



# Treating Trauma

BY RANDOLPH FILLMORE



WHEN UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE TRAUMA RESEARCHERS ESTABLISHED A PROGRAM TO HELP THE EGYPTIAN MINISTRY OF HEALTH AND POPULATION BETTER COPE WITH RISING ACCIDENTAL DEATH AND INJURY TOLLS, THEY NEVER EXPECTED THEIR PROGRAM WOULD ALSO ADDRESS AN ACUTE NEED IN AN AREA OF THE WORLD TORN APART BY CONFLICT.



Accidents and injuries related to traffic and industry, or that happen in the home, are commonplace in America. With world-class trauma care at facilities like the University of Maryland R Adams Cowley Shock Trauma Center close at hand, patients expect to survive an accidental injury and return to normal life.

However, in other parts of the world, rates of injury, especially from motor vehicle accidents, are spiking dramatically. Trauma care in these countries is not up to U.S. standards.

“Human trauma and injury is one of the world’s leading causes of death and disability,” says Jon Mark Hirshon, MD, MPH, associate professor of emergency and preventive medicine at the University of Maryland School of Medicine. “Children and young adults are disproportionately affected, especially young men. Road traffic accidents worldwide disable between 20 million and 50 million individuals and kill another 1 million people annually.”

Statistics from the World Health Organization (WHO) confirm this and note that these injuries occur in nations with developing or emerging economies. Those who survive often suffer lifelong health limitations.

Because of these grim statistics, Hirshon says, many nations focus on research in the area of injury prevention, increase their

knowledge, build an infrastructure better able to cope with trauma, and upgrade their emergency response. Egyptian researchers have a similar focus.

“Vehicular and work-related accidents are at epidemic levels in Egypt,” says Thomas Strickland, MD, PhD, director of the University of Maryland, Baltimore (UMB) International Health Program and professor of epidemiology and preventive medicine at the School of Medicine.

Working with public health officials in Egypt is not new to UMB clinicians and researchers, who have had a collaborative relationship with that nation for more than two decades. It started when Strickland and others began working in Cairo on an infectious disease research program in the 1980s. Their focus then was schistosomiasis. Once rampant in Egypt along the Nile River, the debilitating disease is caused by a freshwater parasitic worm that bores into the skin, enters the bloodstream, and damages the liver or other organs.

By the 1990s, Strickland and other UMB scientists and Egyptian collaborators had shifted their focus to hepatitis C, which had become Egypt’s leading cause of chronic liver disease.

#### TACKLING INJURY PREVENTION

In May 2005, the UMB-Egyptian collaborative turned its efforts toward injury prevention research. A project headed by members of the Charles McC. Mathias Jr. National Study Center for Trauma and Emergency Medical Systems (NSC) at the School of Medicine teaches injury prevention research to health professionals in Egypt.

Named in honor of the former U.S. senator from Maryland and established by Congress in 1986, the NSC conducts research related to trauma, emergency medicine, and emergency medical systems. It also acts as the research arm of the Shock Trauma Center and the Maryland Institute for

# Along the Nile



Jon Mark Hirshon (far left) with some of his summer trainees and colleagues. From left: Amira Moshen, Marwa Rashad, Mohamed El Shinawi, Mohammed Farouk Taha, Maged El-Setouhy, Waleed Salah El Din, Alfred Bowles, and Maureen McCunn.



Emergency Medical Services Systems.

“Our desire to help colleagues in Egypt became a reality with a grant from the John E. Fogarty International Center of the National Institutes of Health,” recalls Hirshon, who is board-certified in both emergency medicine and preventive medicine. “The NSC has carried out research for many years and is known for its expertise. The Fogarty Center offered us the opportunity to take that expertise overseas to help our colleagues in Egypt conduct injury prevention research.”

In 2005, the Fogarty Center’s program for International Collaborative Trauma and Injury Research Training provided Hirshon and his colleagues with a five-year, \$850,000 grant.

“Our program was designed to help the Egyptian Ministry of Health and Population and other Egyptian health professionals increase their knowledge and understanding of human trauma and injury prevention,” explains Patricia Dischinger, PhD, professor of epidemiology and preventive medicine at the School of Medicine, an epidemiologist with the NSC, and co-principal investigator on the Fogarty grant. “Students completing the program apply this knowledge to help decrease the significant morbidity and mortality caused by injuries.”

The grant, says Dischinger, has three aims:

- to teach basic and advanced epidemiological skills to medical professionals in Egypt
- to help develop the capacities and expertise for pre-hospital and emergency preparedness in the target nations
- to train a cadre of emergency physicians and surgeons in state-of-the-art trauma care methods

### SHIFTING GEARS

Plans for teaching the courses had been drawn up, but their implementation would suddenly be interrupted when world events intervened. Overnight, emergency training needs were required to address trauma of another variety—the injuries caused by conflict.

In fact, as Hirshon puts it, “the ink was not yet dry on the grant paperwork,” when e-mails from a physician in northern Iraq made their way to faculty in the School of Medicine. “The e-mails asked for help in coping with the human toll caused by a terrorist bomb in Erbil, Iraq.”

On May 4, 2005, a suicide bomber blew himself up among a group of 300 people gathered to apply for police jobs in the Kurdish city 200 miles north of Baghdad. Sixty people were killed and 150 were wounded.

While the original grant was aimed at training professionals in injury prevention research methods, it was suddenly apparent that the need had become broader and more acute.

“We immediately applied for and received from the Fogarty Center a supplemental grant to help train Iraqis in emergency preparedness and trauma response,” Dischinger explains.

Thus, the need for better trauma response and emergency care, in an area of the world that Hirshon describes as a “tough neighborhood,” took a fast and different track.

The Middle East has had its share of violence, mostly in terms of improvised bombs and the devastating injuries they cause. UMB researchers knew that their efforts in the area needed redefining. Thanks

to the Fogarty grant, the project could take on new proportions.

The grant helped researchers to develop three education programs. The International Emergency Preparedness and Response (IEPR) program helps health professionals prepare for and respond to disasters.

The Sequential Trauma Education Programs (STEPS), developed by anesthesiologist Maureen McCunn, MD, MIPP, associate professor at the School of Medicine, introduces trainees to the basics of injury care management with an emphasis on diagnostic and treatment sequences. The program is designed to be open to a variety of acute health care professionals.

A third education course on injury epidemiology has been developed in collaboration with colleagues in Egypt.

"Egypt is still our base of operations," explains Hirshon. "The courses have been carried out along with the National Training Institute of the Egyptian Ministry of Health and Population and Ain Shams University."

The program is open to those with an MD or PhD and offers core training in epidemiology and biostatistics, basic knowledge of the biological and psychosocial aspects of trauma and injury prevention, injury control and trauma response, and mentor-guided research into an area in injury prevention.

#### COMING TO JORDAN, CAIRO

The effort already has an extensive track record, starting with an inaugural IEPR training course in Amman, Jordan, presented to 23 Iraqis in October 2005. Both the IEPR and STEPS programs were presented in Egypt in May 2006 to approximately 65 Egyptian enrollees. In August 2006, 22 Iraqi physicians from the Iraqi Ministry of Health using World Bank funds attended an IEPR program in Cairo.

Although the logistics of running a training program abroad occasionally caused temporary concern (visa mix-ups and canceled flights notwithstanding), Hirshon was pleased at the initial efforts.

"The National Training Institute of the Egyptian Ministry of Health and Population was an excellent location for training activity," reports Hirshon. "The right equipment was available, and personnel at the institute were responsive."

Issues such as incident command, scene management, and triage were addressed. Specific requests from those receiving training

included instruction in stress management, communication and security, media relations, and record keeping.

The trainees—physicians identified by the Iraqi Ministry of Health—and the trainers had significant expertise in emergency preparedness, emergency medical services management, emergency medical and surgical care, and the management of mass casualties, especially in bomb injuries and weapons of mass destruction.

"We found that Baghdad, because of its experience and infrastructure, was better prepared and equipped to deal with disasters than was northern Iraq," explains Hirshon. "We also learned from some of the hurdles. The English language skills and technical knowledge varied in the students. We learned to work within the political structure and quickly found value in being flexible and culturally sensitive."

In February and May of 2007, the IEPR and STEPS courses were repeated for Egyptian health professionals. Hirshon's Egyptian colleague, Maged El-Setouhy, MD, PhD, a professor in the Department of Community, Environmental, and Occupational Medicine at Ain Shams University in Cairo, and a WHO consultant, was instrumental in the implementation of the program.

In May 2007, six physicians came to UMB for a two-month training program in the epidemiology of injury. After weeks of work in epidemiology and shock trauma, they designed a research project and went home to implement it. Results of this effort will be presented in May at a Middle East regional conference being organized by Hirshon and El-Setouhy in collaboration with the WHO regional office. All research presented in this conference will be published in a special edition of the *Eastern Mediterranean Health Journal*.

"Having foreign students here at UMB studying such an important topic was quite exciting," says Hirshon. "Watching the students work through the various problems and come up with creative research projects for implementation upon their return was very gratifying.

"UMB is fortunate to have the NSC and the opportunity—thanks to the Fogarty Center and the Shock Trauma Center—to have an international fellowship to train medical professionals in injury prevention and response," adds Hirshon. □

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—Jon Mark Hirshon

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