

New perspectives for the new year

It is common knowledge that EMS is a dangerous profession. Recent work from the joint efforts of the CDC and NIOSH published last July offers insight you may find surprising. More than 22,000 EMS workers seek treatment at EDs annually for work-related injuries. Most of the workers are full-time with less than 10 years' experience. The breakdown was really surprising:

Body motion	6,000
Exposure to harmful substances	6,000
Slips, trips and falls	4,000
Motor vehicle incidents	2,000
Violence/Assaults	2,000

These numbers are based on a sample from the emergency department records and are subject to sampling error. They also don't include visits to clinics, doctors' offices, self-treatment, or unofficial treatment given by ED staff. However, they create a reasonable perspective. EMS workers visited EDs at a rate of 8.6 per 100 full-time equivalents (FTEs) compared to 2.1 per 100 FTEs for other workers. In addition to being seen in EDs four times greater than other workers, EMS workers lose workdays secondary to injuries at a rate three times higher than the general public. Career EMS workers experience twice the number of injuries as volunteers and averaged 16 calls/week compared to 4/week for volunteers. Let's look at these categories in greater detail.

Body motion injuries were most common. They occurred at a rate of 2.6 per 100 FTEs, but EMS workers over 40 had a rate of 3.3 per 100 FTEs. This validates the concept that cumulative wear and tear from lifting does damage. In other words, even if you lift correctly, if you do it enough times with enough load, you will harm your body. The biomechanical hazards related to lifting include:

- Heavy lifting and awkward positions
- Fatigue/Injury
- Spinal tissue loading
- Psychological factors
- Preparation to lift
- Lack of proper self-care: rest, diet, exercise

Patient handling activities commonly associated with injuries are pulling a patient from a bed to stretcher, initializing stair descent when using a stretcher, and lifting a backboard from floor level. Pertinent administrative controls are policies that address lift assists, fatigue, and the use of engineering controls. Engineering controls should be used in a systematic fashion. Powered cots, mechanical lifts, ramps, winches, and lateral transfer aids should not be viewed as tools to be used in isolation or panaceas. Their proper application requires thoughtful consideration and incorporation into a situation-specific plan. Behavioral controls include proper evaluation of the patient and environment, acquisition of adequate resources, use of proper body mechanics, and ongoing communication among the crew and patient. Naturally, workers should receive instruction about injury prevention, the elimination of physical risks, and strength and flexibility.

Harmful exposures, the second most common form of injuries, occurred at a rate of 2.1 per 100 FTEs. Needle-sticks accounted for 21% of exposures. Being spit on accounted for 14% of events. Only 10% of EMS workers wore eye protection. A study by Dr. Bryan Bledsoe revealed that less than half of EMS providers use standard precautions upon arrival at EDs. We should note that there are other types of exposures, such as, chemical, radiation, airborne particulates/toxins, and miscellaneous situational exposures, such as, fentanyl and carfentanyl. Click [here](#) to read more on opioids.

In our next newsletter we will continue with slips, trips and falls, motor vehicle incidents, and violence/assaults.

References

- Bledsoe, BE, Sweeney RJ, Berkeley RP, Korey CT, Forred WJ, Johnson LD. "EMS provider compliance with infection control mechanisms is suboptimal." Prehosp Emerg Care. 2014; 18:290-4.
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- Reichard AA, Maarsh SM, Tonozzi TR, Konda S, Gormley MA. "Occupational injuries and exposures among emergency medical services workers. Prehosp Emerg Care. 2017;21(4); 420-431.
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New perspectives for the new year, part 2

In this article we will continue the discussion on the most common categories of EMS professional injuries.

Slips, trips, and falls are loss of balance injuries. They occurred at a rate of 1.4 per 100 FTEs. These injuries were the result of falls which happened on the same level, changing surface conditions, and stairs. Rushing and moving while carrying a load may decrease environmental awareness. Administrative controls, in addition to proper policies and procedures, should include systematic, recorded direct observation of personnel's patient handling behaviors. Engineering controls include proper preparation of workplace surfaces. Footwear should increase traction, provide adequate ankle support, provide protection to the toes and dorsum, and give adequate cushioning. Behavioral control includes enhanced situational awareness and the recognition of footwear as personal protective equipment.

Motor vehicle incidents are a surprising number four at 0.8 motor vehicle events per 100 FTEs compared to 0.04 per 100 FTEs for other workers. Crashes remain the greatest cause of line of duty deaths. The likelihood of being killed in an ambulance is 2.5 times that of a general vehicle. T-bone events and intersection crashes are most common. A NHTSA investigation of 48 ambulance crashes showed that 84% of EMS workers were unrestrained in the patient compartment at the time of the crash.

Administrative controls are extensive. In addition to the usual policies and procedures, they extend into system design. Systems should be structured to minimize the number of lights and siren responses. The efficacy of a service should be based on clinical outcomes, not response times. Dispatchers must screen calls to activate the appropriate level of response. Lights and sirens responses should be reviewed in the same fashion as high risk clinical interventions. A recent NHTSA publication states that the goals of using lights and sirens on less than 50% of primary responses and 5% of scene to hospital responses are necessary to ensure safety. Systematic direct and recorded observation of driving behaviors is critical. Engineering tools such as GPS and onboard monitoring are used to enhance operational efficiencies, monitor driver behavior, and collect data for trend analysis. Vehicle design modifications are intended to provide safer work environment by enhancing external and internal protective features. Behavioral controls require the training and re-training of drivers. It must be understood that everyone in the vehicle has the responsibility for safety. Due regard mandates the use of constant scene size up. There should be no risk taking.

Violence and assaults occur at a rate of 0.6 per 100 FTEs. Forty-three percent of assaulted workers had less than 4 years' experience. Half of the assaulters were under the influence of drugs or alcohol. There

was no law enforcement presence during 62% of assaults. Police reports were made in 42%, but were more likely to occur when police were present at the time of the assault. Risk of assault for EMS workers is twice that of private industry. Sixty-seven percent of assaults were verbal and 44% had a physical component. Less than half the victims sought care. Administrative controls should show management support, create a reporting process and ensure that follow-up is guaranteed. There must be no fear of repercussion. Assault should, by policy, not be viewed as “part of the job.” It is not acceptable for those who report assault to be perceived as someone “who can’t take it”. Engineering controls include personal protective equipment. Behavioral controls require an awareness of the “violence footprint” of the service area. Situational awareness for recognition is critical. De-escalation and self-defense training can be used to enhance safety and professional confidence.

Think about how this article relates to your personal experiences. The operative word is think. Do you actually learn from what you endure? Or do you just react?

References

- Bledsoe, BE, Sweeney RJ, Berkeley RP, Korey CT, Forred WJ, Johnson LD. “EMS provider compliance with infection control mechanisms is suboptimal.” *Prehosp Emerg Care*. 2014; 18:290-4.
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