

Game Changers

GREEN EGGS AND HAM BY DR. SEUSS: EMPLOYING DIGITAL TOOLS TO IMPROVE READABILITY OF PATIENT-FACING MATERIALS

In this children's book,¹ Sam-I-am tries to convince an unnamed and reluctant character to eat green eggs and ham. Using a vocabulary of just 50 words, with 49 of them being monosyllabic (with the exception of the word "anywhere"), Sam-I-am persuades his friend to eat these, who then realises that he actually likes green eggs and ham!

Preparation of patient-facing materials describing treatments and procedures, such as describing COVID-19 vaccines and vaccination to service users, can be difficult to accomplish. Examination of the "readability" of medical texts is becoming increasingly popular, where readability is an objective measure of the reading skills an individual must possess to aid in the understanding the material being read.² Adoption of readability calculators and scrutiny of materials for their readability can help medical authors develop materials with improved understanding for patients, carers and family, potentially leading to improved health literacy and clinical outcomes.

Digital readability calculators have now become widely available online and several free and subscription-based tools are available. In particular, the online software package, *Readable*, (www.readable.com) provides several readability scores and text metrics, including the most commonly used scoring parameters, namely the Flesch Reading Ease and the Flesch-Kincaid Grade Level. The Flesch-Kincaid Grade Level is a widely used readability formula, which assesses the approximate reading grade level of a text (0 to 18th US grade equivalence), pegged to the US grade level of education and estimates the required education of the reader to be able to understand a text. The Flesch Reading Ease formula generates a score usually between 0 and 100, where a higher score means the text is more readable and a lower score means the text is less readable. For example, the Flesch Reading Ease Score of Cochrane Reviews' Plain Language Summaries are generally between 40 and 50, whereas scientific abstract scores are usually 20-30. A Flesch Reading Ease score of 70-80 is equivalent to US 7th Grade (12-13 year old). Such tools are used by simply "cutting-and-pasting"

the text under scrutiny into the package and the readability metrics are returned in real time, thereby allowing authors to modify their language in real time to become more readable.

Readability of patient-facing information is important for patients to make informed decisions about their healthcare.³ Recently (November 2020), the General Medical Council issued new guidelines,⁴ where Principle 1 of "Decision making and consent GMC 2020" states "All patients have the right to be involved in decisions about their treatment and care and be supported to make informed decisions if they are able", as well as (Paragraph 10) - Doctors "must give patients the information they want or need to make a decision",⁴ hence it is easy to see how such digital tools can assist clinicians in preparing easily read materials that empowers the patient to make an informed decision.

Dr. Seuss' careful choice of words resulted in a Flesch Reading Ease Score of 113.1 and a Flesch-Kincaid Grade Level of -1.1. More importantly, through employment of such easy-to-understand words, he convinces his friend to eat the green eggs and ham. Perhaps there are lessons to be learnt here for us all, in improving the health literacy of our patients, through writing more readable patient-facing materials as shown in the examples in Table 1.

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Table 1: Examples of readability and text metrics

Source	Flesch Reading Ease	Flesch-Kincaid Grade Level	Gunning Fog Index	SMOG index	Number of words	Number of sentences	Words per sentence	Syllables per word
Green Eggs and Ham (by Dr Seuss)	113.1	-1.1	2.3	4.5	799	141	5.7	1
Remdesivir for the treatment of COVID 19 (Cochrane Library)	37.5	9.7	9.8	10.9	30717	4350	7.1	1.9
COVID-19 vaccination: A Simple Guide (Northern Ireland Public Health Agency)	58.3	7.4	8.6	9.6	678	73	9.3	1.6
What Matters To Me? (Patient & Client Council Report)	58.6	7.9	9.6	10.6	10444	901	11.6	1.6



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