Diabetes Education Kiosk

Texas A&M Health Science Center School of Rural Public Health

Diosk

Use of Low-literacy Diabetes Education Kiosks For Addressing Diabetes Health Disparities

Project Investigators & Funding

- **Bolin, JN; Ory, M; Wilson, AD; Salge, L, Wilson, ME.**
- **Texas A&M Health Science Center School of Rural Public Health**
- **ACKNOWLEDGEMENT:** Support for this project came from The Center for Community Health Development which is a member of the Prevention Research Centers Program, supported by the Centers for Disease Control and Prevention cooperative agreement number 5U48DP000045.
- We also gratefully acknowledge support provided by the Morris L. Lichtenstein, Jr., Medical Research Foundation for whom we conducted this study. We also thank Jeremy Tarpley, Benjamin Liles, and Tom Peck for their software development and programming.
- For more information contact Dr. Jane N. Bolin, BSN, JD, PhD, at jbolin@srph.tamhsc.edu, or at 979-862-4238.

Presenter Disclosures

Dr. Jane N. Bolin, BSN, JD, PhD

The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose

Type 2 Diabetes

Education Needs of Persons At Risk

Identifying risk factors for type 2 diabetes

Signs and symptoms of diabetes

How to prevent type 2 diabetes:

- **Maintaining a healthy weight**
- **Healthy nutrition**
- **How to exercise safely**

Type 2 Diabetes

Background

- Diabetes self-management education (DSME) is essential to successful diabetes treatment and complication prevention. Diabetes management requires patient knowledge and behavior change on a daily basis.
- Persons with type 2 diabetes often do not have access to diabetes self-management education. Reasons for inability to find self-management education vary from patients' inability to pay for self-management education to difficulty in finding educators and nurses who are trained to provide the diabetes education.

Type 2 Diabetes

Background

- The purpose of this study is to evaluate and assess the feasibility of touch-screen, computer-based diabetes self-management education kiosks (Diosk©) in low income settings for the purpose of providing needed education in managing diabetes in both English and Spanish.
- The over-arching goals of the *Diosk©* are to improve the availability of diabetes self-management education and training, to improve sustainability of users' ability to self-manage diabetes, and to decrease or delay diabetes complications through readily accessible diabetes education tools.

Type 2 Diabetes

Education Needs of Persons Diagnosed

- Understanding diabetes
- Identifying, treating, and preventing hyperglycemia and hypoglycemia
- Meal planning and counting carbohydrates
- Exercising safely
- Monitoring glucose
- Understanding and safely using medications
- Treatment of Metabolic Syndrome
- Prevention, detection, and treatment of complications
- Foot care
- Oral care
- Understanding and managing stress and depression
- Setting goals
- Sick day management
- Disaster preparedness
- Using information for diabetes self-management decision-making
- Develop a personal strategy to promote health and behavior change

Barriers To Meeting Educational Needs

Diabetes Education

Cost

Educational programs addressing prevention of diabetes are not reimbursable

Insurance reimbursement for traditional diabetes self-management education programs is not required for self-insured entities or government employees

Consumer's lack of health insurance

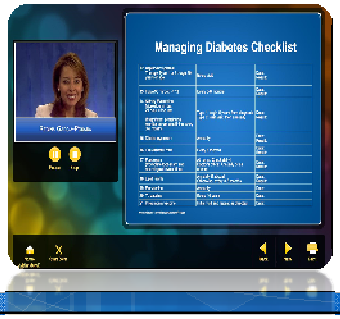
Diabetes Education

Barriers for Consumers

- Family care
- Time off work to attend programs with no pay for missed work
- Non-English speaking
- Low literacy
- Low health literacy
- Cultural beliefs
- Location & transportation to diabetes education programs
- Time commitment to traditional diabetes education programs

Diabetes Education

An Innovative Approach To Diabetes Education



Diosk

What is the Diosk?

- Self-paced touch screen with video recordings and illustrative power points
- Appropriate reading level for low literacy needs
- Twelve modules covering the education needs of persons at risk for and diagnosed with type 2 diabetes
- Information provided in English & Spanish

Diosk Modules

What is Diabetes?	Are You at Risk?	Preventing Diabetes
Signs and Symptoms	High and Low Blood Sugar	Medications and Daily Management
Exercise	Complications Related to Diabetes	Meal Planning
Sick Days, Disasters and Special Events	Kids Corner	Healthy Recipes

Diosk Modules

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Diabetes Education

Diosk Pilot Study

Diosk Pilot Study

Purpose

To evaluate the implementation of a Diabetes Self-Management Education (DSME) Kiosk, Diosks©

To increase exposure to diabetes self-management education in a low-income and low-literacy population with high risk for complications.

Diosk Pilot Study

Research Questions

Question 1:
- What is the reach in each organizational setting-i.e., how many uses are reported and what are the characteristics of the users?

Question 2:
- How does utilization of the Diosk change over time?

Question 3:
- Are the organizations able to sustain the Diosk on their own over time?

Questions 4:
- What factors facilitate or impede long term sustainability?

Diosk Pilot Study

Future Research Questions

Question 5:
- Can the Diosk be a successful gateway to other intervention strategies, e.g., encouraging stores to offer healthier foods at reduced prices?

Question 6:
- Does the Diosk increase communication with health care providers and generate more referrals to community programs for reducing diabetes risk?

Diosk Pilot Study

Study Design

The study design consisted of two initial phases or stages, and a third sustainability phase.

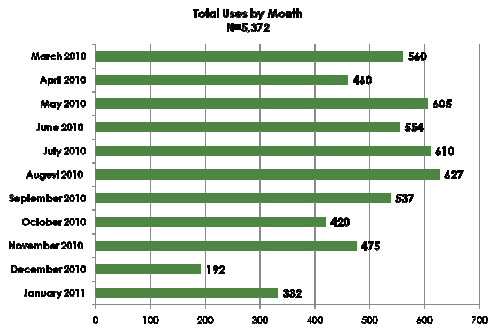
1. Refinement (revision of Diosk content)	2. Implementation (3 initial and 2 subsequent sites & translation to Spanish)	2. Sustainability (Diosks in community)

Diosk Pilot Study

Diosk Sites

- Five kiosks were placed in predominately low-income Hispanic neighborhoods of Corpus Christi, Texas
  - CHRISTUS Spohn Memorial Clinic Pharmacy
  - Antonio E. Garcia Arts & Education Center
  - HEB Pharmacy
  - Amistad Clinic (implemented September 2010)
  - CHRISTUS Spohn Westside Clinic (implemented September 2010)
- Usage data for the kiosks was collected from March 2010 through January 2011

Diosk Pilot Study



Diosk Pilot Study

Site Commitment

Each site had to provide the following:

- Wireless internet
- Technical support
- Staff "Champion" to oversee Diosk
- Paper and ink for Diosk printer

Diosk Pilot Study

Results

5,372	Total number of uses
9.95	Average number of uses per day
11	Median number of uses per day
6.92 minutes	Average amount of time spent (on all Diosks)
24.56	Average number of views per use
733	Total number of repeat uses
6,913	Total number of prints

Diosk Pilot Study

Results

- **Majority of users are female**
  - (64.25%)
- **Most users are aged 36-49 years**
  - (39.66%)
- **Majority of users reported that they were of Hispanic/Latino descent**
  - (66.48%)
- **Most users have been diagnosed with diabetes by a doctor**
  - (45.25%)
- **The vast majority of users plan to make a behavior change after using the Diosk**
  - (84.92%)

Diosk Pilot Study

Most Used Sections by Site

CHRISTUS Spohn Memorial Clinic Pharmacy	Antonio E. Garcia Arts & Education Center	HEB Pharmacy	Amistad Clinic	CHRISTUS Spohn Westside Clinic
Healthy Recipes	Kid's Corner	Kid's Corner	Kid's Corner	Healthy Recipes
Meal Planning	What is Diabetes?	Meal Planning	What is Diabetes?	Signs and Symptoms of Diabetes

Diosk Pilot Study

Self-reported Diabetes by Demographic Factors

Percent of respondents diagnosed with diabetes

- **58.18% of men**
- **42.61% of women**

The prevalence of diagnosed diabetes is highest among those aged 65 years and above at 66.67%

The prevalence of diagnosed diabetes is highest among those identifying as white (64.29%) followed by those identifying as Hispanic/Latino (44.54%)

Diosk Pilot Study

Self-reported Technology Use by Demographic Factors

Regular Computer Use

- 52.73% of responding males use a computer regularly and 67.83% of women report regular use.
- The prevalence of regular computer use is highest among those aged 18 years and younger (83.33%) and lowest among those aged 50-64 years (47.73%).
- The prevalence of regular computer use is highest among those identifying as white (75.00%) followed by those identifying as African American (60.00%).

Diosk Pilot Study

Self-disclosed Technology Use by Demographic Factors

Previous Touch Screen Use

- **67.27%** of males; **72.17%** of women
- **81.48%** 19-35 years; **63.64%** 50-64 years
- **75 %** identifying as white; **73.33%** identifying as African American.

Diosk Pilot Study

Conclusions

The Diosk succeeded in increasing the exposure to diabetes self-management education in low-income and low-literacy populations with risk for high complications.

- Future placement of Diosks throughout the Coastal Bend community will continue to fulfill this aim.

The data collected does not allow the research team to determine if the Diosk improved the ability of vulnerable populations at risk to prevent or self-manage diabetes.

- Future research can fill this void by collecting outcomes for further assessment of the effectiveness of the Diosk.

The Diosk implementation process allowed the research team to determine that community organizations are able and willing to serve as Diosk delivery sites.

Diosk Pilot Study

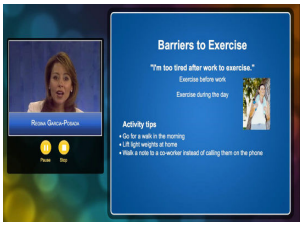
Challenges & Lessons Learned

Revision of Educational Modules	•Challenge: Providing detailed educational modules •Solution: Revision of the educational modules •Comments: Most individuals only view a small amount or subset of the information. Condensing the material or changing it frequently may facilitate dissemination.
Language	•Challenge: Need for English and Spanish diabetes educational modules •Solution: Use local celebrities or key figures to narrate the modules in English and Spanish •Comments: Finding a narrator who is comfortable with the language and has excellent camera presence is a necessity.
Introduction of Electronic Survey	•Challenge: Low response rate of paper surveys •Solution: Create an electronic survey that can be accessed on the Diosk •Comments: Electronic survey response rate poor due to the length. In the future, it will be advantageous to introduce a shorter survey.
Technology Advancements	•Challenge: Reach a larger population •Solution: Create a web-based version of the Diosk educational modules •Comments: The process of converting the program to a web based platform is labor intensive, but needed for dissemination.
Security	•Challenge: Secure the Diosk and related resources •Solution: Provide a locked cabinet for the Diosk and have a "live" individual overseeing the area. •Comments: Some settings are more secure than others. It is important to recognize security issues at the time of installation and identify site personnel to oversee the Diosk.

Future Direction

- Full transfer of technology support to four locations that have chosen to sustain the kiosk
- Promote the web-based version of the kiosk
- Create closed-circuit television version of kiosk
- Consider developing a low-literacy kiosk for other chronic conditions

Diosk



Resources

- Lorig, K., Holman, H., Sobel, D., Laurent, D., Gonzales, V., & Minor, M. (2006). Living a healthy life with chronic conditions: Self-management of heart disease, arthritis, diabetes, asthma, bronchitis, emphysema and others (3rd ed.) Boulder, Co: Bull Publishing Company.
- Diosk

QUESTIONS?

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