Simulation Training Series – Article I

Return on Investment: FDNY Uses Simulation to Reduce Liability and Create Systemic Change

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In New York City, FDNY/EMS experiences approximately 700 collisions per year, of which 40% were at intersections. The department examined these collisions over an eight-year period and implemented simulation training into the Emergency Vehicle Operator's Course (EVOC). In the following four years intersection collisions were reduced by 50% as instructors identified key statistics regarding their student base and created training strategies to target those factors.

FDNY EMS incurs about 700 collisions per year, or roughly 2 collisions per day. They range from minor incidents, such as striking and breaking a mirror, to the more catastrophic intersection collisions that result in heavy damage, injury and/or fatality to personnel and civilians.

In October 2003, FDNY EMS EVOC took possession of a driver training simulator from FAAC Incorporated, which was made from the cab body of a Ford F350 to resemble the fleet's ambulances. It has three rear-projection screens in front and two plasma screens mounted to the cab for visual displays of the rear mirrors, providing a 225-degree field of vision.

From 2004 – 2007 (with simulation training in the curriculum) the rate of intersection collisions declined an average of 16% of the total collision rate, and declined by 15% per 1,000 runs. By 2007, intersection collisions had declined to 11% of the total collision rate; nearly 75% from the first year. When comparing the first half of the study to the second half, intersection collisions declined from 40% to 20% of the overall collision rate.

Using the Scenario Toolbox (STB) development software to create specialized training scenarios, the EVOC program developed a curriculum that allowed the student to build upon their existing training program, beginning with acclimation and vehicle dynamics and culminating with multi-tasking scenarios that included high-risk, low-frequency situations.

Some of the training content delivered included:

- Vehicle dynamics and depth perception
- Roadway command
- Intersection analysis
- Vehicle placement at the scene

By introducing students to the unique hazards associated with operating an emergency vehicle in a variety of situations, the program was able to provide real-life experience in a controlled environment that is repeatable, recordable, and immediately available for playback, critique, and Instruction. The student was able to apply a real-world application to theory and concepts taught in the lecture.