

Preface

The HELLODOC project started on March 2005 as a 18-months European project co-financed by the European Community programme eTEN. It was successfully closed on February 2007 after a 6-months extension.

HELLODOC is the acronym for “Healthcare service linking tele-rehabilitation to disabled people and clinicians”.

The primary objective of the project was to validate the EU market – more specifically in Italy, Spain, The Netherlands and Belgium – for a home-care tele-rehabilitation service. Main aim of the service was to extend the rehabilitation treatment at patient’s home under close supervision of the hospital. The tele-rehabilitation service was mainly addressed to neurological patients affected by traumatic brain injury (TBI), stroke or multiple sclerosis (MS).

Basically, the service consisted of two main apparatuses: an in-hospital based server and a portable unit to be installed at patients’ home. The portable unit was an improved version of a prototype of a home-care activity desk which was developed in the framework of the previous European project H-CAD. The instrumented desk allows the execution and monitoring of a configurable set of home exercises the professionals may purposely design to improve the main arm functions.

Thanks to the 6-month extension of the project duration all the main objectives were achieved, with minor shortcomings.

Efficacy of a new tele-rehabilitation service was demonstrated. The modular equipment provided allowed to move part of the treatment at patient’s home. The clinical study, which was indeed one of the biggest on that specific issue, resulted in an exhaustive investigation.

The present monography contains contributions from the project partners which address the three main issues of project: technical validation of the HELLODOC service, distance education of HELLODOC users – professionals, patients and caregivers – and HELLODOC clinical validation.

Paper 1, titled “Tele-rehabilitation: present and future”, offers a short review of the state of the art in the field of tele-rehabilitation, with a special focus on upper limb tele-rehabilitation. During the last decade, in fact, the combination of relevant progress in rehabilitation studies and in technological development led to the tele-rehabilitation – a subfield of telemedicine dealing with the delivery and the control of rehabilita-

tion “at distance” – as an actual possibility of application and a promising development in the future. The paper also briefly reports on the preliminary application of the H-CAD system and the HELLODOC tele-rehabilitation service, conducted by the authors within two European projects in the period 2003-2005 and 2005-2007 respectively.

Paper 2, titled “Technical assessment of the HELLODOC service”, consists of a detailed report of the technical assessment activity the ISS conducted within the HELLODOC project for evaluating the proposed tele-rehabilitation service. The activity was mainly focussed on architectural aspects and a step-by-step monitoring of the service. It was mainly related to the following aspects: service implementation, service performances, service integration and fault management. The technical assessment analysis demonstrated that the service worked in a quite satisfactory way, also considering the pioneering aspect of the project; the set of malfunctioning occurred, which had a low impact on the service continuity, are typical of a post-debug phase.

Paper 3, titled “Tele-rehabilitation and e-learning: the HELLODOC educational experience”, deals with the web-based learning activity conducted within the HELLODOC project. The activity aimed at training professionals to effectively manage the tele-rehabilitation service. ISS adapted the Moodle e-learning platform and implemented the problem based learning (PBL) methodology. One clinical and one technical module, available online for ten months within the project time-frame, were prepared by using traditional learning sources as well as interactive tools. Fifty percent of the registered students attended the courses, equally using traditional and interactive learning resources. Overall feedback was positive, unless for the amount of time requested for the study and the lack of an official certificate of attendance. Both modules are now in the process of being revised, improved and generalised, in order to be integrated into the ISS rehabilitation website.

Paper 4, titled “Clinical assessment of the HELLODOC tele-rehabilitation service”, reports about the HELLODOC clinical validation. Within the time-frame of the project, 81 patients with chronic stroke, TBI and MS were recruited; 50 out of 81 received 1 month of HCAD intervention with the HELLODOC tele-rehabilitation service, with one training session a day lasting 30 minutes for 5 days a week.

The overall satisfaction of both patients and therapists was high. The Action Research Arm and the Nine Hole Peg Test, which were used as main outcome measures, proved the service to be at least as effective as usual care. A trend for a greater effectiveness was observed, but evidence was eventually masked by the limited length and intensity of treatment within the project time-frame.

The Authors would like to thank all the HELLODOC Project partners who enthusiastically co-operate to

the redaction of the present monography. They also would like to thank Zaira Maroccia for the precious work she did to co-ordinate all the administrative issues of the HELLODOC Project.

**Velio Macellari^(a), Sandro Scattareggia Marchese^(b),
and Claudia Giacomozzi^(a)**

^(a)*Dipartimento di Tecnologie e Salute,
Istituto Superiore di Sanità, Rome, Italy*

^(b)*Signo Motus Srl, Messina, Italy*