

Accessibility Benchmarking Scale

<p>+8: The product is universally easy to use.</p> <ul style="list-style-type: none"> • Population: Approximately 95% of the population will find the product easy to use. • Tasks: All tasks associated with the product are easy to perform. • Tool Usage: The product does not require the use of a tool.
<p>+6: All tasks associated with using the product are easy to do and do not present barriers for most people with limited functional abilities.</p> <ul style="list-style-type: none"> • Population: Approximately 85% of the population (all tasks) will find the product easy to use. • Tasks: All tasks associated with the product are easy to perform. • Tool Usage: The product does not require the use of a tool.
<p>+4: All critical tasks associated with using the product are easy to do and do not present barriers for most people with limited functional abilities. Some ease of use issues with non-critical tasks remain.</p> <ul style="list-style-type: none"> • Population: Approximately 85% of the population will find the product easy to use. • Tasks: All critical tasks associated with the product are easy to use. • Tool Usage: The product does not require the use of a tool. <p>NOTE: A rating of +4 corresponds to the minimum passing requirements for the Arthritis Australia's commendation program.</p>
<p>+2: All critical tasks associated with using the product are easy to do and do not present barriers for most people with limited functional abilities but may require additional time or effort to complete one or more critical tasks.</p> <ul style="list-style-type: none"> • Population: Approximately 75% of the population will find the product easy to use those with functional limitations may require additional time or effort. • Tasks: All critical tasks associated with the product are easy to perform. • Tool Usage: The product does not require the use of a tool.
<p>0: Most users with functional limitations will require additional time or effort to complete one or more critical tasks.</p> <ul style="list-style-type: none"> • Population: Approximately 75% of the population will find the product easy to use those with functional limitations will required additional time or effort. • Tasks: Most critical tasks associated with the product are easy to perform. • Tool Usage: The product may require the use of a tool.
<p>-2: Users with limited functional capabilities experience slight to moderate pain or difficulty while completing one or more critical tasks.</p> <ul style="list-style-type: none"> • Population: Approximately 60% of the population will find the product easy to use while those with functional limitations will experience slight to moderate pain or difficulty while completing one or more critical tasks. • Tasks: Most critical tasks associated with the product are easy to perform. • Tool Usage: The product may require the use of a tool.

-4: The product requires people with limited functional abilities to use a tool or causes significant pain in order to complete one or more critical tasks.

- Population: Approximately 60% of the population will find the product easy to use while using a tool in a safe manner. People with functional limitations may experience significant pain or difficulty while using a tool to open the product.
- Tasks: Some critical tasks associated with the product are easy to perform.
- Tool Usage: The product does require the use of a tool.

-6: The product requires people with limited functional abilities to use a tool in an unsafe manner in order to complete one or more critical tasks.

- Population: Approximately 60% of the population will find the product easy to use while using a tool in a safe manner. People with limited functional abilities will either require assistance or will have to use a tool in an unsafe manner in order to use the product.
- Tasks: Some critical tasks associated with the product are easy to perform.
- Tool Usage: The product does require the use of a tool.

-8: The product is impossible to use for people with limited functional abilities.

- Population: Less than 60% of the population will find the product easy to use while using a tool in a safe manner.
- Tasks: Some critical tasks associated with the product are easy to perform.
- Tool Usage: The product does require the use of a tool.

The Accessibility Benchmarking Scale (SCALE) provides a standard method for comparing the ease of use of two comparable products, such as two competing brands of a similar product or two design solutions for a single product. The SCALE was based on the Georgia Tech Research Institute's (GTRI) test criteria for the Arthritis Foundation's Ease of Use commendation program and was developed in collaboration with Nestle and Arthritis Australia

Rating a product using the Scale first requires identification of both critical and non-critical tasks associated with using the product. Critical tasks are task that must be performed in order to for the product to be useful to the consumer. For products with packaging, critical tasks may include removing the packaging (e.g., removing the plastic outer wrap and opening the box); accessing the product (e.g., removing the closure, flipping the lid open, or opening the plastic bag); dispensing the contents (e.g., removing the product from the bottle, squeezing the tube, or pressing the spray button); resealing the product (e.g., replacing the closure, flipping the lid closed, or resealing the plastic bag), and reading the package labeling (e.g., reading the instructions for use and the expiration date). Non-critical tasks are ancillary tasks that may be optionally performed by the consumer. The consumer's inability to perform a non-critical task does not inhibit the primary intended use of the product. Non-critical tasks include reading non-critical package labeling (e.g., reading the product marketing message) and other tasks not directly associated with product usage.

Once all critical and non-critical tasks have been identified, the product is tested in accordance with the Accessibility Evaluation Methodology (AEM) developed at GTRI and used to evaluate the ease of use of consumer products for the Arthritis Foundation's Ease of Use commendation program. A small sample of users (typically eight) with moderate to severe arthritis is recruited to participate in the user evaluation. Typically, the

participants recruited for the study are pre-screened for arthritic symptoms in their wrists and fingers, but this depends on the type of product being tested.

People with arthritis represent 1 in 5 adults in most developed countries. If a product passes the Accessibility Evaluation Methodology criteria the majority of the population will find the product easy to use. Roughly 1 in 20 adults have functional limitations that are greater than those experienced by people with moderate to severe arthritis. Passing the evaluation criteria does not necessarily mean that individuals with severe functional limitations will be able to use the product but it is a good indicator when combined with population norms. In some cases, products may be difficult to use by those at the low end of the normal range of functional ability. For example, a jar may be difficult to open for those with small hands or some females with limited strength. Population norm data combined with the results of testing can predict when members of the general non-disabled population will have difficulty with the product.

Users recruited for the study are asked to complete all critical and non-critical tasks associated with using the product. Performance measures for the user testing include task duration, an assessment of task completion, and a log of errors made during the performance of the task. The assessment of task completion is based on empirical observations and expert evaluations. Additionally, the key-event reporting method is used to elicit feedback from participants on the ease of use of the product. Prior to the evaluation, the evaluator briefs the participants about key events and asks the participant to report them when they occur. The key events include:

- Inability to complete a simulated task
- Reported pain or discomfort
- Reported confusion about how to use the product
- Perceived errors
- Failure to read or discern product instructions

Participants that report pain or discomfort while completing a task are asked to rate their level of pain using the Wong-Baker FACES Pain Rating Scale (see Figure 1).

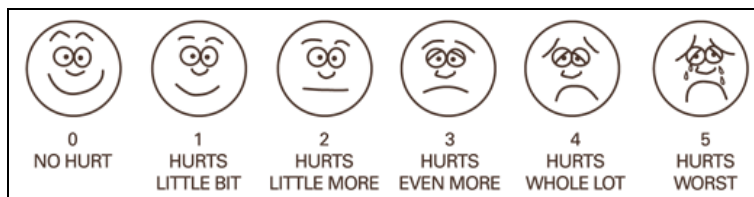


Figure 1: The Wong-Baker Faces Pain Rating Scale.

Participants are also asked to self-report ease of use for each task using a five-point Likert scale with 1 representing “not at all easy to use” and 5 representing “extremely easy to use”. A score of 3 indicates that the product is “moderately easy to use” for the specific task being performed.

Following completion of the user evaluation, the results are compiled and used to assign a SCALE rating to the product. The Scale provides detailed descriptions of the requirements at each rating level. A rating of +4

corresponds to a pass rating for the Arthritis Australia's commendation program. There are three primary considerations when assessing the benchmarking score.

First, a determination is made as to which populations would find the packaging easy to utilize. The population score is divided into three segments. A population score of 60 represents that roughly 60% of the general population would find the product easy to use. Adults with low hand strength, children, older adults, adults with arthritis, and people with disabilities impacting their upper extremities would likely find the product difficult to use. A population score of 85 represents that roughly 85% of the general population would find the product easy to use. In this segment, most able bodied adults, older adults, and adults with arthritis will find the product easy to use. Some children and people with disabilities impacting their upper extremities would likely find the product difficult to use. A population score of 95 represents that roughly 95% of the general population will find the product easy to use. Only those with severe disabilities would find the product difficult to use.

Next, a determination is made as to whether the product requires the use of a tool for a specific population segment. Not requiring the use of a tool to open a product is more desirable than requiring the use of a tool. According to the definition of the GTRI accessibility evaluation criteria a package that requires the use of a tool such as a knife, screwdriver, hammer, or scissors is not considered easy to use. Tool usage, particularly for people with functional limitations, is associated with increased risk of injury. Packaging designed for ease of use should not require a tool.

Finally, a determination is made as to whether all tasks for the population under consideration can be performed to criteria or if only critical tasks for the population segment under consideration can be performed to criteria.

The three considerations (populations covered, tool usage, and task criticality) are combined to form the benchmarking score. At the top of the benchmarking scale are products that allow 95% of the general population to perform all tasks associated with the product easily without requiring the use of a tool. At the bottom of the scale are products that are unsafe or products that only support 60% or less of the general population for critical tasks and require the use of a tool.

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