



TOOLKIT for Making Written Material
Clear and Effective

SECTION 4: Special topics for writing and design

PART 9

Things to know if your written
material is for older adults

U.S. Department of Health and Human Services
Centers for Medicare & Medicaid Services



TOOLKIT Part 9

Things to know if your written material is for older adults

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This document is Part 9 of the *Toolkit for Making Written Material Clear and Effective*. The Toolkit has 11 Parts. It was written for the Centers for Medicare & Medicaid Services (CMS) by Jeanne McGee, McGee & Evers Consulting, Inc. The guidelines and other parts of the Toolkit reflect the views of the writer. CMS offers this Toolkit as practical assistance to help you make your written material clear and effective (not as requirements from CMS).



Introduction¹

If you are developing written material for people with Medicare or other audiences that include older adults, it's important to be aware of certain changes that come with age and take them into account as you write and design the material.

In this Toolkit document, we discuss how changes in vision and in the way the brain functions can affect the ability of older adults to understand and use written information. We focus on typical age-related cognitive changes such as declines in the speed of processing information and in the number of pieces of information that can be held in memory at any given moment (we do not address more extreme changes in cognitive functioning caused by diseases such as Alzheimer's.) We discuss the impact of such changes on older adults' literacy skills and offer tips on ways to make written material easier for older adults.

For convenience, we use the term "older adults" to mean people who are 65 or older. This category of "older adults" includes 37 million individuals. They are a highly diverse group in every way, including culture, language, education, socioeconomic status, and health status. We have to make generalizations about older adults in order to discuss age-related changes that can affect literacy skills. But in making these generalizations, we note that:

- **Age-related changes – both physical and mental – proceed at different paces that can vary greatly from one person to the next.** The category of people who are "65 and older" encompasses a large age range that spans several decades. On average, the vision and cognition of people in their sixties can differ considerably from those of people in their eighties or nineties.
- **There is much diversity among older adults in terms of literacy skills,** despite the tendency for older adults *as a subgroup* to have a greater problem with literacy skills. Older adults differ in their information-seeking tendencies, media preferences, and ability to read and understand written material.
- **For any individual, literacy skills vary by context.** For example, it is easier to read and understand written material when it's about a familiar topic. It's harder to concentrate on reading and absorb new information when you are worried or concerned.

¹ Thanks to Beth Stevens, Mathematica Policy Research, and Elizabeth Hoy for their substantial contributions to this document (please see acknowledgments at the end).

By focusing on changes that are linked to the aging process, we identify new literacy challenges that can emerge for individuals as they grow older. For each person, the impact of any declines they may experience in cognitive skills or vision is *added to the impact of any other literacy challenges they may already have*, such as poor readings skills.



How aging can affect literacy skills

According to research in the field of psychology and cognitive aging, some cognitive skills or thought-processing abilities tend to decline in later life, and these can make it harder for older adults to understand and use written material (see left side of Figure 9-a below). But not all literacy skills decline with age. As shown on the right side below, there are cognitive skills that readers tend to retain as they grow older, and these can help pick up the slack as other skills decline (Stevens, 2003).

Figure


9-a. The impact of aging on literacy skills: Some things change but others do not.

Some things that affect literacy
tend to change in later life

- Older readers tend to experience changes in vision that can affect ease of reading.
- Older readers tend to process information more slowly than they did when they were younger.
- Older readers tend to have less "working memory," which makes it harder for them to do several things at the same time.
- Older readers find it harder to focus their attention and deal with distractions.
- Older readers tend to have more difficulty reading between the lines and coming to a conclusion.
- Older readers tend to be less flexible in their thought processes.

Other things that affect literacy
don't change much in later life

- Older readers have an extensive base of knowledge and life experience that helps them interpret information, make decisions, and solve problems.
- Older readers tend to have the same ability to process spoken language as they did when they were younger.
- Older readers tend to keep the same ability to recognize and interpret pictures and other images as they age.



Source: Adapted with permission from lists developed by Elizabeth Hoy (personal communication, 2005) and Beth Stevens (2003).

A number of recent publications provide research findings concerning aging and how it relates to cognitive decline and changes in perception. For discussion and evidence about how these age-related changes affect health literacy, health safety, and the quality of life for older people, see the following resources: Baker, Gazmararian, Sudano, & Patterson (2000); Murphy, Davis, Jackson, Decker, & Long (1993); and the articles in the edited books by Craik & Salthouse (1992, 2000); Park, Morrell, & Shifren (1999); and Park & Schwartz (2000). For two excellent summary discussions see Dubow (2004) and Stevens (2003). The discussion and suggestions that follow in this document are based on material in these articles and books.

Changes in vision

Many people experience changes in their vision as they grow older. These age-related changes can affect such things as perception of contrast, colors, and sharpness of detail, making it harder for older people to read written material, especially if the text is in small type. Reading under conditions of good lighting and using aids such as reading glasses, bifocals, or trifocals can help, but the way the material itself is designed and the paper it is printed on have great impact as well. In a later section, we give tips for formatting your written material to make it easier for older eyes.

Declines in cognitive processes

As shown in Figure 9-a above, there are several types of cognitive skills that tend to decline with advancing age. These cognitive declines can affect older adults' ability to understand and use the information they read in written material:

- **Slower processing of information.** It takes older adults longer to recall information and longer to complete tasks that require locating and using information. Slower processing of information can make it harder for older adults to do things such as locate specific types of information in a document or make comparisons.
- **Lessened capacity to do several things at the same time.** Research shows that older adults have less working memory than younger adults. “Working memory” is the capacity of the mind at any given moment to manipulate different types of information. With less working memory available, older adults cannot hold as many pieces of information in their minds at the same time. This diminished capacity to do several tasks simultaneously makes it harder for older adults to read and understand written material that imposes a heavy cognitive demand, such as material that is dense and complex, long sentences with multiple clauses, and complicated diagrams.
- **Lessened ability to focus attention and deal with distractions.** Increased age often means increased difficulty in focusing on specific information and eliminating distractions.

- **Greater difficulty drawing inferences.** Age also affects the capacity of older adults to draw conclusions by reasoning from evidence. The older you get, the more difficult it can be to read between the lines and come to a conclusion based on the information at hand.
- **Less flexibility in thought processes.** Older adults show less ability to change their judgments when they are given additional information that might otherwise alter their opinion. Moreover, older adults are less able to engage in “divergent thinking,” which is the ability to generate alternative explanations or solutions to a problem.

How serious are these cognitive declines?

The cognitive declines we have outlined above are generalizations about what tends to happen for people who are 65 and older. At this point, you may be wondering just when these cognitive declines take place and how severe they tend to be. The Seattle Longitudinal Study, one of the most comprehensive studies of adult intellectual development and decline, provides some answers (Schaie, 2005). Begun in 1956, this ongoing study has data on over 6,000 people. Findings suggest that:

- **Cognitive decline is not consequential for many older adults until later in old age.** In general, it is not until the age of 80 or above that the average older adult falls below the middle range of performance of younger adults.
- **Different cognitive skills decline at different rates.** Evidence from Seattle Longitudinal Study suggests that:
 - “**Verbal memory**” peaks in a person’s sixties and declines in his or her eighties.
 - “**Verbal ability**” (the ability to understand ideas expressed in words) plateaus between ages 40 to 60 and declines last of all the cognitive skills, but it declines more steeply than other abilities in one’s seventies and eighties.
 - In contrast, “**number skills**” (the ability to understand numerical relationships and work with figures) peaks as early as the late thirties but only severely declines in one’s eighties.

Individuals vary in the development and rate of decline in cognitive functioning. Influential factors include heredity, the presence of chronic diseases (such as cardiovascular disease), education, occupation, and the extent of a person’s ongoing participation in activities such as reading that provide mental stimulation.

Cognitive skills that remain in later life

While cognitive capacity in older adults is limited in some ways, Figure 9-a shows that many skills that affect literacy do not decline with age. These include, for example, the ability to process spoken language and the ability to recognize complex pictures. Other cognitive skills tend to remain strong in later life. For

example, older adults are as accurate as younger adults in deciding whether two concepts are related or whether they share particular aspects of meaning.

The lifelong experience of older adults is an important source of strength in cognitive functioning. Since knowledge tends to be retained across the life span, older adults have an extensive base of knowledge and life experience to draw upon. How people use their knowledge and life experience, including how quickly and easily they can access and process it, may tend to change with age. Figure 9-b below provides an example. It compares the decision-making processes of older adults to those of younger people.



Figure


9-b. Older people are different in the way they make decisions.

Research on making medical treatment decisions, playing chess, or solving international political problems all shows that the decision-making process of older adults differs in that:

- Older adults tend to review much less information than younger adults.
- They tend to eliminate choices or possibilities more quickly than younger adults.
- They are less likely to analyze information while making a decision. Instead, they are more likely to make decisions using a set rule (such as “always buy the cheapest”).
- They tend to use references to prior life experience rather than objective data to make their decision.

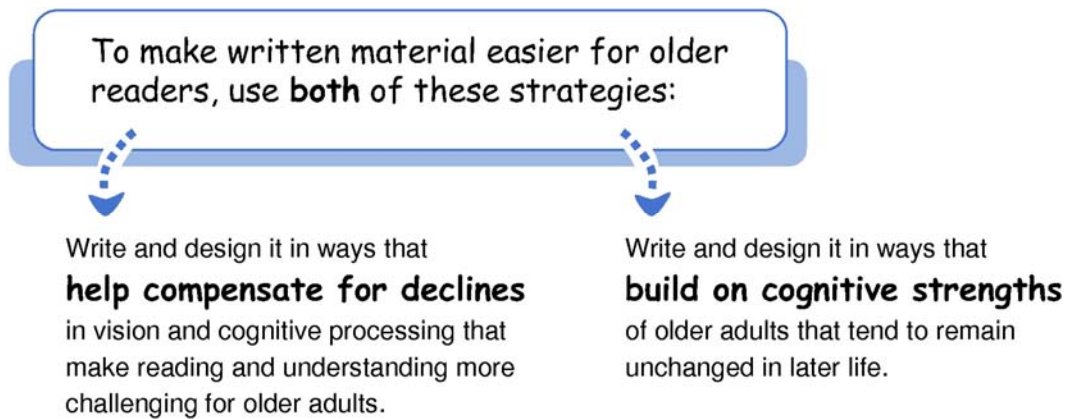
While processes used by older adults to make decisions *differ* from those of younger adults, they are *not necessarily inferior*.

- Experience allows the decision maker to zero in on the best options and more quickly discard irrelevant ones. Over time, experienced decision makers come to recognize characteristics of a problem situation that lead them to reach effective solutions with less analysis than younger decision makers need.
- Younger adults might tend to waste their energy generating excessive numbers of options that do not ultimately yield better decisions.



Source: *How Seniors Learn* by Beth Stevens (2003); adapted with permission for use in this Toolkit.

How can you help older readers?



As shown above, there are two main ways that you can adapt your writing and design to make written material easier for older adults to understand and use: one is to help make up for age-related declines in literacy skills and the other is to build on the cognitive strengths that older readers retain. The tips we give below use both of these strategies.

A reader-centered approach

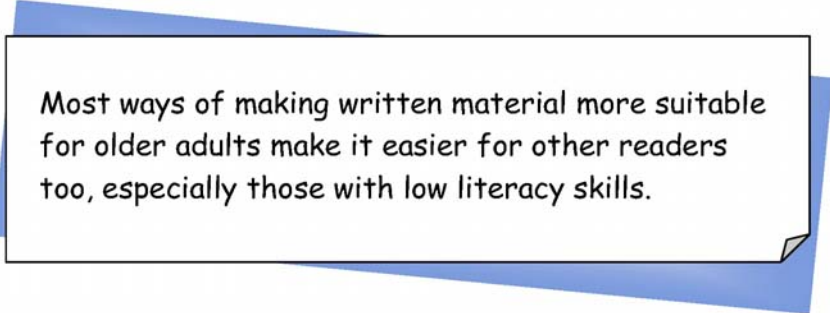
To help make written material easier for older readers, try applying the reader-centered approach outlined in Toolkit Part 2, *Using a reader-centered approach to develop and test written material*. This approach focuses on creating “low barrier” material by avoiding or removing barriers that might keep your readers from noticing, understanding, and using the material. It also emphasizes the importance of testing the material with the intended readers.

When you take a reader-centered approach, you do your best to see the material from the reader’s point of view. Start by thinking about ways in which you differ from older readers who have experienced declines in their vision and cognitive skills. You will understand that **many things about the written material that are not barriers for you might be significant barriers for older readers**:

- Knowing which cognitive skills tend to decline with age helps you identify certain aspects of writing and design that are likely to pose barriers for older readers. These barriers include, for example, small print, long and complex sentences, and comparison tables with rows and columns.

- Knowing which cognitive strengths tend to be retained in later life will help you figure out ways to give older readers a little extra help. For example, you can adapt your explanations and examples to fit with older readers' life experiences.

Below we outline some specific tips for helping older readers. Not all of your older readers will need the extra help we suggest that you give them, but for many of them it will be essential. Most of these tips are covered in more detail elsewhere in this Toolkit because they are included in the *Toolkit Guidelines for Writing and Design* (see Toolkit Parts 3, 4, and 5).



Most ways of making written material more suitable for older adults make it easier for other readers too, especially those with low literacy skills.

Some of our advice for helping older readers applies mainly to this age group of readers, such as using larger size type to help make text more readable to older eyes. But most of it, such as the need to be concrete and explicit, is similar to advice we give throughout the Toolkit about ways to make written material easier for people with low literacy skills to understand and use.



Helping older readers who have vision limitations

The list in Figure 9-c below gives tips on ways to make the print in your written material easier for people to read if they have vision limitations. While the formatting we suggest below is crucial for written material that will be used by people with vision limitations, it makes text more appealing and more legible for any reader (as we explain below, font size is a possible exception.)

Figure

9-c. Ways to make written material easier for people who have vision limitations.

1. Choose highly readable fonts (typefaces).

For details about typefaces and what makes them easy to read, see Toolkit Part 5, Chapter 3, *Guidelines for fonts (typefaces), size of print, and contrast* (Guidelines 6.1, 6.2, and 6.3).

2. Make the type large enough for easy reading by older adults.

As you make adaptations in font size to help older adults, keep in mind that for people with good vision, oversize type can make written material harder to read. In addition, differences in lettering style of a typeface can affect ease of reading as much or more than point size. For more about this, see Toolkit Part 5, Chapter 3, *Guidelines for fonts (typefaces), size of print, and contrast* (Guideline 6.4).

3. For maximum contrast and ease of reading, use black ink for the text and print it on plain, non-glossy white (or nearly white) paper.

This means no text on shaded or patterned backgrounds, because any background other than white reduces contrast and interferes with ease of reading. It's important to avoid glossy paper because glare from glossy paper can be especially hard on older eyes. See Toolkit Part 5, Chapter 3, *Guidelines for fonts (typefaces), size of print, and contrast* (Guidelines 6.7 and 6.8).

4. To make text easier to read, take care in how you format it.

To help make text easier to read, (a) left-justify it (line it up against the left side); (b) add just a little extra space between the lines of text; and (c) keep lines of text to an appropriate length that is not too short and not too long. See Toolkit Part 5, Chapter 3, *Guidelines for fonts (typefaces), size of print, and contrast* (Guidelines 6.9, 6.10, and 6.11).

5. Create a clean, uncluttered layout that has plenty of white space.

Your layout should have a clear and obvious path that guides the reader through the material without diverting or distracting them. See Toolkit Part 5, Chapter 2, *Guidelines for overall design and page layout* (Guideline 5.3).

6. Choose a color scheme that provides adequate contrast and takes into account age-related changes in color perception.

See Toolkit Part 5, Chapter 5, *Guidelines for use of color* (Guideline 8.4). (The need for good contrast also applies to written material that is done in black and white.)

Source: Adapted from Toolkit Part 5.

Helping older readers who have experienced declines in cognitive skills

Written material can work well for older adults:

- It can be organized and formatted in user-friendly ways that reduce the cognitive burden on older adults.
- Older adults can read it at their own pace.
- Older adults can review it to refresh their memory.

Source: Adapted with permission from Stevens, 2003.

As noted above, giving information to older readers in a written format gives them the option to read it as slowly and as often as they wish. Of course, the more user-friendly you can make the information, the better it will work for them. The sections that follow give specific tips that can help compensate for decline in the cognitive skills of older readers. Many of these tips focus on ways of reducing the cognitive burden that the written material imposes on them. Others suggest ways to tap into cognitive strengths that older readers tend to retain in later life.

Tips for reducing the cognitive demand of your written material

As we've noted, older readers find it harder to focus their attention and concentrate on the relevant details. A decline in working memory reduces the amount of mental work space available, which makes it harder to handle multiple types of information at the same time. It can take more time and effort for older readers to recall and use information they already know, interpret and absorb new information, make comparisons and judgments, draw inferences, and make decisions.

When you think about the cumulative effect of such cognitive changes, it's easy to see how older readers could be overwhelmed by written material, especially if it is long, dense, or complex. To make written material usable for them, you need to minimize the cognitive burden that the material imposes on them.

Minimizing cognitive burden includes such things as:

- Making decisions about content, organization, writing, and design that help make the material less taxing on the reader's working memory and speed of information processing.
- Trying to anticipate possible problem spots and avoid doing things that might slow down, confuse, or mislead older readers.

Reducing cognitive burden on readers is a major theme of the Toolkit. It's an important goal for material that will be used by older readers, but it's also crucial for readers with lower literacy skills. In one way or another, most of the *Toolkit Guidelines for Writing and Design* are about reducing cognitive burden and offering support to readers. The list of tips that follows in Figure 9-d refers to some of these guidelines. Other parts of the Toolkit give you detailed guidance on how to apply these guidelines to your written material.

Figure

9-d. Strategies for writing and design that help reduce cognitive burden on older adults and other readers.

Be selective about *what and how much* information you include in the written material.

- Focus on what matters most to your readers and is culturally appropriate for them.
- Limit the total amount of information and emphasize main points that people really need to know.
- If you condense the material, don't drop the explanations, examples, and summaries that help readers understand the information.

In Toolkit Part 4, see Chapter 1, *Guidelines for content of your written material* (Guidelines 1.2, 1.3, and 1.6) and Chapter 3, *Guidelines for writing style* (Guidelines 3.4 and 3.7).

Write clearly, concisely, and cohesively, using words that are familiar to your readers.

- Use the active voice and write with a friendly and supportive tone. Be direct, explicit, and concrete.
- Write in ways that help readers understand the meaning of the material. Give the context first, and incorporate definitions and explanations into the text. Use technical terms and acronyms only if readers really need to know them. Don't make readers struggle to figure out something that is implied but not stated in the text. Instead, create cohesion by developing ideas in a logical progression that makes connections between ideas explicit.
- Remember that shorter is not always better: a short terse sentence can be ambiguous and confusing. A long sentence with simple conjunctions might be much easier to understand.

Also, remember that repetition can be good. Readers need some time to understand and absorb new information, so help them by repeating the main points.

In Toolkit Part 4, see Chapter 3, *Guidelines for writing style*, and Chapter 4, *Guidelines for engaging, motivating, and supporting your readers*.

Make the material seem clear, appealing, and easy to read at first glance.

- Make the purpose and usefulness of the material immediately obvious.
- Create uncluttered pages with generous margins, plenty of white space, and something to catch the reader's eye but not confuse it.
- Create a tidy sense of order and predictability by keeping the layout consistent from page to page in its style and structure.

In Toolkit Part 4, see Chapter 1, *Guidelines for content of your written material*. In Toolkit Part 5, see Chapter 2, *Guidelines for overall design and page layout*.

Break the material up, spread it out, and make it easy to skim.

- Group the material into meaningful “chunks” of reasonable size and organize it in a way that makes sense to the readers.
- Use plenty of prominent and informative headings to help show how the material is organized and signal what is next.
- Make the text highly legible and use contrast and other devices to emphasize key points. When the words themselves are easy to see and the main points stand out, readers are free to focus on interpreting the meaning of what they read. (For more about font choice, type size, and contrast, see Figure 9-c above.)
- Use devices such as bulleted lists, step-by-step instructions, captions next to pictures, and summaries of key points.

In Toolkit Part 4, see Chapter 2, *Guidelines for organization (sequencing, grouping, and labeling)*, and Chapter 4, *Guidelines for engaging, motivating, and supporting your readers*. In Toolkit Part 5, see Chapter 4, *Guidelines for headings, bulleted lists, and emphasizing blocks of text*.

Integrate all of the information into one continuous flow that minimizes distractions and detours.

- Place headings, text and images in a way that guides readers smoothly through all of the material without diverting or distracting them in ways that could cause them to overlook something or lose their train of thought. There should be a clear and obvious path for the eye to follow through each page. This path should fit with a reader’s natural and deeply ingrained way of progressing through a printed page, which is called “reading gravity” (see Guideline 5.3 and Figures 5-2-c and 5-2-d in Toolkit Part 5, Chapter 2, *Guidelines for overall design and page layout*).
- Avoid using design features such as sidebars that detour readers from the main text or layouts that send them to a different part of the material, such as sending them to the end to find a worksheet (see Figure 5-2-e in Toolkit Part 5, Chapter 2).
- Make it easy for readers to locate information. For example, make phone numbers and resources prominent and repeat the same information *wherever readers need it*, rather than sending them somewhere else to find it.

In Toolkit Part 4, see Chapter 3, *Guidelines for writing style*. In Toolkit Part 5, see Chapter 2, *Guidelines for overall design and page layout*).

Build on the cognitive strengths of older adults that tend to remain unchanged in later life.

- Tap into the life experiences and knowledge base of older adults. Capitalize on the cognitive strengths of older adults by use of stories, explanations, analogies, and examples that refer to their life experiences and knowledge base.
- Help make written material culturally appropriate for older readers by taking into account generational differences.
- Use pictures and diagrams. Since people retain the ability to process visual information in later life, including clear and simple illustrations and diagrams in your material can be helpful to older readers. To reinforce key points and avoid distracting your readers, choose visuals that relate

directly to the topic of your material. Be cautious about using symbols, icons, cartoons, or caricatures, because they may confuse your readers.

In Toolkit Part 4, see Chapter 1, *Guidelines for content of your written material*, and Chapter 3, *Guidelines for writing style*. In Toolkit Part 5, see Chapter 6, *Guidelines for use of photographs, illustrations, and clip art*.

Offer extra support for older readers.

- Consider coaching older readers explicitly on how to use the material. For example, you could suggest that since there is so much information in it, it will be helpful to read it twice. If it's reference material, tell them to keep it and explain why.
- If there is a decision to be made, present it clearly and coach readers on things they should consider and possible tradeoffs they must make. Give them basic information (what, when, why). If possible, break the decision-making process into a series of steps.
- Consider supplementing the written material. As we noted earlier in Figure 9-a, older adults tend to have the same ability to process spoken language as they did when they were younger. In addition to (or instead of) written material, you could consider alternative ways to communicate the information, such as in-person presentations and discussion, telephone help lines, and video and audio recordings.

Test the material with older adults.

It can be hard to anticipate all the ways in which written material might unintentionally confuse or mislead. Check on how well your material is working by getting feedback directly from your intended readers.

For help on methods of testing written material, see Toolkit Part 6, *How to collect and use feedback from readers*).



Source: Adapted from Toolkit Parts 4 and 5, with suggestions and additional points from Beth Stevens and Elizabeth Hoy.

End notes

Acknowledgements

Thanks to Beth Stevens, Mathematica Policy Research, and Elizabeth Hoy for their many contributions and helpful suggestions for this document, Toolkit Part 9. Much of the discussion about cognitive decline in later life is an adaptation of text in *How Seniors Learn*, an issue brief written by Beth Stevens for the Center for Medicare Education. For more discussion on this topic, and more citations to the literature, please see the issue brief. It is available at on the Internet at <http://www.mathematica-mpr.com/PDFs/howseniors.pdf>.

Thanks also to Mark Evers, Carol Cronin, and Joyce Dubow for sharing insights on this topic.

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