Abstract

This paper provides strategies to improve communication between clinicians and patients, particularly patients who are among the 44 million adult Americans with low literacy skills. Included are insights into the nature of the literacy problem and how it affects patient comprehension of information across the continuum of cancer care. Practical strategies address how to help patients understand medical advice, reduce literacy levels of cancer information, and help patients remember the advice given. A summary of the strategies is included in the Appendix for convenient reference.

Introduction

For many patients, lack of literacy skills is a major obstacle to effective health care communication. On average, 20% of the adult population in the United States has low literacy skills or reads at or below the fifth grade level. This means that many individuals cannot understand health messages and therefore cannot act upon them. Individuals with poor reading skills often have poorer health, higher medical expenses, and an increased number of hospital and outpatient visits compared with those who have a higher literacy level.

Weiss and Coyne point out that persons with low literacy skills vary greatly. Many are older; others are immigrants who speak English only as a second language. Although more white Americans have limited literacy skills, a disproportionate number of those with low literacy skills are members of minority groups. Even though they may not be aware of it, clinicians probably encounter patients with limited literacy on a daily basis; the literacy limitations of such patients are rarely obvious.

Awareness of a possible communication gap can direct clinicians to anticipate this obstacle and implement strategies to help patients better understand medical advice and instructions. Moreover, the same strategies that help low literacy patients will also help highly literate patients. For illustrative purposes, the subject of breast cancer and female gender are used in the examples in the following pages, but the content applies to both genders.
Impact of Patient Literacy Skills on Understanding Medical Advice

Low literacy affects all types of communication—written, oral, and visual. Patients with low literacy skills deal with communication differently than do those with higher levels. Table 1 illustrates communication differences as a function of literacy skills.

Those with low literacy skills may guess their way through an instruction. They may read so slowly that they miss the context and reach an incorrect conclusion, such as “It says that if you have a mammogram you may have to have your breast taken off.” When receiving oral advice, they may “tune out” while trying to understand what was said earlier. Lack of fluency makes it difficult for many patients to ask questions and seek information that is available and could be beneficial. Combined with fear that their low literacy may be found out, these communication differences become significant barriers to comprehension.

A final point to consider is that individuals with low literacy skills often seek their information from sources other than print materials. They have acquired information and learning skills through television and radio, personal experience, demonstration, and oral explanations. Thus, clinicians should use a variety of methods and media to meet their patients’ learning needs.

Mismatch Between Patients and Medical Advice

Over the past 25 years, research on how best to provide health information to patients has seen dramatic growth, support, and interest. Much of this empirical research is the basis of the practical recommendations given in this article.

We recognize that clinicians cannot change some factors affecting the effectiveness of health communications, such as cultural beliefs and values, formal education, socioeconomic status, language differences, and intellectual ability. Clinicians are in a position, however, to influence the comprehension of their advice and instruction to patients. Studies of satisfaction, understanding, memory, and compliance are of special interest. These variables have been studied independently, and the studies have been

| Patients with High Literacy Skills | Patients with Low Literacy Skills |
|-----------------------------------|----------------------------------|
| Interpret word meanings           | Take words literally             |
| Have vocabulary fluency           | Listen, read slowly, and may sound out letters in words |
| Find meanings for uncommon words  | Skip uncommon words              |
| Can systematically scan visuals to find key concept | Have difficulty finding key concept: Eyes wander about page |
| Can separate key points from details | Focus on details: Cannot prioritize them |

Data from Doak et al.9
simplified with the communication.

Among individuals who do not have adequate comprehension, 32% are estimated to have adequate compliance, 33% to have adequate recall, and 21% to be satisfied with the communication. Although these data do not guarantee the improvements with all patients, they suggest that achieving worthwhile gains in compliance, recall, and satisfaction should be possible if clinicians use techniques to enhance the comprehension of health messages.

The process of understanding information requires that certain conditions be present, analogous to the way that a computer requires certain access routes for its memory system to be activated. For a patient, the basic condition required for understanding and activating the memory system is the existence of a reasonable match between the logic, language, and experience in the information and the patient’s logic, language, and experience. In other words, patients need to have advice make sense to them and be logical from their perspective. They need to see how the advice fits into their current lifestyle, is achievable, and is worth their effort to implement it.

The patient’s intent to remember (motivation) is also essential. For example, to convince a migrant farm worker that a mammogram is important to her, the information would fit more easily into her cultural logic if given in the context that it could also benefit the health of the family. Therefore, it is the reasonable match of the three basic elements of logic, language, and experience that literally “turns on” the process of understanding and remembering information.

MISMATCHES IN LANGUAGE OF THE MESSAGE

In terms of logic, language, and experience, the most frequent mismatch between patients and their medical advice is in language. Language mismatch can occur in several ways.

The most serious mismatch is the high readability levels of print materials. The average readability level of cancer information is near the tenth-grade level, whereas the average reading skill of adult Americans is at about the eighth-grade level, a mismatch of two grade levels. For the 44 million Ameri-
cans who read at the fifth-grade level and lower, the mismatch with the average cancer education material is five grades or more.\textsuperscript{1,5,22} The mismatch is even greater with informed consent documents, which are generally written at the college/scientific reading level.\textsuperscript{24-26}

Simple and easy-to-understand messages are required to help patients understand information about cancer across the continuum of care. Lowering the readability of the text, however, does not necessarily equate to better understanding if the message itself is not relevant to the patient.\textsuperscript{20-22}

Language mismatch also occurs in the choice of words. Whether printed or spoken, certain types of words are difficult to understand, especially by the patient population with low literacy skills. Difficult word types are concept words, category words, and value judgment words.

Examples of concept words are \textit{normal range}, \textit{incidence} (per 100,000 population), and \textit{condition is stabilized}. Category words are classifying words such as \textit{ACE inhibitors} or \textit{chemotherapeutic agents}. Value judgment words may be well defined in the mind of the clinician but not in the minds of patients. Examples of such words include \textit{excessive} (pain, bleeding) and \textit{regularly}. How much is excessive? How often is regularly? Although the word \textit{cancer} is widely known, other related words such as \textit{lesion}, \textit{prognosis}, \textit{biopsy}, and \textit{metastasis} are not widely understood.\textsuperscript{12}

**Mismatch in Logic and Experience**

Mismatches in logic affect the way patients carry out the advice they receive. For example, patients without the benefits of scientific or medical training may find it logical to stop taking medicine as directed once they begin to feel well.

In many situations, clinicians may expect patients to obtain behavioral information from cancer epidemiologic or treatment facts. Even good readers who work their way through the facts may unwittingly draw incorrect conclusions. Poor readers may not have well-developed problem-solving skills and are far less likely to learn behavior information by drawing inferences from facts.\textsuperscript{5,9}

In many print instructions, the reader does not encounter the behavioral information early enough. That is, no priority is given to behavioral information; instead, the priority is given to the epidemiologic and statistical data, which creates an image of irrelevancy to many patients.

For example, a mammography booklet might better start with the information that all women are at risk for breast cancer and that those older than 50 years can reduce their risk by getting a mammogram. Instead, booklets often start with detailed statistics on risk factors, the nature of tumors, and the x-ray process. The factual information tends to obscure the behavioral information and directs the patient’s attention to information she may see as less relevant. When this happens, patients may lose a sense of empowerment and self-efficacy, which also reduces motivation.

Another example is that patients are sometimes advised to obtain a second opinion about treatment options. Having doubts about the first doctor’s opinion, however, may not seem logical to the patient. An instruction that advises “talk with each member of your treatment team before treatment starts” can leave the patient questioning what aspects to discuss.

**Overcoming Mismatches**

Despite patients’ literacy problems and information mismatches, those with low literacy skills nearly always have adequate intelligence. For most people, new information can be learned by linking it with already known information and by making it relevant to their situation. Clinicians can overcome mismatches and make their messages more understandable by apply-
ing techniques to enhance patient recall of the message and by encouraging patient feedback and interaction.\(^{20}\)

### Assessing Literacy Skills of Patients

Under some circumstances, clinicians may wish to assess the literacy skills of an individual patient or a sample of their patient population.

Two easy-to-use literacy tests are the Wide-Range Achievement Test (WRAT-3)\(^{27}\) and the Rapid Estimate of Adult Literacy in Medicine (REALM).\(^{28}\) Patients are asked to read aloud from a list of words that become progressively more difficult. The point at which they can read no further is an indication of the level of their reading skill (correlated to a grade level or grade-level range). Either assessment can be completed in a few minutes.

We suggest that REALM is more appropriate in a clinical setting because the words contained in the list are medical terms.\(^{28}\)

### Assessing Readability Levels of Printed Materials

Clinicians can predict readability to ensure that the print materials distributed by them form a reasonable match with their patients’ reading skills.\(^{29}\) A variety of readability formulas and computer programs (such as “Readability Calculations,” Micro Power and Light Co., Dallas, TX) are available to guide such efforts. By combining this practice with an assessment of patients’ reading levels, clinicians can increase the probability that the information is at a readability level suitable for their patients. Specific information on using readability formulas is available in other publications.\(^9\)
How-to information is needed by most patients, but it is especially important for low literacy populations. Patients with low literacy skills need explicit information. Further, their receptivity to information can be affected by the anxiety and stress they feel when confronted with a possible diagnosis of cancer. Practical strategies can be implemented to ensure comprehension of complex cancer information.

An illustration of information needs...
is depicted in Table 2, which uses screening mammography as an example. Information needs are shown at specific stages of behavioral change, namely, awareness, planning, action, and evaluation. In addition to the information listed in Table 2, patients may have many other questions that are unasked because they lack fluency or are not sure that the question will be received as appropriate. Examples of such questions are as follows: What does referral to a specialist mean? Do I lose you when I go to a specialist? What does stage mean? How do I decide between a lumpectomy and a mastectomy?

The information in cancer advice and instructions is often organized according to the Medical Model, the same style used in curricula for health professionals. This approach emphasizes facts and is directed toward a knowledge goal rather than a behavioral goal. Typically, it is only late in the patient instruction that attention is given to behavioral change or action to be taken by the individual.

Examples from two pamphlets on the subject of mammography illustrate the differences between the Medical Model and the human behavior approach (Health Belief Model). In Table 3, in the “Medical Model” column, the mechanics of the radiography take precedence over the information the patient needs to know to decide whether to have a mammogram.

In the column with text based on the Health Belief Model, priority is given to information on patient action and motivation. The instruction includes a telephone number and invites calls for additional information. This format recognizes that access to information is necessary and expected. It makes explicit the actions the patient needs to take, an important first step in patient self-efficacy.

**Advice That Patients Can Understand**

Both health education theory and adult education practice suggest the strategies for clinicians that are outlined in this section.

**Limit the Advice to the Key Information the Patient Needs at This Time**

General information, detailed physiology, and history of treatment can be given later, as needed. For example, the needle biopsy of a female patient 45 years old shows breast cancer. Now her clinician wants to discuss the need for a surgical biopsy and her treatment options. She has to understand the need for more tests to determine the extent of the cancer and her treatment options, including one-step and two-step surgery procedures. She also needs to understand that she has time to decide about a treatment option.

The clinician might present the patient with a brief agenda of the information as follows: “First I’m going to discuss the results of your needle biopsy. Then, I’ll tell you about an additional biopsy I recommend to get more information on your condition. Finally, I’ll talk about what your treatment options are.”

Many states now mandate the use of printed materials that outline treatment options for breast cancer. This is an appropriate time to direct the patient’s attention to the key information that they need to know at this time.
attention to the brochure and the specific page that describes the surgical biopsy and the option of a one-step plan or a two-step plan. Review the material with her and underline the relevant information that will help her reach a decision.9 Even for a patient who is a poor reader, the printed material gives importance to the message, especially if the patient’s name is written on the cover.

**PARTITION THE INFORMATION INTO EASY-TO-UNDERSTAND PARTS IF EXTENSIVE INFORMATION IS GIVEN**

When advice is given in small pieces, patients remember it better and are more likely to believe they can make the necessary decisions or do what is needed. Partitioning advice also offers a natural break to obtain feedback from patients. The process of giving feedback is in itself a learning stimulus.

For example, after explaining treatment options the clinician asks, “Now tell me, what do you understand are your treatment options?” This approach helps to verify the patient’s understanding. It also conveys the clinician’s ongoing concern and interest in ensuring comprehension.9

**PROVIDE VISUAL OR VERBAL IMAGES TO ACCOMPANY EACH OF THE PARTITIONED INFORMATION PARTS**

Research shows that the memory has many more access points for visuals than for words and letters.41-43 One often can recall a person’s face but not her name or recall the appearance of a book’s cover but not the title or author. Visuals also give us a more graphic perspective than do words.

For example, the Figure shows a small area that might be removed in a lumpectomy. The patient should be told that after healing there would be only a faint line for the scar. When using visuals, include enough of the human figure to make the physical location of the information instantly clear. Use an arrow or color highlighting to direct the reader to the main point.43

**PRESENT THE CONTEXT FIRST BEFORE GIVING NEW INFORMATION**

This may seem to be a trivial rule, but it greatly increases understanding and memory because it provides a context (a place) in which to store the new information.44 Table 4 shows a sentence with the context presented first, then with the context presented last. It is easier to understand the sentence with the context first. In the second sentence, one must carry the information in memory without knowing where it fits until the context is given.

**Techniques to Help Patients Remember**

**MAKE INSTRUCTION INTERACTIVE**

Ask questions of the patient to see if the patient sees herself carrying out the behaviors. For example, in regard to relaxation techniques, the physician might ask, “Now when would you do the things I’ve told you about?” Appropriate answers include “in bed the night before chemotherapy”, “in the waiting room before chemotherapy”, and “during chemotherapy.” Another question that the clinician
can ask is, “Now, can you show me how you would begin this exercise?” Observe the patient and provide feedback. When the appropriate responses are given, reward the patient with a few words of reinforcement or encouragement.

**Offer Examples, Especially Visual Examples: Use Testimonials from Others**

Make sketches, use descriptive words, and point to illustrations in booklets. Cite examples of others who have successfully taken the recommended actions. Several literacy and health projects have produced booklets on cancer written by and for low literacy patients. These are in story, testimonial, or photonovella formats. These materials can reinforce and support the clinician’s advice.

**Tailor the Message**

Simple techniques can be used to tailor information to help patients want to read and remember the message and to act on it. Tailoring involves personalizing the message so that the content, structure, and image are individualized to meet a patient’s learning needs. The degree to which a message can be tailored ranges from tailoring only part of a standard message to tailoring all of the details, including the visuals.

When tailoring oral instructions (person-to-person and telephone consultations), refer to the patient’s questions in your response. If the instruction or advice lasts for more than just a few minutes, begin by organizing in a brief outline what you are going to say and its importance to this patient. Give examples, suitable for this patient, to amplify the information given, especially for any concept, category, and value judgment words used.

When tailoring videotape or audiotape instructions, give the patient a personalized preamble that explains why this instruction is important to her personally, and tell her which topics in the instruction to watch for or listen to most attentively.

For tailoring print materials, write the patient’s name on the cover of the brochure (except for sensitive topics such as those regarding HIV) and thus make the material important to the patient. For example, open the pamphlet in the patient’s presence, and using a marker pen, underline or highlight the most important information. In many cases, this will be the key behavior asked of the patient. Incorporation of such practical methods can enhance communication and improve patient motivation and recall so that fewer repeat instructions are needed. Such simple interventions are suitable for clinical application and require little or no additional time.

More recently, automated methods have been developed to produce tailored...
messages based on individual needs and characteristics. Campbell and colleagues tested the effect of individually computer-tailored messages designed to decrease fat intake and increase fruit and vegetable intake. Results revealed that the tailored intervention promoted more dietary fat reduction (P< 0.05) compared with the standard message, and more subjects recalled receiving the tailored message than the nontailored message.

Another study sought to determine whether computerized tailored messages about mammography recommendations were more effective than standardized printed messages. Using desktop publishing techniques, tailored messages were created specific to a patient’s risk factors, beliefs about mammography, perceived mammography barriers, and stage of psychosocial readiness. Results revealed that individuals who received tailored messages were more likely to have read them compared with the individuals who received standardized messages. Results also showed more favorable mammography follow-ups for women with annual incomes less than $26,000 and for African American women.

Both studies suggest that tailored messages are a promising medium for communicating information to patients. It was recommended that future research be conducted to determine the impact of tailored messages in low-literacy populations.

**Verify Patient Comprehension**

Comprehension is grasping the meaning of the message. Clinicians know that new information has been integrated into the patient’s memory if the patient can transform the original message and show the message or rephrase it using her own words.

To verify that a patient understands the message, the clinician can ask the patient to explain what the message means. Doing so requires thinking and interaction on the part of the patient. “Tell me in your own words what you understand to be the steps that we’ve been talking about.” A question that requires a yes or no answer or simply asking “do you understand?” is not fruitful. If you have used pictures, sketches, or devices in giving advice, ask the patient to use these in her feedback. This not only enhances learning but also verifies what is understood and recalled.

**Conclusions and Recommendations**

A complicating factor in all health communications is the significant segment of the American population that has low literacy skills—about 20% of adult Americans. Survey and research data show that individuals with low literacy skills understand less health care advice and are less likely to take timely actions to reduce their health risks.

Printed instructions often have readability levels markedly above the reading skill levels of patients. Furthermore, communication mismatches may be caused by differences in the patient’s logic and experience compared with the logic and experience inherent or assumed in the instruction. Clinicians need to become aware of these mismatches.
and to use techniques to overcome this communication gap.

Simple advice and instruction, especially those that focus on behaviors, are likely to be more effective for patients at all literacy levels, but especially for patients with limited literacy skills. Approaches that give priority to the desired patient behavior are more likely to be understood if organized according to the immediate needs of the patients. Tailoring messages according to content, structure, and image can further enhance the relevance of the message.

Many of these techniques are built on the tenets of the Health Belief Model, self-efficacy theory, and modern adult education methods. These techniques can help patients become more knowledgeable about their health, recall the information, be equipped to make well-informed decisions, and carry out behaviors. Clinicians also obtain the benefits of improved patient compliance and enhanced clinician-patient communication.

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Appendix, “Improving Comprehension for Patients’ Low Literacy Skills: Strategies for Clinicians”

**VERBAL PATIENT COMMUNICATION STRATEGIES**

- Give an agenda; limit new information to key points needed now
- Focus on behaviors and actions; partition long lists
- Present the context first, then the new information
- Use examples: Refer to pictures, sketches, models, visuals
- Get feedback from the patient to verify comprehension

**WRITTEN PATIENT COMMUNICATION STRATEGIES**

- Write the patient’s name on the cover
- Underline key points
- Tailor message according to content, structure, and image specific to individual characteristics
- Refer to illustrations to reinforce written information
- Ask questions to verify patient comprehension