

Role of Medical Experts in the VEMH



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TODAY'S AND TOMORROW'S HEALTH CARE

- 
- Science & Technology
 - Health Demand
 - Costs

- ?
- 
- Population Health
 - Patient Satisfaction
 - Health Care Forecast

MORE EFFICIENT USE OF THE RESOURCES:

INFORMATION

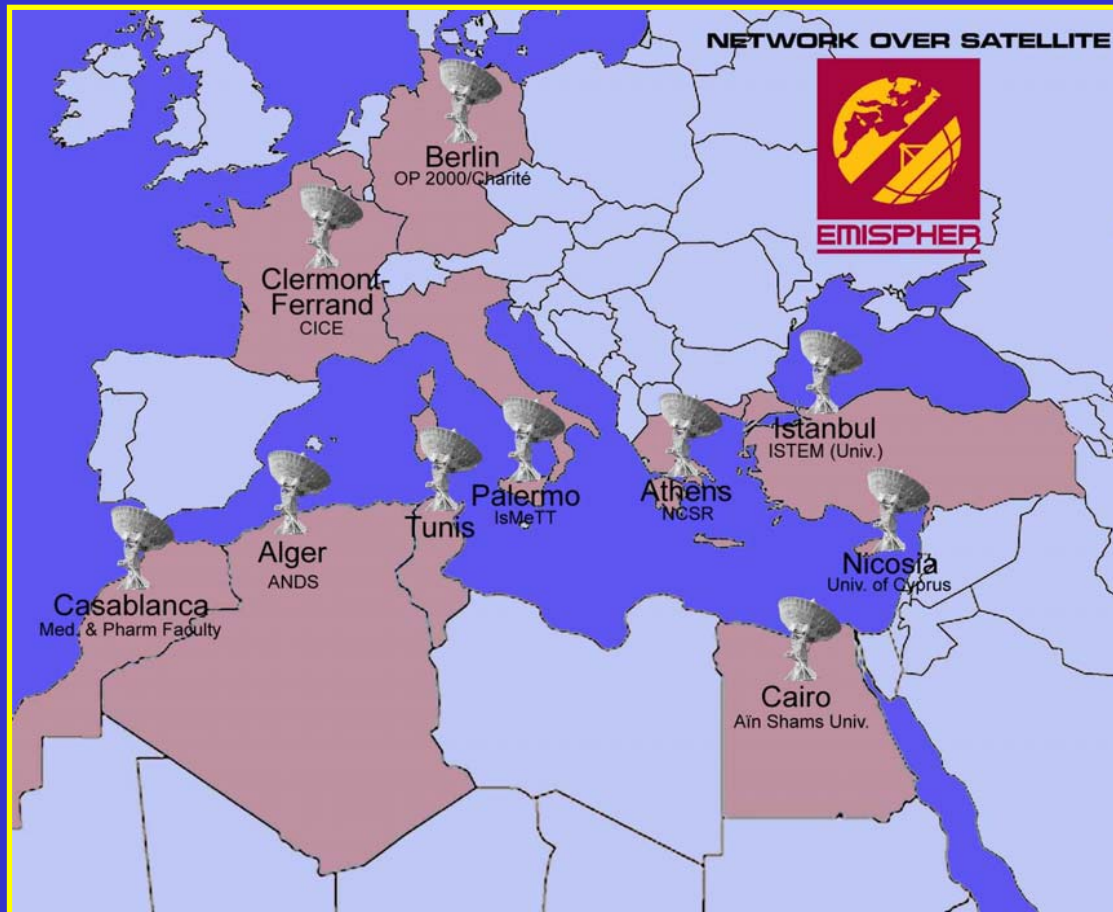
Functions

To offer, through telehealth, a broad range of health-related activities, including patient and provider education and health services administration, as well as patient care

To provide patients with rapid access to general health information, reduce duplication of services, provide greater portability of health records and enhance the quality of information exchange between health care providers

To provide specialist consultation to distant communities, through a system of healthcare delivery in which physicians examine and treat patients through the use of telecommunications technology (i.e., telepsychiatry, teleradiology, telepathology, teledermatology, teleophthalmology, telesurgery, etc.)

Shared Services and Resources



Each participating center makes its services and resources available in the central repository of the VEMH

Creation of a **network of electronic health records** that aims to improve the flow of information across the Euro-Mediterranean health sector. It will involve the electronic collection, storage and exchange of patient health information via a secure network and within strict privacy safeguards.

The network would give physicians and other health professionals, quick and secure access to important and potentially lifesaving medical information

The system could be implemented nationally on a state-by-state basis and would be expected to improve the quality and safety of health care for the Euro-Mediterranean

Health-related information would be collected at the point of care, such as at a hospital. It would be documented in a standard electronic format and stored as part of a secure network. This information could then be retrieved online when needed or be exchanged between authorised health care providers - but only with the consent of the patient.

Benefits

- ✓ *rapid access to vital and accurate health information*
- ✓ *reduced duplication of services*
- ✓ *more time available for direct care*
- ✓ *greater portability of health records for an increasingly mobile population*
- ✓ *more control for patients over who can access their health information*
- ✓ *more active participation by patients in decisions about their health care*
- ✓ *better quality information exchange between health care providers for improved diagnoses and better quality care*
- ✓ *a more comprehensive picture of Euro-Mediterranean health to promote advances in the diagnosis and treatment of illnesses and better targeted decisions about health care*

Clinical decision support is heavily dependent on ready access to medical knowledge databases

Multimedia “digital libraries”

- ✓ User friendly: easy to navigate between different levels of explanation useful to patients, clinicians, and scientists*
- ✓ Interconnections between genetic data, clinical and public health data, published literature and high-quality health information in many languages*
- ✓ “Smart” programs that match relevant published knowledge to the diagnoses and circumstances of individual patients, as these are represented in their electronic records*
- ✓ Sophisticated search engines, which automatically adapt and learn from the user’s search history*
- ✓ Tutorials and current health news that would include links to information about relevant local health services and open clinical trials. Descriptions of clinical trials would, in turn, link to summarized results and relevant scientific papers*

Searchable Directory of Healthcare Sites
Search by keyword or by specialty

**Patient resource of informative articles and information
on all aspects of health, medicine, and research.**
Search by Topic, Specialty, Body Location, Symptom

Physician resource of scientific articles
Search by Topic, Specialty, Body Location, Symptom

Cardiac Surgery

General Surgery

Head and Neck Surgery

Transplant Surgery

Neurosurgery

Paediatric Surgery

Plastic Surgery

Surgical Oncology

Thoracic Surgery

Vascular Surgery

Liver

Heart

Lung

Kidney/Pancreas

Bone Marrow

Islets

Islet Transplantation Search by Country

See All

Algeria

Belgium

Cyprus

Egypt

France

Germany

Greece

Italy

Morocco

Tunisia

Turkey

Milano

Palermo

ISMETT

Search

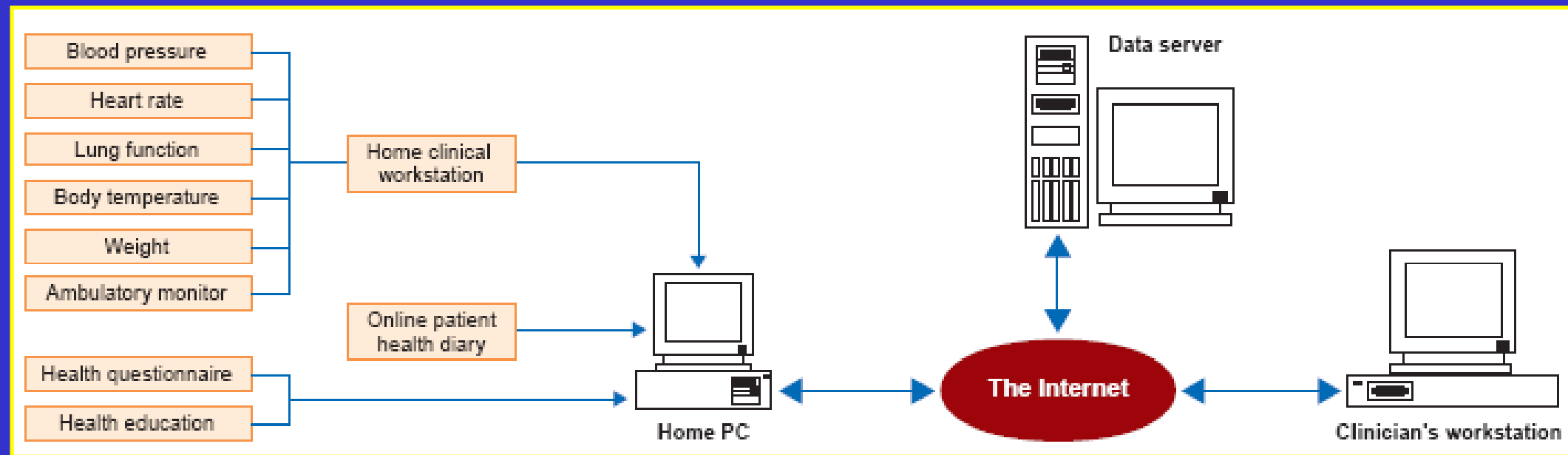
Telecare

These applications may be based around videophone systems which allow nurses or doctors to view and talk to the patient while collecting data from equipment that records vital signs



Home Telecare System:

- ✓ very limited use of wearable devices to promote user compliance
- ✓ low relative cost
- ✓ modularity (pick and choose)
- ✓ simplicity of use
- ✓ clinically relevant vital-signs monitoring
- ✓ highly automated scheduling
- ✓ provision of patient feedback
- ✓ access to information services



Web access to patient data

Data collection would be scheduled by patients' physicians on the basis of the severity of symptoms

Data collected would then be automatically synchronised and replicated on a central server and immediately available to the physician for remote viewing from any web browser

This approach would allow for ubiquitous access to patient data and would provide a standard user interface (Web browser) with which most clinicians are familiar

Teleconsulting, Telediagnosis, 2nd Opinion

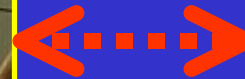


Telesurgery

Surgeon in Hospital A

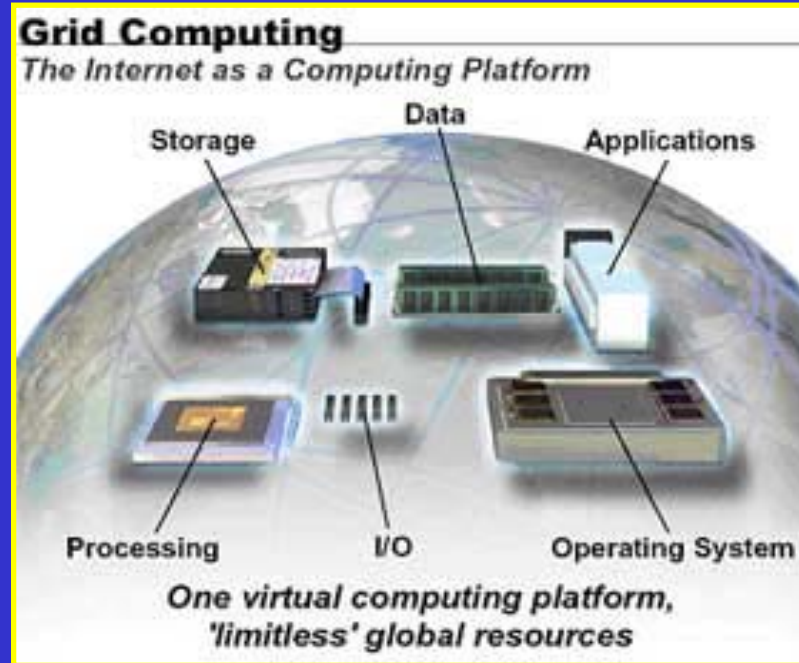


Patient in Hospital R



Bringing telesurgery to fruition requires many advances, including petaFLOPS computing. The reason petaFLOPS computing is essential is that the physician wielding the scalpel requires very rapid feedback

Grids bring together geographically and organizationally dispersed computational resources, such as CPUs, storage systems, communication systems, real-time data sources and instruments, and human collaborators.



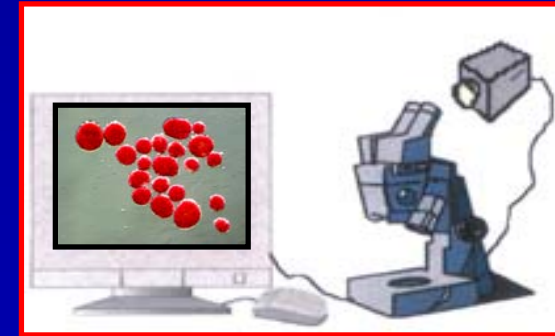
Science portals make advanced problem-solving methods easier to use by invoking sophisticated packages remotely from Web browsers. The packages themselves can also run remotely on suitable computers within a Grid.

Distributed computing: in 2001, mathematicians across the US and Italy pooled their computational resources to solve a specific problem. For a week, the collaboration brought an average of 630--and a maximum of 1006--computers, delivering a total of 42,000 CPU-days!

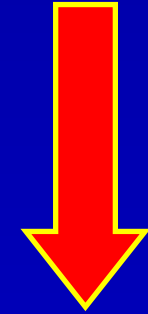
Wireless Portable Videoconferencing and Remotely Operated PTZ Network Cameras with Integrated Server...in the Lab...



Acceleration of *Know-How* Transfer (Teletraining)

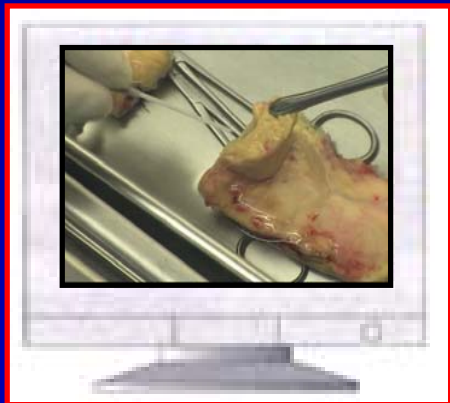


Server
cGMP Islet Isolation Facility – DRI – Miami

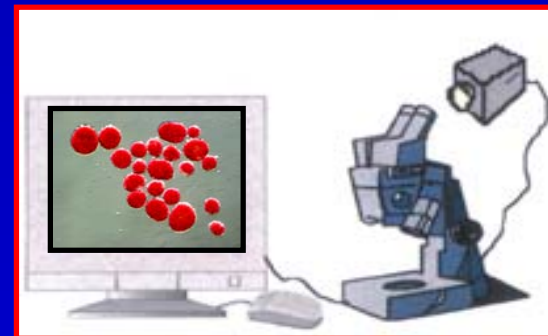
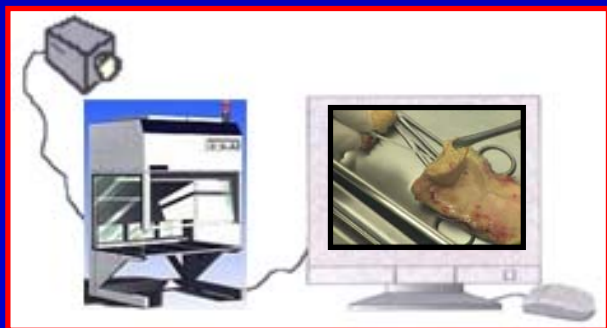


Client
cGMP Islet Isolation Facility – ISMETT

Telecollaboration/Quality Control



Client
cGMP Islet Isolation Facility – DRI – Miami



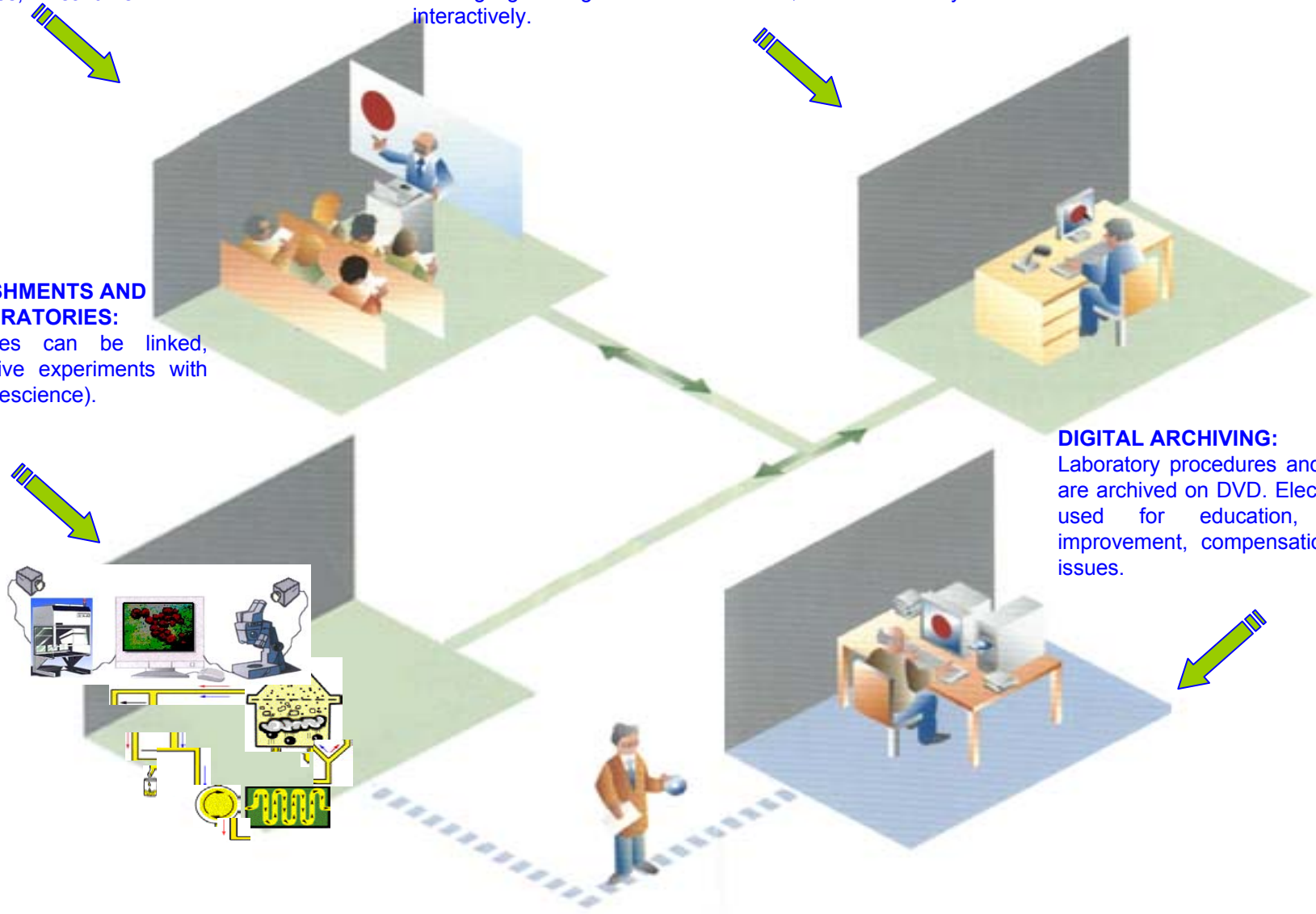
Server
cGMP Islet Isolation Facility – ISMETT

TELETRAINING: Images and sound are transferred to each authorized PC connected on the network. This allows live demonstrations and communication of laboratory techniques, in real time.

TELECONSULTING: Brings experts located anywhere in the world, directly inside the laboratory. Allows to obtain precious advice in case of difficult situations. From remote PCs, colleagues can pan, tilt, zoom, rotate, focus, and highlight images to the local team, with whom they can communicate interactively.

TISSUE ESTABLISHMENTS AND RESEARCH LABORATORIES: Multiple laboratories can be linked, allowing collaborative experiments with remote centers (Telescience).

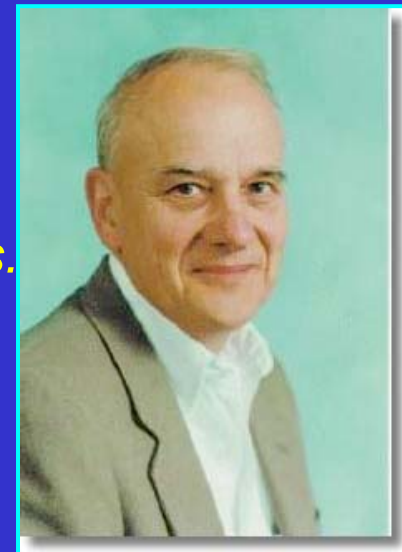
DIGITAL ARCHIVING: Laboratory procedures and individual isolations are archived on DVD. Electronic images can be used for education, research, quality improvement, compensation and legal liability issues.



Research Collaboratories

A Collaboratory is a "...'center without walls' in which the nation's researchers can perform their research without regard to geographical location – interacting with colleagues, accessing instrumentation, sharing data and computational resources, and accessing information in digital libraries.

William Wulf (1989)



Potentials of Telescience and Research Collaboratories

- *Development of Virtual Core Facilities – at a fraction of the cost necessary to purchase and maintain instruments on-site*
- *Creation of superspecialistic cross-disciplinary research teams to approach experimental problems and optimizing efficiency and productivity*
- *Development of Virtual Institutes*
- *Creation of a new type of scientific community*

Virtual Collaboration: better, worse or...

- Physical absence
- Technological Intrusion
- Delays and network problems
- Very rapid technological evolution
- Remote access to instruments, colleagues, scientific and clinical information and resources
- Automation
- Multimedia Integration

... Different?

What are the next steps?

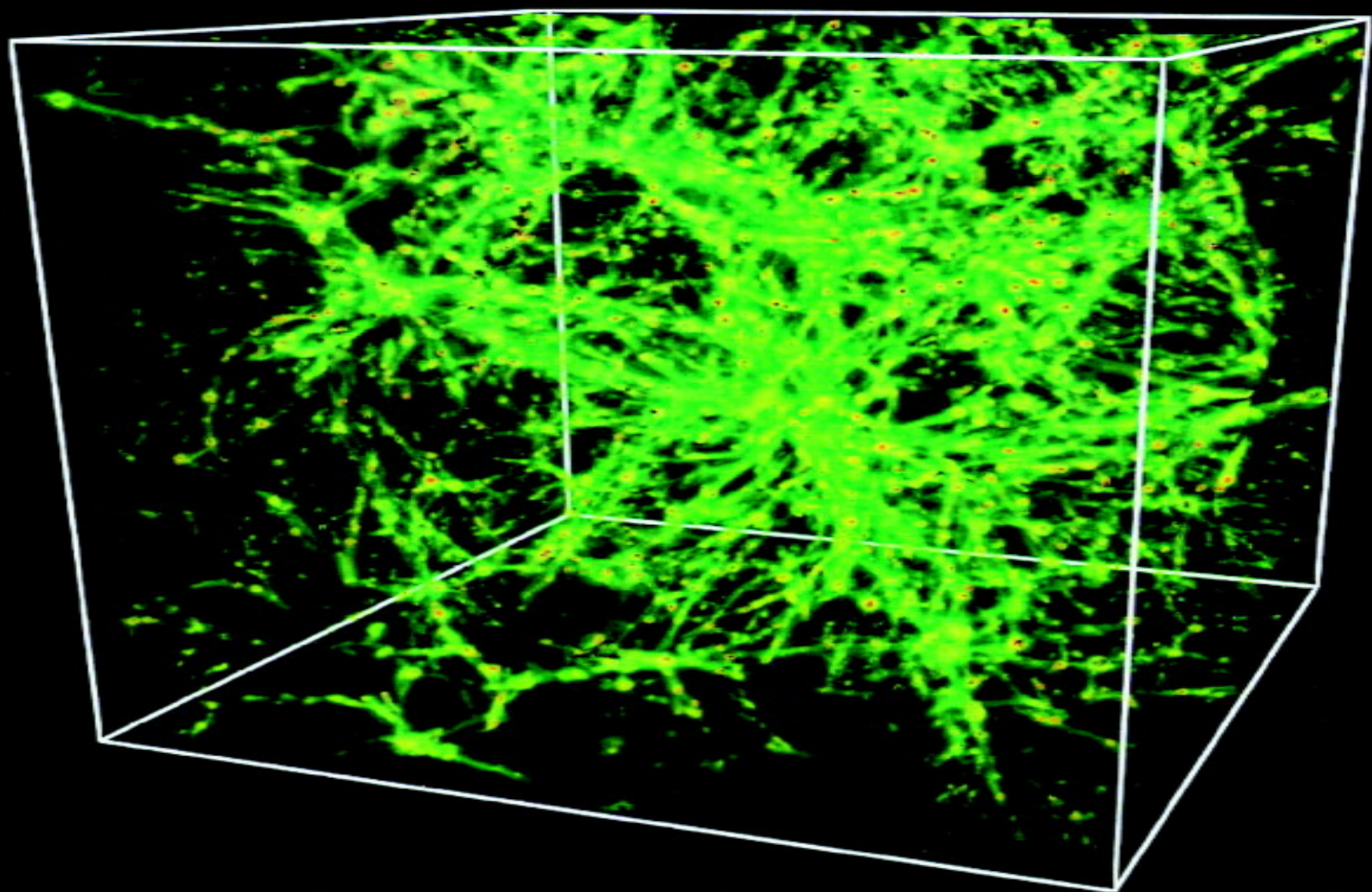
- Evaluation of the results of the EU e-Health Programs and Projects for Euro-Mediterranean co-operation
- Evaluation of Technological Infrastructure
- Flow Analysis
- Economic Impact
- Health Priorities
- etc...



VEMH Feasibility Study
carried out by a board of experts from Euro-Mediterranean countries

How Do We Build Our New Hospital ?

- We create a digital warehouse to collect the services that we can/want to make available to the new VEMH
- We classify the services/activities:
 - **CLINICAL: SURGERY**, Abdominal Surgery, laparoscopic gastrointestinal by-pass
 - **EDUCATIONAL: TELE-TRAINING**, Critical Care Medicine, cpr
 - **RESEARCH: FUNCTIONAL GENOMIC**, Ageing, liver
- We make the information/services available to patients, physicians, administrators, decision makers
- We create/use efficient communication channels through which the information can be exchanged





GRAZIE