

Reaching Beyond National Borders: Staff and Students of Kiev EMSTC Bring Life-Saving Care to People in Need

BY KATHRYN UTAN

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Photos: Anatoly Iysenko.



Left—Trauma surgeon Yaroslav Kukuruz and anesthesiologist Fedor Gaychuk perform surgery along with their Indian colleagues at the mobile hospital unit. Middle—Nurse Viktoriya Derkach cleans a small patient's wounded hand as the girl's mother and sister wait. Right—Dr. Georgiy Roschin examines a young boy at the mobile hospital in India.

It is an unfortunate reality that it often takes a tragedy of horrific proportions to underscore the vital importance of a finely-tuned emergency response system. It is another, that devastating natural and man-made disasters occur globally every day. To address this problem in Central and Eastern Europe and Eurasia, AIHA and its partners have worked to improve the quality and scope of emergency and disaster medicine services available throughout the region by establishing a network of 16 Emergency Medical Services Training Centers (EMSTCs). Over the course of the past decade, these Centers have provided practical, skills-based training to more than 35,000 healthcare providers, first-responders, students, and other professionals.

Like all AIHA partnership training centers, the Kiev EMSTC—established in 1995 by AIHA's Kiev/Brooklyn partners at the Ukrainian Scientific and Practical Center of Disaster Medicine (USPCDM)—was founded on the spirit of international cooperation. The fact that this spirit is still alive and well is borne out by the critical role the Center's staff and students have played not only by responding to countless emergencies throughout Ukraine, but also in rescue efforts following wide-scale international disasters such as the earthquakes that ravaged Turkey in 1999 and India in 2001.

The "Front Line" of Medical Care

Providing urgent care can be difficult in the best of circumstances, but staff of

Ukraine's Mobile Hospital Unit are called upon to perform their life-saving work under the worst conditions. Funded jointly by the Ministry of Health and the Ministry for Emergency Situations (MES), the Unit is a self-contained emergency care center complete with everything necessary to treat mass casualties, from generators and surgical equipment to pharmaceuticals and bandages. According to Pyotr B. Volyansky, head of the medical department at the MES, "The staff of the Mobile Hospital Unit is divided into two teams: one comprised of logistical support specialists from the MES who keep the hospital's infrastructure in a state of constant readiness and assist with its field operations; another made up of physicians and nurses from USPCDM and other EMS hospitals in Kiev."

These clinicians form the core of the medical staff and—like the paramedics, search and recovery personnel, and ambulance drivers who work in the Unit—have all achieved the highest level of professional skills, as well as meeting exacting standards regarding their own

line” of all medical professions, Georgy Roschin explains, because people will die if care is either incorrect or unavailable. As director of the USPCDM and member of the Mobile Hospital Unit, as well as a trained surgeon, he should know. That’s why emergency response teams with the

“India suffered the most powerful quake in 50 years that day; it registered 7.9 on the modified Mercalli scale, according to the US Geological Survey, and killed as many as 20,000 people,” Volyansky explains, noting that 50,000 more were injured and nearly a quarter of a



Svetlana Genza applies a plaster cast to a young woman's arm.

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physical, mental, and emotional health. “Every member of the Mobile Hospital Unit is extremely skilled at what he or she does. Each person has considerable experience responding to emergency and disaster situations,” Volyansky states, noting that even non-medical staff are required to be knowledgeable about first aid and other life-saving techniques so that they can offer assistance whenever needed. “Virtually every member of the Unit—including the rescue and recovery workers and the emergency medical professionals—has had some type of hands-on training at the Kiev EMSTC. The practical, skills-based courses there most definitely improve the staff’s knowledge, confidence, and ability to perform well under tremendous stress.”

Emergency medicine is the true “front

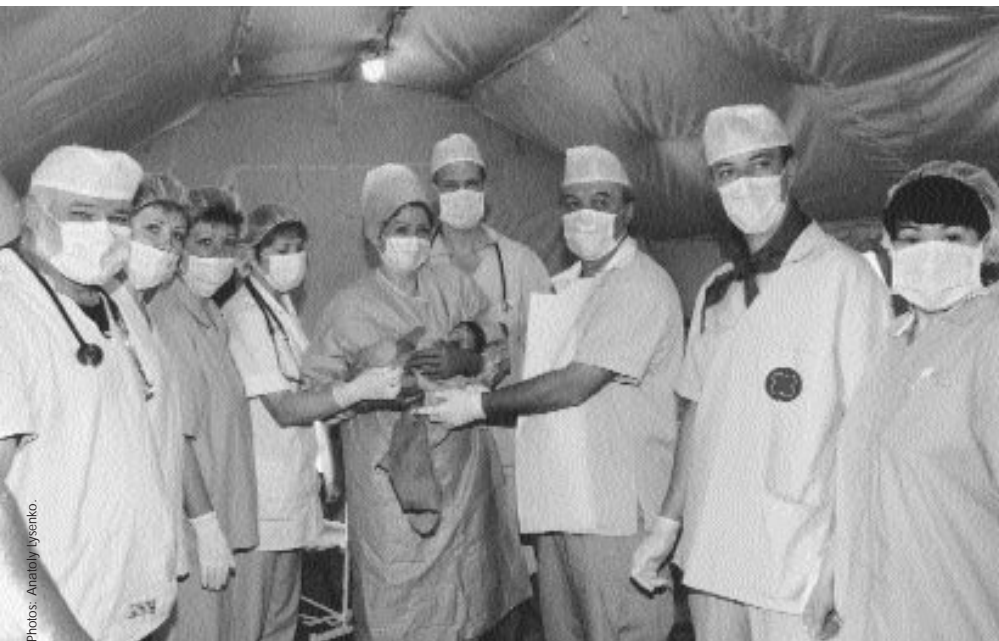
capability to deploy aid to the site of mass-casualty situations are so critical, he says.

When Seconds Can Mean the Difference between Life and Death

“We like to call the first hour after a patient sustains an injury the ‘Golden Hour’ because, in most cases, the greater the span of time between the trauma and medical care, the higher the probability of a lethal outcome,” admits Roschin, who was part of the response team that traveled to both Turkey and India. For this reason, when the Mobile Hospital Unit is deployed, the team sets up operations in the area with the greatest population and need for critical care. Following the earthquake in India on January 20, 2001, that area was the city of Bhachau in the state of Gujarat.

million were left homeless. “In Bhachau, one quarter of the city’s 40,000 people died and another 20,000 were wounded. What made the situation even worse was the fact that the entire healthcare infrastructure was completely destroyed and more than 70 percent of the area’s medical personnel were killed,” he says. Because most other towns within a 300-kilometer radius were in a similar state of destruction, the Ukrainian Mobile Hospital Unit became one of the few facilities capable of providing care to the people of Bhachau and its environs.

“The team arrived on the fourth day following the earthquake with roughly 24 tons of medical supplies—enough to last 30 days. Because of massive damage to the roads, it took our convoy of one ambulance, four trucks, and two busses about



As these pictures illustrate, even an earthquake cannot stop the cycle of life. Left—Staff of the pediatrics and surgery departments welcome a newborn into the world. Right—Nurse Olga Audriyenko and Pediatrics Department Chief Irina Alexivskaya monitor infants at the mobile hospital unit.

12 hours to travel the 350 kilometers from Gujarat's capital, Akhmadabad, to Bhachau," he states, pointing out that the triaging department was up and running within one hour of their arrival.

Explaining that the first 24 hours after they arrive at a site are the most difficult, Roschin says, "It usually takes that long to assess the situation and take care of the logistical requirements for operating a facility capable of meeting basically all of the healthcare needs of the local population, from providing critical care and surgeries to delivering babies and offering as much emotional and psychological support to the victims as possible." By the day after their arrival, the team of 50 specialists was treating some 400 patients daily in both in- and out-patient settings.

Describing the scenes he witnessed in India—and two years earlier at the site of the earthquake in Korfez, Turkey—as the kind of total destruction one would see in an apocalyptic movie, USPCDM anesthesiologist Victor Padalka states, "Before we arrived in Bhachau, the Indian government had sent some military

medical personnel to the areas affected by the quake, but they weren't physicians. They also weren't equipped to handle such a mass-casualty situation, so we soon came to be recognized as the primary clinical care facility for the region." That meant that the team provided not only emergent care, but also general primary care and follow-up services for people with chronic diseases and other ailments unrelated to the quake. "The mobile Hospital Unit operated 24-hours a day for nearly one month in both Turkey and India. When it was all over, we had provided care for about 5,500 patients in each place," he says.

Because of the sheer volume of people needing clinical services in the wake of wide-scale disasters such as these two earthquakes, nurses were not the only ones providing care. Rescue and recovery personnel attached to the Unit pitched in at the Hospital as well. For Ruslan Kuts, head of the rescue department of the MES's Central Paramilitary Emergency Response and Rescue Team, that meant performing first aid, setting bro-

ken limbs, applying post-operative bandages on patients, giving injections, and even assisting with delivering babies in Bhachau—something he says he never would have been able to do with any modicum of confidence had he not taken a course at the Kiev EMSTC. "By the time our team arrived in India, the rescue operations were basically completed, so we worked closely with the medical staff at the Mobile Hospital to provide care for the survivors," Kuts explains, noting that his efforts in the pediatric department earned him the nickname "mom."

Emotionally, the work of a rescue and recovery specialist is very draining. According to Kuts, the situation in India was especially so. "There was so much death and destruction . . . so many tears and cries of pain and despair. As my team of seven walked through the rubble, people would approach us begging us to find their loved ones and to pull them from the debris. Even if there had been a team of several thousand rescuers, that still wouldn't have been sufficient in this case," he says, declaring that his work with

> THE ROAD TO SAFETY FROM DOWN DEEP

By Vira Illiash / Program Coordinator, AIHA West NIS Regional Office in Kiev, Ukraine.

"It was Sunday, August 19, 2001, the day of the Orthodox holiday, "Feast of the Transfiguration." I was watching television alone when my wife Yevdokiya rushed in to say that there had been an explosion at the Zasiad'ko coal mine while our son was down there working his shift," explains Sergey Melnick, Sr. "I told her not to panic because the mine was big and we didn't know the exact location of the explosion," he continues, the memory of the day casting a shadow of pain over his face. Melnick's optimism proved unfounded; the couple's 29-year-old son Sergey, an electrical fitter at the coal mine, died along with 55 of his colleagues. Fifty more of Sergey's coworkers survived the explosion—most through the courage and perseverance of rescue workers, as well as the finely-tuned skills and quick action of the critical care professionals who responded to the disaster despite risks to their own safety.

Nearly 350 rescue workers and ambulance teams rushed to the site of the devastating methane explosion at Zasiad'ko, which is located on the outskirts of Donetsk, Ukraine. Every one of them had received some degree of training at the Donetsk Emergency Medical Services Training Center (EMSTC), established in 1997 through the efforts of AIHA's now-graduated Donetsk/Orlando partnership. Survivors of the blast were treated at the scene by eight physician/feldsher teams and delivered to area polyclinics such as the Donetsk Oblast Trauma Hospital, the NIS institution participating in the Donetsk/Orlando partnership, where five of the most seriously wounded victims were successfully treated.

THE "GOLDEN HOUR" RULE

Rescue teams are required to respond to an emergency within one minute of an alarm sounding, says Vladimir Tsvirko, deputy of a medical evacuation team

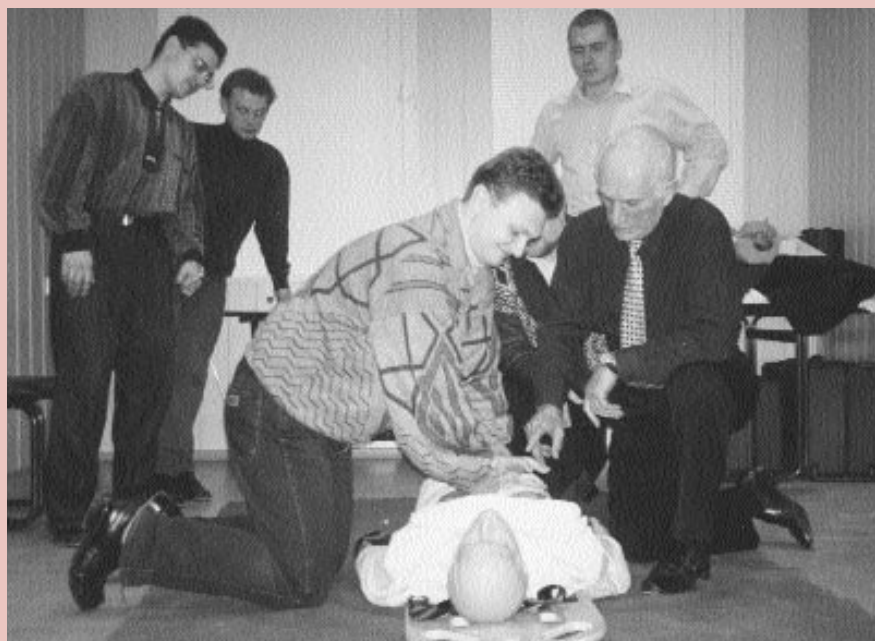


Photo: Vira Illiash.

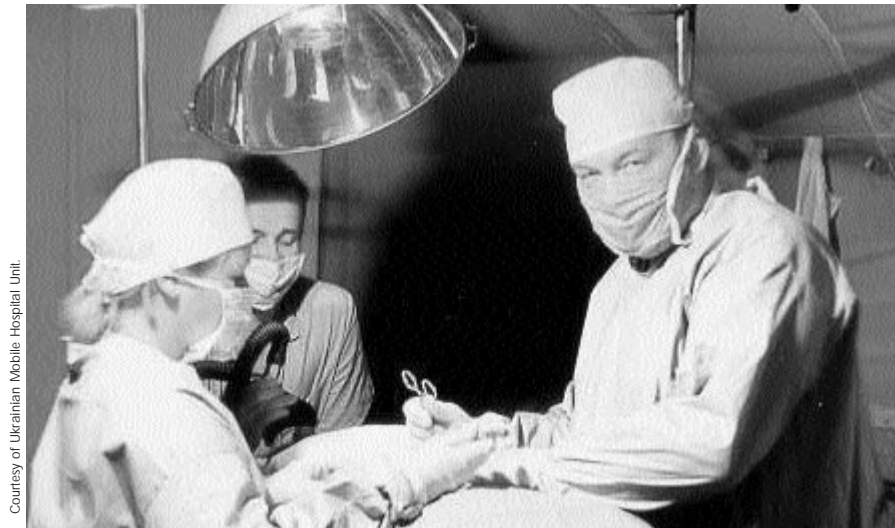
Dr. Savelyi Chirakh (kneeling on the right), director of the Donetsk EMSTC, teaches trauma resident Dmitriy Anenko proper CPR techniques.

that is part of Ukraine's Paramilitary Search and Rescue Service. "Everybody in the Service follows the 'golden hour' rule. This rule says that the provision of care within the first hour following an accident significantly improves the chance of saving lives. Consequently, prompt arrival at the scene is always our first priority." Tsvirko's unit has a unique history. It was the first physician team in the former Soviet Union designated to treat injured at the site of mining accidents. The original team—which celebrated its twentieth anniversary in April 2002—consisted of five surgeons and was so successful that, in its pilot year alone, a 30 percent decrease in accident-related mortality among coal miners was realized. Previously, many of the most seriously injured victims would die before reaching the hospital. As a result of this success, 24 similar teams were established throughout the NIS.

"It is simply a job for us," professes Tsvirko who, over the course of his career, has saved more than 500 lives and participated in the rescue efforts at the Zasiad'ko mine. "I never think about personal danger when I'm on a mission. My focus is to speedily find and save the victims. The most difficult

part is facing the mothers and wives . . . especially the mothers," he says. "It's hard for the wives to lose husbands and breadwinners, but it's totally unbearable for the mothers to lose their sons. You never want to be the last person coming up out of a mine knowing that there are no survivors left."

In addition to the emotional strength and power of will required for the job, the physical demands are high. Rescue workers normally carry more than 40 kilograms of gear specifically designed for underground search and recovery operations and often the only way to move around in a collapsed mine is on all fours—squatting, crawling, or inching forward while lying back-down on the ground. "Many of us are athletes. We're dedicated to keeping ourselves in good shape to better endure the significant physical—and specifically cardiac—stress," Tsvirko explains. "Naturally, not everybody is capable of keeping this rigorous physical routine up for a long time, but those who stay fit the longest usually also demonstrate a higher degree of responsibility and stronger personal morale," he continues. "It is not a high-paying job, but it is definitely a position that deserves respect—respect from colleagues and for



Courtesy of Ukrainian Mobile Hospital Unit.

Members of the Ukrainian Mobile Hospital Unit traveled to Korfez, Turkey, in the wake of an earthquake that occurred August 17, 1999. This quake, which registered 7.4 on the Richter scale, killed some 35,000 people and left hundreds of thousands homeless. During the 26 days the Mobile Hospital was in operation, staff treated approximately 5,500 patients.

the doctors and nurses at the Mobile Hospital helped ease the disappointment he felt at arriving too late to be of greater help with the rescue efforts. “I feel endlessly proud and happy that I was able to help these people who had suffered so much, and I thank God for the medical training I received at the Kiev EMSTC, which enabled me to do it.”

The clinical staff Kuts worked with are equally proud of and grateful for his assistance. “Rescue workers such as Ruslan, who were assigned to help out at the Hospital, have all taken training courses at the EMSTC in Kiev and, in my opinion, what they learned there enabled them to provide basic emergency care services that are comparable to what any of the clinical staff would have provided,” Padalka states. “I have worked in emergency medicine since 1985 and I benefited from the course I took at the Center. When you are responding to critical situations, there is no learning curve; you have to act instinctively and with split-second accuracy. The practical knowledge and skill-building lessons taught at the Training Center help the life-saving techniques to become second-nature.”

Saving Lives, Building Bridges

Whether they work as surgeons, nurses, or rescue and recovery personnel, emergency medical professionals are a special breed of people, Roschin acknowledges. “Every time the Mobile Hospital Unit is deployed to the scene of a disaster there is a flood of offers to help from other EMS professionals in Kiev, regardless of where the emergency is. Of course, as members of the Unit we feel the same way—we are willing to help people no matter what the circumstances; that is our mission.”

As far as Dr. Padalka is concerned, the team achieved that mission in India and in their other deployments. “When skilled healthcare professionals arrive at the site of a disaster to provide clinical care, their mission can never be considered unsuccessful just because the demand for medical services exceeds the supply,” he says. “Even in the midst of the massive destruction in Bhachau, people there would ask us how a country as small as Ukraine was able to help one as big as India. They were incredibly kind to us and grateful for our assistance. We were able to tell them a lot about Ukraine and we were also able to build many friendships that last to this day.” ■

one’s self. That is something that cannot be bought or sold for any price; the true reward for us is not money, it is the sense of accomplishment and the respect of the coal miners. And we always try to live up to what is expected of us.”

HANDS-ON TRAINING MAKES A CRITICAL DIFFERENCE

For disaster and emergency response efforts to be effective, team members must work together as one cohesive unit. Split-second decisions can mean the difference between life and death, so first-responders rely on their training to bring them—and their patients—through safely. The Search and Rescue Service has a special operations department where personnel are trained not only in rescue techniques, but in critical care as well.

Hands-on practical skills sessions are conducted at the Donetsk EMSTC, which operates at the Trauma Hospital, according to Mikhail Velichko, deputy chief of the Service. “Our training program addresses medical competencies at various levels of complexity and is geared to different types of rescue workers, ranging from medics to team leaders. The specialized equipment and anatomically correct mannequins available at the EMSTC provide the opportunity for trainees to effectively develop critical pre-hospital emergency care skills,” he explains. “I cannot stress enough how important this is for us.”

Noting that the specific nature of underground conditions in a mine requires individuals to develop both rescue and medical skills, Velichko says, “Rescuers and medical professionals work side-by-side as a team and are expected to be competent with both skill sets. Every rank and file rescue worker is capable of providing medical services on par with any US or European paramedic. Through training, our personnel become very accustomed to their medical roles, including immobilizing trauma victims, applying splints, controlling bleeding, and performing CPR.”

TRAUMA SPECIALISTS: THE NEXT LINE OF DEFENSE

When a disaster strikes, it is not just the



Photos: Vira Illiash.

Left—Staff at Donetsk City Hospital #25—a participating institution of the current Donetsk/Pittsburgh primary care partnership—offered 24-hour medical care and psychological counseling to survivors and to the families of those killed or injured in the explosion. Psychologists and mental health specialists were on hand to counsel victims and to help them cope with the tragedy. Yelena Chuprun (middle), head nurse of the Donetsk Trauma Hospital, and Vladimir Nechiporenko (right), a physician with the Paramilitary Search and Rescue Service, both received national awards for their work following last year's explosion at Zasiad'ko.

rescue and ambulance teams who spring into action. As soon as staff at the Trauma Hospital receive notification about an accident, Vladimir Klimovitsky, chief physician, summons a team of 12 different specialty care physicians who are on-site. As one of the facilities most likely to treat job-related injuries—especially from the mining industry—the hospital is in a constant state of alert. “As soon as the Ministry of Emergency Management notifies us about an accident and provides a casualty estimate, all 12 physicians come to my office for a briefing. We also notify members of our clinical staff who are not in the hospital at the moment, but whose role is essential for our emergency response efforts,” Klimovitsky explains. If, for example, the hospital expects 40 new trauma patients, staff bring a like number of rolling stretchers to the admissions area. Forty beds are prepared and 40 physicians, surgeons, and nurses gather downstairs to meet the injured miners as soon as they arrive. “Our hospital admitted eight coal miners in the wake of the August 19 accident. The majority presented with multiple trauma, femur fractures, carbon monoxide poisoning, and pressed skull fractures, and three of them had extreme life-threatening conditions. It took only a few minutes for the staff to triage patients, then each victim

was assigned to individual physicians and nurses who managed their care starting from the initial washing of the patient to post-op care, as well as x-ray, lab tests, and surgery,” he states.

Efficient management of individual care plans ensured that all eight injured coal miners underwent surgery within two to three hours after admission, Klimovitsky says. “This provided for their timely discharge and full recovery. In fact, none of these eight miners became permanently disabled thanks, in part, to the 43 health professionals involved in the treatment and rehabilitation of these—and many other—miners injured in the blast.” Four of the clinicians received government awards for courage; the rest had special commemorative gifts presented to them. In recognition of the disaster management skills they demonstrated during the disaster, 10 nurses and six physicians who provided critical care to the injured miners at the Trauma Hospital received national awards from Ukrainian President Leonid Kuchma. All of them had gone through critical care training at the Donetsk EMSTC, according to Klimovitsky.

THE TRUE REWARD IS SAVING LIVES

The Donetsk EMSTC is the hub of clinical training for the rescue crews, first-responders, and critical care providers in the re-

gion. Nearly 1,500 individuals have received training since the Center opened in 1997, according to Saveliy Chirakh, the facility's director and a surgeon at the Trauma Hospital. “Ambulance crews, family practitioners, mountain search and rescue teams, medical school students, and even high school students have taken part in our courses. It is gratifying to know that all of them utilize the skills acquired through our programs despite the lack of appropriate working conditions and very low supply of instruments and medications,” Saveliy acknowledges. Like Tsvirko, he too says he takes great satisfaction from his work. “The true reward is to see strong and healthy people who could have spent the rest of their lives in a wheelchair or—worse still—have lost their lives entirely if it weren't for my work, for what I did to help them. I think this is perhaps the greatest accomplishment of my life.”

While many people—especially those who have been helped by the rescue teams—consider the first-responders heroes, Vladimir Nechiporenko, a physician on the Paramilitary Search and Rescue Service advanced life support and shock treatment team who was awarded the Order of Courage for saving 14 people after the Zasiad'ko mine explosion, says modestly, “I am just like many other people on the team.” ■