Cross border care - A Challenge and an opportunity for Cyprus

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eHealth Laboratory-University of Cyprus

12th – 14th May 2014
SOME OF THE KEY BENEFITS FOR PATIENTS ARE:

- Recognition for the **first time** in EU law that patients have a right to cross-border healthcare and are entitled to be reimbursed for it;

- **Right to information** on cross-border healthcare, and the creation of **National Contact Points** in each Member State to provide this;

- Right of patients to obtain a copy of their medical record and to get appropriate **medical follow-up in the home country**;

- **Recognition** of prescriptions made abroad;

- **Transparency** on the quality and safety standards for healthcare that apply in each Member State;

- **Legal basis** for European co-operation on eHealth and Health Technology Assessment;

- **Better cooperation** between Member States in rare diseases, including establishing a legal basis for European Reference Networks and centres of excellence.
Key dates

2 July 2008
Publication of the European Commission’s legislative proposal

19 January 2011
Adoption by the European Parliament

28 February 2011
Adoption by the Council of the European Union

9 March 2011
Publication of the legislation in the EU official Journal

25 October 2013
Entry into force. From this date onwards patients are able to use their rights under the Directive.

25 October 2015
- First progress report by the European Commission. This first report, two years after entry into force, will be a key opportunity to assess whether the Directive is a success from a patient perspective.
- Member States are obliged to help the Commission by providing all available information they have; therefore patient organisations should liaise with their national authorities and with the European Patients’ Forum to provide their views on the strengths and weaknesses of the Directive.
The strategy for developing medical tourism by taking advantage of the cross border health care
**Medical Tourism Statistics & Facts**

With medical tourism still in its early stages, gaining reliable data is challenging. It is hard to compile the most accurate, current information on international medical travel, global healthcare, and the international patient experience.

Below are shown brief answers to some of the queries received with specific queries.

**What are the top destinations from the USA?**
Brazil, Costa Rica, India, Korea, Malaysia, Mexico, Singapore, South Korea, Taiwan, Thailand, Turkey, United States.

**Why these destinations?**
The making of a world-class healthcare destination is complex. A variety of factors are considered, including:

- Government and private sector investment in healthcare infrastructure
- Demonstrable commitment to international accreditation, quality assurance, and transparency of outcomes
- International patient flow

Cont/…
Potential for **cost savings** on medical procedures
Political **transparency and social stability**
**Excellent tourism infrastructure**
Sustained **reputation** for clinical excellence
History of **healthcare innovation** and achievement
Successful adoption of **best practices and state-of-the-art** medical technology
Availability of **internationally-trained, experienced medical staff**

What are the top specialties for medical travellers?
- Cosmetic surgery
- Dentistry (general, restorative, cosmetic)
- Cardiovascular (angioplasty, CABG, transplants)
- Orthopedics (joint and spine; sports medicine)
- Cancer (often high-acuity or last resort)
- Reproductive (fertility, women's health)
- Weight loss (LAP-BAND, gastric bypass)
- Scans, tests, health screenings and second opinions.
The market size is estimated $38.5-55 billion, based on approximately eleven million in 2014, cross-border patients worldwide spending an average of $3,500-5,000 per visit, including all medically-related costs, cross-border and local transport, inpatient stay and accommodations. Savings vary from 20-90%.
## Cyprus Population Vs Tourists

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Tourists</th>
<th>Ratio (Tourist/Population)</th>
<th>Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>500,000</td>
<td></td>
<td></td>
<td>Est. plus 10%</td>
</tr>
<tr>
<td>1960</td>
<td>570,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>620,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td>610,000</td>
<td>350,000</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>1985</td>
<td>650,000</td>
<td>815,000</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>580,000</td>
<td>1,561,000</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>700,000</td>
<td>2,690,000</td>
<td>3.9</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>740,000</td>
<td>2,500,000</td>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>830,000</td>
<td>2,200,000</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>850,000</td>
<td>2,400,000</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>860,000</td>
<td>2,470,000</td>
<td>2.9</td>
<td></td>
</tr>
</tbody>
</table>
## Tourists Received treatment as per E125 form

<table>
<thead>
<tr>
<th>Location</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>Cost Paid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicosia</td>
<td>528</td>
<td>683</td>
<td>793</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limassol</td>
<td>741</td>
<td>904</td>
<td>903</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Larnaca</td>
<td>226</td>
<td>238</td>
<td>576</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pafos</td>
<td>1695</td>
<td>1628</td>
<td>1692</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Famagusta</td>
<td>1182</td>
<td>2424</td>
<td>1631</td>
<td>(349)</td>
<td>(425,000)</td>
</tr>
<tr>
<td>Other</td>
<td>40</td>
<td>92</td>
<td>123</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4412</td>
<td>5969</td>
<td>5718</td>
<td></td>
<td>19,605,000</td>
</tr>
</tbody>
</table>

- Plus private sector cases which are proportionally much higher
- Plus Emergency department cases
Medical tourism can become a national product in addition to tourism

- Help tremendously in **economical recovery**.
- Cyprus has the **preconditions** for becoming a Medical tourism resort destination.
- Has **highly qualified** medical and paramedical personnel.
- The **strategic position** of Cyprus can attract both Europeans and citizens from Middle East and Arab countries.
- Especially **Europeans can benefit** the cross border health provision.
Medical tourism can become a national product in addition to tourism

- With non-European countries, Cyprus can develop bilateral agreements for cross-border health care.
- Ideal climate conditions for recovery and rehabilitation.
- Incentives can be given by reducing airfares.
- Urgently develop a national health system and invite participation from other neighbouring countries.
- Develop specialised rehabilitation clinics such as asthma clinics and other respiratory problems.
- Great interest for private external investments.
- Eight Universities research centres and 3 Medical Schools
- Cypriots feel the challenge and see the opportunity.
HEALTH CARE REFORM

CHANGE BLVD

HOPE WAY
It is not the purpose of this presentation to analyse the reasons why Cyprus, in spite of all the warnings received by experts and the related articles written by academics, has not been able to make the big jump. There are a number of things to be done one might say and from where should I start; the truth however is hurting because the only obstacle is:

**lag of political willingness and determination**

all the other ingredients are in place.
To do list – should have done list

- Establish and **legislate** the EHR for Cyprus.
- Just **adopt** the EU recommended **cross border** health care.
- Introduce all necessary **legislation** in related areas.
- **Upgrade** and certify hospitals and health care centres.
- Turn public hospitals into **cost centres** and make them independent and self sustained.
- Encourage competition and **private initiative** participation.
- Make the state responsible for **quality control** and regulation and **appoint** a regulatory and control committee.
- Health care providers **should not be** state employees.
- **Educate people** – It’s a philosophy and a way of life.
Welcome to our Website

Ladies and Gentlemen,

This website has been created for the purpose to inform Cypriot citizens and citizens of other Member States of the European Union on the provisions of the "Directive 2011/24/EU of the European Parliament and of the Council of 9 March 2011 on the Application of Patients’ Rights in Cross-border Healthcare" which is transposed to our National Legislation by the "Law for the Application of Patients’ Rights in Cross-border Healthcare"

This legal framework clarifies patients' rights with regard to their accessing cross-border healthcare and the level of cost to be reimbursed. Establishes rules for facilitating the access to safe and high-quality cross-border healthcare services and promote cooperation on healthcare between Member States, in full respect of their national competencies in organising and delivering healthcare. In addition it clarifies the relationship with the existing framework on the coordination of social security systems, Regulation (EC) No. 883/2004, with a view to application of patients' rights and each Member State designates National Contact Point for cross-border healthcare.

Further to that, a European Reference Network of healthcare providers is been created for facilitating the mobility of expertise and access to highly specialised care through the concentration and joining up of available resources and expertise, while supporting the establishment of "e-health" with the aim of guaranteeing access to high quality healthcare. Finally, it establishes network of authorities or bodies responsible of Health Technology Assessment (HTA) which will facilitate cooperation between the national competent authorities in this field.

European citizens will be entitled to receive any relevant information for making informed decisions about treatment options and will be aware of the costs that will have to pay and the costs that will be reimbursed. All the elements, can contribute to the provision of higher quality and safer healthcare services within the European Union. This can only have a positive effect not only to the healthcare services of Member States, but also to European citizens seeking healthcare.

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Ministry of Health,
N.C.P. on the application of Patients' Rights on Cross Border Healthcare
Philosophy

- **Patient centred care** focuses on wellness, not on sickness!
- It takes a team of **doctors, nurses** and other providers, all working together with the patient and ones **family** to keep him well.
- Patient centred care helps one being **comprehensive** and **proactive** for being well, live longer and healthier.
- A system that **focuses on health rather than disease** and adopt innovation and technology will eventually improve quality and reduce the cost.
The **philosophy and approach** that Europe has taken over the last few years and more recently by the announcement under the Horizon 2020 ambitious Work Programme of the challenge titled: *Health, Demographic Change and Wellbeing*, shows determination for solutions, impose policies and standards, and support a multifaceted activity both horizontally and vertically for achieving this purpose. For the years **2014-2015**, **34 topics will be announced** in the “personalising health and care” areas for competitive funding of approximately **EUR 1.2bn**.
The 2012-2020 eHealth Action Plan redefined:

The European Commission's eHealth Action Plan 2012-2020 provides a roadmap to empower patients and healthcare workers, to link up devices and technologies, and to invest in research towards the personalised medicine of the future.
From the patients’ perspective this action addresses:

- Awareness and confidence,
- Interoperability,
- Lack of access in deprived regions,
- Legal clarity over data collection and,
- Reimbursement schemes

A lot of progress still needs to be made before eHealth can deliver truly “personalized or citizen-centred” healthcare. However, the potential to shape new healthcare delivery is real and can address many challenges faced by Europe’s suffering health systems.
In a small country like Cyprus one can see many reasons why should not only participate in these initiatives of Europe but play an active and pioneering role.

- Its **small size** makes it an ideal place for running many **pilot actions** for testing the operation and applicability of eHealth at national level.

- A country that is visited every year by people counting 3-4 times higher than its permanent population should offer **interoperability** and **cross country health services** for remaining **competitive** at the international market.
The cross country access to electronic health record of the visitors is the corner stone of personalised health, which at the same time will provide to the Cypriots travelling abroad the corresponding benefits.

How can we upgrade our tourist product and remain competitive without expanding horizontally by offering medical and rehabilitation tourism, conference tourism, sports tourism, etc?
For some people it’s not surprising that TROIKA insisted in upgrading Cyprus health insurance system according to the European directives thus becoming more efficient and cost effective.

In spite of economic austerity measures applied to Cyprus the opportunities for growth and the opening of new businesses related to health and its technological innovation are tremendous.
One small example:
The world market in telemedicine had a growth from EUR 9 bn in 2010 to EUR 11 in 2011 and will continue rising to EUR 26 bn in 2016 which corresponds to 20% annual growth.

Cyprus with its recognised academic institutions, public and private health institution, and the ICT and health businesses, has all the preconditions for attracting competitive funding from Horizon 2020 and foreign investment funds, and turn them into benefits for the citizen.
The academic community has been actively involved in projects related to eHealth for the last twenty years, attracted serious competitive research funding and established very valuable international collaborations.

The involvement of the public health institutions in these collaborations has been without any political support, based only on the willingness and the extra effort put by the individuals (see ICU-Nicosia General Hospital – Dr Thedoros Kyprianou). This has to change.
Related - EU Actions

- **Action 75:** Give Europeans secure online access to their medical health data and achieve widespread telemedicine deployment
- **Action 56:** Member States to Engage in large-scale pilots financed by the Competitiveness and Innovation Programme
- **Action 76:** Propose a recommendation to define a minimum common set of patient data
- **Action 77:** Foster EU-wide standards, interoperability testing and certification of eHealth systems
- **Action 91:** Member States to agree a common list of key cross-border public services
Electronic Health Record - EHR evolves into Electronic Citizen Record - ECR
EHR - PACS - LIS

Electronic Health Record (EHR)

Electronic archiving of Medical Images (PACS)

Electronic Archiving of Laboratory Examinations (LIS)

Distributed Information System
Patient Centered
Political Challenges for Health

Citizen care with emphasis to patient-centered
Patient Centered

EMR Client by Meditech

Summary List
- Allergies
- Diagnosis
- Active Medications
- Clinical Data
Stone Institute of Psychiatry
Patient Centered Care Model
Patient Care Team Structure

Psychiatric Nurse Coordinator (PNC)
Mental Health Worker
RN
OT/RT
MD
Clinical Coordinator
Social Worker

The PNC facilitates the patient plan of care throughout hospitalization.

Patient-centered CT (iPatient)
Optimization of image quality and radiation dose

Exams
Patient-Specific
Radiologists' Control

Factors
Clinical Indication
Body Habitus
Scan Region/Type

Needs
Image Quality
Dose ALARA
Fast Exam

DoseWise Strategies
Dose Efficiency, Education, Partnership

Figure 1
Citizen Health Record

- Detailed

- Summary (Patient Summary)
<table>
<thead>
<tr>
<th>VARIABLE (nesting level 1)</th>
<th>VARIABLES (nesting level 2)</th>
<th>VARIABLES (nesting level 3)</th>
<th>DEFINITION AND COMMENTS</th>
<th>BASIC (Basic)/EXTENDED (Ext) DATASET</th>
<th>MANDATORY Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification</td>
<td>National Health Care patient ID</td>
<td>National Health Care patient ID</td>
<td>Country ID, unique for the patient in that country. Example: ID for United Kingdom patient</td>
<td>Basic</td>
<td>Yes</td>
</tr>
<tr>
<td>Personal information</td>
<td>Full Name</td>
<td>Given name</td>
<td>The Name of the patient (Example: John). This field can contain more than one element</td>
<td>Basic</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Family name/Surname</td>
<td>This field can contain more than one element. Example: Español Smith</td>
<td>Basic</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Date of Birth</td>
<td>Date of Birth</td>
<td>This field may contain only the year if day and month are not available. Eg: 01/01/2009</td>
<td>Basic</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>Gender Code</td>
<td>It must contain a recognized valid value for this field</td>
<td>Basic</td>
<td>Pending decision by WP3.6 (in some countries ‘gender’ is needed for univocal identification of the patient)</td>
</tr>
<tr>
<td>Contact information</td>
<td>Address</td>
<td>Street</td>
<td>Example: Oxford</td>
<td>Ext</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of Street</td>
<td>Example: 221</td>
<td>Ext</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>City</td>
<td>Example: London</td>
<td>Ext</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post Code</td>
<td>Example: W1W 8LG</td>
<td>Ext</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>State or Province</td>
<td>Example: London</td>
<td>Ext</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Country</td>
<td>Example: UK</td>
<td>Ext</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Telephone No</td>
<td>Telephone No</td>
<td>Example: +45 20 7025 6161</td>
<td>Ext</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>E-mail</td>
<td>E-mail</td>
<td>Example: <a href="mailto:jens@hotmail.com">jens@hotmail.com</a></td>
<td>Ext</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Preferred HCP/Legal organization to contact</td>
<td>Name of the HCP/Legal organization</td>
<td>Name of the HCP/name of the legal organization. If it is a HCP, the structure of the name will be the same as described in ‘Full name’ (Given name, family name/surname)</td>
<td>Basic</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telephone No</td>
<td>Example: +45 20 7025 6161</td>
<td>Basic</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E-mail</td>
<td>E-mail of the HCP/legal organization</td>
<td>Basic</td>
<td>No</td>
</tr>
</tbody>
</table>
The patient feels sick and seeks healthcare in a country that is not his/her country of origin. The most frequent situation is that the health professional has no prior clinical information about that patient and it is not expected that his visit will be repeated. They will not normally have a language in common.
The patient feels sick and seeks healthcare in a country that is not his/her country of origin. As he/she frequently visits that country the health professional may have some clinical information about that patient in his/her own records. They will not normally have a language in common.
The citizens become owners of the data that concerns them.

With the capability of the system to:
- Store medical data from different sources
- Store medical data from medical devices
- Access from authorised personnel when needed to this data.
Citizen Health Record Data Banks
Evolve from EHR to CHR
Preposition: Citizen Databanks

Transfer philosophy:

- From the existing Hospital or Clinic owned
- To the service oriented citizen owned

- Every health centre or citizen has the option to choose
- A unique account for every citizen is created with the first visit the latest (maybe as early as ~9 months before birth).
- Each time a citizen visits a medical centre his/her ECR is updated accordingly.
- Access to the medical data is permitted only after the authorization and consent of the owner and according to the legislation for privacy and confidentiality.
- The medical data can be used for clinical trials and research purposes only after the consent of the owner.
Funded research projects of the eHealth Lab of the University of Cyprus

- **cy-EHR** - Electronic Health Record at National Level - by the research grant ΥΓΔΙΑ/ΓΥΓΔΙΑ/0311(ΒΙΔ)/47 from the Cyprus research promotion foundation, co-funded by the Republic of Cyprus and the EU Regional Development Fund. [http://www.cs.ucy.ac.cy/cyehr/index.php](http://www.cs.ucy.ac.cy/cyehr/index.php)


- **Linked2Safety** - A Next-Generation, Secure Linked Data Medical Information Space For Semantically-Interconnecting Electronic Health Records. [http://www.linked2safety-project.eu/node/23](http://www.linked2safety-project.eu/node/23)
Future Internet Social and Technological Alignment Research (FI-STAR)

Electronic Health Record Application Support Service Enablers (EHR-EN)

www.ehealthlab.cs.ucy.ac.cy

Partners: University of Cyprus & Infotex Software Solutions Ltd
1.2 Objectives

The **EHR-EN** proposal targets to build, validate and evaluate the **fi★star** platform enablers:

- epSOS (patient summary),
- EHR (electronic health record), and
- PACS (picture archiving and communications system)
EHR-EN enablers (epSOS, EHR, and PACS) incorporated in the FI-STAR use case infrastructure under the Service Provider Tier
OpenEMR  www.open-emr.org

Security Features:
• Encrypt Patient Documents
• Supports fine-grained per-user access controls
• Remotely accessible from any web browser with a suitable security certificate installed

✓ **US 5,000 installations** serving more than **30 million patients**.
✓ Internationally **15,000 installations**, more than **45,000 practitioners** serving greater than **90 million patients**.
✓ **U.S. Peace Corps** use OpenEMR in **77 Countries World-wide**.

OpenEMR Patient Summary
Open Source Clinical Image and Object Management

- **dcm4che** is a collection of open source applications and utilities for the healthcare enterprise.
- Developed in the **Java** for performance and portability.
- Robust implementation of the **DICOM** standard.
Collaborating medical partners

1. Ministry of Health, Cyprus (www.moh.gov.cy)
2. Ygeia Polyclinic Private Hospital (www.ygiapolyclinic.com)
3. Hippocrateon Private Hospital (www.hippocrateon.com)
4. Aretaeio Private Hospital (www.aretaeio.com)
Remarks
Expected results and indicators of success

R.1-3 Developing, implementing and testing of the platform enablers:
  - epSOS enabler
  - EHR enabler
  - PACS enabler

R.4 Best practise guidelines, lessons learnt and interoperability recipes for the FI-STAR enablers.

R.4 Wide-scale dissemination and exploitation of the project results and enablers to the European health care stakeholders including the patients.
Work Package 4
EUROPEAN EPIDEMIOLOGICAL SURVEILLANCE FOR MAJOR RARE ANAEMIAS

Aims

Creation of a registry service comprised:

a) Front-end service including the functionality of filling-in on line forms for acquiring epidemiological data and retrieving the data in a report format.

b) Database and DBMS that stores and maintains the health information records in EHR format. Thus a pan-European interoperable Registry for major Rare Anaemias and other epidemiological health records will be created.
Outcome

• Main outcome
  - Electronic database.
  - A front-end online tool which will serve as a full EHR system.
  - Electronic health record database for rare anaemia patients.

Furthermore
  - Database and information included will facilitate the development of relevant online patient education tool that will be linked to the e-learning platform.
epSOS Services

• Overall goal:
  ➢ Provide cross-border exchange of personal health data

• epSOS Patient Summary: Access to important medical data for the further treatment of patients
epSOS Example

Country A

Patient summary retrieved

Patient summary updated

Country B

Patient summary transcribed and made available to healthcare professional

Patient summary: Use case 2
Using **epSOS** for e-ENERCA purposes

For the project’s purposes

- We will design and develop a modular full EHR system for Rare Anaemias, based on the **epSOS** patient summary as agreed at the EU eHealth Week Ministerial meeting in Dublin, in May 2013.
  - Full EHR system will include a range of data, including demographics, medical history, medication, laboratory test results, vital signs, personal statistics like age and weight, and more.
- From this EHR system, the appropriated data will be extracted for a shorter organized system e-registry having specific functionalities.
Process for Leading Change

- Create a Sense of Urgency
- Develop a Change Vision
- Empower Broad-Based Action
- Generate Short-term Wins
- Ask the experts

The one who carries the gold should not have a saying where this goes.
Acknowledgments

- This work is financially supported by the research grant ΥΓΕΙΑ/ΔΥΓΕΙΑ/0311 (ΒΙΕ)/47 from the Cyprus research promotion foundation, co-funded by the Republic of Cyprus and the EU Regional Development Fund.

- Special thanks to Dr Minas Kyriakides – Ministry of Health of Cyprus for his valuable contribution.
CONCLUSION

“If you don’t write it down, it hasn’t been done”

Nicholas E. Davies

“If you don’t eSave it, it hasn’t been existed”

Christos N. Schizas