

# LESSONS LEARNED IN DIABETES SELF-MANAGEMENT RESEARCH

**Russell E. Glasgow, Ph.D.**  
**AMC Cancer Research Center**

# Overview

- **RE-AIM Model**
- **Diabetes Research Illustrating Application of RE-AIM**
  - **Early basic and efficacy studies**
  - **Recent and ongoing effectiveness research**
- **Summary and Implications**

# Purposes of RE-AIM

- **To broaden the criteria used to evaluate health promotion programs to include external validity**
- **To evaluate issues relevant to program adoption and implementation**
- **To help close the gap between research studies and practice by**
  - **Informing design of interventions**
  - **Providing guides for adoptees**

## RE-AIM Evaluation Dimension

**% *Reach*** (what proportion of the panel of patients will receive or be willing and able to participate in this intervention)

**X % *Efficacy/Effectiveness*** (results if implemented as intended; defined as positive outcomes minus negative outcomes)

.....

**X % *Adoption*** (how many settings, practices, and plans will adopt this intervention?)

**X % *Implementation*** (to what extent is the intervention implemented as intended in the real world?)

.....

**X % *Maintenance*** (extent to which a program is sustained over time)

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**= Public Health Impact (population-based effect)**

# Increasing Regimen Adherence

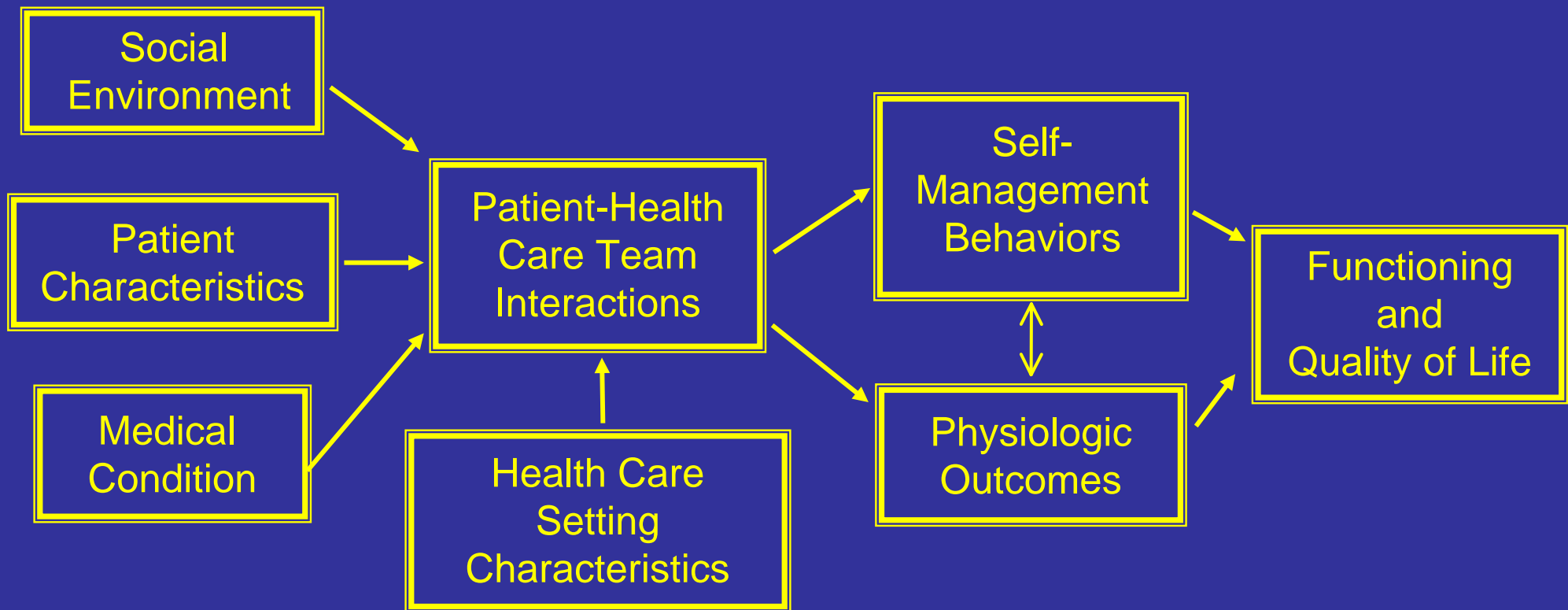
Russ Glasgow, Matthew Riddle (1984-1987)

## **SCOPE:**

**First intervention study: targeting  
key social learning variables.**

**Traditional group sessions.**

# More Elaborate Conceptual Model



# Contributions and Lessons Learned

- **Significant improvement in randomized trial vs no-treatment / usual care in nutrition and weight**
- **Link between behavior and physiologic outcomes not real strong**

# Importance of Tailoring

***“Do not do unto others as you would have them do unto you.” G.B. Shaw***

# RE-AIM Conclusions

**REACH:** Unknown (minimal)

**EFFICACY:** Moderate for narrow range of targeted outcomes (depends on control / comparison condition)

**ADOPTION:** Unknown / Ignored

**IMPLEMENTATION:** Good...but by 100% research funded staff

**MAINTENANCE:** OK at short-term follow-up / NA at setting level

# **“60 – Something”**

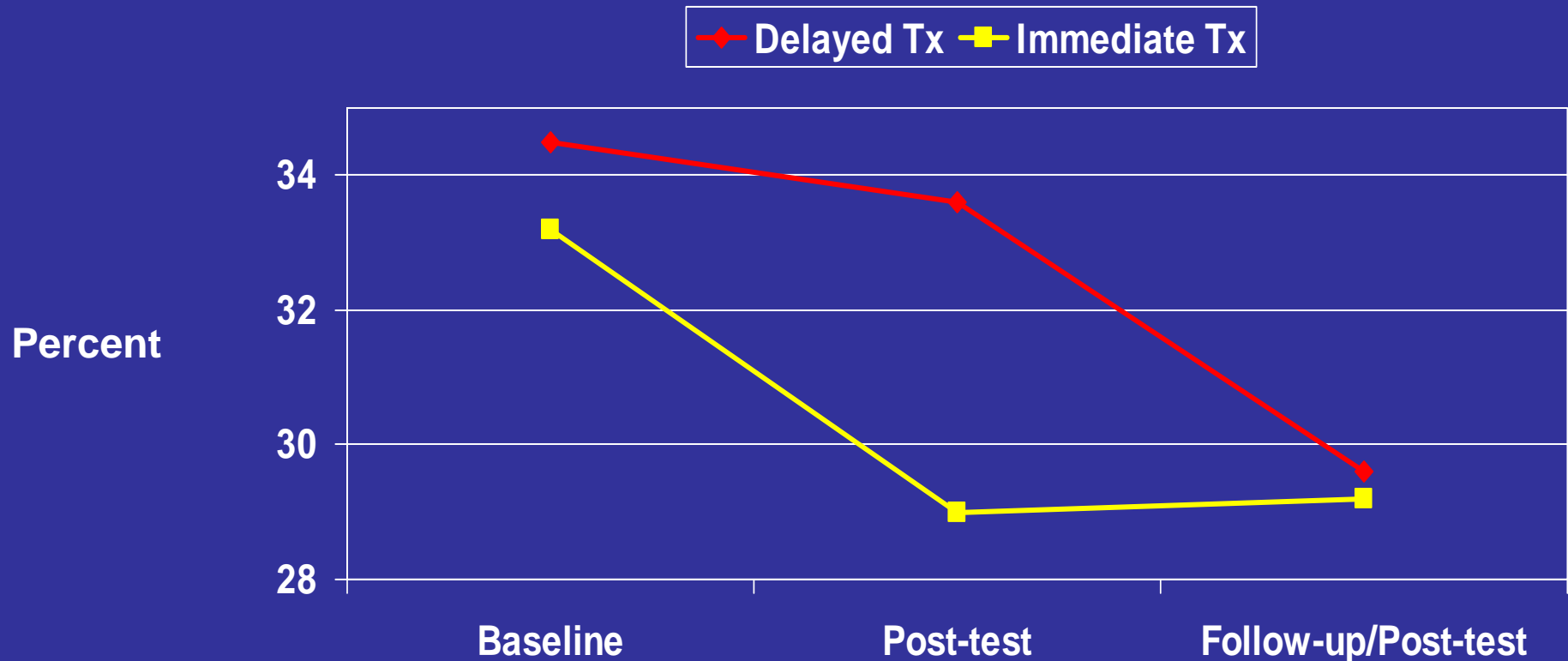
## ***Enhancing REACH***

**Russ Glasgow, Pete Lewinsohn, Matthew Riddle  
(1988–1991)**

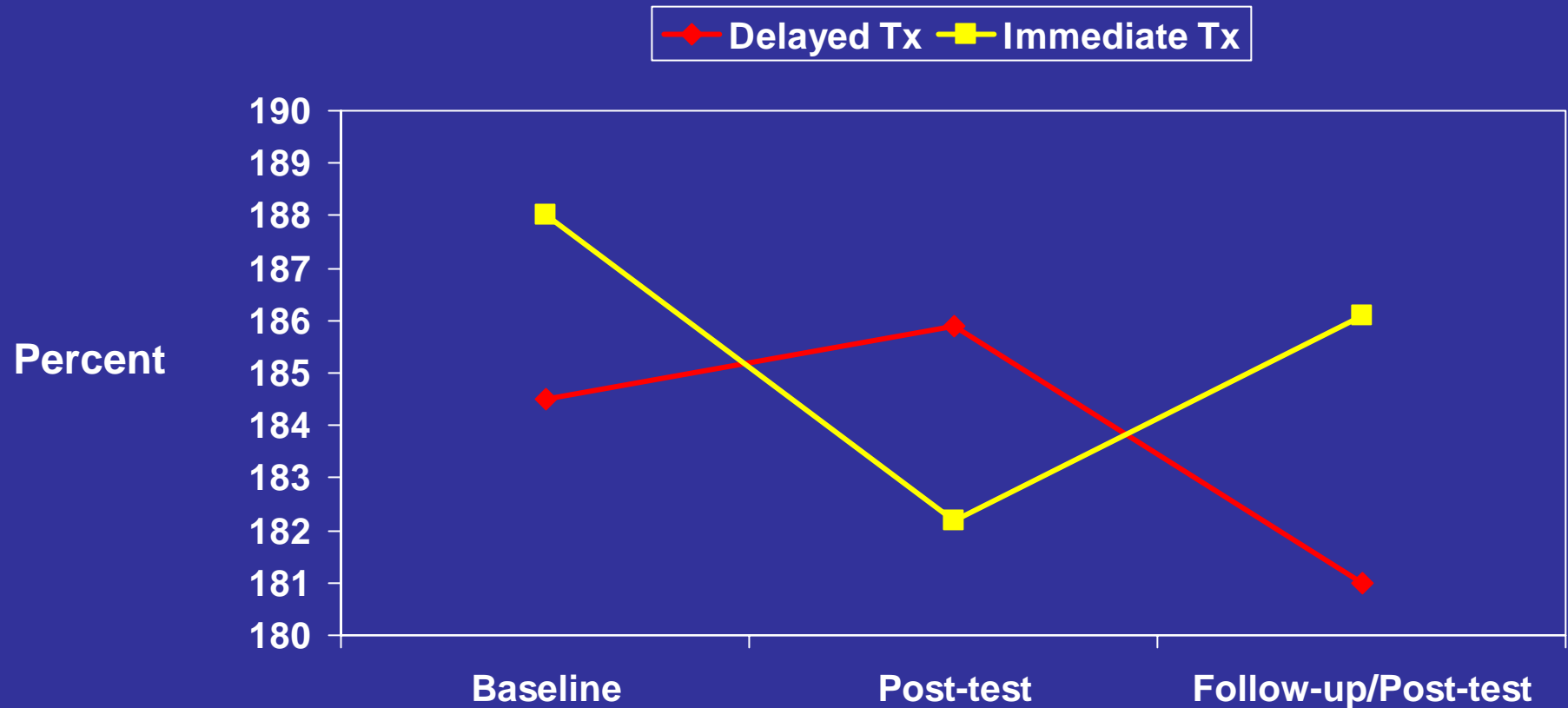
### **SCOPE**

- **Older adults with diabetes were ignored;**
- **Assumed could not learn new tricks.**
- **Applied SCT to older adults in small RCT;  
8 group sessions**

# 60-Something Percent Calories from Fat (n=48 and 49/condition)



# 60-Something Weight (n=48 and 49/condition)



# Contributions and Lessons Learned

- **Barriers-based, tailored problem solving worked for older adults also!**
- **Group support and problem solving were important processes**

***“If you build it, they will not necessarily come.”***

# Brief Medical Office-based Intervention

Russ Glasgow, Sarah Hampson, John Noell  
(1992-1996)

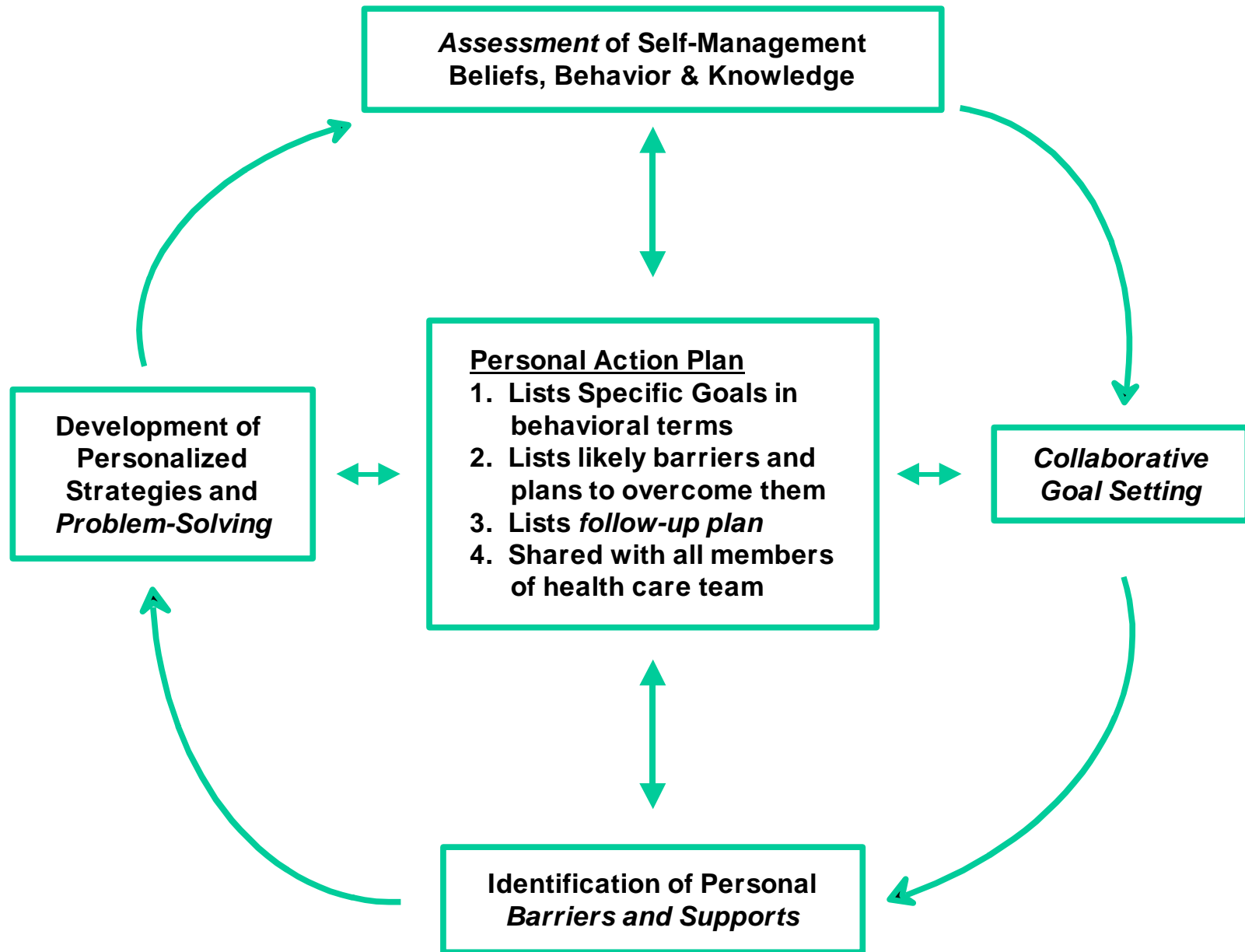
## SCOPE

Trying to reach those who would not  
otherwise attend during primary care visit  
and condense multiple-session  
program into 20 minutes

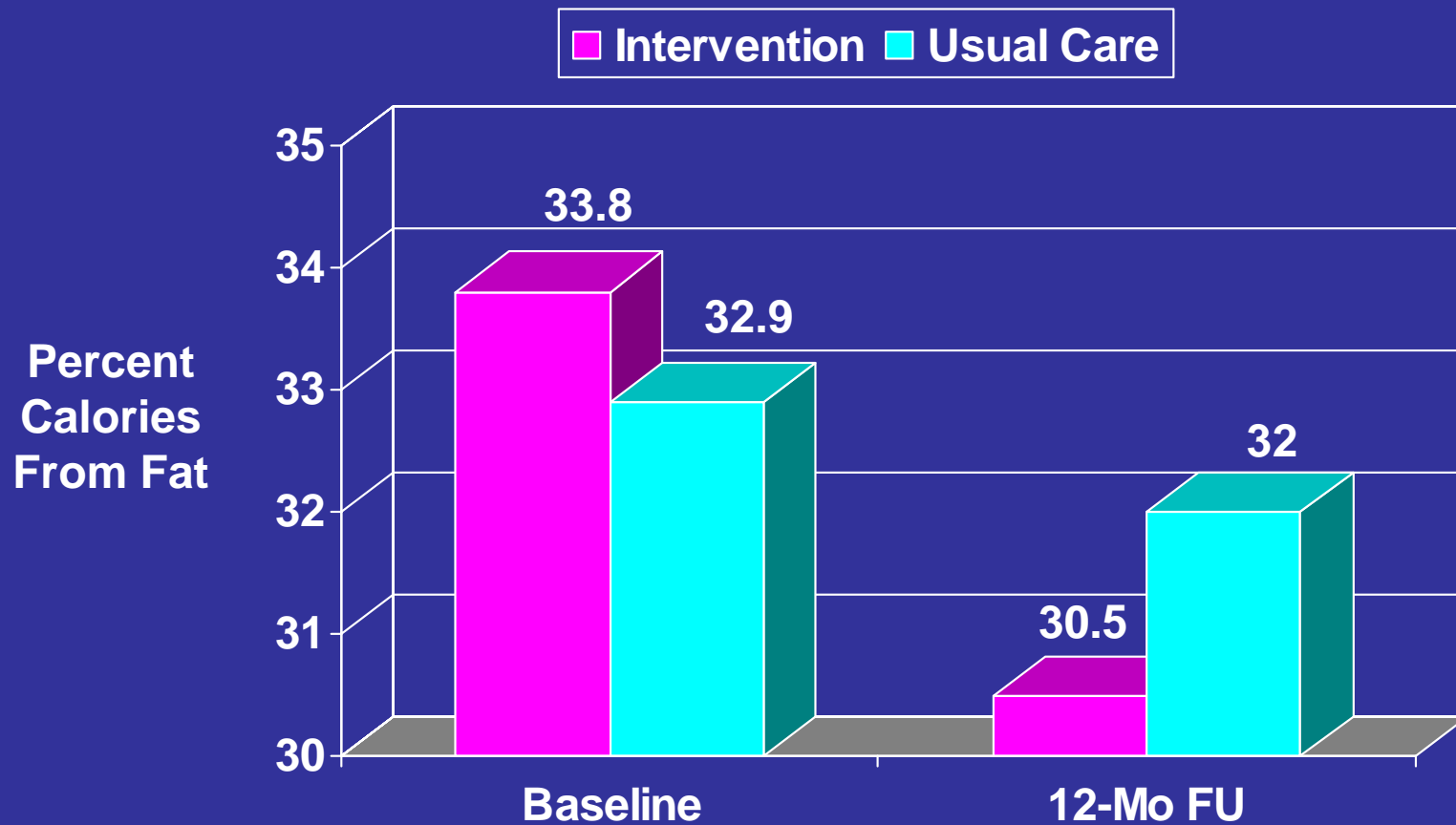
Funded by NIDDK Grant #35524

# Purpose and Intervention

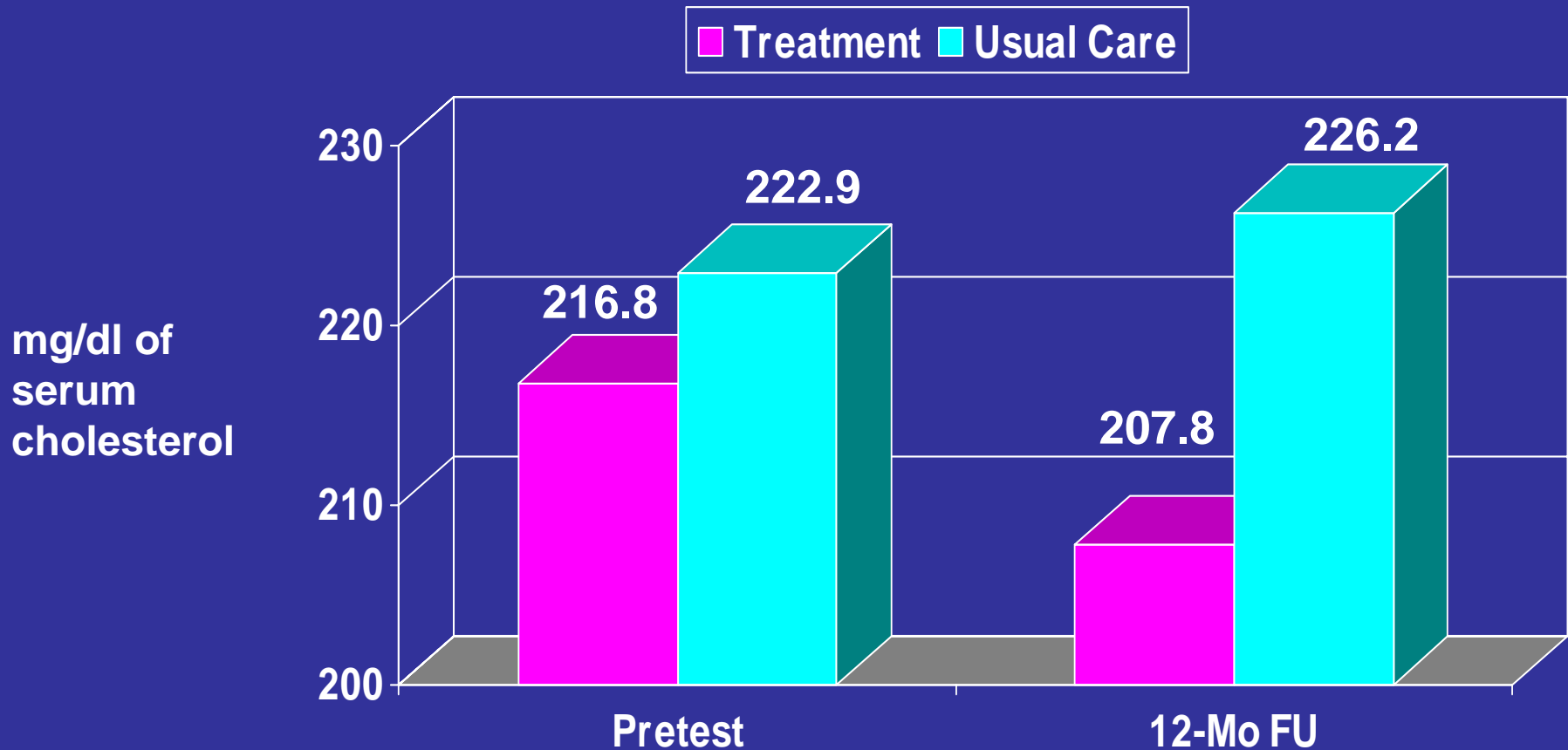
- Evaluation in an RCT, the **REACH** and **EFFECTIVENESS** of a brief intervention guided by a patient-computer intervention
- Intervention began with 15-minute interaction with multi-media touchscreen computer program
- Focus on goal setting, identification of barriers, tailored problem-solving (with educator) and follow-up support



# Baseline and 12-month Follow-up Levels of Percent of Calories from Fat by Condition



# Pretest to Follow-up Changes in Serum Cholesterol



# Results

- **REACH:** 62% participation in primary care
- **EFFICACY:** Improvements vs assessment control in behavior and cholesterol--not A<sub>1c</sub>
- **ADOPTION:** Unknown: only 2-3 physicians in one office
- **IMPLEMENTATION:** High, but a) physician asked only to give motivational statement and b) research staff
- **MAINTENANCE:** Individual level--good out to 12 months. Setting level--kept computer; dropped phone calls

# Contributions and Lessons Learned

- **Interactive technology appealed to patients**
- **Feasible to combine with Usual Care**
- **Power of feedback**
- **Demonstrated cost-effectiveness for behavioral and cholesterol outcomes**

***“It’s not the patient’s fault;  
it’s not the doctor’s fault;  
it may be the system.”***

*“Choosing Well”*  
Health Plan-based  
Self-management

Russ Glasgow, Deborah Toobert, Sarah Hampson,  
Garth McKay (1996–2000)

**SCOPE**

**Extending and replicating Offbase with  
larger sample and many practices;  
testing components**

# Goal

To enhance ADOPTION,

evaluate GENERALIZATION,

and IMPLEMENTATION

across diverse clinics and counselors

# *“Choosing Well”* Design Randomized Trial (n = 320)

- **Basic Condition = Computer-assisted goal setting and follow-up**
- **Telephone Follow-up = 8 calls**
- **Community Resources = Guidebook and 8 newsletters**

# Results

- **REACH:** 76% participation; representative
- **EFFECTIVENESS:** Overall significant improvement in dietary behavior, A<sub>1c</sub> and cholesterol, QOL; few between condition differences
- **ADOPTION:** High--40 of 42 physicians approached and 13 of 13 offices
- **IMPLEMENTATION:** Over 90% of components delivered consistently by each of 4 interventionists
- **MAINTENANCE:** At individual level, good at 12 months

# Contributions and Lessons Learned

- Importance of collaborative goal setting and follow-up
- Refining intervention technology (CD-ROM) and patient choices
- High **REACH, ADOPTION, IMPLEMENTATION**, across different interventionists

***“More is not necessarily better.”***

# Chronic Illness Support

**Russ Glasgow, Deborah Toobert,  
Liz Eakin, Lisa Strycker (1997-1998)**

## **SCOPE**

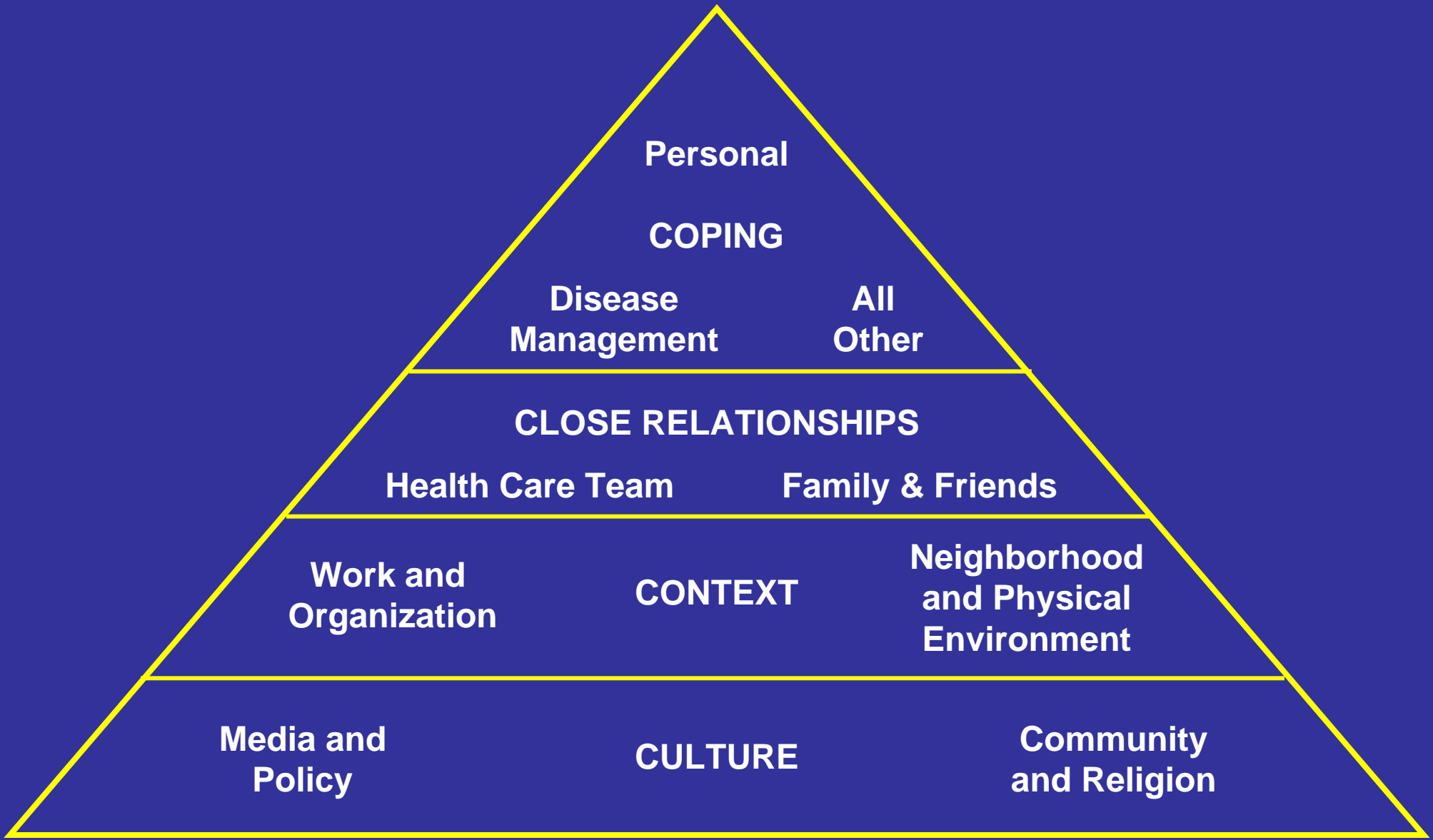
**Development instrument for multi-level  
assessment of social support  
and community resources; applicable  
across different chronic illnesses**

**Funded by grant from Robert Wood Johnson Foundation**

# Broadening the Scope

## PURPOSE:

1. Apply a “Pyramid Model” of social-environmental resources to increase **REACH** and **MAINTENANCE**
2. Apply to multiple chronic illnesses and multiple lifestyle behavioral risk factors



# Chronic Illness Resources Survey

## Sample Question

**Over the past 3 months, to what extent:**

**Has your doctor or other health advisor provided support between visits such as phone calls, reminder letters or newsletters?**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Not at all</b>		<b>A moderate amount</b>		<b>A great deal</b>

## Results and Lessons Learned

- **“CIRS” scale prospectively predicts self-management better than more narrow support scales**
- **Can (hopefully) be used to tailor support interventions across chronic conditions**

***“Real men don’t use no support  
(but will check out resources).”***

# Maintenance: CIRS-based Intervention

- **Study conducted in community health center in metro Denver**
- **Low-income patients had one or more chronic illness (M = 3.6)**
- **Small randomized pilot study (n=28) in which patients set goal (e.g., increasing exercise, reducing fat intake)**

# Maintenance: CIRS-based Intervention

- **Intervention = 1 face-to-face meeting around CIRS to develop tailored resources plan**
  - **One follow-up phone call on implementation**
  - **Two newsletters**

# Change Scores in CIRS Intervention (mean and s.d.)

<u>Measure</u>	<u>1-Month Follow-up</u>	<u>3-Month Follow-up</u>
<u>Community Involvement</u> (n=21) (CIRS average score)		
- Immediate Tx	0.14 (.18) <sup>a</sup>	0.30 (.13) <sup>a</sup>
- Delayed Tx	-0.06 (.11) <sup>b</sup>	0.01 (.18) <sup>b</sup>
<u>Minutes / week Physical Activity</u> (n=13)		
- Immediate Tx	198 (18) <sup>a</sup>	191 (12) <sup>a</sup>
- Delayed Tx	26 (23) <sup>b</sup>	34 (40) <sup>b</sup>

Different letters indicate significance between condition differences on ANCOVA, covarying out baseline scores and gender

# Results and Conclusions

- **REACH** = 46% participation
- Brief intervention significantly increased use of resources (CIRS) and physical activity levels compared to control
- Improvements maintained from 1- to 3-month short-term follow-up
- Next steps: Replicate in multiple settings for other target behavior outcomes

# Other Lessons Learned

- 1) First understand your patients “Personal Illness Model,” (Hampson, et al) and relate self-management to those beliefs and values
- 2) Self-management (“adherence”) is not a personality trait—it varies across regimen areas and over time
- 3) Self-management does not change the patient so much as help them address barriers and change their environment

## Other Lessons Learned (cont.)

- 4) Self-management needs to be integrated with other care activities
- 5) Follow-up support is critical: Diabetes education is not a one-time inoculation

# Current and Future Directions

## Focus on Translation and Dissemination by:

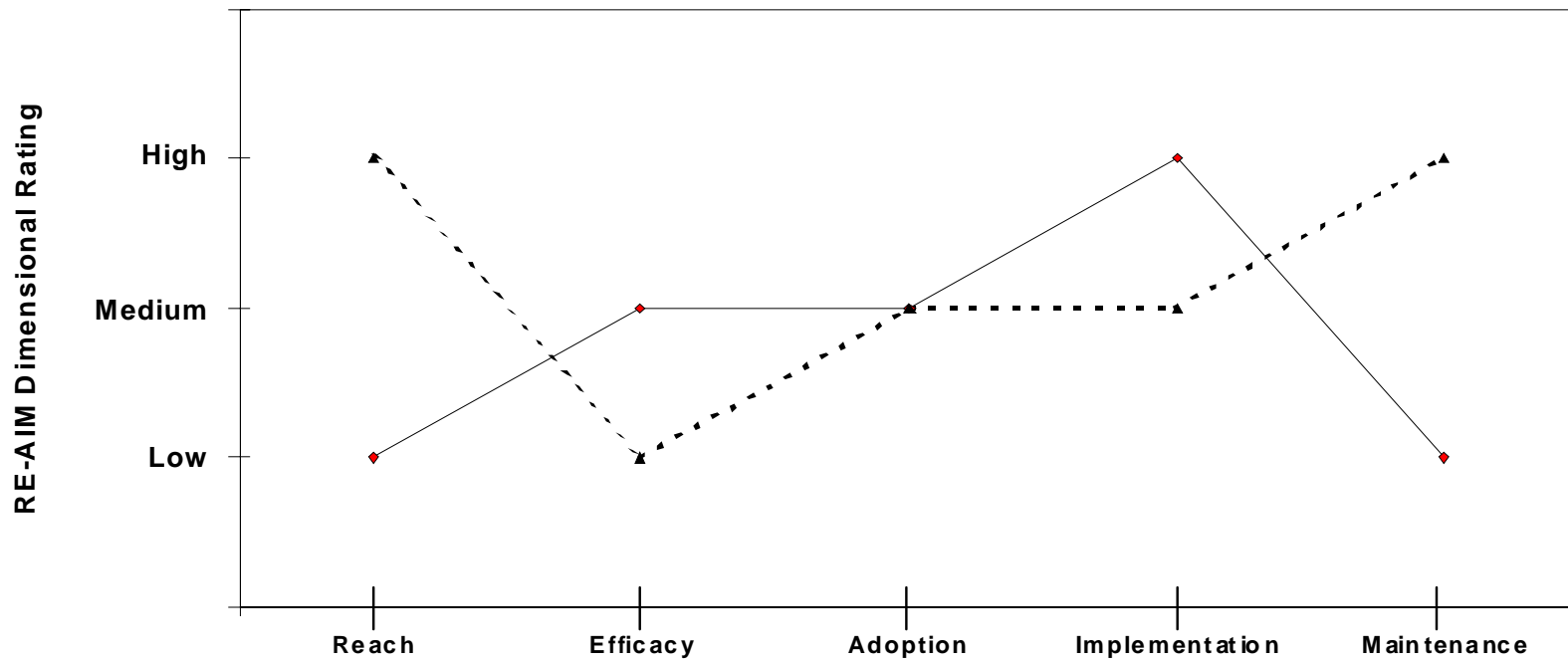
- Integrating self-management into Improving Chronic Illness Care Breakthrough collaboratives (Wagner, et al)
- Adoption: Diabetes Priority Program (Dr. Paul Nutting), to help practices and patients improve care
- New media / distance learning: DNET Internet-based program (Dr. Garth McKay and colleagues, Oregon Research Institute)

# Recommendations

- Appears to be an inverse relationship between **REACH** and **EFFICACY / EFFECTIVENESS**.  
Need study of relations among other RE-AIM dimensions.
- Most intervention modalities have both strengths and limitations on RE-AIM criteria.  
Need greater graphical displays.

# RATINGS ON RE-AIM DIMENSIONS

— Hospital-Based Group Counseling  
- - - System-Wide Health Policies



## Recommendations (cont.)

- **Need greater study of “AIM”**  
***(ADOPTON, IMPLEMENTATION, MAINTENANCE)***
  - **Conceptual model behind intervention**
  - **Intervention structure and intensity**
  - **Adaptability**
  - **Marketing and packaging**
  - **Economic factors**
  - **Fit between interventions and settings**

# Conclusions & Recommendations

To enhance self-management success:

- 1) Focus on increasing all RE-AIM dimensions (not just efficacy)
- 2) Be population-based (group education programs alone won't do it due to limited research)
- 3) Be patient-centered (tailored, interactive vs. standardized didactic education)

# Conclusions & Recommendations (cont.)

- 4) Be Proactive (planned outreach and follow-up)**
- 5) Be Partners (with DCPs, community health centers, community organizations, etc. – not an island)**

***“The significant problems we  
face cannot be solved by the  
same level of thinking that  
created them.”***

***A. Einstein***