

## **Translation of the DN4 (Douleur Neuropathique en 4 Questions) into 85 Languages:**

### **Methodological Issues**

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**The Methodological Question Being Addressed.** This abstract intends to address the methodological question of translating the DN4. The linguistic validation methodology had to be adapted: the original French version was not used as a basis for translation, but was replaced by the UK version to facilitate the recruitment of backtranslators.

**Objectives.** The DN4 (Douleur Neuropathique en 4 Questions) is a clinician-administered, neuropathic pain diagnostic questionnaire, consisting of ten items grouped in four sections. The first seven items are related to the quality of pain (burning, painful cold, electric shocks) and its association to abnormal sensations (tingling, pins and needles, numbness, itching). They are explored through patient's interview. The other three items are related to neurological examination in the painful area (touch hypoesthesia, pinprick hypoesthesia, tactile allodynia). The DN4 was originally developed in French for France by the French Neuropathic Pain Group. The objectives of this study are to present the challenges of the translation of the DN4 in 85 languages (representing 12 language families) and the importance of developing a conceptual definition for each item.

**Methods.** In most cases, the British English of the DN4 served as the source version. The standard translation process consisted of: 1) Concept definition with the developer 2) Forward/backward translation step; 3) Final reconciliation; 5) Clinician review; 6) Cognitive interviews with five subjects. The adjusted process was used for countries using a national variant of the same language (i.e., the British English version was adapted for the USA or Australia, or the French version for France was adapted for Belgium, etc.).

**Results.** Three items were the most discussed during the conceptual definition, the translation steps and the tests with patients, i.e., item 3. Painful cold, item 4. Tingling, and item 5. Pins and needles. The collaboration with the developer was extremely helpful to define their meaning and find conceptual equivalents. For instance, "tingling" refers to a somatic sensation as from many tiny prickles, like if a multitude of ants were running under the skin. Examples of solutions found are presented.

**Conclusion.** The collaboration with the developer was key in developing translations of the DN4 conceptually equivalent to the original.

**Word count:** 304 words (excluding title and authors' details)

**Word limit:** 500 words