



## Proceedings

### SY02.05 | Telepathology

#### An Innovative Telepathology Solution For Developing Countries

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#### *Introduction/ Background*

The increasing incidence of pathologies like tumors and infections is a significant public health burden in developing countries. The ability to provide early diagnosis, treatments, follow-up care has a strong impact on the survival. Telemedicine is of great utility in countries lacking appropriate healthcare facilities by allowing for the performance of good level healthcare practices. Sub-Saharan African Countries suffer a dramatic shortage of medical pathologists (in the range of 1 to 10 pathologists per 10 million people) and are also victims of digital divide. Vittorio Tison Association (Tison), IRST research cancer hospital and Patologi Oltre Frontiera NGO (APOF) cooperate in the sanitary mission founded in 1999 in Bugando Medical Centre (BMC), a hospital located in Mwanza, Tanzania. In that mission, during 2011 we started the development of our telemedicine project. The project utilizes a novel telematic platform oriented to several sanitary branches with a special focus in pathology and oncology.

#### *Aims*

The main project goals are:

- to provide ICT and TLC services between healthcare facilities in developed and developing countries;
- to allow for simultaneous telepathology counselling sharing microscopy and radiology images, conference calling, remote diagnosis, double-blind evaluation, second opinion and the remote control of medical instrumentation;
- to perform e-learning and remote quality control;
- to carry out GCP clinical trials through data collection, monitoring and evaluation;
- to encourage and support scientific research;
- to reduce the knowledge gaps inherent to the digital divide.

#### *Methods*

APOF has been developing the BMC pathology lab from 2000 to 2008. In the meantime Tison took care of training in Oncology of local medical doctors, opened the BMC Oncology Department in 2010 and patronized the building of a new clinic dedicated to the Oncologic Institute. We started the development of the project in 2011 with a general assessment of the needs and lacks in local working procedures, related to the possible improvements in ICT. Our first step involved the Internet connections activation and the implementation of the project informatic core in the IT room of the BMC Oncologic Institute. The telematic link



between IRST's Italian site and BMC has been realized during the early pilot phase. We carried out several experimental sessions to investigate the compatibility of the main third-parts digital pathology products with our platform, choosing digital microscope Menarini D-SIGHT in association with D-SIGHT+ telepathology web-based application. Finally, on June 2015 we launched the BMC Telepathology Facility performing a complete demo of the system during the AORTIC East African Regional Meeting.

### *Results*

We validated the system in a wide range of conditions. Experimental data indicate an improvement of a factor up to 100 in the overall images transmission rate in comparison to the previous models. The pathology images remotely viewed are fully compliant with the diagnostic requirements in terms of definition and magnification. The platform is easy-to-use, all sanitary operators involved in the testing found it friendly and effective. The images browsing on the screen is very fast and precise, professional operators evaluated this solution equivalent to the use of the microscope. Our project is characterized by a high level of innovation which increases efficiency and efficacy of health practices and can boost the use of telepathology in developing countries.