



Stop TB  
in Ukraine



Curatio Sine  
Distantia!

## TELEMEDICINE NETWORK FOR MULTIDRUG-RESISTANT TUBERCULOSIS TREATMENT AND CONTROL

**Aim:** improvement of multidrug-resistant tuberculosis (MDR-TB) care management

### **Challenges:**

- MDR-TB is a serious and dangerous disease which causes hard medical, social and financial consequences
- medication treatment is extremely long process which takes 2 years at least (any delays in medication receiving, also as interruptions of treatment, drugs' side effects and complications are extremely dangerous)
- system of care is grounded on special medical commission work-flow (diagnosis of MDR-TB have to be confirmed by the special medical commission, only after that a patient can receive medications; during 2 years every 2 months a patient (precisely, documentation) have to be reviewed by the special medical commission; for a commission's meetings all original medical documents have to be transported into a regional hospital for a few days; during commission's meetings one medical practitioner should present all patients from each hospital)
- hundreds of original medical documents and x-rays have to be transported between hospitals every months
- present work-flow of special medical commission is inefficient, dangerous, and proceeding with delays
- infection control and treatment outcomes improvement

**In 2013 the Telemedicine Anti-tuberculosis Network had been created in Donetsk Region (Ukraine).**

**Methodology of the network and telemedicine operations had been developed by Association for Ukrainian Telemedicine and eHealth Development ([www.telemed.org.ua](http://www.telemed.org.ua))**

**Infrastructure of the Network had been created due to kind efforts and funding support of Rinat Akhmetov's Foundation «Development of Ukraine» ([www.fdu.org.ua](http://www.fdu.org.ua))**

**Venue:** 4 anti-tuberculosis hospitals (which are local centers for MDR-TB treatment in Kramatorsk, Mariupol', Shakhtarsk and Gorlovka), 1 regional anti-tuberculosis hospital in Donetsk (head-office of the special medical commission, regional MDR-TB expertise and treatment center), Donetsk National Medical University (learning for telemedicine, network monitoring and efficiency evaluation, general and technical support)

### **Technologies:**

- closed high-speed network (specially built for the telemedicine purposes)
- protected system of electronic health records work-flow (specially created for the Network)
- desktop videoconference system with DICOM support (eWorks)
- web-portal of the Network ([www.itub.dn.ua](http://www.itub.dn.ua))
- eRegistry

### **Processes comparison:**

#### ***Non-telemedicine meeting of the special medical commission:***

- 1) delayed and unsecured transportation of all original medical documents and x-rays into commission's head office (distance between hospitals 40-150 km)
- 2) analyzing of a clinical case with presentation of a patient by casual medical practitioner (who brought documents as courier)
- 3) final decision making, documentation.

Sic! The process can be interrupted at any stage due to absence of some data, document or information, also as direct contact with an attending doctor or even a patient. It is takes a few additional days for solving such problems.

#### ***Telemedicine meeting of the special medical commission:***

- 1) uploading of medical documentation and images into the secured EHR system
- 2) analyzing of a clinical case with teleradiology session
- 3) presentation of a patient by local attending doctor via videoconference
- 4) video-visit to a patient if needed
- 5) final decision making, documentation.

## First results and efficiency:

4 October 2013 - official opening of the Network. During first month up to 40 telemedicine sessions successfully made in the Telemedicine Anti-tuberculosis Network.

Full data available for 34 patients (males – 76%, females – 24%), in age from 19 to 59 years (38,6±10,4).

Reasons: confirmation of diagnosis – 32%, monitoring of treatment at Stage 1 – 53% and at Stage 2 – 3%, final control – 6%, complications and treatment interruptions – 6%.

Main quality indicators:

Diagnosis was changed in 20,6% of cases.

Diagnostic accuracy (Ac) - 0,9

Gross Performance Acceptability Ratio (G-PAR) - 97%

Net Performance Acceptability Ratio (N-PAR) - 91%

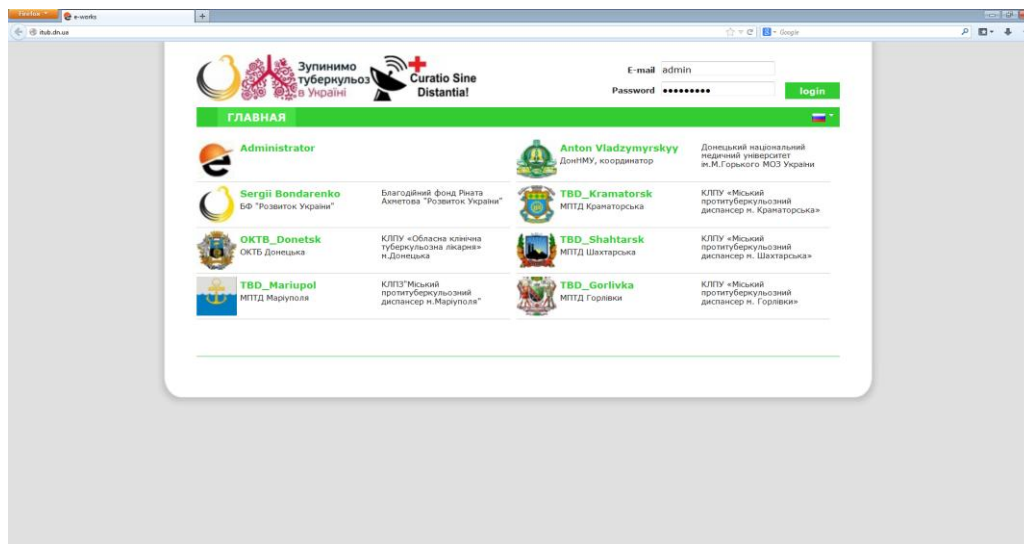
## Further work:

- local legislation improvement
- routine telemedicine work-flow (waiting for approximately 250-300 teleconsultations per month)
- connection with other anti-tuberculosis hospitals in the region
- connection with national anti-tuberculosis institute
- more sophisticated efficiency evaluation

## Pictures:



*Telemedicine Anti-tuberculosis Network in Donetsk Region (Ukraine)*



*Web-portal of the Telemedicine Anti-tuberculosis Network (www.itub.dn.ua)*

# Telemedicine meeting of the MDR-TB - special medical commission

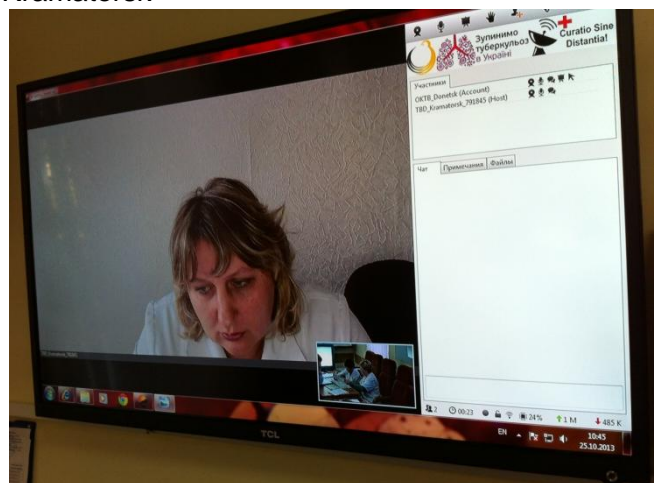
## Donetsk



## Mariupol (pictures from the local newspaper)



## Shakhtarsk and Kramatorsk





4 October 2013 - official opening of the Telemedicine Anti-tuberculosis Network

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eHealth Development, MD, PhD, professor  
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