

# DICOEMS

## A DIAGNOSIS COLLABORATIVE ENVIRONMENT for MEDICAL relevant SITUATIONS

**DICOEMS is a portable system to support the management of medical emergencies. It aims to bring together on-the-spot care providers and networks of experts, enabling more effective decision support and risk management in primary diagnosis, pre-transfer arrangements and treatment of critical situations.**

### Objectives of the project

The need for remote management of medical emergencies arises in a number of situations. **DICOEMS** focuses its efforts on accidents and natural disasters. Under such stressed and time critical conditions,

the care provider (a medical doctor, nurse, paramedical personnel etc.) who is in charge of the patient needs a userfriendly utility to:

- acquire critical medical data (such as vital signs) to assess the medical condition
- offer appropriate first-aid
- communicate the findings and patient status to a network of health experts -no matter where they are physically locatedand closely cooperate under their guidance for the effective management of the emergency
- provide information about the geographic location of the emergency.

***“Contributing significantly to reducing risk and making informed decisions promptly”***

### Project Description

DICOEMS allows the care provider to request on-demand, real-time, accurate information and receive precious guidance in the management of the incident Health experts are offered a valuable set of tools and resources enabling their early participation in the handling of medical emergencies, thus contributing significantly to reducing risk and making informed decisions promptly.

The **DICOEMS** collaboration environment is scientifically and technologically powered by the strong synergy of Grid computing, XML, Web services and intelligent agents.

As far as the collaboration grid is concerned, the project deals with:

- Planning and developing an effective methodology for routing and managing collaboration requests among the peer grid nodes (i.e. the mobile workstations).
- Hosting a collaboration session between the involved peers, with focus on shared care.
- Provision of synchronous and asynchronous multimedia-based interactive services over the collaborative session.
- Selection of the most appropriate health experts available, depending on the nature of the incident,

### Scenario

At the scene of an accident or emergency, the DICOEMS services are delivered to the care providers by means of a portable workstation serving as a mobile laboratory for taking vital measurements, running appropriate medical tests in the field and recording and sending (?) videos of the event. The clinical data is captured and stored on the specific Emergency Episode Record forms, which will automatically update the patient EHR available in the destination hospital or distributed in the personal treatment process.

based on their professional profile and expertise as well as other aspects, such as proximity, on-duty schedules and duty range.

- Design and integration of GPS functionality, to enrich the collaboration grid with precise geographic information about the incident location and the proximity of appropriate medical support and resources.
- Provision of critical information concerning the availability of compatible blood resources and specialised medication and equipment.
- Support of a policy-based collaboration environment that integrates roles, relationships, user privileges, access-control policies, coordination of user actions, sharing of data, delegation of responsibility and enforcement of security, with focus on the actual roles of peers.
- Implementation of a mechanism for delivering alerts to health experts, based on the severity of the medical incident.



- Capacity to communicate directly with an administration and operations centre for instruction (crucial in emergency situations) and 'top-down' management and coordination of care provider teams that are dispersed across a disaster zone or an accident field.
- Implementation of a secure infrastructure and associated management processes that engender trust among participants.

### Expected Results & Impacts

Particular attention will be paid to addressing the needs of all involved users as well as usability and accessibility issues. **DICOEMS** will focus its research activities on the delivery of a fast and reliable collaboration platform, using Grid technology and open standards. A significant effort will be placed on the management of medical knowledge (such as life-support protocols) to support decisions and help in the treatment of patients or casualties in emergencies. The **DICOEMS** initiative is expected to further enhance eHealth decision support and risk management software, which at the moment is considered quite experimental and under-developed. **DICOEMS** aims to contribute to the reinforcement of European industrial and business competitiveness in the area of applied eHealth.



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## D I C O E M S

### A DIAGNOSIS COLLABORATIVE ENVIRONMENT for MEDICAL relevant SITUATIONS

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- Association medicale europeenne (BE)
- Lito hospital for women s.a. (GR)
- Fraternita di misericordia milano (IT)
- SSM computer systems limited (CY)
- Guy's and st. Thomas' hospital national health service trust (UK)
- Information management group (UK)
- Azienda ospedaliera ospedale san Gerardo (IT)

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