

# MEDNet

## Latin America Health Care Network

MEDNet project aims to develop a medical health network in Latin America. This network will provide in rural and underserved areas an appropriate health care from distance.

### Concept of the Project

Medical care is sometimes difficult to access for people living in rural and underserved areas. This problem is very well known in rural areas in Latin America: Citizens have frequently very limited access to appropriate health care and have to travel hundred of kilometres to receive a medical consultation.

MedNet is developing a medical network addressing the problems of providing health care from a distance. The medical network is supported by expert physicians located in urban cities of Latin America. The medical applications vary from gynaecology, paediatrics, cardiology and include typical infectious diseases for the region, such as malaria and tuberculosis.

The examinations involve ultrasound examination, ECG, blood test and imaging for automation diagnosis. All the patient health information is stored in a healthcare database along with the demographic information and medication prescription.

### Technology

For the needs of MEDNet project a very accurate and user friendly medical and telecollaboration application has been developed, named Teleconsult.

TeleConsult is a stand-alone telemedicine application running on Windows XP/VISTA. TeleConsult application is a combination of a 2D/3D DICOM viewer (DICOM is a worldwide standard for the representation of medical imaging data), an image grabbing software, medical annotation tools and a medical telecommunication tool. The application is able to acquire medical images from any ultrasound device through a video grabber attached to the computer.

Figure 1 illustrates the user interface of TeleConsult. All operations can be assigned to following eight modules: Image View, File I/O, Geometry, Grey-levels/Colors, Measurement Tools, The Cine, Tele-collaboration – IM (Instant Messaging).

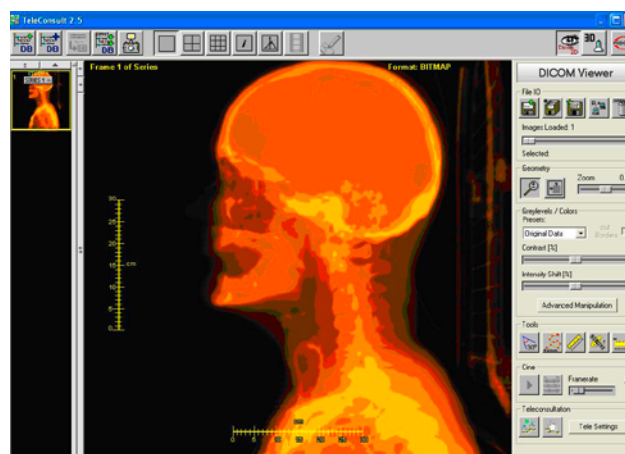


Figure 1

Teleconsult is currently used in several European locations and provides an excellent, proven communication tool for telemedicine systems. The system provides also easy localization options for Spanish and Portuguese.

In addition, the AmerHis system is used. Amerhis is one of the most important European Space Agency's (ESA) telecommunication projects. It has been developed by a consortium of companies led by the Spanish company Alcatel Espacio/TASE. The pilot study locations are connected via satellite communication based on DVB-RCS protocol utilising the European AmerHis system. This will both enhance the medical network, in terms of add-on components, scalability and reliability, and provide opportunities to exploit the network infrastructure by developing platforms for education and commerce.

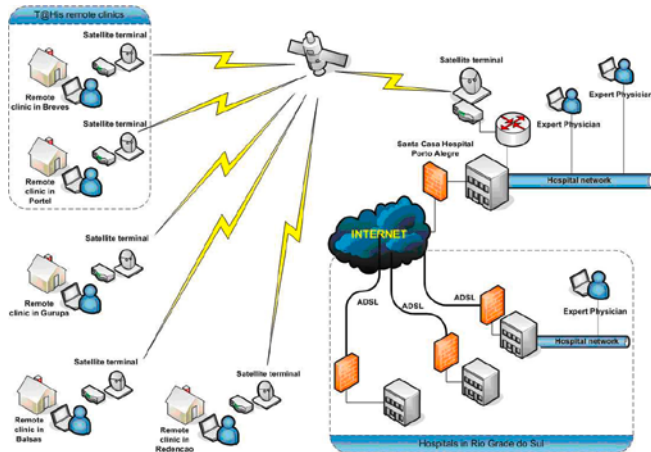
### Deployment & Teleconsultations

**Brazil:** Seven installations were finalised in the last months of the project. The referral hospital is Santa casa hospital in Porto Alegre, and the spokes are:

#### SCENARIO

Maria is a 38 year old pregnant patient and needs to have an ultrasound consultation and of course the appropriate treatment. Maria is living in Pariahuanca (Pariahuanca is jungle region in Peru), she needs to travel five hours for a distance of 90 kilometre to reach the nearest well-equipped hospital under terrible conditions and with a lot of costs. In this case, MEDNet system can offer Maria an ultrasound treatment in the local clinic of Pariahuanca, from a non expert doctor, who will send the examination via the telecollaboration tool of MEDNet to the expert doctor miles away. This teleconsultation will help Maria not to be in danger and of course costs less.

1. Pelotas
2. Alegrete
3. Lagoa dos Tres Cantos
4. Balsas
5. Fortaleza dos Nogueiras
6. Carolina

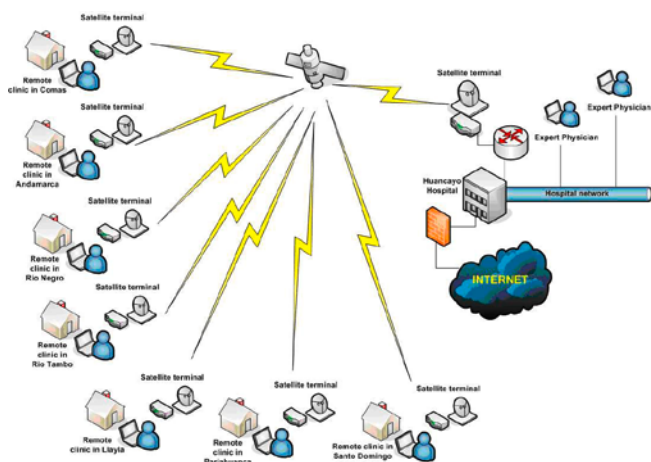


Brazil Deployment

Santa Casa hospital is connected via satellite with Carolina, Balsas and Fortaleza dos Nogueiras. Santa Casa hospital is extending the medical network to include besides Ultrasound also MRI and CT imaging modalities. Three (3) of the remote hospitals near Rio Grande do Sul states that need medical tele-consultation on MRI and CT cases will make use of ADSL communication for data exchange. In Brazil many teleconsultations have already been performed with success and minor problems.

**Peru:** Eight installations finalised with success in Peru. The referral hospital is in Huancayo and the spokes are:

1. Chongos Alto
2. Comos
3. Pariahuanca
4. Puerto Ocopa
5. Mazamari
6. Rio Negro
7. S.M. de Pangoa



Peru Deployment

All the sites communicate via satellite with the referral hospital in Huancayo and the consultations include ultrasound examinations.



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- Thales Alenia Space España (Spain)
- Geopac (UK)
- VICOMtech (Spain)
- MedCom (Germany)
- National Technical University of Athens (Greece)
- DIRESA Junin (Peru)
- Gobierno Regional de Junin (Peru)
- Servicio Nacional de Aprendizagem Industrial (Brasil)
- Irmandade Da Santa casa de Misericórdia de Porto Alegre (Brasil)
- HISPASAT S.A. (Spain)

Timetable: from January 2008 to December 2010

Total cost: € 2,177,440

EC funding: € 1,399,403

Instrument: SICA

Project Identifier: FP7-ICT-1-215479

### KEYWORDS:

Health prevention, Clinical services, Knowledge transfer,  
Patient safety, eHR