



**TELEHIPPOCRATES – UNIFIED
TELEMEDICINE NETWORK OF
GREECE AND CYPRUS, WITH
INTEGRATED BROADBAND SATELLITE
AND LAND (WIRED) NETWORKS**

GOOD PRACTICE - PROJECT



European Union
European Regional
Development Fund

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Introduction to the Good Practice:

The project was funded under the INTERREG III A, the Cross-Border Cooperation Program "Greece-Cyprus" and lasted 24 months (2007-2008). The objective of this research project was the development of telemedicine infrastructure, in order to support the chronic patients who live at their home with ventilatory support. This infrastructure was designed to give potential to the intensivists of Intensive Care Unit of Nicosia General Hospital to monitor the vital parameters of patients who were at their home.

Problem:

Patients with chronic diseases and especially those with the need of mechanical ventilation need continuous monitoring and treatment by multidisciplinary healthcare professionals. To achieve that the patient must either be hospitalized or admitted to a healthcare facility or visited at home by a multidisciplinary healthcare professional team. Both options have several cons such as: High cost, patient isolation from family, psychological impact to the patient and limited monitoring.

Solution:

Patients with chronic diseases rely on a ventilator, which provides them mechanical breathing support (one of the fundamental biological processes) and some functions, that are standard in other telemedicine infrastructures, differentiated in this case. The technical infrastructure was designed and was implemented in such a way that does not interfere with daily activities of these patients. Moreover, it ensured the correct use of infrastructure by the patient's attendant and/or his relatives.

Impact:

The service has been functional since 2009. 18 patients at home with mechanical ventilation are continuously monitored and supported. Nicosia's General Hospital has established a team of multidisciplinary healthcare professionals to support the service. Mechanical ventilators are under maintenance support and the cost of treatment and care is covered by Public sector.

1. Relevancy of the GP project

The “Relevancy of the GP project” section provides quick check and definition of its relevancy in regards to HoCare project objectives.

Good practice of quadruple-helix cooperation in R&I?	Yes, this GP project includes good practices of quadruple-helix cooperation in R&I
Good practice of delivery of Home Care R&I?	Yes, this GP project includes good practices of delivery of Home Care R&I.
If not in Home Care R&I, description and proof of its potential for transferability to delivery of Home Care R&I	
Generation of innovation in home care through answering unmet needs identified by formal or informal healthcare providers?	Yes, this GP project includes good practices of innovation through answering unmet needs.
Generation of innovation in home care through public driven innovation?	Yes, this GP project includes good practices of public driven innovation.
Generation of innovation in home care via quadruple-helix cooperation for quicker delivery to the market?	Yes, this GP project includes good practices of innovation via cooperation for quicker delivery to the market.

2. Quick overview of the GP project

The “Quick overview of the GP project” section provides initial overview of the good practice project (GP project) and enables readers to see if this GP project idea is relevant for possible transfer to their organization potential innovation activities.

Name of the GP project	TELEHIPPOCRATES: Unified telemedicine network of Greece and Cyprus, with integrated broadband satellite and land (wired) networks
Region of origin of GP project	Cyprus
5 keywords that best describe the content of the GP project	Mobile e-health, Broadband satellite Consulting/ support Provisional care Telerehabilitation
Relevant Operational	INTERREG III A, the Cross-Border Cooperation Program "Greece-Cyprus" 2000-

Programme name through which the GP project has been funded (+ also in local language in brackets)	2006
Relevant support programme / intervention area name of the GP project through which it was funded (+ also in local language in brackets)	Accessibility and Area Security
Single or multiple recipients of the GP project?	multiple recipients
Type of lead recipient (SME, LME, research centre, innovation centre, network/association, university/school, municipality, other public body, other (specify))	Public - Nicosia General Hospital
Types of participating partners (list all participating partner types. E.g.: hospital, social house, senior house, patient association, networks, SMEs, LMEs, research actors, business supporting organizations, public institutions/regulators, other (specify))	<ul style="list-style-type: none"> - Chios General Hospital (LP/GR) - University of the Aegean (GR) - Nicosia General Hospital (CY) - National Research Centre - Democritus (GR) - Municipality of Amani (GR)
Summary of the good practice (<u>max. 5000 characters</u>)	<p>The Telemedicine Network of Greece and Cyprus connects with integrated broadband Satellite and Land (wired) Networks the General Hospital of Chios and the Nicosia General Hospital with health centers and rural surgery in remote areas in the Prefecture of Chios and in Cyprus. The network offers three main services in the field of health:</p> <ul style="list-style-type: none"> - Consulting/ support services of the Hospitals to the health centres and rural surgeries

	<ul style="list-style-type: none"> - Provisional care and rehabilitation efforts for chronic patients in their base/ home (areas of Chios and Cyprus) - Supporting services of the Hospitals to a mobile medical unit, i.e. ambulance, going to the patient's location. Complementarily, the network is being able to support: - High Speed Internet services. - Sound and Visual services in streaming form. Two way communication services in real time that allows the implementation of tele-training (European Programme Emispher).
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3. Transferability

The "Transferability" section provides more detailed review of strengths and weaknesses of this GP project including description of necessary basic conditions for region and leading organization to potentially transfer it. At the end of the section, the key threats in the successful transfer open up possibility to focus on specific relevant issues important for the successful transfer.

Strengths and weaknesses of the project

<p>What are the GP project strengths? Why it was funded? (max. 500 characters)</p>	<ul style="list-style-type: none"> - Resilient infrastructure utilizing land wired and satellite networks. - Share of knowledge and expertise amongst two major hospitals - Safe treatment at home for chronic decease patients - Transparent technological complexity utilizing mature technology - Human resources cost effective
<p>What are the key weaknesses of the GP project? (max. 500 characters)</p>	<ul style="list-style-type: none"> - Maintenance cost - Initial health-care professional's phobia of technology. - Communication overheads are very high and costly in human and monetary terms. - Difficulty of coordination.

Basic conditions for successful transfer

<p>Why is this GP project transferable? – innovation, impact, financial, legal, and timeframe aspects</p>	<p>Tele-Hippocrates could easily be transferred and adapted for rehabilitation, monitoring and training that are required for other (chronic) health problems and diseases.</p> <p>Tele-Hippocrates utilizes mature and secure networking technologies to transfer video, sound and patient data in real time. Medical device communication is supported over secure communication channels.</p>
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<p>What are the basic conditions the region needs to have to be successful in transferring this good practise? (<u>max. 500 characters</u>)</p>	<p>No specific conditions since we are addressing EU countries. For resilient networks the applicant must establish a satellite high bandwidth subscription.</p> <p>A specific Call for proposals targeting National/Regional/Community Social e-services provision/innovation could easily host such a project at any member state's national or regional level. Prerequisite would be the political will after definition of relevant needs.</p>
<p>What are the basic conditions the leading recipient from the region needs to have to be successful in transferring this good practice? (<u>max. 500 characters</u>)</p>	<ul style="list-style-type: none"> - Dedicated Team of Health Professionals - Strong IT Team

Key threats in GP project transfer

<p>What are the key potential threats for the GP project transfer? (<u>max. 2000 characters</u>)</p>	<ul style="list-style-type: none"> - Patient familiarization with technology - Personnel training. - Trust issues of patients and personnel in IT. - Difficulties in cooperation among involved actors.
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4. Description of the GP project

The “Description of the GP project” section provides more detailed information on the Good Practice project (GP project) and enables readers to get further detailed inspiration and easy ready-to-use information for possible innovation transfer to other project applications. This includes: tackled problem, time length of the GP project, objectives, phases, activities and deliverables of the GP project, its main innovation and target group.

Description of the tackled problem

<p>What was the problem / challenge tackled by the project? (<u>max. 2000 characters</u>)</p>	<p>High quality medical support to patients with chronic deceases and especially those with the need of mechanical ventilation. This target group needs continuous monitoring and treatment by multidisciplinary healthcare professionals. To achieve that the patient must either be hospitalized or admitted to a healthcare facility or visited at home by a multidisciplinary healthcare professional team. Both options have several cons such us: High cost, patient isolation from family, psychological impact to the patient and limited monitoring.</p> <p>In contrast to the above solutions an alternative is to utilize state of the art communication technologies to deploy tele monitoring and tele consulting at</p>
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	home.
What were the reasons for the problem? (max. <u>2000</u> characters)	The insular character of the Greek territory and the feeling of isolation, particularly in the mountainous and insular areas, led to the need for improvement of the services provided and especially of the services in the field of health, with the support of new technologies and tele-medicine

Time length of the GP project

What was the time length of the GP project in months?	24
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Objectives of the GP project

Describe the overall and specific objectives of the GP project (max. <u>2000</u> characters)	The objective of the project was <ul style="list-style-type: none"> - the planning and the development of telemedicine services that will aim at the service of Region of North Aegean residents' needs, particularly with regards to situations of urgent medical care. These services constituted in the base of modern technologies of electronic health.
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Phases, activities and deliverables

List all main phases of the GP project including their time length	<ul style="list-style-type: none"> - User specific requirements - System design and specifications - Procurement and Development - Testing and Evaluation
List and describe all main activities that were implemented by the GP project (max. <u>2000</u> characters)	<ul style="list-style-type: none"> - Elaboration of a study on the implementation and the analytical presentation of the specifications and standards for the project. - Procurement of equipment (telecommunications material, informational systems, etc) and construction of necessary infrastructures. - Providing of Satellite - through EUTELSAT – and integrated broadband land (wired) infrastructure and services. - Training of clinical personnel - Cooperation for the development of tele-medicine applications among Hospitals, organizations that provide with health services and Medical Centers. - Know-how exchange on the design, development and management of health centers with the use of new technologies - Dissemination of results
List all main deliverables of the GP project	<ul style="list-style-type: none"> - High level infrastructure with the creation of the broadband communications.

	<ul style="list-style-type: none"> - Connection of remote areas with hospitals through satellite and land (wired) networks. - Improvement of disparities in the field of health. - Establishment of permanent co-operation between Greece and Cyprus.
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Main innovation of the GP project

<p>What was the main innovation of the GP project? (<u>max. 2000 characters</u>)</p>	<ul style="list-style-type: none"> - Designation of the e-services required through definition of needs by the use of quadruple helix method (organizations representing all helixes took part through open seminars, workshops and information events) - Establish a communication channel between two major healthcare facilities in two different countries - Knowledge transfer - Patient continuous monitoring at home
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Target group of the project

<p>Who was the main target group of the GP project? (SME, LME, research organization, university, public institution, healthcare provider, business supporting organization, other (specify))</p>	<ul style="list-style-type: none"> - Severe chronic disease patients (eg Patients with mechanical ventilation support) (Public institution)
<p>Describe the main target group (<u>max. 2000 characters</u>)</p>	<p>Patients with mechanical ventilation at home.</p>

5. Impact

The “Impact” section provides more detailed information on the effect of the GP project implementation and dissemination of major outputs.

Impact

<p>What was the level of geographical impact of the GP project? (village, city, county, country,</p>	<p>National level</p>
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international, other (specify)	
What were the final impact indicators including their quantification? (max. 2000 characters)	The service has been functional since 2009. 18 patients at home with mechanical ventilation are continuously monitored and supported. Nicosia's General Hospital has established a team of multidisciplinary healthcare professionals to support the service. Mechanical ventilators are under maintenance support and the cost of treatment and care is covered by Public sector.
Describe the changes resulted from the project activities (max. 2000 characters)	The new technology has officially been adopted by the Nicosia General Hospital and is still being offered as a solution within the general health services provided by the organization.

Dissemination of outputs

Describe dissemination activities of the project outputs carried out during the GP project (max. 2000 characters)	<ul style="list-style-type: none"> - Scientific papers and conferences - Press releases - Press conferences - Banners and leaflets
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6. Risks

The "Risks" section provides more detailed review of potential risks of this GP project implementation including their defined mitigation strategies to eliminate them.

Describe risks involved in implementing this GP project including their mitigation strategies (max. 2000 characters)	<ul style="list-style-type: none"> - Commitment of the Policy Makers - Sustainability - Adequate level of technological expertise
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7. Budget

The "Budget" section provides more detailed review of costs regarding the project implementation as well as operational sustainability after its end. In addition, if relevant, public tenders within the project and additional generated incomes by the project are showed and explained.

Budget

What was the overall budget of the project in EUR ?	349.281,00 €
List relevant budget lines of the project including their % share from total budget	Staff Cost - 15% Administration - 5% Travelling - 12% Equipment - 40% External Expertise - 28%

Additional income generated by the project

Did the project create any additional income ?	no, the GP project did not generate additional income
If yes, specify which type of income and what amount in EUR?	

Public tender

Did the project include any public tender ?	yes, the project included a public tender
If yes, specify what kind of contract (specific contract, general contract, other)	<ul style="list-style-type: none"> - Contact for External Expert - Contract for Equipment Purchase (and software)
If yes, specify in what amount in EUR	<ul style="list-style-type: none"> - €140.000 for equipment - €98.000 for external experts
Describe the public tender subject (max 2000 characters)	<ul style="list-style-type: none"> - Open Public Calls for Tenders with Terms and Conditions

Financial sustainability after GP project end

Was there an operational financial sustainability plan in the project after its end ?	yes, the GP project included an operational financial sustainability plan
If yes, specify where the	Ministry of Health

operational funds after project end came from?	
If yes, specify the amount of operational funds in EUR	€27.000 yearly

8. Other information

In this section, specific additional information about the GP project could be revealed.

Please describe any other relevant information about this GP project (if relevant)	
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9. Information gathered by ...

The information about this good practise (GP) project has been gathered for the purpose of the HoCare project (Interreg Europe Programme) by the following organization:

Region	Cyprus
Organization name(s) (+ in local language in brackets)	Nicosia Development Agency (ANEL) Αναπτυξιακή Εταιρεία Λευκωσίας (ΑΝΕΛ)
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