Safe Ambulance Operations

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"Medic 5 has just been involved in a collision" says the voice on the other end of the phone. Your mind immediately races, needing answers that aren’t available yet; “is anyone hurt?”; “what happened?”; “do we have our management responding?"; “what will the crew involved need and what will their families need?"; “what do others involved need?” As an ambulance service manager your mind also instinctively and immediately screams, “Who was at fault?” Over the coming days another question will loom, “How could this have been prevented?”

Operating an ambulance is, by far, the most dangerous aspect of the Paramedic and EMT’s job, compounded by high daily mileage operations, code 3 driving and vehicles that are not designed for occupant safety by the same standards as the family car. According to a 2002 meta-analysis of EMS fatality data1, 74% of EMS on-duty fatalities were related to motor vehicle operations. Accident statistics indicate the risk of being involved in a collision in an ambulance is 5 times higher than in a personal vehicle and the motor vehicle fatality rate for EMS personnel is more than double the national average of on-the-job vehicle related mortality1. With these sobering statistics in mind, the concept of collision prevention may seem daunting, but it does not have to be. Let’s look at the components of a comprehensive safe vehicle operation program.

**Personnel**

One important and highly variable component in the composition of safe vehicle operations is the people you employ that operate the ambulance. You may want to ask yourself the following:

1. What is your driving record criterion for applicants (see Policies below)?
2. Do you participate in the California DMV Employer Pull Notice (EPN) program in which you will automatically be notified of any driving record infraction?
3. Does everyone know the consequences of serious driver infractions?
4. Do you uniformly enforce those consequences, such as, automatic termination for a DUI conviction?
5. Do you have ongoing methods for updating your employees on driving-related policies, best practices (see Policies below), as well as a method to routinely monitor each driver (see Driver Monitoring below)?

6. Do your employees know what to do, and not do, in case they are involved in a collision?

**Policies**

Comprehensive policies are critical to your organization’s safe vehicle operations program. Policies set the expectations of performance and behavior, but are only as good as they are uniformly enforced and as they are reasonably enforceable. Examples of safe vehicle-related policies include Code 3 operations, maximum vehicle speeds, minimum following distances, navigating intersections, cell phone use, patient’s family/friend riders, patient restraints, crew restraints, equipment restraints, etc.

**Training**

If your agency is already CAAS-accredited, you know Emergency Vehicle Operations training is required annually, yet many companies conduct this important course only during orientation or, at best, sporadically. While conducting a full-fledged EVOC course is time intensive, logistically challenging to plan and execute and is also expensive, it is the perfect time and place to insure that all employees know your company’s expectations (policies) and to demonstrate safe low-speed vehicle operations.

**Vehicles and Equipment**

As previously stated, ambulances have not been designed to meet the same rigid crash dynamics as most motor vehicles in the United States. While the chances of surviving a catastrophic collision in the front seats of the ambulance are good (thanks to airbags, reinforcement areas, front crumple zones, etc.), the likelihood of serious injury or death is dramatically higher in the patient compartment. The restraint systems in the back are not adequate for a high speed collision or rollover, assuming the crewmember is even wearing a seatbelt in the back at the time of the collision. The multiple pieces of equipment in the patient compartment of the ambulance (i.e., jump bags, O2 cylinders, monitors, etc.) become high-mass projectiles during a collision and can, by themselves, cause devastating injuries. At a minimum, all equipment must be secured in the patient compartment; patients must be fully restrained including shoulder harnesses; and crewmembers must be restrained with only few exceptions.

**Driver Monitoring**

You have now implemented several major components of a safe vehicle operation program. You carefully screen your new employees, receive regular DMV driver reports, have reviewed and revamped all vehicle operation policies, enforce the policies uniformly, have conducted thorough EVO training and made sure everything and everyone in the ambulance is tied down. Do you sleep better at night resting assured that all of your operators are out there 24/7/365 carefully abiding by all company policies and driving regulations, never driving in an aggressive or erratic manner, and treating the ambulances as
they should?

The reality is that all the previous components of safe vehicle operations are important, but they still do not fully reflect the actual every day behavior by the human beings driving our ambulances. And what you don’t know can be deadly and very, very expensive. Enter the driver monitoring system.

There are currently two primary systems used throughout EMS in the United States today: DriveCam and Road Safety. Both systems use g-force sensors that translate the signals into digital outputs. The DriveCam signal triggers an onboard video camera placed on the inside windshield under the rearview mirror to record the high-forces event. The video clip, with audio, is then downloaded at a later date and reviewed to determine driver culpability, whether it’s a collision, a high speed turn or rapid deceleration. The video records both the forward view from the windshield as well as a fish-eye view of the driver’s compartment. DriveCam works very well for collision reconstruction and can provide irrefutable evidence of your driver’s actions, good or bad. DriveCam can also be effective for driver remediation and as a deterrent from high forces driving when your operators know that “big brother is watching.” However, DriveCam may have a couple of opportunities for improvement in my opinion. For example, post-incident feedback is not provided to the employee in a timely manner as it may be days before the supervisor meets with the driver to review the video footage. Further, DriveCam does not have a pre-incident warning system, a critical tool to avoid a high forces driving event in the first place.

The Road Safety Safe Force Driving System does not provide video recording capability; however, it does provide real-time driver feedback and warns of impending high forces and high speed driving. The Road Safety system also records high forces/speed driving events and converts these into a points system based on the number of miles driven by each employee and then assigns a 1 to 10 score. Drivers above level 4 are considered to be compliant with the company standard. The system also records seat belt usage when the vehicle is placed in drive and the use of a vehicle spotter, an important feature.

The risk and liability of emergency vehicle operations is extreme and mitigation must be of the highest priority to any ambulance service. Through development, implementation as well as consistent and constant oversight of a safe ambulance operations program, we can take some satisfaction that we have done everything possible to minimize the risk to our crews, patients, and all other stakeholders when our ambulances travel the roads of the communities we serve.


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