

# Self-Report Measures of Health Literacy

Institute of Medicine  
Roundtable on Health Literacy

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February 26, 2009

# Self-Report Measures of Health Literacy

- Background on health literacy screening
- Overview of self-report measures
  - Development
  - Validation
- Strengths and weaknesses
- Future research

# Health Literacy

The degree to which individuals can obtain, process, and understand basic health information and services they need to make appropriate health decisions.

Institute of Medicine 2004  
Health Literacy: A Prescription to End Confusion

# Health Literacy Categories

<b>Health Literacy</b>	<b>Reading Level</b>	<b>Description</b>
<b>Limited</b>	$\leq$ 6 <sup>th</sup> grade	<b>Misreads medication bottles, appointment slips</b>
<b>Marginal</b>	7 <sup>th</sup> -8 <sup>th</sup> grade	<b>Misreads educational brochures, informed-consent documents</b>
<b>Adequate</b>	$\geq$ 9 <sup>th</sup> grade	<b>Able to complete most tasks in the health care setting</b>

# Limited Health Literacy

- Approximately 90 Million American adults have limited health literacy
- Association between limited health literacy and poor health outcomes
  - Higher rates of medication non-adherence (Kalichman 2000)
  - Higher hospitalization rates (Baker 1993)
  - Poor self-reported health (Weiss 1992, Baker 1997)
- Health care providers are often unaware of patients' reading abilities (Bass 2002)

# Limited Health Literacy

- Some experts advocate for health literacy screening/assessment
- Formal Health Literacy Assessments
  - Test of Functional Health Literacy in Adults (TOFHLA)
  - Rapid Estimate of Adult Literacy in Medicine (REALM)

# Barrier to Routine Screening

- Patients are sometimes ashamed
- Formal health literacy instruments are long
- Certain questions do not accurately predict a patient's literacy level (Mead 1994, Weiss 1997)
  - Can you read?
  - How many of years of school did you complete?

# The Ideal Self-Report Measure

- Quickly identify patients with limited health literacy
- Routinely integrated into in busy clinical settings and large-scale research studies
- Acceptable to patients
- Accurately identify patients with limited health literacy

# Sensitivity and Specificity

		Limited Health Literacy (Gold Standard)	
		Yes	No
Test	+	a	b
	-	c	d

Sensitivity (true positive rate) =  $a/a+c$

Specificity (true negative rate) =  $d/b+d$

# Self-Report Measures

- Can you read a newspaper?
  - Sensitivity 16.7%
  - Specificity 99.4%
- Can you read forms and other written materials obtained from the hospital?
  - Sensitivity 19.8%
  - Specificity 99.3%
- Do you usually ask somebody to help you read materials you receive from the hospital?
  - Sensitivity 51.4%
  - Specificity 88.6%

# Development of Self-Report Measures

- Setting/Patients: 332 patients seeking care at VA preoperative clinic
- Short Test of Functional Health Literacy in Adults (STOFHLA)

# Demographic Characteristics

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Characteristics	N = 332
Mean age, yrs (SD)	58.2 (13.1)
Men	95%
White	81%
Education $\leq$ 12 years	38%

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# Prevalence of Limited Health Literacy

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Health Literacy	N = 332
Limited	4.5%
Marginal	7.5%
Adequate	88.0%

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# Content of the Health Literacy Self-Report Screening Questions

Navigating the health care system

Completing medical forms

Following medication instructions

Interacting with providers

Reading appointment slips

Surrogate reader

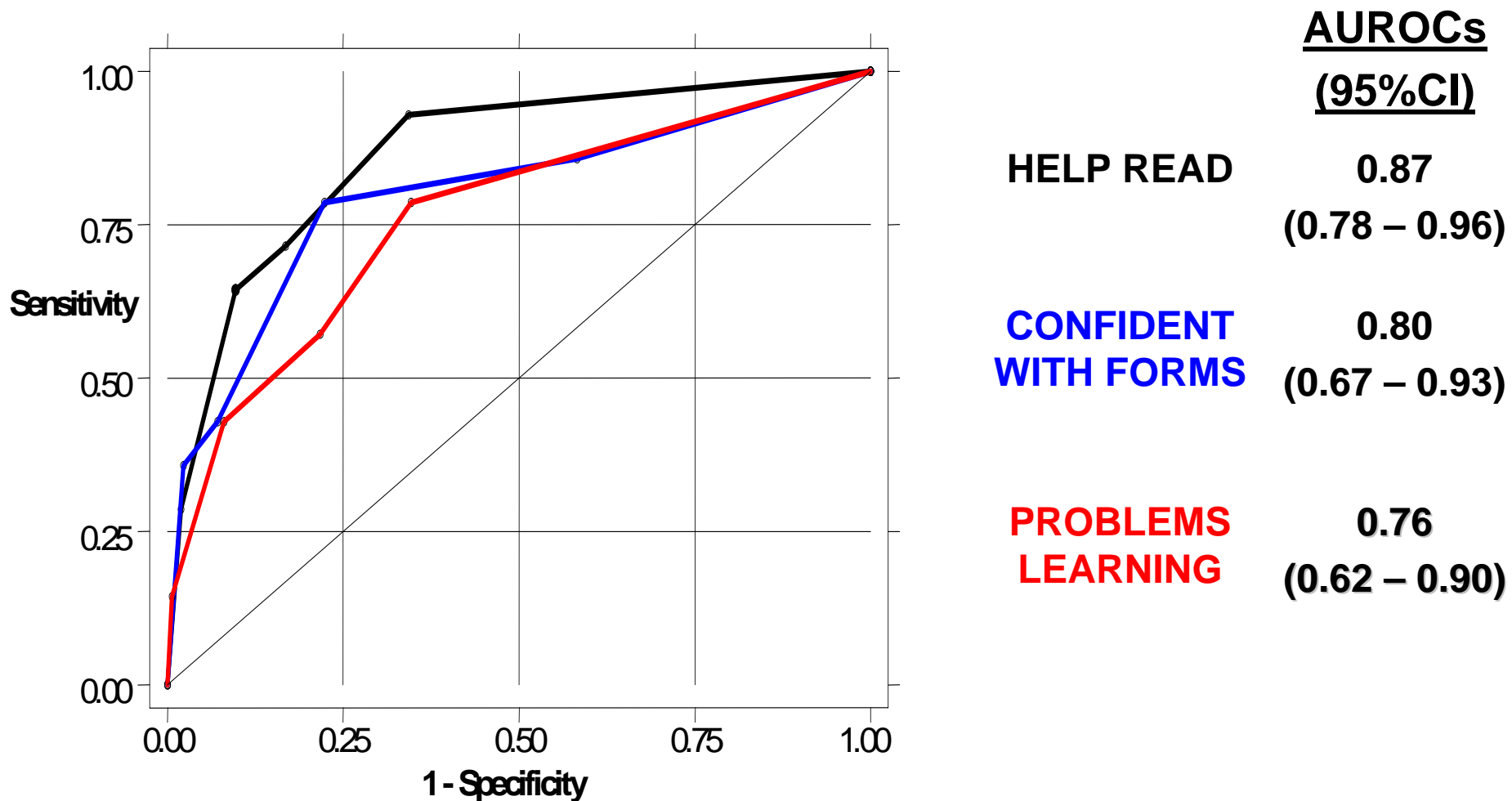
# Development of the Health Literacy Self-Report Screening Questions

- Asked “how often” or “how confident”
- Scaled response options from 0 to 4
- Did not restrict time frame or visit setting
- 16 health literacy screening questions

# Screening for Limited Health Literacy

Question	Responses
<b>HELP READ</b> How often do you have someone help you read hospital materials?	Never → Always
<b>CONFIDENT WITH FORMS</b> How confident are you filling out medical forms by yourself?	Not at all → Extremely
<b>PROBLEMS LEARNING</b> How often do you have problems learning about your medical condition because of difficulty understanding written information?	Never → Always

# ROC Curves for Detecting Limited Health Literacy



# How often do you have someone help you read hospital materials? (HELP READ)

Response	Sensitivity	Specificity
≥Never	100%	0%
≥Occasionally	93%	65%
≥Sometimes	73%	83%
≥Often	67%	90%
≥ Always	27%	98%

# Development Study

- The self-report screening questions were less effective in identifying patients with marginal health literacy.
- Combining questions did not significantly improve the screening performance.

# Conclusions – Development Study

Each of these 3 questions was effective for detecting limited health literacy in this VA population.

# Validation Studies

- Wallace (2006)
  - Patients: 305 English-speaking adults
  - Setting: University based primary care clinic
  - Prevalence of limited health literacy: 17.7%
- Wallace (2007)
  - Patients: 100 English-speaking adults
  - Setting: University-based vascular surgery clinic
  - Prevalence of limited health literacy: 18.0%
- Chew (2008)
  - Patients: 1796 English-speaking adults
  - Setting: 4 VA Medical Centers
  - Prevalence of limited health literacy: 6.8%

# How confident are you filling out medical forms by yourself? (Confident with Forms)

Response	Sensitivity	Specificity
≤ Extremely	100%	0%
≤ Quite a bit	91-95%	34-49%
≤ Somewhat	83-90%	28-82%
≤ A little bit	43-74%	22-93%
≤ Not at all	16-44%	6-99%

# Other Studies

- Setting: 225 patients with diabetes
- Prevalence of limited health literacy – 15.1%
- Questions
  - How would you rate your reading ability?
    - Terrible → Excellent (5 point scale)
  - On a scale of 1 to 10, where 1 is ‘not at all’ and 10 is ‘a great deal’, how much do you like reading?
  - How often do you need to have someone help you when you read instructions, pamphlets, or other written material from your doctor or pharmacy?
    - Never → Always (5 point scale)

# Self-reported Education vs. Health Literacy Screening Questions

- Setting: 1796 patients at 4 VA Medical Centers
- Self-reported education
  - < High school graduate
  - High school graduate
  - Some college
  - College Graduate
  - Graduate
- Self-reported education and Confident with forms question performed similarly in screening for limited health literacy (AUROCs: 0.72 vs 0.74)

# Strengths of Self-Report Measures

- Easy to administer
- May be more acceptable to patients than formal testing
- Offers a potentially practical method to identify patients with limited health literacy

# Weaknesses of Self-Report Measures

- Unknown generalizability
- Not effective for identifying patients with marginal health literacy
- Self-report measures versus demographic characteristics

# Future Research

- How do these questions perform in other populations and in other languages?
- Do self-report measures perform better than demographic variables in detecting limited health literacy?
- How can these questions be integrated into systems of care, and what are appropriate practical and feasible interventions for patients who screen positive?
- Do screening and interventions improve the health outcomes of patients with limited health literacy?

