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PROJECT „ ICT Assistance for Moldovan Hospitals” (Second phase)

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Executive Summary

The Government of the Republic of Moldova has recently introduced Compulsory Medical Insurance (CMI) system. The government is looking for assistance in the creation of a unified informational system of CMI. It is obvious that together with the introduction of the CMI the role of informational systems in medical institutions of the country is continuously growing. Until now the entire medical history of the patient was recorded in his/her medical book. In the new conditions of the CMI all the records of patient's lab analysis, prescribed treatment and its results should be gathered in one document which will go to the Insurance Company. Moreover, this document will include all the expenses incurred during the patient's hospital stay. At the moment, all these calculations are done by each doctor separately. Before the introduction of the CMI medical professionals (including doctors and medical assistants) spent approximately 40% of their time filling out patients' medical forms. Now the amount of paperwork doctors and medical assistants complete has virtually doubled. This creates an enormous problem as medical professionals' time is being spent less and less with patients, and more with documentation that could be eliminated or minimized by the implementation of proper ICT solutions.

Project Objectives

As the creation of a unified medical informational system on the country level *is almost impossible* due to financial reasons, a gradual passage to the system would be eased by the introduction of computerized work in medical institutions of the country.

Compudava Foundation has already implemented a pilot project aimed at providing 200 second hand Pentium II computers to three main medical institutions of the country -- National Hospital (80 computers), Balti Municipal Hospital (50 computers) and the Institute of Cardiology (70 computers). The computers were donated by BUPA International Company (<http://www.bupa-intl.com/>) together with the assistance of the Waymaker Ltd (<http://www.waymaker.co.uk/>) and Brains Direct Ltd (<http://www.brainsdirect.com/>). This donation represents the biggest donation ever made to medical institutions of Moldova.

The present project aims at providing informational assistance to eight other medical institutions of the country: Mother and Child Health Protection Institute, Institute of Oncology, Infectious Diseases Hospital "Toma Ciorba", Neurology and Neurosurgery Centre, Dermatological and Venereal Diseases National Hospital, Chisinau Emergency Hospital, Psychiatric Hospital, and Causeni Regional Hospital. Taking into account the importance of the above mentioned medical institutions, their computerization must be of high priority for the country and will have a positive effect on the quality of services provided and on the entire society of the Republic of Moldova.

I. Mother and Child Health Protection Institute

The institute represents a treatment, prophylactic, diagnostic and scientific institution. It has 1005 places. Medical staff comprises 35 scientific personnel, 305 doctors and 714 medical assistants.

The institute is as well a place for students' internships, residents and medical staff trainings. 16 departments of Nicolae Testimiteanu State University of Medicine and Pharmacy are represented here, as well as the courses of gynecology, obstetrics and pediatrics of the College of Medicine.

Basic figures (year 2003)

During the 2002 year, 32,070 patients were treated in the hospital, staying on average 7.5 days in the hospital. The death rate of the children under 1 year old equals 1.8%.

The hospital is financed by the State Budget and extra budgetary funds. In 2002 the expenses equaled 21 millions MDL lei¹, out of which 17 millions were allocated by the State Budget and 4 millions extra budgetary sources.

ICT situation

¹ £1 = 23.35 lei as of February 12, 2003

At the moment the institute has only 34 computers (for 70 departments) which are not connected in a network, most of them being old and need expensive repairing. Only 3 computers have access to Internet.

In order to create a functional network the institute needs other **120 computers**.

II. Institute of Oncology

The institute represents the only treatment and prophylactic institution in the country which provides medical assistance for cancer diseases. It has 1005 places for in—patient treatment and a 750 daily visits clinic for out—patient treatment. Medical staff comprises 79 scientific personnel, 214 doctors and 419 medical assistants.

The institute has a database of all patients with cancer from the Republic of Moldova. The institute is as well a place for medical students' internships, residents' internships and medical staff trainings. Together with the departments of Nicolae Testimiteanu State University of Medicine and Pharmacy the Institute of Oncology elaborates development strategies of methods of early diagnosis of cancer.

Basic figures (year 2003)

During the 2003 year, 19,844 patients were treated in the hospital, staying on average 17.8 days in the hospital. Post—surgery death rate equaled 0.3%. 125, 000 visits were paid to the hospital.

The institute is financed by the State Budget and extra budgetary funds. In 2003 the expenses equaled 23.5 millions MDL lei out of the State Budget and 0.34 million MDL lei from extra budgetary sources.

ICT situation

At the moment the institute has only 12 computers (for 47 departments and labs) which are not connected in a network or to the Internet, most of them being old and need expensive repairing.

In order to create a functional network the institute needs other **135 computers**.

III. Infectious Diseases Hospital “Toma Ciorba”

Infectious Diseases Hospital “Toma Ciorba” was established in 1891. It was the first specialized institution from Bassarabia and the first hospital of this type in the south—western part of the Russian Empire. Since its foundation until nowadays the hospital has never ceased its activity, providing specialized assistance in the field of infectious diseases. The hospital offers emergency services, in—patient and out—patient treatment, prophylaxis and is involved in preparing specialists in the field.

The hospital capacity is 300 places out of which 215 are for adults and 85 – for children. The clinical sector includes 8 departments: in—patient, intensive care unit, administrative, statistics, human resource, consultancy, etc. as well as republican centers. Medical staff comprises 64 doctors and 127 medical assistants. Two departments of the Nicolae Testimiteanu State University of Medicine and Pharmacy activate within the hospital.

Basic figures (year 2003)

6,683 patients were treated in the hospital, 3,486 patients from all over the country were consulted.

The hospital was financed by the State Budget, national programmes, sponsorships and humanitarian aid in the amount of 6.34 mil MDL lei out of which 4.7 millions from the State Budget, 348, 000 MDL lei from sponsorships and 292, 000 MDL lei from humanitarian aid.

ICT situation

At the moment the Infectious Diseases Hospital “Toma Ciorba” has only 4 computers connected to the Internet through dial up.

In order to create a functional network the hospital needs other **35 computers**.

IV. Neurology and Neurosurgery Centre

Neurology and Neurosurgery Centre represents a treatment and prophylactic institution providing specialized medical assistance, consulting and emergency services. The Neurology and Neurosurgery Centre has a capacity of 200 patients. Neurological departments are as follows:

- Intensive neurology
- Neural recovering
- Neurology and acupuncture

- Intensive care unit

Neurosurgery departments are as follows:

- Neurosurgery
- Neurotraumatology and emergency
- Neurosurgery intensive care unit

Para clinical departments:

- X-rays department
- Functional diagnosis
- Lab
- Traditional medicine department

The hospital offers neurological and neurosurgical consulting to all the citizens of the country. There are 79 doctors and 174 medical assistants in the hospital staff. Two departments of the Nicolae Testimiteanu State University of Medicine and Pharmacy activate within the hospital. Although the hospital is provided with the equipment for diagnosis establishment, most of it needs renovation.

Basic figures (year 2003)

42,164 visits were made to the hospital, 33,762 patients were consulted.

The hospital is financed by the State Budget and extra budgetary sources. In the year 2003 the hospital expenses amounted to 7.714 millions MDL lei.

In the Para clinical departments 184,599 diagnostic investigations were performed. On average, 28 investigations were done for one patient; the number of investigations per 100 visits to the clinic was 121.1. In the neurological departments 4,353 patients were treated. Neurosurgery departments treated about 2000 patients and performed operations on 1430 patients. Death rate within the hospital in the recent years has not overcome 2.20%, post surgery death rate – 3.2%.

ICT situation

The hospital has a computer network (9 computers) created on the basis of an individual project of the Centre. There is no access to Internet because of insufficient financial resources. On average, there is one computer per 9.7 doctors or per 32.4 medical staff (doctors and medical assistants).

The accountancy of the hospital uses the services of a group of specialists in order to make calculations, or use old computers and the software. In the year 2003, 3 computers were purchased for the accountancy and the pharmacy.

In order to create a functional network the hospital needs other **50 computers**.

V. Dermatological and Venereal Diseases National Hospital

Dermatological and Venereal Diseases National Hospital provides medical assistance through consulting, diagnosis and in-patient treatment of patients. Within the hospital activates a department of the Nicolae Testimiteanu State University of Medicine and Pharmacy.

The hospital capacity is 170 places, including 50 places for children and 35 – for AIDS patients.

The hospital represents the republican centre of diagnosis of venereal diseases.

The staff of the hospital includes 28 doctors and 46 medical assistants. It provides trainings for medical students, residents and doctors.

Basic figures (11 months of the year 2003)

41 000 patients were consulted and 2700 were treated in the hospital, 1088 x-rays investigations and 137,359 analyses were performed in the hospital labs.

The hospital was financed by the State Budget in the amount of 2.358 millions MDL lei and from extra budgetary funds in the amount of 0.9 million MDL lei.

ICT situation

At the moment the Hospital has only 4 computers, out of which only one is connected to the Internet.

In order to create a functional network the hospital needs additionally **35 computers.**

VI. Chisinau Emergency Hospital

The Chisinau Emergency Hospital has a capacity of 609 in—patient places, specialized especially in surgeries and traumatism.

Seven departments of the Nicolae Testimiteanu University of Medicine and Pharmacy are represented in the hospital. The hospital provides emergency assistance to people from Chisinau and suburbs. Medical staff is composed of 467 doctors and 849 medical assistants. The hospital provides trainings for medical students, residents and doctors.

Basic figures (year 2003)

During the year 2003, 179,327 calls for emergency medical assistance were received, 24,166 patients were treated in the hospital, staying on average 8 days.

The hospital is financed by the Budget of the Town Hall of Chisinau and from extra budgetary funds. In the year 2003 the expenses amounted to 72.723 millions MDL lei, out of which 66.191 millions MDL lei out of Town Hall Budget and 6.532 millions MDL lei out of extra budgetary funds.

ICT situation

At the moment the Hospital has 105 computers connected in a network. The service of Emergency Medical Assistance and of the medical statistics is computerized. The hospital itself is in a more difficult situation. Only data storing is automatic. 56 computers have access to Internet.

Taking into account the importance of the hospital and the great number of calls received, the hospital needs other **75 computers** in order to provide adequate medical assistance.

VII. Psychiatric Hospital

The Psychiatric Hospital was established in 1895. Since its foundation the hospital provides in—patient and out—patient psychiatric assistance to all the citizens of the country.

The hospital has a capacity of 1400 places. 4 day—case treatment departments have 50 beds each. The clinic has 27 treatment departments and 9 Para clinical sub—departments. There is also human resource department, accountancy, archive, information and statistics department.

The hospital provides psychiatric consulting to citizens from all other the country. 90, 000 people use the services of the consultancy department.

There are 145 doctors in the medical staff of the hospital. Two departments of the Nicolae Testimiteanu University of Medicine and Pharmacy activate within the hospital.

Basic figures (year 2003)

During the year 2003, 11, 000 patients were treated in the hospital and over 100, 000 were consulted. About 11, 000 diagnosis investigations and 400, 000 lab analyses were performed.

ICT situation

At the moment the Hospital has 5 computers connected in a network.

In order to create a functional network the hospital needs other **55 computers**.

VIII. Causeni Regional Hospital

Causeni Regional Hospital comprises:

- Primary Health Care composed of 15 Health Centres and 13 Family Doctors offices offering medical help to 91,187 inhabitants out of which 68, 289 live in rural communities;
- Consulting Department composed of 23 doctors, specialized in 17 fields of medicine;
- In—patient care unit for 420 beds composed of 22 departments.

The number of employees on 01.01.2004 equals 1007, out of which 627 are medical staff, including 115 doctors.

Basic Figures (year 2003)

During the 2003 year, 11,789 patients were treated in the hospital (including 877 births).

The average stay of the patient in the hospital is 9.6 days.

The bed rotation equals 24.7; average length of bed use is 240.

Surgery operations were performed on 2468 patients, including 554 operations on abdomen area and 65 Caesareans.

Total number of visits per year – 231, 570.

ICT situation

At the moment the hospital has only 6 old computers; none of them could execute the functions of a server. Taking this into account the hospital cannot implement the Automatic Informational System of Compulsory Health Insurance. There is just one computer connected to the Internet through a modem and dial up.

In order to create a functional network the institute needs other **60 computers**.

General Project Objectives

Providing 565 computers to eight medical institutions and training the medical staff to use them would allow to:

- Prepare medical institutions and the staff for a unified Informational System and Compulsory Medical Insurance;
- Provide access to the Internet and gain access to electronic mail (for communication with medical institutions from the country and from abroad); access to specialized materials; consult patients; create a database of patients;
- Launch a project regarding data storage of patients consulted and treated; storage of lab analyses and other documents regarding specialists' investigations, as well as of the archives and medicines from pharmacies attached to the hospitals;
- Use computers in the hospital labs for the diagnosis establishment and store the information in a database.

Objectives for the Mother and Child Health Protection Institute

1. Provide the hospital with **120 computers** for the Clinic, in—patient care departments, therapeutic departments, surgery, medical statistics, etc.
2. Connect the computers in a local network.
3. Adjust the existing software for patients' data registration, processing and storing, including the costs of services provided and report preparation for the Insurance Company.
4. Train the medical staff to work with the informational system.

Objectives for the Institute of Oncology

1. Provide the hospital with **135 computers** for the Clinic, in—patient care departments, surgery department, medical statistics, chemotherapy, etc.
2. Connect the computers in a local network of oncology services in the Republic of Moldova.
3. Adjust the existing software for patients' data registration, processing and storing, including the costs of services provided and report preparation for the Insurance Company.
4. Train the medical staff to work with the informational system.

Objectives for the Infectious Diseases Hospital “Toma Ciorba”

1. Provide the hospital with **35 computers** for the in—patient care departments, ICU, medical statistics, human resource, etc. as well as for the republican centres.
2. Connect the computers in a local network.
3. Adjust the existing software for patients’ data registration, processing and storing, including the costs of services provided and report preparation for the Insurance Company.
4. Train the medical staff to work with the informational system.

Objectives for the Neurology and Neurosurgery Centre

1. Create a unified informational system “Patient”, which would allow registering, process and storing data about all the patients treated at the hospital. Provide the Centre with **50 computers**.
2. Adjust the existing software for patients’ data registration, processing and storing, including the costs of services provided and report preparation for the Insurance Company.
3. Train the medical staff to work with the informational system.

Objectives for the Dermatological and Venereal Diseases National Hospital

1. Provide the hospital departments and the labs with **35 computers**.
2. Connect the computers in a local network.
3. Adjust the existing software for patients’ data registration, processing and storing, including the costs of services provided and report preparation for the Insurance Company.
4. Train the medical staff to work with the informational system.

Objectives for the Chisinau Emergency Hospital

1. Provide the hospital with **75 computers**, which would allow the extension of the internal informational system.
2. Computerize patients care and the treatment prescribed.
3. Adjust the existing software for patients’ data registration, processing and storing, including the costs of services provided and report preparation for the Insurance Company.
4. Train the medical staff to work with the informational system.

Objectives for the Psychiatric Hospital

1. Provide the hospital with **55 computers**.
2. Connect the computers in a local network.

3. Adjust the existing software for patients' data registration, processing and storing, including the costs of services provided and report preparation for the Insurance Company.
4. Train the medical staff to work with the informational system.

Objectives for the Regional Hospital Causeni

1. Provide the hospital with **60 computers** starting with the consulting department, in—patient care, therapeutic department, surgery, maternity, medical statistics, Health Centres and Family Doctors Offices.
2. Connect the computers in a local network.
3. Adjust the existing software for patients' data registration, processing and storing, including the costs of services provided and report preparation for the Insurance Company.
4. Train the medical staff to work with the informational system.

Implementing the Project

Financial support

1. For pt. 1 of the Objectives:
 - Obtaining **565 computers** and their shipment to the Republic of Moldova – from humanitarian aid offered by charity companies or foreign commercial companies through Compudava Foundation;
 - Clear Moldovan customs when the computers arrive – from Compudava SRL funds;
 - Test and repair, if necessary, the computers – from Compudava SRL funds.
2. For pt. 2 of the Objectives:
 - Provide network auxiliary items for the hospitals, including outlets, connectors, cable, patch panels – from the beneficiary funds;
 - Installation and cabling – from the beneficiary funds.
3. For pt. 3 of the Objectives – from the funds offered by the Ministry of Health and from extra budgetary funds of the beneficiary.
4. For pt. 4 of the Objectives – from budgetary funds of the beneficiary.

The project will continue throughout the year 2004.

Stage one

Computers are shipped from Great Britain – March – April, 2004.

Stage two

Computers clear Moldovan customs – March – April, 2004.

Stage three

Computers are tested & refurbished if necessary. Computers broken during the shipment are repaired – April – May, 2004.

Stage four

Computers are delivered to hospitals and the networks created — May – August, 2004.

Stage five

Project evaluation determined by the computers efficiency in the daily activity of the hospital and the goals attained (see the Chapter General Project Objectives). August – September, 2004.