Health Literacy

Definition & Controversies

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Linking Medicine to:

- Cognitive Psychology
- Communication
- Human Factors/Engineering
- Learning Sciences/Education
- Marketing/Management
- Neuropsychology
Presentation Overview.

- Health Literacy: What We Know
- Deconstructing Health Literacy
- A ‘Cognitive Factors’ Approach
- Intervention Targets
- Moving Forward
Education, Literacy, & Health

• **↓ Years of schooling linked to ↓ health**
  
  (Kitigawa & Hauser, 1973; Pappas et al, 1993; Lantz et al, 1998)

• **Low literacy predicts poorer health outcomes**
  
  (Schillinger et al, 2002; Baker et al., 2002; Wolf et al., 2005; Baker et al. 2007)

• **Literacy ~ Education**
  
  (Gazmararian, et al., 1999)
Literacy: Fundamental Skills

The ability to read, write, and speak in English, and compute and solve problems at levels of proficiency necessary to function on the job and in society, to achieve one’s goals, and develop one’s knowledge and potential

-National Adult Literacy Act of 1991
93 million U.S. adults (43%) have limited literacy skills
A Looming Epidemic
Perfect Storm 2030 Prediction

Health Literacy: What We Know
Measurement.

**S-TOFHLA:**
The X-ray will _____ from 1 to 3 _____ to do.

- a. take
- b. view
- c. talk
- d. look

- a. beds
- b. brains
- c. hours
- d. diets

*Cloze procedure* (Taylor, 1953)

*specific instructions given for a pill to be taken every 6 hours:*

If you take your first tablet at 7:00 am, when should you take the next one?

**REALM** (out of 66 words)

- fat
- fatigue
- allergic
- flu
- pelvic
- menstrual
- pill
- jaundice
- testicle
- dose
- infection
- colitis
- eye
- Exercise
- emergency
- stress
- behavior
- medication
- smear
- prescription
- Occupation
- nerves
- notify
- sexually
- germs
- gallbladder
- alcoholism
- meals
- calories
- irritation
Health Literacy: What We Know

- Use of preventive services
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- Delayed diagnoses
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- Delayed diagnoses
- Understanding of medical condition
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- Self-management skills
- Risk of hospitalization
- Physical and mental health
- Mortality risk
- Greater health care costs
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Literacy and Mortality Risk

STRONGER INDICATOR OF MORTALITY RISK THAN YEARS OF SCHOOLING

Health Literacy > Reading
Health Literacy: What We Know

- Use of preventive services
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Cognitive Function: What We Know

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## Similarities?

<table>
<thead>
<tr>
<th>Use of preventive services</th>
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<tbody>
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Cognitive abilities explains 50% of health literacy effect on mortality

Deconstructing Health Literacy.

- A Cognitive Skill Set
  - basic reading ability
  - beyond the basics…
Deconstructing Health Literacy.

• **A Cognitive Skill Set**
  - basic reading ability
  - beyond the basics…

• **A Psychosocial Skill Set**
  - self-efficacy
  - communication skills
  - prior expectations
Deconstructing Health Literacy.

- A Cognitive Skill Set
  - basic reading ability
- A Psychosocial Skill Set
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Obtain - Process - Understand - Decide - Act
Figure. Conceptual Model of Health Learning

Health Literacy ~ Health Learning

Health Learning Capacity

- Cognitive Skill Set
  - Processing Speed
  - Attention
  - Working Memory
  - Reasoning
- Psychosocial Skill Set
  - Numeracy
  - Verbal Ability
  - Reading
  - Self-Efficacy
  - Communication
  - Prior Experience

Encoding

Health Knowledge

Awareness

Health Behavior

Action

Health Outcomes
Health Literacy ~ Health Learning

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- Health Knowledge
  - Awareness

- Health Behavior
  - Action

- Health Outcomes
A Cognitive Factors Approach.

- Applied sciences addressing human cognition, learning, and behavior
- Health Context

- Goal: Minimize ‘Cognitive Load’
  † address working memory limitations
  † when possible, do the work
  † eliminate distracters
  † use repetition with salience
  † slow down, allow adequate time (accuracy)
Overall Health Learning Objectives

- Comprehend
- Retain
- Transfer (Problem-Solve)
How do we support learning in healthcare?

• Physicians most trusted source of health information
  (Makoul & Arnston, 2001)

• Often only source for patients with limited health literacy
  (Wolf et al., 2004)

• Medical encounters often incomplete, without review
  (Schillinger et al., 2003; Wolf et al., 2007)

• Consequence: ↓ patient understanding, ↓ informed decisions
  ↓ health behaviors, ↓ health outcomes, ↑ adverse events
  (Schillinger et al., 2003; Davis et al., 2006; Persell et al., 2007; Khankari et al., 2007; McCaffery 2008)
A Health Literacy Perspective

- Simplify the health care experience
- Support comprehension, action
- Maintain communication

Clear
Concise
Consistent

Health Literacy

Individual Ability

Health System Demands
Health Literacy Targets

• Patient skills

• Health materials

• Clinician skills

• Health system design
Quality Improvement Targets

- Patient skills
  - General – Bridge Education System
  - Specific – Chronic Care Management
- Health materials
- Clinician skills
- Health system design
Health Literacy Targets

- Patient skills
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Health Literacy Targets

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Health Literacy Targets

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Health Materials
Enhanced Print & External Aids.

- Enhanced print = simplified text + visual aids
- External Aids = visual aids + reminder tools

Glyburide 50mg  9/27/2007
This medicine is for Michael Wolf
To treat Diabetes
Prescribed by Ruth Parker, MD
Filled by Target Pharmacy
1234 Lakeshore Dr.
St. Paul, MN 12345
(555) 555-1212
You have 11 refills
Refer to Rx# 789-5432-10

INSTRUCTIONS
Take 2 tablets in the morning, and 2 tablets at bedtime
- Take with food.
- Swallow the tablet whole.
- Do not drink alcohol.

INSTRUCTIONS
Morning (6-8am)  Noon (11am-1pm)  Evening (4-6pm)  Bedtime (9-11pm)
2 tablets  2 tablets  2 tablets

This Guide Will Help You:
1. Get started
2. Eat right
3. Be active
4. Check your blood sugar
5. Take your pills
6. Learn about insulin
If you have a lung disease, such as chronic obstructive pulmonary disease (COPD) or asthma, there are many lung function tests a doctor can do in his or her office or in a lab. Lung function tests, such as measuring peak inspiratory flow rates (PIFR) and peak expiratory flow rates (PEFR), allow the doctor to measure how much air you can take into your lungs with a deep breath (inhale) and how quickly you can expel the air from your lungs (exhale). Lung function tests assist the doctor in diagnosing breathing problems and in monitoring how well your lungs are working.

Flesch-Kincaid reading level – 12th
If you have a lung disease, such as chronic bronchitis, emphysema, or asthma, your doctor may recommend tests to see how your lungs are working. These tests measure how fast you can breath air in and breath air out. These tests help your doctor understand what is wrong with your lungs. Sometimes, your doctor will repeat the test to follow how well your lungs are working.
Improving $R_x$ Instructions

“For External Use Only”
Improving $R_x$ Instructions

“For External Use Only”

“Use Only on Your Skin”
Improving $R_x$ Instructions

“For External Use Only”

“Use Only on Your Skin”

“Take Two Tablets by Mouth Twice Daily”
Improving \( R_x \) Instructions

“For External Use Only”

“Use Only on Your Skin”

“Take Two Tablets by Mouth Twice Daily”

“Take 2 pills in the morning, and take 2 pills at bedtime”
Question of Modality.

- Print or Video?
  - not a case of ‘either/or’
  - Understand multimedia principles
First Step to Action is Understanding

This report, by its very length, defends itself against the risk of being read.

- Winston Churchill
First Step to Action is Understanding

This report, by its very length, defends itself against the risk of being read.

- Winston Churchill

 Broadly speaking, the short words are the best, and the old words best of all.

- Winston Churchill
Clinician Skills
Instructional Strategy.

• **Teachback** ("Tell me what you heard")
Instructional Strategy.

- Teachback ("Tell me what you heard")
Understanding Primary Rx Label Instructions: “Take Two Tablets by Mouth Twice Daily”

Wolf et al, Patient Education & Counseling, 2007
Instructional Strategy.

• Teachback ("Tell me what you heard")

• Teach-to-goal (learning mastery)
Instructional Strategy.

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• Teachback ("Tell me what you heard")

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• Implementation Intention (activated response)
Health System Design
Seeking Sustainability.

• In practice: teach, follow-up

• Target patients

• Leverage electronic health record (EHR)
  - ‘prime’ patients
  - display video
  - generate enhanced print materials
  - track patients
Medication Management

- Reconcile meds
- Standardize ‘sigs’
- Access Rx info using EHR
- Structure MD counseling
- Patient leave with Rx info

You Have a New Medication

<table>
<thead>
<tr>
<th>Drug Name</th>
<th>Lipitor®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic Name</td>
<td>Atorvastatin (a TORE va sta tin)</td>
</tr>
<tr>
<td>Purpose</td>
<td>This medication can lower “bad” cholesterol.</td>
</tr>
<tr>
<td>Benefit</td>
<td>It can help prevent a heart attack or stroke.</td>
</tr>
<tr>
<td>How to Take</td>
<td>Take 1 tablet by mouth at bedtime.</td>
</tr>
<tr>
<td>For How Long</td>
<td>You may need to be on this medication for the rest of your life.</td>
</tr>
<tr>
<td>Call Your Doctor</td>
<td>If you have any of these symptoms for more than 1 week:</td>
</tr>
<tr>
<td>Stop Taking and Call Your Doctor</td>
<td>If you ever have:</td>
</tr>
<tr>
<td>Important!</td>
<td>• Take this medicine only the way your doctors tells you.</td>
</tr>
</tbody>
</table>

Tell your doctor or pharmacist if you are pregnant, think you are pregnant, or breastfeeding. You should not take this medicine.

- If you take over-the-counter medicines every day, tell your doctor.
- Limit how much grapefruit juice you drink every day.

Please call NoVA Scripts Central Pharmacy at (123) 456-7890 if you have questions or concerns.

These websites can tell you more about your medicine:
ACPF Diabetes Guide

A Low literacy, print self-care tool

• Brief, plain language messages
• Supportive pictures, graphics
• Patient narratives
• Chunked information
• Non-linear approach

You Can Do It!
Choose one of these easy ideas or write down 1 or 2 things you will do for the next few weeks. Remember, little changes in your eating can make a big difference in your blood sugar.

- I will switch from juice or soda to diet soda.
- I will eat breakfast every morning.
- I will order regular size instead of super size at fast-food restaurants.
- I will pack a healthy lunch some days instead of eating out.
- I will keep healthy snacks on hand, like cottage cheese, carrot sticks, hard-boiled eggs, unsalted popcorn, or sugar-free popsicles.
- I will eat slowly, and wait before getting a second serving.

- □
- □
- □
- □

― It was hard to stop drinking regular soda, but now I like diet drink and water.‖

This Guide Will Help You:
1. Get started
2. Eat right
3. Be active
4. Check your blood sugar
5. Take your pills
6. Learn about insulin
The Intervention

- Patients receive follow-up phone calls to discuss action plan successes and challenges
- 6 follow-up calls or in-person encounters

![Diagram showing timeline of baseline clinic visit, telephone call follow-ups, and clinic visits or telephone call follow-ups.]

**Carve-In vs. Carve-Out**
To Screen or Not to Screen…
New and Old S-TOFHLA Categories.

I
II
III
IV
V
VI
VII

31 51 61 71 81 91

0 55 67 100

Inadequate Marginal Adequate
Adjusted Hazard Ratios for S-TOFHLA Categories and Mortality.
Adjusted Hazard Ratios for S-TOFHLA Categories and Mortality.
Moving Forward.

• What are we asking of patients?

• How are we supporting them?
  - clear, concise & consistent directions
  - consider patient perspective
  - limit, layer
  - follow-up!

• Multi-disciplinary approach needed
  - test modalities
  - Multiple intervention targets (combined strategies)
Summary

• Simplify Health Care for the Patient

• The Promise of Health Technology

• Seek Sustainable Solutions

• Comprehensive Strategies Needed!
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