



**Telehealth For Diabetes
Self-Management
The Short-Term Outcomes Associated
with a Web Based Intervention**

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Introduction



Top priority for NIH is research that involves web-based interventions to promote patient adherence to treatment



Findings from recent studies have shown that the Internet can significantly impact health outcomes related to knowledge, self-efficacy, and self-care management (Brennan, Lorig, Gustafson)



Background

Research with individuals who have diabetes that received some type of a web-based intervention had significantly higher rates of treatment adherence with blood sugar monitoring, medication administration, feet inspections, blood pressure, diet and exercise


(Whitlock et al., 2000; Piette et al., 2001; Glasgow et al., 2003)





Purpose of the Study

Investigate the feasibility and evaluate the short-term 6 month efficacy of a 12 month web-based intervention for improving diabetes physical outcomes among older adults



Sample






Adults aged 60 and older with diabetes who are participating in a randomized 2 group controlled study (n=62)






Sample

Each participant randomized into the intervention (treatment n=31) group

-  **Receives PC-based computer**
 -  **17 inch monitor**
 -  **Printer**
 -  **Dial-Up Access to the Internet**
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Measurement

- 1. Weight**
 - 2. Lipid Levels**
 - 3. Blood Pressure**
 - 4. Self-Report Exercise Activity on the PACE Scale**
 - 5. Glycosylated Hemoglobin (HbA1C)**
 - 6. Demographics (Gender, Age, Years with Diabetes)**
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Intervention

(www.diabetes-takecharge.org)

1. Access an electronic library
 2. Receive on-line advice and counseling from a nurse via e-mail.
 3. Submit a personal log (database) of self-management activities performed.
 4. Receive tailored self-management instruction from the study nurse
 5. Participate in a weekly synchronous nurse led discussion group
 6. Use an electronic bulletin board
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- Home
- Personal Log of Activities**
- Goal Setting Plan
- Bulletin Board
- Information
- Reports
- B Board


Activities Log:

- Weight & Blood Pressure
- Feet Inspection
- Exercise Activities
- Blood Glucose Reading
- Meals and Snacks
- Insulin Intake

Today is 6/11/2005 9:23:10 PM


Select an activity from the left menu to proceed.





Baseline Demographic and Health Characteristics


	<u>Treatment</u> (n=30)	<u>Control</u> (n=32)	p* value
Age (years) (mean, SD)	65 (5.8)	66.7 (5.7)	NS
Mean years of Education	16.4 (1.5)	16.2 (2.2)	NS
Baseline A1c	7.6 (1.5)	7.6 (.85)	NS
# of Years with Diabetes	16 (10.5)	17.8 (11.7)	NS
Some Computer Experience	90%	82%	NS
Income \geq \$40,000	47%	48%	NS
% Female	50%	53%	NS





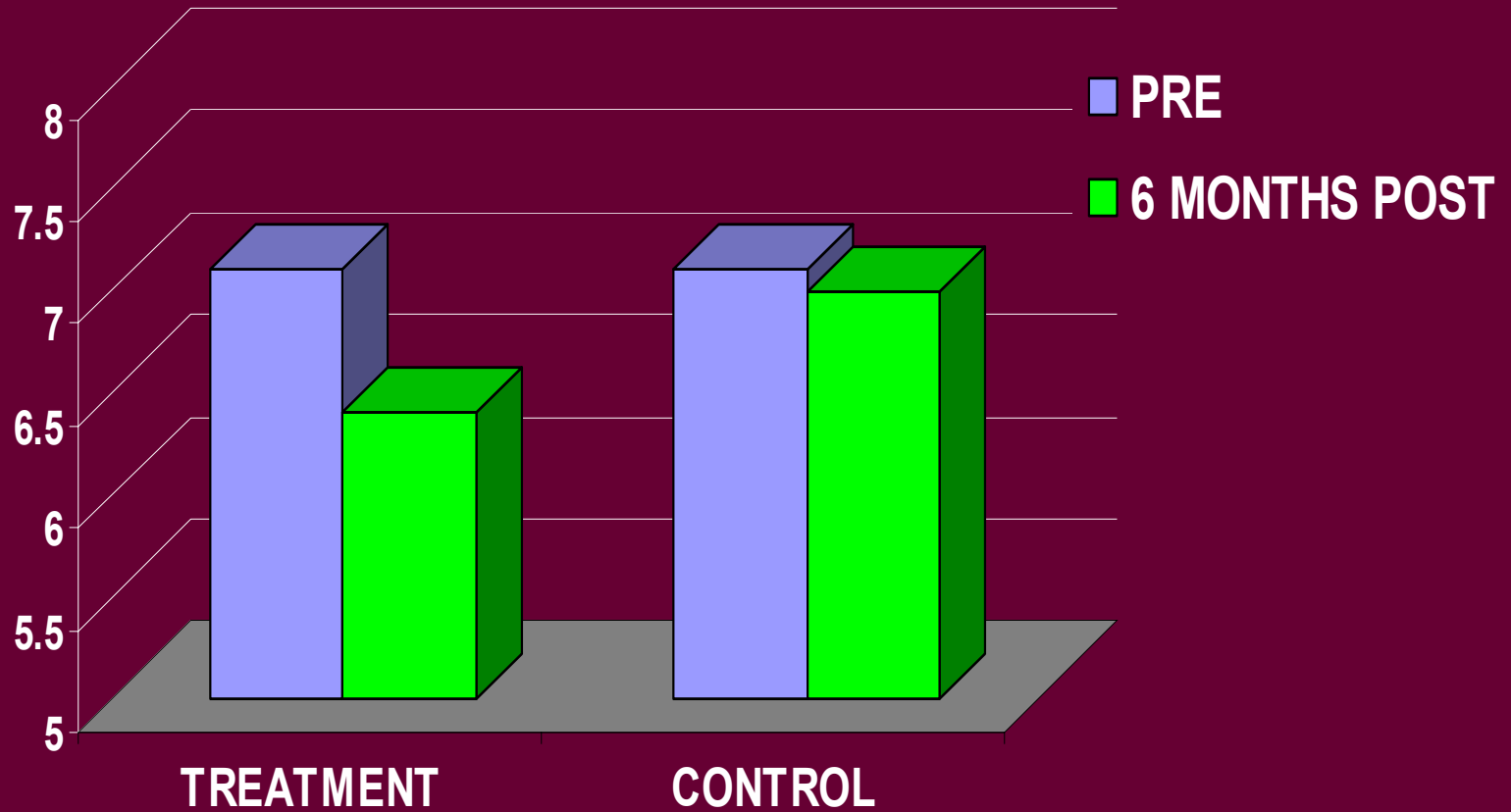
Statistical Analysis

A MANCOVA controlling for the baseline values (A1c, weight, exercise, blood pressure, and lipid levels), age, number of years with diabetes and gender.



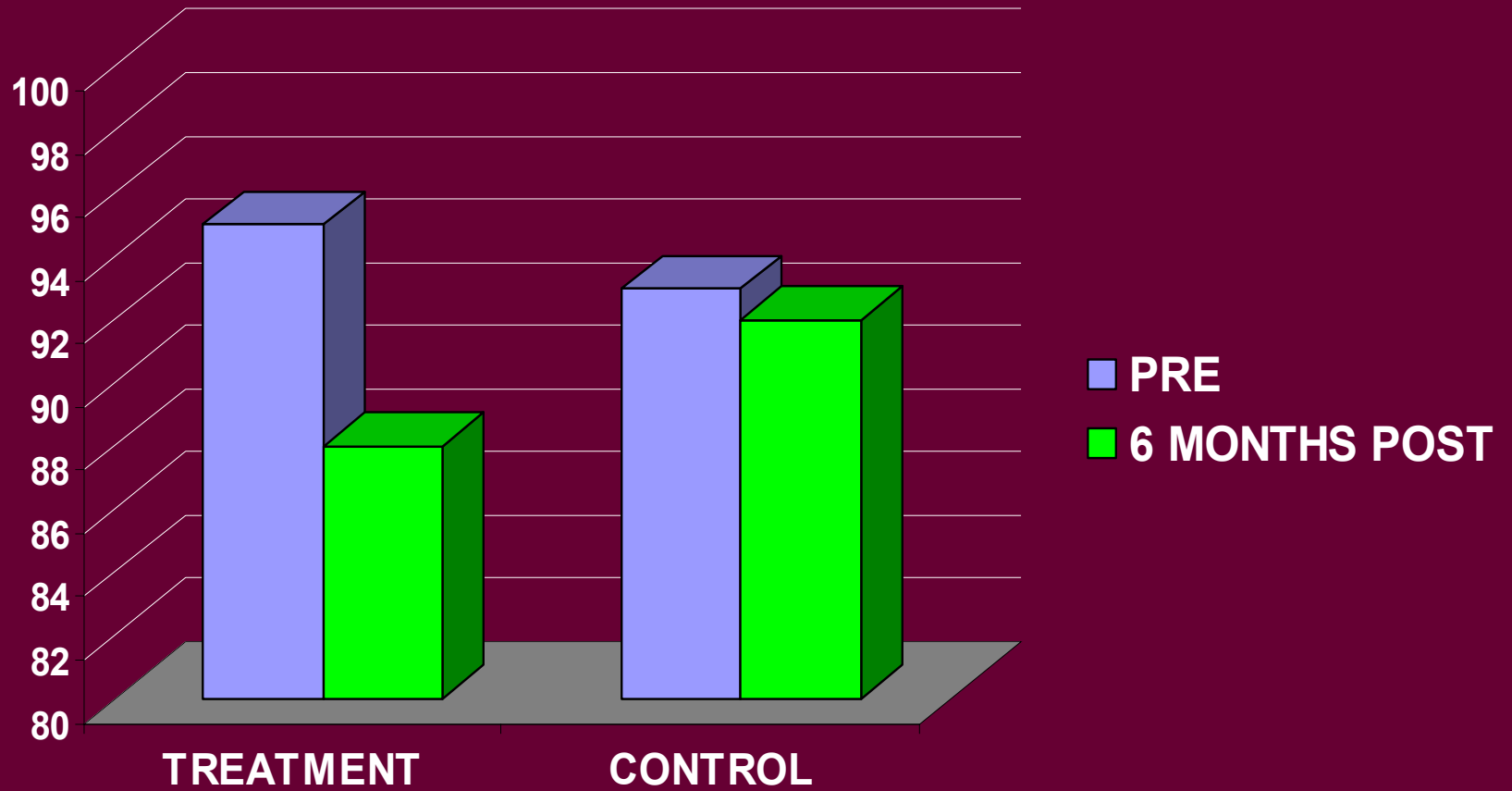
RESULTS

A1c



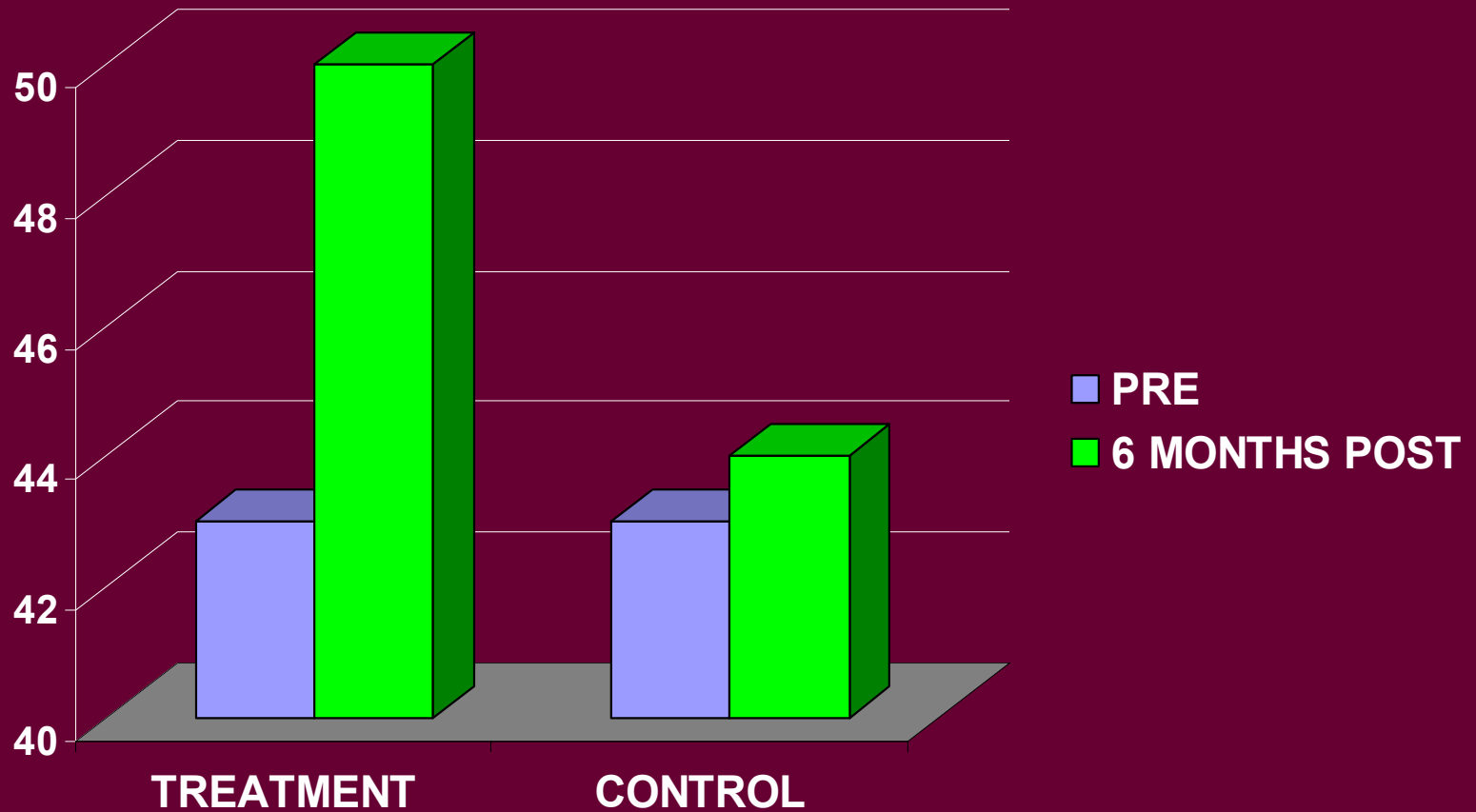
RESULTS

Mean Arterial Blood Pressure



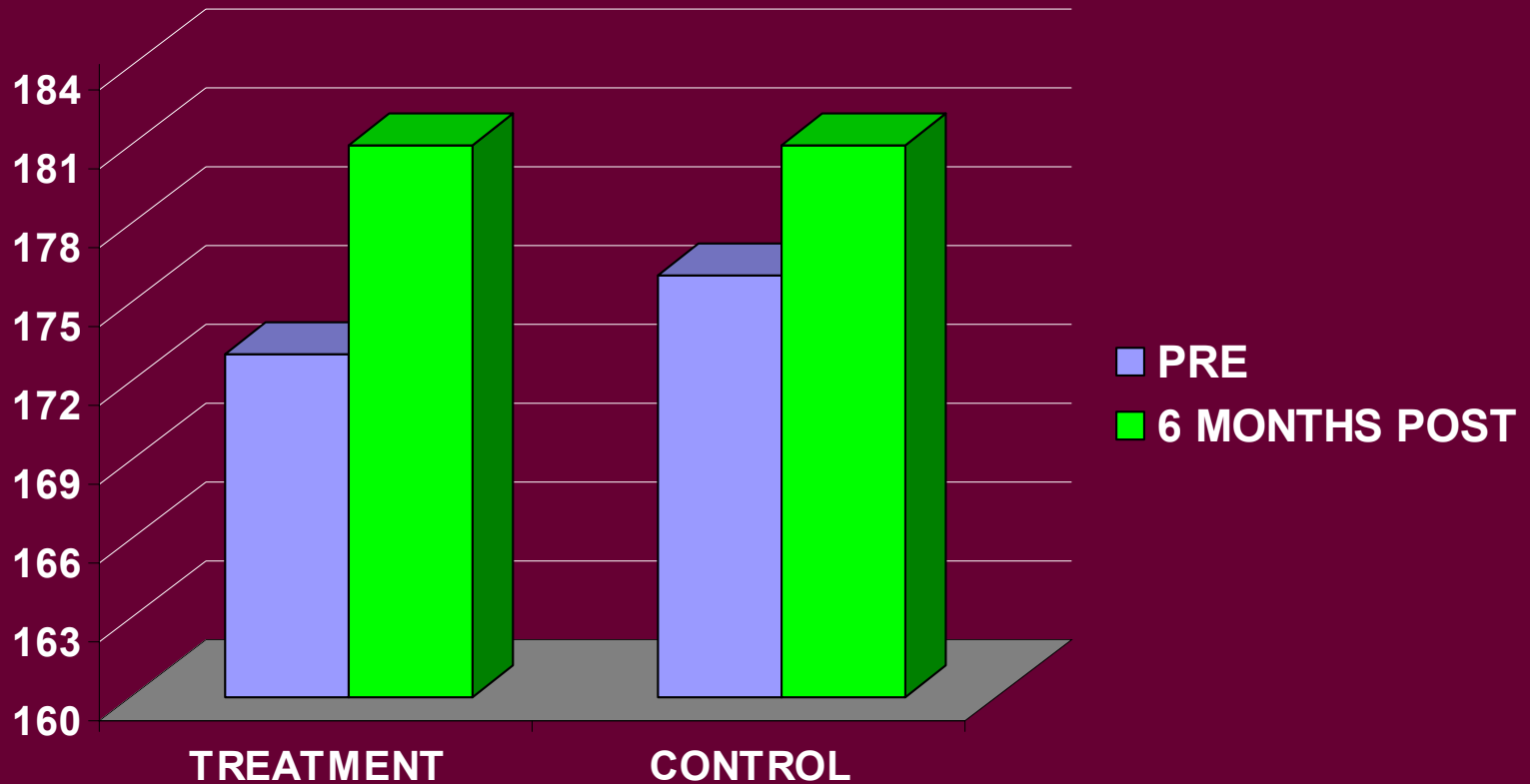
RESULTS

HDL Cholesterol



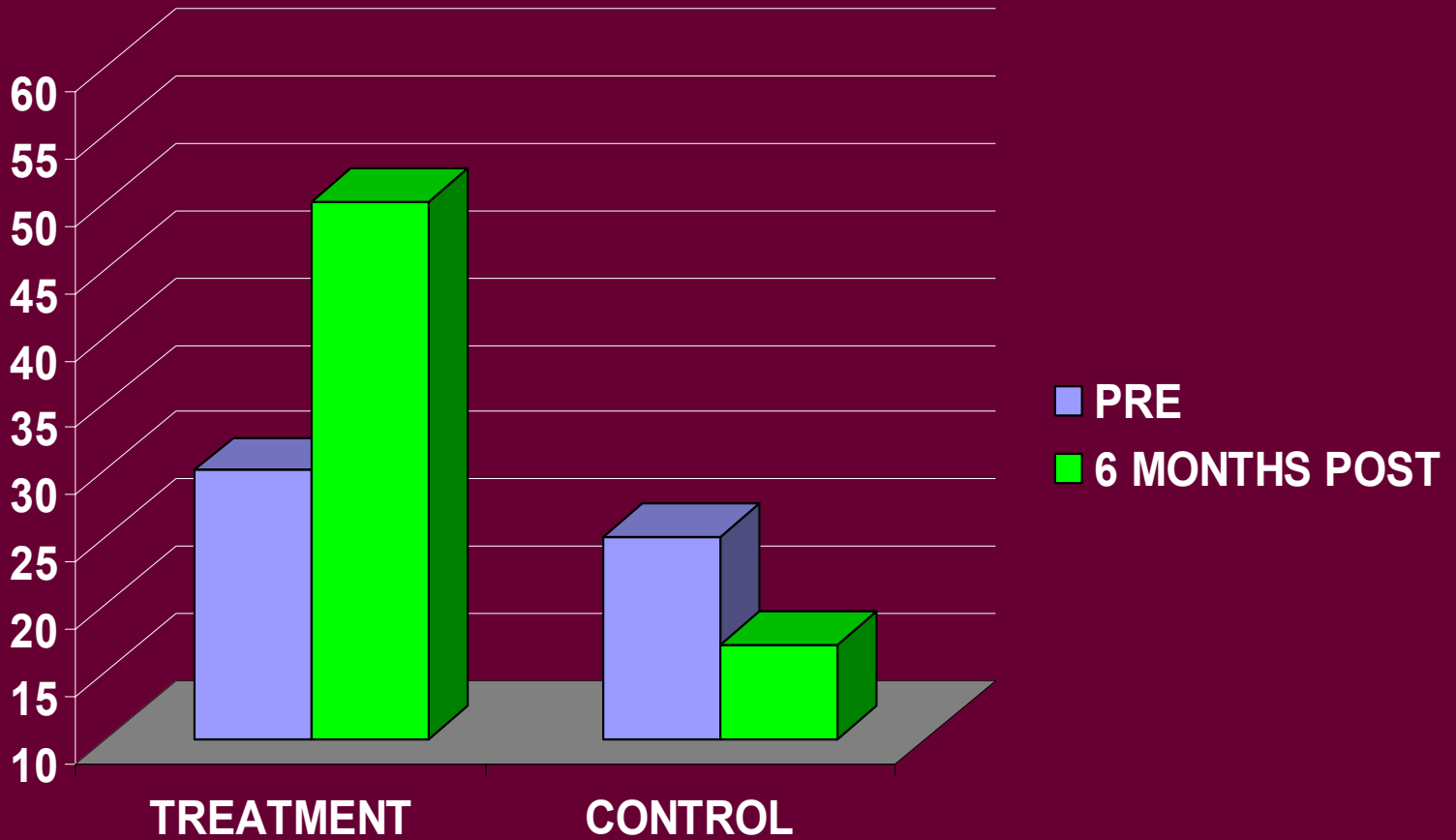
RESULTS

Cholesterol




RESULTS

Self Report Exercise





Conclusions

- ◆ Older adults can use a web-based intervention
 - ◆ A six month intervention was effective in improving diabetes physical outcomes
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- ◆ Findings of this study support other Internet based studies for improving diabetes self management behavior (Glasglow et al.,2003, McKay et al., 2001)
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Limitations





Small sample size

The intervention consisted of several components and we do not know which component impacted change the most.

The study is not evaluating the long term effectiveness of the outcomes




Future Studies

-  **Need to Investigate how long the changes can be sustained**
 -  **Determine if boosters sessions will support maintenance of changes over time**
 -  **Can the intervention be delivered over a shorter period of time and still be as effective as a 12 month active intervention**
- 



Does society save more lives by enhancing the technology of care or by resolving disparities?


The potential for eHealth technologies in terms of empowering and enlightening patients and promoting improved self-management skills are well documented






But how can we can foster the
innovations and applied
research needed to bring new
technologies and treatments
forward?





To effectively promote and support the appropriate use of eHealth resources, clinicians must recognize the role of health literacy, cultural and ethnic diversity, health status, and poverty as unavoidable social issues.





Financial Resources are
Necessary to translate
these Innovations into
Practice





Researchers need to Partner with Industry



And have a Viable Business Plan

