

Medical Relief Foundation (MRF) was asked by Modesto Sister Cities International to travel to Ukraine to the city of Khmel'nitskiy in order to evaluate the current state of the healthcare system.

Objectives were to perform an on-site evaluation of the healthcare system, including hospitals, clinics and the ambulance service. Also to be recorded was the physical condition of the facilities, equipment at hand and the level of training that healthcare providers are receiving.

The main goal of the trip was to compile a list of immediately needed supplies and equipment. Also, future partnerships between specific divisions or hospitals and MRF were to be evaluated as well as opportunities for medical exchanges.

All findings are to be reviewed by the Board of MRF as well as Modesto Sister Cities International.

MRF should evaluate the following methods of aid for the Khmel'nitskiy Healthcare System in this order:

1. Equipment and instrument supply (SEE: FOCUS NEEDS).
2. Educational exchange opportunities (SEE: FOCUS EXCHANGES).
3. Department or program development (SEE: FOCUS PROJECT).

Overall, the state of the healthcare system is like that of other post-Soviet healthcare systems MRF has worked with. In general, the physical plant is starting to show serious signs of deterioration. Funding has been reduced, and reduced again. Equipment and instrument shortages are pronounced, however the actual supply of medicines seems to be adequate.

Like elsewhere in the post-Soviet Union healthcare field, the dedication of the individuals working in the industry is simply amazing. They are being asked to work in extreme circumstances with very little in the way of resources. The overall impression was that if aid were administered properly, it would benefit a tremendous number of people. Once equipment makes it into the hospitals and is being used on patients the probability of misuse or disappearance seems to be low.

Khmel'nitskiy has the added problems of serving a large number of patients that have been effected by the Chernobyl catastrophe.

Notes:

- It was almost without exception that the directors of the hospitals and clinics felt that the first issue to be addressed should be the equipping and upgrading of the laboratory services.
- The interpreting was very good. However, at some points there was not a medically trained interpreter available.

Khmelnitskiy Central Hospital

This is the largest hospital in the city.

Beds: 700
Service area: City and some of the Oblast (approx. 1.5 million people)
Departments: 17
Physical plant: Consists of four buildings, circa 1956 (newest building 1971).
Patient charges: All care is provided free of charge.

Current Director: Began career as a paramedic. Joined the Soviet Army and followed up with medical school in Vinita. At age 21 became the head of a local polyclinic. Was later appointed head of the Regional Hospital (300 beds). 2001 became head of the Khmelnitskiy Central Hospital.

This hospital appears to be very well administered. The current director states that the hospitals budget has remained static for the past three years, yet there have been some remarkable improvements both for the patients and staff at the facility.

Several wings of the hospital have gone through extensive remodeling. The departments on these floors are clean and well lit and appear to be of good quality. Over sixty percent of the remodeling has been completed because of the generosity of local businessmen, sponsors and philanthropists.

As individual departments are remodeled, the director places newer and more modern equipment in those departments. He claims his conscience does not permit him to put modern equipment in 19th century rooms.

All of the staff is required to wear clean clothing that is appropriate to their department and in good repair. All patients and staff are served the same food from the cafeteria, from hospital director on down.

Departments:

LABORATORY

The Director feels that this is the most critical area that needs improvement

- The lab serves all of the polyclinics in the city as well as several of the other hospitals.
- Offers biochemical analysis
- Immunology and antibodies offers 60 different types of analysis

-Focus Needs / Laboratory-

1. Biochemical analyzer (1)
2. Lipid fractions (4)
3. Water-ionic exchange analyzer (1)
4. Hematology centrifuge (3 or more)
5. High precision dose dispenser for biochemical and immunology
6. Immuoformator (1)
7. Colography (?)
8. Microscopes – binocular (3)
9. Refrigerator
10. Glucose analyzers

URGENT CARE

Not assessed

CORONARY CARE

- All patients needing open heart surgery go to Kiev or Odessa.
- The Oblast Hospital has angiography, but no cardiac beds.

NEUROLOGY

- Currently offers no surgery.
- Has cerebral vascular care (50 beds).
- Care and rehabilitation of periphery nervous system
- Pain management

GENERAL SURGERY

- Abdominal surgery available.
- No chest or thoracic surgery offered.
- 10 beds dedicated for surgical care
- No EKGs

-Focus Needs / General Surgery-

1. Anesthesia machine
2. Surgical tables (5)
3. Suction devices (10)
4. Air conditioners (7)
5. Cauterizer / Surgical laser (1)
6. Autoclave

INTENSIVE CARE UNIT

Offers six beds with one EKG

-Focus needs / Intensive Care Unit-

1. EKG / Monitors (6)
2. Auto BP cuffs (10)
3. Suction devices (6)
4. EKG/Defibrillator for crash cart.
5. IV infusion pumps (20)

TRAUMA DEPARTMENT

- Trauma care (60 beds).
- Care offered for acute trauma.
- Care offered for orthopedic trauma.
- Joint replacement offered.
- Integrated admission process from ambulance to surgery via the Emergency Department (MD evaluation). ED offers x-ray and ultrasound services.

SMALL INVASIVE SURGERY WARD

- Provides for laparoscopy, endoscopy, abdominal, OB/gyn, urology, EENT and orthroscopy.
- Performs approximately 100 surgeries a month.

-Focus needs / Small Invasive Surgery Ward-

1. Insuflateor (Carbon Dioxide)
2. 10mm telescope for 30 degrees
3. Surgical video system (Stryker is one brand that they have had in the past).
4. EKG (3)
5. Anesthesia machine
6. Laparoscopy kits (multiple)
7. Twin video system
8. Laryngoscopes – adult (2 full sets)
9. Laryngascope – pediatric (one full set)

SMALL INVASIVE SURGERY DEPARTMENT:

- Provides diagonostics, pre- and post-op for the surgery ward.

-Focus needs / Small Invasive Surgery Department-

1. Digital BP cuff for triage (1)
2. Bronchoscope (2) with wide biopsy 2.8 biopsy canal and biopsy clips.
3. Endoscopes – two channel
4. Laser for endoscopy

FOCUS PROJECT:

-Focus Project for Spinal Surgery-

1. Director would like to create a department of spinal surgery.
2. This department would be a division of the Department of Traumatology
3. The hospital has a separate surgical room specifically for this purpose. There is a post-surgical step down room. The hospital has a diesel back-up generator specifically for the ICU and surgical ward).
4. Three specialists are currently in training.
5. Equipment needs:
 - Portable x-ray
 - Surgical spinal table
 - Anesthesia machine
 - Instrument cleaner
 - Three EKGs for the post-surgical beds

Infection Diseases Hospital

As the name suggests, this hospital deals with patients with infectious diseases.

Beds: 150

Service area: City

Departments:

Physical plant: Oldest hospital in the city (97 years old).

Patient charges: All urgent care is provided free of charge. All other care is provided free of charge for the first three days.

Current Director: Oksana Podubnaya (only female director of an area hospital).

The top diseases treated are HIV/AIDS, tuberculosis, gastrological infections, meningitis (viral and bacterial), diphtheria and hepatitis (B and C).

There are separate ICUs for adults and pediatrics.

This hospital appears to be extremely under funded. Physical plant shows signs of deterioration. There are several brightly colored murals that run the entire length of the children's department as well as some newer paint in some of the rooms. All of this painting was done by the physicians with paint they purchased themselves.

LABORATORY

The Director feels that this is the most critical area that needs improvement

- Because the laboratory is so under equipped at this time, all patients needing lab work done must be sent to the Oblast Hospital or to Kiev.
- All testing for Hepatitis B and C must be done in Kiev.

-Focus Needs / Laboratory-

1. Blood gas analyzer (1 - PRIORITY)
2. Electrolyte analyzer / Blood testing machine (1)
3. Hematology centrifuge (2)
4. Immuoformator (1)
5. Blood cell counter (red and white).

INTENSIVE CARE UNIT

- Two separate units: Adult (3 beds) and pediatric (3 beds).

-Focus Needs / Intensive Care Unit-

1. Ventalators with compressors (6)
2. Portable x-ray machine
3. EKG monitors with temperature, pulse, BP capability (4)
4. Suction (4)
5. Laryngoscope with full set of blades (1)
6. Pediatric beds for age > 1 year old (6)
7. Broscopes – size 0 to 5 for children
8. Surgical gowns
9. Portable IV stands (50)
10. Autoclave
11. Water distiller
12. Operation table

Oblast Hospital

This hospital, like all others, has a severe lack of funding. Patients unable to receive proper burn care suffer in several ways. Burns can be disfiguring and affect a persons ability to continue working, they can also impede the patient from completing daily personal tasks. Rehabilitation is extremely important in a society that does not have the resources make public places accessible for the disabled.

Beds: Burn unit has 30 beds, 6 of them ICU
Service area: City and Oblast (approx. 1.5 million people).
Departments: Burn Department, others unknown
Physical plant: Constructed 1966
Patient charges: Unknown

Current Director:

BURN, RECONSTRUCTIVE AND SURGICAL PLASTICS

- Reconstructive surgery for trauma and frostbite victims
- Director of the department was instrumental in its founding. Unfortunately, due to budget restrictions, he has been unable to provide much in the way of equipment or further education for himself or his surgeons.

-Focus Needs / Burn Department-

1. Dermathom (surgical knife with all blades).
2. Hanby knife.
3. Escharotomy machine
4. Bed with motion airbags for wound recovery (Clinitron).
5. Surgical table
6. EKGs (3)

City Polyclinic Number Four

Provides much of the preventative care and non-emergent health care in the city. Physicals and diagnostics are performed here. The polyclinic also offers rehabilitation services for many ailments.

Patients / year: 410,000
Service area: City
Physical plant:
Patient charges:

Current Director:

LABORATORY:

- Serves Polyclinic Number Four as well as several other clinics.

-Focus Needs / Laboratory-

1. Bio-chemical analyzer
2. Immuno-analyzer for HIV/AIDS
3. Analytical analyzer for blood
4. Electronic microscope (3)
5. Blood glucose analyzer
6. Urine analyzer

DIAGNOSTICS DEPARTMENT:

- Primarily evaluates the state of internal organs

-Focus Needs / Laboratory-

1. Ultrasound

OPTOMETRY:

- Provides diagnoses for glaucoma and other ocular-related care.

-Focus Needs / Optometry-

1. Machine to check retinal pressure
2. Refractometer
3. Diaptometer
4. Foreopter

UROLOGY:

- Offers non-invasive diagnosis of urology related problems.
- Biggest problems seen include kidney stones and prostate cancer.

Children's City Hospital

This hospital has received previous aid from MRF. The hospital also has within its physical and operational structure a polyclinic with two branches. Many children in the region are suffering from the aftereffects of the Chernobyl disaster and the majority of those needing treatment receive it at this facility.

The hospital also produces all the children's formula for all the other hospitals in the city. The hospital also has a bread making machine that is capable of producing 1000 loaves every 24 hours. The bread making machine formally belonged to the U.S. Army.

Beds: 380 (hospital is designed for 200)
Service area: City and Oblast
Physical plant: Founded 1949
Patient charges: Unknown

Current Director: Ivan Gutsul

- The hospital has 11,000 in-patients a year, 5,000 of whom receive some sort of surgical procedure.
- The polyclinic services have over 500,000 service visits per year.

The top four departments that dominate the hospitals services are:

1. Surgical (60 beds)
2. Trauma (60 beds)
3. Ear, eyes, nose and throat (40 beds)
4. Intensive care unit (neonate, toddler and child)

LABORATORY:

- Director states that the laboratory is functioning at a "satisfactory" level at this time. However, the following items would be of great help:
 1. Blood gas analyzer (PRIORITY)
 2. Biochemical analyzer
 3. Immunofermentor
 4. Clinical analyzer (electrolytes/hemoglobin).

NEONATAL INTENSIVE CARE UNITS:

- This department serves both the city and oblast.

-Focus Needs / Neonatal-

1. Ventilators, with or without compressors (6 – PRIORITY).
2. Isolettes (15)
3. Disposable feeding tubes (many)
4. IV infusion pumps (5)
5. Medication pumps (6)

PEDIATRIC INTENSIVE CARE UNIT:

- This department serves children from 1 month old to 16 years old.

-Focus Needs / pediatric Intensive Care Unit-

1. Anesthesia machine
2. Incubators/Isolettes (4)
3. Suction devices
4. Medication pumps (6)

FOCUS EXCHANGE:

-Focus Exchange for Neonatal and Pediatric Intensive Care

1. There are several physicians working at this hospital that would benefit tremendously from an educational exchange with the United States.
2. A combination of equipment, instruments and education would reduce the morbidity and mortality in this department.
3. Several physicians are working very hard to learn the English language expressly for the purpose of coming to the United States to learn from our healthcare system. There is a great benefit to bringing them here prior to their mastery of the language and providing an interpreter for the duration of their stay.
4. Children's Hospital Oakland and Valley Children's Hospital in Fresno would offer great learning sites.
5. MRF could arrange medical agendas if Modesto Sister Cities International could provide travel logistics, housing and interpreters.

Birthing Center / Maternity Hospital

As the name suggests, many of the regions babies are born in this hospital. Each year approximately 3700 babies were born here. Nearly 19% of all births are by caesarian section.

Beds: 285
Service area: Oblast
Physical plant:
Patient charges: Unknown

Current Director:

The actual birthing center within this hospital is inadequately equipped for modern childbirth. The delivery room itself had six tables in a small room. The only adjustable portion of the table was the back rest that raised up. These tables that women give birth on every day were made of metal and covered with a one-inch thick mattress. Many of the tables were showing serious signs of rust.

For several reasons, cultural and logistical, fathers are not present for the birth of their children. Perhaps in the future a Focus Project could be developed to change this practice.

As observed in the Children's Hospital, many of the babies born in the region are suffering from the effects of Chernobyl. The hospital participates in a USAID funded program titled: Birth Defects Surveillance and Prevention in Ukraine. The program was conceived and implemented by a prominent U.S. physician named Dr. Wladimir Wertelecki. The goal of the project is to help Ukraine identify birth defects issues, and target programs in terms of specific diseases and affected populations to prevent and/or otherwise respond to birth defects.

LABORATORY

- Provides laboratory services for the entire hospital.

-Focus Needs / Laboratory-

1. Glucose analyzer.
2. Sodium analyzer.
3. Clinical blood analyzer.
4. Centerfuge
5. Acid / base laboratory equipment
6. Electronic microscope (3).
7. Photo-electric colorimeter.
8. Centerfuge for cryoplasma / blood components.
9. Low temperature refrigerator <40 degrees centigrade (1 x large)

Immunization Laboratory (separate department):

10. Centerfuge (1 – PRIORITY)
11. Microscope / Bi-focal electronic (2)

DIAGNOSTICS DEPARTMENT:

- This department is finding it difficult to accurately diagnose in-utero problems with echo.

-Focus Needs / Diagnostics Department-

1. Doppler / Echo
2. EKG (4)
3. Fetal monitors (15)

POST-PARTUM DEPARTMENT:

- This focus list specifically addresses the post-caesarian section care needed.

-Focus Needs / Post-partum-

1. Beds (10)
2. EKG monitors (5)
3. All peripherals, IV stands, mayo tables (10)

GENETICS LABORATORY:

- Genetics related laboratory work. Once again, this is of particular importance secondary to the effects of Chernobyl.

-Focus Needs / Genetics Laboratory-

1. Microscope / Bi-focal electronic (2)
2. Axio-photo scope.
3. PCR – DNA Diagnostics machine.

NEONATAL INTENSIVE CARE UNIT:

- Equipping this unit seems of top importance. Several of the below listed items could make a large impact on morbidity and mortality.

-Focus Needs / NICU-

1. Ventilator – no compressor o.k. (2)
2. Resuscitation / warming tables (5)
3. Automatic BP cuff (2)
4. EKG monitors (2)

DELIVERY ROOMS

- As noted above, there are some serious equipment deficiencies in this area.

-Focus Needs / Delivery Rooms-

1. Delivery beds (6)
2. Intubation sets – all blades, all sizes (3)
3. All standard delivery room equipment

SURGICAL CENTER

- Provides surgical services, most notably caesarean sections.

-Focus Needs / Surgical Center-

1. Operation tables (5)
2. Anesthesia machine
3. EKG/Defibrillator (2)
4. Intubation sets – all blades, all sizes (3)

Khmelnitskiy Ambulance Service

The Khmelnitskiy Ambulance Service (KAS) serves the city of Khmelnitskiy. It responds to all Emergency Medical Service (EMS) needs within the city limits, and also responds to traffic accidents outside the city limits. The service responds to approximately 90,000 emergencies a year. The average response time is 15 minutes.

- There is one central station that houses most of the crews, the dispatch center and the pharmacy.
- There are four sub-stations.
- Five different types of ambulances can respond to an emergency (cardiac, ICU, pediatric, psychiatric, OB/gyn)
- Of the 22 ambulances that the service owns five of them are not running.
- 15 of the ambulances are equipped with defibrillators, however the crews do not have Advanced Cardiac Life Support (ACLS) training training with the defibrillators and the units themselves are dated and of poor quality.
- An ambulance crew is usually composed of one physician, one paramedic and one driver (CPR trained).
- The director stated that there is a severe lack of funding for both equipment and training.
- Intubation is exceptionally rare, even in cardiac arrest or respiratory failure patients.
- The dispatch center is very modern and well run. The computers are updated and have fairly good data-tracking software.
- The top three improvements that the director would like to make are:

1. More ambulances
2. Create a training center
3. Equipment for the ambulances

-Focus Needs / Khmelniyskiy Ambulance Service-

1. Ambulances (5)
2. EKG/Defibrillators (12)
3. Intubation sets (12)
4. Portable suction units (12)
5. Backboards (24)
6. Ambulance gurneys (15)
7. Training equipment (mannequins, etc).

FOCUS PROJECT:

-Focus Project for creating an Advance Cardiac Life Support training center-

- This project would mirror in scope the successful creation of an ACLS training center in Vladivostok, Russia. It would be coupled with equipment and system improvements in order to increase the survival statistics of sudden cardiac arrest victims within the city limits.
 1. Work with health department on permissions. Expose chief physicians to the theory of ACLS. Possible site visit by Vladivostok Ambulance managers.
 2. Gather firm statistics, set goals and objectives and set benchmarks. This would be a joint partnership between MRF, KAS and the Vladivostok Ambulance Service.
 3. Have future KAS ACLS instructors travel to Vladivostok to visit the training center, take the provider course, take the instructor course and become familiar with the management and operations of the training center.
 4. Prepare KAS ACLS training center. Receive mannequins, set up classrooms and laboratories. Translate materials in Ukrainian.
 5. Begin training. Equip ambulances with new EKG/defibrillators and other instruments.
 6. Deploy trained crews.
 7. Implement other operational changes (deployment patterns, dispatch protocols, etc.).
 8. Confirm benchmarks are being met. Analyze statistics and issue report.
 9. Conference on findings.