

CARE-PATHS

An intelligent support environment to improve the quality of decision processes in health communities

The goal of **CARE-PATHS** is to set up an intelligent operational environment for making Clinical Governance effective, to support Health Professionals, Clinicians and Care Operators in continually improving the quality of care, by enabling the methodology of “Clinical Pathways” to function, to be effective and to succeed.

Objectives of the project

CARE-PATHS addresses key implementation barriers to the methodology of Clinical Pathways. The project leans upon the concept of Clinical Pathways. A clinical pathway is a plan of care that is applied to patients with a known diagnosis and a predictable clinical outcome.

The implementation of Clinical Pathways is impeded for a series of reasons:

- Defining Clinical Pathways requires a great deal of skill for finding and analyzing the "highest quality available evidence".
- Clinical pathways must be brought up to date regularly. Even the best clinical pathways do not contain all the answers that will be needed. It is therefore necessary to maintain the care giver's knowledge up to date to be able to respond to any of the unanswered situations in a reasonable time.
- Indicators must be set up to allow an analysis of how closely the pathway is being followed, of its results, of deviations. Once the results and deviations have been analyzed, and the latest scientific data has been studied, the clinical pathway should be modified and brought up to date.
- Implementing clinical pathways might also face cultural and/or organizational challenges, such as resis-

tance from doctors, lack of group work, and lack of interdisciplinary collaboration.

The approach adopted by **CARE-PATHS** is to exploit emerging technologies in knowledge management and semantic web for enabling the methodology of "Clinical Pathways" to function, to be effective and to succeed.

Project Description

The goal of **CARE-PATHS** is to set up an intelligent operational environment for making Clinical Governance effective, to support Health Professionals, Clinicians and Care Operators, in continually improving the quality of their services and safeguarding high standards of care.

Starting from the requirements of the Users involved in the project, in Italy and in Spain, the project will focus in the integration of the Clinical Pathways into the daily job offering a real continuity of care in the hospital and out-hospital environments in a coherent way with the workflow of clinical documents on the pilot sites.

The aim of a Clinical Pathway is to coordinate and define the extent and quality of care that is provided. Clinical Pathways are in fact strategies for handling complex treatment procedures. These strategies define the essential steps so the strategy itself is carried out

“CAREPATHS addresses key implementation barriers of the methodology of Clinical Pathways”

Scenario

The benefits of CARE-PATHS are demonstrated through 2 “good practice” projects: the first one is located in Parma in the domain of Cardiology/Cardiosurgery and Peripheral Vascular Surgery; the second one is located in Valencia and involves the domain of Pneumology (Hospital La Fè). Parma and La Fè have concentrated their efforts towards the aim of reaching a common approach and a consolidated perspective to the clinical pathways implementation scenario. The common approach had to adjust to requirements coming from emergency care, acute care and long term care, thus resulting in a standardized conceptual design, which serves as basis for technical development.

in a detailed manner. Their objective is to improve the quality and/or reduce the cost of a given product or service, while ensuring its timely execution.

The output of the project will be a set of intelligent tools for supporting Health Professionals in authoring conceptual Clinical Pathways for selected group of pathologies in specific contexts, putting them in practice in the everyday treatment of individual patients, monitoring and managing the variances.

From the technological point of view, the objectives are concentrated primarily, in the following technologies of the knowledge management and distribution domains:

- Middle-ware enriching the semantic web for clinical governance;
- Access to databases from the medical, nursing, and health services literature fully referenced and individually graded, based upon clearly defined research methodology and that address aspects of care thought to be the key drivers of quality and cost in health services delivery.
- Referential tools that focuses on studies from the peer-reviewed medical literature pertaining to clinical and operational efficiency, utilization of resources, cost of care, and processes of care and other factors that influence complications, length of stay, and readmissions.
- Semantic based agents to “broker” between information sources on clinical guidelines, evidence based medicine and the actual ambient (technology and services available, socio/economical constraints, organizational constraints, ...)
- Integration with Electronic Health Records system and in general with the workflow of clinical documents at the specific site, on the basis of messaging using XML and HL7/CDA.

Expected Results & Impacts

The **CARE-PATHS** project will lead to two major results:

- A Web-based software solution enabling healthcare institutions to implement and manage clinical pathways, thus covering the whole cycle of:
 - Pathway authoring
 - Putting pathways in practice
 - Monitoring and managing patients' variance
- 2 "Good Practice" projects demonstrating the feasibility and benefits for an healthcare institution of setting up a methodology for managing clinical pathways

The impact of **CARE-PATHS**, enabled by the Web-based software solution and demonstrated through 2 pilots, will thus be the set up in healthcare institutions of a generic method for continuous improvement of the quality of healthcare services.

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