Health Literacy 101—Does Your Patient Understand?

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Objectives

• Describe literacy in the US and the relationship between low health literacy & patient outcomes
• Discuss health literacy techniques to aid in improving patient outcomes
• Review teach-back method as it pertains to medication adherence

The Epidemiology of Literacy in the U.S.
National Assessment of Adult Literacy (NAAL)*

- Most up to date portrait of literacy in U.S.
- Scored on 4 levels
- Levels 1 and 2 (Below Basic and Basic):
  - CANNOT use a bus schedule or bar graph
  - CANNOT explain the difference in two types of employee benefits
  - CANNOT write a simple letter explaining an error on a bill


2003 National Assessment of Adult Literacy

- 14% Below Basic
- 13% Proficient
- 29% Basic
- 44% Intermediate

93 Million U.S. Adults have Basic or Below Basic Literacy

Basic or Below Basic
52% of H.S. Grads
61% of Adults ≥ 65

Chronic Low Literacy
Kutner et al. National Assessment of Adult Literacy, 2005

- Literacy area and year
- 1992 prose 26 45 15
  - 2003 29 44 15
- 1992 document 22 49 15
  - 2003 22 53 13
- Quantitative
  - 1992 32 30 13
  - 2003 32 33 13
Inadequate Literacy Increases with Age

What about NC?

- Dropout rate is 5.2%*
- Below basic literacy is 14%**
- Wake County is 11%
- Level 1 or 2 (basic or below basic literacy): 52% [National 50%]

**U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2003 National Assessment of Adult Literacy
Relationship between Literacy and Health Outcomes

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

Outcomes Associated with Literacy

<table>
<thead>
<tr>
<th>Health Outcomes/Health Services</th>
<th>Behaviors Only</th>
<th>Knowledge Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>General health status</td>
<td>Substance abuse</td>
<td>Birth control knowledge</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>Breastfeeding</td>
<td>Cervical cancer screening</td>
</tr>
<tr>
<td>Prostate cancer stage</td>
<td>Behavioral problems</td>
<td>Emergency department instructions</td>
</tr>
<tr>
<td>Depression</td>
<td>Adherence to medication</td>
<td>Asthma knowledge</td>
</tr>
<tr>
<td>Asthma</td>
<td>Smoking</td>
<td>Hypertension knowledge</td>
</tr>
</tbody>
</table>
Low Literate Diabetic Patients Less Likely to Know Correct Management*

Knowledge:
symptoms of low blood sugar (hypoglycemia)
- Low
- Moderate
- High

Action:
correct action for hypoglycemic symptoms
- Low
- Moderate
- High

Percent

*Williams et al., Archive of Internal Medicine, 1998

Literacy Level and Glycemic Control

Health Literacy Level
- Inadequate (n=156)
- Marginal (n=54)
- Adequate (n=198)

Asthma Patients with Low Literacy have Poorer Metered Dose Inhaler (MDI) Skills

Mean MDI Score 0 - 4

Literacy as Assessed by Grade Level

**Parental Literacy and Asthma Outcomes**

<table>
<thead>
<tr>
<th></th>
<th>Unadjusted Incidence Rate Ratio</th>
<th>Adjusted Incidence Rate Ratio *</th>
<th>Adjusted P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Days Missed</td>
<td>2.1</td>
<td>2.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Emergency Department Visits</td>
<td>1.4</td>
<td>1.5</td>
<td>0.02</td>
</tr>
<tr>
<td>Hospitalizations</td>
<td>3.2</td>
<td>3.2</td>
<td>0.008</td>
</tr>
</tbody>
</table>

* adjusted for age, income, race, asthma knowledge, smoking, asthma severity classification and controller medication use

DeWalt et al. Ambulatory Pediatrics, 2007

**Literacy and risk of hospitalization, n=979**

- TOFHLA administered in ED
- Compared with adequate literacy, inadequate literacy associated with two-fold increased risk of hospitalization over 2 years (31.5% vs. 14.9%)
- Even after adjustment, this effect persisted: AOR 1.69 (95% CI 1.13, 2.53).

Baker et al JGIM 1998; 13: 850

**Literacy and Mortality**

Sudore et al. JGIM 2006; 21: 806-812; Health, Aging, and Body Composition Study
Patient Understanding

Patients only retain about 50% of all instructions

“The main problem with communication is the assumption that it has occurred.”

- George Bernard Shaw

Diabetes Patients with Limited Health Literacy Experience Lower Quality Communication

<table>
<thead>
<tr>
<th></th>
<th>Inadequate FHL</th>
<th>Adequate FHL</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR=3.2; p&lt;0.01</td>
<td>32%</td>
<td>13%</td>
</tr>
<tr>
<td>OR=3.3; p&lt;0.02</td>
<td>26%</td>
<td>13%</td>
</tr>
<tr>
<td>OR=2.4; p&lt;0.02</td>
<td>21%</td>
<td>13%</td>
</tr>
</tbody>
</table>

Schillinger 2004
Know Your Audience

Avoid Jargon!

<table>
<thead>
<tr>
<th>Would you please tell me in your own words what dialysis means?</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Check something every day.”</td>
</tr>
<tr>
<td>“What? Is that about your toes?”</td>
</tr>
<tr>
<td>“It means that your diabetes is going worse so that you have to exercise to make diabetes better.”</td>
</tr>
<tr>
<td>“You got to get on a machine to pump... redo blood to come up to par.”</td>
</tr>
<tr>
<td>“It’s a way to clean blood to get off toxins out of the blood.”</td>
</tr>
</tbody>
</table>

Medication Management- Where Low Health Literacy and Outcomes meet the Road
Low Health Literacy Leads to Medication Errors

- 3 billion Rx a year - Medication error is the most common medical mistake
- 93 million Americans have trouble understanding & acting on health info
- >1/3rd of the 1.5 million adverse drug events/yr are outpatient
- Poor patient understanding and unintentional misuse (specifically poor understanding of drug labeling) are root causes

Practices that Improve Medication Adherence

- Reduce pill burden/dose frequency/regimen complication
  - Clarify specific dosing of medications
  - Use compliance/adherence aids
- Incorporate “teach-back” to ensure patient understanding
  - Emphasize benefits of medication adherence
- Ensure medications are affordable

CLARIFY DOSING
Improving Understanding of Drug Label Instructions

• Purpose: does explicit instructions of medication dosing and frequency improve comprehension, especially in patients with limited health literacy

• Methods: Given 10 mock pill bottles with different dose and frequency and asked to explain how to take the medication


Low understanding with hourly intervals or times of day

• Take 1 pill by mouth every 12 hrs with a meal 53% correct

• Take 2 tablets by mouth twice daily 61% correct


Highest understanding with time periods

• Take 2 pills in the morning and 2 pills in the evening. 89% correct

• Take 1 pill by mouth every day. Take in the morning. 89% correct

Universal Medication Schedule
Roundtable on Health Literacy
5th Workshop
October 12, 2007; Washington, DC.

"Improving Prescription Drug Use Container Instructions: An Issue of Health Literacy and Medication Safety"

http://www.iom.edu/CMS/3793/31487/43961.aspx

Patient’s day
BID Med & TID Med & QID Med

For 3 meds, one BID, one TID, & one QID you might take it EIGHT times per day!!!

7 AM T  4 PM
8 AM Q  5 PM
9 AM B  6 PM
10 AM Q  7 PM
11 AM  8 PM
Noon  9 PM B
1 PM Q  10 PM
2 PM T  11 PM T Q
3 PM T

http://www.iom.edu/CMS/3793/31487/43961.aspx

Proposal for Universal Medication Schedule (UMS)

Write for what patients know and do:

• Breakfast
• Lunch (Dinner?)
• Supper(Dinner?)
• Bedtime

http://www.iom.edu/CMS/3793/31487/43961.aspx
Patient’s Day
BID Med & TID Med & QID Med

EIGHT med times/day reduced to 4x/day

- Breakfast B T Q
- Lunch T Q
- Supper B Q
- Bed Time T Q

©Alastair J.J. Wood

Patient Understanding of Universal Medication Schedule

- RCT of 2 sites (Chicago, Shreveport), n=500
- BID, TID, QID prescriptions tested
  - Standard Label
  - Enhanced Text Label
  - Universal Medication Schedule Label
- Universal Medication Schedule had 5 times better comprehension compared to the standard label (p<0.001)


Why Everyone Should use the Universal Medication Schedule

- Improve communication- MDs, PharmD, patients will speak the same language
- Improve patients understanding and adherence
- Achieve therapeutic goals
- Decrease variability and errors in prescription labeling

www.iom.edu/CMS/3793/31487/43961.aspx
Write Exactly What You Want the Label to Say

<table>
<thead>
<tr>
<th>Prescription</th>
<th>Example of Pharmacy Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lipitor 10 mg tabs</td>
<td>-Take one tablet daily</td>
</tr>
<tr>
<td>Take one tab QD</td>
<td>-Take 1 tablet by mouth for high cholesterol</td>
</tr>
<tr>
<td>Dispense#30</td>
<td>-Take one (1) tablet(s) by mouth once a day</td>
</tr>
<tr>
<td>Indication: for high cholesterol</td>
<td>-Take one tablet by mouth every day for high cholesterol.</td>
</tr>
<tr>
<td>No refills</td>
<td></td>
</tr>
<tr>
<td>Fosamax 70 mg tabs</td>
<td>-Take one tablet every week.</td>
</tr>
<tr>
<td>Take one tab qwk</td>
<td>-Take 1 tablet by mouth weekly</td>
</tr>
<tr>
<td>Dispense#5</td>
<td>-Take one tablet by mouth every week for osteoporosis treatment. Do not lie down for at least 30 minutes after taking.</td>
</tr>
<tr>
<td>Indication: osteoporosis treatment</td>
<td>-Take 1 tablet every week, 30 minutes before breakfast with a glass of water. Do not lie down.</td>
</tr>
<tr>
<td>Do not lie down for at least 30 minutes</td>
<td></td>
</tr>
</tbody>
</table>

Pharmacy Transcription Errors, n=85

- Timing explicitly stated on only 2% of instructions
- Indications only transcribed onto 38% of labels
- Alendronate states not to lie down for at least 30 min after taking – only transcribed 50% of instructions
- Dose frequency omitted on 6% of instructions
- Reading difficulty was above recommended levels for 46% of instructions
  - 14% greater than HS level

Have You Looked at Your Patients Pill Bottles?
Variable Understanding of Common Prescription Labels

84% (1st grade.)

59% (4th grade.)


Comprehension Increased with Patient Literacy Level

In multivariate analysis only literacy and age predicted comprehension.
Patients with low literacy (< 6th gd.) 3x more likely to incorrectly interpret warning labels.

<table>
<thead>
<tr>
<th>Literacy Level</th>
<th>&lt;6</th>
<th>7-8</th>
<th>&gt;9</th>
<th>p&lt;.05</th>
<th>p&lt;.0001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take with Food</td>
<td>79%</td>
<td>86%</td>
<td>88%†</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only with Food</td>
<td>35%</td>
<td>66%</td>
<td>78%*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only with Water</td>
<td>8%</td>
<td>64%</td>
<td>82%*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only with Water</td>
<td>8%</td>
<td>18%</td>
<td>23%*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only with Water</td>
<td>0%</td>
<td>6%</td>
<td>15%*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

† p<.05  * p<.0001


Conclusions

• Universal Medication Schedule may improve understanding and compliance
• Don’t Rely on the Pharmacy
  — Write things down
  — Review the bottles
The Teach-back Method

Teach-back is...

- Asking patients to repeat in their own words what they need to know or do, in a non-shaming way.

- NOT a test of the patient, but of how well you explained a concept.

- A chance to check for understanding and, if necessary, re-teach the information.

Slide by The Iowa Health System Health Literacy Collaborative
Teach-Back: Closing the Loop

Examples of Teach-Back

- **Examples featuring Dr. DeWalt:**

  [Video Link]

How to do “Teach Back”

- Identify a couple (2-3 points) you want to make sure the patient understands
- Use open-ended questioning to explore understanding of these points
- Ask patient to demonstrate understanding by explaining points back to you.
Asking for a Teach-back - Examples

Ask patients to demonstrate understanding, using their own words:

- “I want to be sure I explained everything clearly. Can you please explain it back to me so I can be sure I did?”
- “What will you tell your husband about the changes we made to your blood pressure medicines today?”
- “We’ve gone over a lot of information, a lot of things you can do to get more exercise in your day. In your own words, please review what we talked about. How will you make it work at home?”

Teach-back – Additional Points

- Do not use jargon
- Do not ask yes/no questions like:
  - “Do you understand?”
  - “Do you have any questions?”
- For more than one concept:
  - “Chunk and Check”
    - Teach the 2-3 main points for the first concept & check for understanding using teach-back...
    - Then go to the next concept

Proof that ‘Teach-Back’ Works for Patients

- Baseline:
  - Patients recalled < 50% of new concepts
  - Physicians assessed recall 13% of time
  - Visits that assessed recall were not longer
- When physicians used “recall/teach-back” the patient had 9x the odds of having HbA1c levels below the mean

Schlinger, D. Arch Int Med. 2003
Summary of Key Points

• Low health literacy is common and impacts health outcomes
• Keep it simple (KISS principle): Simplify dosing regimens with the Universal Medication Schedule
• Teach-Back can improve adherence and outcomes.

Resources

• Check out the North Carolina Program on Health Literacy website
  – http://www.nchealthliteracy.org/
• There is also a tool kit on their site if you want to learn more:
• National Center for Biotechnology Information
  – http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3014012/

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