EMS in the Soviet Union

The Granddaddy of Socialized Prehospital Care

by Jack Stout

In the spring of 1989, 17 physicians, paramedics, EMS administrators and hospital personnel from throughout the United States toured EMS operations and acute care receiving facilities in four Soviet cities. Our itinerary included Moscow, Tbilisi, Pyatigorsk and Leningrad. Verbally and visually, our hosts held nothing back. Glasnost is real.

We cleared customs at Moscow around midnight—four in the afternoon by my own confused biological clock. Before turning in, Bob Forbuss, president of Mercy Medical Services in Las Vegas, and I took a stroll down Arbat Street, a pedestrian boulevard near our hotel that runs east to Red Square, about two miles away. Walking the streets late at night in the heart of a city of more than 10 million people, we had no cause for concern. Moscow's streets are safe. Safe, but not empty.

Long after midnight on this and every other Sunday night since glasnost was introduced, thousands of people of all ages gather in groups along Arbat Street to discuss the political and economic restructuring of the Soviet society. The atmosphere is electric, unlike any other I've experienced. The Soviet people are acutely aware that they are experiencing one of the most important developments of this century. They are also aware that the outcome cannot be guaranteed.

During our evening stroll, Bob and I discussed perestroika with a number of Soviet citizens—the first of many such discussions our delegation would experience during our tour of EMS in the Soviet Union. The prevailing opinion:

Mr. Gorbachev is a good and capable man, and his objectives are noble. Perestroika is essential; the old ways never worked. But Gorbachev faces an enormous and deeply entrenched bureaucracy, which, although incompetent to fulfill its original purposes, is marvelously well-adapted to protecting its turf. The odds are not in Gorbachev's favor, but most of the people are.

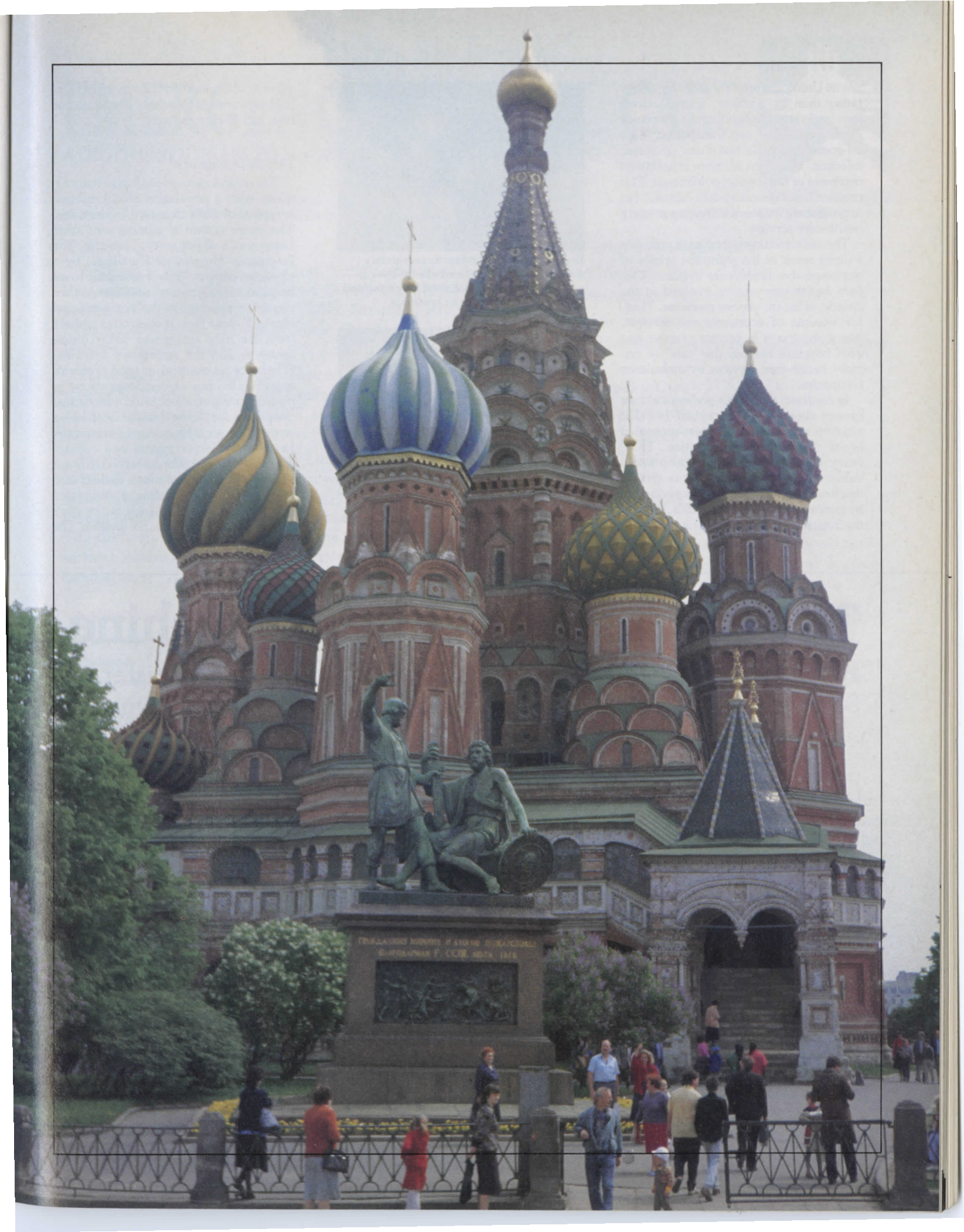
At this Moscow EMS Control Center, calls for police come in on 01, 02 for fire and 03 for medical response.

The Prehospital Care System

The most striking difference between prehospital care in the Soviet Union and that in the United States is that, in the Soviet Union the prehospital care system is viewed as an *integral component* of the primary health-care delivery system. The United States, however, views the prehospital care system as a means of transporting patients to primary health-care services, and paramedic care is something we do to our patients along the way.

In contrast, ambulance services in the

Photos by Jack Stout



Soviet Union *are* primary care. By design rather than by accident, many patients seen by Soviet ambulance crews are treated at the scene, but not transported (e.g., on-scene antibiotic treatment of minor infection, treatment of minor injuries and treatment of non-critical poisonings). This practice is not seen as system "abuse," but as an efficient means of delivering primary health-care services.

This difference in orientation is probably a direct result of the economic origins of our respective health-care systems. Our own health-care system evolved in the context of fee-for-service medicine. Thus, for reasons of economic self-interest, many physicians in private practice and even hospitals resisted the "sale" of primary health-care services by ambulance companies.

In contrast, the Soviet prehospital care system evolved in the context of what amounts to a huge, government-sponsored health maintenance organization. Thus, every medical procedure appropriately delivered by a Soviet ambulance crew is one less procedure that must be performed by government clinics or hospitals. Perhaps the Soviet experience can tell us something about how our industry may change as prepaid programs increasingly dominate our own health-care industry.

Every medical procedure appropriately delivered by a Soviet ambulance crew is one less procedure that must be performed by government clinics or hospitals.

By design rather than by accident, many patients seen by Soviet ambulance crews are treated at the scene, but not transported.

EMS in Leningrad

The organization of EMS in Leningrad, a city with a population of 4.5 million, is typical of EMS in major Soviet cities. The entire system is administered from Leningrad's Emergency Institute (the Emergency Hospital of Djaniligze) by a physician director. (It was refreshing to see hospital administrators listed *beneath* the physician director on the organizational chart.) Patient flow is controlled entirely from the fully centralized EMS control center within the emergency institute. (There are no political or legal problems regarding trauma center designations or hospital categorization.) And with patient flow controlled from a single location—a research center at that—the opportunities to assemble experimental and control groups of adequate size are second to none.

The emergency institute is divided into 28 subdivisions, including a designated emergency hospital for each of the city's five zones, and an ambulance division. The

ambulance division uses 165 ambulances, including 49 "basic" teams (most basic teams include a physician), 16 "large-scale" teams (probably for multiple-casualty events) and 56 specialist teams (e.g., cardiac, psychiatric and hematological).

In the United States, most of us have learned the advantages of the all-ALS, flexible-production strategy. Given the extensive use of specialized response units, prehospital care in the Soviet Union has taken the specialized production strategy (i.e., the multi-tiered system) to, and perhaps beyond, its limits. Ambulance response times in excess of 30 minutes are the predictable result.

9-1-1 Access

It might not be 9-1-1, but I think it's better. Wherever you go in the Soviet Union, you can dial 0-1 for police, 0-2 for the fire department and 0-3 in a medical emergency. After years of working with (and on) 9-1-1 systems, I think we'd be better off with the Soviet system of telephone access. Perhaps when Mr. Gorbachev accomplishes his perestroika, he'll help us undo our 9-1-1 systems.

Innovations

It's clear that neither of our countries has gained from past decades of separation. The Soviets can learn much from us about the effective use of market forces, and, in the process, perhaps we'll remember what many of us have forgotten about economics.

Medically, there is much that is different and perhaps even better about emergency medicine in the Soviet Union. Our delegation was shown a trauma-related formula reported to be 97 percent accurate as a predictor of care needed, outcome and time to death. The formula considers length of time in shock, arterial pressure, pulse rate, age and something resembling a trauma score. We were told that pulse and arterial blood pressure alone determine the volume

The following are some impressions of prehospital care personnel and physicians who recently toured the Soviet Union.

Ted Harrison, MD: "It's a whole different world of medicine—not necessarily better or worse—but very different."

Walter Drivet, Paramedic: "Visiting the Soviet Union was the opportunity of a lifetime. It dispelled many of my beliefs, and showed me that people with different ideological perspectives can share a common bond in medicine."

Wendy Jones, MD: "I never realized the importance of Lenin to the Soviet people. Lenin is the Soviet equivalent of Washington, Jefferson, Lincoln and Kennedy combined."

Frank DeMartino, Paramedic/Medical Student: "Soviet physicians were extremely impressive in their clinical abilities, which may be born of their lack of technology. Watching them work makes me wonder whether our own reliance on technology may have caused us to lose some of our own clinical skills."

Arno Vosk, MD: "If you want to really understand perestroika and glasnost, consider this: I was about to photograph a group of children playing in Gorky Park when a boy held up his hand, palm flat and facing me like a policeman, said in stern, official Russian, "It is forbidden to photograph us." Not sure what to do next, I held my focus. After a few minutes, the children began to laugh, then lined up for photos. The repressive policy of the past has become a joke. It's over."

Impressions of Soviet Medicine

by Raymond L. Fowler, MD

I was one of a group of emergency physicians from the United States who toured major resuscitation facilities in the Soviet Union in the spring of 1989. Discussion among tour members revealed that we shared many impressions.

The first impression was of a lack of economic support for generally accepted clinical progress. For example, the use of "disposables" in medicine is widely accepted in the United States. In the Soviet Union, however, few disposable materials are available to physicians. Touring a neurosurgical ICU in Moscow, we noticed that intravenous fluids were administered through resterilized rubber tubings. One surgeon mentioned that a young adult male in the same ICU had been operated on for a ruptured aneurysm of the brain without benefit of a CT scanner. Instead, the physicians relied on an arteriogram and the patient's clinical condition in determining the diagnosis, treatment and therapy. This treatment has been unacceptable in the United States for about 20 years.

This same impression was felt within Soviet hospitals throughout the country. Soviet critical care is not blessed with the vast technical and economic resources of American medicine. Whether one speaks of angioplasty, magnetic resonance imaging, disposables or central lines, medicine in the United States enjoys a considerable advantage over that practiced in the Soviet Union.

Conceptually, however, the Soviets are clearly keeping up with their Western counterparts. Soviet medicine embodies concepts for managing various disease processes that have largely eluded Western medicine. For example, Soviet physicians often cannulate the aorta to give direct injections of antibiotics and other medications into the arterial system. Presumably, this results in more direct delivery of medications to the target site.

Another interesting Soviet practice is to insert tubes into the lymphatic ducts of septic patients to allow removal of lymph. The fluid undergoes charcoal hemoperfusion, removing impurities from the stream. The fluid is then returned to circulation.

Perhaps the most theoretically fascinating Soviet medical concept involves circulating blood from critical patients through the spleens of pigs. This concept is apparently based on the idea of allowing reticuloendothelial cells from healthy pig spleens to remove wastes from the blood of patients.

Members of our group also noticed an unusually strong emphasis on the use of hyperbaric medicine in the treatment of such problems as peripheral vascular disease.

Our tour made it plain that one cannot comprehend medical care within the Soviet Union without having an open mind. But overall, my personal appraisal of Soviet critical care is that these highly skilled, solidly theoretical physicians are effectively using the tools available to them to deliver a level of care nearly comparable to our own. Within the Soviet framework, advanced concepts of resuscitation are used in the hope of giving patients the best possible chance of survival.

Raymond L. Fowler, MD, is an emergency physician and emergency department director at HCA Parkway Hospital in Atlanta.

of fluids to be given.

We heard presentations on the experimental use of antidigitalis monoclonal antibodies in the early stages of an MI to prevent tachycardia. (The technique reportedly works in cats.) And we saw hyperbaric medicine used more extensively than in the United States.

As a gesture of international trust, Dr. Arno Vosk tested a Soviet-built hyperbaric device on his own leg. Fortunately, as of this writing, Dr. Vosk's leg continues to work. To advance an identical purpose, I subjected my brain to certain electrostatic forces generated by a Soviet-built machine at a remote Soviet sanatorium in the mountains of Pyatigorsk. Arguably, my head continues to work, too.

Lessons Learned

By studying others, we learn about ourselves. We found our Soviet hosts and friends to be literally living through an unprecedented historical event. What's more, they are aware of it. Mr. Gorbachev's objective is the peaceful but total social, political and economic transformation of a superpower nation. If a peaceful change of such magnitude has occurred before, I can't recall where or when. Given the bold sweep of glasnost and perestroika, how are we to rate our own recent efforts, such as catastrophic health insurance, health-care reform in general, tort reform, school reform and the war on drugs? When compared to the Soviets, it seems that we're nearly paralyzed.

A few Soviet eyebrows lifted when a physician from our group proudly announced America's nationwide availability of paramedic services and 9-1-1 access. Soviets who had visited our country knew that 9-1-1 access and paramedic care were far from universal throughout the United States. Our country's nationwide network of mono-jurisdictional mini-systems, heavily dependent on local tax dollars, has spawned a politically powerful special-interests network capable of preventing the kind of reform needed to make my colleague's claim a reality. Multiply those inertial forces by millions, and you have some idea of what Mr. Gorbachev is facing. ■

Thanks to our trip coordinator, Dr. Kay Handal, for making our trip so successful, and to Dr. Arno Vosk for speaking enough Russian to make us seem cosmopolitan. Special thanks to our Soviet friends for sharing with us your knowledge, your insight and even your vodka.

Jack Stout, author of the *JEMS* "Interface" column, is president of The Fourth Party Inc., an EMS consulting firm in Miami, Fla. He designs and implements EMS systems nationwide.