

**NINDS CDE Notice of Copyright  
Barthel Index (BI)**

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| <p><b>Availability:</b></p>                    | <p>The Maryland State Medical Society holds the copyright for the Barthel Index. It may be used freely for non-commercial purposes with the primary reference cited: [Mahoney FI, Barthel D. "Functional evaluation: the Barthel Index." Maryland State Med Journal 1965;14:56-61. Used with permission.]</p> <p>Permission is required to modify the Barthel Index or to use it for commercial purposes. Shorter version of the form is available for use. Multiple languages translations available – validation studies in English only. Please contact Mapi Research Trust to sign a translation agreement and to obtain Linguistic Validation Guidelines.</p> <p>Contact information and permission to use:<br/> MAPI Research Trust, Lyon, France:<br/> E-mail: <a href="mailto:PROinformation@mapi-trust.org">PROinformation@mapi-trust.org</a><br/> Internet: <a href="http://www.mapi-trust.org">www.mapi-trust.org</a></p> <p>Information on Barthel Index:</p> <ul style="list-style-type: none"> <li>• <a href="#">Rehab Measures: Barthel Index</a></li> <li>• <a href="#">PROQOLID</a></li> </ul> |
| <p><b>Classification:</b></p>                  | <p><b>Core:</b> Stroke</p> <p><b>Supplemental:</b> Multiple Sclerosis (MS), Myotonic Muscular Dystrophy (DM), Neuromuscular Disease (NMD) and Amyotrophic Lateral Sclerosis (ALS).</p> <p><b>Exploratory:</b> Congenital Muscular Dystrophy (CMD) and Friedreich's Ataxia (FA).</p>   |
| <p><b>Short Description of Instrument:</b></p> | <p>The Barthel Index (BI) or Barthel ADL index is a scale used to measure performance in basic activities of daily living (ADL). It uses ten variables describing ADL and mobility. A higher number is associated with a greater likelihood of being able to live at home with a degree of independence following discharge from hospital.</p> <p><b>Purpose:</b> Assesses the ability of an individual with a neuromuscular or musculoskeletal disorder to care for him/herself</p> <p><b>Construct measured:</b> Activities of daily living (ADL) and mobility</p> <p><b>Generic vs. disease specific:</b> Generic.</p> <p><b>Means of administration:</b> Interview (including over the phone) or observation; typically scored by a multidisciplinary team.</p> <p><b>Intended respondent:</b> Patient or caregiver.</p> <p><b># of items:</b> 10.</p> <p><b># of subscales and names of sub-scales:</b> 2 – Activities of daily living, Mobility.</p> <p><b># of items per sub-scale:</b> N/A.</p>   |

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**Comments/Special  
instructions:**

**Scoring:** A patient scoring 100 is continent, feeds himself, dresses himself, gets up out of bed and chairs, bathes himself, walks at least a block, and can ascend and descend stairs. This does not mean that he is able to live alone: he may not be able to cook, keep house, and meet the public, but he is able to get along without attendant care. A score of 0 is given in all of the above activities when the patient cannot meet the criteria as defined above.

According to Sinoff and Ore, scoring on the BI can be interpreted as follows:

- score of 80–100, independent.
- score of 60–79, needs minimal help with ADL.
- score of 40–59, partially dependent.
- score of 20–39, very dependent.
- score of < 20, totally dependent.

**Background:** The BI was originally developed as an ADL assessment for long-term patients in hospital with neuromuscular or musculoskeletal disorders (Mahoney and Barthel 1965). It is one of the most widely used generic disability measures, and has been used extensively in MS. A five-item short form of the Barthel Index is also available (Hobart et al 2001). It should be used as a record of what a patient does, not of what a patient can do.

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| <b>Rationale/<br/>Justification:</b> | <p><b>Strengths/Weaknesses:</b> The advantage of the BI is its simplicity. It is useful in evaluating a patient's state of independence before treatment, his progress as he undergoes treatment, and his status when he reaches maximum benefit. It can easily be understood by all who work with a patient and can accurately and quickly be scored by anyone who adheres to the definitions of items. A potential advantage of the Barthel Index is that it can be administered by patient self-report, patient interview including by telephone, or by report of a proxy able to provide reliable information (e.g. spouse, family member, caregiver, etc.). However, there are few data confirming the equivalence of these data collection methods.</p> <p><b>Psychometric Properties:</b> A number of studies support the validity, reliability and responsiveness of the BI in MS. Ceiling and floor effects potentially limits its responsiveness to change in the community and long term settings. A sizable number of studies support the high reproducibility of the BI, Cronbach's reliability ranging from 0.84-0.96. Responsiveness is similar to that of the FIM. The BI is highly correlated with the FIM.</p> <p>The BI is considered a reliable disability scale for stroke patients. However, the scale suffers from 'ceiling effects' and therefore does not differentiate disability well among patients with higher levels of functioning. The BI also has 'floor effects' and is not useful in the setting of acute stroke because it typically cannot be used to measure initial stroke severity.</p> <p><b>Administration:</b> The examination requires 5-10 minutes to complete.</p> <p><b>Other Important Notes:</b> A shorter version of the form is available for use; the modified 20-point version of the BI introduced by Collin and colleagues in 1988. The modified 20-point BI is easier and quicker to administer than the 100-point BI.</p> <p>English and Spanish translations available –validation studies in English only.</p> <p>The BI is a useful tool at 30 or 90 days to assess level of assistance required for activities of daily life. There are currently no published instructions on the use of the BI to assess initial stroke disability. Pre-morbid BI is reasonable to assess on presentation, but there is a lack of data to identify how to use it to assess initial stroke presentation. Raters using this at admission or discharge should develop a standard methodology and scoring instructions for use in hospital settings.</p> |
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| <b>References:</b> | <p><b>Key Reference:</b> Mahoney FI, Barthel D. Functional evaluation: the Barthel Index. Maryland State Medical Journal 1965;14:56-61.</p> <p><b>Other References:</b> Hobart JC, Lamping DL, Freeman JA, Greenwood RJ, McLellan DL, Thompson A. Evidence-based measurement: which disability scale for neurological rehabilitation? Neurology 2001; 57: 639-644.</p> <p>Hobart JC, Thompson AJ. The five item Barthel index. J Neurol Neurosurg Psychiatry 2001;71:225-230.</p> <p>Sinoff G, Ore L. The Barthel Activities of Daily Living Index: self-reporting versus actual performance in the old-old (&gt; 75 years). J Am Geriatr Soc. 1997; 45: 832-6.</p> <p>Granger CV, Dewis LS, Peters NC, Sherwood CC, Barrett JE (January 1979). "Stroke rehabilitation: analysis of repeated Barthel index measures". <i>Arch Phys Med Rehabil</i> <b>60</b> (1): 14-7.</p> <p>Shah S, Vanclay F, Cooper B. Improving the sensitivity of the Barthel Index in stroke rehabilitation. J Clin Epidemiol 1989; 42:703-709.</p> <p>D’Olhaberriague L, Litvan I, Mitsias P, Mansbach HH. A reappraisal of reliability and validity studies in stroke. Stroke. 1996;27:2331-2336.</p> <p>Gupta, A. (2008). Barthel Index. In <i>Measurement Scales Used in Elderly Care</i> (pp. 42-49). Abingdon, Oxon, U.K.: Radcliffe Publishing Ltd.</p> <p>Collin C, Wade DT, Davies S et al. The Barthel ADL Index: a reliability study. Int Disabil Stud. 1988; 10: 61-3.</p> |
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