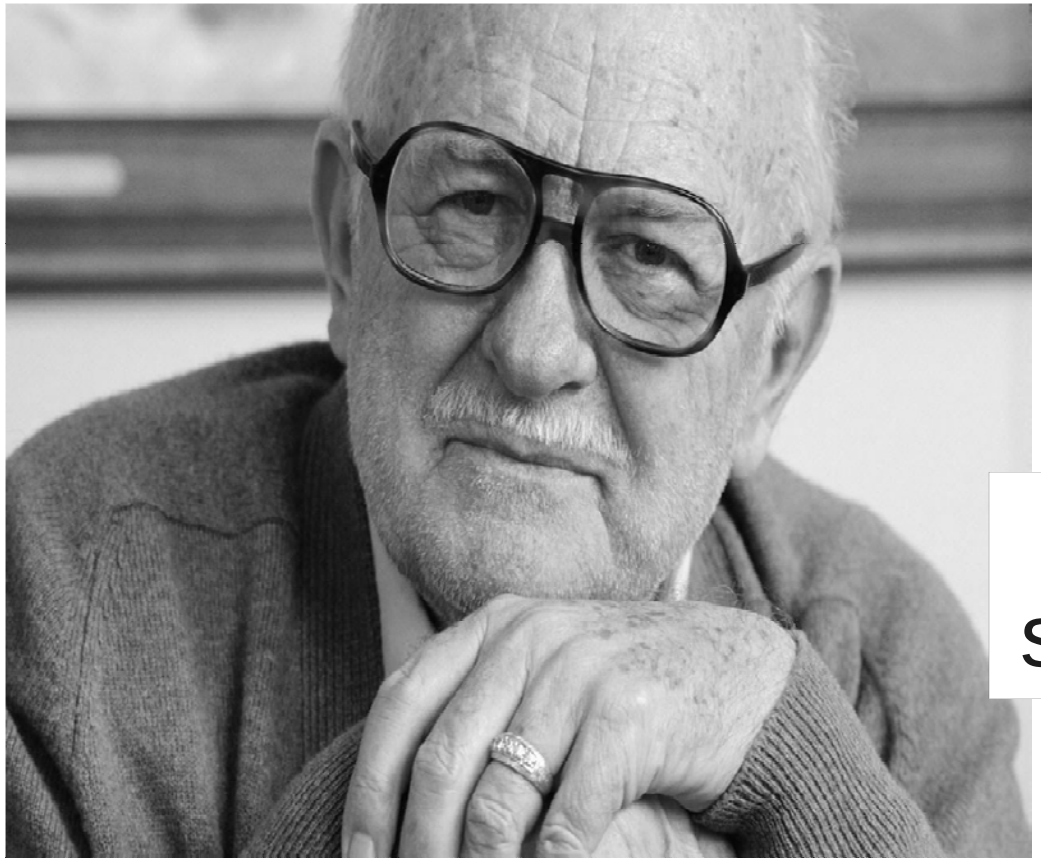
Improving Health Care beyond the Clinic with the Help of Peers and Pixels

Michele Heisler, MD, MPA

October, 2011

William

DM
COPD
GERD



Cares for wife

Severe symptoms

Leticia

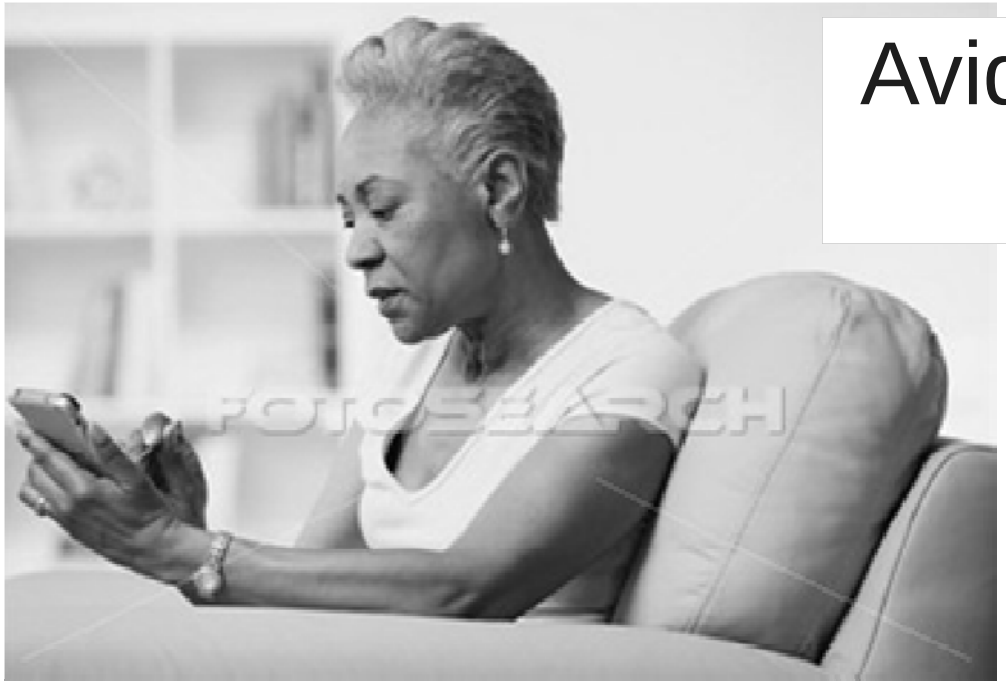
DM
Asthma
OA

LEP
low health literacy

Goes to FQHC

Angela

DM
HA
HF

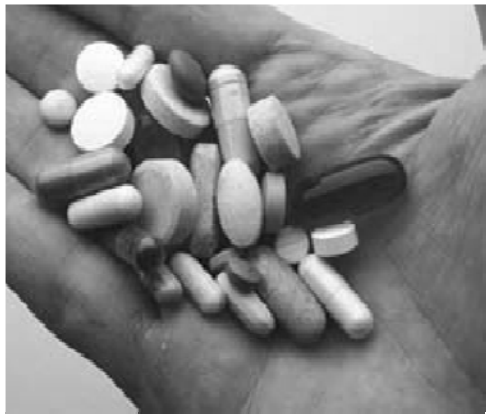


Avid computer user

Widowed

Daughter two states away

Struggling with Self-Management



Overview

- **The Challenge**
- **Peer Support Models**
  - Community Health Worker
  - Peer Mentor
  - Reciprocal Peer Support
- **Web-Based Peer Support Tools**

Self Management Support

"…assist the individual … to ***implement and sustain*** the ongoing behaviors needed to manage their illness."

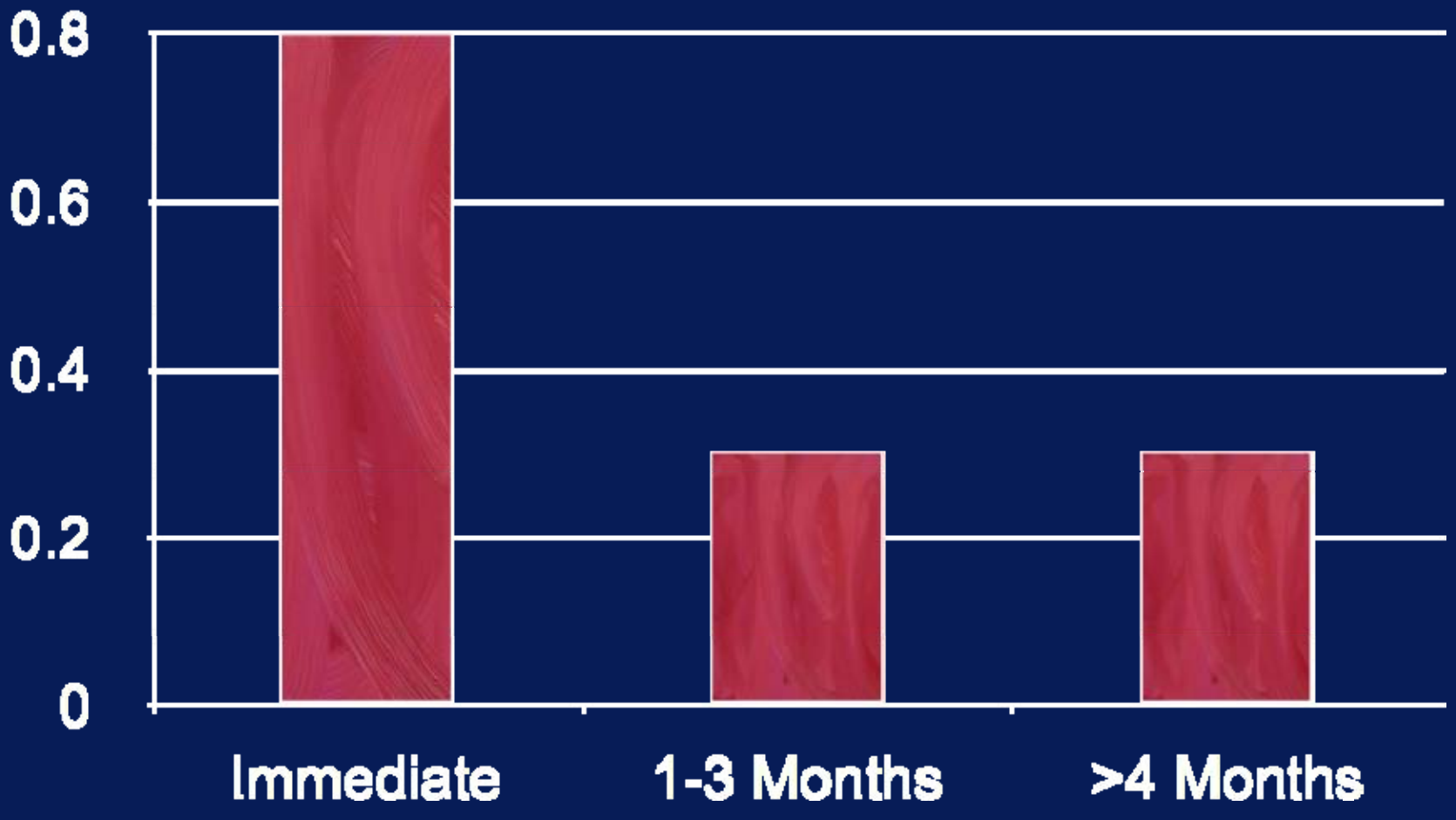
National Standards of Diabetes Self Management Education. Funnell et al. *Diabetes Care*. Jan 2009;32 Suppl 1:S87-94.

Improving Patients' Self-Management of Chronic Diseases

"... far greater impact on the health of the population than any improvement in specific medical treatments."

World Health Organization, 2003

Difference in A1c Levels After Diabetes SM Training



Norris, Diabetes Care 2002

8,760

365.25 days X 24 hours = 8,766

6 hours a year in the doctor's office or with dietitian or other health professional

8,760 hours "on your own"

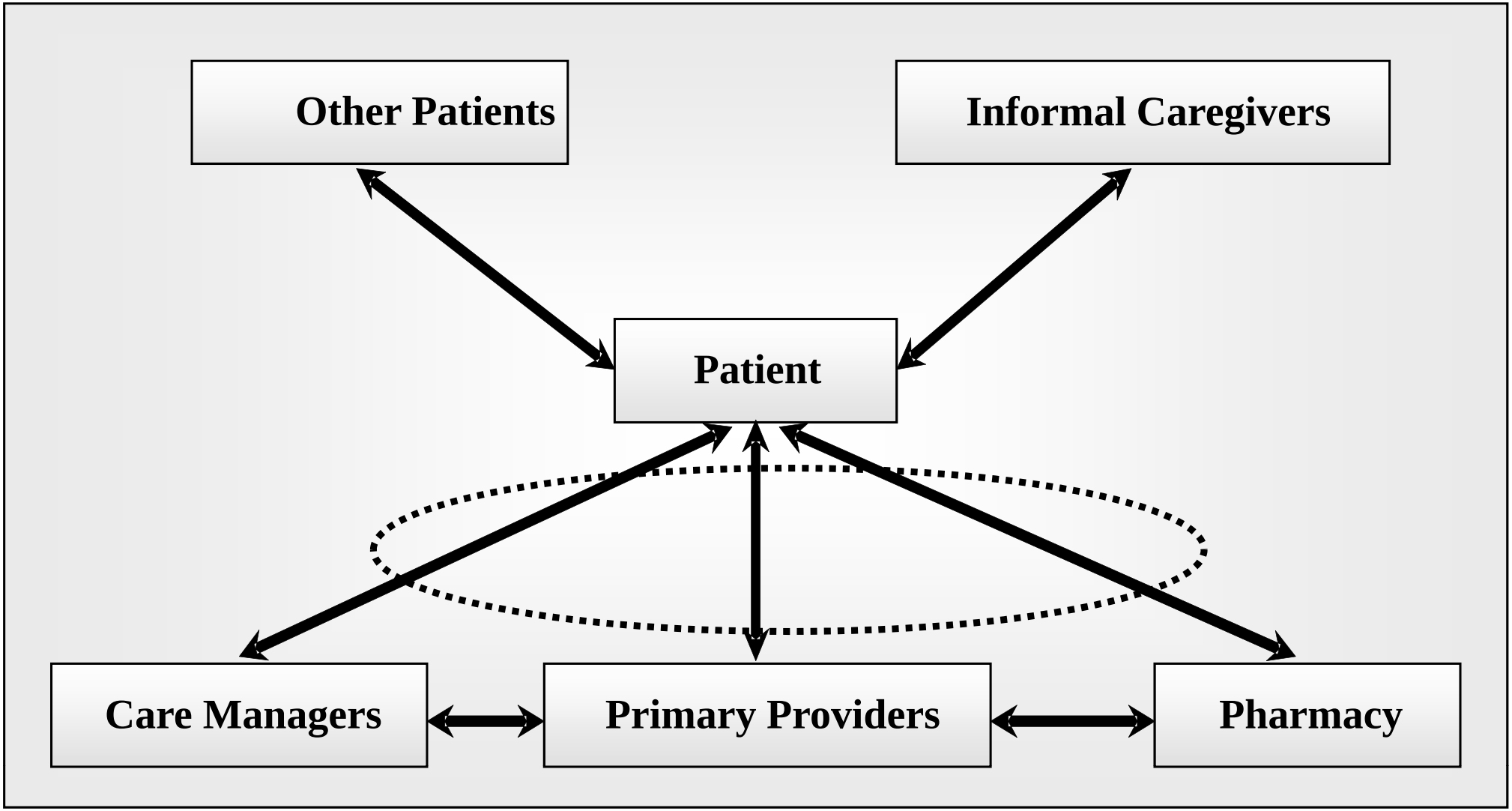
- **Healthy diet**
- **Physical activity**
- **Monitor blood sugar**
- **Take medications, insulin**
- **Manage symptoms**
- **Manage stress – Healthy Coping**

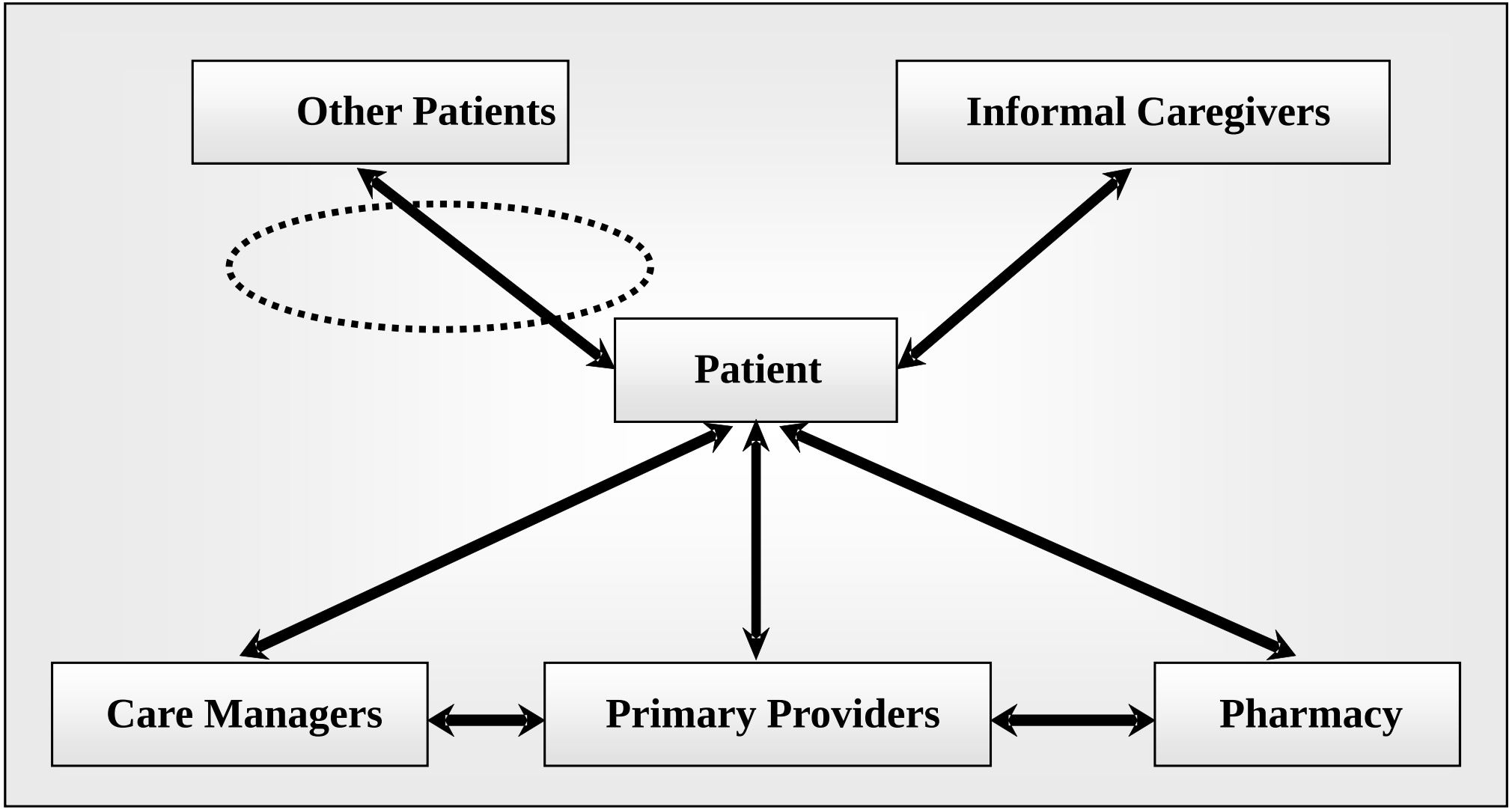
How to Sustain Gains from Training?

We need low-cost programs that are:

- tailored
- linked to outpatient care processes
- flexible

Health Team-Based Outreach Programs





Heisler M. (2006).

Peer Support

- "Support from a person with **experiential knowledge** of a specific behavior or stressor and **similar characteristics** as the target population"

Dennis, 2003

Physicians' Fears about Peer Support

"Gee, Tommy, I'd be lost without your constant peer pressure."

Possible Mechanisms of Peer Support

- Sharing experiences with others undergoing the same medical tasks

- Assimilating new knowledge and skills through mutual exchange of experiences

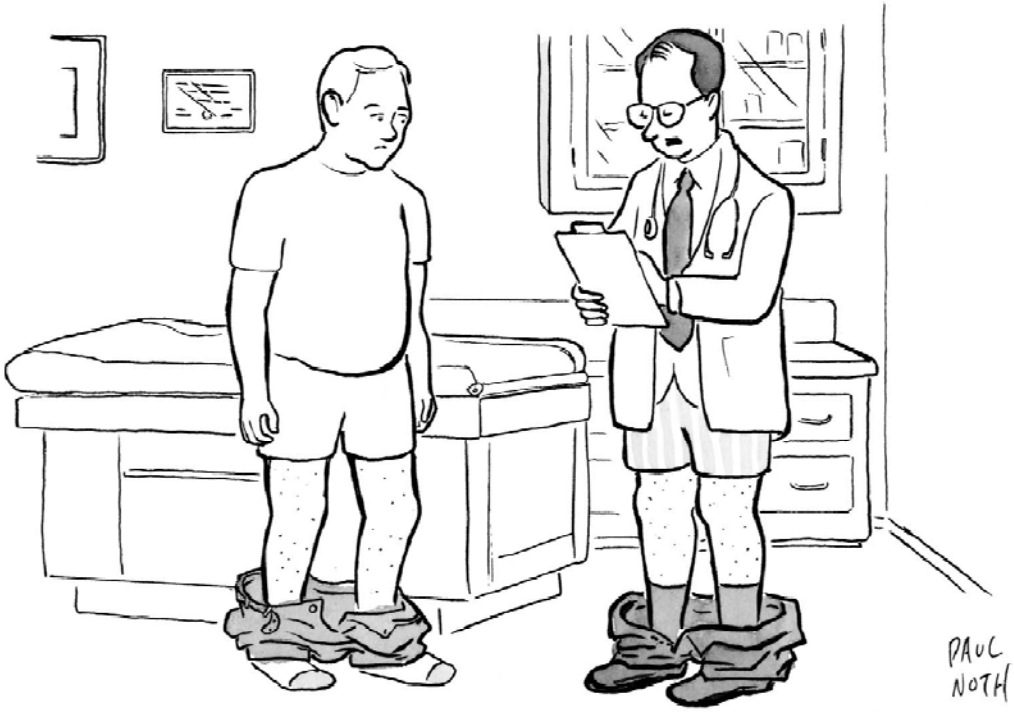
Our Vision of How Patients Regard Us

The Sick Woman, Jan Steen (1626-1679)

Patients' Fears If They Admit to Poor Adherence

"That liver went to someone who doesn't have such a big yap."

Inescapable Social Distance between Doctors and Patients



"It helps me empathize."

Prior Research

- Face-to-face peer-led group visits and training sessions can improve outcomes (Wagner,2001)(Lorig, 2001,2009)

- Effective models include peer outreach (Smith, 2011) and are linked to structured training and support programs (Heisler,2008)

- Two Cochrane reviews called for the need for high-quality evaluations of peer support models (Dale,2008)(Doull,2005)

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Leticia

Meta-Analysis of Community Health Workers in Diabetes

- Studies through 2004
- Roles and duties of CHWs varied
  - Direct involvement in patient care to
  - Providing assistance in health professional-led education sessions
- Improved knowledge, self-care, and physiological outcomes
- Variable quality of studies

(Norris, Diab Med 2006)

Specific Peer Worker Roles in Chronic Disease Care

Wide range of roles:

1) strengthening linkages to clinical care
2) individualized assessment and support
3) patient-centered collaborative goal setting
4) education and skills training,
5) ongoing follow up and support, and
6) linking patients to community resources

Brownson C and Heisler M, 2009

Limitations of Prior Studies

- Lack formal curricula grounded in behavioral theory
- Often not effectively linked to health care
- Participating communities not involved in developing, implementing and evaluating interventions

Training of Community Health Workers to Lead Six-Month Self-Management Program

- Linked to Health Center serving low-income, inner-city community in Detroit

Key Components of Six-month CHW Program

(Spencer, AJPH, 2011) (Heisler, AJPM 2010)(Heisler, D Care,2009)(TwoFeathers, AJPH,2008)

•Journey to Health/El Camino a la Salud: 11 two-hour, culturally tailored group diabetes self management classes

•One-on-One Support: behavioral goal setting and follow-up (“action plans”), social support, linkage to resources

•Clinic visits: accompany clients to at least one provider visit, provide help navigating the health care system

Personal Diabetes Action Plan

Name:_____ Date:_____

My Action Plan for Diabetes

People who pick their own goal with support from their health care providers can do better with long term health conditions. Please decide what changes you are willing and able to make right now. What is <u>one</u> change **you** would like to make during the next few weeks to improve your health?

What will I do?

How will I do it?

Where will I do it?

My plan for overcoming these difficulties is:

Some examples of things you can do include.....

Diet | Physical Activity | Medications | Self-monitoring

When will I do it?

The things that could make it hard to achieve my goal are:

How confident am I that I can make this change?

_____

Revised 10/10/06

Main Outcomes of Randomized Controlled Trial (RCT)

Physiological

- Hemoglobin A1c

Diabetes-Specific Emotional Distress *(PAID; Polansky, 1996)*

- 20-item scale measuring diabetes-specific distress

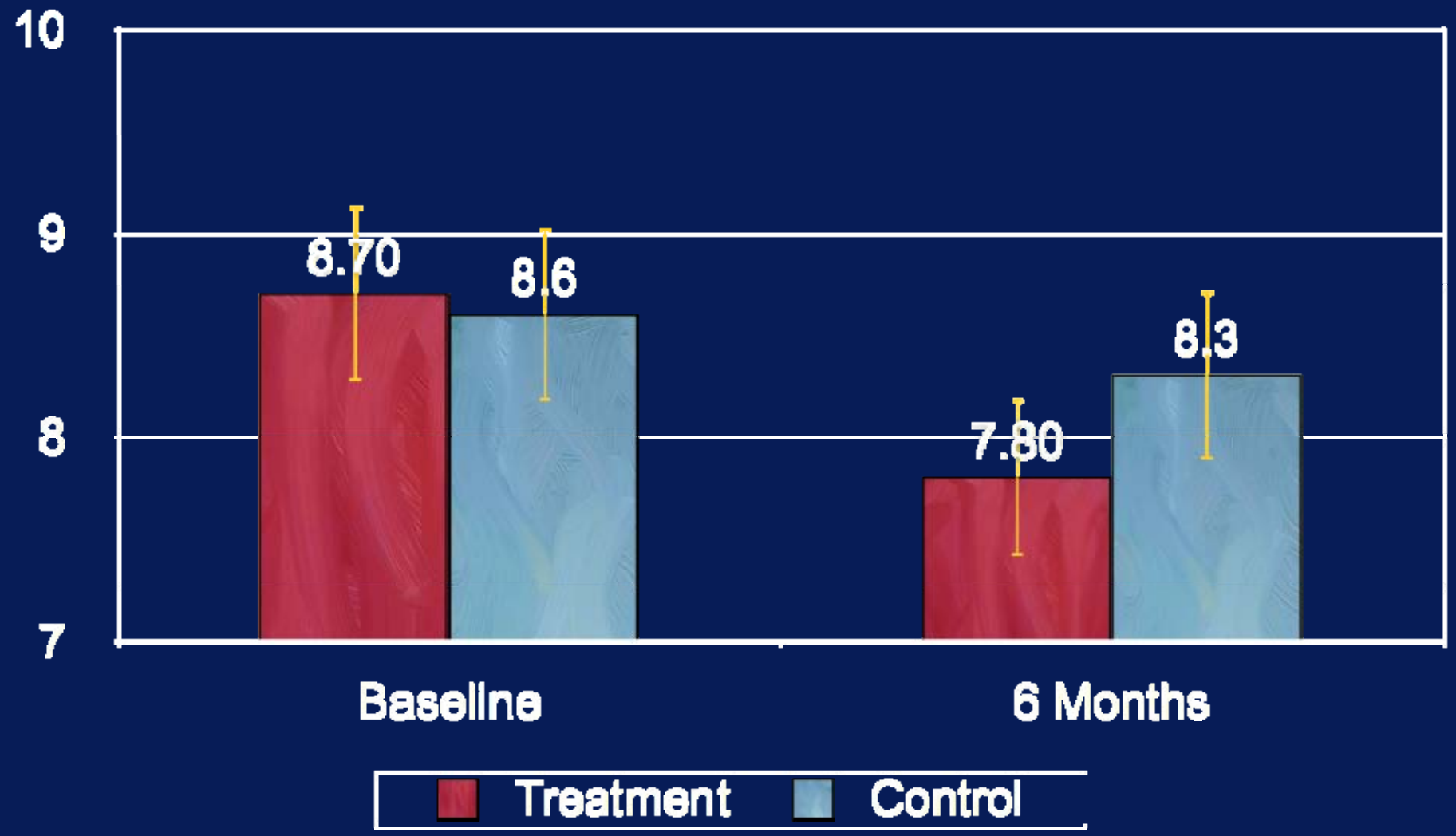
Methods and Analysis

- Assessed changes between baseline and 6 month follow-up
- Repeated measures models
- Generalized Estimating Equation (GEE) for binary variables and Linear Mixed Models for numerical variables

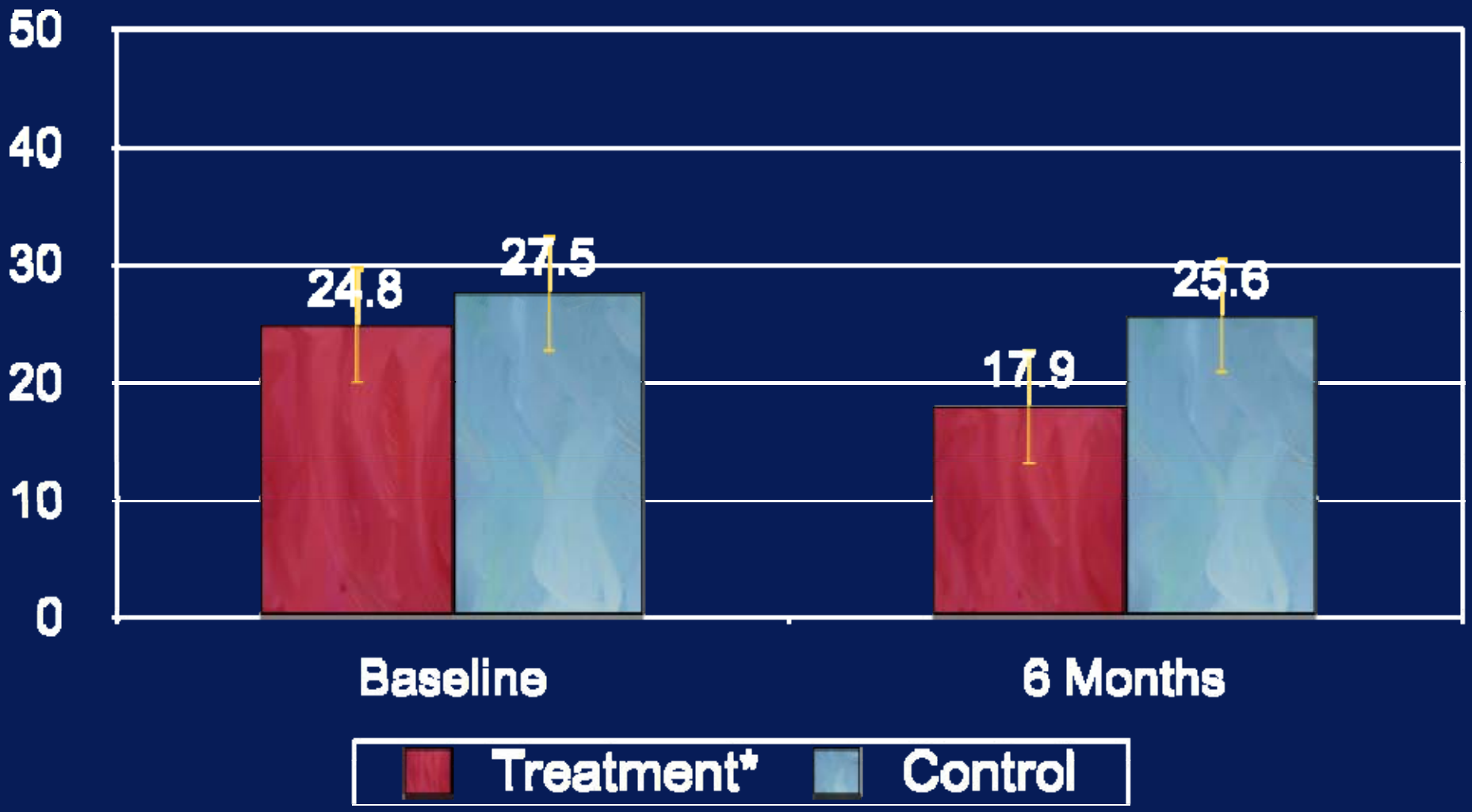
Baseline Characteristics (n=183)

Measures	Treatment (n=88)	Control (n=95)
Mean Age	50*	55*
Female	74%	65%
HS Graduate	62%	55%
Oral Meds Only	68%	65%
Insulin	23%	28%

Mean A1c Values



Age-Adjusted Mean PAID[a] Score



[a]Problem Areas in Diabetes (Polanski, 1995 and 1996) ***: p < .05;**

Summary

- Developed and implemented an effective CHW model that can be replicated and built on
- Developed and refined culturally tailored diabetes self-management curricula
- Found clinically significant improvements in A1c and diabetes-specific emotional distress

Overview

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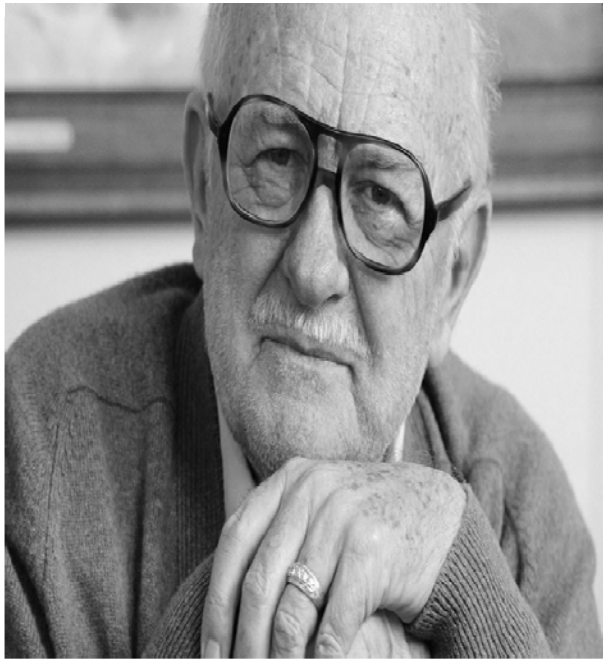


Peer Support to Maintain Gains from CHW Program

Would You Like to Be Peer Leader in Diabetes?

What is a PEER LEADER?

A **PEER LEADER** is a person who has diabetes, is living with the challenges of managing diabetes, and shares a similar background (e.g., values, beliefs, traditions) to the community we are trying to help.

Are you interested in helping others take better care of their diabetes? Would you also like to improve your own skills and understanding? If so, we are looking for people in the greater Ann Arbor/Ypsilanti area who are interested in becoming a Peer Leader in diabetes.

What qualities does a PEER LEADER have?

The qualities we are seeking in a **PEER LEADER** include being:

- A good listener
- Non-judgmental
- Patient
- Responsible
- Dependable
- Honest
- Considerate
- Understanding
- Supportive

What would I be expected to do as a PEER LEADER?

As a **PEER LEADER**, you will be expected to do the following:

- Provide emotional support
- Support self-management efforts
- Link participants to resources
- Provide basic diabetes information
- Make follow-up phone calls
- Work one-on-one with each participant
- Assist participants in setting and achieving their own goals
- Assist participants in making an action plan
- Assist participants in problem-solving and overcoming barriers

If you are interested in becoming a PEER LEADER, please turn the page to obtain more details about the PEER Leader training program.

- RCT of 15 months of peer-led drop-in weekly groups and telephone outreach
- Peer leaders are patients who completed diabetes SM training
- 24 hours of training in group facilitation and communication (Tang, 2011) (Tang,2010)

Program Components

- **Knowledge Review**
  - ADA's nine core diabetes education topics
- **Skills development**
  - Empowerment-based facilitation
  - Active listening
  - 5-step behavioral goal-setting process
  - Making an action plan
- **Experiential learning**
  - Facilitation simulations
  - Playing the role of "peer leaders"

Peer Mentor Teaching Approaches

- Group brainstorming
- Skills building
- Role-plays
- Pair and share
- Lecturette

- Peer Leader simulations
- Paired Peer Leader facilitation simulations
- Self-graded Quizzes

A RCT of Peer Mentoring and Financial Incentives

- Peer mentoring may be particularly effective in minority groups with higher distrust of the health care system
  - Innately culturally sensitive

- Financial incentives may be particularly effective in lower income populations
  - Magnitude more than to someone with greater financial resources

Long et al, (NIA)(NIDDK R01)

Aim

1. Test the relative effectiveness of peer mentoring, financial incentives, and usual care in improving glucose control

Design

- **6 month RCT**
- **Participants**
  - African American, veterans, 50-70 years old
  - **Enrollees**: persistent poor DM control
    - Last two HbA1c > 8% with last measure within 3 months of enrollment
  - **Mentors**: currently good DM control
    - HbA1c of > 8% in the past 3 years and an HbA1c ≤ 7.5% within 3 months of enrollment

Intervention Procedures

Mentor Arm

- Matched by gender and age (+/-10 years)
- Mentors:
  - 1 hour one-on-one training
  - Provided with mentee's phone number
  - Called monthly to reinforce training
  - $20 per month if talked at least 4 times in month

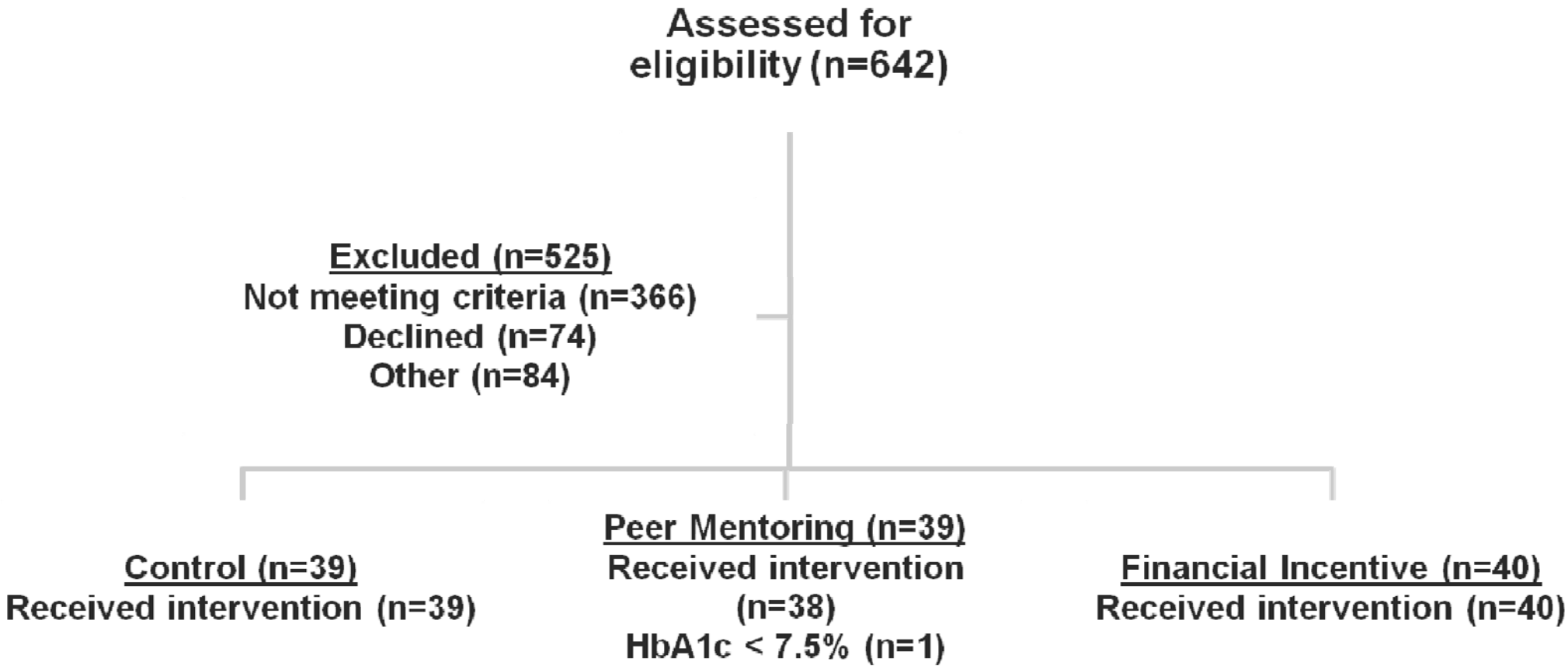
Incentive Arm

- Lump sum if achieve goal at 6 months: $100 for 1 point improvement, $200 for 2 point improvement or A1c of 6.5%

Analysis

- Intention-to-treat
- Main outcome: change in A1c
- Adjusted for baseline A1c and variables not evenly distributed across groups (any DM co-morbidity, time between tests)

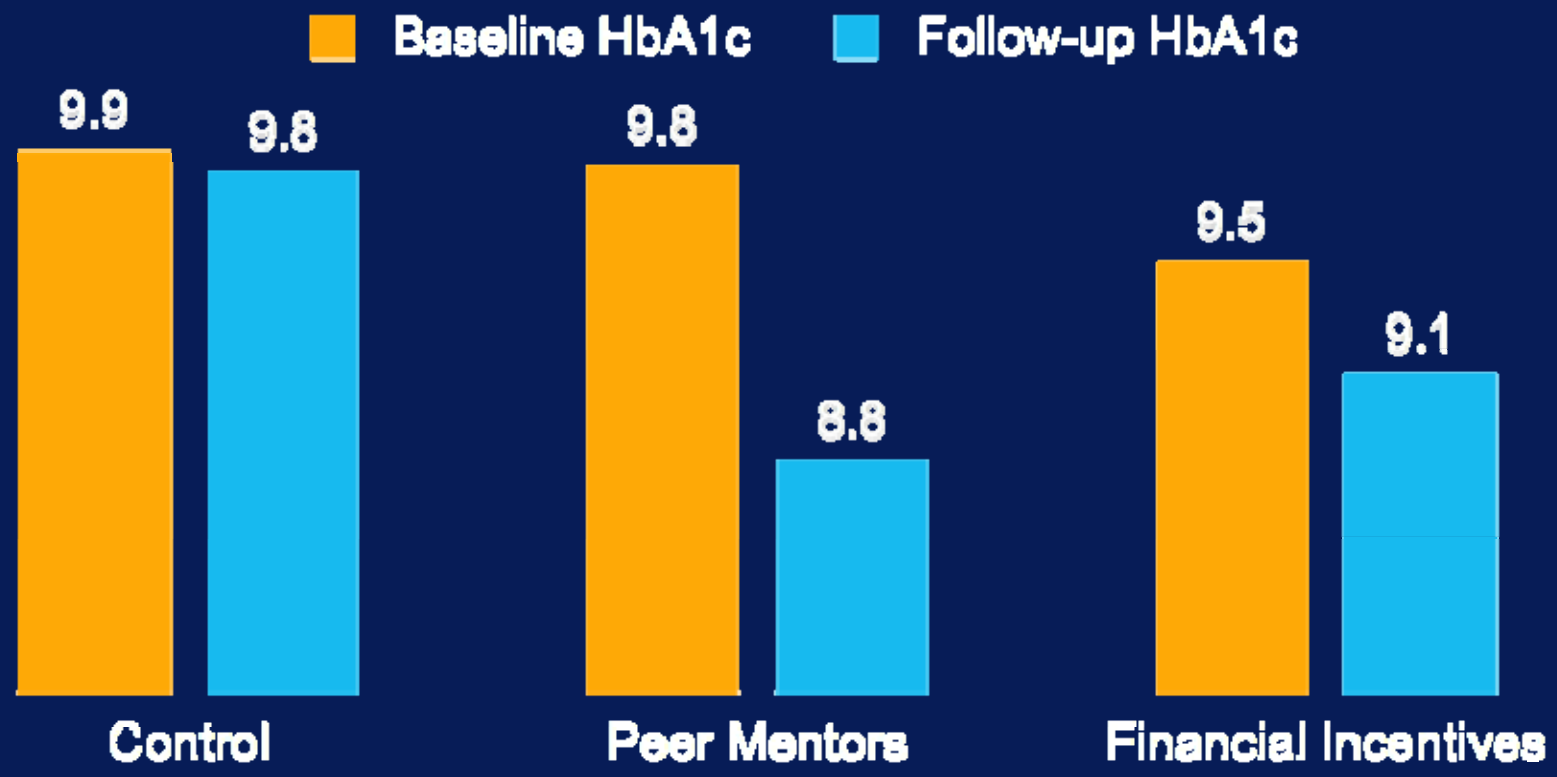
Screening and Enrollment



Baseline Characteristics

Measures	Control (n=39)	Peer (n=38)	Incentive (n=40)
Mean Age	60	59	59
HS Graduate	36%	32%	50%
On Insulin	72%	71%	63%
Mean A1c	9.9	9.8	9.5

Baseline and Follow-up HbA1c



Conclusions

- Peer mentors improved glucose control in a population with persistently poor control
- The peer mentor training was short and straight forward
- Now embarking on larger, longer study with financial incentives tied to shorter range targets

Negative Irish Study of Peer Mentors

- Cluster randomized trial, 30 practices
- Peers identified by GPs and practice nurses
  - Type 2 diabetes for >1 year
  - Generally adherent to treatment and lifestyle
  - Capacity and commitment to undergo training
- Training 2 evening 90 minute sessions
  - Diabetes self-care
  - Emphasis on confidentiality

Text

- Smith SM et al. BMJ 2011;342:d715

Negative Irish Study, cont.

- Intervention: 9 face-to-face group meetings over 2 years (education about diabetes care)
- Patient sample: mean baseline A1c 7.2
- Powered for a difference of 0.9% in A1c (and other outcomes)
- Mean attendance was 5 visits
- 18% attended none
- No difference in any outcome

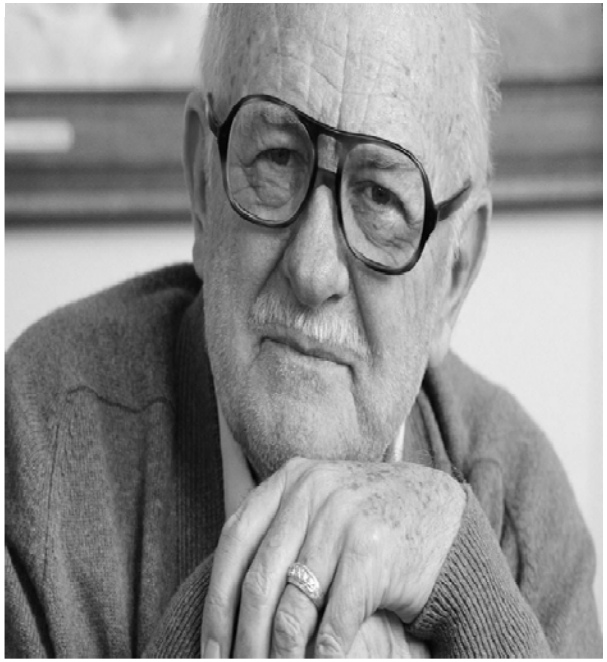
Overview

- **Peer Support Models**
  - Community Health Worker
  - Peer Mentor
  - Reciprocal Peer Support
- **Family and Caregiver Models**
- **Web-Based Peer Support Tools**

Other Possible Mechanisms for Peer Support

- Providing support to others can lead to health benefits comparable to—or greater—than receiving support

- A key mechanism by which peer support may be effective is to ‘activate’ patients by encouraging them both to give and receive support



RCT Comparing Reciprocal Peer Support with Usual Nurse Care Management in Diabetes

Heisler et al. Ann. Int. Med., 2010

- Reciprocal Peer Support=Participants both give and receive support to each other
- Veterans with diabetes and A1c>7.5% in two VA facilities
- Exclusions of active substance abuse, severe depression, hearing loss, or terminal illness

Components of 6-Month Intervention

At initial group session, informed consent, survey, blood pressure and A1C tests, and randomization

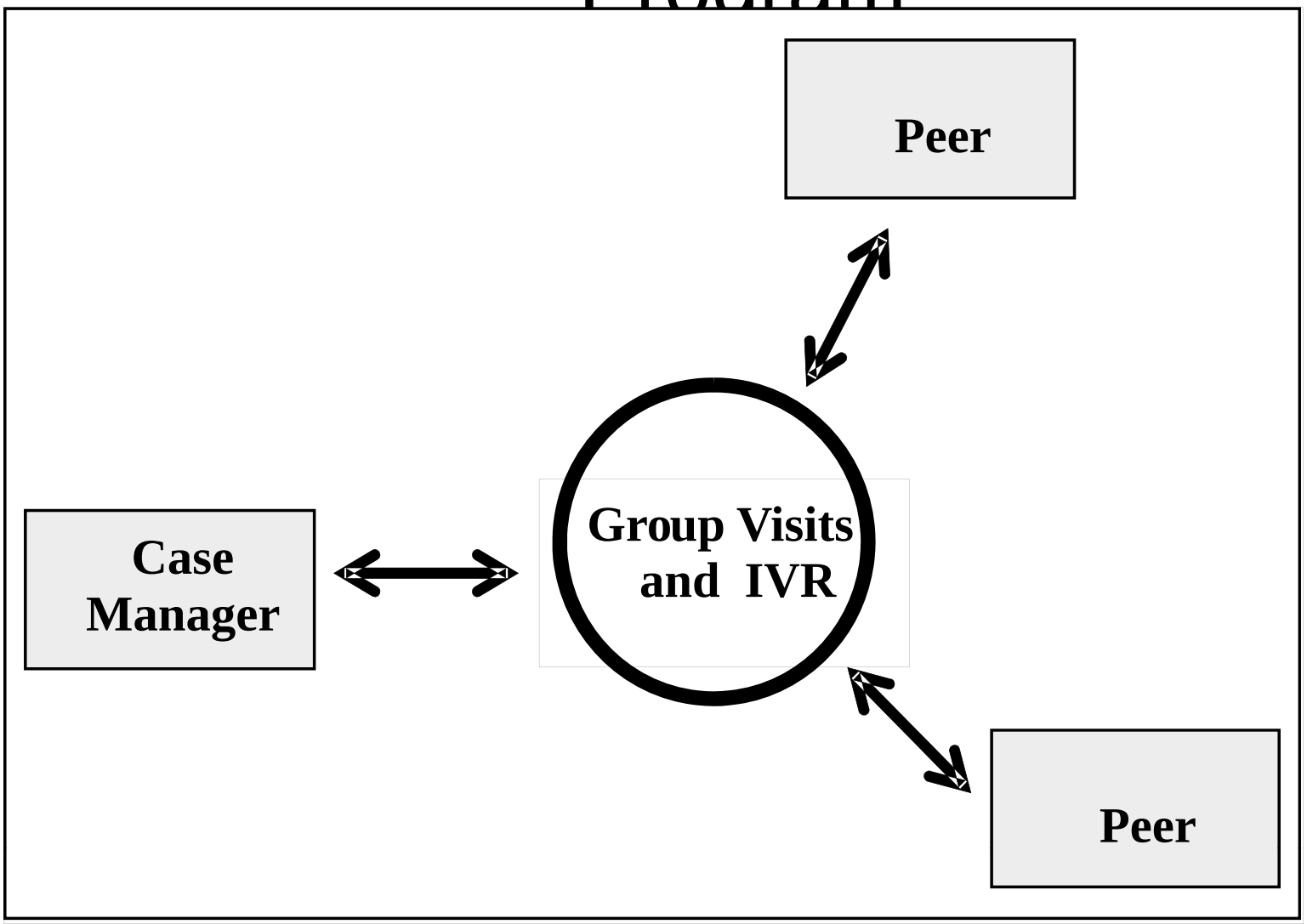
Intervention

- 3-hour group session facilitated by a care manager and RA
- Participants told to call peer partner weekly
- Optional 1.5 hour group sessions at months 1,3,6
- Peer workbook and DVD

Control

- 1.5 hour session to review A1c, BP, and LDL and educate on care management
- Contact information on assigned case manager
- Written educational materials

Peer Support to Complement and Reinforce More Structured Program



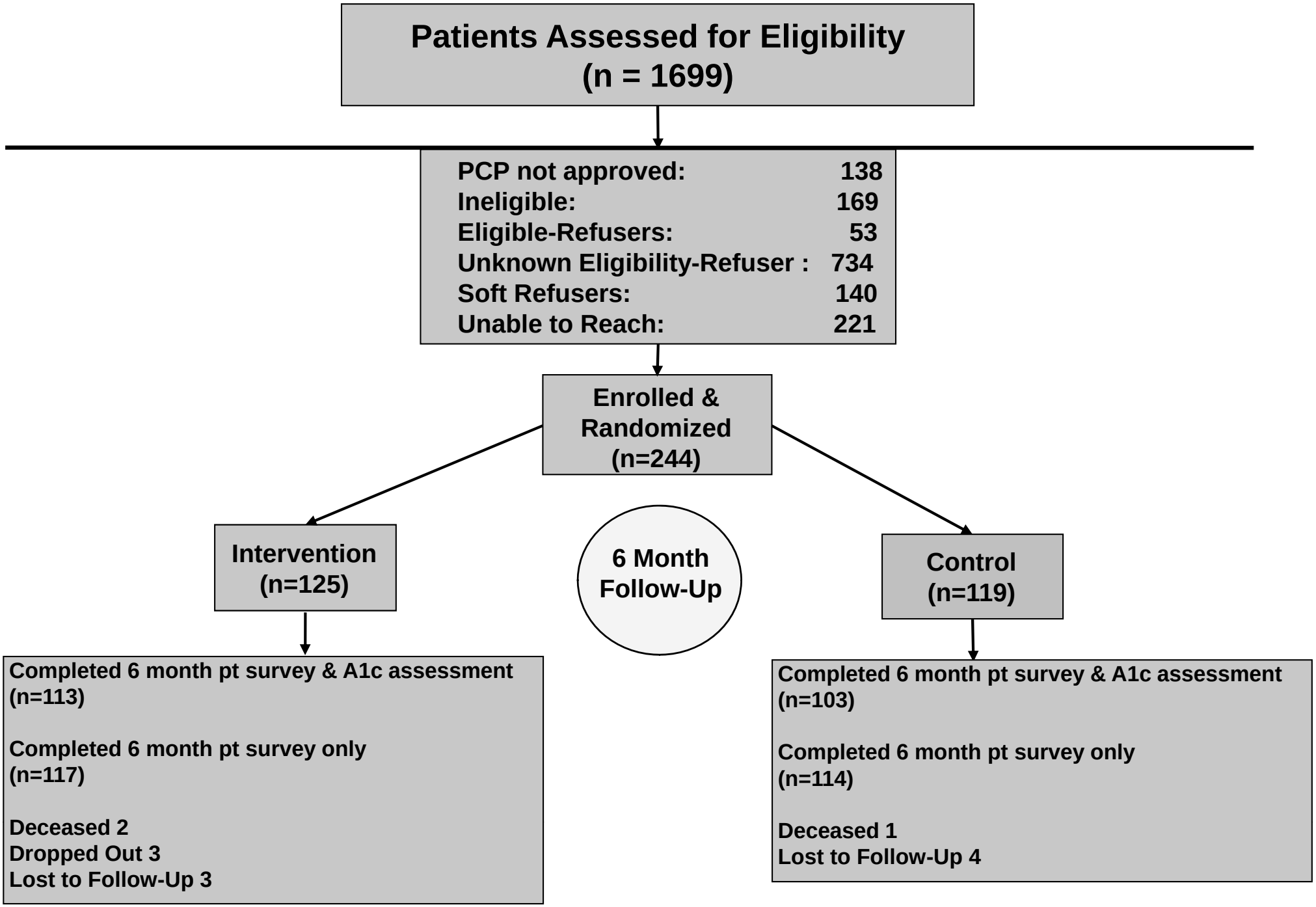
VA Peer Support Training Video
Example Video Clip

Study Outcomes

- Change between baseline and six-month A1C (primary outcome)
- Insulin starts
- Self-reported changes in medication adherence, diabetes distress, and diabetes social support

Analyses

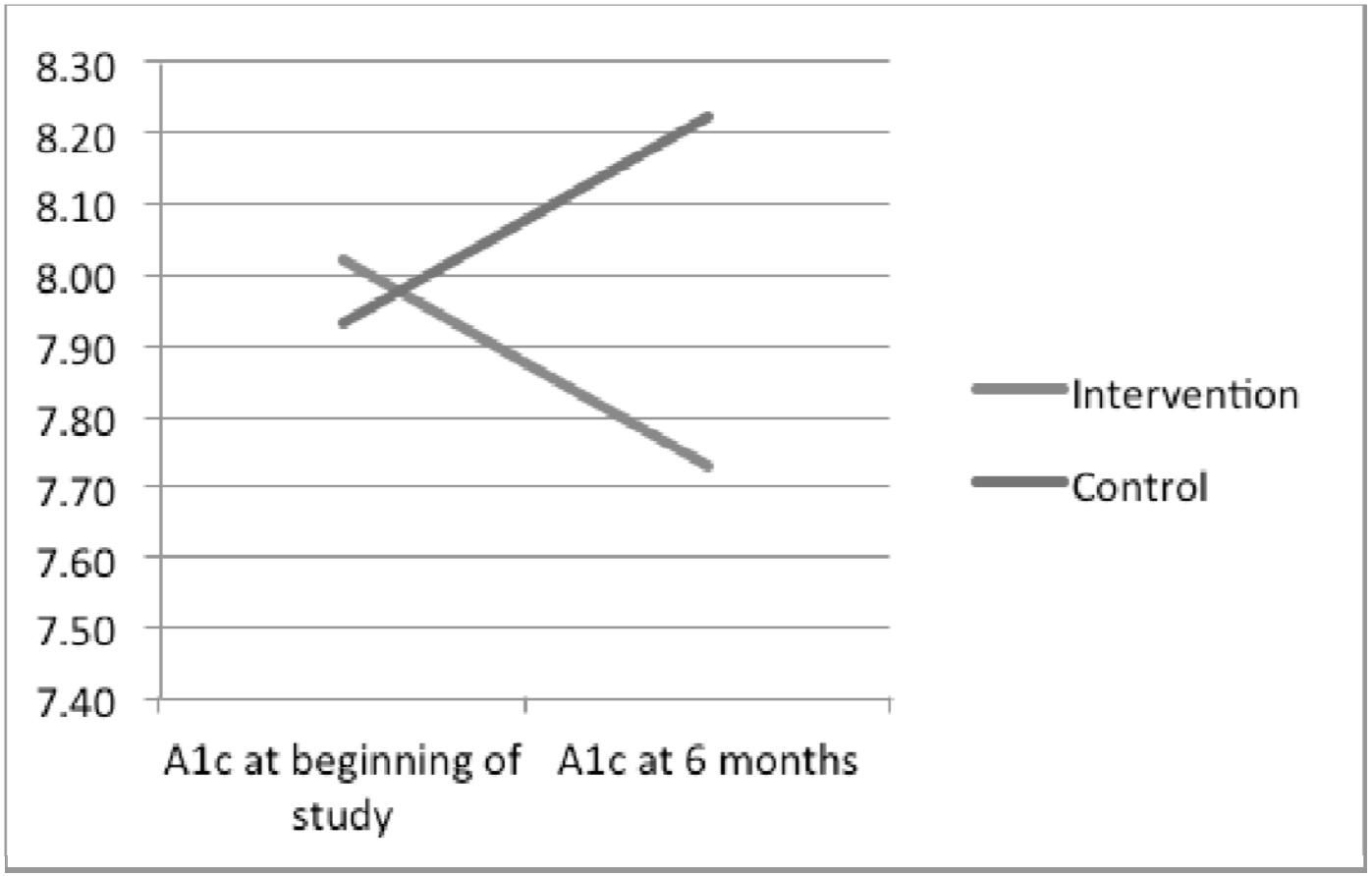
- General linear mixed regression models clustering by pair
- Intention-to-treat
- Alternative analyses adjusted for potential clustering by cohort and by site
- Sensitivity analyses imputed missing data and assumed no change in baseline values if missing six-month data


Patients Assessed for Eligibility
(n = 1699)
PCP not approved: 138
Ineligible: 169
Eligible-Refusers: 53
Unknown Eligibility-Refuser : 734
Soft Refusers: 140
Unable to Reach: 221
Enrolled & Randomized (n=244)
Intervention (n=125)
6 Month Follow-Up
Control (n=119)
Completed 6 month pt survey & A1c assessment (n=113)
Completed 6 month pt survey only (n=117)
Deceased 2
Dropped Out 3
Lost to Follow-Up 3
Completed 6 month pt survey & A1c assessment (n=103)
Completed 6 month pt survey only (n=114)
Deceased 1
Lost to Follow-Up 4

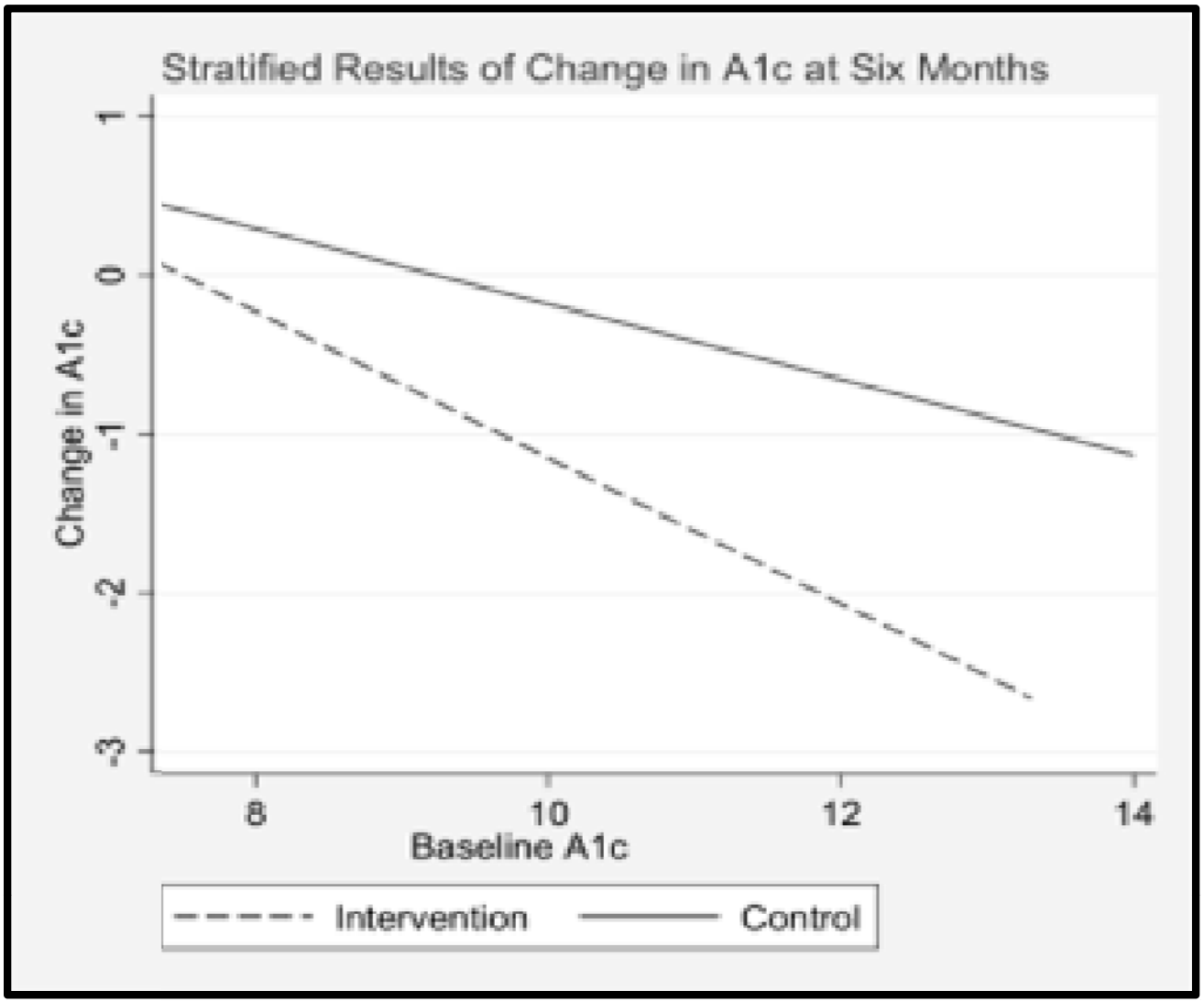
Baseline Characteristics

Measures	Peer (n=125)	Nurse (n=119)
Mean Age	62	62
Fair or Poor Health	47%	47%
On Insulin	56%	55%
Mean A1c	8.02	7.93

Change in A1c Levels over Six Months



Among participants with A1c>8.0, mean A1c difference of 0.88



Other Results

- The Peer Support group had more insulin starts (8 vs. 1) and greater increases in reported diabetes social support

- No differences between groups in other measures

Discussion

- Statistically and clinically significant improvements in A1c, insulin starts, and diabetes social support

- From staff perspective, far less time-intensive than other tested programs:
    - The 46% of participants who attended the initial, 1 and 3-month group sessions had 4.5 hours in face-to-face meetings more over 6-months than control

Patient Perceptions of Peer Support Calls

"A lot of old people with diabetes like us sit around at home and look out the window. We feel sick and pretty useless. I learned things I could be doing to take care of my diabetes from [my peer partner]. But I also felt that I helped him. I enjoyed talking to him on the phone, and it made me feel inspired to do more."

Patient Perceptions of Peer Support Calls 2

“Ever since I’ve been in this program, I’ve done much better. I don’t want to have to admit to this guy that my blood sugars are up—it’s peer pressure.”

“I knew that he would be calling me in a few days, so I would either lie to him or would get up on that treadmill and start walking.”

Perception of Group Sessions

"This time is the time I can take out for myself, and it's nice to be able to be heard instead of having to listen all the time."

Care Manager Opinion

“Before the program I was pretty dubious that the Veterans would open up at all and talk to each other. I was also worried that it would be a lot of extra work for me. I was amazed. Once these guys started talking with each other and sharing their experiences and strategies, if anything it was hard to get them to stop. My main role was occasionally to re-direct them when they strayed too far afield from diabetes. ”

Implications

Reciprocal peer models can be an effective and efficient approach for helping diabetic patients help each other and themselves

Lots of Unanswered Questions

- How most effectively to train peers?
- Cost-effectiveness, sustainability, integration of peers into health and social service delivery systems, and recruitment and support of peers
- What are most effective models for different populations and conditions?

Overview

- **Peer Support Models**
  - Community Health Worker/Peer Mentor
  - Reciprocal Peer Support
- **Web-Based Peer Support Tools**

Web and Email-based Peer Support Programs

- Internet-based support groups and discussion boards (Zrebiec, 2005)
- Internet versions of successful self-management programs (Lorig, 2006)
- E-community (peer support) components to Internet-based interventions (Richardson, 2008)

Text Messaging as a Tool for Behavior Change in Disease Prevention and Management

Healthcare via Cell Phones:

RESEARCH Original article

A review of the use of mobile phone text messaging in clinical and healthy behaviour interventions

Jin Wei*, Ilene Hollin* and Stan Kachno

*Healthcare Innovation and Technology Lab, New York, USA; †Indian Insti

Summary

We reviewed the literature on the use of text messaging for clinic databases were searched in December 2009 using keywords relate review included 24 articles. Of those, seven covered medication ad reported on health-related behaviour modification. Sixteen were controlled pre-post comparison studies and three were feasibility frequency of messaging ranged from multiple messages daily to reported significant improvement with interventions and six repo messaging received good acceptance and showed early efficacy i compromised by methodological limitations and is not yet conclu

...oved teaching and training. Cost per text message ...o studies. The findings that enhancing standard

Mobile phone-based interventions for smoking cessation (Review)

Whittaker R, Borland R, Bullen C, Lin RB, McRobbie H, Rodgers A

THE COCHRANE COLLABORATION®

Evidence acquisition: An electronic database s... and March 2008. Studies ... delivered primarily via ... assessment, and (3) were ...

Evidence synthesis: Of 33 studies identified, ... targeted preventive healt... care (e.g., diabetes self-m... 13 of the 14 reviewed s... dialogue initiation, tailor... features of SMS-delivere... were also identified.

Conclusions: This review suggests that ... outcomes. Further resea... behaviors that incorpora... acceptance. The quality ... allow the full potential o...

(Am J Prev Med 2009;36(2)...

Abstract

Background:

The objective of ... with diabetes ar... and/or obesity.

Methods:

Angela

Avid computer user

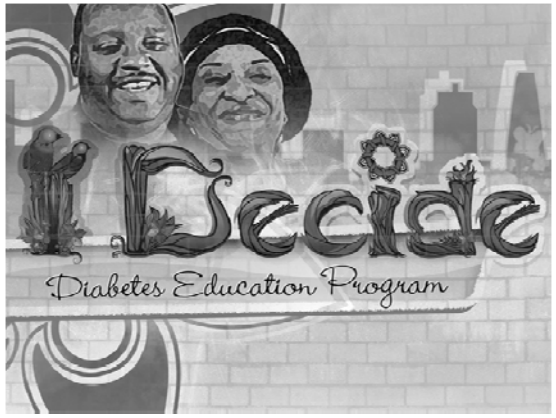
Leticia

LEP
low health literacy

Web-Based Tools to Support Peer Mentoring (AHRQ R18, Heisler)

iDecide

- **Assessing the use of a web-based, interactive, tailored decision tool in improving diabetes health outcomes**



Decido

- **Evaluando el uso de un herramienta de decisión en mejorar los resultados de la salud en pacientes con diabetes**

Definition of Tailoring

1. assess an individual's characteristics relevant to the behavior
2. Use assessment data to generate messages relevant to that individual's specific needs
3. Deliver these messages in a clear, vivid--and potentially interactive--format

Goals of Tailoring

Influence Processing

- **Grab attention**
- **Engage effortful processing**
- **Elicit self-reference**
- **Evoke peripheral processing**
- **Create emotional response**

Enhance Message

- **Employ theoretical constructs that influence intentions:**

--Self-efficacy

--Attitudes/Outcome expectancies

--Normative perceptions

Hawkins, Health Ed Res, 2008

Strategies To Reach Tailoring Goals

1. **Personalization**
2. **Feedback**
3. **Content Matching (Adaptation)**

Message Library

Demographics

Stage of Change

Perceived Benefits

Perceived Barriers

Action Plan

Message Library	Characteristics
Demographics 	red
Stage of Change 	blue
Perceived Benefits 	
Perceived Barriers 	aqua, gray
Action Plan 	orange

Message Library

Characteristics

Demographics

red

Stage of Change

blue

Perceived Benefits

Perceived Barriers

aqua, gray

Action Plan

orange

Message Library

Characteristics

Demographics

red

Stage of Change

blue

Perceived Benefits

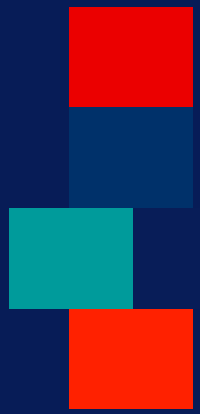
Perceived Barriers

aqua, gray

Action Plan

orange

Tailored Message



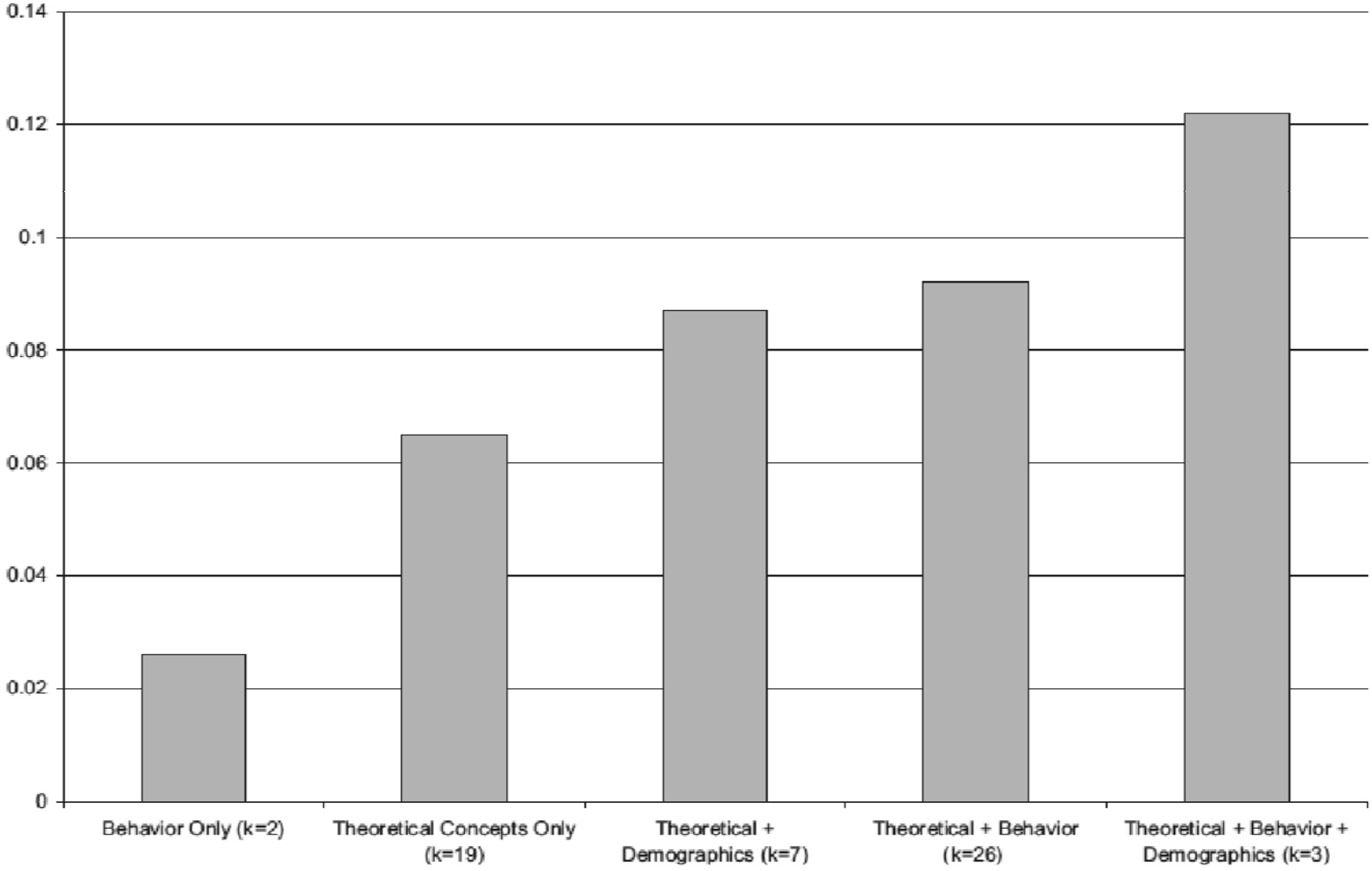
Types of Tailoring

- Overt
  - We know this about you..
  - You told us that….
- Covert
  - You are a spiritual person…find a way to tap into that strength
  - Like other angry, cynical academics….

Meta-analyses and Reviews of Tailored Interventions

- Kroeze (2006), Richards (2007), Noar (2007), Neville (2009)
- AHRQ (2009) Review of 146 Consumer Health Informatics Applications
- Significant positive impact on health outcomes:
  - Breast cancer (3 of 3 studies)
  - Diet, exercise, physical activity (28 of 32 studies)
  - Alcohol abuse (7 of 7 studies)
  - Smoking cessation (11 of 19 studies)
  - Obesity (5 of 12 studies)
  - Diabetes (7 of 7 studies)

Comparison of Effect Sizes by Combinations of Tailoring Factors (Noar, 2007)

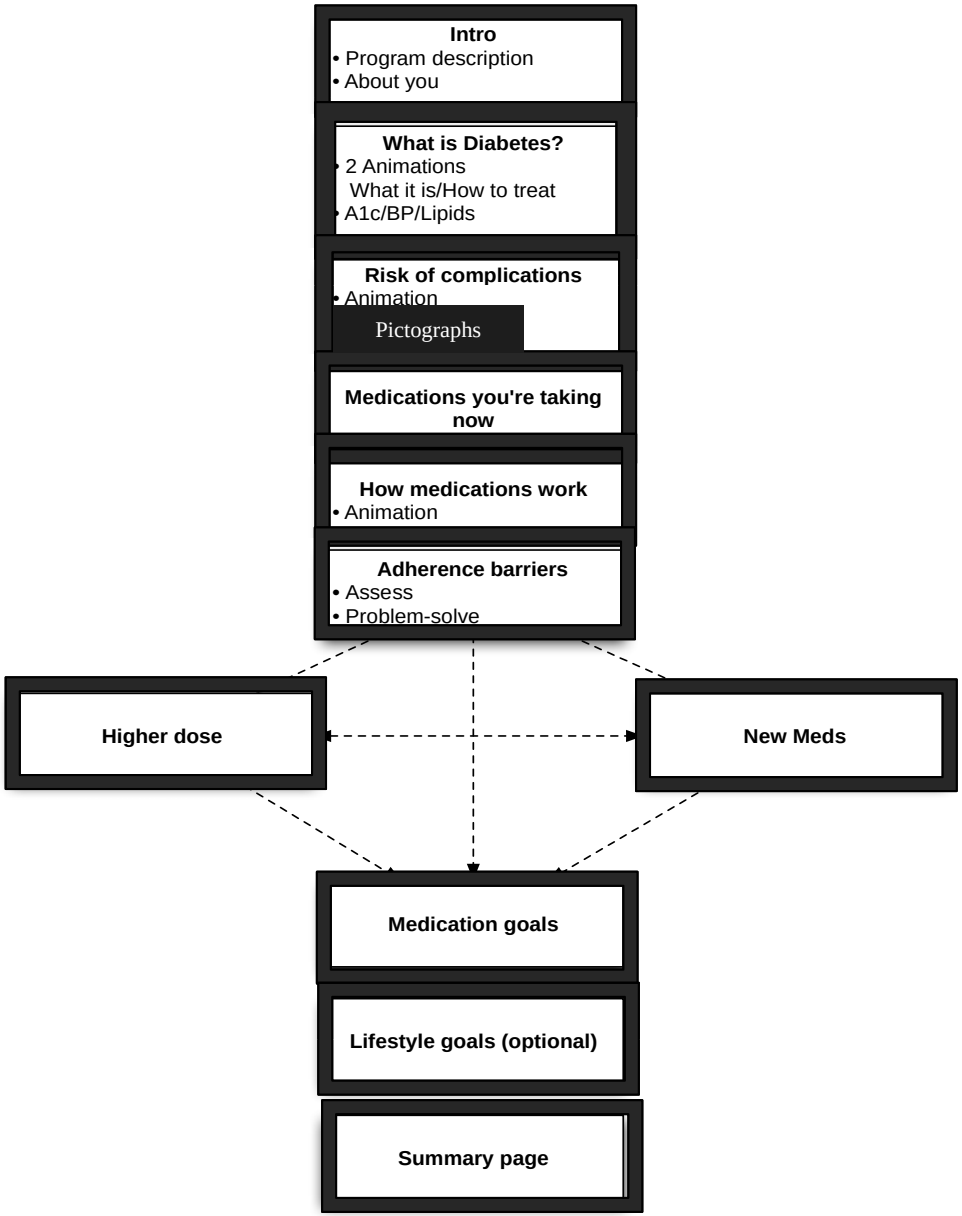


Study Aims

- **Aim 1: Evaluate effect on Latino and African American diabetes patients' decisional conflict, knowledge of medications and satisfaction**

- **Aim 2: Examine effects on changes in medications, medication adherence and beliefs and A1C levels**

Program Overview



The participant experience

- **What will it be like for participants?**
  - Questions/prompts for conversation
  - Tailored bullets to support conversation
  - Animations to describe physiology
  - Interactive tools
  - Flexible

Participant Intro

Thank you for being part of iDecide. We created this program just for you, based on what you told us during your survey.

These are some of the things we learned about you:

- You are a 45- year-old man
- You turn to your spouse for support
- You value being
  - In control
  - a good Christian
- You eat five or more servings of fruits and vegetables most days
- You exercise for 30 minutes or more 2 days each week

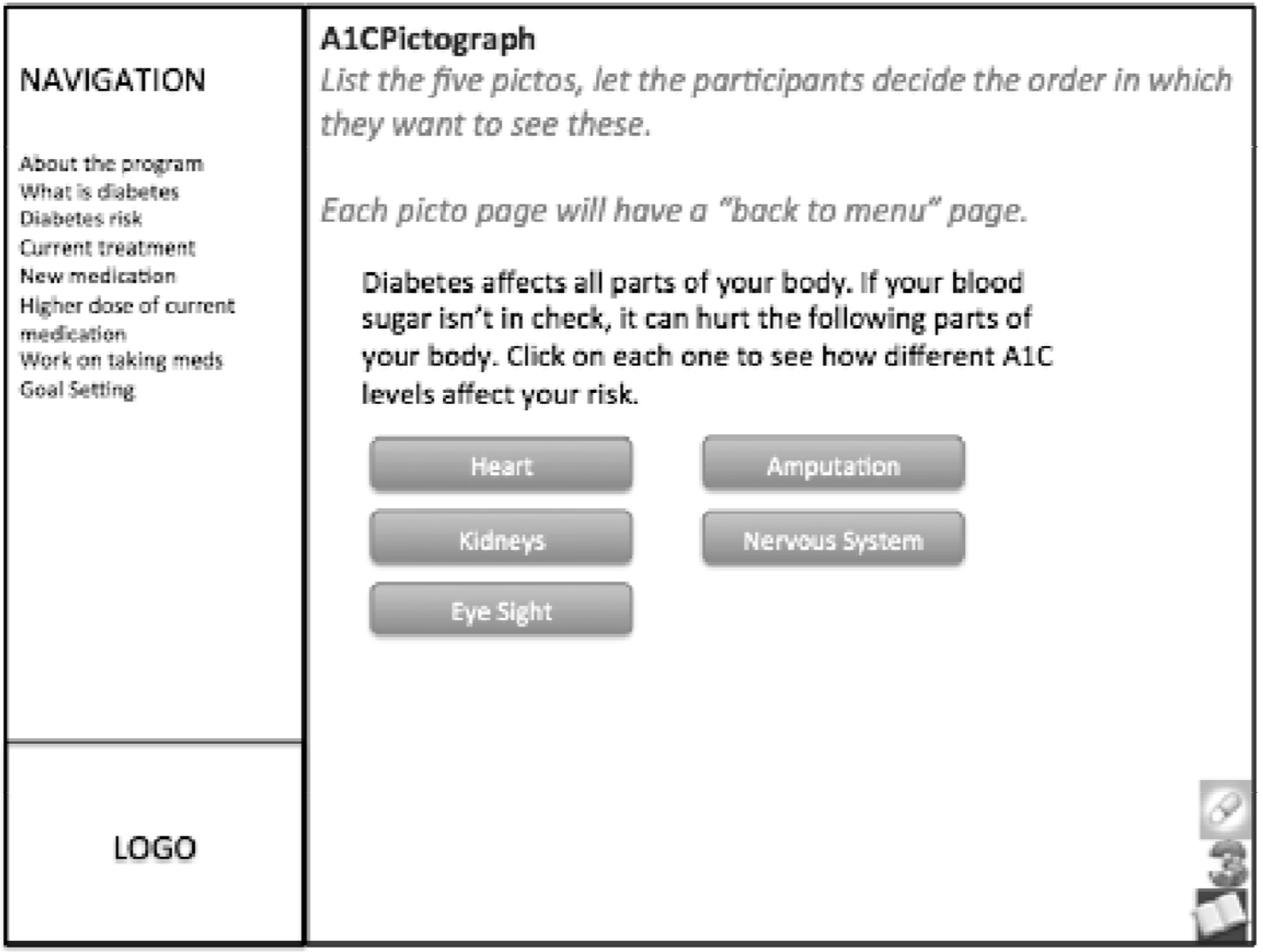
A few examples from iDecide

Survey data	Tailored message
A1c = 8 (above normal)	When we measured your blood sugar, it was 8.
A1c = 6.8 (normal)	You've been doing a great job of keeping your blood sugar in a healthy range. When we measured it, your blood sugar was 7.4.

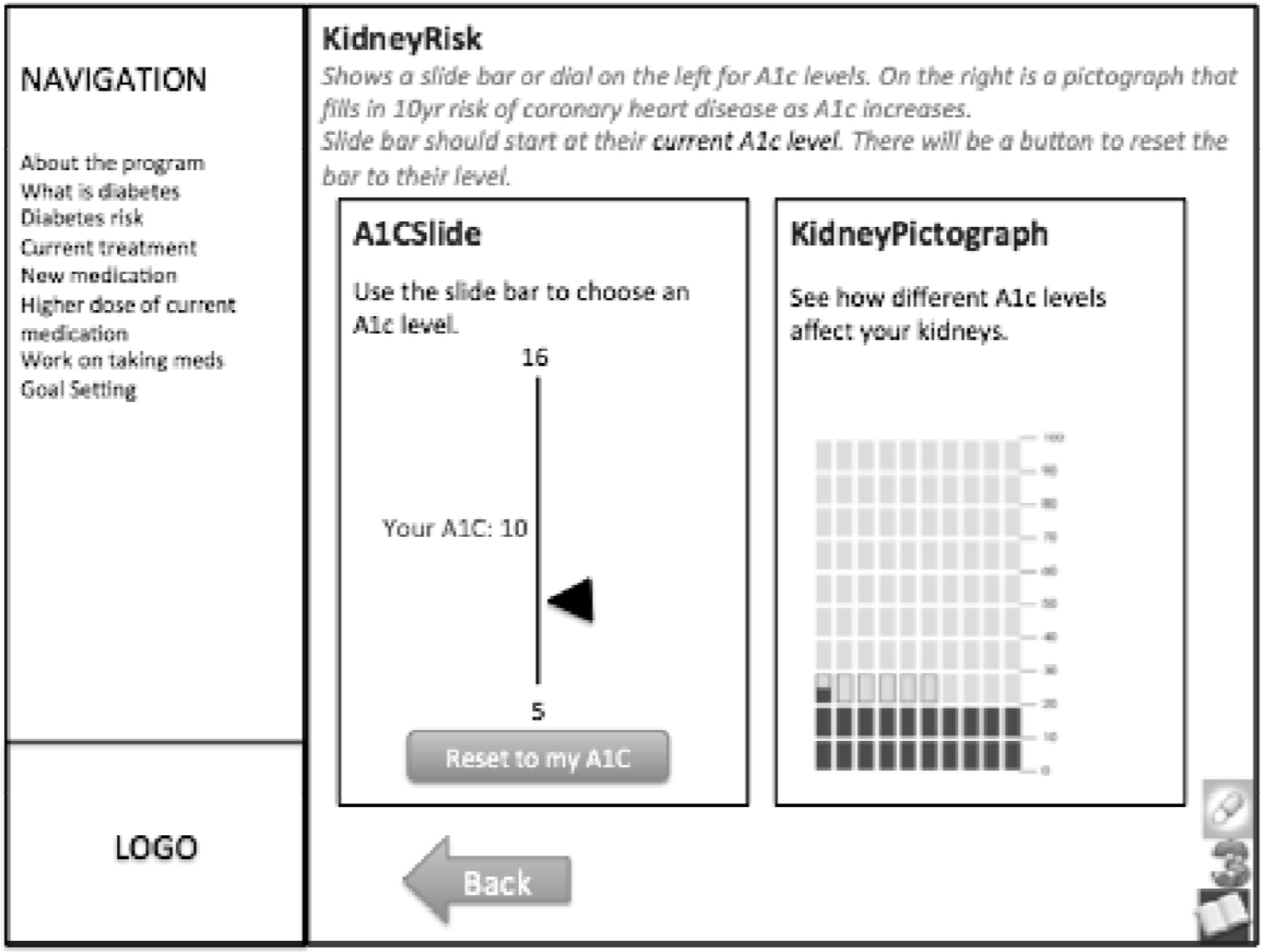
A few examples from iDecide

Survey data	Tailored message
A1c = 8 (above normal)	Your A1c is slightly higher than the target. It also sounds like things aren't going that well with your current medications. That might mean you want to think about trying something new.
Does your medication bother you in any way? YES	
A1c = 6.8 (normal)	You're doing a great job keeping your diabetes under control. And you told us your medications don't bother you too much. But, you may still want to learn more about other medication options for the future.
Does your medication bother you in any way? NO	

Long-Term Outcomes



Risk Pictograph of Different A1c Levels



Poor Adherence Pathway

About the program
What is diabetes
Diabetes risk
Current treatment
New medication
Higher dose of current medication
Work on taking meds
Goal Setting

AdherenceBarriers1

ONLY SHOW THIS PAGE FOR NON ADHERENT PEOPLE
Give strategies for overcoming barriers id'ed in Adherence3 and Adherence4

Keeping up with your medication can be a challenge. Many people forget to take their pills, just like you.

What ideas do you have of ways you might be able to help yourself remember?

Here are some things others have tried to help them remember:

- Set an alarm. Use a watch or phone and set an alarm for the times you need to take your meds.
- Put the pill bottle near your toothbrush. Then when you brush your teeth, the bottle will be there to help you remember to take your meds too!

Testimonial Adherence

- My doctor gave me this medicine to take for my
- diabetes. But [I just couldn't remember to take it].
- But after my Family Health Advisor and I talked, I
- had some new ideas. I started setting the alarm
- on watch, so it would go off when I was supposed
- to take my [Med]. Pretty soon it got to be a habit,
- and I didn't really need the alarm to remind me.
- Even better, my sugar was under control and I felt
- better.

Person1
Tailored on race, age, gender

Tailor on ethnic identity (Af Am), acculturation

(Latino), perceived diabetes risk, autonomous

motivation for care, current meds, med self-efficacy,

Different Potentially Effective Peer Support Models

Address Many Different Needs: One I Could Sure Use

"Hi. My name is Barry, and I check my E-mail two to three hundred times a day."


Thank You