

## Developing resources and materials for people with communication difficulties

Resource from the Supplementary files of the article below.

In text references can be found in the article below.

[Shiggins, C., Ryan, B., O'Halloran, R., Power, E., Bernhardt, J., Lindley, R.I., McGurk, G., Hankey, G., & Rose, M.L. Towards the consistent inclusion of people with aphasia in stroke research irrespective of discipline](#)

People with aphasia report that they prefer aphasia-friendly materials <sup>(91)</sup> and they comprehended 11.2% more information from aphasia-friendly formatted written information <sup>(92)</sup>. Below, we have collated evidence-based resources and guidelines on how to make information accessible for people with aphasia.

Research in the area of aphasia-friendly guidelines found that a combination of content and design features helped to improve comprehension for people with aphasia, for example, simplified vocabulary, simplified syntax, large print, increased white space, and the inclusion of pictures <sup>(92,93)</sup>. Information may also need to be available in a range of different formats such as written information and appropriately formatted videos, so people have choice <sup>(94)</sup>.

For aphasia-friendly materials to be accessible it also needs to be easily obtainable <sup>(44)</sup>, be provided on multiple occasions if necessary <sup>(94)</sup> and be given in the presence of another person so that the person has an opportunity to ask questions and seek clarification. Therefore, the recommendations in this document should be considered and implemented together to make information more accessible.

### **Preparation**

When developing aphasia-friendly materials (resources, materials, or videos) you firstly need to decide what message you want to convey. What are you trying to communicate to people with aphasia?

Be clear on the messages you want to convey; this should be clear to the reader <sup>(95)</sup>

The UK Stroke Association <sup>(78)</sup>, outlines six steps that will help you when preparing to

develop aphasia-friendly information:

- Write your information down
- Cut out anything that is not needed
- Are there several messages?
- Separate the messages out
- Make a list of your messages
- Put them in a logical order

Overall, the UK Stroke Association <sup>(78)</sup> recommend five steps to follow when making aphasia-friendly materials:

- Step 1: A short message
- Step 2: Clear sentences
- Step 3: Easy words
- Step 4: Good layout
- Step 5: Make a set

When making a presentation or document, be consistent. Use the same fonts, sizing, style of graphics etc. <sup>(78)</sup>

Below we have outlined some specific guidance in relation to the content and format of aphasia-friendly materials. Where possible, involve people with aphasia and family members in the design and development of your aphasia-friendly materials or consult a speech and language therapist.

### **Linguistic considerations / content characteristics**

- Convey your message with short words, phrases, sentences, and paragraphs <sup>(91,96,97)</sup>
- The UK Stroke Association <sup>(78)</sup> recommend using about five words in a sentence
- Minimize the use of complex sentences <sup>(96)</sup> or vocabulary <sup>(98)</sup>
- Only include one idea per sentence <sup>(99)</sup>
- Use straightforward / plain speaking language, that gets straight to the point <sup>(69,100,101)</sup> and keep to the point <sup>(78)</sup>
- Word frequency (i.e., how frequently a word is used) influences sentence reading performance <sup>(102)</sup>. Therefore, use more commonly used words
- Use highly imageable words <sup>(96)</sup> (i.e., words that are easier to evoke a clear image in a person's mind). More imageable words can also help you pick a picture to support comprehension
- Avoid metaphors and abstract language <sup>(98)</sup>
- Do not use jargon <sup>(101)</sup> or acronyms
- Use whole words, rather than slang or abbreviations.
- Provide a glossary of any terms that a person may not be familiar with <sup>(103)</sup> and this is best placed at the beginning of the document <sup>(104)</sup>
- Try to reduce the use of pronouns in sentences e.g., in a leaflet instead of saying 'We have funding', be explicit and indicate who has the resource e.g. 'The council has funding' <sup>(78)</sup>

Depict numbers in numerals (not words) <sup>(91)</sup>, however, some people with aphasia have difficulty with numbers, so it can be good to include both the word and the numeral e.g., Six (6).

## Readability software:

The readability of a document refers to the ease at which material or a document can be read <sup>(105)</sup>

Reducing the readability level of texts is one thing that researchers can do to ensure that written health information is more accessible for people with aphasia <sup>(96 p383)</sup> and this can be done by using shorter sentences and words <sup>(106)</sup>

You can check the reading level of your sentences / text using readability software. Please see three examples below.

### 1. **Flesch-Kincaid** readability analysis <sup>(107)</sup>:

- <https://www.webfx.com/tools/read-able/flesch-kincaid.html>
- [readabilityformulas.com](http://readabilityformulas.com)

This formula is based on average word length and sentence length and is calculated as follows:  $0.39 (6 \text{ average number of words per sentence}) + 11.8 (6 \text{ average number of syllables per word}) - 15.59$  <sup>(108)</sup>. This can be easily processed through Microsoft Word

The Flesch-Kincaid readability analysis is recommended by Aleligay and colleagues <sup>(96)</sup>, however it does give lower grade scores than the SMOG and Fry formulas (which will be described next).

**For people with aphasia, we are aiming for a grade level of 5 or lower on the Flesch- Kincaid. If the sentence is grade 6 or higher, then you need to check your sentence and make it simpler** <sup>(78)</sup>

### 2. **Fry readability test** <sup>(109)</sup>:

The Fry Graph Readability Formula: [readabilityformulas.com](http://readabilityformulas.com)

- a. This measure is based on the average sentence length and the average number of syllables per 100 words

### 3. **The SMOG readability formula (a Simple Measure of Gobbledygook) (110):** **[readabilityformulas.com](http://readabilityformulas.com)**

Based on the multiplication of word length and sentence length

Text written at grade 6 level (with larger text) significantly improved comprehension <sup>(93)</sup>

## Formatting

People with aphasia reported that they were happy for there to be more information in written materials, but only if it was appropriately formatted <sup>(91)</sup>. We will now look more specifically at formatting.

### Font:

- Use a Sans Serif font <sup>(91,101)</sup>. Calibri and Ariel are examples of Sans Serif fonts. The people with aphasia in Rose and colleagues study <sup>(91)</sup> preferred Verdana font

- Avoid the use of fonts with narrow letters <sup>(98)</sup>. People with aphasia reported that they preferred ‘thick prints’ <sup>(91)</sup>
- Use black or a dark font <sup>(91)</sup>
- Colour is best used for headings or to define sections <sup>(91)</sup>, but not for the main text

### Font size:

Larger font significantly improves reading comprehension for people with aphasia <sup>(93)</sup>

- Use at least 14-point font <sup>(91)</sup> and between size 14 and 18 font for the main text <sup>(78)</sup>

When using a heading, choose a font at least two sizes bigger than the main text <sup>(78)</sup>

### Design and display:

- Use 1.5 line spacing <sup>(91)</sup>
- Avoid capitalising or underlining key concepts and do not use unnecessary capital letters <sup>(98)</sup>. Reserve the use of capitalisation for the first letter of the sentence <sup>(78)</sup>
- Bolding and italicising of words should be used to highlight key information <sup>(91,100,101)</sup>, but do so sparingly, so that it does not become redundant
- When using questions, bolding can be used to highlight the key concepts <sup>(97)</sup>
- Bulleting can also be used to convey the key points <sup>(91,101)</sup>
- Use spaced paragraphs <sup>(69)</sup> and appropriate spacing between sentences and sections
- Increase the amount of white-space on a page <sup>(91,93)</sup>. Elman, Parr & Moss <sup>(98)</sup>, recommend using blocks of text containing short simple sentences surrounded by ample white space. It is recommended that there is a lot of white-space around the message <sup>(78)</sup>
- Sections can be helpful to highlight key information <sup>(91)</sup>
- Some people with aphasia like borders or a box around the text to group text and show clear distinctions between topics
- Use headings and signposting <sup>(91,101)</sup> to orientate the reader and to aid comprehension. However, these headings must link to the content and stand out <sup>(91)</sup>

Heading can be made distinctive by using: (1) underlining, (2) bold text, (3) large text, or (4) colour <sup>(91 p342)</sup>

### Graphics / pictures

Graphics aid understanding, make information more interesting, help with reading and remembering information, make information easier and quicker to read, orient people to the topic and add humour and enjoyment <sup>(45)</sup>

However, do not use too many pictures <sup>(101)</sup>, as the pictures may become redundant or confusing

Graphics should not be ambiguous or non-informative and should be closely linked to the text <sup>(45)</sup>

If graphics are not used appropriately, they can distract readers from the text and the main messages <sup>(106)</sup>

- Use pictures that directly support the text <sup>(98)</sup>
- Use a new picture for new information and for each new concept. Use two

pictures if you need to, to convey the information <sup>(78)</sup>

- People with aphasia liked illustrations to support understanding and preferred colour photographs to black and white line drawings <sup>(45,112)</sup>. In other studies, people with aphasia preferred computer-generated images <sup>(113)</sup> and pictograms facilitated participation <sup>(97)</sup>
- Adjust your wording and choice of graphics to reflect the perspectives and cultural framework of your audience i.e., consider cultural safety and sensitivity
- Avoid childish pictures and use pictures that are made for adults <sup>(78)</sup>
- Avoid abstract graphics <sup>(114)</sup> and symbols that are often misunderstood should be avoided <sup>(115)</sup>
- Use a single word under the graphic (to caption it) <sup>(45,97)</sup>

Use good quality pictures and graphics

### **Further tips when developing videos for people with aphasia:**

- Avoid tone, style and language that exclude people with aphasia <sup>(98)</sup>
- Do not use an inappropriate tone <sup>(89)</sup> e.g., a patronising tone
- Consider the use of multi-modal communication for example, gesture and drawing <sup>(116)</sup>
- Slow down your speech and keep an even pace

Refer to supported communication training resources in Supplementary file 1