant.

The elements of the Call2Health intervention are grounded in a strengths-based approach to health which aims to draw upon an individual patient's unique talents, skills and perspective to positively influence health behaviors. Participants in the study were encouraged to identify their personal and familial strengths and resources and capitalize upon these assets to help manage their own diabetes. In this empowered approach, the emphasis was on when women were successful rather than how they had failed to manage their diabetes. Positive questions were used to prompt reflection, for example,

“What did you do well yesterday?” These elements of the program were intended to elicit positive, strengths-based answers and solutions.

The Charlottesville-Albemarle Community Obesity Task Force (COTF) was a key partner in the Call2Health study. COTF is an umbrella community coalition with the mission of creating a community that fosters healthy weight and overall fitness for children and their families. With more than 100 members, the group engages health professionals, youth agencies, school personnel, and parents of overweight children. COTF’s main role in the Call2Health project was to identify group speakers and facilitators and to leverage community resources to support the program.

### *ASSESSMENT AND PLANNING*

A prior pilot project used daily text messages to support the chronic management of HIV among HIV positive patients at UVA. This work provided evidence to suggest the potential of a similar intervention for the self-management of diabetes. In the earlier pilot project, participants reported high satisfaction with daily mobile phone text messages and 90% of participants remained active in care after 12 months. Because of the success of retaining patients in care and enthusiastic support for technology-based supports among participants, the Call2Health study was similarly structured around daily text message reminders to support diabetes self-management.

During the 4-month planning phase of the Call2Health program in 2011, a focus group with potential program participants helped refine the program. African-American women diagnosed with diabetes and receiving care at UMA suggested priority topics for the group session, pragmatic suggestions for implementation, and ways to make the program more appealing for potential participants. The most illuminating aspect of the focus group was that the women wanted to support each other in their diabetes care, going so far as to exchange names and telephone numbers as the focus group concluded.

### *INTERVENTION*

Program participants were recruited from the UMA’s patient population. Of 2708 patients with type 2 diabetes enrolled in care at the time of the project, 612 were African-American women. A total of 46 African-American women were recruited and retained as program participants. Participants were engaged in the project for 6 – 12 months and randomly assigned to one of two groups:

#### Group 1: Usual Clinical Care + Text Message Support (N = 25)

- Clinical visit every three months
- Set self-care goal with clinic pharmacist or certified diabetes educator
- Visit podiatrist once per year
- Customized daily text messages between clinic visits
- Weekly “buddy prompts” via text message
- Referrals to Diabetes Education Management Program for additional support, as needed

#### Group 2: Call2Health (N = 21)

- Monthly group sessions
- Customized daily text messages
- Weekly “buddy prompts” via text message
- Referrals to community services
- Opportunity to participate in service to the community

Table 1 below summarizes the program components and specific elements of the Call to Health program:

INTERVENTION COMPONENTS	SPECIFIC ELEMENTS (what was done)	MODE OF DELIVERY (by whom and how)
Diabetes Self-Management Education	<p><i>Monthly group visits</i> – Group visits provide an opportunity for participants to gather and provide each other social support, celebrate successes and engage in strengths-based problem solving. Participants were asked to self-evaluate their strategies and progress towards their self-management. Each group visit also included an educational component to convey health information relevant to helping participants self-manage their diabetes. Health education topics presented by guest speakers included: blood sugar control, healthy grocery shopping, cooking demonstrations, mindfulness-based stress reduction, laughter yoga, and getting fit without a gym. Each participant received a pedometer and pedometer logs; logs were collected at each session and improvements celebrated. Each session ended with a healthy snack or meal.</p>	<ul style="list-style-type: none"> <li>• Call2Health program director</li> <li>• Call2Health patient liaison</li> <li>• Attending physician from University Medical Associates</li> <li>• Community Obesity Task Force members</li> <li>• Invited guest speakers</li> </ul>
Support for Managing Diabetes and Distress	<p><i>Customized daily text messages</i> – Participants could make up their own daily text or choose a specific text message from a catalog of text messages (for example, Inspirational – “Believe in the impossible.”; Supportive – “Somebody loves you.”; Instructional – “Eat less, move more.”; Spiritual or Biblical – “God loves you.”, etc.. Upon enrollment they also chose the time of day for the messages to be sent to their phones. Participants may change the time of day or content of messages they receive at any time.</p> <p><i>Buddy prompts</i> – An inspirational quote paired with a positive question was sent via text message to prompt a conversation between the participant and someone she has identified as a support person. Sample buddy prompt: “A journey of 1000 miles begins with a single step. What step will you take today to improve your diabetes care?”</p>	<ul style="list-style-type: none"> <li>• STeM messaging application – an mHealth platform that uses personalized, patient-centered text messaging to promote preventive health behavior and medication adherence</li> <li>• Project staff developed the catalog of text messages and programed the STeM application</li> </ul>

Enhanced Access/Linkage to Care	<i>Referrals to community services</i> – Participants receive information, gifts, coupons and discounts to stores and services in the community that support their health goals.	<ul style="list-style-type: none"> <li>• Community Obesity Task Force members</li> <li>• Guest speakers</li> <li>• Program staff</li> <li>• Other group members</li> </ul>
Community Organization, Mobilization, and Advocacy	<i>Service to the community</i> – Group visits are used as a mechanism for encouraging and enabling women to participate in community work with the goal of involving the women in social change that positively impacts their own health.	<ul style="list-style-type: none"> <li>• Community Obesity Task Force members</li> </ul>

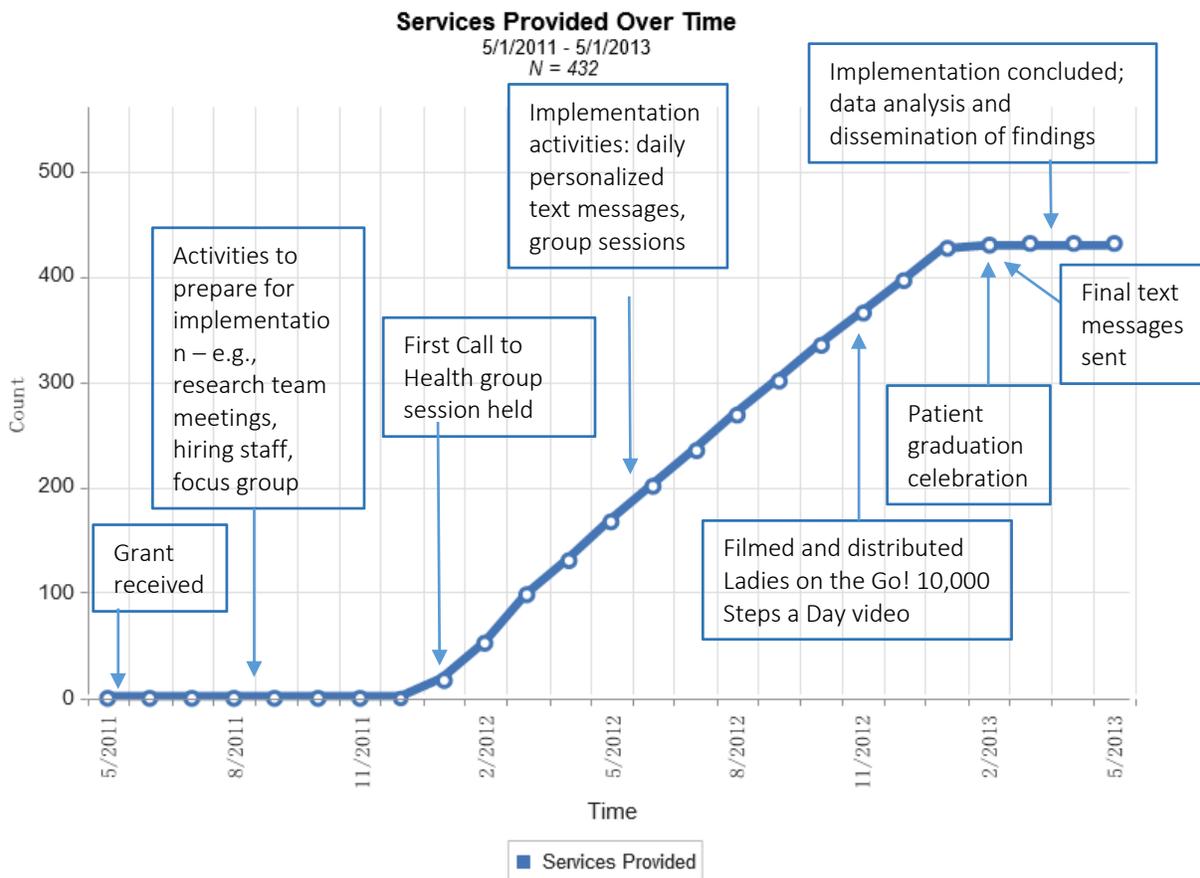
### STORY OF COMMUNITY TRANSFORMATION

Women who participated in this study consistently experienced difficulty accessing health care services and resources to effectively manage their diabetes. Daily text messaging was devised as an innovative strategy to reach the women with a positive message to benefit their health. Most of the text messages were not outright health messages or instructions for managing diabetes, but instead uplifting, religious and supportive messages intended to inspire the women to value themselves and good health and motivate them to engage in health-promoting activities. Bible-based messages were particularly popular among the women, emphasizing the importance of faith in addressing health and chronic disease in this particular population. Women reported that the daily inspiration helped them to stay on track with healthy behaviors, reminded them of important health behaviors and motivated them to try new lifestyle adjustments to positively impact their health. This innovative strategy to reaching women underscores the importance of addressing the complex factors that impact an individual’s health behavior. Reaching the women with a simple message that conveyed support and encouragement rather than a direct health message was an effective strategy for engaging the women in self-managing their diabetes.

### EVALUATION RESULTS AND FINDINGS

#### Data on Project Implementation

Figure 1 below displays program implementation – the unfolding of services provided to the program’s participants over time. (Note: In a cumulative chart, each new activity is added to all prior activities.)



The Call2Health program is characterized by steady implementation of its intended activities. During the planning phase of the project, regular team meetings and a focus group with potential participants laid the foundation for implementation of the study. The 14-month implementation period included enrollment of participants, monthly Call to Health group sessions, daily personalized text messages and involvement of participants in service to the community (e.g., creation and distribution of a health education video encouraging 10,000 steps per day and providing culturally relevant suggestions for increasing step counts).

Women in the study selected a text message to receive on a weekly basis. Women were able to choose from three different styles of text message. Table 2 shows the types of text messages the women chose.

TABLE 2: TEXT MESSAGE SELECTIONS		
TYPE OF TEXT MESSAGE SELECTED	N	PERCENT
General inspirational quote – e.g., “Believe in the impossible.”	13	28%
Biblical quote – e.g., “I am able to do all things through Him who strengthens me. (Philippians 4:13)”	26	57%
Spiritual inspiration – e.g., “Jesus loves you.”	7	15%

### Data on Clinical Outcomes

A total of 46 female patients were randomly assigned to one of two groups. Group A (n=25) received usual clinical care for diabetes plus personalized text messages. Group B (n=21) received the Call to Health intervention outlined above.

Table 3 below presents a summary of clinical outcomes for the two groups of participants in Call to Health.

Table 3: Pre- and post-assessment (6 months) outcomes of patients enrolled in the Call to Health program						
CLINICAL OUTCOME	RESULTS					
	Group A – Usual care + text messages (n = 25)			Group B – Call to Health intervention (n = 21)		
	Pre-assessment mean (SD)	Post- assessment mean (SD)	p- value	Pre- assessment mean (SD)	Post-assessment mean (SD)	p-value
Average HbA1c levels	7.38 (1.13)	7.57 (1.46)	.739	8.41 (1.87)	7.92 (1.58)	.085
Systolic Blood Pressure	144.8 (23.7)	138.0 (19.5)	.047	136.8 (19.7)	134.3 (23.5)	.316
Diastolic Blood Pressure	78.1 (14.9)	74.2 (12.6)	.067	76.8 (13.3)	76.7 (12.9)	.492
Average LDL	107.8 (38.1)	100.6 (33.4)	.146	103.2 (37.8)	96.5 (46.8)	.260
Average BMI	42.2 (11.9)	41.46 (11.1)	.371	38.7 (5.9)	38.7 (6.90)	.500

The results show modest decreases in average HbA1c and average LDL levels among participants in the Call to Health group, although no results were statistically significant. Among those in the usual care group, the data show modest decreases in diastolic blood pressure, average LDL and BMI levels and a statistically significant decrease in systolic blood pressure ( $p < 0.05$ ). Because there were positive changes for both groups of participants, these findings are suggestive of a positive contribution of personalized daily text messages in assisting patients in self-managing their diabetes. (Without a suitable no text messaging comparison, stronger inferences about cause and effect are not possible.)

## WHAT WE ARE LEARNING

University of Virginia staff helped to identify key restraining and facilitating factors related to implementation.

Several *facilitating factors* appear to have contributed to the program's success, including:

- Structured diabetes self-management group visits with educational and self-empowerment components. The women in the Call2Health intervention greatly valued the diabetes self-management and wellness information provided during the group sessions. They also benefitted from the social connections established during the group sessions and valued having the group hold them accountable for their own health goals in a supportive, empowering way.
- A rolling enrollment strategy. Although the intervention was intended to be 6 months in duration, when the first women's time ended, they asked to continue attending the group sessions. They were allowed to continue participating because they positively added to the group dynamic.
- Daily customized text messages. Women in both intervention groups of the study appreciated the daily gentle reminders to stay focused on their own health and well-being and found the text messages to be a convenient and helpful mode of delivering healthy reminders. Women were able to change text message types at any time during the study (although none did) and efforts were made to adjust the messages to make them as helpful and motivational as possible.
- Religious component. Most women preferred spiritual or Bible-based text messages. Spirituality is important to this group of women and including God and faith in the intervention was an important aspect of addressing health and chronic disease among the women.
- Sunday text messages ("buddy prompts"). Women in both study arms liked the Sunday text messages more than expected. They liked them because they changed every week and they reported frequently sharing these messages with friends (forwarded via text message).

*Restraining factors* or challenges that make it more difficult to implement the program and achieve improvements in clinical outcomes. These include:

- Recruiting women to participate in the study. The original aim was 150 total participants, but only 46 women were recruited and retained in the study. The randomized study design required that women be able to participate in either study arm, however many potential participants were unable to participate because of lack of access to cell phones and free unlimited text messaging plans or because of lack of transportation to attend group sessions.
- Transportation to group meetings. Because this study focused on women living in rural areas, transportation to monthly group meetings was a recurring barrier to full participation.
- Text messages with no actionable steps. Participants found some text messages too vague and non-specific to be motivational and useful. For example, the "Eat less, move more" text message contains no specific suggestions for how to eat well or be physically active.

## MOVING FORWARD AND PLANS FOR SUSTAINABILITY

Participants' satisfaction with the Call2Health program and movement of some clinical outcomes in the desired direction speak to the promise of this approach. Several popular and highly valued topics (for example laughter yoga and 10,000 steps a day) from the Call2Health group sessions are now being converted into strengths-based wellness modules for expanded use at University Medical Associates among all patients with diabetes and

patients with other chronic conditions. Furthermore, program staff are working to create an expanded comprehensive wellness program for all patients based on the Call2Health model. Funding or other avenues for continuing daily text messaging is also being explored because of its popularity among program participants.

The following table outlines sustainability tactics or methods being implemented:

TACTICS OF SUSTAINABILITY	SPECIFIC EXAMPLES OF HOW TACTIC IS USED
1) Incorporate the initiative’s activities or services into another organization with a similar mission	University Medical Associates internal medicine clinic has adopted the Call2Health curriculum and group session format for all patients with chronic illness and plans to pursue integrating the text message intervention.
	The women created the Ladies on the Go! 10,000 Steps a Day video. This video is being combined with healthy shopping and healthy cooking videos into 1 DVD that will be disseminated in UVA clinics including the endocrine and family medicine clinics.

### PROJECT PUBLICATIONS AND MATERIALS

- Call2Health Patient Workbook – compilation of materials and curriculum presented in the group sessions.
- Ladies on the Go! 10,000 Steps a Day video – video featuring members of the program talking about the unique ways they incorporated more steps into their daily routine. Available online at: <https://www.youtube.com/watch?v=2xSUyPikpMg>
- Catalog of daily and conversational text messages.
- Winstead-Derlega C, Dillingham R, Green R, May N, Nees M, Plews-Ogan M, Zimmerman P, Nadkarni M. Recruiting for a text message intervention for rural African-American women with diabetes. Accepted for poster presentation, American Diabetes Association’s 73rd Scientific Sessions, June 21-25, 2013, Chicago, IL.
- May N, Winstead-Derlega C, Plews-Ogan M, Nees M, Zimmerman P, Dillingham R, Davis M, Nadkarni M. “I can do all things through Jesus” Daily inspirational text messages for African-American women with diabetes. Accepted for oral presentation, International Conference on Communication in Healthcare, September 29 - October 2, 2013, Montreal, Canada.
- May N, Plews-Ogan M, Nees M, Winstead-Derlega C, Zimmerman P, Dillingham R, Davis M, Nadkarni M. Call2Health: Harnessing the positive power of African-American social support in diabetes self-care. Accepted for oral presentation, International Conference on Communication in Healthcare, September 29 - October 2, 2013, Montreal, Canada.

- May N, Plews-Ogan M, Nees M, Winstead-Derlega C, Zimmerman P, Dillingham R, Whaley D, Nadkarni M. Ladies on the Go! 10,000 Steps a Day. Poster presentation, International Conference on Communication in Healthcare, Montreal, CA, October 2013.

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### *EVALUATION CONTACT INFORMATION*

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