

ENN-ICS – Validation Strategy for Assessing a Multilingual Interactive Communication System for Sleep Medicine

Knobl B¹, Paiva T², Bértolo H³, Jungmann D⁴, Nabiev R⁵, Penzel T¹

¹*Sleep Laboratory, Hospital of Philipps-University, Marburg, Germany*

²*Centro de EEG e Neurofisiologia Clínica, Lda, Lisbon, Portugal*

³*Faculdade de Medicina, Lisbon, Portugal*

⁴*Robotron Datenbank-Software GmbH, Dresden, Germany*

⁵*Karolinska University Hospital, Stockholm, Sweden*

knobl@med.uni-marburg.de

Introduction With the development and deployment of advanced e-learning and e-publishing technologies, the EU project ENN-ICS (European Neurological Network - Interactive Communication System) aims at the improvement of health care in Europe. The project target field of application is sleep medicine. In view of high medical and societal costs produced by untreated sleep disorders, ENN-ICS considers the relevance and importance of improving sleep in the European population by generating and providing innovative methods for educating and training physicians, nurses, and students. The system combines an authoring tool, a content management system (CMS) and a learning management system (LMS). Configured as universal interface, the ENN-ICS web portal (www.ennics.org) offers direct access to medical information for healthcare professionals and patients. The e-health service comprises e-training courses in virtual classrooms, online information, DVDs/CDs and printed material. Multilinguality in the project phase is covered by English, Portuguese and German.

Material and Methods Validation instruments have been identified and adapted for the evaluation process to meet the requirements of high quality standards. They are used to test, assess and verify the compliance with essential quality criteria. The DISCERN Questionnaire [1] is used for assessing the quality of patient information on treatment choices. Regarding the requirements for health-related web sites, the HON Principles [2] were selected to test the reliability and credibility of medical and health information accessible via the web portal. The Criteria Catalogue for Electronic Publications in Medicine [3] developed by the GMDS is used for validating the quality of contents, technical aspects, software engineering, ergonomics, design and didactics. In addition, the HON Principles and the GMDS Criteria Catalogue serve as guidelines for the continuous improvement process of ENN-ICS tools and platforms. Adapted multilingual online questionnaires for evaluation have been implemented at the ENN-ICS website.

The technical usability of ENN-ICS services, products, and tools – like authoring tool, CMS, LMS – and the web portal in its capacity as a medical e-health web site are evaluated by different user groups. Editors, authors, project partners and users are evaluating the corresponding tools in several stages of development. The ENN-ICS Sleep Tutorial comprising e-lessons on sleep disorders listed by the International Classification of Sleep Disorders (ICSD) for training medical doctors, students and nurses is evaluated by selected user groups in Sweden, Germany and Portugal representing the different health care systems in North, Middle and Southern Europe.

Results The validation data is collected and analysed in an automatic assessment process. Based on multiple-stage procedures, the results of the validation of ENN-ICS services allow to continuously revise contents, editorial and technical aspects, ergonomics, design, and didactics. All ENN-ICS partners contribute to the stepwise refinement of the system development using their specific competence area in accordance with the quality requirements defined by DISCERN, HON, and GMDS.

The validation strategy takes into account specific needs of different user groups. It supports technical and content developers to harmonize the services in a continuous optimization process according to essential quality requirements. Testing the interactive communication system in selected European countries gathers feedback being applicable in a larger number of countries or regions.

Conclusions ENN-ICS builds an interface between the medical research and the clinical practice mediating scientific state-of-the-art gathered by current research results in the field of sleep medicine. Its strategical concept implies disease prevention by providing essential information to citizens and patients. It will be integrated in services at national, European and, in the future, on worldwide level. The principle "one-time production - multifunctional, multinational, multilingual usability" is an inherent project contribution to primary objectives of EU policy favouring financial discharge in health care systems. The system architecture and its applications can be used as a model for future e-health related websites dealing with neurological and other medical topics.

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Literature

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