The ALLADIN project *

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Evidence based neuro-rehabilitation badly needs the support of 'diagnostic precision'. Previous attempts to measure and predict functional outcome in stroke used coarse clinical parameters what means that the deficits being treated were rarely clearly specified.

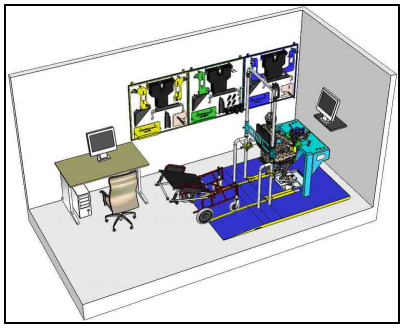

Fig. 1 The ALLADIN diagnostic device.

The **ALLADIN project** is the answer to a worldwide call for tailoring rehabilitation to the functional, but also societal demands on restoring independency for carrying out day-to-day activities. Three diagnostic devices (fig.1) consisting of five main functional units, a finger device, an arm device, a foot device, a trunk device, and a seat device, have been exploring since January 2005 the sensory motor reorganization in stroke patients admitted to the Maria Middelares Hospital in Gent, the Szent Janos Hospital in Budapest and the Adelaide & Meath Hospital in Dublin. The tests are scheduled about 30 minutes for each patient. Sometimes it's hard for the patients to understand why this is done, but once they see the graphs (fig.2) on the computer with simple explanations added, they become receptive to new goals in their live.

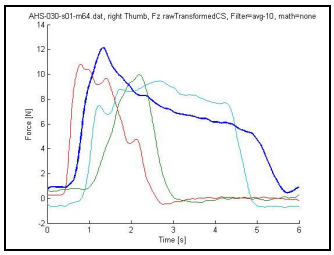

Fig. 2 Graphs for interpretation.

The values patients receive during the assessments are compared with 'normal models' of functional behaviour also developed during the **ALLADIN project**. Data mining technology charts the patient according his/her remaining capabilities and gives the neurologist and therapist an adequate instrument to refine future decisions.

Fig. 3 Clinical natural language descriptions.

The ALLADIN consortium was well aware of the possible high cost of these instruments. Therefore it had also ears for the wishes of physicians and therapists working in small centres or in private, who cannot afford to buy such expensive diagnostic tools. Consequently a cheap, easy to use application (fig.3) was built having direct relations to the by data mining created recovery maps. This application contains a speech recognition module imbedded in a PDA. It extracts clinical relevant information from 'natural language descriptions' recorded by the physician or therapist about his/her patient. To make this extraction possible, a huge number of natural language descriptions about stroke patients were collected as from the very beginning of the project with the aim to build a recovery

* Members of the ALLADIN consortium are: Arteveldehogeschool(B), Language and computing(B), Budapest University of Technology and Economics(HU), Faculty of Electrical Engineering, University of Ljubljana(SI), Zenon SA, Robotics and Informatics(EL),Cardiff University (UK), Multitel ASBL(B), Trinity College Dublin(IRL), National Institute for Medical Rehabilitation(HU), Scuola Superiore Sant'Anna(I), Campus Bio-medico(I)

specific ontology. This ontology is now operational and the clinical reasoning made by the therapist during the recovery process can be visualized. However there is still a missing link. A particular clinical reasoning must refer to a specific patient map created by the ALLADIN diagnostic device. The ALLADIN consortium is now fully committed to deliver this by end 2006.