

## Information about PARCA-R translations

### Composition of the PARCA-R questionnaire:

The Parent Report of Children's Abilities-Revised (PARCA-R) questionnaire comprises two scales, a Non-Verbal Cognitive Scale and a Language Scale. These were developed as follows.

**Non-Verbal Cognitive Scale:** In 1998, Saudino and colleagues developed the Parent Report of Children's Abilities (PARCA) - a parent-based assessment of children's non-verbal cognitive abilities at two years of age for use as an outcome measure in the Twins Early Development Study (TEDS). The parent report component of this assessment comprised 26 questions to assess children's non-verbal cognitive abilities. In 2002, with permission from the authors, the PARCA parent report was revised by Johnson and colleagues to enable its use in clinical populations at risk for developmental disorders, such as children born very preterm, by including eight additional items to assess non-verbal cognitive abilities at a lower developmental level than was covered in the PARCA. The resulting 34-item scale forms the Non-Verbal Cognitive Scale of the PARCA-R and is used with permission from the authors of the PARCA.

**Language Scale:** To provide a parent-completed assessment of language development for TEDS, Saudino and colleagues used the MacArthur Communicative Development Inventories: UK Short Form (MCDI:UKSF). This was an adaptation of the MacArthur Communicative Development Inventories: Words and Sentences (MCDI:WS) for children aged 16 to 30 months. The MCDI:UKSF included a 100-word expressive vocabulary checklist and 12 sentence pairs to assess children's emerging grammatical development. This forms the Language Scale of the PARCA-R and is used with permission from the authors of the MCDI:UKSF.

**Permissions:** To reflect the development of the PARCA-R, all copies of the questionnaire should include the following statement on the front page: "The PARCA questionnaire was adapted for use with infants born preterm (Johnson et al., Dev Med Child Neurol 2004, 46;389-397) with permission from Saudino, Dale, Oliver, Petrill, Richardson, Rutter, Simonoff, Stevenson & Plomin (1998). The language measures included in this questionnaire are used with permission from the MacArthur-Bates CDI Advisory Board, Chair: Larry Fenson (2016)."

### PARCA-R translations:

The PARCA-R questionnaire has been translated into a number of languages other than English to facilitate its use in research. To obtain a copy of the questionnaire in your preferred language, please use the links provided on the website ([www.parca-r.info](http://www.parca-r.info)). For more information about the translated versions, including information about permissions for use and ongoing validity studies, please contact the relevant authors as shown in the table below.

Please note that the translated questionnaires available on the website have been developed and submitted by a range of research groups. The translations available may not have been culturally or linguistically adapted or validated. To date, only the original English version of the PARCA-R has been standardised for use in the UK, therefore norm-referenced standard scores are only available for this version.

The table below provides information about the extent to which the available versions have been adapted or are direct translations of the English version, and whether any validity studies have been carried out. This includes information about the source of the Language Scale and any relevant permissions or requirements for use.

Please exercise caution when using direct translations of the original version of the Language Scale, rather than cultural or linguistic adaptations, since the derived scores may not be appropriate or equivalent in that language (see: <https://mb-cdi.stanford.edu/documents/AdaptationsNotTranslations2015.pdf>). Similarly, please exercise caution if applying the UK normative data to derive standard scores for questionnaires completed in languages other than English.

The PARCA-R team cannot take responsibility for the accuracy of the available translated versions.

Original English (UK) version					
Language	Non-verbal Cognitive Scale	Language Scale	Validity studies	Standardisation	Contact
English (UK)	Translation not applicable	Translation not applicable	<p><b>Validity studies in the UK:</b></p> <p>Blaggan et al. A parent questionnaire for developmental screening in infants born late and moderately preterm. <i>Pediatrics</i> 2014;134(1):e55-62.</p> <p>Johnson et al. Validation of a parent report measure of cognitive development for very preterm infants. <i>Dev Med Child Neurol</i> 2004;46(6):389-97.</p> <p>Johnson et al. Developmental assessment of preterm infants at 2 years: validity of parent reports. <i>Dev Med Child Neurol</i> 2008;50(1):58-62.</p> <p><b>Validity studies in Australia &amp; New Zealand:</b></p> <p>Martin et al. Identification of infants with major cognitive delay using parental report. <i>Dev Med Child Neurol</i> 2012;54(3):254-259.</p> <p>Martin et al. Performance of the Parent Report of Children's Abilities-Revised (PARCA-R) versus the Bayley Scales of Infant Development III. <i>Arch Dis Child</i> 2013;98(12):955-8.</p>	<p><b>UK standardisation:</b></p> <p>Standard scores for the non-verbal cognitive scale and language scale in children aged 23.5 to 27.5 months.</p> <p>Johnson et al. Parent Report of Children's Abilities – Revised (PARCA-R). Technical and Interpretive Manual. University of Leicester, Leicester, 2019.</p> <p>Johnson et al. Standardisation of the Parent Report of Children's Abilities-Revised: a norm-referenced assessment of cognitive and language development at age 2 years. <i>Lancet Child Adolesc Health</i> 2019;3(1):709-712.</p>	PARCA-R team, Email: parca-r@le.ac.uk

Translations					
Language	Non-Verbal Cognitive Scale	Language Scale	Validity studies	Standardisation	Contact
<b>Chinese</b>	Direct translation of the English version	Translation not available	No	No	Non-Verbal Cognitive Scale translated for use in the SafeBoosC III Trial. Contact: Marie Isabel Skov Rasmussen, Email: marie.isabel.skov.rasmussen@regionh.dk
<b>Czech</b>	Direct translation of the English version	Language scale: adaptation. Linguistic adaptation of the English PARCA-R Language Scale completed by Julie Hladikova. For information about the adaptation, see the Czech translation protocol available on the PARCA-R website.  <b>Permissions:</b>  This version of the Language Scale is used with permission from Julie Hladikova.	No	No	For more information about the Czech translation and adaptation contact Julie Hladikova, Email: zalmanovajulie@gmail.com
<b>Danish</b>	Direct translation of the English version	Translation not available	No	No	Non-Verbal Cognitive Scale translated for use in the EPICE Study. Contact: Klaus Boerch; Email: Klaus.Boerch@regionh.dk
<b>Dutch (Netherlands)</b>	Direct translation of the English version	Direct translation of the English version	No	No	Non-Verbal Cognitive Scale and Language Scale translated for use in the EPICE Study. Contact: Arno van Heijst, Email: arnovanheijst@me.com
<b>Estonian</b>	Direct translation of the English version	Language scale: adaptation. The Estonian version of the PARCA-R Language Scale contains scales from the Estonian-language short version of MacArthur-Bates Communicative Development Inventory: Words and Sentences.	The Estonian version of the PARCA-R Language Scale contains scales from the Estonian-language short version of MacArthur-Bates Communicative Development Inventory: Words and Sentences.	The Estonian version of the PARCA-R Language Scale contains scales from the Estonian-language short version of MacArthur-Bates Communicative Development Inventory: Words and Sentences.	Non-Verbal Cognitive Scale and Language Scale translated for use in the EPICE Study.  For further information about the Estonian translation of the Non-Verbal Cognitive Scale contact: Heili Varendi; Email: heili.varendi@ut.ee

		<p>Reference: Urm, A. &amp; Tulviste, T. (2021). Toddlers' early communicative skills as assessed by the short form version of the Estonian CDI-II. <i>Journal of Speech, Language, and Hearing Research</i>. 64 (4), pp.1303-1315.</p> <p><b>Permissions:</b></p> <p>This version of the Language Scale is used with permission of Tiia Tulviste and Ada Urm.</p>	<p>Reference: Urm, A. &amp; Tulviste, T. (2021). Toddlers' early communicative skills as assessed by the short form version of the Estonian CDI-II. <i>Journal of Speech, Language, and Hearing Research</i>. 64 (4), pp.1303-1315.</p>	<p>Reference: Urm, A. &amp; Tulviste, T. (2021). Toddlers' early communicative skills as assessed by the short form version of the Estonian CDI-II. <i>Journal of Speech, Language, and Hearing Research</i>. 64 (4), pp.1303-1315.</p>	<p>For further information about the Estonian adaptation of the Language Scale contact: Tiia Tulviste or Ada Urm: Emails: Tiia.Tulviste@ut.ee; Ada.Urm@ut.ee</p>
<b>Finnish</b>	Direct translation of the English version	<p>Language scale: adaptation.</p> <p><u>Vocabulary checklist:</u></p> <p>Finnish short form versions of the MacArthur Communicative Development Inventories; reference: Stolt S &amp; Vehkavuori S. 2018. <i>Sanaseula MacArthur-Bates Communicative Development Inventories - arviointimenetelmän lyhyt, suomalainen versio</i>. Jyväskylä: Niilo Mäki Instituutti.</p> <p><u>How your child uses words (Qs 1-6):</u></p> <p>Questions are included in the Finnish long form versions of the MacArthur Communicative Development Inventories; reference: Lyytinen P. 1999. <i>Varhaisen kommunikaation ja kielen kehityksen arviointimenetelmä</i> [Finnish long form versions of the MacArthur Communicative Development</p>	<p>Validity studies on the vocabulary checklist:</p> <p>Validity of the Finnish short form versions has been assessed and information is presented in the manual of the method; reference: Stolt S &amp; Vehkavuori S. 2018. <i>Sanaseula MacArthur-Bates Communicative Development Inventories - arviointimenetelmän lyhyt, suomalainen versio</i>. Jyväskylä: Niilo Mäki Instituutti.</p> <p>Vehkavuori, S., Kämäräinen, M. &amp; Stolt, S. 2021. Early receptive and expressive lexicons and language and pre-literacy skills at 5;0 years- A longitudinal study. <i>Early Human Development</i>, 156.</p> <p>Vehkavuori, S. &amp; Stolt, S., 2019. Early lexicon and language skills at 42 months. <i>Clinical Linguistics &amp; Phonetics</i>. 33 (9).</p>	<p>The word list included in the Finnish PARCA-R has been normed for Finnish children aged between 9 and 24 months; reference: Stolt S. &amp; Vehkavuori S. 2018. <i>Sanaseula MacArthur-Bates Communicative Development Inventories - arviointimenetelmän lyhyt, suomalainen versio</i>. Jyväskylä: Niilo Mäki Instituutti.</p>	<p>For further information about the Finnish translation of the Non-Verbal Cognitive Scale contact: Petriina Munck; Email: petriina.munck@gmail.com</p> <p>For further information about the Estonian adaptation of the Language Scale adaptation contact: Suvi Stolt; E-mail: suvi.stolt@helsinki.fi</p>

		<p>Inventories]. Jyväskylä: Niilo Mäki Instituutti.</p> <p><u>How your child uses words (Qs 7-18):</u></p> <p>Questions have been translated and adapted for Finnish language by Prof Suvi Stolt.</p> <p><b>Permissions:</b></p> <p>This version of the language scale is used with permission from Niilo Mäki Insituutti.</p>			
<b>Flemish</b>	Direct translation of the English version	Direct translation of the English version	No	No	<p><b>Non-Verbal scale translation:</b></p> <p>Non-verbal Cognitive Scale translated for use in the EPICE Study. Contact: Patrick van Reempts, Email: patrick.vanreempts@uantwerpen.be.</p> <p><b>Language scale translation:</b></p> <p>Language scale translation funded by EU under HC2020 project 667224; www.albino-study.eu.</p> <p>For more information contact Axel Franz, Email: Axel.Franz@med.uni-tuebingen.de</p> <p>and</p> <p>Isabelle Hermans, Email: studieteam.neonatologie@uzleuven.be</p>
<b>French</b>	Direct translation of the English version	Direct translation of the English version	No	No	<p><b>Non-verbal scale translation:</b></p> <p>Non-verbal Cognitive Scale translated for use in the EPICE Study. Contact: Chief Investigator: Jennifer Zeitlin; Email: jennifer.zeitlin@inserm.fr</p> <p><b>Language scale translation:</b></p>

					Language scale translation funded by EU under HC2020 project 667224; <a href="http://www.albino-study.eu">www.albino-study.eu</a> . For more information contact Axel Franz, Email: <a href="mailto:Axel.Franz@med.uni-tuebingen.de">Axel.Franz@med.uni-tuebingen.de</a> and Isabelle Hermans, Email: <a href="mailto:studieteam.neonatalogie@uzleuven.be">studieteam.neonatalogie@uzleuven.be</a>
<b>German (Germany)</b>	Direct translation of the English version	Direct translation of the English version	No	No	Non-Verbal Cognitive Scale and Language Scale translated for use in the EPICE Study. Contact: Rolf Felix Maier; Email: <a href="mailto:Rolf.maier@med.uni-marburg.de">Rolf.maier@med.uni-marburg.de</a>
<b>German (Switzerland)</b>	Direct translation of the English version	Direct translation of the English version	<b>Validity study in Switzerland:</b> Picotti E et al. Performance of the German version of the PARCA-R questionnaire as a developmental screening tool in two-year-old very preterm infants. <i>PLOS One</i> 2020;15(9):e0236289	No	Contact Giancarlo Natalucci, Email: <a href="mailto:Giancarlo.Natalucci@usz.ch">Giancarlo.Natalucci@usz.ch</a>
<b>Greek</b>	Direct translation of the English version	Direct translation of the English version	No	No	Contact Dr Ilias Chatziioannidis, Email: <a href="mailto:drilias@windowslive.com">drilias@windowslive.com</a> ; Dr Vassilis Argyroulis, Email: <a href="mailto:vargi@uth.gr">vargi@uth.gr</a> ; or Dimitra Piltsouli, Email: <a href="mailto:dpiltsouli@yahoo.gr">dpiltsouli@yahoo.gr</a>
<b>Italian</b>	Direct translation of the English version	Language scale: adaptation. The authors adapted the language scale using the Italian version of the MacArthur Communicative Development Inventories (CDI) Short Form. For further information see: Cuttini M et al. Cognitive assessment of	<b>Validity study in Italy:</b> This version of the PARCA-R questionnaire was validated in the following study: Cuttini M et al. Cognitive assessment of very preterm infants at 2-year corrected age: performance of the Italian version of the	No	<b>Non-verbal Cognitive scale:</b> Non-verbal Cognitive Scale translated for use in the Italian ACTION Study. Contact: Marina Cuttini, Email: <a href="mailto:marinacuttini@gmail.com">marinacuttini@gmail.com</a> <b>Language scale adaptation:</b>

		<p>very preterm infants at 2-year corrected age: performance of the Italian version of the PARCA-R parent questionnaire. Early Hum Dev 2012;88(3):159-63.</p> <p><b>Permissions:</b> This version of the language scale is used with permission from Cristina Caselli.</p>	<p>PARCA-R parent questionnaire. Early Hum Dev 2012;88(3):159-63.</p>		<p>For more information about the adaptation of the PARCA-R Language Scale for use in the Italian ACTION Study contact Marina Cuttini; Email: marinacuttini@gmail.com</p> <p>For more information about the Italian CDI contact Cristina Caselli; Email: Cristina.caselli@istc.cnr.it.</p>
<b>Norwegian</b>	Direct translation of the English version	Direct translation of the English version	No	No	<p>Non-Verbal Cognitive Scale and Language Scale translation funded by EU under HC2020 project 667224; <a href="http://www.albino-study.eu">www.albino-study.eu</a>.</p> <p>For more information contact Axel Franz, Email: Axel.Franz@med.uni-tuebingen.de</p> <p>and</p> <p>Tom Stiris, Email: tom.stiris@medisin.uio.no</p>
<b>Polish</b>	Direct translation of the English version	Direct translation of the English version	No	No	<p><b>Non-verbal scale translation:</b> Non-verbal Cognitive Scale translated for use in the EPICE Study. Contact: Janusz Gadzinowski; Email: jgadin@gpsk.ump.edu.pl</p> <p><b>Language scale translation:</b> Language scale translation funded by EU under HC2020 project 667224; <a href="http://www.albino-study.eu">www.albino-study.eu</a>.</p> <p>For more information contact Axel Franz, Email: Axel.Franz@med.uni-tuebingen.de</p> <p>and</p> <p>Jan Mazela, Email: janco@pol-med.com.pl</p>

<b>Portuguese</b>	Direct translation of the English version	Translation not available	No	No	Non-verbal Cognitive Scale translated for use in the EPICE Study. Contact: Carina Rodrigues; Email: carina.rodrigues@ispup.up.pt
<b>Romanian</b>	Direct translation of the English version	Translation not available	No	No	Non-verbal Cognitive Scale translated for use in the EPICE Study; Contact: Chief Investigator: Jennifer Zeitlin; Email: jennifer.zeitlin@inserm.fr
<b>Russian</b>	Direct translation of the English version	Translation not available	No	No	Non-Verbal Cognitive Scale translated for use in the EPICE Study. Contact: Heili Varendi; Email: heili.varendi@ut.ee
<b>Spanish</b>	Direct translation of the English version	Direct translation of the English version	No	No	Non-Verbal Cognitive Scale and Language Scale translation funded by EU under HC2020 project 667224; www.albino-study.eu. For more information contact Axel Franz, Email: Axel.Franz@med.uni-tuebingen.de and Max Vento, Email: maximo.vento@uv.es
<b>Swedish</b>	Direct translation of the English version	Translation not available	No	No	Non-verbal Cognitive Scale translated for use in the EPICE Study. Contact: Ulrika Aden; Email: <a href="mailto:ulrika.aden@ki.se">ulrika.aden@ki.se</a>
<b>Turkish</b>	Direct translation of the English version	Translation not available	No	No	Non-Verbal Cognitive Scale translated for use in the EPICE Study. Contact: Ayse Malerczyk-Aktas; Email: ayse.aktas@gmx.net
<b>Welsh</b>	Direct translation of the English version	Direct translation of the English version	No	No	Contact PARCA-R Team; Email: Parca-r@leicester.ac.uk