4

Assessing Suitability of Materials

"What is the best way to be sure that the materials are suitable for my patients?"

How suitable are your patient education materials? Are your patients likely to understand them? To accept them? This chapter describes practical ways to analyze the suitability of materials so you can continue to use them with confidence, or have evidence of the need for revision. Another method for evaluation—using patients to assess suitability of materials—is given in Chapter 10, under Learner Verification and Revision of Materials.

An Overview of Testing Methods

The need to assess the suitability of materials has been with us for a long time. Text readability formulas made their appearance during the 1920s and received much elaboration over the next seven decades.[1] Flesch (1946) offered a mathematical "yardstick" for written materials based on the number of words, sentences, affixes, and personal references.[2] Jonassen (1982) suggests a 20-step evaluation process for books and booklets that relies on elaboration theory.[3] The U.S. Department of Agriculture, WIC nutrition program (1991), presents a 23-item evaluation list for text, and a 21-item list for audiovisual materials.[4] Wileman (1993) addresses visual design evaluation via a 13-point checklist.[5]

Recent reports from the National Adult Literacy Surveys (NALS) briefly explain the criteria to rate the difficulty of written materials used in the literacy testing of the US population.[6] Unfortunately, the NALS reports offer no easy-to-use "formula" suitable to rate health care pamphlets or booklets to score them on the 0 to 500 scale.

Computer-aided instruction (CAI), multimedia, hypertext, hypermedia: these instructional formats may be helpful in teaching patients with low literacy skills. How can patient education materials in these media be assessed? At this point the reader may be thinking, "Why bother? I don't even know what these all mean, and I don't use them to teach patients." We would respond that, perhaps not today, but with the forces of technology and cost containment advancing so rapidly, you can expect to be using at least some of these media within the next few years. These media are evolving so rapidly they present a difficult moving target for any one evaluation method. Although Skinner (1993) offers guidelines for selecting CAI programs, and Thompson (1992) presents a list of factors to consider in learning displays, a widely agreed upon assessment method is yet to be developed.[7,8]

For this chapter, the authors have selected the most practical current assessment methods. The following three easy-to-learn methods can be used to assess the difficulty and suitability of patient education materials:

1. A checklist of attributes
2. Analysis via readability formulas
3. Analysis using SAM (Suitability Assessment of Materials), a new instrument

The three methods progress from an informal checklist of attributes of print materials to a more rigorous and quantified evaluation of materials in any medium using SAM. Before using any new patient instruction, health educators should consider assessing it using at least one of these methods.

An assessment using the checklist takes less than 15 minutes. Readability formulas can be learned and applied in 10 to 15 minutes and provide a grade-level measure of the reading difficulty of a material. The SAM instrument can be used immediately after reading the directions and takes 30 to 45 minutes to apply to a material. By acquiring the skills presented in this chapter you will be able to answer, with confidence, the following kinds of questions:

- What is the reading difficulty of this written health material? Is the reading level too difficult for my patients?
- Due to budget cuts, I can afford to order quantities of only one new pamphlet. I must select one that is suitable for nearly all my patients. Among the many offered, which one should I buy?
- How can I assess materials for a wide range of suitability factors, including cultural factors?
- How can I decide on the suitability of video- and audiotaped instructions?

An Assessment Checklist

The 17-item checklist (Figure 4-1) is one of the easiest and quickest ways to assess appropriateness of a material for patients. If you have to make a selection among a number of health care instructions, the list offers a quick way to screen to sort out the good from the not so good.

FIGURE 4-1

Checklist for print materials. (*Source:* Area Health Education Center, Biddeford, Maine)

Title of material:_____

Directions: Place a check next to each item that meets the described attribute.

ORGANIZATION

- ❒ 1. The cover is attractive. It indicates the core content and intended audience.
- ❒ 2. Desired behavior changes are stressed. "Need to know" information is stressed.
- ❒ 3. Not more than three or four main points are presented.
- ❒ 4. Headers and summaries are used to show organization and provide message repetition.
- ❒ 5. A summary that stresses what to do is included.

WRITING STYLE

- ❒ 6. The writing is in conversational style, active voice.
- ❒ 7. There is little or no technical jargon.
- ❒ 8. Text is vivid and interesting. Tone is friendly.

APPEARANCE:

- ❒ 9. Pages or sections appear uncluttered. Ample white spaces.
- ❒10. Lowercase letters used (capitals used only where grammatically needed).
- ❒11. There is a high degree of contrast between the print and the paper.
- ❒12. Print size is at least 12 point, serif type, and no stylized letters.
- ❒13. Illustrations are simple—preferably line drawings.
- ❒14. Illustrations serve to amplify the text.

APPEAL

- ❒15. The material is culturally, gender, and age appropriate.
- ❒16. The material closely matches the logic, language, and experience of the intended audience.
- ❒17. Interaction is invited via questions, responses, suggested action, etc.

As you read the material to be assessed, check off each of the attributes in Figure 4-1 found in the material. Any that are missing will indicate a potential deficiency in suitability. If the material is in the draft phase it can be revised. If the material has already been published and cannot easily be revised, the deficiencies point to where supplemental teaching may be required.

When using the checklist in Figure 4-1, you may find that some parts of the material possess an attribute, while other parts do not. For example, when considering item 13 on the checklist, one illustration might be simple and easy to understand, but another might be a copy from a medical textbook and far too complex. Resolve the dilemma on the basis of how important the illustrations are. If the complex illustration is *not* essential to understanding the key points of the material, then it does less harm and this favorable attribute on illustrations can be checked.

Readability Formulas

Readability formulas offer the health care provider an easy-to-use method to assess the reading difficulty of most print materials. In this section you will learn to use a readability formula.

What do they measure?

Readability formulas can be applied to prose—that is, running text—but not to tables, charts, or word lists. At least 40 different readability formulas are reported in the literature. Most of the 40 formulas are based on just two factors: word difficulty and sentence length. These formulas say that: "The greater the number of multi-syllable words, the greater the reading difficulty. Also, the longer the sentences, the greater the reading difficulty." Differences among the many formulas are mostly in the sample size and in the mathematical coefficients applied to the two factors.

Application of these two factors in a readability formula provides a grade-level rating. You can then compare the readability level of the material(s) with the reading skills of your patient population to determine suitability. (See Chapter 1 for data on literacy; Chapter 3 for methods to measure the reading skills of your patients.)

Knowing how to determine the readability level of your materials is critical to you and to your patients. You cannot afford to "fly blind." As noted in Chapter 1, the authors have found that health materials at college levels are often given to all patients—including those who have low and marginal reading skills. (See also Figure 6-1 in Chapter 6.) Is it any wonder that patients do not understand? That they do not follow directions for taking medications? That they miss their appointments?

Assessing readability using the Fry formula

Nearly all the 40+ readability formulas provide a reasonably accurate grade level (typically plus or minus one grade level with a 68-percent confidence factor). Among these formulas, the authors recommend the Fry formula. The Fry is widely accepted in the reading literature and among reading professionals and is not copyrighted. This formula applies from grade 1 through grade 17, and compared to some formulas, the Fry does not require as extensive a test sample.

It is not necessary to test the readability of every word and sentence. This would be especially tedious in a long booklet. Instead, test three samples from different parts of the instruction. For a very long text, such as a book of 50 pages or more, double the number to six samples.

Select a piece of material that you customarily use with your patients/clients and follow the five steps given below to determine its reading level using the Fry formula.[9]

Detailed directions

1. **Select three 100-word passages from the material you wish to test.** Count out exactly 100 words for each passage, starting with the first word of a sentence. (Omit headings.) If you are testing a very short pamphlet that may have only a few hundred words, select a single 100-word sample to test.

   Readability levels may vary considerably from one part of your material to another. Therefore, select the three samples from different content topics, if possible. For example, if a pamphlet includes such topics as the disease process, treatment options, and actions the patient should take, select one sample from each of these topics.

   Additional information:

   - Count proper nouns. Hyphenated words count as one word.
   - A word is defined as a group of symbols with a space on either side; thus "IRA," "1994," and "&" are each one word.

2. **Count the number of *sentences* in each 100 words, estimating the fractional length of the last sentence to the nearest 1/10.** For example, if the 100th word occurs 5 words into a 15-word sentence, the fraction of the sentence is 5/15 or 1/3 or 0.3.

3. **Count the total number of *syllables* in each 100-word passage.** You can count by making a small check mark over each syllable. For initializations (e.g., IRA) and numerals (e.g., 1994), count 1 syllable for each symbol. So "IRA" = 3 syllables and "1994" = 4 syllables.

   There is a short cut to counting the syllables. Since each 100-word sample must have at least 100 syllables, skip the first syllable in each word. Don't count it; just add 100 after you finish the count. Count only the remaining syllables (that are greater than one) in the 100-word sample. Thus, you don't put check marks over any of the one-syllable words; you put only one check over each two-syllable word, two checks over three-syllable words, and so forth.

   Occasionally you may be in doubt as to the number of syllables in a word. Resolve the doubt by placing a finger under your chin, say the word aloud, and count the number of times your chin drops. Each chin drop counts as a syllable.

4. **Calculate the average number of sentences and the average number of syllables from the three passages.** This is done by dividing the totals obtained from the three samples by 3 as shown in the example below.

Example:

	NUMBER OF SENTENCES	NUMBER OF SYLLABLES
1st 100 words	5.9	124
2nd 100 words	4.8	141
3rd 100 words	6.1	158
Totals	*16.8*	*423*
Divide Totals by 3:	5.6 Average	141 Average

5. **Refer to the Fry graph.** On the horizontal axis, find the line for the *average number of syllables* (141 for above example). On the vertical axis find the line for the *average number of sentences* (5.6 for the example). The readability grade level of the material is found at the point where the two lines intersect.

   In the example above, the Fry chart shows the readability level at the 8th grade (see dot at the intersection in Figure 4-2). The curved line through the center of the Fry graph shows the locus of greatest accuracy. With a little practice, the five-step process will become much easier. You will soon be able to determine a readability level in less than 10 minutes.

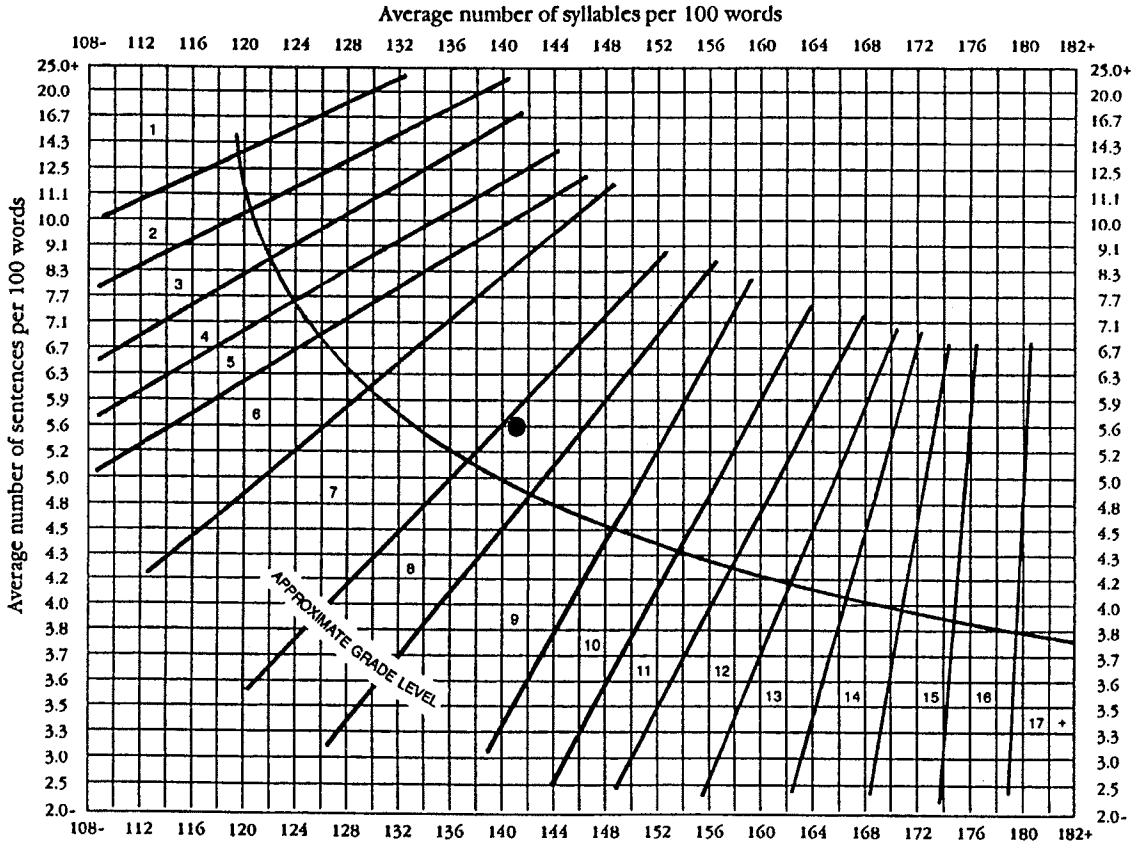

FIGURE 4-2

Fry graph for estimating readability—extended

Readability formulas: an important predictor

Fry and other readability authorities point out that the formulas predict the level of reading difficulty, but not all of the causes. The two factors assessed by the formulas, long sentences and difficult vocabulary, are recognized as only two among many. Nonetheless, the formulas are widely used and are an important predictor of overall suitability of patient instructions.

The authors have found a strong correlation between the readability level and the SAM instrument described later in this chapter. Although readability level is only one of the 22 SAM factors, it is pivotal. If readability is high (difficult), the overall SAM score is usually low (less suitable). The converse is also true.

Readability assessment by computer programs

At this writing, at least a dozen computer programs are on the market to assess readability.[10,11] The cost of these programs is less than US$100 each. If you have one of these computer programs, you can obtain a readability measure at the stroke of a key for any text material stored in the computer. The programs provide a range of other useful information as well. They may indicate violations of grammar rules such as a noun-verb mismatch, style rules such as active/passive voice, usage rules such as legalese, lists of "uncommon" words, and punctuation rules such as unnecessary or missing commas. They may suggest alternative words for you to consider and most of them offer corrected spelling.

For materials not already stored in your computer, it may be quicker to use the Fry formula as described above rather than to type the text into your computer.

Readability formulas for other languages

Readability formulas for text are currently available in at least 12 languages other than English. The languages include Chinese, Danish, Dutch, French, German, Hebrew, Hindi, Korean, Russian, Spanish, Swedish, and Vietnamese. For many of these languages, especially Spanish and German, you have a choice among several formulas.

The two variables used in formulas for English-language text, the number of syllables and length of the sentences, are used in most formulas for other languages as well. Some of these employ additional variables such as the number of words that separate the subject from the verb. Zakaluk and Samuels (1988) provide guidance on the selection and use of these formulas.[12]

A readability goal for your instructions

You may ask, "What is a reasonable readability goal? How low does it have to be?" The answer is to make it as low as practical without sacrificing important content or writing style. It is better to use conversational writing style

even though you might squeeze your text a little lower on the readability scale using short, choppy sentences. Write for the patient, not for the formula.

The 6th-grade level is a reasonable goal for most health care instructions. About 75 percent of adult Americans will be able to read at this level without difficulty. If you want to make the instruction easily readable by 90 percent of adult Americans, it must be written at about the 3rd-grade level. Methods and examples of writing at low readability levels are presented in Chapter 6.

A frequently asked question is, "But won't good readers feel talked down to by instructions that have a low reading level?" Frederickson (1994) and others have shown that adults at all reading skill levels prefer and learn better with easy-to-read instructions.[13]

Factors beyond the readability formulas

At this point it is well to mention some attributes of print materials that are not included in the formulas but affect reading difficulty. (These are included in the checklist presented in Figure 4-1 and in the SAM instrument shown in the following pages.) The attributes include:

- **The print size and type style.** Print size on some health care materials may be so small that it is readable only by those with good eyesight. (See Chapter 6, Writing the Message, for type styles that are easiest to read.)
- **Color contrast between the ink and the paper.** Some materials have hues of artistic appeal (brown ink on tan paper), but these provide poor contrast which makes reading difficult.
- **The self-efficacy factor.** Does it look hard to read? A page of solid text may, by its appearance alone, discourage any reader.
- **The concept density.** Are many concepts and facts jammed into each paragraph—even in paragraphs with low readability scores?
- **Unfamiliar context.** Medical and scientific contexts are not familiar milieus for millions of patients. The meaning of common words may not be understood when used in an unfamiliar context. This is illustrated in the example that follows—from outside the health care field.

Consider these common words:

squares	combined	within
variance	divided	estimate
degrees	interaction	cells
freedom	sums	circumstances

Taken separately, a good reader will probably know the meaning for each of these words. However, if these words appear in a text about statistics (like the one below), many good readers suddenly feel illiterate—at least on this subject.

Under certain circumstances the within-cells and the interaction sums of squares may be added together and divided by the combined degrees of freedom to obtain an estimate of the variance based on a larger number of degrees of freedom.

The sentence presents these words in an unfamiliar context for most of us, and includes a large number of concepts and facts as well. A parallel can be drawn from this statistical example to health instructions. In health messages, it is not only the medical or technical words that may cause trouble, but also the more common words when used in unfamiliar contexts.

Suitability Assessment of Materials (SAM)

A dilemma facing many health care providers is how to systematically assess the suitability of a health care instruction for a given patient population, and do it in the short time available. The authors recognize that an ideal way is to evaluate the instruction with a sample of the intended audience, but often there is neither time nor resources for that. The assessment must be made analytically "at your desk."

Our response to this dilemma was to develop and validate SAM: a suitability assessment of materials instrument.[14] Validation was conducted with 172 health care providers from several cultures.[15] The cultures included Southeast Asians, Native Americans, and African Americans as well as students and faculty from the University of North Carolina School of Public Health and Johns Hopkins School of Medicine.

SAM was originally designed for use with print material and illustrations, but it has also been applied successfully to video- and audiotaped instructions. For each material, SAM provides a numerical score (in percent) that may fall in one of three categories: superior, adequate, or not suitable.

There is a continuing need for more comprehensive evaluation instruments. For instance, one can expect that in the near future a computer program will be developed that will evaluate instructions in text, visuals, audio/verbal, interactive television, multimedia, and combinations of these. Until such a program is developed, SAM is a logical step toward meeting that need.

The application of SAM can pinpoint specific deficiencies in an instruction that reduce its suitability. If the material is still in its developmental stage, these deficiencies can be corrected. If the material is already in use, the deficiencies indicate what supplemental instructions (perhaps verbal explanations) are needed.

Using SAM to evaluate a health care instruction

To use SAM for the first time, follow the six steps below:

1. Read through the SAM factor list and the evaluation criteria.
2. Read the material (or view the video) you wish to evaluate and write brief statements as to its purpose(s) and key points.
3. For short instructions, evaluate the entire piece. For long instructions, select samples to evaluate.
4. Evaluate and score each of the 22 SAM factors.
5. Calculate total suitability score.
6. Decide on the impact of deficiencies and what action to take.

The entire process to evaluate your instructional material should take 30 to 45 minutes the first time through. For subsequent applications of SAM, you may skip the first step because the SAM factors and criteria will be already familiar to you.

For a first-time use of SAM, we suggest you test a simple, short material that has only a few illustrations.

1. **Read the SAM instrument and the evaluation criteria.**
2. **Read the material to be assessed.** Read (or view) the material you plan to evaluate. It will help if you write brief statements as to its purpose(s) and its key points. Refer to these as you evaluate each SAM factor. Use a note pad to jot down comments and observations as you read the material, view the video, or listen to the audiotape.
3. **The sampling process for SAM is somewhat similar to that described earlier for selecting samples to apply a readability formula.** If you are applying SAM to a short material such as a single-page instruction or a typical pamphlet (twofold or threefold), assess the entire instruction. Similarly, for audio- and videotaped instructions of less than 10 minutes, evaluate the entire instruction.

   To apply SAM to a longer text, such as a booklet, select three pages that deal with topics central to the purpose of the booklet. For booklets of more than 50 pages, increase the sample size to six pages. For video- or audiotaped instructions exceeding 10 minutes, select topics in 2-minute blocks from the beginning, middle, and end sections of the video or audio presentation.
4. **Evaluate material vs. criteria for each factor, decide on its rating, and record it on the score sheet.** As you seek to evaluate your material against each factor, you are likely to find wide variation among different parts of your material. For any one factor, some parts may rate high (superior) while other parts of the same material rate low (unsuitable). For example, some illustrations may include captions while others do not. Resolve this dilemma by giving most weight to the part of your material that includes the key points that you previously identified in step 2 above.

   Materials that meet the superior criteria for a factor are scored 2 points for that factor; adequate receives 1 point; not suitable receives a zero. For factors that do not apply, write N/A. Use the SAM scoring sheet shown in Figure 4-3 to record your score for each of the 22 factors and to guide you in calculating the overall rating in percent.
5. **Calculate the total suitability score.** When you have evaluated all the factors, and written a score for each one on the score sheet, add up the scores to obtain a total score. Spaces to do this are provided on the score sheet. The maximum possible total score is 44 points (100 percent)—a perfect rating, which almost never happens. A more typical example: if the total score for your material is 34, your percent score is 34/44 or 77 percent.

   For some instructional materials, one or more of the 22 SAM factors may not apply. For example, for an audiotape or a videotape, the text readability

FIGURE 4-3

SAM scoring sheet

2 points for superior rating
1 point for adequate rating
0 points for not suitable rating
N/A if the factor does not apply to this material

FACTOR TO BE RATED	SCORE	COMMENTS
1. CONTENT		
(a) Purpose is evident	____	_____
(b) Content about behaviors	____	_____
(c) Scope is limited	____	_____
(d) Summary or review included	____	_____
2. LITERACY DEMAND		
(a) Reading grade level	____	_____
(b) Writing style, active voice	____	_____
(c) Vocabulary uses common words	____	_____
(d) Context is given first	____	_____
(e) Learning aids via "road signs"	____	_____
3. GRAPHICS		
(a) Cover graphic shows purpose	____	_____
(b) Type of graphics	____	_____
(c) Relevance of illustrations	____	_____
(d) List, tables, etc. explained	____	_____
(e) Captions used for graphics	____	_____
4. LAYOUT AND TYPOGRAPHY		
(a) Layout factors	____	_____
(b) Typography	____	_____
(c) Subheads ("chunking") used	____	_____
5. LEARNING STIMULATION, MOTIVATION		
(a) Interaction used	____	_____
(b) Behaviors are modeled and specific	____	_____
(c) Motivation—self-efficacy	____	_____
6. CULTURAL APPROPRIATENESS		
(a) Match in logic, language, experience	____	_____
(b) Cultural image and examples	____	_____

Total SAM score:_____

Total possible score:_____, Percent score:_____%

level (factor 2a) does not apply. To account for SAM factors that occasionally may not apply to a particular material, subtract 2 points for each N/A from the 44 total. Let's do that using the example from the paragraph above. If you arrived at a total score of 34 as noted above, but had one N/A factor, subtract 2 points from 44 to a revised maximum score of 42. Thus, the percent rating would become 34/42, for a rating of 81 percent.

Interpretation of SAM percentage ratings:

70–100 percent	superior material
40–69 percent	adequate material
0–39 percent	not suitable material

6. **Evaluate the impact of deficiencies; decide on revisions.** A deficiency, especially an "unsuitable" rating, in any of the 22 factors is significant. Many of these can be readily overcome by revising a draft material or by adding a supplemental instruction to a material already published. However, factors in two of the groups, the readability level and cultural appropriateness, must be considered as potential go–no/go signals for suitability regardless of the overall rating.

   For example, except in the rare cases where an instruction contains a set of illustrations that replicate the entire message given in the text, a written instruction with a very high readability level will not be understood and is unsuitable. Similarly, a material that portrays an ethnic group in an inappropriate way is almost surely unsuitable because it is likely to be rejected by members of that ethnic group.

SAM evaluation criteria

1. Content

A. Purpose

Explanation: It is important that readers/clients readily understand the intended purpose of the instruction for them. If they don't clearly perceive the purpose, they may not pay attention or may miss the main point.

Superior	Purpose is explicitly stated in title, or cover illustration, or introduction.
Adequate	Purpose is not explicit. It is implied, or multiple purposes are stated.
Not suitable	No purpose is stated in the title, cover illustration, or introduction.

B. Content topics

Explanation: Since adult patients usually want to solve their immediate health problem rather than learn a series of medical facts (that may only *imply* a solution), the content of greatest interest and use to clients is likely to be behavior information to help solve their problem.

Superior	Thrust of the material is application of knowledge/skills aimed at desirable reader behavior rather than nonbehavior facts.
Adequate	At least 40 percent of content topics focus on desirable behaviors or actions.
Not suitable	Nearly all topics are focused on nonbehavior facts.

C. SCOPE

Explanation: Scope is limited to purpose or objective(s). Scope is also limited to what the patient can reasonably learn in the time allowed.

Superior	Scope is limited to essential information directly related to the purpose. Experience shows it can be learned in time allowed.
Adequate	Scope is expanded beyond the purpose; no more than 40 percent is nonessential information. Key points can be learned in time allowed.
Not suitable	Scope is far out of proportion to the purpose and time allowed.

D. SUMMARY AND REVIEW

Explanation: A review offers the readers/viewers a chance to see or hear the key points of the instruction in other words, examples, or visuals. Reviews are important; readers often miss the key points upon first exposure.

Superior	A summary is included and retells the key messages in different words and examples.
Adequate	Some key ideas are reviewed.
Not suitable	No summary or review is included.

2. *Literacy demand*

A. READING GRADE LEVEL (FRY FORMULA)

Explanation: Unless the instruction presents the topics completely without text (via visual, demonstrations, and/or audio), the text reading level may be a critical factor in patient comprehension. Reading formulas can provide a reasonably accurate measure of reading difficulty.

Superior	5th-grade level or lower (5 years of schooling level).
Adequate	6th-, 7th-, or 8th-grade level (6–8 years of schooling level).
Not suitable	9th-grade level and above (9 years or more of schooling level).

B. WRITING STYLE

Explanation: Conversational style and active voice lead to easy-to-understand text. Example: "Take your medicine every day." Passive voice is less effective. Example: "Patients should be advised to take their medicine every day." Embedded information, the long or multiple phrases included in a sentence, slows down the reading process and generally makes comprehension more difficult.

Superior	Both factors: (1) Mostly conversational style and active voice. (2) Simple sentences are used extensively; few sentences contain embedded information.
Adequate	(1) About 50 percent of the text uses conversational style and active voice. (2)Less than half the sentences have embedded information.
Not suitable	(1) Passive voice throughout. (2)Over half the sentences have extensive embedded information.

C. Vocabulary

Explanation: Common, explicit words are used (for example, doctor vs. physician). The instruction uses few or no words that express general terms such as categories (for example, legumes vs. beans), concepts (for example, normal range vs. 15 to 70), and value judgments (for example, excessive pain vs. pain lasts more than 5 minutes). Imagery words are used because these are words people can "see" (for example, whole wheat bread vs. dietary fiber; a runny nose vs. excess mucus).

Superior	All three factors: (1) Common words are used nearly all of the time. (2) Technical, concept, category, value judgment (CCVJ) words are explained by examples. (3) Imagery words are used as appropriate for content.
Adequate	(1) Common words are frequently used. (2) Technical and CCVJ words are sometimes explained by examples. (3) Some jargon or math symbols are included.
Not suitable	Two or more factors: (1) Uncommon words are frequently used in lieu of common words. (2) No examples are given for technical and CCVJ words. (3) Extensive jargon.

D. In sentence construction, the context is given before new information

Explanation: We learn new facts/behaviors more quickly when told the context first. Good example: "To find out what's wrong with you (the context first), the doctor will take a sample of your blood for lab tests" (new information).

Superior	Consistently provides context before presenting new information.
Adequate	Provides context before new information about 50 percent of the time.
Not suitable	Context is provided last or no context is provided.

E. Learning enhancement by advance organizers (road signs)

Explanation: Headers or topic captions should be used to tell very briefly what's coming up next. These "road signs" make the text look less formidable, and also prepare the reader's thought process to expect the announced topic.

Superior	Nearly all topics are preceded by an advance organizer (a statement that tells what is coming next).
Adequate	About 50 percent of the topics are preceded by advance organizers.
Not suitable	Few or no advance organizers are used.

3. *Graphics (illustrations, lists, tables, charts, graphs)*

A. COVER GRAPHIC

Explanation: People *do* judge a booklet by its cover. The cover image often is the deciding factor in a patient's attitude toward, and interest in, the instruction.

Superior	The cover graphic is (1) friendly, (2) attracts attention, (3) clearly portrays the purpose of the material to the intended audience.
Adequate	The cover graphic has one or two of the superior criteria.
Not suitable	The cover graphic has none of the superior criteria.

B. TYPE OF ILLUSTRATIONS

Explanation: Simple line drawings can promote realism without including distracting details. (Photographs often include unwanted details.) Visuals are accepted and remembered better when they portray what is familiar and easily recognized. Viewers may not recognize the meaning of medical textbook drawings or abstract art/symbols.

Superior	Both factors: (1) Simple, adult-appropriate, line drawings/sketches are used. (2) Illustrations are likely to be familiar to the viewers.
Adequate	One of the superior factors is missing.
Not suitable	None of the superior factors are present.

C. RELEVANCE OF ILLUSTRATIONS

Explanation: Nonessential details such as room background, elaborate borders, unneeded color can distract the viewer. The viewer's eyes may be "captured" by these details. The illustrations should tell the key points visually.

Superior	Illustrations present key messages visually so the reader/viewer can grasp the key ideas from the illustrations alone. No distractions.
Adequate	(1) Illustrations include some distractions. (2) Insufficient use of illustrations.
Not suitable	One factor: (1) Confusing or technical illustrations (nonbehavior related). (2) No illustrations, or an overload of illustrations.

D. GRAPHICS: LISTS, TABLES, GRAPHS, CHARTS, GEOMETRIC FORMS

Explanation: Many readers do not understand the author's purpose for the lists, charts, and graphs. Explanations and directions are essential.

Superior Step-by-step directions, with an example, are provided that will build comprehension and self-efficacy.
Adequate "How-to" directions are too brief for reader to understand and use the graphic without additional counseling.
Not suitable Graphics are presented without explanation.

E. CAPTIONS ARE USED TO "ANNOUNCE"/EXPLAIN GRAPHICS

Explanation: Captions can quickly tell the reader what the graphic is all about, where to focus within the graphic. A graphic without a caption is usually an inferior instruction and represents a missed learning opportunity.

Superior Explanatory captions with all or nearly all illustrations and graphics.
Adequate Brief captions used for some illustrations and graphics.
Not suitable Captions are not used.

4. Layout and typography

A. LAYOUT

Explanation: Layout has a substantial influence on the suitability of materials.

Superior At least five of the following eight factors are present:

1. Illustrations are on the same page adjacent to the related text.
2. Layout and sequence of information are consistent, making it easy for the patient to predict the flow of information.
3. Visual cuing devices (shading, boxes, arrows) are used to direct attention to specific points or key content.
4. Adequate white space is used to reduce appearance of clutter.
5. Use of color supports and is not distracting to the message. Viewers need not learn color codes to understand and use the message.
6. Line length is 30–50 characters and spaces.
7. There is high contrast between type and paper.
8. Paper has nongloss or low-gloss surface.

Adequate At least three of the superior factors are present.
Not suitable (1) Two (or less) of the superior factors are present. (2) Looks uninviting or discouragingly hard to read.

B. TYPOGRAPHY

Explanation: Type size and fonts can make text easy or difficult for readers at all skill levels. For example, type in ALL CAPS slows everybody's reading comprehension. Also, when too many (six or more) type fonts and sizes are used on a page, the appearance becomes confusing and the focus uncertain.

Superior The following four factors are present:

1. Text type is in uppercase and lowercase serif (best) or sans-serif.
2. Type size is at least 12 point.
3. Typographic cues (bold, size, color) emphasize key points.
4. No ALL CAPS for long headers or running text.

Adequate Two of the superior factors are present.
Not suitable One or none of the superior factors are present. Or, six or more type styles and sizes are used on a page.

C. SUBHEADINGS OR "CHUNKING"

Explanation: Few people can remembering more than seven independent items. For adults with low literacy skills the limit may be three- to five-item lists. Longer lists need to be partitioned into smaller "chunks."

Superior (1) Lists are grouped under descriptive subheadings or "chunks." (2) No more than five items are presented without a subheading.
Adequate No more than seven items are presented without a subheading.
Not suitable More than seven items are presented without a subheading.

5. *Learning stimulation and motivation*

A. INTERACTION INCLUDED IN TEXT AND/OR GRAPHIC

Explanation: When the patient responds to the instruction—that is, does something to reply to a problem or question—chemical changes take place in the brain that enhance retention in long-term memory. Readers/viewers should be asked to solve problems, to make choices, to demonstrate, etc.

Superior Problems or questions presented for reader responses.
Adequate Question-and-answer format used to discuss problems and solutions (passive interaction).
Not suitable No interactive learning stimulation provided.

B. DESIRED BEHAVIOR PATTERNS ARE MODELED, SHOWN IN SPECIFIC TERMS

Explanation: People often learn more readily by observation and by doing it themselves rather than by reading or being told. They also learn more readily when specific, familiar instances are used rather than the abstract or general.

Superior Instruction models specific behaviors or skills. (For example, for nutrition instruction, emphasis is given to changes in eating patterns or shopping or food preparation/cooking tips; tips to read labels.)

Adequate	Information is a mix of technical and common language that the reader may not easily interpret in terms of daily living (for example: *Technical:* Starches—80 calories per serving; High Fiber—1–4 grams of fiber in a serving).
Not suitable	Information is presented in nonspecific or category terms such as the food groups.

C. MOTIVATION

Explanation: People are more motivated to learn when they believe the tasks/behaviors are doable by them.

Superior	Complex topics are subdivided into small parts so that readers may experience small successes in understanding or problem solving, leading to self-efficacy.
Adequate	Some topics are subdivided to improve the readers' self-efficacy.
Not suitable	No partitioning is provided to create opportunities for small successes.

6. Cultural appropriateness

A. CULTURAL MATCH: LOGIC, LANGUAGE, EXPERIENCE (LLE)

Explanation: A valid measure of cultural appropriateness of an instruction is how well its logic, language, and experience (inherent in the instruction) match the LLE of the intended audience. For example, a nutrition instruction is a poor cultural match if it tells readers to eat asparagus and romaine lettuce if these vegetables are rarely eaten by people in that culture and are not sold in the readers' neighborhood markets.

Superior	Central concepts/ideas of the material appear to be culturally similar to the LLE of the target culture.
Adequate	Significant match in LLE for 50 percent of the central concepts.
Not suitable	Clearly a cultural mismatch in LLE.

B. CULTURAL IMAGE AND EXAMPLES

Explanation: To be accepted, an instruction must present cultural images and examples in realistic and positive ways.

Superior	Images and examples present the culture in positive ways.
Adequate	Neutral presentation of cultural images or foods.
Not suitable	Negative image such as exaggerated or caricatured cultural characteristics, actions, or examples.

In summary, the SAM offers a systematic method to assess suitability of materials. In about 30 minutes you can obtain a numerical suitability score that you can use to decide whether or not a material is suitable for your patient population.

When making an evaluation using SAM, or using the checklist presented earlier in this chapter, you may have uncovered one or more specific deficiencies. If so, decide on how critical the deficiencies are to patient comprehension and acceptance of the key messages of your material. Guidance for making this decision may be found in Chapters 2 and 5. To overcome the deficiencies, you will find specific details related to each instructional media in the following chapters: Chapter 6 for written materials, Chapter 7 for visuals and graphics, and Chapter 8 for videotapes, audiotapes, and multimedia.

Summary

The health care "culture" relies heavily on written instructions. These may be assessed by using a checklist of attributes that define easy-to-read materials. Another assessment worth making is to test the material using a readability formula. If you assess the readability and suitability of your health care instructions, you are more likely to provide instructions your patients will understand.

Materials that have readability levels of 9th grade or higher need to be rewritten to make them understandable by most Americans. If the materials are not rewritten, supplemental instruction will be needed by most patients when the material is used.

The suitability of a written material depends on many factors. Although readability formulas measure only a few of these characteristics, the reading level is usually a "go–no/go" criterion to predict patient comprehension of the material.

Consider using the SAM instrument to obtain a numerical rating that covers the many other suitability factors not included in readability formulas. SAM addresses suitability in terms of content, literacy demand, graphics, layout, learning stimulation/motivation, and culture of the intended audience.

It is important to note that the assessment methods presented in this chapter use analytical methods exclusively. Another method of assessment—using patients to test the suitability of the material—is presented in Chapter 10, Learner Verification and Revision (LVR) of Materials.

Actions you can take during the next 90 days

- Use the checklist to screen three of your frequently used health care instructions.
- Test the readability of 10 of your written health care materials and record the grade level on the back of each piece. Share this with your colleagues.
- Compare the readability levels of the 10 materials with the reading levels of the adult population of the United States by referring to literacy data in Figure 1-1. Determine how many of the 10 instructions are "over the heads" of at least half the U.S. adult population in terms of reading skills.
- Use the SAM instrument to evaluate the suitability of one of your frequently used health care instructions.

- Use the information from the actions above to fashion a response to the new JCAHO requirement directives for patient understanding.
- Form a small committee at your health care organization to evaluate all new health care instructions.

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