Global eHealth Grand Rounds

eHealth (Health informatics, Telemedicine and Telehealth)

September, 20th, 2016

Mobile Telemedicine System is effective facility for improvement of health services to population in the Caribbean countries

A. Dolzhikova, G. Lebedev, A. Melerzanov, M. Natenzon, K. Sidelnikov, I.Sokolov, V.Starodubov, V. Tarnopolskij, V. Tsygankov

Russian Telemedicine Consortium

Overall goals of the National Telemedicine System for the Caribbean countries

Establishing of National Telemedicine System (NTS) will allow to solve four socially important challenges:

- **Maintenance of accessibility of medical and social services for the population;**
- **Ensuring of unified and common high quality of medical and social services for people irrespective of their residential and social status;**
- **Optimizing of the costs of healthcare while improving quality and coverage;**
- **Creation of new workplaces for technical and medical NTS personnel.**

The structure and functions of NTS work are defined by:

- **Objectives of public health system in the Caribbean countries;**
- **Economic, social, demographic, etc. conditions of development of the Caribbean countries;**
- **Geographical and climatic features of the given region.**

UN Millennium Development Goals

- Reduce child mortality
- Improve maternal health
- Combat HIV/AIDS, Malaria and others diseases:
  - Halt and begin to reverse the spread of HIV/AIDS
  - Halt and begin to reverse the incidence of malaria and other major diseases

"We will have time to reach the Millennium Development Goals – worldwide and in most, or even all, individual countries – but only if we break with business as usual.
We cannot win overnight. Success will require sustained action across the entire decade between now and the deadline. It takes time to train the teachers, nurses and engineers; to build the roads, schools and hospitals; to grow the small and large businesses able to create the jobs and income needed. So we must start now. And we must more than double global development assistance over the next few years. Nothing less will help to achieve the Goals."

United Nations Secretary-General

World Health Organization

The Fifty-eighth World Health Assembly,

Noting the potential impact that advances in information and communication technologies could have on health-care delivery, public health, research and health-related activities for the benefit of both low- and high-income countries;

. . . . . .

Aware that advances in information and communication technologies have raised expectations for health;

. . . . . .

Stressing that e-Health is the cost-effective and secure use of information and communications technologies in support of health and health-related fields, including health-care services, health surveillance, health literature, and health education, knowledge and research,

. . . . . .

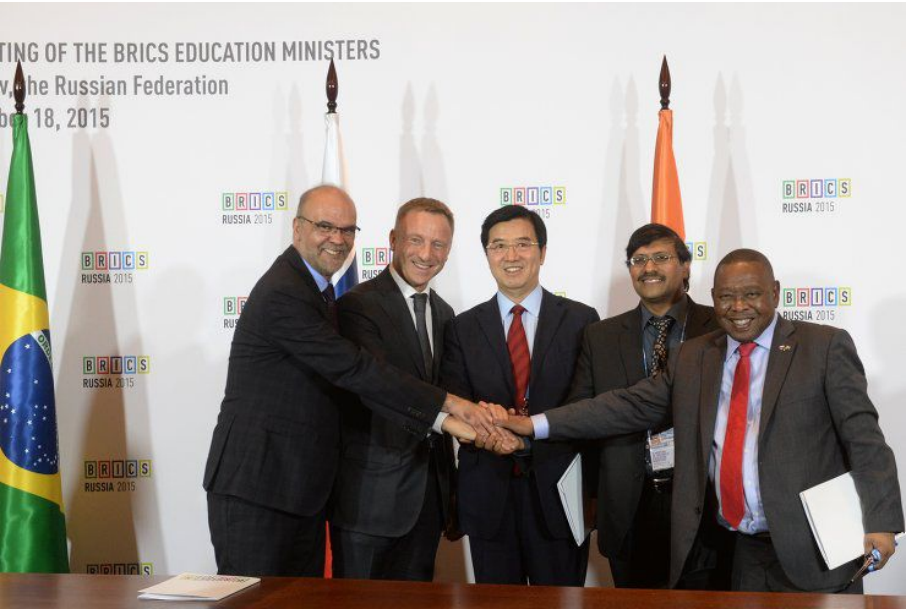
URGES Member States:

to consider drawing up a long-term strategic plan for developing and implementing e-Health services in the various areas of the health sector, including health administration, which would include an appropriate legal framework and infrastructure and encourage public and private partnerships;

to develop the infrastructure for information and communication technologies for health as deemed appropriate to promote equitable, affordable, and universal access to their benefits, and to continue to work with information and telecommunication agencies and other partners in order to reduce costs and make e-Health successful;

From WHA58.28 e-Health Resolution

BRICS SCIENCE, TECHNOLOGY AND INNOVATION WORK PLAN 2015-2018



III BRICS Science, Technology and Innovation Ministerial Meeting

Moscow, the Russian Federation, 28 October 2015

27 October, 2015

BRICS SCIENCE, TECHNOLOGY AND INNOVATION

WORK PLAN 2015-2018

1. The Ministers and their representatives for Science, Technology and Innovation of the Federative Republic of Brazil, the Russian Federation, the Republic of India, the People's Republic of China and the Republic of South Africa, met in Moscow, on 28 October, 2015, to endorse the BRICS Science, Technology and Innovation Work Plan 2015-2018 based on the Memorandum of Understanding on Cooperation in Science, Technology and Innovation between the Governments of the Federative Republic of Brazil, the Russian Federation, the Republic of India, the People's Republic of China and the Republic of South Africa (hereinafter - MoU) and the Strategy for BRICS Economic Partnership (hereinafter - Strategy).

****

8. The BRICS national research institutions are encouraged to consider collaboration under BRICS thematic leadership in Biomedicine and life sciences such as:

- integrated telemedicine systems in the regions of BRICS;

****

Action Plan 2015-2016:

1. Activities in the defined main areas of cooperation:

- Creation of experts network from BRICS countries to support the development of compatible telemedicine systems in BRICS regions (Russia);

****

- Attract the resources of the New Development Bank as an additional funding mechanism of projects within the Action Plan of the development of global research infrastructures;

****

2.4. Activities to facilitate collaboration within the BRICS Research and Innovation Networking Platform:

****

- Development of a concept note (White Paper) on the BRICS Research and Innovation Networking Platform;
- Identification of relevant BRICS stakeholders and partners;
- Holding an international workshop "BRICS Research and Innovation Networking Platform" and building a Road map for its development;
- Creation of a BRICS STI Information Exchange System.

Agreement on establishment of an International Telemedicine Societv

8-th IT-Forum with the participation of the BRICS member states
in Khanty-Mansiysk (Russia) 08.06.2016.

AGREEMENT
on establishment of An International Telemedicine Society
Edition of 9 June 2016

Khanty-Mansiysk *June 09, 2016*

Preamble

Russian Telemedicine Consortium,

Brazilian Telemedicine University Network RUTE / National Research and Education Network RNP

School of Telemedicine & Biomedical Informatics National Resource Center, Indian National Medical College Network, SGPGIMS, Lucknow, India,

Shanghai Advanced Research Institute, Chinese Academy of Sciences,

Nelson R Mandela School of Medicine, University of KwaZulu-Natal, University of Limpopo South Africa

hereinafter referred to as "Participants" in order to coordinate actions in the sphere of telemedicine and for a successful implementation of the project "Creating compatible integrated telemedicine systems in the BRICS member states regions" (the Project) using the principle of equality and mutual respect,
based on:
1. «Experts memorandum of the VIth International IT-Forum with the participation of BRICS member states» with an appeal to the Governments of the BRICS member states to support the project (Khanty-Mansiysk, June 6, 2014)
2. "BRICS member states telemedicine experts' appeal to the Ministries of Health of the BRICS member states" to support the inclusion of the Project into the program of financing by the New Development Bank (NDB) of the BRICS members states (VIIth International IT Forum with the participation of the BRICS member states, Khanty-Mansiysk, July 7, 2015)
3. Recommendations of the Moscow Declaration and Action Plan adopted at the Moscow meeting of the BRICS Ministers of Science, Technology and Innovation (Moscow, 27-29 October 2015)
4. Recommendations of the BRICS New Development Bank for the selection of projects for the Bank financing
in order to:
- create economically recoverable telemedicine system as an infrastructure of a modern health care system in the BRICS member states which will provide accessibility and a uniform high quality standard of medical service for 2.8 billion. people of the BRICS member states,
- provide quality medical services to the population, improvement of the quality of life, increasing life expectancy, reducing infant and maternal mortality, ensure active aging, control epidemics of contagious and non-contagious diseases, improve the human development index in accordance with the UN and World Health Organization recommendations,

Agreement on establishment of an International Telemedicine Society

Experts Working Group on BRICS Telemedicine

AGREEMENT on establishment of An International Telemedicine Society Edition of 9 June 2016

SIGNATURES OF THE PARTICIPANTS

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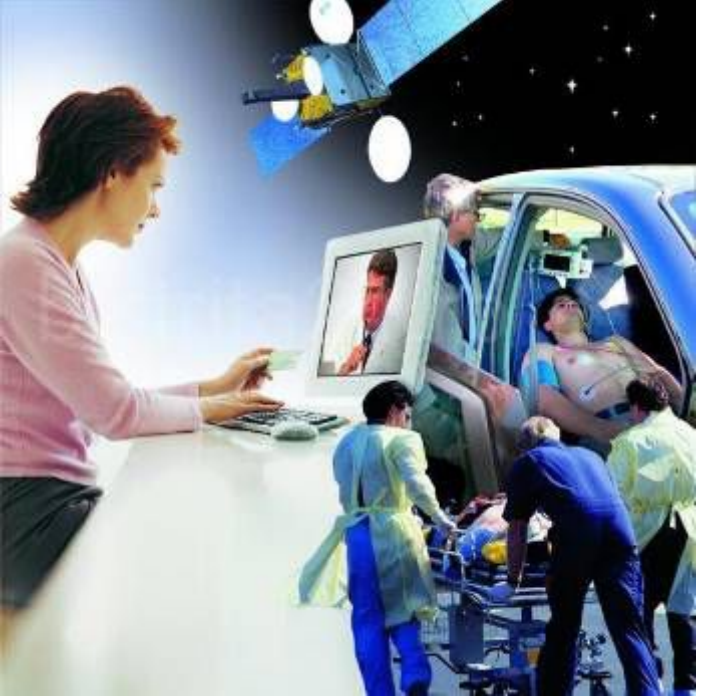
/Dr. Musawenkosi E. Mdluli /
Chairman / CEO



Russian Telemedicine Consortium

Union of leading Russian developers and suppliers of telemedicine systems based on the information and telecommunication technologies proposes to interested Caribbean Ministries, Departments and organizations a cooperation in implementation of telemedicine networks based on use of Mobile Telemedicine Units.

Availability of such complexes will help to raise level of healthcare services to the population in remote districts and islands territories.

Intellectual property and copyrights

Member of Russian Telemedicine Consortium - RPU “National Telemedicine Agency” owns patents on key elements of telemedicine systems and property rights to used specialized software packages


DEUTSCHER ERFINDERVERBAND e. V.

IDEEN HABEN DIE WELT VERÄNDERT UND VERÄNDERN SIE HEUTE NOCH

Wir beglückwünschen

TARNOPOLSKY Vladimir, NATENZON Mikhail, PERELMAN Mikhail, SERGIEV Vladimir

zu einer hervorragenden Erfindung mit der Bezeichnung

Satellite Communication AntiEpidemic Screening Network, MOBILE TELEMEDICINE UNIT

und teilehmen hiermit diese Idee mit dem

PREIS DES DEUTSCHEN ERFINDERVERBANDES 2004

anlässlich der 32. Internationalen Messe für Erfindungen in Genf aus.

Nürnberg, im April 2004

Dipl.-Ing. Karl Bisch
Vorsitzender des Deutschen Erfinderverbandes


РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

№ 72775

СИСТЕМА СВЯЗИ ТЕЛЕМЕДИЦИНСКОЙ СЕТИ


РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

№ 73317

МОБИЛЬНАЯ МЕДИЦИНСКАЯ ЛАБОРАТОРИЯ СКРИНИНГА ЖЕНСКОГО ЗДОРОВЬЯ


РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

№ 70586

МОБИЛЬНАЯ МЕДИЦИНСКАЯ РЕНТГЕНОСКОПИЧЕСКАЯ ЛАБОРАТОРИЯ


РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

№ 72310

МОБИЛЬНАЯ МЕДИЦИНСКАЯ ЛАБОРАТОРИЯ ДИАГНОСТИКИ МЕТОДОМ ПОЛИМЕРАЗНОЙ ЦЕПНОЙ РЕАКЦИИ


РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

№ 66084

КОМПЛЕКС МЕДИЦИНСКОГО ОБЕСПЕЧЕНИЯ ЧРЕЗВЫЧАЙНЫХ СИТУАЦИЙ


РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

№ 141005





РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

№ 82265

ТЕЛЕМЕДИЦИНСКАЯ СИСТЕМА


РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

№ 63326

ПЕРЕДВИЖНОЕ ОТДЕЛЕНИЕ ПОЧТОВОЙ СВЯЗИ С ВОЗМОЖНОСТЬЮ ОКАЗАНИЯ КОМПЛЕКСА СОЦИАЛЬНЫХ УСЛУГ


РОССИЙСКАЯ ФЕДЕРАЦИЯ

СВИДЕТЕЛЬСТВО

№ 2008612909

Doctor Studio

The telemedicine project of the «National Telemedicine Agency» RPU recognized by Russian Ministry of Health as the «Best Medical Information System 2010»

Конкурс разработок в области информатизации здравоохранения

"Лучшая медицинская информационная система 2010"

ДИПЛОМ

I СТЕПЕНИ

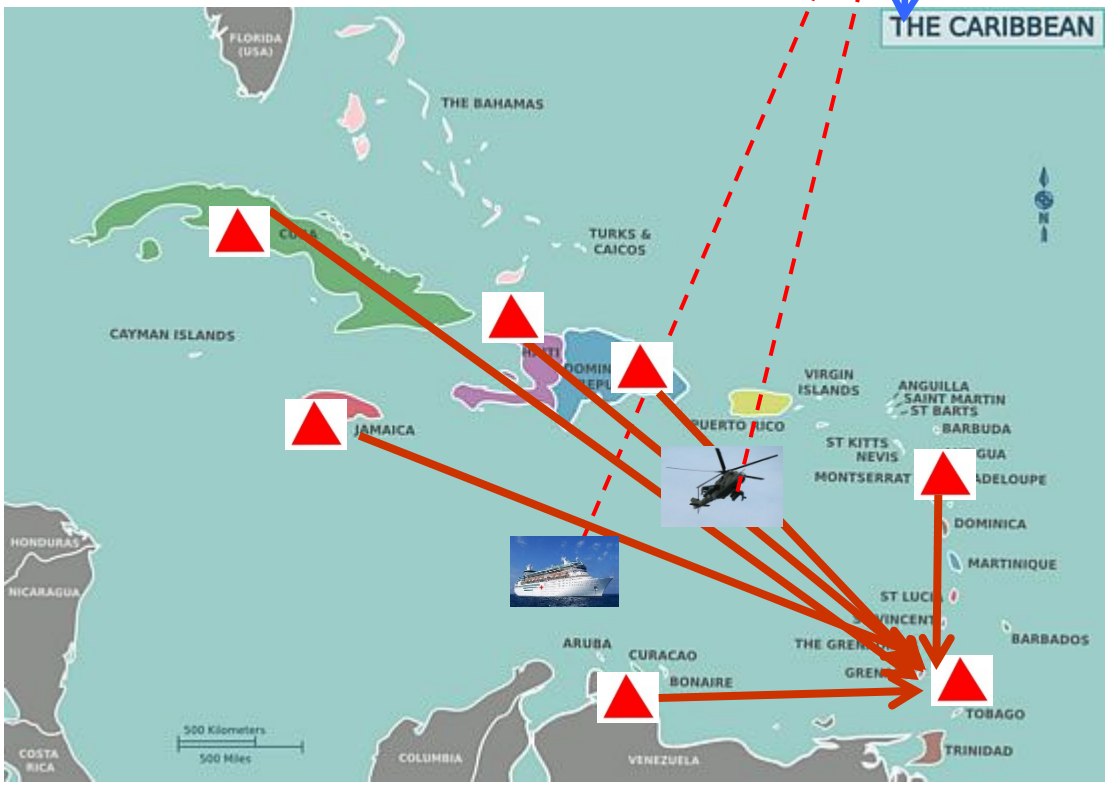
Награждается

ОАО «Межгосударственная акционерная корпорация «Вымпел»,
ЦООИ Информатизации
и Организации Здравоохранения Минздравсоцразвития РФ,
Научно-производственное объединение
«Национальное телемедицинское агентство».

За создание общероссийской телемедицинской
консультативно-диагностической и образовательной сети

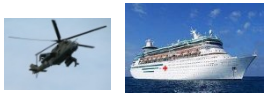
14-15 октября 2010 г.
Москва, конгресс-центр гостиницы "Космос"

Suggested Map of the Telemedicine system for Caribbean countries



The Telemedicine System for Caribbean countries (TSCC) consists of two parts: network of telemedicine consulting-diagnostic centers, at stationary clinics of Caribbean countries and info-communicated with them sea-vehicle hospitals (SVH). Equipped with various digital telemedicine equipment, SVH intended for rendering of a wide spectrum of medical and social services to population. Based on the International standards the suggested telemedicine system can be integrated with similar systems of other countries

▲ - Stationary Telemedicine points



- Mobile Telemedicine Hospital

Suggested telemedicine system allows Caribbean countries' clinics to receive medical consultations of the foremost clinics of the World and may be used for rendering of medical and social services to other countries of the Caribbean Basin

Proposed Telemedicine Network represents 4-levels system:

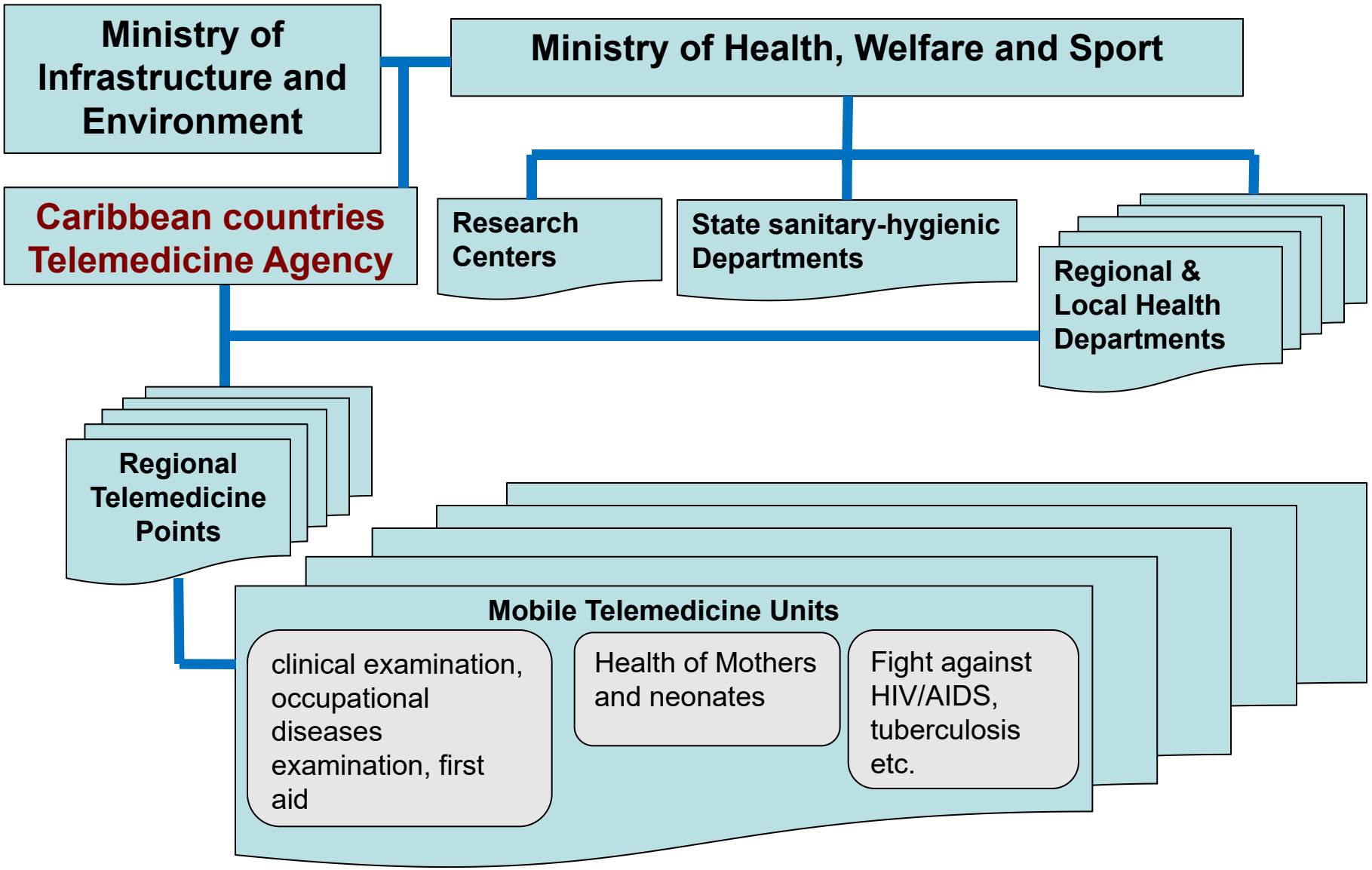
International Level

State Level

Regional Level

Local Level

Suggested Management Plan of the Caribbean countries Telemedicine Agency



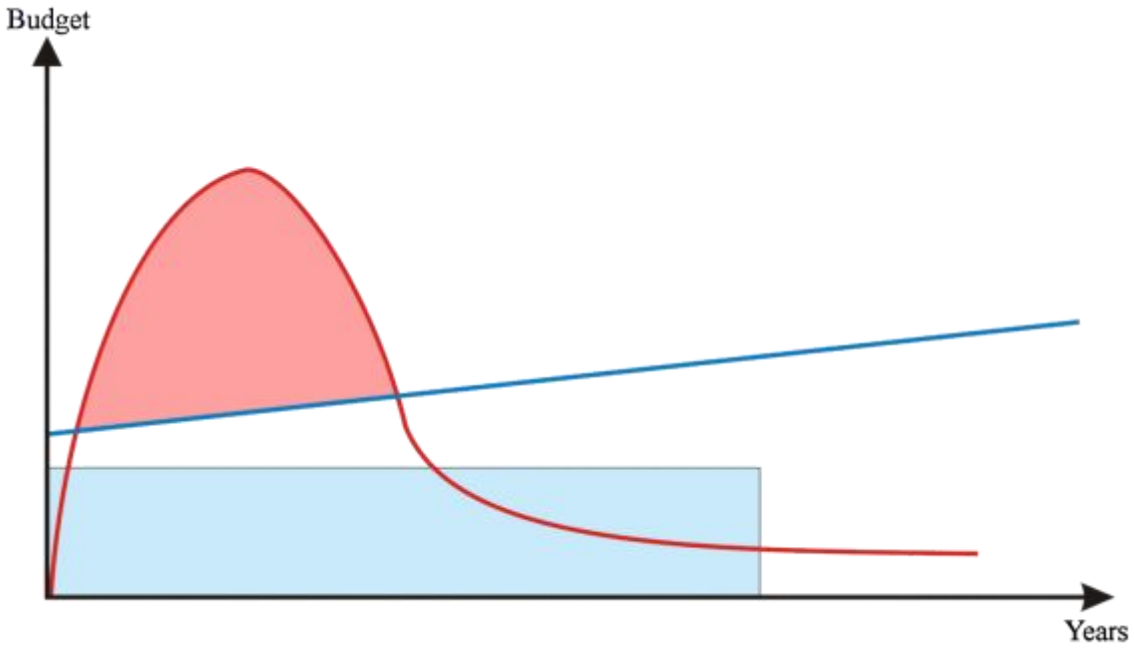
Spheres of Telemedicine System use

- Clinical telemedicine
- Emergency telemedicine
- Medical examinations and preventive health care
- Remote education
- Telemedicine in rural areas, remote and hard-to-access regions
- Rendering of complex social services to the population in rural areas, remote and hard-to-access regions
- Telemedicine for military structures and assigned risk enterprises
- Monitoring and control of epidemic situation Caribbean countries
- «Personal» and «Home» telemedicine

Economical benefits of Telemedicine Technologies

Economical efficiency of using of telemedicine technologies based on providing healthcare and social services at lower costs comparing to traditional healthcare

In particular, optimization of cost is achieved by conducting mass screening of the population, earlier detection of diseases, reduction of number of erroneous diagnoses, shifting the center of gravity providing high technology medical aid to regions with reduced costs of moving patients to Central clinics, the transformation and expansion of primary health care at the field level in accordance with the standards, the types and nature of which correspond to the level of morbidity, the needs and expectations of the population.



Legends:

Health Care investment without use of telemedicine

Health Care investment with use of telemedicine

Earnings from telemedicine services

MOBILE TELEMEDICINE UNIT

Mobile telemedicine unit (MTU) is the basic component of the telemedicine project. The MTU is the leading telemedicine machine equipped for massive scale screening of large population, capable of providing of primary medical care for individuals in emerging countries with a lack of medical hospitals by means of telemedicine support and under control of the national medical centers. The MTU medical capabilities include the screening of large groups, X-rays by low radiation digital equipment, sampling for biochemical express-investigations and to carrying out functional diagnostics. The MTU telecommunication and telemedicine equipment includes satellite communication station VSAT, equipment for telemedicine consultations support, including videoconference communication, workstations for radiologist and biochemist, local network. MTU is capable of long autonomous raids.

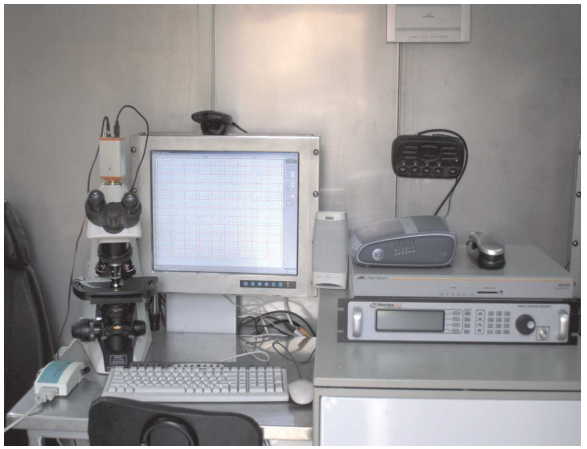
General View of Mobile Telemedicine Unit in working position

Interior of Mobile Telemedicine Unit

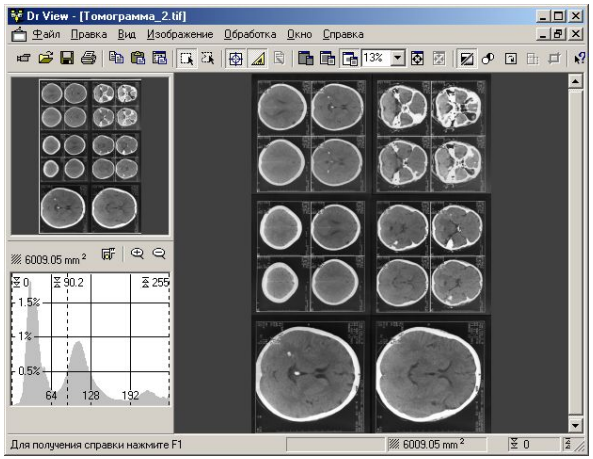
Telemedicine terminal

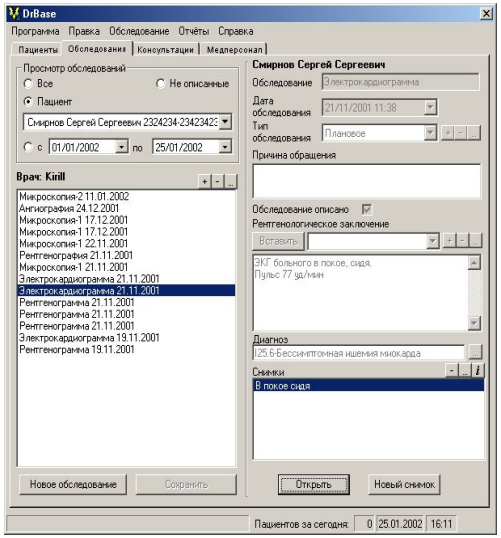
Bathroom

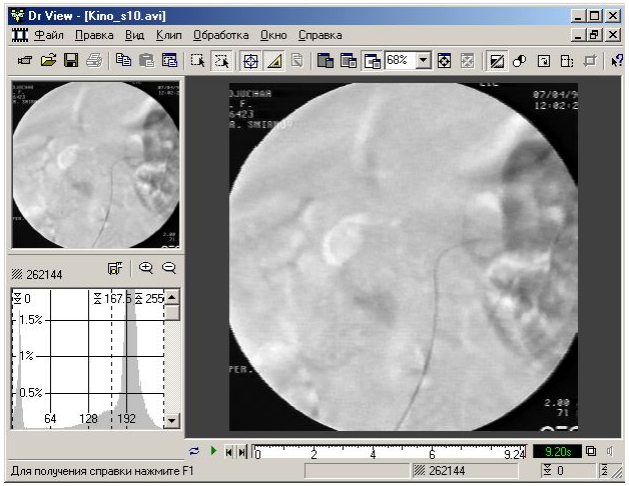
Refrigerator for pharma

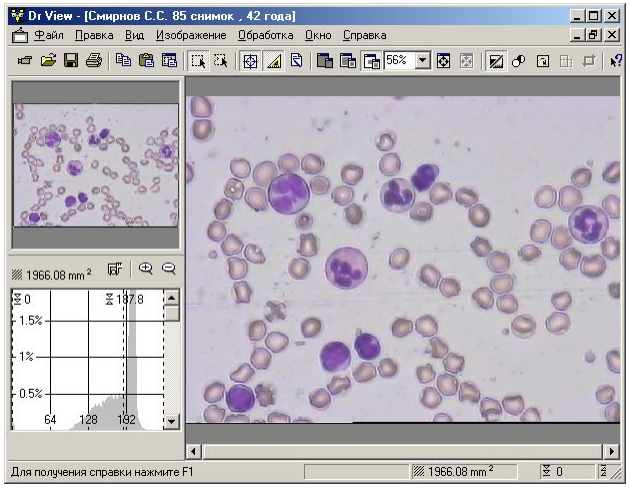


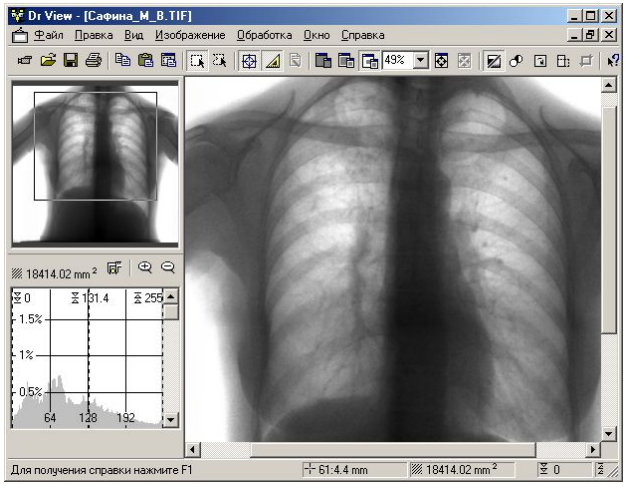
Laboratory's telemedicine terminal

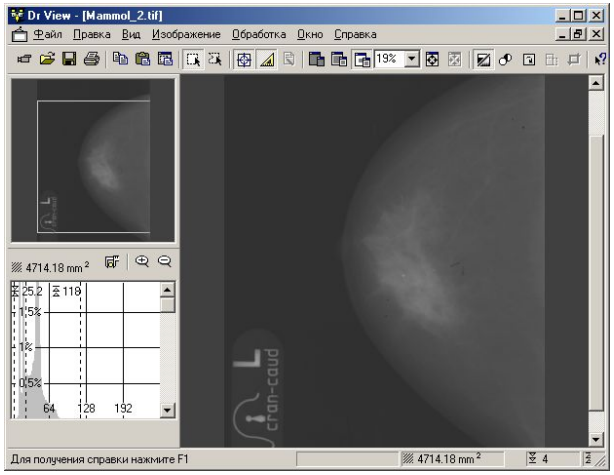






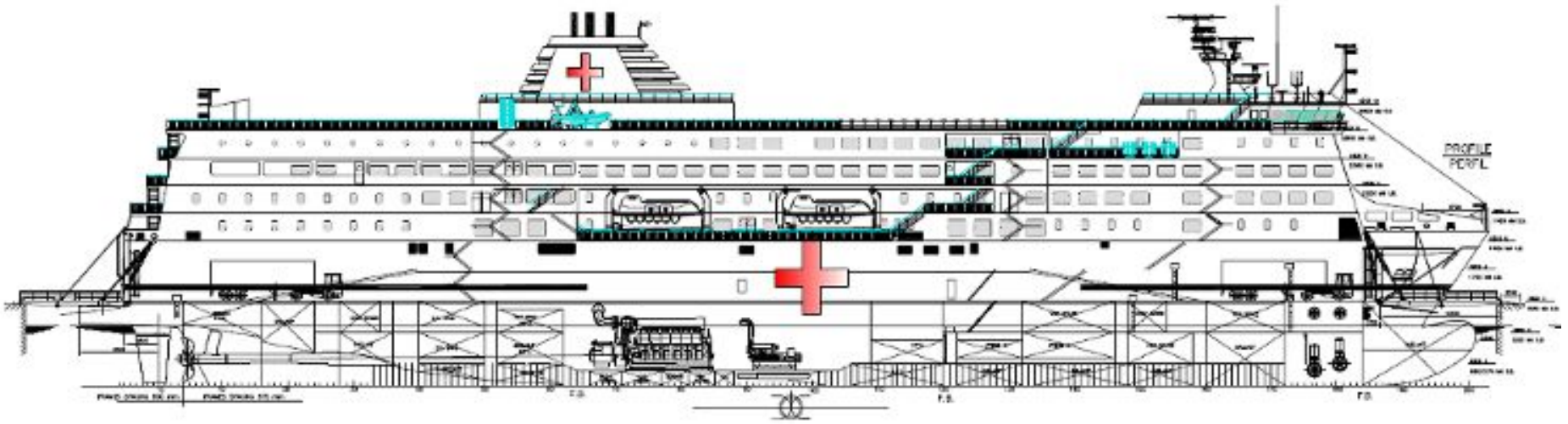






Samples of electronic images with results of medical examinations, transmitted from MTU to central medical institutions for inspection

Telemedicine hospital sea-craft for rendering of medical services to population

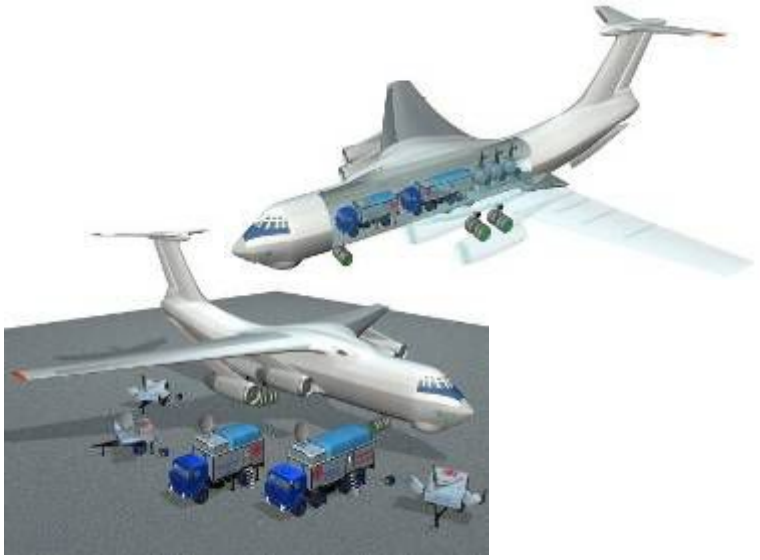


This kind of MTU intended for medical service for population in coastal districts including tropical zones and represents the unique project in the world.
The medical hospital vehicle meant for hospitalization up to 400 patients with rendering of all necessary medical services, The ship is equipped with labs, OR's, independent air-conditioning and cleaning systems, quarantine branch.
The cargo deck of a ship is intended for transportation of several mobile telemedicine transports: tracks, helicopters, air cushion crafts for transportation of telemedicine complexes to remote continental areas.
All accommodations are provided for the hospital staff and patients on the ship.

Telemedicine system for rendering medical services to population in a course of elimination of emergency consequences

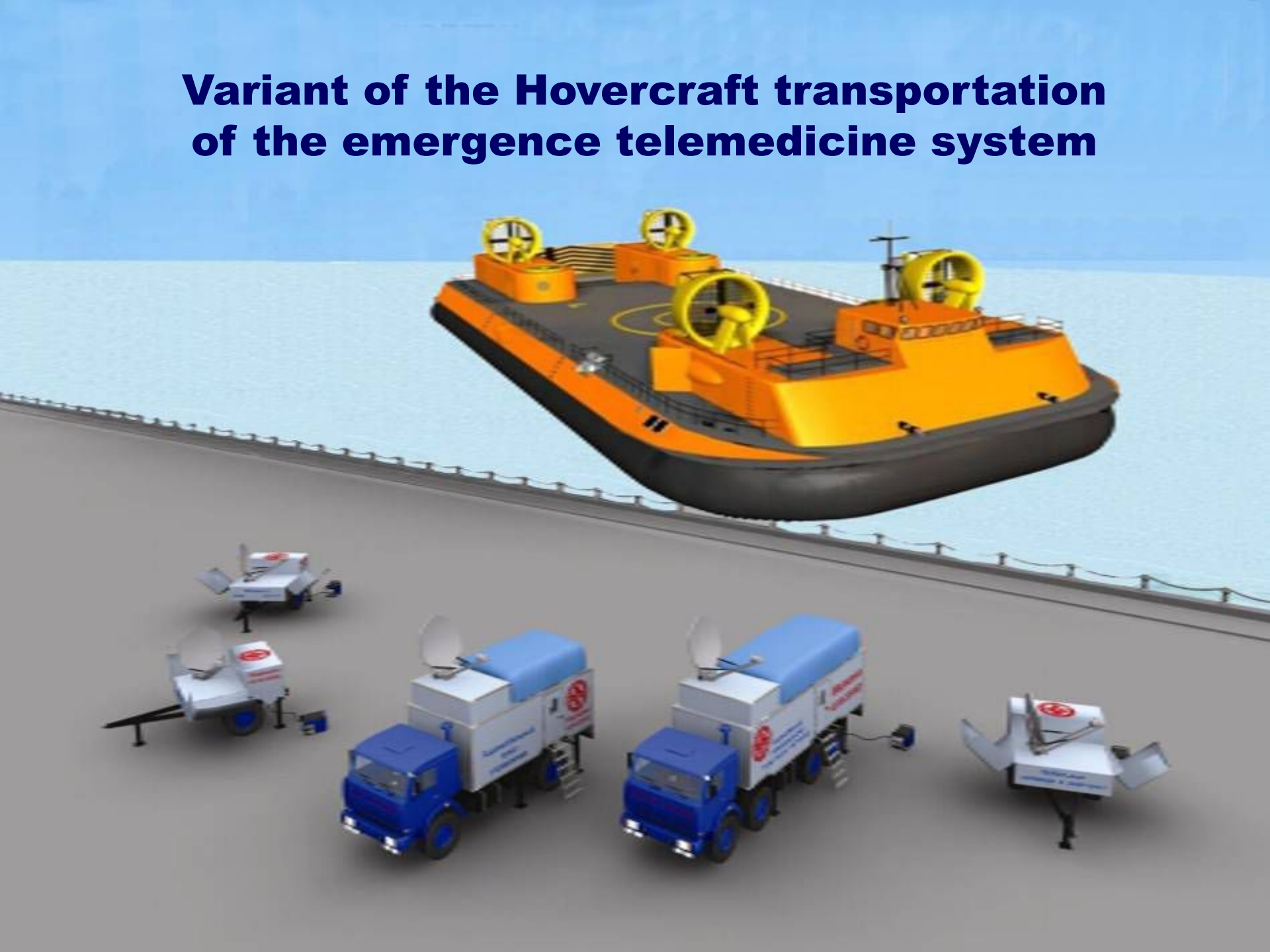


Proposed telemedicine system allows to solve many tasks, arisen during rendering of helps to population in emergence causes:

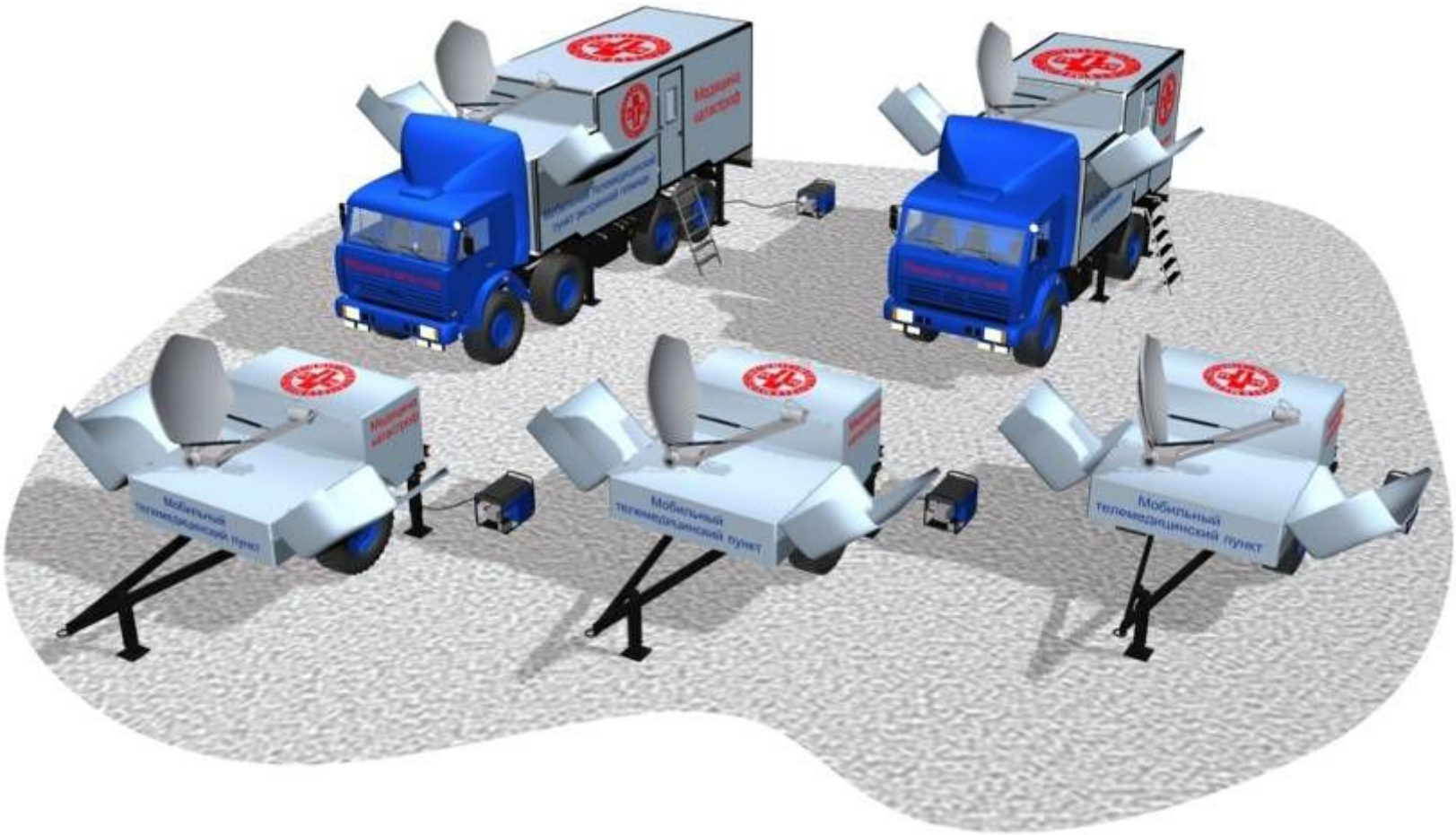


1. Rendering of primary medical care to victims in the immediate emergency zones.
2. Control and combat against epidemic outbreaks in the emergence zone.
3. Rendering of social services to population in the emergence zone.

Variant of the Hovercraft transportation of the emergence telemedicine system

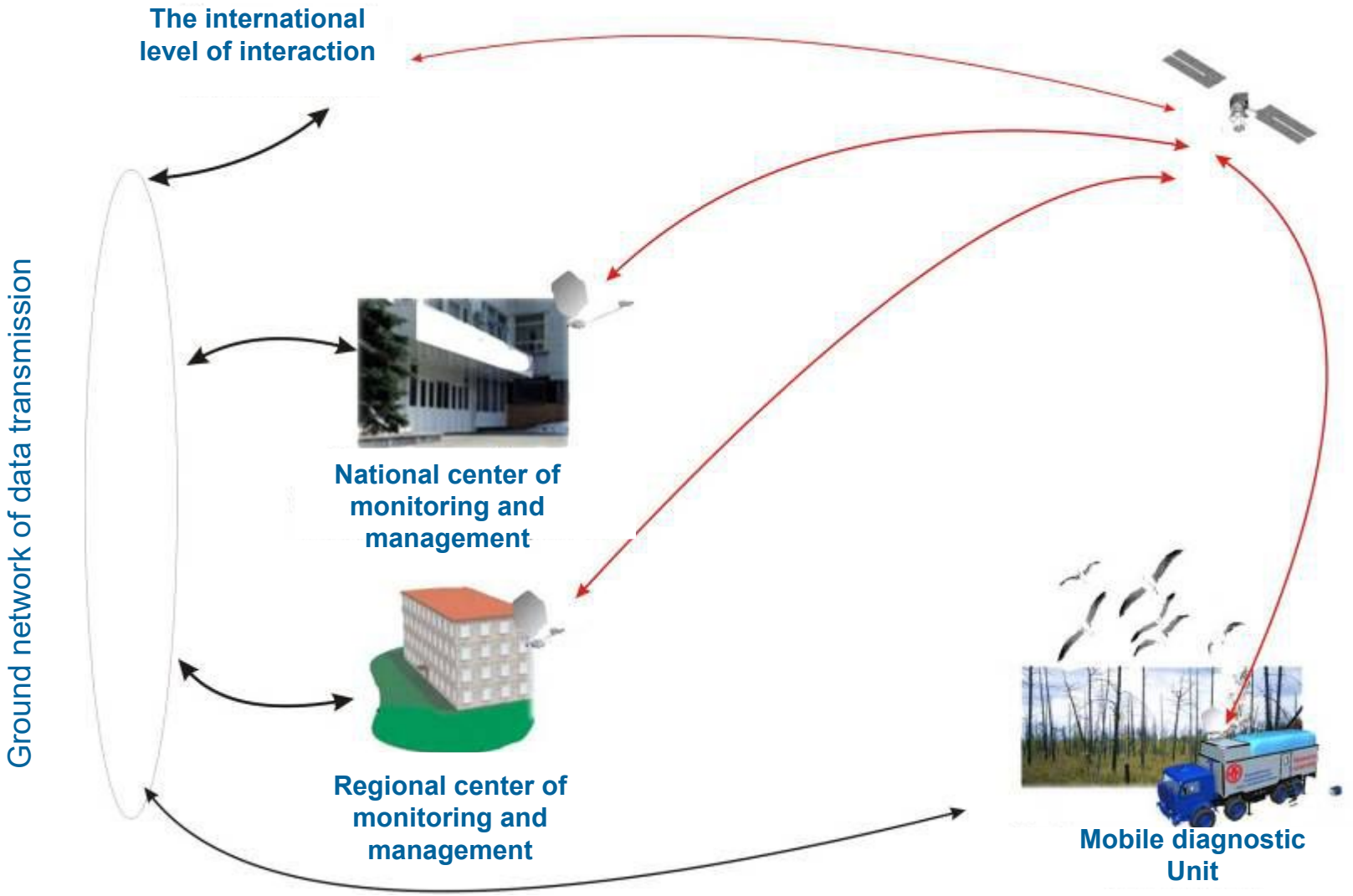


Mobile part of Telemedicine system for emergence situations



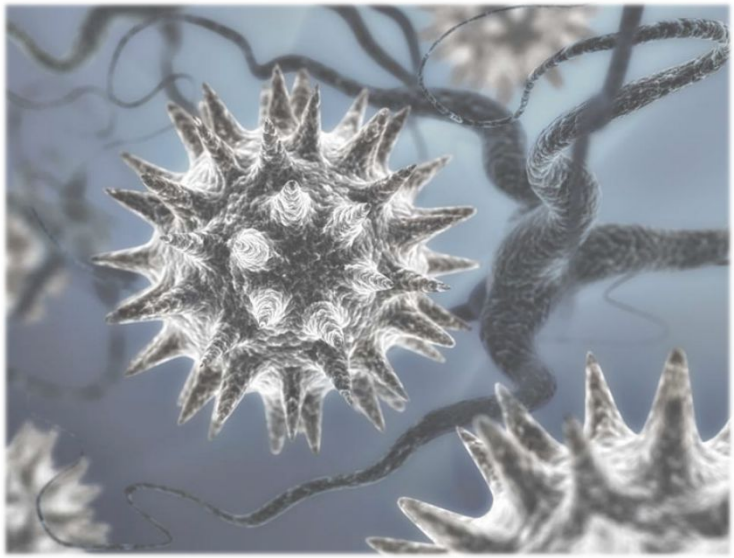
Small Mobile Telemedicine point of the Telemedicine System for emergence situations

Telemedicine system for monitoring and management of epidemic situation



Mobile Telemedicine Diagnostic Laboratory «Terek» for monitoring of the epidemiological situation

Mobile Diagnostic Telemedicine Laboratory «Terek» is designed for urgent diagnostic of infectious agents on territories, i.e. zoonotic natural-focal (birds' flu, leptospirosis, tularemia, tick-borne encephalitis, tick-borne borreliosis and others) and anthroponosis infections (poliomyelitis, virus hepatitis, typhoid fever and others). The basic diagnostic technology is a method of polymerase chain reaction (PCR) in the real-time regime (Real Time PCR) enabling the quantitative determination of DNA/RNA of infectious agents in the studied material, automatization of registration and interpretation of obtained results and also significant reduction of a number of false-positive results. If the targeted examinations are needed the Mobile Telemedicine Laboratories «Terek» may be additionally provided with the equipment and materials for indication and identification of respective agents.



Use of such system allows to support the following functions:
- On-site epidemic screening with use of mobile laboratories including in remote and hard-to-access regions;
- Transmission of monitoring data to the situation center;
- Fulfillment of the center directions.

Implementation of system for different virus epidemiological monitoring allows:

- **In proper time to localize infected places and to prevent epidemic expansion;**
- **To provide epidemiological mapping of the area with the purpose of forecasting and mathematical modeling of opportunity of epidemic occurrence;**
- **To provide the coordination of the supervising and control authorities actions during detection and liquidation of different infection within the frame of the actions for prevention of infection drift on the territory.**

Mobile Diagnostic Telemedicine Unit «Terek» for monitoring of epidemic situation

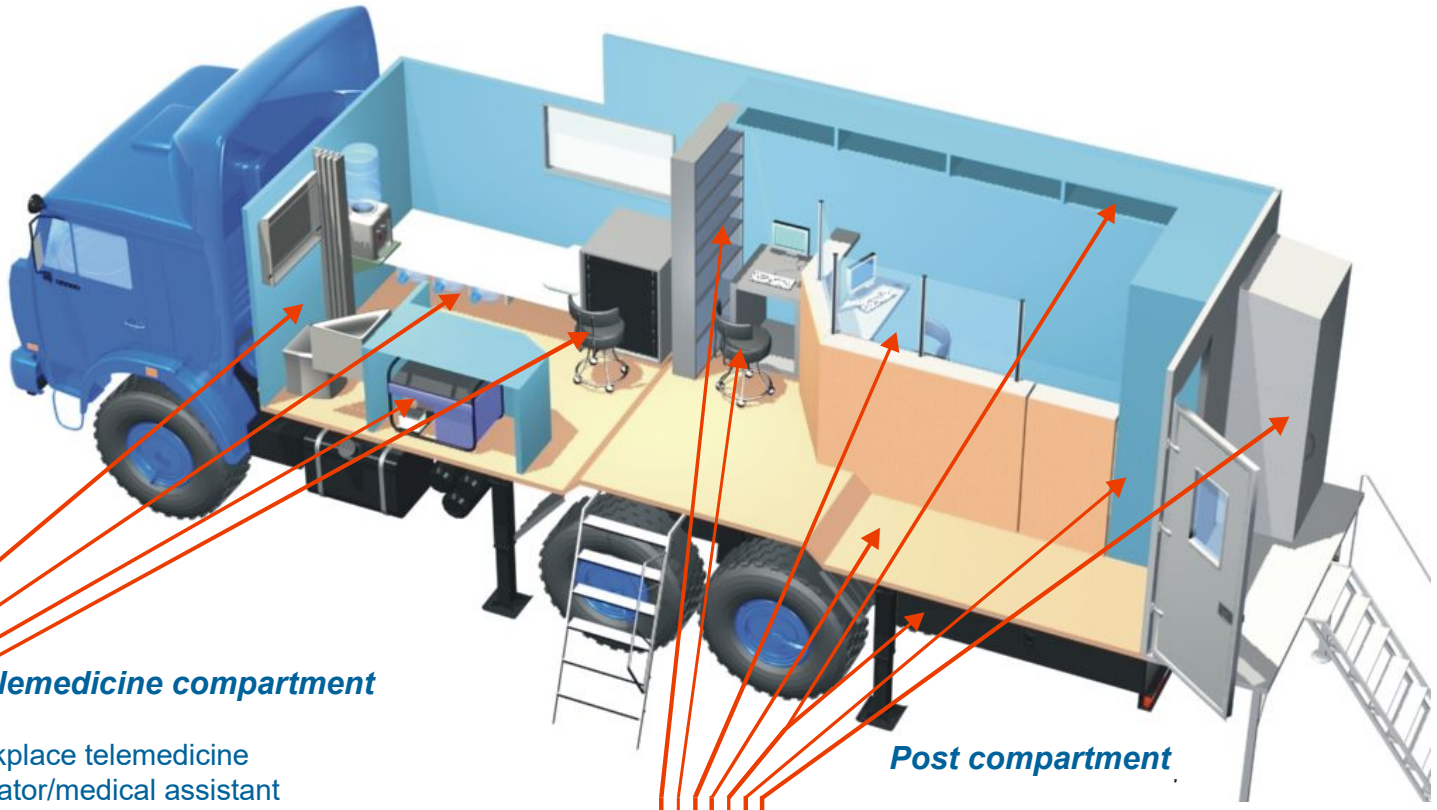
Components of equipment and interior

PCR Laboratory:
amplification and detection zone

Telemedicine Terminal

PCR Laboratory: Nucleic Acid separation zone

Multipurpose mobile Post complex «Cyber Twin»



Telemedicine compartment

- Workplace telemedicine operator/medical assistant
- Diesel generator
- Household zone
- Lavatory

Post compartment

- Safe's compartment
- The monetary safe
- Containers for storage post
- Departures container and the post operator
- Zone of clients of the post operator
- Workplace «Cyber Twin»
- Workplace of the post operator
- Show-window for accommodation of the consumer goods

Training medical and technical professionals use of telemedicine technologies

Honorary diplomas and certificates awarded to RPU «National Telemedicine Agency's» Mobile Telemedicine Units


DIPLÔME

SALON INTERNATIONAL DES INVENTIONS

GENÈVE

Après examen, le jury International a décidé
de remettre à: Vladimir TARNOPOLSKY, Mikhail NATENZON, Mikhail PERELMAN, Vladimir SERGIEV
pour l'invention: Procédé de diagnostic des maladies infectieuses

UNE MEDAILLE D'OR

Genève, le 2 avril 2004


ЖЕНЕВА - 2004

ДИПЛОМ


INTERNATIONAL TELECOMMUNICATION UNION

LETTER OF APPRECIATION


ДИПЛОМ

Золотая медаль — Лауреат международного Форума


DEUTSCHER ERFINDERVERBAND e. V.

IDEEN HABEN DIE WELT VERÄNDERT UND VERÄNDERN SIE HEUTE NOCH

TARNOPOLSKY Vladimir, NATENZON Mikhail, PERELMAN Mikhail, SERGIEV Vladimir

Satellite Communication Antiepidemic Sensoring Network MOBILE TELEMEDICINE UNIT

PREIS DES DEUTSCHEN ERFINDERVERBANDES 2004

world summit
on the information society
Geneva 10-12 December 2003

world summit
on the information society
Geneva 10-12 December 2003

This MTU project is one of greatest Contributions to the Digital Divide Bridge - I am confident that together with the International Telecommunication Union (ITU) and the member States we will ensure a successful implementation of this project in many Countries in the world - MTU saves lives !

Thank you.

Hamadoun. I. TOURE
Director BDT/ITU.

10/12. 2003. GENEVE.

During the International summit on information society taken place in Geneva in 2003, Dr. Hamadoun Toure, Deputy Secretary General of the International Telecommunication Union at that time, has examined MTU

Mr. Vladimir Putin, the President of Russian Federation, inspect the MTU (The State Council of the Russian Federation in Kurgan City, October, 02, 2006)

CIS Heads of Governments Summit
Kishinev (Moldova), November, 14, 2008
Presentation of Telemedicine project for CIS countries

Telemedicine for people's health
MTU works in Nkandla Village (Province Kwazulu-Natal, Republic of South Africa)

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