Health Literacy
Helping Patients Understand

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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
How are we doing?
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
Functional Literacy is…
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

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Literacy Abilities

**Prose:** read and understand sentences organized into paragraphs

**Document:** locate and use information contained in tables, charts, graphs, or maps

**Quantitative:** apply arithmetic operations, either alone or sequentially
Literacy Abilities

How are these skills applied in health care?
According to the section on other rules, what must a disabled person receiving supplementary security income accept if offered?

**WHAT IS SSI?**

SSI stands for supplemental security income. It is a Federal program run by the Social Security Administration. It pays monthly checks to aged, blind, and disabled people who do not have much income or resources. Under SSI, aged means you are 65 or older. Blind means the vision in your better eye is 20/200 or less or you have a limited visual field of 20 degrees or less. Disabled means you have a severe physical or mental condition that keeps you from doing any substantial gainful work, and medical evidence shows it is expected to last at least 12 months or result in death.

**HOW MUCH IS AN SSI MONTHLY PAYMENT?**

The basic Federal monthly payment is:
- $338 for an eligible person
- $553 for an eligible couple

But, you may not get this exact amount. You may get less if you, your spouse, or your parents (if you are under 18) have other income. Or you may get more if you live in a State that adds money to the Federal payment.

**RESOURCES AND INCOME**

To get SSI, your resources and income must be below certain amounts. Both resources and income are explained below.

**RESOURCES**

Resources are the things you own, such as real estate, personal belongings, cash, bank accounts, or stocks and bonds. We do not count all of your resources. For example, we do not count your home or some of your personal belongings. And we usually do not count your car.

You may be able to get SSI if the resources we count are less than:
- $2,000 for an eligible person
- $3,000 for a couple

**INCOME**

Income means earnings, Social Security checks, and pension plus non-cash items you receive such as food, clothing, or shelter.

If you do not work, you may be able to get SSI if all your income adds up to less than:
- $338 a month for an individual
- $553 a month for a couple

If you work, you may be able to get SSI if your earnings are less than:
- $621 a month for an individual
- $1,191 a month for a couple

(These figures may be higher if you live in a State that adds money to the Federal payment.)

**OTHER RULES YOU SHOULD KNOW**

Before you can get SSI checks, you must meet these other requirements:
- Be a U.S. citizen, or a lawfully admitted immigrant, or an alien permanently residing in the U.S. "under color of law";
- Be a resident of the U.S. or the Northern Mariana Islands; and
- Apply for any other money benefits that may be due to you.

**ALSO:** If you are disabled, you must accept vocational rehabilitation if offered to you. And if you are a disabled drug addict or alcoholic, you must accept available treatment and receive SSI payments through a representative payee.

**OTHER BENEFITS**

Being eligible for SSI also means you may be eligible for other benefits such as food stamps, Medicaid, and social services. For information about these benefits, ask the people at your local Social Security office.

**HOW TO APPLY FOR BENEFITS**

It is easy. Just call any Social Security office. You can find the phone number in the telephone directory under "Social Security Administration" or "U.S. Government."
<table>
<thead>
<tr>
<th>CLINIC:</th>
<th>Dental</th>
<th>LOCATION: 3rd floor</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAY:</td>
<td>Thurs.</td>
<td>DATE: April 2^{nd}</td>
</tr>
<tr>
<td>HOUR:</td>
<td></td>
<td>HOUR: 10:20 a.m.</td>
</tr>
</tbody>
</table>

YOU MUST BRING YOUR PLASTIC CARD WITH YOU
Quantitative

If you were to eat the entire container (pint of ice cream), how many calories would you have eaten?
<table>
<thead>
<tr>
<th>Age</th>
<th>Approximate Weight Range*</th>
<th>Drops</th>
<th>Syrup</th>
<th>Chewables 80 mg</th>
<th>Chewables 160 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>† Under 3 mo</td>
<td>Under 13 lb</td>
<td>½ dropper</td>
<td>¼ tsp</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>† 3 to 9 mo</td>
<td>13-20 lb</td>
<td>1 dropper</td>
<td>½ tsp</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>† 10 to 24 mo</td>
<td>21-26 lb</td>
<td>1 ½ droppers</td>
<td>¾ tsp</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2 to 3 yr</td>
<td>27-35 lb</td>
<td>2 droppers</td>
<td>1 tsp</td>
<td>2 tablets</td>
<td>—</td>
</tr>
<tr>
<td>4 to 5 yr</td>
<td>36-43 lb</td>
<td>3 droppers</td>
<td>1½ tsp</td>
<td>3 tablets</td>
<td>1½ tablets</td>
</tr>
<tr>
<td>6 to 8 yr</td>
<td>44-62 lb</td>
<td>—</td>
<td>2 tsp</td>
<td>4 tablets</td>
<td>2 tablets</td>
</tr>
<tr>
<td>9 to 10 yr</td>
<td>63-79 lb</td>
<td>—</td>
<td>2½ tsp</td>
<td>5 tablets</td>
<td>2½ tablets</td>
</tr>
<tr>
<td>11 yr</td>
<td>80-89 lb</td>
<td>—</td>
<td>3 tsp</td>
<td>6 tablets</td>
<td>3 tablets</td>
</tr>
<tr>
<td>12 yr and older</td>
<td>90 lb &amp; over</td>
<td>—</td>
<td>3-4 tsp</td>
<td>6-8 tablets</td>
<td>3-4 tablets</td>
</tr>
</tbody>
</table>

† Consult with physician before administering to children under the age of 2 years.
Dosage may be given every 4 hours as needed but not more than 5 times daily.

How Supplied:
Drops: Each 0.8 ml dropper contains 80 mg (1.23 grains) acetaminophen.
Syrup: Each 5 ml teaspoon contains 160 mg (2.46 grains) acetaminophen.
Chewables: Regular tablets contain 80 mg (1.23 grains) acetaminophen each. Double strength tablets contain 160 mg (2.46 grains) acetaminophen each.

* If child is significantly under- or overweight, dosage may need to be adjusted accordingly.

The weight categories in this chart are designed to approximate effective dose ranges of 10-15 milligrams per kilogram.
(Current Pediatric Diagnosis and Treatment. 8th ed. CH Kempe and HK Silver, ed. Lange Medical Publications: 1984, p. 1079)
93 million U.S. adults (43%) have limited literacy skills.
A Looming Epidemic
Perfect Storm 2030 Prediction

Proficiency Distributions

Reasons for Literacy Decline

• Failures in Education System
  - stagnant H.S. grad rates

• Shifting Demographics
  - new, larger immigrant population

• Changing Economy
  - growth in knowledge-intensive jobs
Health Literacy: What We Know
Health Literacy: What We Know

- Use of preventive services
Health Literacy: What We Know

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- Delayed diagnoses
Health Literacy: What We Know

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- Delayed diagnoses
- Understanding of medical condition
Health Literacy: What We Know

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- Delayed diagnoses
- Understanding of medical condition
- Adherence to medical instructions
- Risk of hospitalization
- Physical and mental health
- Mortality risk
- Greater health care costs
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- Self-management skills
- Risk of hospitalization
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- Mortality risk
- Greater health care costs
Literacy and Mortality Risk

Health Literacy > Reading
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
  - self-efficacy
  - communication skills
  - prior expectations

Obtain - Process - Understand - Decide - Act
Health Literacy ~ Health Learning

**Figure. Conceptual Model of 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

- **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)
But Do We Communicate Effectively?

Oral cancer is one of the most common cancers in the world. A tumor that emerges at the base of the tongue, it can be caused by a number of factors, including tobacco use, alcohol consumption, and poor oral hygiene. Early detection and proper treatment are crucial in improving survival rates. Regular dental check-ups and self-examinations can help identify potential oral cancer early. In this page, you will find a diagram illustrating the different stages of oral cancer and the importance of early detection. The diagram also highlights the role of communication in handling such sensitive topics. As we discuss these issues, let's remember the importance of open and honest conversations in promoting awareness and early intervention.
A Health Literacy Perspective

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

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Health Literacy Targets

• Patient skills

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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

<table>
<thead>
<tr>
<th>Morning (6-8am)</th>
<th>Noon (11am-1pm)</th>
<th>Evening (4-6pm)</th>
<th>Bedtime (9-11pm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 tablets</td>
<td></td>
<td></td>
<td>2 tablets</td>
</tr>
</tbody>
</table>

- Take with food.
- Swallow the tablet whole.
- Do not drink alcohol.
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 Rx Instructions

“For External Use Only”

“Use Only on Your Skin”
Improving $\text{Rx}$ Instructions

“For External Use Only”

“Use Only on Your Skin”

“Take Two Tablets by Mouth Twice Daily”
Improving Rx 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”
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")
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.

- Teachback ("Tell me what you heard")

- Teach-to-goal (learning mastery)

- Implementation Intention (activated response)
Health System Design
Prescribing Variability.

53 Different Ways to Say ‘Take 1 Tablet a Day’

Take 1 tablet by mouth every morning.

Take one tablet orally once every day.

Take one pill by mouth at bedtime.

Take 1 tablet 1 time daily.  
Take 1 tablet one time each day.

Take 1 tablet by mouth once daily.

Take one pill by mouth once each day.

## Dispensing Variability.

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dosage Instructions</th>
</tr>
</thead>
</table>
| Lipitor 10 mg tabs| - "Take one tablet daily."
- "Take 1 tablet by mouth for high cholesterol."
- "Take one (1) tablet(s) by mouth once a day."
- "Take one tablet by mouth every day for high cholesterol." |
| Take one tab QD   |                                                                                     |
| Dispense #30      |                                                                                     |
| Indication: for high cholesterol |                                                                                   |
| No refills        |                                                                                     |
| Fosamax 5 mg tabs | - "Take 1 tablet by mouth daily."
- "Take one tablet by mouth every day for osteoporosis prevention. Do not lie down for at least 30 minutes after taking."
- "Take 1 tablet every day, 30 minutes before breakfast with a glass of water. Do not lie down."
- "Take one tablet every day." |
| Take one tab QD   |                                                                                     |
| Dispense #30      |                                                                                     |
| Indication: osteoporosis prevention |                                                                                   |
| Do not lie down for at least 30 minutes |                                                                                   |
| Bactrim DS tabs   | - "Take one tablet by mouth twice daily for UTI"
- "Take one tablet by mouth twice daily for urinary tract infection."
- "Take 1 tablet by mouth 2 times a day."
- "Take 1 tablet twice daily for 3 days." |
| Take one tab BID  |                                                                                     |
| Dispense #6       |                                                                                     |
| Indication: UTI   |                                                                                     |
| No refills        |                                                                                     |
| Ibuprofen 200 mg tabs |                                                                                   |
| Take 1-2 tabs TID PRN pain |                                                                                   |
| Dispense #30      | - "Take 1 to 2 tablets by mouth as needed for pain."
- "Take 1 to 2 tablets by mouth three times daily as needed for pain."
- "Take 1 to 2 tablets by mouth as needed for pain ** Not to exceed 4 times a day"
- "Take 1 to 2 tablets 3 times a day as needed for pain." |
| No refills        |                                                                                     |

*Wolf, et al., in press, Medical Care, 2008*
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)
Contact Information:

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