



UNIVERSITÀ DI PISA

Dipartimento Integrato Interistituzionale  
DIPINT



Primo Workshop  
CLINICAL RESEARCH and INNOVATION

ANDROLOGICAL LABORATORY  
TELEMEDICINE AND TELECONSULTING  
U.O.C. di Andrologia  
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# U.O.C. Andrology

Day Service Integrated diagnostic therapeutic procedures

Shortening of waiting time  
1-2 visits to the hospital

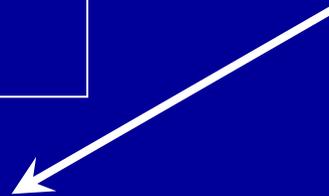
Detailed clinical  
focusing  
Capillary prevention

**Centrality of the  
patient**

**Multidisciplinary  
approach**

Outside the  
Operative Unit :  
coordinating of  
integration of 12  
Operating Units

Inside the Operative Unit:  
staff with different  
training, biologists:  
andrological laboratory



# Andrological Pathologies

“Social Diseases” OMS: infertility 20% couples:  
50% male cause; 10-20% male concause

Socio-cultural variations : environmental contamination,  
addiction, sexually-transmitted diseases

Spermocitogramma operator/related examination  
(UOA approx. 13000 lab tests per year): a fundamental  
test to direct clinical diagnosis towards reaching  
therapeutic appropriateness



AOUP and Regione Toscana : Andrological Laboratory  
Telemedicine and Teleconsulting

Louis JF Andrology 2013;  
Pacey AA 2014 Human Reprod

Mehrpour Toxicol Lett 2014;  
Thoma Me 2014 Human Reprod

## "Remote" System of analysis of the spermiogramma:

- online    - in real time
- assistance for international and national centres.

**Experimental procedures with equipe:** (biologists, engineers, Tekno Service, Nikon Instruments, clinicians) focused on the possibility of using "Telepresenza": videoconference with low latency, high definition

**Difficulties:** analysis of moving images, infact the characteristics of spermatozoan movement and speed are fundamental parameters ( first application in the andrology field)

**Fundamental:** sperm movement assessed live which contextually must be visible as seen by the eyes of the operator at the microscope

All this has been made possible .....

By interfacing the **image units** :

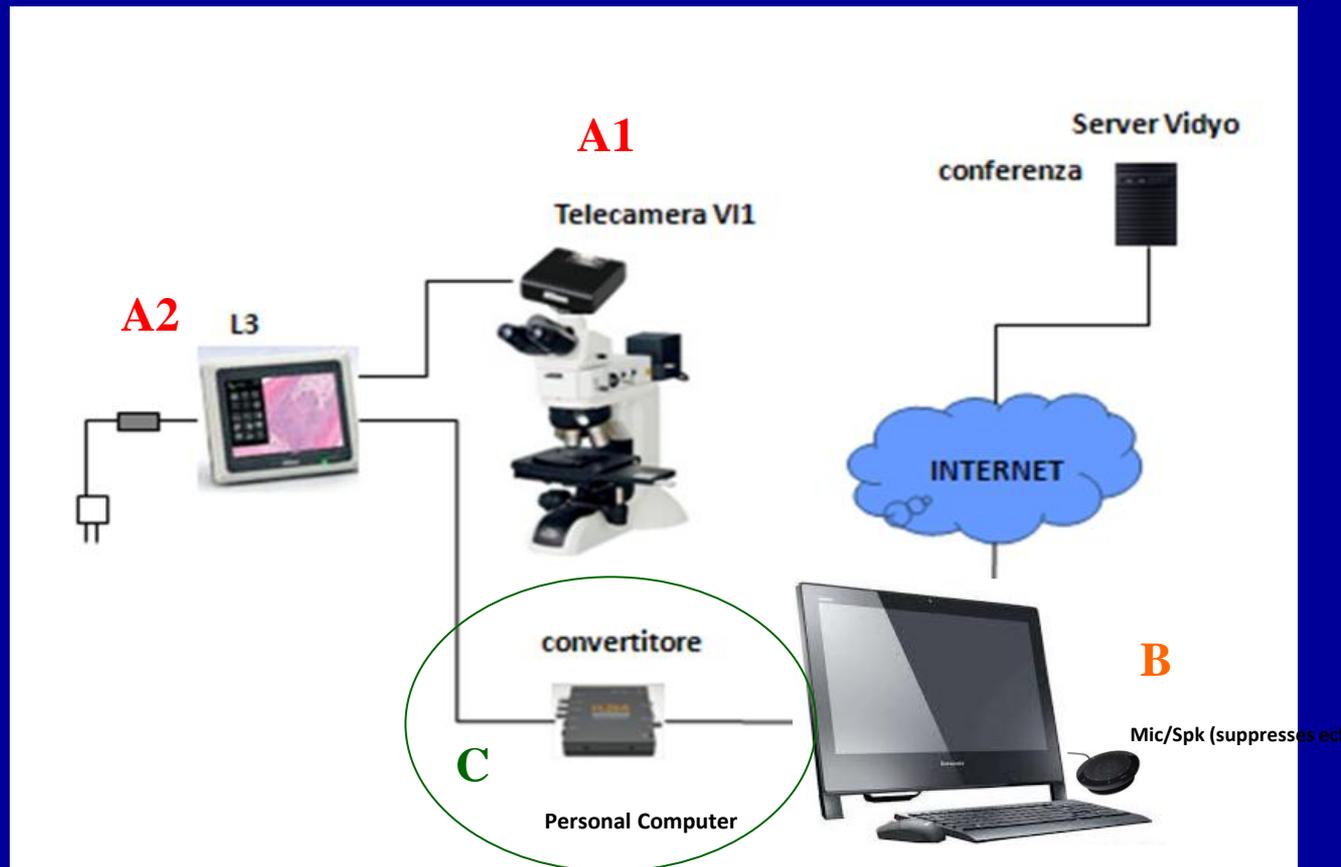
**A1** videocamera Nikon digital sight DSVi1 high speed color camera head monitor and **A2** control unit digital sight "stand alone" high resolution display

with **B data trasmission unit** (PC, internet server, vidyo)

Through **C a video converter**, Digital Frame Grabber, experimentally set up with specifically designed wiring.

The converter conveys a video image to the trasmission system which is exactly what the biologist is looking at in the microscope

"looking with the eyes of the operator"



- **Speeding up of the process**  
execution of the spermiogram in real time on national-  
international territory by a highly specialized Centre
- **Rationalization of costs and work in economy**  
of scale
- **Professionalism of the decentralized operator**  
followed contextually
- **Optimum service or users**
- **Therapeutic appropriateness**
- **Visibility and publicity for the Azienda Ospedaliera**  
**Universitaria Pisana and Regione Toscana**

# Creation of an Andrology Laboratory Network



Implementation of quality management systems (Italian laws 191 and 16 2010) superseding the limits of the previous External Quality Assessments (retro-spectively validates the reports; applicable to quantitative more than qualitative analytical aspects; non formative for operators of specific andrological sector)

Instead

The contextual analysis of the process permits quality management of the execution of the spermiogram that has never been obtained up to now