

**LINGUISTIC VALIDATION CERTIFICATE  
CLINICAL DEMENTIA RATING WORKSHEET (CDR)**

This is to certify that MAPI Institute conducted the linguistic validation of the **Clinical Dementia Rating (CDR)** into the languages listed on the following pages.


The aim of a linguistic validation is to obtain translations that are:

- conceptually equivalent to the original and comparable across languages;
- culturally relevant to the context of the target country;
- easily understood by the people to whom the translated instrument is administered.

This is achieved using a rigorous methodology<sup>1</sup> involving:

- a process which comprises several steps (see diagram on the last page of this document);
- the collaboration of the instrument's developer and a skilled team recruited by MAPI Institute in the target country which is headed by a consultant with knowledge of and experience in the field of Patient-Reported Outcomes;
- a centralized review process coordinated by MAPI Institute.

The specific methodology used to produce these versions of the **CDR** is summarized in the table on the following pages. For each language, the linguistic validation process was coordinated and supervised by a consultant in the target country under the guidance of MAPI Institute who performed a quality control and discussed the translation decisions with the consultant at each step of the process.

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<sup>1</sup> **References:**

- Acquadro C., Jambon B., Ellis D. and Marquis P. Language and translation issues. In Spilker B, ed. Quality of Life and Pharmacoeconomics in Clinical Trials. Philadelphia: Lippincott-Raven Publishers, 1996: 575-585.
- Acquadro C., Conway K., Giroudet C., Mear I. Linguistic validation Manual for Patient-Reported Outcomes (PRO) Instruments. 2004

LINGUISTIC VALIDATION STEPS		Forward Translation Step	Backward Translation Step	Adaptation Step	Clinician's Review Step	Cognitive Interview Step
		(1 translation by a qualified translator)	(1 translation by a qualified translator)	(Review and adaptation of the mother language version to context of the target country)		(On a sample of 3 caregivers and 3 lay people aged 50 and above)
COUNTRIES	LANGUAGES					
Argentina	Spanish (based on Spanish for Chile)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Australia	English (based on US English original)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Austria	German (based on German for Germany)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Belgium	Dutch (based on Dutch for the Netherlands)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Belgium	French (based on French for France)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Brazil	Portuguese	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Bulgaria	Bulgarian	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Canada	English (based on US English original)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Canada	French	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Chile	Spanish	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
China	Mandarin	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Croatia	Croatian	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Czech Republic	Czech	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Denmark	Danish	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Estonia	Estonian	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Finland	Finnish	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
France	French	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Germany	German	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Greece	Greek	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hong-Kong	Cantonese	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

N/A: Not applicable      : Step performed      : Step not performed

- (1) 2 Forward translations by qualified translators, reconciliation by local consultant.
- (2) The version was provided by the sponsor and a quality check was performed to ensure that the version was in line with the concepts defined with the author of the instrument.
- (3) An existing Urdu version for India was available but as it was not finalized, a quality check was performed on this version to ensure its suitability for use in Pakistan.
- (4) Version only available in study-specific format.

LINGUISTIC VALIDATION STEPS		Forward Translation Step	Backward Translation Step	Adaptation Step	Clinician's Review Step	Cognitive Interview Step
COUNTRIES		(1 translation by a qualified translator)	(1 translation by a qualified translator)	(Review and adaptation of the mother language version to context of the target country)		(On a sample of 3 caregivers and 3 lay people aged 50 and above)
	LANGUAGES					
Hong-Kong	English (based on US English original)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Hungary	Hungarian	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
India	Bengali	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
India	English (based on US English original)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
India	Gujarati	<input checked="" type="checkbox"/> (1)	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
India	Hindi	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
India	Kannada	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
India	Malayalam	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
India	Marathi	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
India	Punjabi	<input checked="" type="checkbox"/> (1)	<input checked="" type="checkbox"/>	N/A	<input type="checkbox"/>	<input type="checkbox"/>
India	Tamil	<input checked="" type="checkbox"/> (1)	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
India	Telugu	<input checked="" type="checkbox"/> (1)	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Israel	English (based on US English original)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Israel	Hebrew	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Israel	Russian (based on Russian for Russia)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Italy	Italian	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Japan	Japanese	<input type="checkbox"/>	<input checked="" type="checkbox"/> (2)	N/A	<input type="checkbox"/>	<input type="checkbox"/>
Korea	Korean	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Malaysia	English (based on US English original)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Malaysia	Malay	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Malaysia	Mandarin (based on Mandarin for Singapore)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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LINGUISTIC VALIDATION STEPS		Forward Translation Step	Backward Translation Step	Adaptation Step	Clinician's Review Step	Cognitive Interview Step
		(1 translation by a qualified translator)	(1 translation by a qualified translator)	(Review and adaptation of the mother language version to context of the target country)		(On a sample of 3 caregivers and 3 lay people aged 50 and above)
COUNTRIES	LANGUAGES					
Malaysia	Tamil (based on Tamil for India)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mexico	Spanish (based on Spanish for Argentina)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Netherlands	Dutch	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
New Zealand	English (based on US English original)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Norway	Norwegian	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pakistan	Urdu	<input type="checkbox"/>	<input checked="" type="checkbox"/> (3)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Peru	Spanish (based on Spanish for Argentina)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Philippines	English (based on US English original)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Philippines	Tagalog	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Poland	Polish	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Portugal	Portuguese	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Romania	Romanian	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Russia	Russian	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Saudi Arabia	Arabic (based on Arabic for Israel)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Serbia	Serbian	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Singapore	English (based on US English original)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Singapore	Mandarin	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Slovakia	Slovakian	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Slovenia	Slovenian	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
South Africa	Afrikaans	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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(2) The version was provided by the sponsor and a quality check was performed to ensure that the version was in line with the concepts defined with the author of the instrument.

(3) An existing Urdu version for India was available but as it was not finalized, a quality check was performed on this version to ensure its suitability for use in Pakistan.

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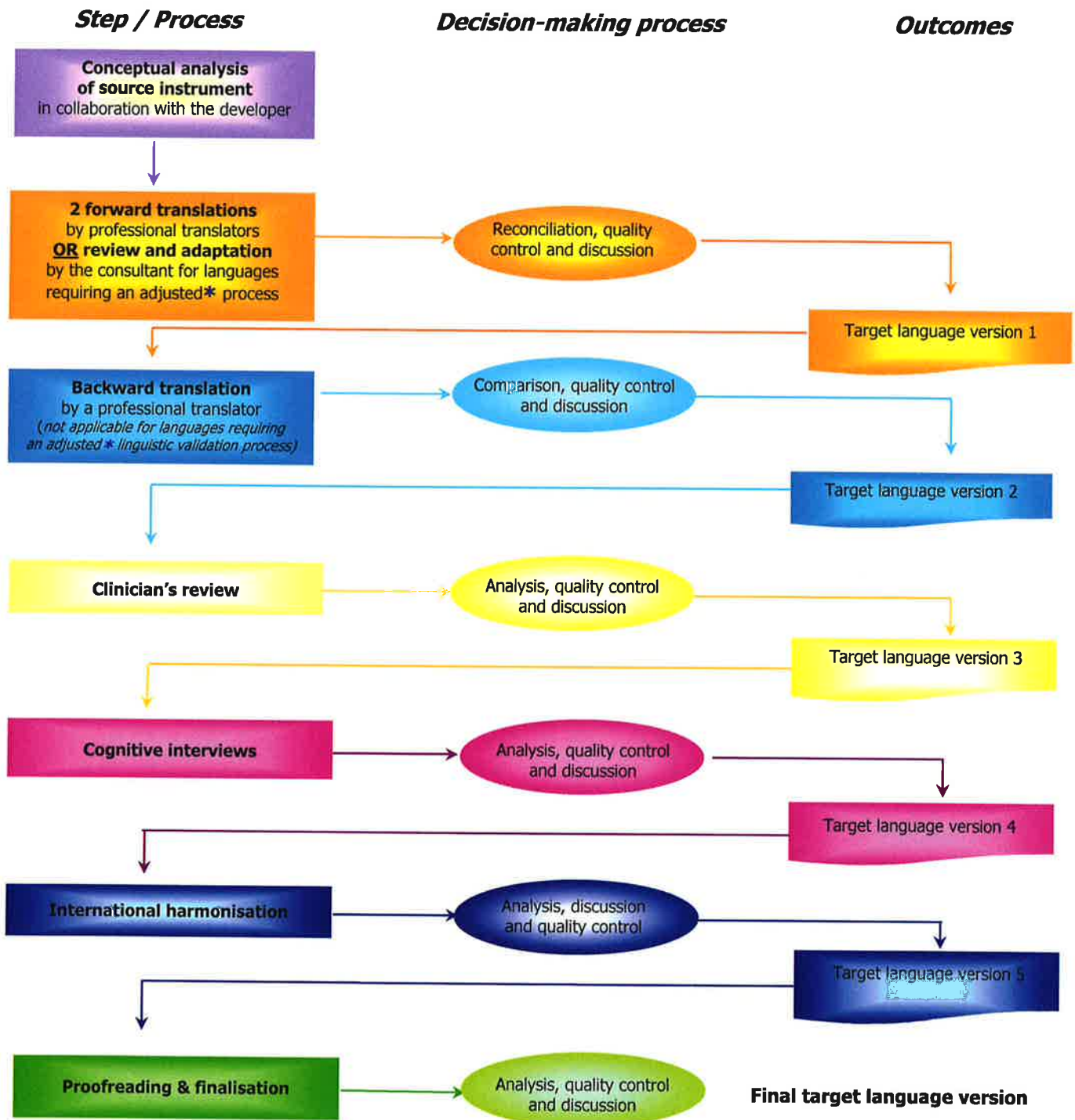
LINGUISTIC VALIDATION STEPS		Forward Translation Step	Backward Translation Step	Adaptation Step	Clinician's Review Step	Cognitive Interview Step
		(1 translation by a qualified translator)	(1 translation by a qualified translator)	(Review and adaptation of the mother language version to context of the target country)		(On a sample of 3 caregivers and 3 lay people aged 50 and above)
COUNTRIES	LANGUAGES					
South Africa	English (based on US English original)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
South Africa	Sesotho (4)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spain	Spanish	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sweden	Swedish	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Switzerland	German (based on German for Germany)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Taiwan	Mandarin	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Turkish	Turkey	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ukraine	Russian (based on Russian for Russia)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ukraine	Ukrainian	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
United Kingdom	English (based on US English original)	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
United States	English	<b>Original instrument</b>				
United States	Spanish	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Important remarks for US Spanish:** in order to encompass the multi-ethnic dimension of US Spanish, the *forward* translations were produced by one Mexican and one South American translator respectively and reconciled during a meeting held by the consultant with the forward translators and three other translators of Caribbean, Mexican and Central American origins.

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## The linguistic validation process



\* For some languages that are close to one another (e.g. British and American English; French for France and Belgium), the complete standard linguistic validation process outlined above with *forward* and *backward* translation steps may not be appropriate. For such cases, an **adjusted** linguistic validation process has been established. The *forward* and *backward* translation steps are replaced by a review and adaptation step, where the work is based on a version considered as the "mother language" version. The subsequent steps are identical to those used in the standard linguistic validation process.