A CASE-STUDY OF A CLINICAL KNOWLEDGE MANAGEMENT

Alessandro Bruno – Mario Po’
Global Forum, Athens 21,22 oct. 2008
n.o. 239,832 inhabitants
n.o. 800 beds in two hospitals
n.o. 2,598 doctors, nurses, technicians

Budget 2008: €390,000,000,00
**OUR CLINICAL DIGITAL SYSTEM**

<table>
<thead>
<tr>
<th>DIGITAL ARCHIVE: clinical records</th>
<th>PACS FOR RADIOLOGY AND NUCLEAR MEDICINE: text and iconographic reports</th>
<th>LIS LABORATORY ANALYSIS: text reports</th>
<th>CIS CARDIOLOGY: text and iconographic reports</th>
<th>OTHER SPECIALIST ACTIVITIES: text reports</th>
</tr>
</thead>
</table>

**CLINICAL DATA REPOSITORY**

- HOSPITAL DOCTORS
- FAMILY DOCTORS
- CITIZENS
THE CLINICAL INDIVIDUAL ARCHIVE

Healthcare in your pocket that is to give all patients full knowledge of their clinical records, treatments, and diagnostic tests. This is the aim of the PIC project, a web-based application that allows the patient to real-time access to all textual and iconographic data related to screenings and treatments occurred during his/her hospitalisation, clinical examination, surgical procedure, or ER admittance.

PIC is the online individual clinical-record archive, fully updated and accessible from everywhere and at any time, with a personal authentication method in order to ensure complete user security and privacy needs.

PIC can be read in four languages, in order to be accessed effectively from any foreign country by the patient as well as by local physicians and/or healthcare facilities.

download multimedia presentation
download descriptive documentation
download card request personal password

Accesso PIC

NHS personal number
Tax Code
Password
Enter
Documents in the Clinical Data Repository

- 6,000,000 clinical records
- 4,000,000 clinical tests for one year
- 200,000 ambulatory records for one year
- 60,000 first aid documents for one year
THE KNOWLEDGE MANAGEMENT AND THE CLINICAL DOCUMENTS OF TWO HOSPITALS
A data clinical repository sometimes is like a closed strong-box.

We need information immediately, but we don’t know the way to find it.

We don’t want to see all clinical records of a patient, but only

- his blood test
- or the same data in the previous tests
- or the same data of other people, according to a standard classification, etc.

And then?
A person comes to the Hospital and the First Aid physician check unconsciousness, fever and then he supposes alcohol or drugs poisoning, but the tests do not put it in evidence.

When the patient wakes up the physician gets more information and knows that he didn’t get meningococccic vaccine.

Each phenomenon remains inexplicable in a certain time, to a certain kind of observer, till the observation field is not related enough to include the environment in which it shows itself completely.
EMERGING NEEDS
TARGET FOR A CLINICAL KNOWLEDGE MANAGEMENT

- Reduction waiting of clinical responses
- Increase health care services quality
- Reduction costs

Health care system has some important advantages thanks to a knowledge management applied to a clinical documental system:

- Supporting medical decisions for the diagnostic-therapeutic multiprofessional cooperation;
- Supporting doctors for an individual diagnosis with some longtime clinical data;
- Supporting doctors for the benchmarking of international protocols;
- Increasing evidence of clinical case studies and medical researches;
- Increasing intangible assets for the governance of the epidemiological and biomedical innovation
- Reducing front office time-waiting;
- Reducing admissions and hospital costs.
To share the knowledge coming from integrated clinical repository, the access is guaranteed by a KM system with:

- Ontologic knowledge treatment (to use a specific language in a certain environment), with a progressive enrichment of the system thesaurus;
- Morphological, syntactical and terminological analysis to assimilate every textual element (verbs, conjunctions, punctuation, meaning of a numeric data, etc.);
- Logical programming:
  - To identify concepts from a text;
  - Semantic information classification (according the prevailing language) as regards selected preferred categories.
Different medical terms may be referred to the same medical concept (ankle – coxa) and may depend on the access system configuration (physicians, nurses, etc.) as well as on the specialist's language evolution (mental diseases in DSM IV).

Knowledge management system recognizes with synonymous, rhetorical and other kind of relationships the terms that belong to the same shared organization concept/class.

Increases human and health organization memory and therefore their knowledge.
A STUDY FOR MALE CHILDREN WITH BRONCHOPNEUMONIA THAT LIVE IN THE SAME TOWN
MONITORING OF HAEMOGLOBIN TEST FOR A PATIENT

DATA INIZIO  01/01/2007
DATA FINE PERIODO  30/10/2007

EMOGLOBINA

GRAFICO DEI RISULTATI IN ORDINE CRONOLOGICO
CLINICAL DATA REPOSITORY

AMBULATORIES

OPERATING ROOMS

FIRST AID

ADMISSION UNITS

HOSPITAL MANAGEMENT

120 HOSPITAL UNITS

THE ACCESS TO C.D.R.

CASTELFRANCO HOSPITAL

MONTEBELLUNA HOSPITAL

350 users with access by individual smart card
THANKS!

dir.amministrativo@ulssasolo.ven.it
http://www.ulssasolo.ven.it