



## Reading Level

We are asked regularly about the reading level of our documents. We specifically format ExitCare Instructions to encourage patient readership and compliance. Our document and communication specialists use a combination of the Flesch-Kincaid grade level formula, different document layout and organization concepts, and useful color graphics to communicate essential medical information to the widest variety of audiences. Specifically, we strive to create all of our documents below the national grade reading level of 8<sup>th</sup> grade.<sup>1</sup> However, many of our documents are written for a much lower grade level.

Reading level is a diverse concept. There are many different ways to approach document usability, especially if the end-user of the document is a general audience. The “general audience” contains the highly educated, as well as those with under a 5<sup>th</sup> grade education. We may use a formula to give us an idea of what grade level will understand a certain document as a whole, but concepts like word choice, sentence structure, layout and document design, and graphics play a very large role in how the patient actually understands, retains, and uses the information that is presented to them. It is for these reasons that ExitCare uses a wide-variety of concepts to create usable patient documents.

### Flesch-Kincaid

Our main measure of reading level is the “Flesch-Kincaid” formula. Flesch-Kincaid is a valid and reliable language readability formula that was created by the US Navy to test the readability of their training manuals.<sup>2</sup> Flesch-Kincaid works by calculating the average number of words per sentence and the average number of syllables per word. The Flesch-Kincaid formula is a simple mathematical equation:

$$0.39 \left( \frac{\text{total words}}{\text{total sentences}} \right) + 11.0 \left( \frac{\text{total syllables}}{\text{total words}} \right) - 15.59 = \text{Flesch-Kincaid Score}$$

The result of the equation is a number (1 through 12) that corresponds to an average person’s grade reading level. It is the most commonly used readability formula in the United States, because of its reliability and availability. This formula is embedded within the Microsoft Word program, making it very simple to use. ExitCare uses this Flesch-Kincaid grade level score (FK score) for the basis of our patient readability standards.

---

<sup>1</sup> Communicating with patients who have limited literacy skills: report of the National Work Group on Literacy and Health. J Fam Pract 1998;46:168-76.

<sup>2</sup> Kincaid JP, Fishburne RP, Rogers RL, Chissom BS. Derivation of new readability formulas (Automated Readability Index, Fog Count, and Flesch Reading Ease Formula) for Navy enlisted personnel. Research Branch report 8-75. Memphis: Naval Air Station, 1975.

## Wording, Content, and Flesch-Kincaid

Although many clients concentrate on actual words and their respective grade level score, other factors affect the ability of the patient to comprehend information. As you can see from the formula above, the grade level score has nothing to do with the document's actual content or wording. It also does not consider grammar, mechanics, and writing style. As a result, a poorly written, hard to understand document can still have a low FK score, as long as the writer uses small words in short sentences.

For example, the three-word sentence, "*this causes diarrhea*," receives an FK score of 9.1, even though most first grade students would know exactly what this phrase means. The reverse is also true. The sentence, "*this is the most common enteric protozoal infection in the U.S.*," receives an FK score of 8.0, even though many high school graduates would not understand it. Even the important phrase, "*call your doctor immediately*," has an FK score of 12.5. Since the Flesch-Kincaid formula does not look at actual words, it is not always an accurate representation of reading level.

Unfortunately, few tools in the marketplace accurately calculate reading level. Flesch-Kincaid is a start to the readability process. A document with a grade level score of 8 or 9 may still be understood by the average patient. Some of our clients specifically request instructions written at the 5<sup>th</sup> grade or lower level. Unfortunately, this would make medical or anatomical terminology virtually impossible to communicate. The Flesch-Kincaid formula is a tool that can help analyze documents, but it can not be the only factor or concept used when creating usable patient documents. This is why ExitCare is committed to using other concepts and communication techniques to convey the correct information.

## Other Readability Techniques

- Most ExitCare documents are broken down into sections. In the first section, we generally explain the condition/disease. The following sections contain information that varies per topic. Section headings include titles such as: "About the Procedure," "Home Care Instructions," "Seek Immediately Medical Attention If," and "Suggested Treatments or Therapies." Because these sections are essential for patient understanding, we craft them in order to have the lowest possible grade level. We do this without being condescending to the patient.
- Often there are not 5<sup>th</sup> to 8<sup>th</sup> grade level words to explain difficult medical ideas. This is especially true with anatomical terminology. To help comprehension, we often include graphics with descriptions that point out key areas of the visual. Medical illustrations and visuals greatly increase patient understanding by catering to those who may learn visually instead of textually.
- We also introduce medical terminology within the documents, but place familiar explanations in parentheses immediately following the medical word. For example, when we use the word *abdomen*, we follow it with (belly); when we use the word *nausea*, we follow it with (feeling sick to your stomach), *fracture* is followed by (break in bone), and *incision* is followed by (cut). We have over 100 medical terms where we use this two-version technique.

- Instead of making long lists of confusing ideas, we organize information in short bullet points and tables. Unfortunately, if there is not a period (“.”)at the end each bullet, the FK score goes up dramatically since it views the entire table as one long sentence.
- We bold and highlight in **red** ideas that are crucial for the patient to understand. This increases emphasis and improves the patients’ ability to find the information.
- We separate main ideas into single paragraphs. This idea, known as “chunking,” helps the reader move from one topic to another with ease.
- We also employ professional scientific and technical communicators experienced in document usability and design.

These and other formatting concepts work together to improve the readability of ExitCare Instructions. Even if the patient can not understand the description of their condition or disease, they must understand how to care for it. They must know when to seek additional medical services. Bolding important words, using readable type and font, and having concise and logical document layout improves readability.<sup>3</sup>

### **Patient Discussion and Clinician Editing**

In spite of our best efforts, these measures may not clearly communicate the condition/disease to very low literacy patients. Graphics often help, but a medical professional should always discuss the condition/disease with the patient. It is helpful that clinicians can edit all ExitCare document without affecting the original file. Should the clinician be concerned about any particular words, sentences, or paragraphs, they can be changed, added, or deleted from the document for the current patient, while maintaining the original document for other patients in the future. Every patient is different and every instruction document can be edited to fit his/her specific needs.

### **ExitCare Instructions**

In the end, the final test is the patients themselves. Our users regularly commend us on our content and our presentation of the information. To encourage readability, ExitCare uses graphics, bullets, headings, and emphasizes important points by bolding or underlining...all to improve patient comprehension. Compared to having to hand out “black words on a white piece of paper,” or a 3-part carbon form designed to cover multiple conditions, our users tell us the patients actually *read* the ExitCare documents. This means that our overall document presentation greatly improves readability.

We welcome specific suggestions on ways to improve our documents. If you have any questions or need more information, please call ExitCare, LLC at **800-694-6669**.

---

<sup>3</sup> Doak CC, Doak LG, Friedell GH, Meade CD. Improving comprehension for cancer patients with low literacy skills: strategies for clinicians. CA Cancer J Clin 1998; 48: 151-62.

Paasche-Orlow MK, Taylor HA, Brancati FL. Readability standards for informed-consent forms as compared with actual readability. N Engl J Med 2003; 348:721-6.