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Case Study – Italian Transplant Centres Telemedicine Network – Rome, Italy

Overview

Organ transplants represent a type of treatment that is capable of restoring the quality of life and social rehabilitation for a growing number of people that are affected by irreversible insufficient functioning of kidneys, heart, lungs, liver and pancreas.

The National Transplant Centre (CNT), a division of the Italian Health Ministry, bears the responsibility of managing, promoting and operating transplant organizations throughout Italy. The CNT is made up of 25 centres: the national centre, 3 inter-regional centres (CIR's), 19 regional centres (CRT's) and 3 experts (infectious disease, pathology, coroner etc.) that are available 24/7 for second opinion consults.

CNT coordinates and directs the donation and transplanting of organs and tissues at the national level by issuing guidelines and protocols.

Placed in Rome and belonging to the Istituto Superiore di Sanità (ISS), CNT carries out three main functions which focus on defining the criteria and procedures for organ assignment. These functions are summarized below:

- *real time sending of information about donors and waiting lists*
- *identifying quality parameters within the transplants structures*
- *promoting the information and management system of transplants and coordinating all of this within the Italian Health Ministry*



Problem

In the past, CNT has had problems managing the flow of information between the different centres that are part of the Italian Transplant network. Some of these problems are included below:

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820 Gessner, Suite 230 Houston, TX 77024 USA

Tel: 713.520.6688 Fax 713.520.6785

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- Most documentation was done using paper. This method made it difficult to share information amongst the centres and specialists
- Specialists commonly utilized telephone, fax and e-mail to communicate and understand patient and donor information without a common basis of knowledge
- Inefficient communication resulted in delays in decision making and specialists were often unable to make an exact diagnosis
- Security of data was always in question because there wasn't an efficient archiving documentation system
- The lack of real time, good quality information resulted in long waiting times for examination and diagnosis by a consultant which made it impossible for CNT to provide a good, quality efficient service

For these reasons, CNT decided to find a solution that could be implemented quickly and one that would securely handle sensitive patient data, while fulfilling the requirements of the access targets and clinical standards. The solution came thanks to the technological partnership between Telbios and Eceptionist. This solution was quickly adapted and implemented to meet the needs of the CNT.

Solution

Telbios designed an operating system and network to support the activity of the Italian transplant system by networking the 25 centres selected by CNT. Eceptionist provides the core to this operating system. Eceptionist provides CNT users with a web based communication tool that gives CNT users the ability to set and organize telemedicine appointments in a simple, fast and efficient manner. Eceptionist also allows the transmission of patient/donor data and clinical images between and within different types of assistance structures that are part of the Transplant network - hospitals, GPs, specialists and healthcare technicians.

By way of integration between Eceptionist and Fast i-MAGE (Telbios imaging software), CNT users are able to carry out the exchange of DICOM 3 images over satellite or terrestrial communication means. Specifically, the Transplant Telemedicine network created provides:

- the exchange and streamlining of access to healthcare services and diagnostic facilities
- the booking of appointments and the setting up of remote medical interventions in real time, such as teleconsults and second opinion
- clinical support required to carry out patient diagnosis and treatment

With this complete system, Telbios enabled CNT to manage every phase of the organ donation process.

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1) Secure Organ Transplant System

- supports the sharing of information about donors/organs
- supports the continued sharing and comparing of information between the actors/users of different levels (CNT, CIR, CRT) within the Transplant Network
- supports multidisciplinary decision making
- outcome is the warranty of the organ quality



2) Data Management

- Protocol Sharing: Organ identification with donor's personal data
- Tracking of Information: enables real time recording of information and activities. This information is accessible over the web for all authorized actors/users regardless of what centre they are located at
- Processes: The system has been designed and implemented to simplify the users/actors' operations based on past experiences
- Information Access: Information can be viewed via the web and via the video conference and communication system

3) Second Opinion

- Quick Turn Around: The Information is efficiently shared between the requesting centre (centre needing the second opinion) and the hub centre (specialty centre) resulting in a quicker opinion and report
- Transmission of Information: Physicians belonging to different centres can act in a synchronous or asynchronous mode to view and update the information
- Data and images are available for everyone in the same modality. This saves time and mistakes during the diagnosis process

Benefits

The CNT Safe Network coupled with the combined Telbios and Eceptionist solution delivers the following advantages to CNT, CNT users and patients that are waiting for organs.

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- All donor and extracted organ data is available in real time over the Internet
- Maximizes the efficiency and effectiveness of CNT's internal communications system for updating donor files
- Guarantees the singularity, safety and the completeness of all data related to extracted organs



With this project, Telbios and Eceptionist have proved that technology can go a long way in a sector where the exchange of information and the speed of communication is important and decisive.

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