Fatality Study:
EMS Is a Dangerous Profession

By Kim Oriole, JEMS InfoMail Reporter

More EMS providers die on the job than anyone suspected, making the occupation nearly as dangerous as police officer or firefighter, according to the first-ever national study of EMS fatalities.

The study, "Occupational Fatalities in Emergency Medical Services: A Hidden Crisis," is detailed in the December issue of **Annals of Emergency Medicine**, the peer-reviewed journal of the American College of Emergency Physicians. (**Click here** to view the full report.)

Between 1992 and 1997, the study finds 114 EMTs and paramedics were killed on the job, more than half of them in ambulance crashes. That's an estimated 12.7 fatalities per 100,000 EMS workers, making it close to the death rates for police (14.2) and firefighters (16.5) in the same time period, the study says. And it's more than twice the national average for all workers (5.0).

"The profession is much more dangerous than most people realized," says Brian Maguire, MSA, EMT-P, chief researcher and study author. "I don't think people know this is almost as dangerous as firefighting or police work." He says even EMTs and paramedics who respond to emergencies every day don't realize the toll their job could take.

The dangers include ambulance crashes, assaults, hazardous materials exposures, infectious diseases, lower back injuries, hearing loss, stress, long working hours and exposure to extreme temperatures.

The study finds that although EMS providers respond to car crashes, shootings, large-scale disasters, hazardous materials incidents and other medical emergencies, little was known about the risks of their occupation.

Maguire, the associate director of the University of Maryland Department of Emergency Health Services, got the idea for the study in 1998, but had no idea how difficult it would prove. "This became a four-year project," he says. "It took a lot, lot longer than I ever expected. It was very challenging. We have a very poor reporting system—no national database," Maguire says. "We need to have a better tracking system."

He and volunteer researchers pored over hundreds of studies, reports and documents, looking at federal and local numbers, trying to come up with an exact number of EMS deaths.

But in the end they had only an estimate—114.

"I think it's a conservative number," Maguire says. "It's actually probably higher. I tried to get at only those people who died performing EMS functions, working on an ambulance."

Of the 114 deaths, 67 were from ground transportation accidents; 19 from air ambulance crashes; 13 from heart attacks, strokes and other cardiovascular problems; 10 from homicides, most of them shootings; and five from other causes, such as needlesticks, electrocution and drowning.

Data sources

The researchers used three independent databases to try to find every death, and at the same time, not count repeated reports of the same death. They used the federal Census of Fatal Occupational Injuries (CFOI), the Fatality Analysis Reporting System (FARS) and the National Emergency Medical Services Memorial Service (NEMSMS)—to check and crosscheck the reports.

They relied mainly on federal data from the Bureau of Labor Statistics' CFOI, but had to use their judgment to decide which of the deaths were EMS providers, because there were no unique occupational or industrial codes used for EMS, EMT or paramedic deaths.

Instead, the deaths were listed under several different medical headings in that report—physician assistants, licensed practical nurses, health technologists and technicians and nursing aides and attendants—and the researchers had to ferret out which were deaths from EMS work.

The size of the EMS population is an important factor in the study's conclusions. The National Association of Emergency Medical Technicians (NAEMT) estimates there are 870,000 paramedics and EMTs in the United States. However, to calculate the rate of deaths, this study relied on the figure provided by the Bureau of Labor Statistics, which lists 150,000 working paramedics. Maguire reasoned BLS numbers were also used to come up with the death rates for police and firefighters, "so we'd be comparing apples with apples," he says.

Maguire hopes the study will open the eyes of EMTs and paramedics—"to get the people working out there to take steps to reduce their own risk."

Ambulance crashes killed the most responders, yet ambulances are exempt from Federal Motor Vehicle Safety Standards. The National Transportation Safety Board has recommended vehicle design safety standards, occupant protection and driver training for ambulances, but its recommendations have never had the force of law.

Maguire says new safety regulations are important, but lowering the EMS fatality rate can start with each EMS provider being more safety-conscious on the job.

The study says the patient compartment may be the most dangerous place for EMS providers. Another study found that less than 50% of providers wear seatbelts in the patient compartment.

"They can't take care of the patient if they're seatbelted in," Maguire says. "Though they'll still need to be unbelted at times to work on the patient, if they pay attention, there can be more times that they can wear the seatbelt. The other thing is recognizing the dangerous items in the ambulance—oxygen ports sticking out from the walls, IV poles that hang from ceiling, sharp corners, loose things that need [to be] strapped down."

The other vehicular danger is being hit by passing cars while working on the side of a road or highway, and Maguire says providers might need to wear brighter, more reflective colors.

The report says other changes need to come from the institutional or administrative level—improved vehicle maintenance, better screening of drivers, more driver training, changes in policies on running lights and sirens and reduction of long work hours.

Maguire and the other volunteer researchers are now working to study EMS injuries, but he says he originally planned to spend 10 years doing both death and injury studies and laying out plans for interventions and experiments to correct the problems he found.

But he's discouraged now.

When they started the fatality study, the volunteers applied to dozens of government agencies, foundations and groups for grants, but got nothing.

"On a national basis, there needs to be funding," Maguire says. "There's no money for research or interventions. The future of this kind of work is bleak."