

Mobile Technology and Health Management

Karin Rasmussen & Sheila Simmons

Women Managing the Farm

10:45 – 11:45 02/14/2020

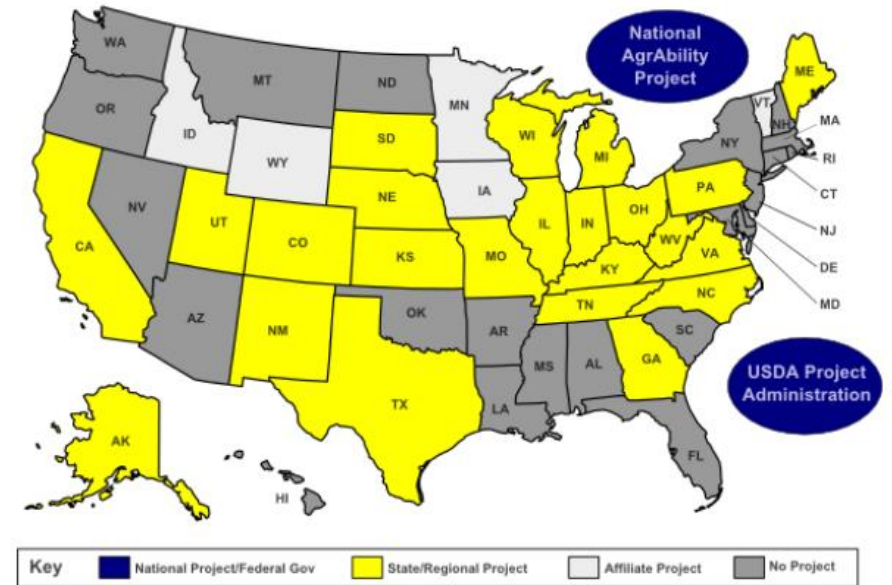
Roadmap



- Why m-health and diabetes?
- Partners and planning
- Tools and resources
- Implementation
- Anticipated and unexpected results
- Future – other health conditions

National Agrability

- Goal: Promoting success in agriculture for people with disabilities and their families.
- Goal: Enhance the quality of life for farmers, ranchers, and other agricultural workers with disabilities.
- U.S. needs 1 million more farmers, ranchers, growers.



Kansas AgrAbility Partners

- Kansas State University
- Southeast Kansas Independent Living
- Assistive Technology for Kansans



Kansas AgrAbility Purpose

- Promoting success in agriculture for producers with disabilities or chronic health conditions, including family members and employees.
 - Owner/operator, family members, hired workers.
- Prevention of injury and secondary injury for those populations.



AgrAbility Services



- Education of rehabilitation and rural medical providers
- Public awareness outreach to general public, farmers and ranchers and their families, agri-businesses, extension services, etc.
- Onsite assessment and training

Why are we doing this? A national trend.



30.3 million people in the U.S. have diabetes (9.4%; 12.2% of adults).

23.1 million diagnosed.

7.2 million are undiagnosed.

Incidence increases among individuals with socioeconomic status.



Diabetes can be managed through physical activity, diet and appropriate use of medication.

Why are we doing this? A customer need.

- Referral entities (regional hospitals, public health agencies, senior service providers) requested assistance meeting the needs of people with disabilities in their diabetes support groups.
- Incidence data for obesity and diabetes in 3 frontier/remote rural counties was higher than the state incidence:
 - Obesity: KS – 33.8%; CQ – 34.9%; LG – 32.3%; GW: 34.7%
 - Diabetes: KS – 24.7%; CQ – 25.4%; LG – 26.9%; GW: 26.2%
- 95% of adults own a cellphone, 76% own a smartphone, 51% own a tablet (Pew Research, Nov. 2016)

Partners and Planning – the players.

- Identified partners in 2 regions of the state:
 - Western: Logan County Public Health, Sheridan County Public Health, Northwest Kansas Educational Service Center (KS AgrAbility staff).
 - Southeast: Sedan City Hospital, Sedan Senior Citizen Center, Independent Strides Home Health, Southeast Kansas Independent Living (KAP staff).
- Diabetes & wellness knowledge: certified diabetes trainers (medical staff & IL coordinators), licensed practical nurses (LPNs), nurse practitioners.
- Technology, accommodations, & app knowledge: AT Specialist staff from the Western & Southeast AT Sites, Kansas AgrAbility & Assistive Technology for Kansans.

Implementation



Who was Involved?

- **Target:** 72 individuals with disabilities who had diabetes or were at risk of diabetes living in frontier or remote/rural counties who wanted to participate in a series of peer m-health workshops.
- **Results:** 67 individuals with disabilities who had diabetes or were at risk of diabetes living in frontier or remote/rural counties.
 - 18 male, 49 female.
 - Western KS: 92% seniors; SE KS: 87% under 40.
 - 56% lived on farms or had ties to agriculture.
 - Disabilities identified: mobility; TBI; arthritis/fine motor; memory; mental health; vision.
 - Primary functional issues: mobility, fine motor, memory, reading.

More About The Participants

- Family history of diabetes or being at risk of diabetes.
- If diagnosed with diabetes, asked to rate: how they felt about it, their level of understanding of diabetes, and how well it is under control.
- All were asked a series of questions that rated their health, their ability to make changes that impact their health, and whether diet and activity behaviors impacted their health.
- Specific behaviors surveyed: frequency of monitoring blood sugar, medication, diet, activity, level of stress and stress factors, secondary complications, other health conditions.

Educational Materials and Resources



Topical educational materials for diabetes education and management – American Diabetes Association.



Topical educational materials for expanded use of device (phone or tablet) features.



Assistance in developing SMART (Specific, Measurable, Actionable, Realistic, Time-Sensitive).



Information on apps for targeted areas of concern.

Participant Areas of Interest



Topics: wellness basics, medication management, weight management, hypertension, activity tracking, stress management, and specific topics requested by participant.



Activities: learning to read labels, snack selection, meal planning, peer buddy supports, etc.

Technology Topics & App Selection

- Mobile technology educational materials addressed:
 - Device orientation,
 - Use of built-in features (appointments, alarms, to-do's, etc.),
 - Accessibility features,
 - App evaluation.

App Evaluation Considerations

- App evaluation and selection based on:
 - Topics related to maintaining a healthy lifestyle.
 - Developers had a history of maintaining their apps.
 - Required user to input information.
 - Provided summary data for review, sharing, and warnings as needed.
 - Built-in accessibility or supports built-in accessibility device features.
 - Fees – upfront and in-app.

Effective Health Apps

- **Glucose Monitoring**
- **Health Monitoring**
- **Activity Tracking**
- **Food diaries**
- **Relaxation**

Diabetes Mobile Health Session Design

- Week 1: Introductions, preworkshop survey, overview of diabetes, review of technology and accessibility needs, blog sign-up.
- Week 2: Individuals sharing, tour of devices, goal setting.
- Typical layout weeks 3 – 10. Group sharing, diabetes/wellness topic, technology topic, small group activity directed by participants (additional information on requested health topic, review data summaries, assistance with an app).

Expected Issues & Surprises



Most participants underutilized their devices so technology training was increased and additional 1:1 tutoring could be scheduled.



Number of individuals with head injuries and other cognitive disabilities was unexpected. Increased the demand for reading and memory support training.



Addressed online security and identity protection 3 times in the workshop and provided small group reminders.

One individual required certain features of her device be “locked down” for protection.

Behavioral Health Changes



18/39 (46%) used an app to track insulin/medication usage and record glucose readings.



42/67 (63%) increased frequency and duration of activity in their lives (walking, biking, water resistance activities).



33/67 (49%) used food diaries for daily entry.

Additional 12 (18%) entered 4 times/week.



51/67 (76%) used apps to reduce stress.



11/67 (16%) shared app summary data with a member of their medical team during the 10-week workshop.

Results

- 67 individuals with diabetes or at risk of diabetes enrolled in 4 10-week workshops on education, prevention, and management of diabetes. 62 (92%) completed the workshops.
- 66 of 67 (98%) participants reported increased knowledge of how to manage their diabetes.
- 66 (98%) participants developed 2 – 3 SMART health goals.
- 67 (100%) participants selected 2 apps related to their SMART goal (focus on apps with data summaries).
- 64 (95%) entered data weekly; 58 (87%) entered 4 days/week.
- 55 (82%) achieved 1 SMART goal; 36 (54%) achieved 2 SMART goals.
- 62 (92%) reported they believed they could make changes to improve their health.

Wearables



Unexpected Results: Wearables

- Wearables were purchased as part of the project.
 - Different models of Fitbits and digital scales.
- One participant wanted to add a SMART goal addressing increased activity. She wanted an electronic solution that updated to her cell phone but allowed her to leave her phone in her office to help with stress relief. FitBit was an option.
- Woman with mental health issues wanted to monitor her weight but couldn't get herself to step on scales and read them early in the morning. A BT digital scale that updated to her cellphone was provided.

Wearable Data



9 individuals borrowed wearables – 7 purchased their own based on their loaner experience.



14 individuals brought a BT wearable at some point during the workshops.



12 monitored their blood sugar reading/medication management.



18 monitored activity and used reminders to move.



11 entered daily food logs into wearable apps.



8 monitored their weight.

One on One Work with Farmers

- Kansas AgrAbility staff have utilized diabetes education and management materials with 3 farmers since the workshops.
- Farmers reported concerns about:
 - Monitoring their diabetes when working alone for extended periods of time.
 - Mood swings that negatively effected their ability to stay on task and prioritize chores.
 - Possible complications if the disease was not managed properly.

One on One Results

- This work is ongoing, however, to date:
- One farmer uses a wearable device, blood sugar monitoring app, activity tracker (30 minutes of cardio 6x/week), meal monitoring, and reminders and alarms on his iPhone to manage his diabetes. He reports that he is "staying on top of my health, my sugars, and getting my work done. The wife is happier too!"
- Another family reports they are more comfortable having a family member work alone knowing that he is receiving alarm reminders to eat, medication and blood sugar check reminders, and alerts if the sugar levels are too high or too low. Plus carrying his smart phone all the time in an accessible holder in his tractor provides a means of communication.

Review of Apps Used

Your health matters!

Glucose monitoring

Diabetes in Check (iPhone, iPad)



This app is designed to help you lower your blood sugar, get active, eat better, count carbs, and manage your weight. It provides in-app coaching from a certified diabetes educator. You can enter blood glucose levels and see how food, activity, and stress impact your health. Includes a barcode scanner for food, carb tracker for 1000s of foods, recipes, and tools to help with meal planning and getting active.

Cost: Free

Glooko (iPhone, iPad, iPod)



The Glooko Logbook app and MeterSync Cable downloads readings from your blood glucose meter to your smart phone. You can also create an electronic logbook and send the data to your physician. Compatible with 32 blood glucose meters including Bayer's, FreeStyle, OneTouch, and Accu-Check. <https://www.glooko.com/>

Cost: Logbook is free. The Glooko subscription is \$59.95 and includes a USB cable for your glucose meter.

Glucose Buddy (iPhone, iPad, iPod)



App List for Diabetes

- Glucose Monitoring
 - Diabetes in Check
 - Glooko
 - Glucose Buddy
 - Telcare Wireless
 - BeatO
 - MySugr
 - Sugar Sense Diary
- Health Monitoring
 - iCare Health Monitor
 - BG Monitor Diabetes
 - Health2Sync
- Activity
 - My Fitness Pal
 - Sworkit
 - Zoombies Run
- Food Diaries
 - Calorie King Food Search
 - Carb Counting with Lenny
 - Fooducate
 - GoMeals
 - My Plate
 - Diabetic Diet
 - My Net Diary Calorie Counter Pro
- Relaxation
 - Breathe2Relax
 - Calm
 - Dalio
 - Pacifica

Extension Diabetes Management Materials

- Kansas State Extension and Research provides educational information and workshops on diabetes education and management, <https://www.k-state.edu/diningwithdiabetes/> .
- Other educational materials can be found at <https://www.ksre.k-state.edu/humannutrition/nutrition-topics/eatingwell-diabetes/index.html> .



Date:

Time:

Location:

Nutrition and physical activity are keys to managing your type 2 diabetes, but where do you start? The *Dining with Diabetes* program can help!

Designed especially for people with type 2 diabetes, this program will help you learn the skills needed to promote good health.

Dining with Diabetes is taught by trained and caring educators. The program includes:

- planning meals and snacks with delicious and healthy recipes
- cooking demonstrations and food sampling
- motivation and support — connect with others who are living with diabetes
- ideas for being more active
- an understanding of how diabetes affects your overall health

For more information visit
k-state.edu/diningwithdiabetes



Kansas State University Agricultural Experiment Station and Cooperative Extension Service.
K-State Research and Extension is an equal opportunity provider and employer.

Other Health Conditions to Consider

- Educational materials and apps are available for a range of health conditions including:
 - Heart – from rate (beats per minute) to cardiograms,
 - Blood pressure
 - Hydration
 - Sleep cycles
 - Stress
 - Smoking cessation, and more.
- KAP has focused on diabetes, heart rate, blood pressure, activity monitoring, and stress reduction.

Questions?

- Karin Rasmussen
- AT Ag Specialist
- Western AT Access Site,
NKESC, 703 W 2nd St.,
Oakley, KS 67748
- 785-672-3125
- krasmussen@nkesc.org
- www.atk.ku.edu
- Sheila Simmons
- KAP Training & ATK
Coordinator
- ATK, 2601 Gabriel Ave.,
Parsons, KS 67357
- 620-421-8367
- ssimmons@ku.edu
- www.atk.ku.edu