# THE RAPID ESTIMATE OF ADULT LITERACY IN MEDICINE (REALM)

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1. Background and rationale

A major objective of Health ABC is to examine the relationship of socioeconomic factors to both body composition and physical decline in old age. Although years of school completed is commonly used to represent educational attainment, it may not accurately reflect educational background, as the quality of education available varies substantially by geographic region, race, and possibly sex (especially in the 1930's). Several studies have found reading ability to vary widely within a given level of schooling and that grade-equivalent reading level correlates more strongly with health status than years of school completed.

Scores on common measures of cognitive function, the MMSE (from which the Teng 3MS is based) in particular, have been found to vary by educational attainment, largely independent of evidence for decline in function. While formulas exist to “adjust” for differences in education, a recent study found reading level to have a much stronger correlation with MMSE score than other sociodemographic variables including education and that education level makes only a small additional contribution to the regression equation predicting MMSE score. Thus, proper interpretation of scores on tests of cognitive function, such as the 3MS, would benefit from knowledge of participant reading level.

Assessment of reading level will also provide needed data for evaluating the appropriateness of particular instruments and questionnaires for our study population as well as the feasibility of using self-administered forms.

The REALM is a brief, highly reliable (retest correlations > .9), and well-validated word recognition based measure of reading level, targeted to identify low literacy. It consists of 66 common lay-medical terms of variable difficulty and takes 1 to 3 minutes to administer. The REALM provides broad grade-range estimates (0-3, 4-6, 7-8, and 9+) of reading level, but raw scores from zero to 66 may also be used. The REALM has been used in several studies involving patient and clinic populations and appears to be well-suited for use in a large-scale epidemiologic study.

2. Equipment and supplies

- Laminated REALM word list
- Hand-held magnifying lens
3. Safety issues and exclusions

Participants who have severe visual impairment, that is, those who are unable to see large print with a magnifying lens should be excluded. Exclusion for severe visual impairment should be recorded on the REALM data collection form (Question #6: “Was the REALM administered?” page 21 in the Year 3 Clinic Visit Workbook).

4. Participant and exam room preparation

Testing should be performed in a quiet, well-illuminated room with the participant seated. Participants should be asked whether they need glasses to read and if so, to wear them for testing. A hand-held magnifying lens may be used, if necessary.

5. Detailed measurement procedures

Ask the participant to be seated and to put on the glasses they normally use for reading or doing close work. Give the participant a laminated copy of the REALM (Card A of the Year 3 Clinic Visit Response Cards) and say: “This sheet contains words commonly used by doctors and their patients. Please read aloud as many words as you can from these three lists. Begin with the first word on List 1 and read aloud. When you come to a word you cannot read, do the best you can or say “skip” and go on to the next word.”

If the participant takes more than 5 seconds on a word, say “skip” and point to the next word, if necessary, to move the participant along. If the participant misses three words in a row, have them pronounce only known words.

Record whether the participant correctly pronounces the word, mispronounces the word, or does not attempt to say the word by filling in the appropriate bubble. Count as correct any self-corrected word.

Count the number of correct words and record the number on the data collection form. If the participant scores fewer than five words or refuses to take the test, they may not recognize letters well enough to take the vision exam.

Reference values:

<table>
<thead>
<tr>
<th>Raw Score</th>
<th>Grade Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-18</td>
<td>3rd grade and below</td>
</tr>
<tr>
<td>19-44</td>
<td>4th to 6th grade</td>
</tr>
<tr>
<td>45-60</td>
<td>7th to 8th grade</td>
</tr>
<tr>
<td>61-66</td>
<td>high school</td>
</tr>
</tbody>
</table>
6. Procedures for performing the measurements at home (if applicable)

Follow instructions for clinic administration.

7. Alert values/follow-up/reporting to participants

None.

8. Quality assurance

8.1 Training requirements

Examiners must be able to pronounce all words correctly and be familiar with acceptable alternative pronunciations.

8.2 Certification requirements

- Read and study manual
- Pronounce all 66 words correctly
- Conduct exam on two participants while being observed by the QC officer using the QC checklist
- Discuss problems and questions with local expert or QC officer

8.3 Quality assurance checklist

☐ Testing is done in a quiet, well-illuminated room
☐ Participant asked whether they need glasses to read, and if so, to wear them for testing
☐ Recites instructions correctly
☐ No more than 5 seconds given to participant to say a word before examiner says “skip” and points to the next word
☐ Participant is asked to read only known words if they miss three words in a row
☐ Number of correct words recorded on the data collection form
☐ Correctly completes form
☐ Checks form for completeness
9. References


