

Addressing the Problem of Health Literacy: Practical Approaches in Practice

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Topics

- Relationship of health literacy and health outcomes
- Approaches
 - Materials Development
 - “Teach-back” Method
 - Literacy Training
- Examples in Practice
 - Heart Failure
 - Diabetes

What is Health Literacy?

- “The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.”

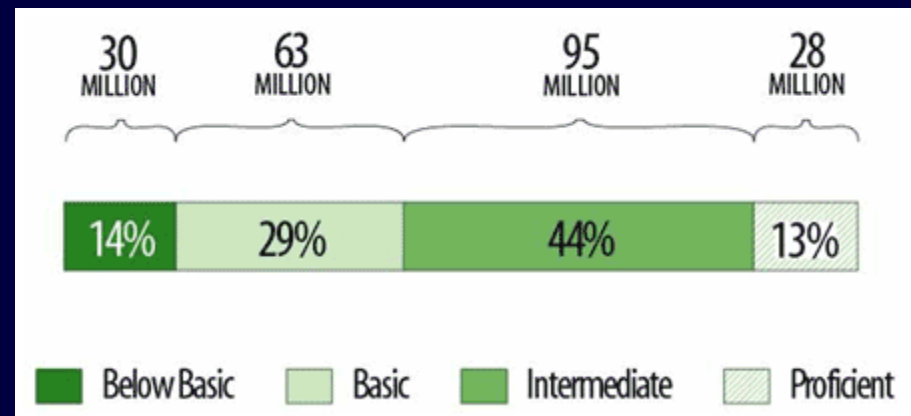
Healthy People 2010

Why is Health Literacy Important?

- High prevalence of “low health literacy”
- Low health literacy associated with:
 - less knowledge about disease
 - greater risk of hospitalization
 - lower odds of receiving preventive services
 - worse control of chronic illnesses

Literacy in America

- National Adult Literacy Survey (NALS, 1992)
 - Over 90 million Americans had inadequate functional literacy
 - Level 1 or 2 (out of 5)
 - More common among elderly, minorities, immigrants, low SES
- National Assessment of Adult Literacy (NAAL, 2003)
 - New categories
 - Prose results:



From <http://nces.ed.gov/naal/>

National Assessment of Adult Literacy (NAAL)

n = 19,714

- Most up to date portrait of literacy in U.S.
- Scored on 4 levels
- Lowest 2 levels cannot:
 - Use a bus schedule or bar graph
 - Explain the difference in two types of employee benefits
 - Write a simple letter explaining an error on a bill

National Center for Education Statistics, U.S. Department of Education

Outcomes Associated with Literacy

Health Outcomes/Health Services

- General health status
- Hospitalization
- Prostate cancer stage
- Depression
- Asthma
- Diabetes control
- HIV control
- Mammography
- Pap smear
- Pneumococcal immunization
- Influenza immunization
- STD screening
- Cost

Behaviors Only

- Substance abuse
- Breastfeeding
- Behavioral problems
- Adherence to medication
- Smoking

Knowledge Only

- Birth control knowledge
- Cervical cancer screening
- Emergency department instructions
- Asthma knowledge
- Hypertension knowledge

DeWalt, et al. JGIM 2004;19:1228-1239

Practical Approaches

1. Materials Development
2. Teach-back Method
3. Literacy Training



Development of Educational Materials

- Distilled to essential information
- Collaborated with medical illustrator
- Focus group feedback
- Cognitive interviews
- Revised materials



Use Patient-Friendly Educational Materials

- Simple wording, short sentences
 - 4th-6th grade level
- Picture based
- Focus only on key points
- Emphasize patient concerns
 - What the patient may experience
 - What the patient should do
- Minimize information about disease statistics, anatomy, and physiology
- Be sensitive to cultural preferences



Information Recommended by Guidelines

- General topics
- Explanation of heart failure
- Expected symptoms vs symptoms of worsening heart failure
- Psychological responses
- Self-monitoring with daily weights
- Action plan in case of increased symptoms
- Prognosis
- Advanced directives
- Dietary recommendations
- Sodium restriction
- Fluid restriction
- Alcohol restriction
- Compliance strategies
- Activity and exercise
- Work and leisure activities
- Exercise program
- Sexual activity
- Compliance strategies
- Medications
- Nature of each drug and dosing and side effects
- Coping with a complicated regimen
- Compliance strategies
- Cost issues

Grady et al. Circulation. 2000;102(19):2443-2456.



Suitability Assessment of Materials

- Content
 - Purpose is evident
 - Content about behaviors
 - Scope is limited
 - Summary or review included
- Literacy Demand
 - Reading grade level
 - Writing style, active voice
 - Vocabulary uses common words
 - Context is given first
 - Learning aids via “road signs”

Doak, Doak, Root. Teaching Patients with Low Literacy Skills. 1996.

Suitability Assessment of Materials

- Graphics
 - Cover graphic shows purpose
 - Type of graphics
 - Relevance of illustrations
 - List, tables, etc. explained
 - Captions used for graphics
- Layout and Typography
 - Layout factors
 - Typography
 - Subheads (“chunking”) used

Doak, Doak, Root. Teaching Patients with Low Literacy Skills. 1996.

Suitability Assessment of Materials

- Learning Stimulation, Motivation
 - Interaction used
 - Behaviors are modeled and specific
 - Motivation—self-efficacy
- Cultural Appropriateness
 - Match in logic, language, experience
 - Cultural image and examples

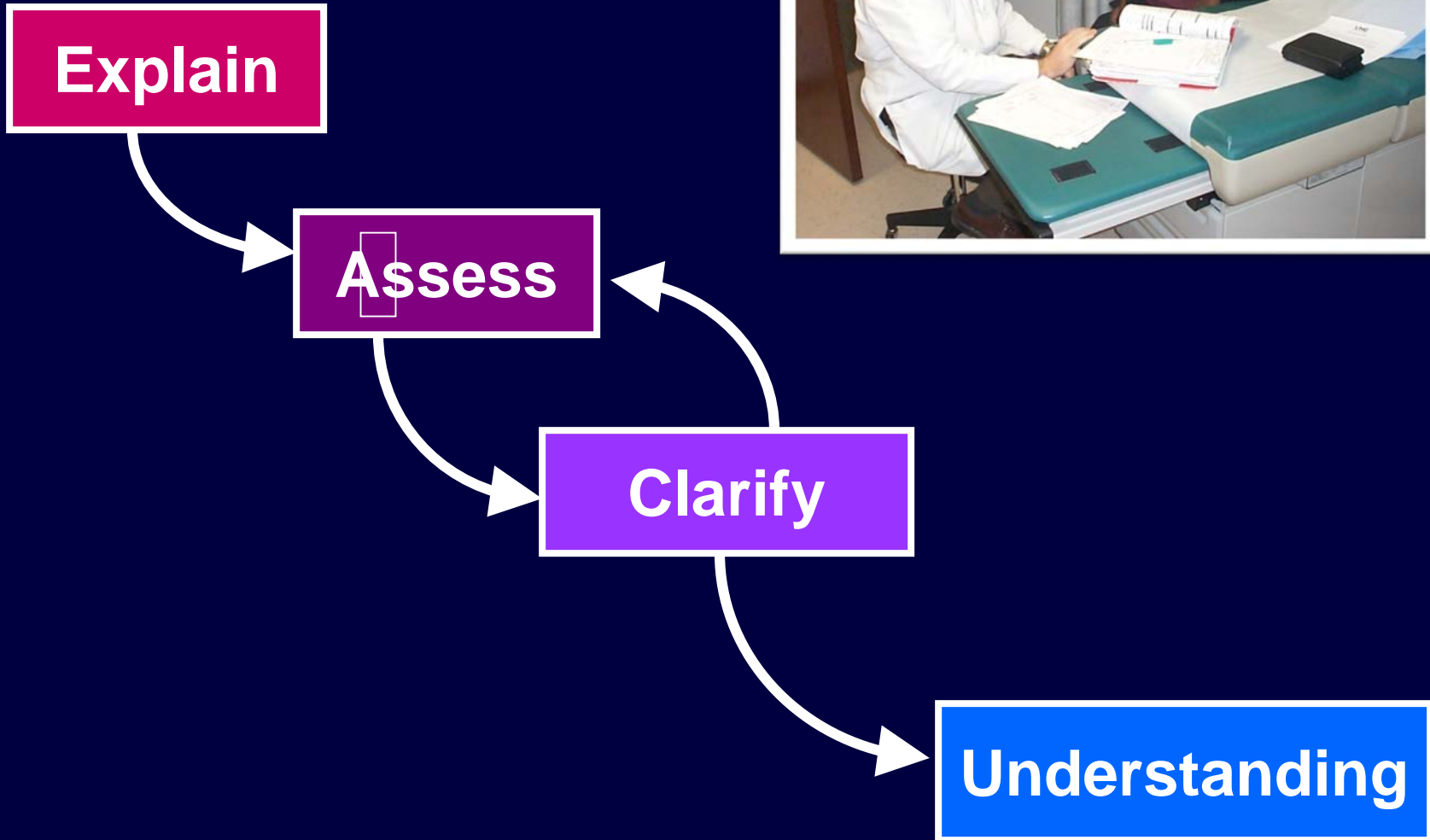
Doak, Doak, Root. Teaching Patients with Low Literacy Skills. 1996.

“Teach-back”

- Ensuring agreement and understanding about the care plan is essential to achieving adherence
- “We don’t always do a great job of explaining our care plan. Can you tell me in your words how you understand the plan?”
- Some evidence that use of “teach-back” is associated with better diabetes control



Teach-back



Literacy Training

- Improving patients' reading ability helps address underlying problem
- Resource-intensive: requires significant time and effort for students and teachers
- Goal: one year of adult education can produce one additional grade level in reading skill
- Small improvements may have big effects on patient health outcomes and well-being

Approaches in Practice

1. Heart Failure Program and Randomized Control Trial
2. Diabetes Management Program



Living with Heart Failure Program

- Focus on self-management training
 - 1-hour individualized education session
 - Education booklet < 6th grade level
 - Scheduled follow-up phone calls
- Digital bathroom scale provided
- Easy access to care team (1-800 number)
- Help with barriers to care
- No efforts to adjust/change medication

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Grady et al. *Circulation*. 2000;102(19):2443-2456.



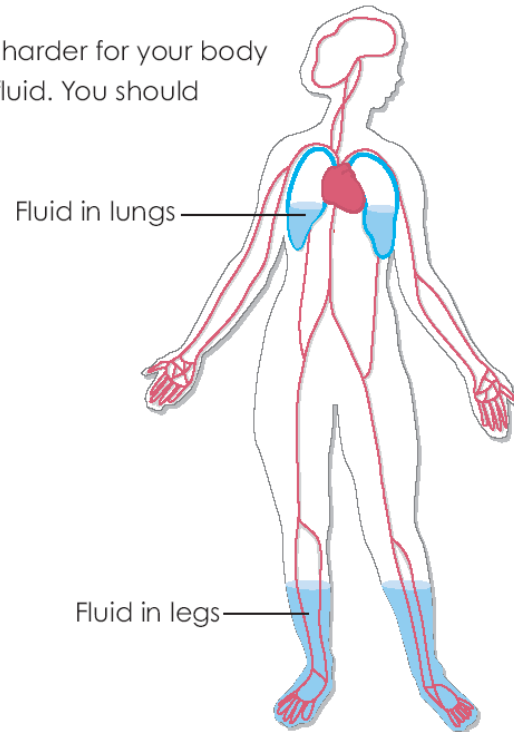
Congestive Heart Failure

With congestive heart failure, the heart cannot pump the blood well. As a result, blood doesn't flow well.

Fluid leaks out of your blood vessels and backs up in the lungs and the legs.



Salt makes it harder for your body to get rid of fluid. You should avoid salt.



How Bad Is Your Congestive Heart Failure?

You can tell how well your heart is doing by how you feel and what you can do.

SWELLING

Good – No Swelling



OK – Swelling in Ankle or Shin



Bad – Swelling in Knee Area



Call the UNC Clinic / 919-843-6480 ☎

WALKING

Good – You can walk easily with no shortness of breath



OK – Shortness of breath when walking fast



Bad – Short of breath at rest



Call the UNC Clinic / 919-843-6480 ☎

SLEEPING

Good – Sleeping flat, no shortness of breath



OK – Needing 2 pillows or more to avoid shortness of breath



Bad – Have to sleep upright to avoid shortness of breath



Call the UNC Clinic / 919-843-6480 ☎³



If you weigh

How many fluid pills?

178	☎ UNC Clinic 919-843-6480	
177	☀	☾
176		
175	2	2
174		
173		
172		
171		
170	1	1
169		
168		
167		
166		
165		
164	1	0
163		
162	☎ 919-843-6480	

Good Weight

	1 Swelling	2 Weight	3 Number of Fluid Pills	
Sunday	<input type="radio"/> knee <input type="radio"/> shin <input type="radio"/> ankle <input checked="" type="radio"/> none	☀ Morning 172	☀ Morning	☾ Evening
Date			1	1
Monday	<input type="radio"/> knee <input type="radio"/> shin <input checked="" type="radio"/> ankle <input type="radio"/> none	☀ Morning 174	☀ Morning	☾ Evening
Date			2	2
Tuesday	<input type="radio"/> knee <input type="radio"/> shin <input type="radio"/> ankle <input checked="" type="radio"/> none	☀ Morning 171	☀ Morning	☾ Evening
Date			1	1
Wednesday	<input type="radio"/> knee <input type="radio"/> shin <input type="radio"/> ankle <input type="radio"/> none	☀ Morning	☀ Morning	☾ Evening
Date				
Thursday	<input type="radio"/> knee <input type="radio"/> shin <input type="radio"/> ankle <input type="radio"/> none	☀ Morning	☀ Morning	☾ Evening
Date				
Friday	<input type="radio"/> knee <input type="radio"/> shin <input type="radio"/> ankle <input type="radio"/> none	☀ Morning	☀ Morning	☾ Evening
Date				
Saturday	<input type="radio"/> knee <input type="radio"/> shin <input type="radio"/> ankle <input type="radio"/> none	☀ Morning	☀ Morning	☾ Evening
Date				



Additional Program Elements

- Scheduled phone calls
- Reinforce teaching
- Motivate patients
- Address transportation barriers
- Help patients enroll in pharmacy assistance program

Randomized Controlled Trial



Research Question

Can a heart failure disease management intervention, targeted toward patients with low literacy, improve quality of life and reduce hospitalizations?



Design of RCT

**Disease
Management**

compared to

Usual Care

Included patients with low and high literacy
for a pre-specified sub-group analysis





Methods

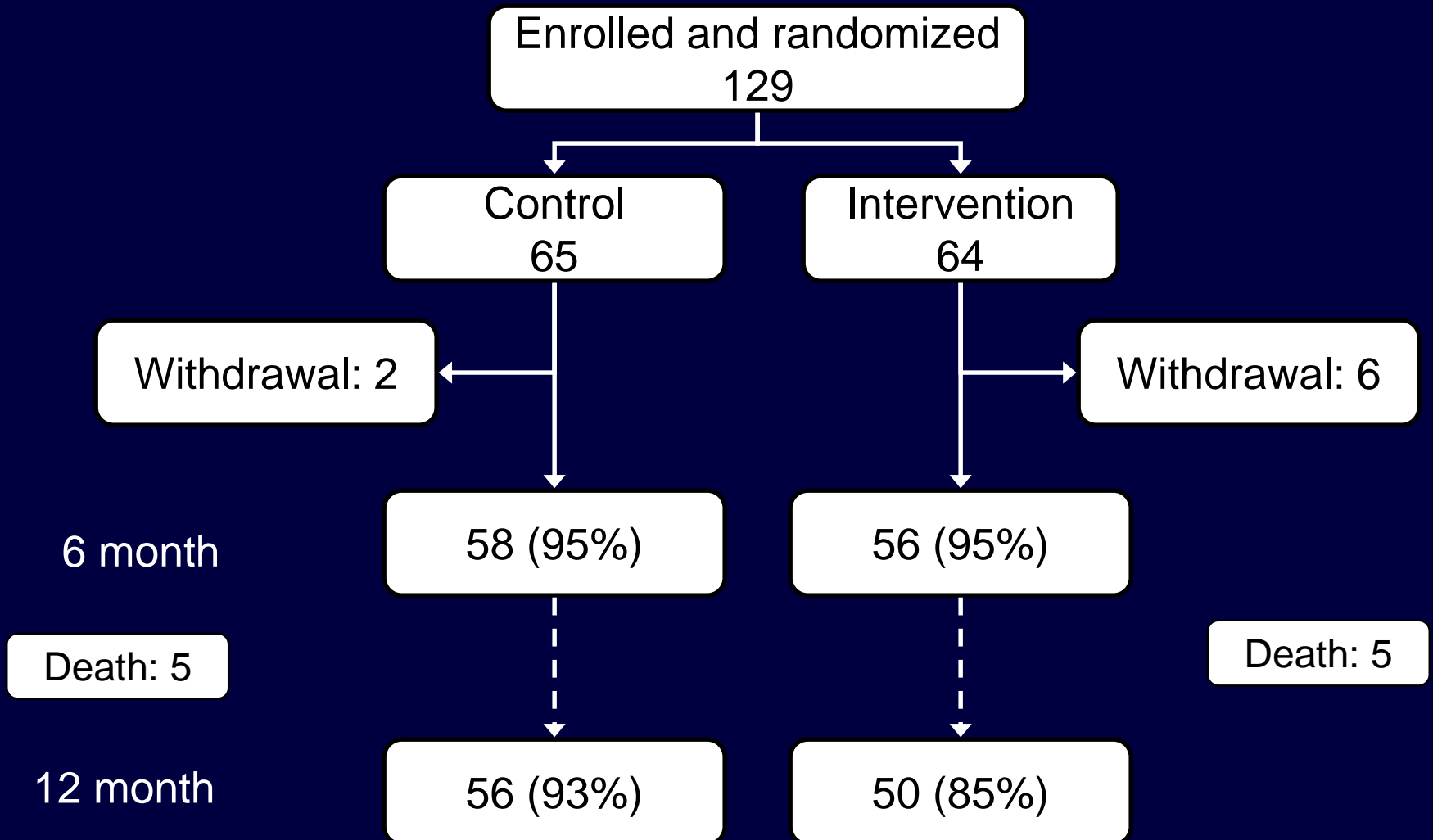
- Patients from general internal medicine and cardiology outpatient practices
- Ages 35-80
- Clinical diagnosis of HF
- NYHA Class 2-4 symptoms within 3 mo.
- Exclusions: dementia, Cr > 4.0, on supplemental O2, substance abuse



Outcome Measures

- Primary Outcomes
 - HF-quality of life
 - Hospitalization or death
- Secondary Outcomes
 - HF knowledge
 - HF specific self-efficacy
 - HF self-care behavior

Follow-up



Baseline Characteristics

Variable	Control (n=65)	Intervention (n=64)
Mean Age, years (SD)	62 (10)	63 (10)
African American, %	55%	56%
Male, %	42%	58%
Education, years	9.8 + 2.8	9.1 + 3.2
Income <15,000/yr, %	68%	69%
Medicaid, %	32%	36%
Medicare, %	73%	72%
Literacy (S-TOFHLA) Inadequate, %	40%	45%



Improved HF Knowledge, Self-Efficacy, and Self-Care Behavior

6 Month Outcome	Control	Intervention	Difference (CI)	P value
Knowledge change	-2	10	12 (4, 19)	<0.01
Self-efficacy change	-0.5	1.3	2 (0.5, 3.1)	<0.01
Daily weight measurement, %	21	88	67 (53, 81)	<0.01

Reduced Hospital Admission or Death Incidence Rate

Unadjusted Incidence Rate Ratio (IRR)

0.66 [0.38, 1.12]

Adjusted IRR

0.56 [0.32, 0.95]

*Adjusted for baseline HFQOL, B-blocker use, digoxin use, systolic dysfunction and hypertension



Inadequate Literacy Lower Admission Incidence Rate

Unadjusted Incidence Rate Ratio (IRR)

0.69 [0.28, 1.75]

Adjusted* IRR

0.38 [0.16, 0.88]

*Adjusted for baseline HFQOL, B-blocker use, ACEI or ARB use, and hypertension

DeWalt et al BMC Health Serv Res. 2006 13:30



NC Program on Health Literacy



How Well did Patients Do with Materials?

- 56 patients completed 6 months of intervention
- Low literacy patients more likely to use the log sheets: 92% vs. 71%, $p=0.05$

Adherence to Instructions--Errors

	Literacy	
	Inadequate	Adequate/marginal
Weeks 3-7 Mean errors	6.7	3.6
Weeks 18-22 Mean errors	3.6	4.2

DeWalt et al BMC Health Serv Res. 2006 13:30

Conclusions

- HF disease management improves knowledge, self-efficacy, and self-care behavior
- HF disease management decreases the rate of hospitalization or death, particularly for patients with low literacy skills

Conclusion of Adherence Analysis

- Low literacy patients more likely to use materials
- Low literacy patients are less adherent to the care plan early after instruction
- Learning occurs over time, not just with one session!

Practice Re-design: Diabetes Care



Diabetes Disease Management

- Tracking registry
- Patient education
- Care coordination
- Phone follow-up
- Use of treatment and monitoring algorithms
- Address barriers of insurance, transportation, and communication



Educational Strategies

- Patient centered learning
- Therapeutic alliance
- Teach-back method
- Repetition/reinforcement
- Survival skills

Care Coordination

- Call patient at least once a month
- Review self-care skills
- Help to navigate health care system

Evaluation with RCT

**Disease
Management**

compared to

Usual Care

112 patients

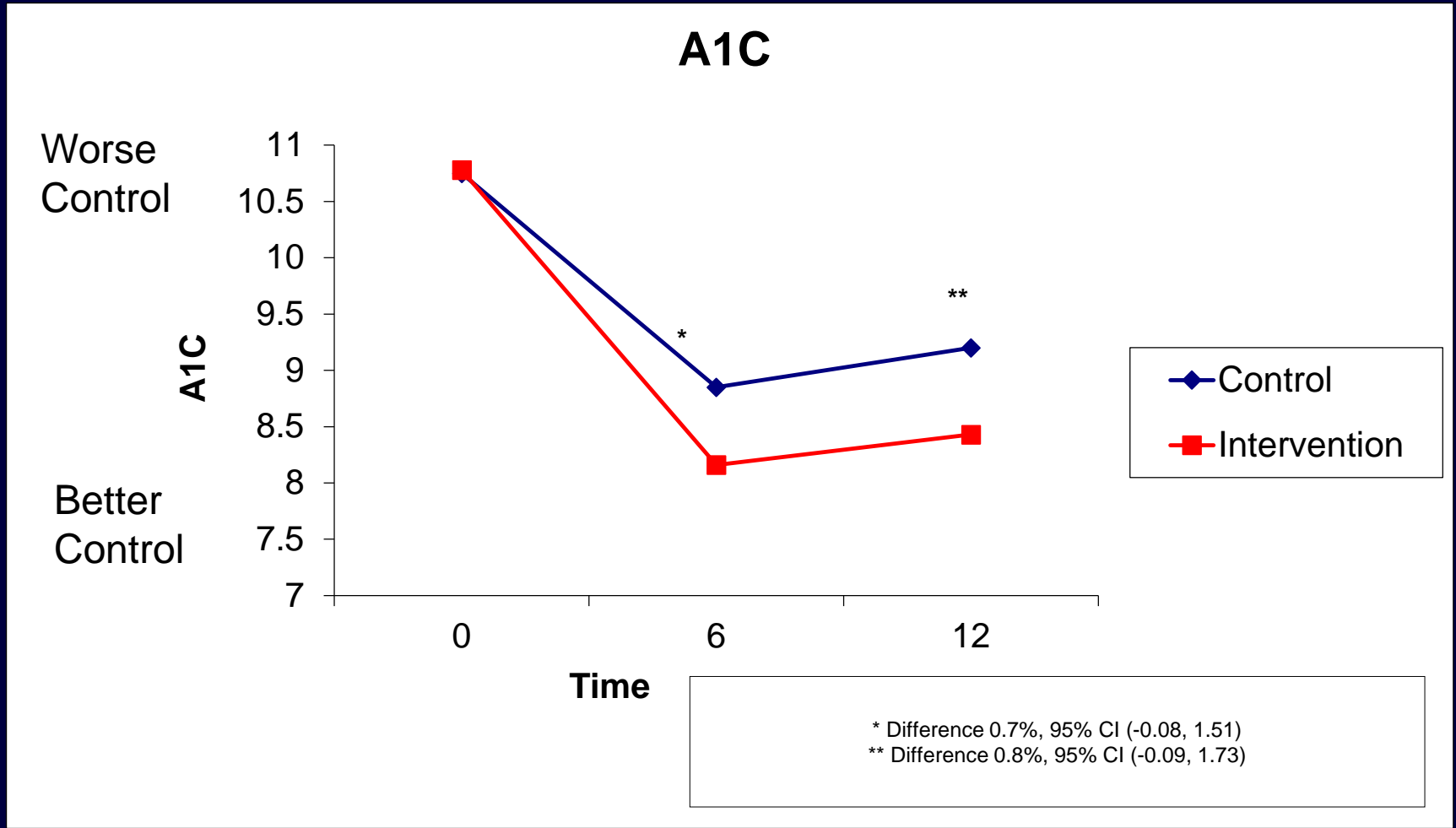
106 patients



Outcome Measures

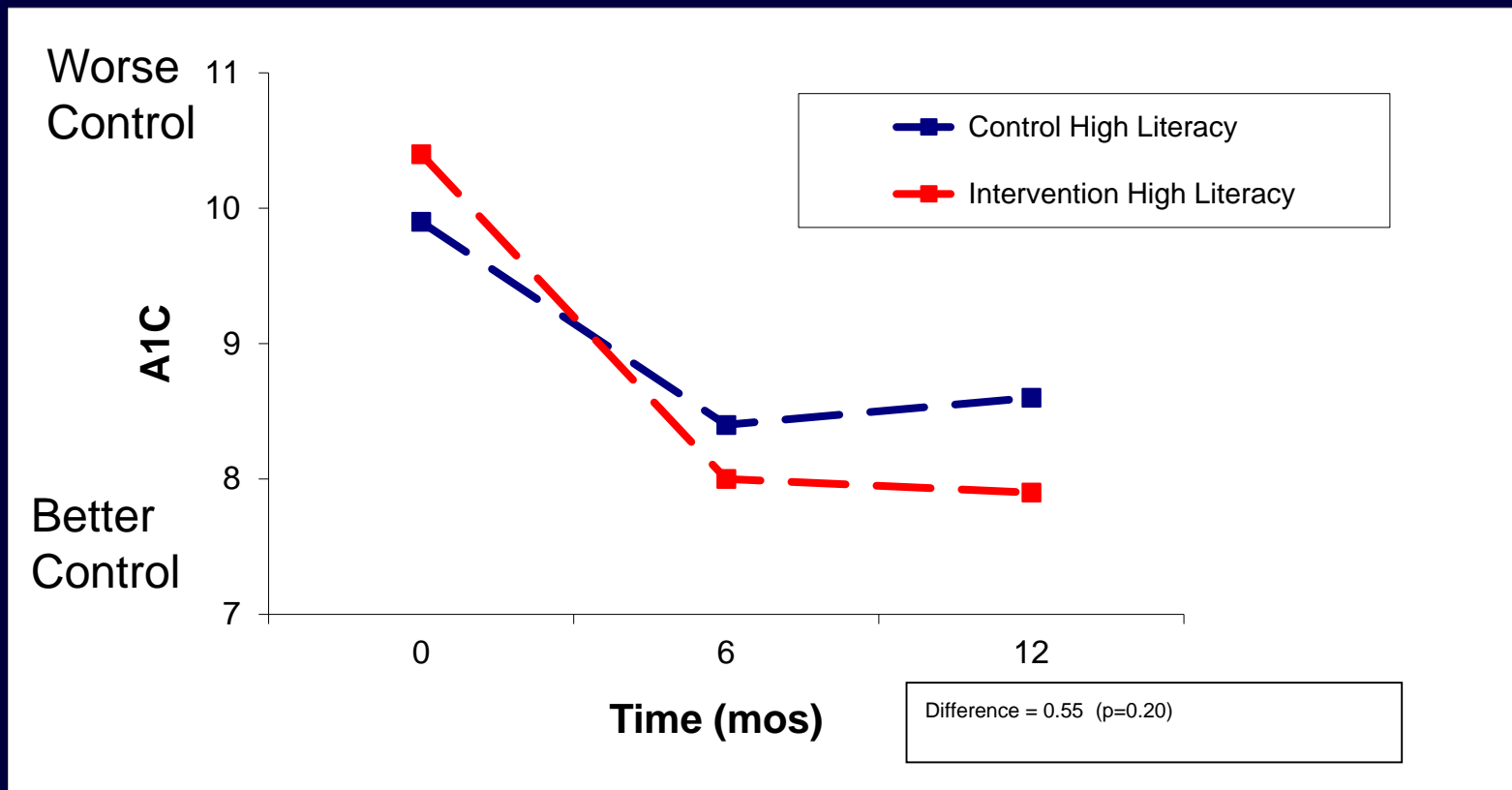
- Primary Measures
 - A1C
 - Blood pressure
 - Aspirin use
- Secondary Measures
 - Diabetes knowledge
 - Treatment satisfaction
 - Medical visits
 - Potential harms

Improvement in HbA1c



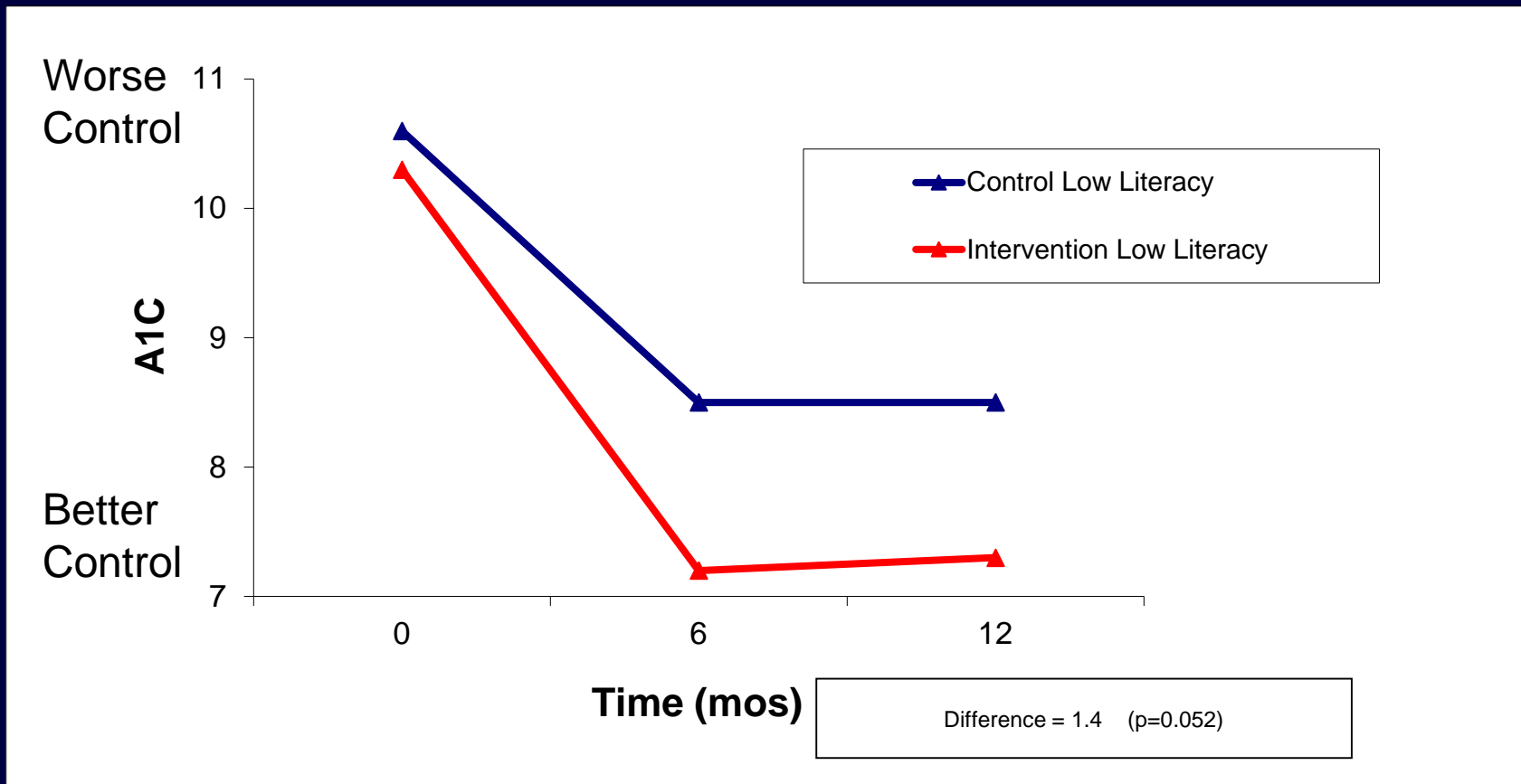
Rothman et al. Am J Med 2005; 118:276-284.

Diabetes Control: Results for Patients with Literacy Above 6th Grade Level



Rothman et al. *JAMA* 2004, **292**(14):1711-1716.

Diabetes Control: Results for Patients with Literacy at or Below 6th Grade Level



Rothman et al. *JAMA* 2004, **292**(14):1711-1716.

Summary

- Disease management is an effective tool for improving health outcomes
- Benefits appear greater for vulnerable patients
- Self-care mastery occurs over time and requires reinforcement, but is not limited to highly educated patients
- Combining organized care with systemic reforms (e.g. access to care, payment reform) likely synergistic

The End

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