

UNITWIN/UNESCO Chairs Programme Progress report 2004

«If this has not yet been done, please forward your progress report before
31 May 2005» to the Director, Division of Higher Education .

Period of activity:

2004-2005

Title of the UNESCO Chair or Network:

UNESCO CHAIR TELEMEDICINE

Report established by:

Prof.Dr.O.Ferrer-Roca,

Function / Title:

responsible UNESCO Chair Telemedicine 1999-2005

Full Professor in Pathology. Responsible of the Telemedicine Training at the University of La Laguna.
Canary Islands. Spain

To be sent by electronic mail to: unitwin@unesco.org

or to UNESCO, Division of Higher Education
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I. Address

| | Address of the Host Institution | Address of the Coordinator |
|---------------------------|---|---|
| Name | Prof. Dr. O. Ferrer-Roca | Prof. Dr. O. Ferrer-Roca |
| Function/Title | Chair of Pathology | Chair of Pathology |
| University/Institution | University of La Laguna | University of La Laguna |
| Faculty/Department/Centre | Faculty of Medicine | Faculty of Medicine |
| P.O.Box | La Cuesta | La Cuesta |
| Street | La Laguna | La Laguna |
| Postal Code | 38071 | 38071 |
| City | Santa Cruz de Tenerife | Santa Cruz de Tenerife |
| Province | Canary Islands | Canary Islands |
| Country | Spain | Spain |
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II. Available resources

Please specify for each item, when available, **total cost** and **funding sources**
(for guidelines see Annex 3)

1. Human resources

1. For the administration of the UNESCO Chair or Network

| | |
|--------------------------------|---------------------------------|
| Partial time support Secretary | Candelaria Padilla Padilla |
| Partial time support Secretary | Elisabet Almenar Hernández |
| Partial time support Lawyer: | Margarita Suarez Delgado |
| Partial time support Secretary | Isabel Garcia Moreno |
| Partial time support Secretary | Fernando Jose Alvarez Rodriguez |

2. For the teaching/training/research activities
Please specify number of full professors , researchers, visiting professors, lecturers, others
Prof. Dr. O. Ferrer-Roca

| | |
|--------------------------------|----------------------|
| Informatics Engeeniering | Francisco Marcano |
| Computer Science | Pablo Pulido Lorenzo |
| Telecommunication Engeeniering | Álvaro Díaz-Cardama |
| Informatics Engeeniering | Arnaldo Acosta |

3. For the information and documentation activities:
Secretary Simón Sananes

4. For other activities: The international courses brought to teaching and training a total of 29 professors coming from European, African and Ibero-American

countries (Italy, Greece, France, Germany, Spain, Uganda, United Kingdom, Argentina, Venezuela, Mexico)

2. Material resources

1. For the administrative work: Computers fax machines, xerocopy machines, printer, and storage systems.
2. For the teaching/training/research activities: Videoconference, workstations, ultrasounds, video-edition, projector, Book edition, CD-edition, Proceedings editions, e-learning, Digital Fingerprint control systems.
3. For the information and documentation activities: Web site, Posters, brochures, Proceedings, Book editions, CD-edition
4. For other activities (*Please specify*): Videoconferencing, 3D-virtual reality, Distant control,

III. Activities

Please, provide information on items 1 to 7 for each activity, when available, and specify:

- Target groups, in accordance with Annex 1
- Geographical coverage, in accordance with Annex 2
- Funding sources, in accordance with Annex 3.

1. Education/Training/Research

- Title and expected results for each course, workshop,...
- See joined memorandum and programs of the Winter Course of the CATAI
- Duration: 2weeks.
 - Target groups: doctors, nurses, health-care providers, NGOs
 - Partnership (please specify the name of the Institution, city, country): Universities Trier-DE, Postdamm-DE, Humboldt Univ. Berlin-DE, Makerere-Uganda, Entre-Rios-Argentina, Mexico-Mexico, Zulia-Venezuela, Athens Univ. of Economics and Business-GR, University Milano, University Tor-Vergara Rome-IT, Univ Oxford-UK, Rovira y Virgili-Spain; Politecnica of Barcelona-Spain, University Perm-Russia, Univ Moscu-Russia, Univ, Beijing-China, New Delhi-India, Istambul-Turkey, El Cairo-Egypt, Queensland- Australia, Marrocco
 - Geographical coverage for partners and participants: Europe-Africa-South & North America.
 - Funding sources: CATAI founding. Telefónica SL, Spanish agency of International cooperation AECI.
 - Outputs: Please specify number of doctoral students: 150-200 students per year. For the publications, complete form of Annex 4, and Annex 5 for the multimedia material.

2. Conferences/Congresses/Meetings

- Title and expected results for each conference, meeting...:
Always in Telemedicine. Expected increase of knowledge and training of how to handle medicine at distance for people and areas underserved or with health care constrains availability.
- Dates and place: Tenerife (28 February 05-13th March 05), Paris (31 January 05), Oxford (5-6 April 05), Santiago Compostela (22-23 April 05), Madrid (17-18 Noviembre 04), La Palma (23 Feb 05) Adeje (16 July 05), Perm-Russia (16-23 January 05).
- Partnership (please specify: Name of the Institution, City, Country): see joined programs plus Mulago Hospital-Uganda; Roche Research Center, Univ Perm-Russia, Casablanca-Marrocco.
- Participants (number): 100 up to 1000 depending of the type of meeting
- Geographical coverage for participants and partners: Europe-Africa-South America-Asia
- Funding sources: CATAI funding. Telefonica SL.
- Outputs: Please complete Annex 1 for the publications and Annex 2 for the multimedia material.
- Preparing “**Telemedicine Master**” at distance, and the ERASMUS MUNDUS with the Universities of Makere- Uganda, Beijing-China, New Delhi-India, Istambul-Turkey, El Cairo- Egypt, Queensland- Australia, Marrocco

3.Missions / Travels abroad

Destination: University La Laguna-UNESCO Chair Telemedicine.

From : Entre Rios-Argentina, México, Uganda and Venezuela

Purpose: Students training in telemedicine

Duration: from 1 to 2 month

Funding source: University of La Laguna/Telefónica SL / Catai fundings/ Spanish Agency of International Cooperation AECI.

Outputs: training of students to provide telemedicine in underserved areas.

4. Visiting professors / Fellowships

Number: (8)

Duration: 1-2 month

University of origin: U. Zulia-Venezuela (1), U. Entre-Ríos (5), U. Makerere (1), U. México (1).

Funding sources: University of La Laguna, CATAI fundings, Telefonica SL, PCI-Spanish Agency of International Cooperation-AECI.

5. Information and documentation activities

1. CATAI 2005, Editor: Prof.Dr.O.Ferrer-Roca. CATAI editions. Tenerife. ISBN 84-609-4000-4

2. European Master of Telemedicine and Bioengineering applied to Telemedicine. DVD. CATAI Editions. 2005. ISBN 84-609-2162-X

3. European Master of Telemedicine and Bioengineering applied to Telemedicine, Volume I. CATAI Editions 2005. ISBN84-609-2163-8

6. Others

Written agreements with Universities

6.1 Preparing Written agreements with the Universities of Beijing-China, New Delhi-India, Istambul-Turkey, El Cairo- Egipt, Queensland- Australia, Marrocco for the ERASMUS MUNDUS.

6.2 Agreements of the students interchange in the field of Telemedicine and for third cycle students with the Universities of Postdamm-DE (6 Students), Charite-Berlin-DE (6 Students) and Univ Udine-IT (6-students) as Erasmus students, plus 1 or 2 professors from each University.

Training Books donations

6.3 Donations of the vol I of the European Master of Telemedicine and Bioengineering applied to Telemedicine. to the Universities of Entre-Rios (25), Makerere (6), Zulia (10), Mexico (1), Greece (11).

6.4 Donation 150 European Telemedicine Glossary 5th Edition to the attendants of the XII Winter Course of the CATAI. Tenerife. Spain.

Computer donations

Collecting the computers to be send to Makere-Uganda.

IV. Impact

Please describe shortly (one page maximum) the impact of the mentioned activities on the human, social, economical and cultural development at national, regional or international level.

The relevance of the telemedicine in areas underserved or to people with limited access to health care do not require further comments.

One of the principle obstacles in the wide use of Telemedicine is the lack of specific training and qualifications in the health care environment (doctors, nurses, paramedics, managers, NGOs) as well as related areas from which they require support (computer science, telecommunications)

The Unesco chair of Telemedicine has become during the previous years of activity an International reference in the aspects of quality training in Telemedicine particularly to

developing countries, giving furthermore support to implement local solutions or health care at distance whenever needed.

Furthermore their location in an archipelago territory, which is the bridge between Europe-America and Africa, also facilitate his tasks.

V. Forthcoming activities

1. XII SUMMER COURSE OF THE CATAI – September 2005 – to be determined
2. XIII WINTER COURSE OF THE CATAI - March 2006– Tenerife - Spain
3. STUDENTS EXCHANGE TO TENERIFE
4. STUDENTS TRAINING IN TENERIFE
5. UGANDA DOCTORS TRAINING IN EUROPE
6. SCHOLARSHIPS FOR IBEROAMERICAN BIOENGINEERS
7. EU to IBEROAMERICA INTERCHANGE FOR SUPPORT. October 2005
8. TELEMEDICINE MASTER FOR DEVELOPING COUNTRIES (ERASMUS MUNDUS)
9. European convergence inter-university master in Telemedicine and Bioengineering applied to telemedicine.
10. Presentation of the vol II of the DVD for distant training in Telemedicine.
11. First year of the La Laguna University own title in Telemedicine & Bioengineering applied to telemedicine.
12. Implementation of the telemetry and telecontrol software in Iberoamerican countries.

VI. Development prospects

The activities of the Chair started on 1999 has expanded during the period 2004-2005 to:

1. - Mediterranean Countries, particularly in the North of Africa (Argelia) and Turkey.
2. - Expansion to Asian countries particularly China, India.
3. - Expanded to Australia.
4. - Approach to Health-grid and M-learning to be exported into developing countries.

Target groups

| | |
|--|-----------------|
| Undergraduate students | YES |
| Graduate students | YES |
| Postgraduate students | YES |
| Academics | YES |
| Public administrators | YES |
| Employees from industry, or other private organizations (<i>please, specify</i>) | YES: NGO's |
| Teachers from primary education | NO |
| Teachers from secondary education | NO |
| Teachers from technical and vocational education | YES |
| Teachers from adult education | YES |
| Others groups (<i>Please specify</i>) | YES: VOLUNTIERS |

Geographical Coverage

- **National**

Spain: Canary Islands (7 Islands)

- **Regional**

Please specify countries and regions

- Africa: Nairobi-Kenya, Makere-Uganda, Marrocco, Argelia.
- Arab States: Israel, Turkey-Istambul,
- Asia/ Pacific: Kazakhstan, Tel-Aviv-Israel, New Delhi-India, China-Beijing-China
- Eastern and Central Europe: Sofia-Bulgaria, Rumania, Russia-Perm & Moscow
- Australia: Queensland University.
- Western Europe and North America: Germany-Regensburg/Postdam/Berlin, Italy-Udine/Milan/Rome, Greece-Athens and Aegean islands, Austria-Tyrol, France-Strasbourg/Paris, Lachen-Switzerland, Oxford-UK.
- Latin-America: Argentina-Entre_Rios, Venezuela-Maracaibo, Panamá, Cuba-La Habana, México.

- **Interregional**

Please specify regions

Funding sources

| Funding source | Type of Organization / Institution | Period | Amount US\$ |
|---|---|---------|-------------|
| UNESCO Contribution | | 2004/05 | 0 |
| Other contributions: <i>Please specify, for each contribution:</i> <i>Institution, City, Country</i> | Host Institution | 2004/05 | 10000 |
| | Partner university/ institution | 2004/05 | 15000 |
| | Governmental body | | |
| | Other public institution <i>Please specify</i> | | |
| | UN Agencies IGOs NGOs: CATAI Industry | 2004/05 | 20000 |
| Other private sources <i>Telefónica SL -Spain</i> | 2004/05 | 55000 | |
| TOTAL | | 2004/05 | 100000 |

Outputs

Form 1: Publication

Title of activity: Ambience Intelligence in Medicine. [Aml@medicine](#). CATAI 2005

Title: CATAI 2005. ISBN 84-609-4000-4

Publisher(s): CATAI- Tenerife -Spain

Year: 2005

Number of pages: 171

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X Proceedings XIII Winter Course CATAI.

Teaching/learning material X

Language(s): English, Spanish

Main keywords (4 or 5): Telemedicine, Information Society, Health Care , Ambience Intelligence.

SHORT ABSTRACT

(Brief description of the content in English, French or Spanish)

The proceedings of the XIII Winter Course of the CATAI and the XVIII Course of Image Analysis of the University of La Laguna. It include all the papers of the most knowledgeable people in the field of Ambience Intelligence [Aml@medicine](#) and related items necessary to practice Telemedicine. Topics cover include minimal requirements for a list of telemedicine applications, technological knowledge, Artificial Intelligence in the prevention and control of the disease, Legal and liability aspects. Quality control. E-learning and M-learning and pervasive medicine. Use of wireless technology to achieve those items.

Title of activity: WEB-WAP Diabetes control

Title: "Web-based Diabetes Control ."

Publisher(s): Journal of Telemedicine and Telecare 10 (5): 277-281

Year: 2004

Number of pages: 277-281

Type of document/material:

- Book
- Periodical X
- Others (*specify, please*)

Teaching/learning material

Language(s): English

Main keywords (4 or 5): Diabetes. SMS. Messaging. Management. Telemedicine. Standards.

SHORT ABSTRACT

(Brief description of the content in English, French or Spanish)

Summary:

The paper analyses the acceptance of a Web-WAP-based diabetes control service in the Canary Islands covering 5/1000 people fulfilling the trial criteria. The web site allows the patient to post biological measurements, as for example blood glucose, diastolic and systolic pressure, temperature, pulse, weight, etc. An individual management plan selected by doctors is build for each patient and later doctors or patients can review the data through the web. The site has an automatic answering system based on value ranges and goals defined by the doctor for each patient. The interface has an interactive message window that allows the doctors to send advice to patients. Patients have the option to self-manage their diabetes, reviewing measurements in a table/graph identical to the doctor's interface.

User analysis was carried out with personal and on-line questionnaires. The trial had recruitment difficulties; the main reason was the limited patient Internet access.

Patients had the feeling that they were not closely controlled because doctors did not use messaging facilities to communicate with the patients, indicating that patient self-management culture with software programs has to be integrated with doctors' distance management.

Users were satisfied with continuity and self-efficacy of care, but lack of time was a drawback for the 38% and 75% expressed their preferences to send their data in a more comfortable way using Short Message Services (SMS).

The initial Canary Islands Web-based diabetes management was extended to allow the patients to send their glucose or other measurements using their mobile phones by SMS. This was done building an SMS-server based on a GSM modem with a SIM card and a simple Visual Basic application that interacted with the database of the initial Web-based diabetes management program..

The data received from the patient by SMS could be blood glucose, blood pressure, weight and temperature. Automatic answers were sent upon reception according to individual patient ranges/goals. Furthermore, a server program monthly-calculated the glycosylated Haemoglobin value, sending a SMS message to the patient. After five months of implementation, the Tenerife diabetes trial expanded from 6,02 per1000 inhabitants able to fulfil the trial criteria to 9,41/1000. Patients entering the SMS trial were of two age groups; one was significantly younger than web-wap users and the second included old patients whose data had to be introduced by their relatives.

Overall user satisfaction was good (64,88%).The majority preferred to manage diabetes by themselves (76%) and considered that messages received from the doctors were irrelevant (38%).

The paper showed its simple design and low cost infrastructure/maintenance. Running costs for the diabetes manager was 5 €per patient/month. Using Premium SMS Short numbers, the costs can be transformed into benefits, gaining 7 €per patient/month .

Title of activity: SMS for Diabetes Control

Title: "Mobile Phone Text messaging in the Management of Diabetes"

Publisher(s): Journal of Telemedicine and Telecare January 10 (5) 282-285

Year: 2004

Number of pages: 282-285

Type of document/material:

- Book
- Periodical X
- Others (*specify, please*)

Teaching/learning material

Language(s): English

Main keywords (4 or 5): Diabetes. SMS. Messaging. Management. Telemedicine. Standards.

SHORT ABSTRACT

(Brief description of the content in English, French or Spanish)

Objectives: The present paper describes the use and potential value of mobile phone Short Message Services (SMS) for distance diabetes management that has not been previously published in scientific journals. It outlines a eight month experimental trial that complemented an existing Web-based management system.

Design: The trial was based on an SMS-server using GSM modem with a SIM card by means of a Visual Basic application. Patient data (blood glucose, blood pressure, weight and temperature) were received via SMS. The server automatically answers via SMS with pre-recorded messages depending on individual ranges/goals established by the doctor and with a monthly-calculated glycosylated Haemoglobin. Doctors send individual advice messages via Web interface or SMS. Patients and doctors were able to control parameter evolution through web interface.

Measurements: Differences between SMS versus Web users were studied together with user satisfaction. Activity of the SMS-server was analysed through the log files. User concerns were collected at periodic meetings with user associations.

Results: The distant diabetes management trial reached 1.6% patients who fulfilled trial criteria, and 52 % were SMS users. The SMS system had special success in teenagers and elderly patients whose data were introduced by younger relatives.

Overall user satisfaction was good (65%) without differences between SMS and Web users. Although 80% of patients manage diabetes by themselves, they value receiving automatic or doctors messages (70%) that keep extreme-aged patients on track.

The willingness-to-pay analysis demonstrates the SMS barriers for teenagers using pre-paid cards and cost concerns among older user groups.

Title of activity: TM ontology

Title: Telemedicine ontology for intelligent learning.
Publisher(s): CATAI 2005. CATAI Ed. ISBN: 84-609-4000-4
Year: 2005
Number of pages: 77-84

Type of document/material:

- Book
- Periodical X
- Others (*specify, please*)

Teaching/learning material

Language(s): English

Main keywords (4 or 5): Telemedicine, e-health, PMI, PKI, Digital signature, Digital Certificates, TTP, Security and USB-token.

SHORT ABSTRACT

(Brief description of the content in English, French or Spanish)

Telemedicine (TM) is an ever-evolving multidisciplinary subject where knowledge is acquired by continuous training rather than as part of a curriculum. The current challenge is to create an intelligent tool that delivers personalized training to professionals with different backgrounds, making use of scientific innovations from any source, even the Internet.

We present an innovative metadata packaging and rule-building tool to achieve an adaptive retrieval system that may draw on all available resources. For this purpose we used vocabulary and ontologies founded on the telemedicine body of knowledge (TM-BoK) hierarchy and Medical Sub-headings (MeSH).

The packaging tool creates a modified XML-manifest that contains a Navigable Knowledge Map and a separate Rule-extension executed by Agents during the process of navigation. Agent systems also handle personalization, selecting packages by reading metadata tags. The result is an adaptive and adaptable TM knowledge delivery tool.

Title of activity: __Digital Signature_____

Title: Electronic Prescription & Digital Signatures.
Publisher(s): CATAI 2005. . ISBN 84-609-4000-4. Prof.Dr.O.Ferrer-Roca Ed. Tenerife. Canary Islands.

Year: 2005

Number of pages: 118-125

Type of document/material:

- Book
- Periodical X
- Others (*specify, please*)

Teaching/learning material

Language(s): English

Main keywords (4 or 5): Telemedicine, e-health, PMI, PKI, Digital signature, Digital Certificates, TTP, Security and USB-token.

SHORT ABSTRACT

(Brief description of the content in English, French or Spanish)

The paper presents an information system (IS) for e-prescription of drugs compliant with international health-care standards and national laws in security and privacy.

A professional ID-card was built in a single-chip USB token (ISTEC E4 High; EAL-5) that have a Hash hardware accelerator for digital signature. Data management uses market solutions to authenticate /authorize access and e-sign. For liability purposes Public Key Infrastructure (PKI) and Privilege Management Infrastructure (PMI) were established and their degree of legal compliance was evaluated.

The chip was highly efficient for e-signature and multiple computer interactions, only constrained by the USB-1.1 interface speed (12Mbits/sec.). Banking-type mask initialization inefficiently handled space for the health-care channel of trust. Commercial PKI/PMI were unable to use health-care attributes in appropriate certificate extensions. Templates for Role-Rule privileges were not available.

In summary the market is not prepared for the international health-care standards and a nation-based quality label is necessary. This label should assure users and customers that compulsory high security items are fulfilled by the commercial solutions when applied to Health Care-IS.

Title of activity: __ Quality of services __

Title: Control de calidad medica. Normas ISO. Aplicaciones a Telemedicina
Publisher(s): CATAI 2005. ISBN 84-6070493-8. Prof.Dr.O.Ferrer-Roca Ed. Tenerife.
Canary Islands.

Year: 2004

Number of pages: 165-167

Type of document/material:

- Book
- Periodical X
- Others (*specify, please*)

Teaching/learning material

Language(s): English

Main keywords (4 or 5): Proceso, Gestion de Calidad y Fiabilidad, ISO 9001:2000, ISO 13485, ISO 13488.

SHORT ABSTRACT

(Brief description of the content in English, French or Spanish)

La calidad de servicios es fundamental para la práctica de la medicina ya que es el requisito indispensable para garantizar la seguridad y eficacia de las intervenciones destinadas a prevenir, diagnosticar, curar o controlar las enfermedades.

La “Global Harmonization Task Force” (GHTF)-SG3 en cooperación con la ISO-TC176 y la ISO-TC210-WG1 ha establecido los requisitos de calidad aplicables a productos sanitarios y servicios relacionados que se plasmaron en la normas ISO 13485:1996 e ISO 13488:1996.

Actualmente se encuentra en elaboración la nueva norma ISO 13485:2003 que se espera en Julio del 2006.

Basada en el estándar ISO 9001:2000, se organiza, numera y documenta de forma comparable.

Dado que la telemedicina no es mas que una forma de practicar la medicina, las normas anteriores deben extenderse a la totalidad de la cadena de los servicios tele-médicos, desde el punto en que se recoge la información hasta que concluye la intervención medica.

Title of activity: __SOFTWARE FOR PATIENT CONTROL AT DISTANCE

Title: Web and SMS control software

Publisher(s): CATAI

Year: 2004

Number of pages: software, not applicable

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) software

Teaching/learning material

Language(s): English & Spanish.

Main keywords (4 or 5): SMS, Web, Internet, e-health, telemedicine, telemetry.

SHORT ABSTRACT

(Brief description of the content in English, French or Spanish)

Software given to developing countries to be able to control at distance the patients either by Internet or also by mobile phone if available. It is applicable to any demand and capable to easily be adapted to any patient or doctor requirement.

Outputs

Form 2: Multimedia material

Title of activity: _____ **TELEMEDICINE-CD** _____

Title: CATAI Telemedicine -CD. ISBN 84-923357-2-6

Producer and/or distributor (*with address*): CATAI

Year: 1999-2005

Teaching/learning material X

Type of material:

- Video
- CD ROM X with videos
- Visioconference:
- Other type of material

(*Please specify*): _____

Duration: 643 MB

Format: Word, Html, /ppt, /mpeg

Language(s): English- Italian-Spanish

Main keywords (4 or 5): Telemedicine

SHORT ABSTRACT

(*Brief description of the content in English, French or Spanish*)

According to one of the numerous definitions of Telemedicine “providing medicine at a distance“, any doctor being trained in the use of some telematic devices could effort that practice. The reality is far from this because to assure a safe practice, people have to learn and bear a minimum understanding of a wide range of topics: from economics to telecommunications and from medicine to legal aspects. Technology learning is not limited to technology itself but linked to its social practical consequences in all their aspects. To guarantee that none of the aspects related with Telemedicine are missed, this minimum knowledge has to be fixed, organised and in some way standardized. The main purpose of this book is to structure the basic knowledge linked to teaching to provide or to practise telemedicine, as well as an overview of the technology developments linked to this new discipline. As expressed in the title (Handbook of Telemedicine), the book is precisely structured as a “handbook” whose main value is the joint opinion of all the participating authors of what are the learning requirements for anyone that would like to practice Telemedicine. It is not a full treatise nor a complete collection of all telemedicine applications or telemedicine basics. It was built with the aim of creating awareness to the academic aspects (technology development, telecommunications approach, law and regulations, medical practice) as well as to the minimum knowledge requirements to guarantee safe and appropriate medical practice. Nowadays this fact is enhanced by the evidence that welfare expenses cannot be endlessly increased, whilst an efficient health provision system in the context of the information society, will mark a new trend to configure health care practice in the next century. If training and teaching schemes are to cope with the demands of society it seems obvious that those carers and professions should consider structured and sufficient training in Telemedicine.

AIMS OF THE MULTIMEDIA CD-ROM

The present CD-ROM contains the Handbook of Telemedicine as a whole, internally structured in 12 Chapters and 13 Annexes (file *HANDBOOK.DOC*). Some of them are complemented with diverse multimedia material for training and teaching purposes. The handbook is presented in Word and Html formats (directory /html), while the multimedia material is located in the directories /ppt and /mpeg. The former are PowerPoint 97 presentations and the latter are video-clips on Mpeg format.

Title of activity: **EU-MASTER OF TELEMEDICINE DVD**

Title: EU-Master of Telemedicine and Bioengineering applied to Telemedicine

Producer and/or distributor (*with address*): CATAI Ed. ISBN 84-609-2162-X

Year: 2004

Teaching/learning material X

- Type of material:
- Video DVD with text & multimedia X
 - CD ROM
 - Visioconference:
 - Other type of material Other multimedia material
- (Please specify): _____

Duration: 2 GB
 Format: RM (real media)
 Language(s): English-Spanish
 Main keywords (4 or 5): Telemedicine

SHORT ABSTRACT

(Brief description of the content in English, French or Spanish)

Generic name of the list of DVDs with multimedia material produced to train at distance on Telemedicine and Bioengineering applied to telemedicine any people interested. No requirements needed except a DVD reader in the computer.

Title of activity: EU-MASTER OF TELEMEDICINE DVD-vol 1

Title: EU-Master of Telemedicine and Bioengineering applied to Telemedicine. Volume I.

Producer and/or distributor (with address): CATAI Ed. ISBN 84-609-2163-8

Year: 2004

Teaching/learning material X

- Type of material:
- Video DVD with text & multimedia X
 - CD ROM
 - Visioconference:
 - Other type of material Other multimedia material
- (Please specify): _____

Duration: 2 GB
 Format: RM (real media); PDF; HTML
 Language(s): English-Spanish
 Main keywords (4 or 5): Telemedicine

SHORT ABSTRACT

(Brief description of the content in English, French or Spanish)

Volume I of the multimedia material to train the people in Quality control and security in e-health. It include text, presentations and videos given by the more representatives professionals in the world in the topics of Minima requirements, Technical knowledge, Teleworking and teleteaching, Principal technical innovations, Telemetry, Nanotechnology, Quality control and assessment, Legal requirements, Security, Internet, Standards , Electronical Health Record.

Title of activity: EU-MASTER OF TELEMEDICINE DVD-vol 2

Title: EU-Master of Telemedicine and Bioengineering applied to Telemedicine. Volume II.

Producer and/or distributor (with address): CATAI Ed. ISBN in tramit.

Year: 2005

Teaching/learning material X

- Type of material:
- Video DVD with text & multimedia X
 - CD ROM
 - Visioconference:
 - Other type of material Other multimedia material
- (Please specify): _____

Duration: 2 GB
Format: RM (real media); PDF; HTML
Language(s): English-Spanish
Main keywords (4 or 5): Telemedicine

SHORT ABSTRACT

(Brief description of the content in English, French or Spanish)

Volume 2 of the multimedia material produced for distant training containing text, presentation and videos. Topics covered in this editions include Telemedicine applications, Minimal technical knowledge, Nanotechnology and new materials, Mobile and electronic learning, Digital signature, Security for health-care, Legal and liability issues, Artificial intelligent in the control of diseases, robotic surgery, ambience intelligence and virtual environment for disease control and treatment, telepresence.

Title of activity: __WEB OF THE TELEMEDICINE GROUP__

Title: www.teide.net/catai

Producer and/or distributor *(with address)*: CATAI
Year: 1997-2005

Teaching/learning material X

Type of material:

- Video
- CD ROM
- Visioconference:
- Other type of material X
(Please specify): _____ Web page; Videostreaming training

Duration:
Format: Html; RM (real media)
Language(s): English- Spanish
Main keywords (4 or 5): Telemedicine

SHORT ABSTRACT

(Brief description of the content in English, French or Spanish)

The CATAI web has as main objective the spread of the Telemedicine in Spain and in developing countries. The non-for profit association fo the CATAI (Center of Advanced Technology in Image Analysis) support Telemedicine activities and studies in the field of:

- Image Analysis at distance
- Data transmission
- Videoconsultation and videoconferences
- On Line training
- Distant telequantitation.

The Summer and Winter Courses of the CATAI can also be followed on line during its production by means of the Helix Videoserver providing Real Media output that contain the Power Point presentation together with the video image of the speaker.

Title of activity: __WEB & SMS Server for Diabetes control at distance__

Title: <http://193.145.112.231/CHS/>

Producer and/or distributor *(with address)*: CATAI
Year: 2002-2005

Teaching/learning material

Type of material:

- Video
- CD ROM
- Visioconference:

- Other type of material X
(Please specify): _____ Support of diabetic people at distance

Duration:

Format: Html;

Language(s): English- Spanish

Main keywords (4 or 5): Telemedicine, Diabetes, SMS

SHORT ABSTRACT

(Brief description of the content in English, French or Spanish)

Web Server available for groups of medical people in English and in Spanish to be able to test Diabetes control at distance. It is accessible by Internet and also using mobile phone SMS.

Title of activity: __WEB & SMS Server for anticoagulant treatment control at distance__

Title: <http://193.145.112.231/INR/>

Producer and/or distributor (with address): CATAI

Year: 2002-2005

Teaching/learning material

Type of material:

- Video
- CD ROM
- Visioconference:
- Other type of material X
(Please specify): _____ Support of people treated with an anticoagulant treatment.

Duration:

Format: Html;

Language(s): English- Spanish

Main keywords (4 or 5): Telemedicine, INR, telemetry, anticoagulation, SMS

SHORT ABSTRACT

(Brief description of the content in English, French or Spanish)

This web site is available for any patient or doctor that either can be controlled at distance o want to control de patient at distance. Include a Decision Support System (DSS) to advise the user on the type of treatment that should be implement plus the capability of give messages from doctor to patients and viceversa.

Title of activity: _____Distant teaching._____

Title: <http://alexandros.ccslab.aueb.gr/~ctc>

Producer and/or distributor (with address): CATAI

Year: 2000-2004

Teaching/learning material X

Type of material:

- Video
- CD ROM
- Visioconference:

- Other type of material X
(Please specify): _____ Web page

Duration:

Format: Html

Language(s): English-Spanish

Main keywords (4 or 5): Telemedicine distance training

SHORT ABSTRACT

(Brief description of the content in English, French or Spanish)

The present activity carries out the diffusion of the structured training skills in the field of TELEMEDICINE. It introduces an innovative professional training by assuming new Information Society skills not only in the Health Care provision but also in the teaching methodology. The co-operation inside of the present CTC consortium will provide and update the contents of those rapidly moving technologies, and will bring innovative approaches in the teaching done at distance with experience of the ODL of APOLLO project as well as the experience on surgical virtual reality simulators provided by the new partners. The training is directed towards trainers to update their knowledge and skills, it means health care professionals (including directors and responsible people) in the European Union. This requires the updating of the Information Society training applied to health care.

This activity is linked with the initiative of the UNESCO Chair of Telemedicine to apply the consortium experience towards the urgent demand of Telemedicine in developing countries to improve their limited health care system efficiency and accessibility. The International teaching activities are arranged in intensive Winter and Summer Courses particularly to update trainers knowledge and teaching material. This activity also takes into consideration the fact that a complete training is not possible in each individual country due to the irregular Health Care technology developments throughout the European Union

COURSE PROGRAMMS

XIII Winter Course of the CATAI

XVIII Image Analysis Course of the ULL

28th February-13th March 2005

AMBIENT INTELLIGENCE IN MEDICINE (AmI@Medicine)

La Laguna. Tenerife. Islas Canarias. España

Course recognized by the ESACP (European Society for Analytical Cellular Pathology), the ISDQP (International Society of Diagnostic Quantitative Pathology) and the ISCO (International Society of Cellular Oncology).

<http://www.qub.ac.uk/cm/pat/isdqp/>

Course recognized by the EFMI (European Federation of Medical Informatics)

<http://www.efmi.org/>

160 Teaching hours

Monday 28th February, 2005

16-20h • Welcome to the course, **Exc. Prof. Dr. A. Gutiérrez**, Rector of the University of La Laguna (ULL), Tenerife. **Exc. M^a M. Julios Reyes**, Vicepresident of the Canary Government and Chancellor of Health. **Exc. Prof. Dr. J. A. Núñez**, Vice Chancellor of Industrial Development and Technological Innovation, Tenerife.

Experiences in the Canary Islands: EHR and standards in the SCS (Canarian Health Service), **Eng. W. Berriel**, Dept. of Informatics SCS. <http://www.gobcan.es/sanidad/scs/menuestru/index.jsp> *Phone Intervention in Paidopsychiatry,* **O. Herreros M.D.**, University Hospital of Canary Islands (HUC), Tenerife. *Tele-ultrasounds,* **Prof. Dr. O. Ferrer-Roca**, ULL, <http://www.teide.net/catai>. *Tele-ophthalmology,* **J. Abreu and R. Abreu M.D.**, HUC, <http://www.oftalnet.nu>. *Diabetic Retinopathy,* **P. Abreu M.D.**, La Candelaria Hospital, Tenerife.

Tuesday 1st March, 2005

16-20h • *Other local Telemedicine experiences: Experiences of the EHR in specialized medicine and their connection with EHR of primary care,* **J. de León M.D. & Professional enrolment M. Estupiñan M.D.**, DG Primary care. SCS (Canarian Health Service). <http://www.canarias-digital.org/> *Open electronics papers opinions,* **A. Hernández Borges M.D.**, Dept. of Pediatrics, HUC. <http://www.comtf.es/pediatria>

Wednesday 2nd March, 2005

16-20h • *PKI and digital signature in medicine*, **Prof. Dr. Ch. Meinel**, Hasso-Plattner-Institute, University of Potsdam, Germany, <http://www.hpi.uni-potsdam.de/>. *DICOM Standards and MIP medical image processing*. **Prof. Dr. A. Horsch**, Technical Univ Munich, Germany. <http://www.efmi-wg-mip.net/>

Thursday 3rd March, 2005

16-20h • *Cybertherapy. From e-health to phealth. Immersive virtual technologies and ambience intelligence*. **Prof. Dr. G. Riva**, Catholic University of Milan, Italy. <http://www.cybertherapy.info/>; http://www.cybertherapy.info/p-health_files/frame.htm. *Electric nose and its possible use in telemedicine*. Eng. **Prof. Dr. C. di Natale**. Dpt. Electric eng. University Rome Tor Vergata. Italy. <http://www.nose-network.org/>.

Friday 4th March, 2005

16-20h • *Multi-agent systems in healthcare. An application to Palliative Care Units*. **Prof. Dr. A. Moreno**, Computer Science and Mathematic Dept. Univ. Rovira i Virgili. Tarragona. Spain. <http://www.etse.urv.es/recerca/banzai/toni/>; <http://www.cms.brookes.ac.uk/hcwg>. *Telepaediatrics distant training*. Eng. **A. Kastania**, Dept. Informatics, University of Economics & Business, Athens, <http://www.aueb.gr/users/kastania/>

Saturday 5th March, 2005

16-20h • *Personal sensitive data Protection Laws. Technical requirements on health care* **Lawyer E. Aced**, Ass. Director, Data Protection Agency, Madrid, <https://www.agenciaprotecciondatos.org/datmen.htm>. *Telemedicine Body of Knowledge, Ontology for intelligent e-Learning Environment*, **Prof. Dr. O. Ferrer Roca** ULL. <http://www.teide.net/catai>.

Monday 7th March, 2005

16-20h. *Telemedicine for Travellers and Expatriates*, **Eng. Y. Matsakis**, Telemedicine Technologies, Boulogne, France, <http://www.tentelemed.com>

Monday 7th March, 2005

16-20h • *Virtual Euro-Mediterranean Hospital*, **Prof. Dr. G. Graschew**, University Clinic Charite University, Berlin, <http://www.rnk-berlin.de/op2000>. ESA-European Space Agency, ESTEC-European Space & Research Technology Center, Noordwijk, Netherlands, <http://www.esa.int/>. *Multi-agent systems to assist a Transplant coordination Unit. Assistive technologies for the disabled and for the new generation of senior citizens: the e-Tools architecture*. **Prof. Dr. U. Cortés**. Dpt of Informatic Languages. Politechnical Univ. Catalonia. <http://www.lsi.upc.es/>.

Tuesday 8th March, 2005

16-20h • *Electronic Prescription and digital signature*, **Prof. Dr. O. Ferrer-Roca**, ULL, <http://www.teide.net/catai>. *Spanish Health_care card structure* **Eng. J. F. Muñoz**. Ministry of Health advisor <http://www.msc.es/>

Wednesday 9th March, 2005

16-20h • *Standards on M-learning*. **Mr. F. Moro**, Telefónica Móviles, <http://www.telefonicomoviles.es/> *PACs integration in the HUC*, **Eng. J. C. Acosta**. Hospital Universitario de Canarias, Tenerife. Canary Islands. <http://www.huc.es>

Thursday 10th March, 2005

16-20h • *Standard HL-7. Architecture standard of electronic health records (EHR)*. **Prof. Dr. B. Blobel**, Fraunhofer Institute for Integrated Circuits IIS, <http://www.iis.fraunhofer.de/>. *Bioengineering applied to telemedicine, Nanotechnology in medicine*, **Eng. F. Balducci**, University of Entre Ríos, Bioengineering Faculty, Argentina, <http://www.edumedica.com.ar>

Friday 11th March, 2005

16-20h • *Electronic document policies. Security, normalization and storage criteria; Risk analysis* **Ph. F. López Crespo**, Telematic Department of Public Administration, <http://www.map.es/csi/>. *The use of Agent Systems for Diabetes Monitoring*. **Prof. Dr. S. Greenwood**. Intelligent Systems Research Group. Department of Computing. Oxford Brookes Univ. <http://www.cms.brookes.ac.uk/>. *Quality Services. ISO-9001:2000 in Telemedicine processes*, **Eng. A. Diaz-Cardama**, CATAI, <http://www.teide.net/catai>.

Saturday 12th March, 2005

16-20h • *Spanish law and Telemedicine*, **Prof. Dr. E. Sola**, Faculty of Laws, ULL. *Telemedicine body of knowledge ontology for intelligent learning environment* **Prof. Dr. Ferrer Roca** Faculty of Medicine, ULL <http://www.teide.net/catai>

Sunday 13th March, 2005

16-20h • *A experience in Telemedicine in Venezuela*. **Dr, A. Sanchez Camejo** University of Zulia .

Workshops: Everyday from 8 to 16 h.

1. Intelligent chair; 2. SMIL programming; 3. Flash programming; 4. Creation and management of intranets; 5. Telemetry, ECG, vital sign control; 6. HTML; 7. Portable ultrasonography; 8. Digital signature. Certification Authorities and Certification emission; 9. SMS management control; 10. Web control of diabetes; 11. Wearable computers; 12. PACS in the HUC; 13. DICOM and Image Analysis; 14. M-Learning.