Background/Significance: Telephone communication is often utilized in primary care to convey information between the RN and the Veteran. The voicemail greeting is usually the first contact and a key element to successful telephone communication. A survey of RN voicemail greetings identified a wide variation in volume, tone, clarity, understanding, information provided, and length of the recording. This may affect Veteran concerns being addressed in a timely manner and RN productivity.

Purpose: The objective of this study was to determine veteran satisfaction with the RN voicemail greeting and to identify if voicemail messages for RNs decreased after implementation of a standardized voicemail greeting.

Framework: Iowa Model of Evidence Based-Practice to Promote Quality Care.

Sample/Setting: A volunteer, convenience sample of 502 Veterans and 4 RNs from 3 primary care clinics.

Method/Design/Procedure: Utilizing a pre-test/post-test design, the study took place in 3 phases, each 3 months long. Phase 1 consisted of the original voicemail greeting. Phase 2 consisted of implementation of a standardized voicemail greeting. Phase 3 consisted of continuance of the standardized voicemail greeting. Veterans completed the Voicemail Greeting Satisfaction Questionnaire ($\alpha = .92$, scores from 0 – 12, 12 = highest score) and RNs recorded the number and type of voicemail messages during phases 1 and 3. T-test analyses were performed.

Results: Final sample size consisted of 367 predominately male (97.5%) veterans with a mean age of 61 and a mean of 11 years at the VA who listened to the RN voicemail greeting a mean of 2 times over a 30 day period. An independent t-test showed that the difference between voicemail greetings was significant ($p< 0.0005$). Veterans were more satisfied ($M=11.62$) with the standardized voicemail greeting than the original voicemail greeting ($M=6.98$). A paired t-test showed that the difference between RN voicemail messages was significant ($p = 0.014$). RN voicemail messages decreased from phase 1 ($M=643$) to phase 3 ($M=457$).

Conclusions/implications: Telephone encounters have a direct impact on perception of VA service and RN productivity. Utilization of a standardized voicemail greeting may improve the quality of care provided to veterans by streamlining needed information via telephone communication.
Health Literacy is

“the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.”

Health Literacy Equation

\[ \text{Health Literacy} = \frac{\text{Skills/Abilities}}{\text{Demand/Complexity}} \]

Prose Literacy

MEDICO ASPIRIN

500

INDICATIONS: Headache, muscle aches, menstrual pain, toothache, rhinitis, RELIEVES COMMON COLD SYMPTOMS

DOSAGE: ORAL: 1 or 2 tablets every 4 hours, preferably accompanied by food, for not longer than 7 days. Store in a cool, dry place.

CAUTION: Direct external to patients confused or unable to understand or apply instructions. Do not use for serious pain or medical conditions. Patient dependent on doctors and extended period. May cause harm to others. Before using the medicine for children, consult a doctor about flared nostrils, a sore but serious throat, and prescribing or over-the-counter medicines. Consult a doctor if any adverse reactions occur or if you are pregnant or breast-feeding. In case of accidental overdose, consult a doctor. Keep out of reach of children.

Document Literacy

Objectives

- Discuss the meaning of health literacy.
- Identify the impact of health literacy on health outcomes.
- Identify tools utilized to measure health literacy.
- Identify screening questions to assess health literacy.
- Review the evidence on methods utilized to measure and screen health literacy (i.e. validity, reliability, confidence interval...)
- Discuss informal methods to assess health literacy.
- Discuss the implications of health literacy measurement in the clinical setting.
Adults with low health literacy:
- Are less likely to comply with prescribed treatment and self-care regimens
- Make more medication treatment errors
- Fail to seek preventative care
- Are at higher risk for hospitalization than most people with adequate health literacy skills
- Remain in the hospital nearly 2 days longer
- Lack the skills needed to navigate the health care system

Assessment Tools
- TOFHLA
- REALM
- NVS
- METER

Screening Questions
- Informal Methods/Clues - “Red Flags”
- To Screen or not to Screen

Validity
- Criterion
- Correlation = \( r \)
- \(-1 \) to \(+1\)

Reliability
- Cronbach’s Alpha (\( \alpha \))
- Above 0.7 is considered acceptable
- Test–Retest
  - 0.7 to 0.8 considered satisfactory or good

Rapid Estimate of Adult Literacy in Medicine (REALM) \(^1\)

- Oldest
- Designed to estimate a patient’s literacy level so that the appropriate level of patient education materials or oral instructions may be used
- 125 words in 4 columns
- Sight reading ability
- 5 minutes to administer/score

Test–Retest reliability = 0.98
Criterion Validity
Slosson Oral Reading Test (SORT) - \( r = 0.96\)
Wide Range Achievement Test Revised (WRAT-R) - \( r = 0.97\)
Peabody Individual Achievement Test Revised (PIAT-R) - \( r = 0.98\)
Shortened REALM Scoring

<table>
<thead>
<tr>
<th>Raw Score</th>
<th>Grade Range Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–18</td>
<td>Third Grade and Below</td>
</tr>
<tr>
<td></td>
<td>(May or may not be able to read most low literacy materials. May need repeated oral instructions, primarily illustrations, audio or video tapes.)</td>
</tr>
<tr>
<td>19–44</td>
<td>Fourth to Sixth Grade</td>
</tr>
<tr>
<td></td>
<td>May need low literacy materials and not be able to read prescription labels.</td>
</tr>
<tr>
<td>45–60</td>
<td>Seventh to Eighth Grade</td>
</tr>
<tr>
<td></td>
<td>May struggle with most currently available education materials.</td>
</tr>
<tr>
<td>61–66</td>
<td>Ninth Grade and Above</td>
</tr>
<tr>
<td></td>
<td>Should be able to read most patient education materials</td>
</tr>
</tbody>
</table>

REALM–Revised (REALM–R)

Fat, Flu, and Pill are not scored. A score of 6 or less identifies patients at risk for poor health literacy.

REALM – Shortened Form (REALM–SF)

- Menopause
- Antibiotics
- Exercise
- Jaundice
- Rectal
- Anemia
- Behavior

REALM–SF

Score Grade Range

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Third grade and below will not be able to read most low-literacy materials, will need repeated oral instructions, materials composed primarily of illustrations, or audio or video tapes.</td>
</tr>
<tr>
<td>1-3</td>
<td>Fourth to sixth grade will need low-literacy materials, may not be able to read prescription labels.</td>
</tr>
<tr>
<td>4-6</td>
<td>Seventh to eighth grade will struggle with most patient education materials, will not be offended by low-literacy materials.</td>
</tr>
<tr>
<td>7</td>
<td>High school will be able to read most patient education materials.</td>
</tr>
</tbody>
</table>

Test of Functional Health Literacy in Adults (TOFHLA)

“Gold Standard”

- 50 reading items – comprehension of three health related passages
  - Cloze Procedure
  - Timed 12 minutes
- 17 numeracy items – comprehension of prescription labels, blood glucose levels, appointment slips, and financial payments
  - Timed 10 minutes

TOFHLA Scoring

<table>
<thead>
<tr>
<th>Level</th>
<th>TOFHLA Score</th>
<th>Functional Health Literacy Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate Functional Health Literacy</td>
<td>0–59</td>
<td>Unable to read and interpret health texts</td>
</tr>
<tr>
<td>Marginal Functional Health Literacy</td>
<td>60–74</td>
<td>Has difficulty reading and interpreting health texts</td>
</tr>
<tr>
<td>Adequate Functional Health Literacy</td>
<td>75–100</td>
<td>Can read and interpret most health texts</td>
</tr>
</tbody>
</table>

Cronbach’s Alpha = 0.98
Criterion Validity
REALM – r = 0.84
WRAT – r = 0.74
NUMERACY ITEM 1
Take one tablet by mouth every 6 hours as needed.

NUMERACY ITEM 2
Normal blood sugar is 60–150. Your blood sugar today is 160.

NUMERACY ITEM 3
Take medication on empty stomach one hour before or two to three hours after a meal unless otherwise directed by your doctor.

Preparation for an Upper Gastrointestinal Series (4th grade)²

Your doctor has sent you to have a ______ X-ray.

You must have an ______ stomach when you come for:

- a. empty
- b. empty
- c. empty
- d. empty

You must have an ______ stomach when you come for:

- a. empty
- b. empty
- c. empty
- d. empty

The X-ray will ______ from 1 to 3 ______ to do.

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

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

Informed Consent Form (College 19.5)²

The authority ______ under this Paragraph 3 shall ______

- a. granted
- b. treated
- c. tested
- d. X-rayed

In treating all conditions that ______ treatment and are not known

- a. reason
- b. refer
- c. require
- d. relate

the time the operation or ______ is commenced.

- a. us
- b. be
- c. or
- d. at

- a. cholesterol
- b. menopause
- c. gonorrhoea
- d. procedure

Rights and Responsibilities Section of a Medicaid Application (10th grade)²

I understand ______ if I DO NOT fill the ______, made on my

- a. thus
- b. this
- c. that
- d. then

case, I have the ______ to a file hearing. I can also ______

- a. bright
- b. left
- c. strag
- d. right

hearing by writing or ______ the country where I applied.

- a. counting
- b. reading
- c. calling
- d. smelling

S-TOFHLA (Brief)²

- 36 reading items – comprehension of two health related passages
  - Cloze Procedure
  - Timed 7 minutes

- 4 numeracy items – comprehension of prescription labels, appointment slips, blood glucose levels
  - Timed 5 minutes
S–TOFHLA Brief Scoring

<table>
<thead>
<tr>
<th>Level</th>
<th>TOFHLA Score</th>
<th>Functional Health Literacy Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate Functional Health Literacy</td>
<td>0–53</td>
<td>Unable to read and interpret health texts</td>
</tr>
<tr>
<td>Marginal Functional Health Literacy</td>
<td>54–66</td>
<td>Has difficulty reading and interpreting health texts</td>
</tr>
<tr>
<td>Adequate Functional Health Literacy</td>
<td>67–100</td>
<td>Can read and interpret most health texts</td>
</tr>
</tbody>
</table>

What about the Measures?

- Receiver Operating Characteristic Curve (ROC)
  - Area under ROC curve (AUROC) - overall measure of performance of the screening test
    - 1.0 = a perfect test
    - 0.5 = a test with no discriminating capacity
- Confidence Interval (CI) 95%
- Sensitivity – screen in
- Specificity – screen out

NVS Scoring

0–1 suggests high likelihood (50% or more) of limited health literacy
0–2 indicates the possibility of limited health literacy
4–6 almost always indicates adequate health literacy

S–TOFHLA Short

36 items – reading comprehension of two health related passages

<table>
<thead>
<tr>
<th>Level</th>
<th>TOFHLA Score</th>
<th>Functional Health Literacy Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate Functional Health Literacy</td>
<td>0–16</td>
<td>Unable to read and interpret health texts</td>
</tr>
<tr>
<td>Marginal Functional Health Literacy</td>
<td>17–22</td>
<td>Has difficulty reading and interpreting health texts</td>
</tr>
<tr>
<td>Adequate Functional Health Literacy</td>
<td>23–36</td>
<td>Can read and interpret most health texts</td>
</tr>
</tbody>
</table>

What about the Measures?

- Receiver Operating Characteristic Curve (ROC)
  - Area under ROC curve (AUROC) - overall measure of performance of the screening test
  - 1.0 = a perfect test
  - 0.5 = a test with no discriminating capacity
- Confidence Interval (CI) 95%
- Sensitivity – screen in
- Specificity – screen out

NVS – Statistics

Weiss et al., 2005

<table>
<thead>
<tr>
<th>Cronbach’s Alpha $r = 0.76$</th>
<th>Criterion Validity (TOFHLA) $r = 0.59$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score &lt; 4 Sensitivity 100% / Specificity 64%</td>
<td>Score &lt; 2 Sensitivity 72% / Specificity 87%</td>
</tr>
<tr>
<td>AUROC = 0.88 (95% CI 0.84, 0.93)</td>
<td>AUROC = 0.74 (95% CI 0.70, 0.78)</td>
</tr>
</tbody>
</table>

Osborn et al., 2008

<table>
<thead>
<tr>
<th>Cronbach’s Alpha $r = 0.71$</th>
<th>Criterion Validity (TOFHLA) $r = 0.61$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score 0–1 Sensitivity 95% / Specificity 63%</td>
<td>Score 2–3 Sensitivity 69% / Specificity 31%</td>
</tr>
<tr>
<td>AUROC 0.73 (95% CI 0.70, 0.78)</td>
<td>AUROC 0.71 (95% CI 0.68, 0.77)</td>
</tr>
</tbody>
</table>

Recent Vital Sign (NVS)

Nutrition Facts

<table>
<thead>
<tr>
<th>Serving Size</th>
<th>¾ cup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Servings per container</td>
<td>4</td>
</tr>
<tr>
<td>Amount per serving</td>
<td>Calories 250 Fat Cal 120</td>
</tr>
<tr>
<td>Total Fat 13g</td>
<td>50%</td>
</tr>
<tr>
<td>Sat Fat 9g</td>
<td>45%</td>
</tr>
<tr>
<td>Cholesterol 28mg</td>
<td>1%</td>
</tr>
<tr>
<td>Sodium 205mg</td>
<td>2%</td>
</tr>
<tr>
<td>Total Carbohydrate 35g</td>
<td>12%</td>
</tr>
<tr>
<td>Dietary Fiber 5g</td>
<td></td>
</tr>
<tr>
<td>Sugars 23g</td>
<td></td>
</tr>
<tr>
<td>Protein 4g</td>
<td>8%</td>
</tr>
</tbody>
</table>

Percentages Daily Values (DV) are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.


NVS Scoring

0–1 suggests high likelihood (50% or more) of limited health literacy
0–2 indicates the possibility of limited health literacy
4–6 almost always indicates adequate health literacy
Screening Questions

- How often do you have someone help you read hospital materials?
  (always, often, sometimes, occasionally, never)
  AUROC of 0.87 (95% CI = 0.78, 0.96)\(^2\)
  AUROC of 0.83 (95% CI = 0.71, 0.96)\(^2\)

- How often do you have problems learning about your medical condition because of difficulty understanding written information?
  (always, often, sometimes, occasionally, never)
  AUROC of 0.76 (95% CI = 0.62, 0.90)\(^2\)
  AUROC of 0.78 (95% CI = 0.65, 0.89)\(^2\)

Single Item Literacy Screener (SILS)\(^{15}\)

- How often do you have someone help you when you read instructions, pamphlets, or other written material from your doctor or pharmacy?
  (1–never, 2–rarely, 3–sometimes, 4–often, and 5–always)
  Scores greater than 2 are considered positive
  AUROC of 0.78 (95% CI = 0.73, 0.83)
  Sensitivity 67%
  Specificity 82%

\(^{15}\) Answers that may indicate a problem with health literacy

\(^{15}\) SILS – How often do you need to have someone help you when you read instructions, pamphlets, or other written material from your doctor or pharmacy?
Brief Health Literacy Screening Tool (BRIEF)²⁷

- Developed from questions re Chew and colleagues and Wallace and colleagues along with a fourth question
- Investigated the tools efficacy at detecting inadequate and inadequate/marginal health literacy using the REALM and STOFHLA
- Implemented at the North Florida/South Georgia Veterans Health System (NFSGVHS).

BRIEF Questions²⁷

- How often do you have someone help you read hospital materials?
- How often do you have a problem understanding the written materials about your medical condition?
- How often do you have a problem understanding what is told to you about your medical condition? (1. Always, 2. Often, 3. Sometimes, 4. Occasionally, 5. Never)

BRIEF Scoring²⁷

<table>
<thead>
<tr>
<th>BRIEF</th>
<th>Score</th>
<th>Skills and Abilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited</td>
<td>4–12</td>
<td>Not able to read most low literacy health materials; will need repeated oral instructions; materials should be composed of illustrations or video tapes. Will need low literacy materials; may not be able to read a prescription bottle.</td>
</tr>
<tr>
<td>Marginal</td>
<td>13–16</td>
<td>May need assistance; may struggle with patient education materials.</td>
</tr>
<tr>
<td>Adequate</td>
<td>17–20</td>
<td>Will be able to read and comprehend most patient education materials.</td>
</tr>
</tbody>
</table>

BRIEF Results²⁷

- 79% sensitivity (95% CI, 70–87) inadequate skills
- 69% sensitivity (95% CI, 64–75) inadequate/marginal skills

Informal Methods

- Open-ended questions
- Upside Down Materials
Medications are a great indicator... 28

- Knowledge
- Identification of medication
- Medication list
- Medication label
- Calculations
- Medication errors

Patient’s say things like.... 28

- “I forgot my glasses.”
- “I have a headache and can’t focus.”
- “I don’t need to read through this now.”
  - “I’d like to discuss this with my children or family.”
  - “I’ll read it when I get home.”
  - “May I take the instructions home.”
- “Can you read this to me.”
- “I am too tired to read.”

Other clues... 28,10

- Noncompliance
- Poor Readers
- Incomplete Medical Histories
- Forms
- Skilled Listeners
- Indifference or Frustration

To Screen or Not to Screen

Patient Perspective

- Shame/Embarrassment
  - 89% comfortable71 / 97% recommend screening 12
  - 98.6% not shameful/satisfaction not affected72
  - >90% felt it helpful/22.6% did not want in chart14
  - 91% not embarrassed/73% believed it the patient’s responsibility70
- Timing/Individual Considerations
- Privacy/Confidentiality

To Screen or Not to Screen

Clinic Perspective

Universal Precautions77

- You can’t tell by looking
- Communicate clearly
- Confirm understanding