Evaluating a Tool for Rapid Clinical Assessment of Health Literacy in Hospitalized Patients

Valerie G. Press, MD, MPH
Assistant Professor, Hospital Medicine
Health literacy Annual Research Conference (HARC)
October 23, 2012

Support by funding from CHAS Seed Grant
Health Literacy:
“…capacity to obtain, process, understand basic health information & services … to make appropriate health decisions”

-Healthy People 2010
Assessing HL?

- Vital sign
- Exam finding
- Lab test
- Radiologic test
Universal Precautions

WARNING

UNIVERSAL PRECAUTIONS MUST BE OBSERVED

Image of hands washing with soap and water.
When is clinical screening appropriate?

- Never?
- With Caution?
HL Tools

• What tools exist?
  – Rely on reading
  – Require sufficient vision
  – Mostly research based
  – Limited clinical utility

• Clinical screening questions (Chew et al)
  – Tested in outpatient VA primary care
Objective and Hypothesis

• To explore the clinical utility of brief screening questions for determining hospitalized patients’ health literacy level

*The Chew screening questions will identify hospitalized general medicine patients with low health literacy with 80% or greater sensitivity compared to the REALM-R*
Data Collection

• Chew screening questions
• Snellen Eye Chart
• REALM-R
Methods: Chew Questions

• “How often do you have problems learning about your medical condition because of difficulty understanding written information?”

• “How confident are you filling out medical forms by yourself?”

• “How often do you have someone help you read hospital materials?”

Chew et al. 2008
Methods: Chew Questions

• “How often do you have problems learning about your medical condition because of difficulty understanding written information?”
  
  Never, Occasionally, **Sometimes, Often, Always**

• “How confident are you filling out medical forms by yourself?”
  
  Extremely, Quite a bit, **Somewhat, A little bit, Not at all**

• “How often do you have someone help you read hospital materials?”
  
  Never, Occasionally, **Sometimes, Often, Always**

Chew et al. 2008
Methods: REALM-R

Osteoporosis
Allergic
Jaundice
Anemia
Fatigue
Directed
Colitis
Constipation

Sufficient health literacy: patients who score >6

Bass et al. 2003
Data Analysis

• Primary AIM: Chew vs. REALM-R
  – McNemar’s test
  – ROC curve

• Secondary AIMs (vision, age)
  – Chi square tests
## Participant Population

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>All enrolled (n=841)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years, mean ± SD</td>
<td>54 ± 19</td>
</tr>
<tr>
<td>Female sex, n (%)</td>
<td>447 (57)</td>
</tr>
<tr>
<td>African American, n (%)</td>
<td>683 (81)</td>
</tr>
<tr>
<td>Insufficient Vision, n (%)</td>
<td>311 (37)</td>
</tr>
<tr>
<td>High school or less, n (%)</td>
<td>445 (53)</td>
</tr>
<tr>
<td>Income ≤$25,000, n (%)</td>
<td>155 (19)</td>
</tr>
</tbody>
</table>
Chew vs. REALM-R \textbf{(n=530)}

![Bar chart showing the comparison between Chew and REALM-R. The chart indicates that Chew has a significantly higher proportion of participants with adequate hearing loss (HL) compared to REALM-R, with a p-value of less than 0.001.](image-url)
Chew Screening Questions ROC Curve

Likert Scale
0: never/extremely
1: occasionally/quite a bit
2: sometimes/somewhat
3: often/a little bit
4: always/not at all

Area under ROC curve = 0.6561
# Individual Chew Screening Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>AUROC*</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>+LR</th>
<th>-LR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problems Learning</td>
<td>0.61</td>
<td>29.8</td>
<td>84.4</td>
<td>1.91</td>
<td>0.83</td>
</tr>
<tr>
<td>Confident with Forms</td>
<td>0.60</td>
<td>24.7</td>
<td>92.0</td>
<td>3.088</td>
<td>0.82</td>
</tr>
<tr>
<td>Help Read</td>
<td>0.61</td>
<td>34.9</td>
<td>82.6</td>
<td>2.00</td>
<td>0.79</td>
</tr>
<tr>
<td><strong>Combined</strong></td>
<td><strong>0.63</strong></td>
<td><strong>52.2</strong></td>
<td><strong>73.1</strong></td>
<td><strong>1.93</strong></td>
<td><strong>0.65</strong></td>
</tr>
</tbody>
</table>

*AUROC Area Under the ROC Curve*
Prevalence of Poor Vision \((n=311)\)

- Sufficient vision: 63%
- No glasses: 31%
- Wearing glasses: 33%
- Glasses not in Hospital: 36%
Limitations

• Single site

• Demographics

• Validated with one tool, short form
Conclusions

• Two health literacy tools found differing prevalence of low health literacy
  – low-income, urban hospitalized population

• Non-trivial prevalence of poor vision
  – may be an under-recognized risk factor for hospitalized patients
CONSENT FOR BLOOD TRANSFUSION: I have been told that I may need a transfusion of blood or blood products and have been told what the benefits to me might be. I have been provided with information about transfusion alternatives, including autologous and directed donations.

I have been told how a blood transfusion is given and the possible risks and consequences of the transfusion, including bruising, an allergic reaction, fever and chills, and being infected through transfusion to infectious disease such as hepatitis A and HIV. The estimated risk of getting HIV from a transfusion is approximately 1 in 2 million. The estimated risk of getting hepatitis is approximately 1 in 250,000 for Hepatitis B, and 1 in 150,000 for Hepatitis C virus per unit of blood transfused.

I understand that even after matching blood for type and Rh, there is a chance that the donated blood could not be used and there would be additional time and cost in finding suitable blood.

I understand that I may ask questions about these issues and that I have been given answers. I understand that I may withdraw my consent or refuse a transfusion for any reason at any time until after I have been transfused.

I acknowledge that I have read this consent form and that I understand the information provided.

I authorize those people who gave blood for me to be notified if I later receive a transfusion.

I acknowledge that the person who gave me the blood was not involved in the decision to transfuse me.

I understand that I may ask questions about these issues and that I have been given answers.

I acknowledge that I have read this consent form and that I understand the information provided.

Font Size 12

76%

1 in 2 Million

Autologous

Consequences
Acknowledgments

• Dr. Vineet Arora
• Madeleine Shapiro
• Dr. David Meltzer
• Ainoa Mayo
• Alisha Ranadive
• Kristin Constantine
• Nicole Babuskow
• The Hospitalist Project Team
• Funding: CHAS Seed Grant