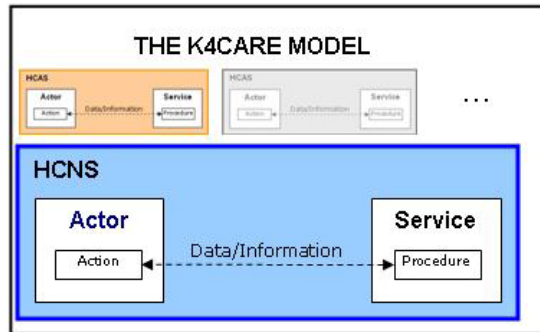


HCNS and HCAS contain the actors involved in the HC process, the actions and liabilities of such actors, the services available, the procedures, and the documents.

HCAS respond to a specialized care (e.g. rehabilitation, oncology, etc.) that extends the previous care model with new actors, actions, services, procedures, and documents.



ACTORS: they are the human figures included in the structure of HC: patients, relatives, physicians, social workers, nurses, rehabilitation professionals, informal care givers, citizens, social organisms, etc.

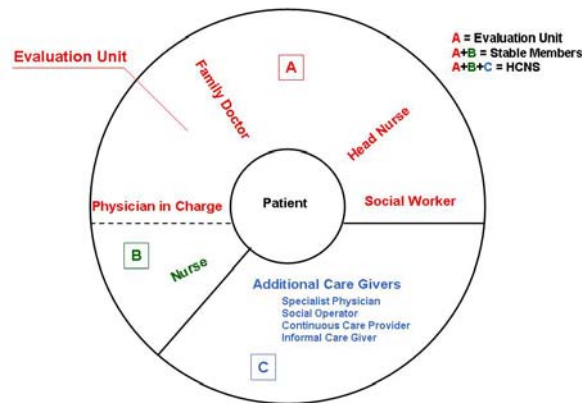
In the HCNS, these figures are structured in three sorts of *actors*:

- the HC **patient (HCP)**,
- the stable members of the HCNS (**family doctor, physician in charge of HC, head nurse, nurse, social worker**), and
- the additional care givers.

The family doctor, the physician in charge of HC, the head nurse, and the social worker join in a temporary structure – the **Evaluation Unit (EU)** – devoted to assess the patient's problems and needs.

Other groups of professional and non professional actors are usually part of the model. They are the **Additional Care Givers (ACG)**.

The presence of ACG is almost ubiquitous, even if their position can hardly be comprised inside the core structure of HC, ACG do not have an exact and definite position in the context of the HC network, but their role results, in most cases, fundamental for the continuous care of the HCP.



PROFESSIONAL ACTIONS AND LIABILITIES: A number of professional liabilities are linked to each of the profiles of the professionals included as *actors* in the HC model. *Professional Actions and Liabilities* are the actions each *actor* performs to provide a service within the HC structure. Among these general actions, a certain amount corresponds to those needed to perform the K4CARE Model *services*. The latter actions have been categorized and coded to be enclosed in the ICT platform.

SERVICES: all the utilities provided by the HC structure for the care of HCP. HCNS provides **Access services** addressing organization issues as patient's admission and discharge or the definition of EUs, **Patient Care services** addressing the care of the patient, and **Information services** covering the needs of information that actors may require independent of the services they participate in.

HC is based upon the synergic actions of the *actors*, including the assessment of the problem and the identifying of the needs of the HCP, the definition of an Individual Intervention Plan, the accomplishment of it through the proper procedures (*follow-up*), and the evaluation of the results. This step-by-step process can be executed several times, until proper results are achieved.

PROCEDURES: A *procedure* is the chain of events that leads *actors* in performing *actions* to provide a *service*. For each *service*, the sequence of *actions* constituting the *procedure* is described. A special table links the *actors* involved in the *procedure* to the list of *actions* of the *procedure* that implements a particular *service*, and to all the *documents* needed.

A. ACCESS SERVICES

1. Individual Services
 - i. HC Request
 - ii. HCP Admission
 - iii. HCP Discharge
 - iv. Professional Admission
 - v. Professional Discharge
 - vi. Edit HCP/Professional information
2. Structural Services
 - i. EU Constitution
 - ii. EU-HCP Binding

B. PATIENT CARE SERVICES

1. Problem Assessment and Re-Evaluation
 - i. Comprehensive Assessment (CA)
 - ii. Multi-Dimensional Evaluation
 - iii. Clinical Assessment
 - iv. Physical Examination
 - v. Request of Diagnostic Examination
 - vi. Request of Laboratory Analysis
 - vii. Consultation
 - viii. Social Needs & Social Network Assessment
 - ix. Follow-up
2. Intervention Plan Definition
 - i. Planning Intervention Plan
 - ii. Prescription of Pharmacological Treatment
 - iii. Prescription of Non-Pharmacological Treatment
 - iv. Prescription of Nursing Care
 - v. Prescription of Assistive Devices
3. Intervention Plan Performance
 - i. Case Management
 - ii. Special Medical Services
 - iii. Nursing Care
 - iv. Social Assistance
 - v. Counselling

C. INFORMATION SERVICES

1. Service Monitoring
 - i. Patient Record Overview
 - ii. Patient Record Social Overview
 - iii. IIPs Overview
 - iv. Schedule Overview
 - v. Waiting List
2. HC Practice
 - i. Guide Line Consultation
 - ii. FIP Overview
 - iii. Pharmacological Therapy Handbook
 - iv. Best Practice Handbook
 - v. Brochure Consultation
3. Database Inquiring
 - i. Activity Report
 - ii. Database Queries – services
 - iii. Database Queries – clinical
4. Personal Information
 - i. Individual Scheduling Overview
 - ii. P2P Messages

INFORMATION DOCUMENTS: they are required and produced by *actors* to provide *services* in the HC structure. *Documents* represent the basis of the Electronic Home Care Record, the electronic health care record specifically realized inside the K4CARE project. Since these *documents* may have different general purposes inside the sets of *services* and *procedures*, they are divided into request, authorization, prescription, and anamnestic.

Request documents contain information about a request of a *service*, an *action* of a *service*, an appointment; they usually initiate a procedure for a *service* or a part of it.

Authorization documents are used to confirm and to authorize a certain *action* to be performed; they are connected with key points in the development of a *procedure*.

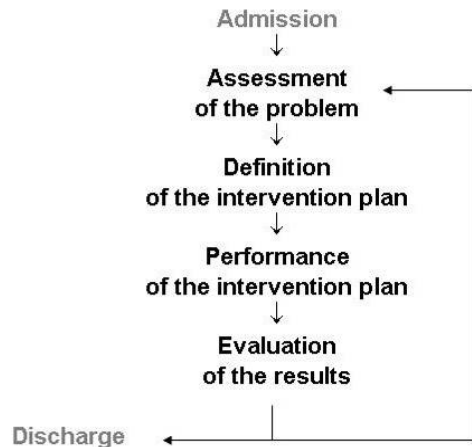
Prescription documents contain the instructions deriving from a medical action.

Anamnestic documents contain information about the patient that will be historically used in the process of care.

Information service documents report on underlying activities (e.g. Activity Report) – even analyzed through semi-automatic queries – or on officially recognized information related to HC (e.g., Guidelines). Exchanging messages among actors is also possible with a service.

MULTIDIMENSIONAL EVALUATION (MDE): is a multidimensional, interdisciplinary diagnostic process to determine the medical, psycho-logical and functional capabilities of a frail elderly person in order to develop a co-ordinated and integrated plan for treatment and long-term follow-up. MDE represents one of the fundamental features for the definition of the patient's condition and needs. For this reason it individuates a specific service inside the K4CARE Model.

MDE in the K4CARE model is based on a selected set of standardized evaluation scales largely accepted and used by international teams for



clinical, care, and research purposes. In the K4CARE Model a two level approach is proposed: a first level which is common to all the HCPs; and a second level which examines in depth those HCPs affected by one or both the main syndromes considered in the model: *immobility syndrome* and *cognitive impairment*.

Evaluation Scales I level
Barthel Index
Instrumental Activities Of Daily Living Scale (IADL)
Mini Mental State Examination (MMSE)
Mini Nutritional Assessment (MNA)
Tinetti Static Scale
Yesavage Geriatric Depression Scale (GDS)
Norton Scale
Modified Cumulative Illness Rating Scale (CIRS)
Home Assessment Checklist
Social Assessment Scale
Caregiver Burden Inventory (CBI)
Evaluation Scales II level Cognitive Impairment
GBS
Digit span
Clock Drawing Test (CDT)
Addenbrooke's Cognitive Examination (ACE-R)
Neuro Psychiatric Inventory (NPI-Q)
Evaluation Scales II level Immobility Syndrome
SF-36
Rivermead Mobility Index (RMI)
Canadian Neurological Scale (CNS)
Motor Examination of Unified Parkinson's Disease Rating Scale (UPDRS)
Follow-up scales
CGIC-PF
Nursing Follow-up

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The K4CARE Home Care Model

www.k4care.net

The K4CARE project (IST-2004-026968) is an EC 6FP project aiming at the development, the integration and the use of several Information and Communication Technologies (ICT) and intelligent Computer Science (CS) technologies in the framework of Home Care (HC).

K4CARE is based on:

- a model for HC service which can be shared by the EU countries;
- an Electronic Home Care Record;
- a telematic and knowledge-based CS platform;
- an Actor Profile Ontology for representing the profiles of the subjects involved in the K4CARE model;
- a Case Profile Ontology for representing symptoms, diseases, syndromes;
- Computer-Based Formal Intervention Plans.

The K4CARE project is developed by thirteen EU partners: eight centres with geriatric, medical and healthcare competencies and five ICT and CS centres.

The K4CARE Health Care Model comprises services that are distributed by local health units and integrated with social services of municipalities, and other organizations of care or social support. It is based on a nuclear structure with a minimum number of common elements to provide a basic HC service that can be modularly extended with optional accessory structures. The nuclear structure is called Home Care Nuclear Structure (HCNS). The accessory structures are called HC Accessory Services (HCAS).