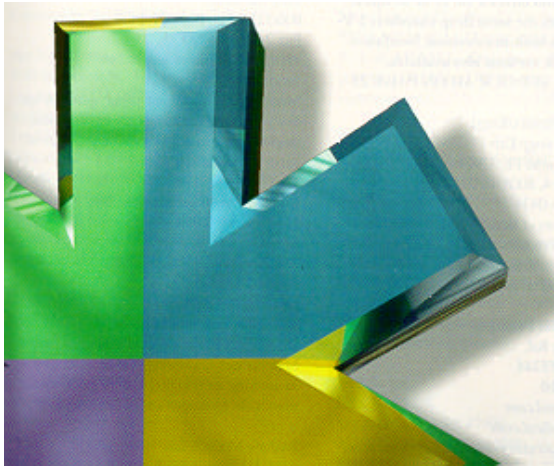
CRASH 2000 R.A.D.A.R. Report

(Recognize, Analyze, Decide, Act, Resume)

For the EMS Advisory Council, Bureau of Emergency Medical Services, and Education and Human Resources (with EVOC) Team on the State of Emergency Vehicle Operations, Education, and Training



July 18, 2001

Submitted by

Alejandro Castro, Chairperson, State EVOC sub-committee
EMS State Plan Health & Safety for Personnel Goal Team

Executive Summary

The operation of EMS vehicles and associated risks has proven to be costly, and at times deadly, to EMS personnel and the public. The Emergency Vehicle Operations Course (EVOC) EMS State Plan Health and Safety for Personnel Goal Team's sub-committee was formed in October 1997 at the request of the Bureau of Emergency Medical Services (BEMS). The committee was given the following task:

1) Examine safety issues for EMS driving, including state and national data involving emergency vehicle crashes, fatalities, and estimated cost from crash damages.

2) Examine current EVOC Florida Administrative Code (rule) language to determine if it meets state-of-the-art training needs.

3) Propose recommendations for rule change, if needed, to enhance EVOC training for new employees and refresher training requirements, if appropriate.

This report and its recommendations focus on current rule and statutory requirements and the impact of these driver education and training requirements on EMS personnel and public safety. Recommendations in this report are as based upon conclusions derived from sample and statewide surveys, federal, state and local statistics, current trends, financial impact analysis, liability considerations, and current practices.

I. Statistical Findings and Current Situation

A. Sources of statistical and related information

1. National Highway Traffic Safety Administration
   Captain Gary Criddle
   Ricardo Martinez, MD Administrator
2. National Fire Data Center
3. U.S. Census Bureau
4. U.S. Department of Transportation
5. National Sleep Foundation
6. Florida Highway Patrol
   Mike Guzman
   Tampa Bay Operations
7. Florida Department of Highway Safety and Motor Vehicles
   Kathy English
   Gary White
   Walt Freeman
8) National Transportation Safety Board
9) American Automobile Association (AAA) Foundation for Traffic Safety
10) American Institute for Public Safety
   Dr. Leon James, Professor of Psychology
   Professor Sandra Ball-Rokeac

B. Current Florida Statute, Chapter 401.281-Drivers

1) Each licensee is responsible for assuring that its vehicles are driven only by trained, experienced, and otherwise qualified personnel. The licensee must, at a minimum, document that each of its drivers:

(a) Is at least 18 years of age
(b) Certifies under oath that he or she is not addicted to alcohol or any controlled substance;
(c) Certifies under oath that he or she is free from any physical or mental defect or disease that might impair his or her ability to drive an ambulance;
(d) Has not within the past 3 years, been convicted of reckless driving or driving under the influence of alcohol or controlled substances and has not had a driver's license suspended under the point system provided for in chapter 322;
(e) Possesses a valid driver's license issued under chapter 322, is trained in the safe operation of emergency vehicles, and has completed an emergency vehicle operator's course or the reasonable equivalent as approved by the department; however, this paragraph applies only to a driver of a land vehicle;
(f) Possesses a valid American Red Cross or National Safety Council standard first aid course card or its equivalent; and
(g) Possesses a valid American Red Cross or American Heart Association cardiopulmonary resuscitation card.

2) The department shall periodically inspect licensees for verification of compliance with this section. Services that are unable to verify compliance are subject to disciplinary action as provided in this part.

C. Current Florida Administrative Code (rule): 64E-2.012 Drivers

(1) Each ALS and BLS provider shall ensure that each driver who operates a permitted vehicle meets the qualifications as listed in section 401.281,FS.
(2) Each BLS and ALS provider shall document that each driver has completed at least a 16-hour course of instruction on driving an authorized emergency vehicle, as defined by section 316.003(1), FS., which includes, at least a minimum, classroom and behind-the -wheel training as outlined below:

(a) Didactic.

1. Legal aspects of authorized emergency vehicle operators.
2. Selecting routes and reporting emergency operation.
3. The practice of defensive driving
4. Crash avoidance
5. Principles of vehicle control
6. Routine Safety checks of vehicle

(b) Practical.

1. Braking and control braking
2. Backing: road position, fender judgment and steering technique
3. Slalom; steering technique and chassis set.
4. Steering technique during a skid; a skid pad is optional
5. Turn-around-steering technique; fender judgment, road position, controlled braking, controlled acceleration, understeer, oversteer and chassis set.

D. Facts & Figures

1. National Emergency Medical Services/Fire Crash Fatalities:

- 1999 - 34 Total Fatalities
- E/R - 18 (E/R = Emergency Run)
- N/E - 16 (N/E = Non-Emergency Run)

2. National Fire Fighter Casualties:

- 1999 -112 Deaths (one in every three die in a vehicle crash, the highest death rate since 1989 which totaled 118).

3. Crash data dilemma – need for data reporting in Florida:

Information provided is from the Florida Department of Highway Safety Motor Vehicles' Long Form Traffic Crash Reports only. The department of Highway Safety does not provide any other form of statistical information for trend-based research. The following criteria must be present before a crash is documented on a Long Form Traffic Crash Report:

- Injury
- Death (within 30 days of crash)
- DUI
- Vehicle towed from scene
- Hit & Run (to occupied vehicle)

All other crash reports can go on a Short Form Traffic Crash Report. The State only monitors and reports long form crash reports. All statistical information on crashes included in this analysis reflects long form crash information. Unfortunately, on the short form crash reports an area is not provided to identify a vehicle as an EMS vehicle as opposed to a civilian vehicle. EMS vehicles are identified as light or heavy trucks. There is an estimated 350,000-400,000 short form crash reports submitted each year in Florida. **It is unknown how many ambulance, rescue or fire crashes are part of these short form crash reports.**

Reporting criteria for law enforcement crash reports, although outlined, meets with many challenges. Most police departments do not have the same SOP on use of a long form crash report. For example, if law enforcement agency "A" responds to a traffic crash and the occupants of the vehicle refuse transport or treatment, it is the officer's discretion as to what type of report to write – short or long form. Law enforcement agency "A" may have totally different rules than agency "B," as usually is the case. Even in the event of a fatality there are reporting challenges, as Florida law requires the law enforcement agency to report the fatality within 10 days upon completion of an investigation, and the occupant must have died within thirty days of the crash to be included in the report. The key phrase is "upon completion of investigation." If numbers related to injuries and fatalities are not submitted prior to final draft of the statistical report, the numbers are not included and the data is not adjusted. One might conclude that reported EMS involved crashes found in this reporting system are "the worst of the worst" when properly recorded by the responding law enforcement agency.

a) Florida Emergency Medical Services/Fire Crash Fatalities (Long Form):

- 1998 - 4
- 1999 - 6 (+50%)/(5% of National Fatality Count)
- 2000 - 6 (same)

b) Florida Total Long Form Traffic Crash Reports:(EMS)

- 1998 - 353 (I-395)/(F-214)/(A-140) I=Injuries F=Fire A=Ambulance
- 1999 - 3 75 (+22)/(+6%) / (I-409)/(F-224)/(A-153)
- 2000 - 426 (+51)/(+12%)/(I-407)/(F-267)/(A-161)

Note: Using a conservative figure of $50,000 for fatality and $10,000 for injury, the estimated single vehicle/occupant cost for providers in the year 2000 =

$50,000 x 6 fatalities = $300,000
$10,000 x 407 = $4,070,000
Total Cost = $4,370,000*

* These estimated costs do not reflect litigation, workman's comp, secondary vehicles, strain on system man-power, overtime to replace employees, etc.

c) Florida Total Crash Fatalities:(EMS/Public)

- 1998 - 2,889
- 1999 - 2,919 (+3%)

- 2000 - 2,999 (+3%)

d) Florida Total Long Form Traffic Crash Reports:(EMS/Public)

- 1998 - 245,440
- 1999 - 246,541(+1,101)

e) Florida Short Form Traffic Crash Reports:

- 1998 - 300,000
- 1999 - 375,000
- 2000 - Estimated 375,000-400,000

f) Florida Highway Patrol Warnings and Citations Issued:

- Traffic Citations Issued: 1999-3,671,085 (x2000)
- Written Warnings Issued: 1999-230,707
- Speeding Citations Issued: 1999-319,540 (x2000)

Note: It is estimated the average driver has **2,000** traffic violations for every one citation that is issued.

Local survey. In attempting to determine how many EMS crashes would meet short form criteria in Florida, the sub-committee asked several providers to be part of a local survey. The survey was simple, asking how many vehicle crashes that each agency could account for in a six-month period resulting in crash report being generated? Three of eight agencies agreed to release the numbers and are anonymously identified as Agency A, Agency B and Agency C. Date ranges for any 6-month period occurred within 1999 or 2000.

Damages: **Minor**- $500.00- $2,000, **Moderate**-$2,001- $5,000, **Major**-over $5,001.

Agency A - 11 vehicle crashes

- 8-Minor damage no injury
- 2-Major damage no injury
- 1-Moderate damage one transport, two complaints of injury

Agency B - 8 vehicle crashes

- 7- Minor damage no injuries
- 1- Major damage, report of injury and refused transport

Agency C - 17 vehicle crashes

- 11- Minor damage no injuries
- 5- Moderate damage no injuries
- 1- Major damage one injury to crew member in back

Examination can be made of cost associated with these crashes reported on the short form. Using a conservative cost estimate of $1000 for the Minor, $2000 for

Moderate, and $5000+ for Major crashes, note the following estimated liability not made available to EMS providers or the Bureau of EMS for statistical and trend-based planning:

Agency A -- 11 vehicle crashes (1 meets Long Form criteria)

- 8-Minor damage no injury …… $ 8,000
- 2-Major damage no injury …….. 10,000
- 1-Moderate damage one transport, two complaints of injury

Agency B -- 8 vehicle crashes (1 meets Long Form criteria)

- 7- Minor damages no injuries ……. $14,000
- 1- Major damage, report of injury and refused transport

Agency C -- 17 vehicle crashes (1 meets Long Form criteria)

- 11- Minor damage no injuries…… $11,000
- 5- Moderate damages no injuries …… 10,000
- 1- Major damage one injury to crew member in back

- **Total for single vehicle damage only** ……. **$53,000***

* Does not reflect other costs associated with a vehicle crash (i.e., litigation, Workman's Comp, secondary vehicles, property damages, and strain on work-force resulting from lost resources and man-hours as a result of the crash). Using the Long Form Traffic Crash Report criteria only 3 of the above crashes will be available for statistical, cost and trend analysis.

Insurance figures reveal that the average "non-injury crash claim" can reach $22,000 or higher. This example clearly indicates that of 36 crashes, 33 crashes will never be made available under the current system.

4. Environmental Concerns -- Florida's Increasing Population:

- 1998 -14,908,230
- 1999 -15111,244 **(+203,014)**
- 2000 -15,982,378**(+871,134)**

5. Environmental Concerns -- Florida's Decreasing Road Expansion (Congestion):

- $20 Billion road building backlog
- "Mobility 2000" **(pledged to do $4 billion road building in the next 10 years)**
- Number of miles of roads has increased by 1% since 1987 while the number of vehicle miles driven has **increased by 35%.** This will contribute to an increasingly congestive driving environment.

6. Aggressive Driving/Road Rage:

- Aggressive driving is not extreme anymore; it has become a cultural norm.

- Approximately one third of crashes and two thirds of resulting fatalities in Florida can be attributed to behavior associated with aggressive driving.
- The one thing that can occur on every EMS call -- tailgating, rapid lane changes, sudden hard braking -- is recognized by FHP as aggressive driving and a player in road rage. Officers have discretion to put a "Road Rage" annotation on traffic citations. The above examples are a few of the many considerations that have been identified as road rage.

7. Fatigue Management

Three major studies have identified fatigue as the leading cause of heavy vehicle crashes.

Highest at risk group identified:

- Professional and over-the-road drivers
- Night shift workers
- Law Enforcement and EMS personnel
- People who work shifts over 12 hours
- 41% of shift workers have fallen asleep at the wheel at least once
- Circadian factor (biologic clock) is a major player in alertness of EMS personnel
- Fatigue has been identified as a critical factor in 30% of heavy vehicle crashes
- 31% of fatal to the driver heavy vehicle crashes is due to fatigue
- About 80% of drivers involved in fatigue related crashes and in long hour shift jobs feel they can override the bodies need for sleep due to their field and time on job
- The U.S. Dept. of Transportation has created an initiative for this problem
- Local EMS and EMS from several States have already instituted fatigue training as part of EVOC (*Dateline NBC* "On the Road to Danger" is used as a guide).

8. E-endorsement Concern

Emergency vehicle operators with "E" endorsement on their driver's licenses are exempt from commercial motor vehicle requirements. However, EMS vehicles far exceed the minimal physics required of commercial motor vehicles set forth by Department of Transportation (DOT). Many reasons exists for the exemption, but we must conclude EMS personnel with the exemption are under-qualified and below standards in training as set forth by DOT for commercial motor vehicles. We would not accept truck drivers in Florida driving without commercial motor vehicle licenses and these drivers would be subject to heavy fines without them. Current EVOC training has failed to recognize this critical concern for EMS and the education associate with this.

E. Points of concern

- The EMS system has nearly 250 licensed providers, with the number of serious crashes and injuries outnumbering these services 2-to-1
- Long Form Traffic Crash Reports in 2000 indicate more than one serious EMS

vehicle crash per day in Florida
- Long Form Traffic Crash Reports in 2000 indicate more than one injury per day as a result of an EMS related crash
- Growing population, more vehicles, and less roads in Florida
- Crash and fatality rate on the rise for EMS in South Florida
- Florida is ranked as the second worst state to drive in for 3 consecutive years
- Inability to appropriately track EMS crashes to identify weaknesses and trends
- Increasing financial burden and liability to EMS systems
- Current rules and statutes on training not meeting needs of identified trends
- 1,500 reported crashes a day in Florida
- State figures on citations (shown above) reflect the pool of drivers we have to pick from
- "E" endorsement on driver's licenses exempt emergency vehicle operators from commercial motor vehicle requirements, although EMS vehicles far exceed the standards required of commercial motor vehicles

II. Current Practices in EVOC Training

It is a well known fact that in the fight or flight syndrome or for lack of a better term in an unexpected emergency or panic situation a professional will always revert back to training and/or custom of practice. As shown thus far, there are many reasons the initial training a driver receives must be current, accurate and provide the EMS professional informed choices to make in the even they are confronted with a vehicle operations issue. The EVOC sub-committee attended EVOC programs throughout Florida to witness the current practices and note areas of concern. Results:

- Number of classes attended: 6
- Number of classes meeting all current minimal 64-E rule standards: 2
- Highest student-to-instructor ratio at driving range: 18 students to 1 instructor (2 vehicles available for class of 37)
- Lowest student-to-instructor ratio at driving range: 12 students to 1 instructor (1 vehicle available for class of 25)
- Latest year model vehicle used for training: 1987 (conventional brake equipped rescue box)
- Oldest model: Unable to identify year, but a Type 1 vehicle
- Most inappropriate vehicle: Passenger cars (owned by the students)
- Average time behind the wheel: 15 minutes

Please remember the students that obtained an EVOC certificate of completion in a non-ABS vehicle, or a passenger car, were issued a certificate to drive freightliners with air-brakes and fire trucks.

Just as a recap, too make sure the reader understands:

- Under current rule and statute there are no standards or qualifications a person must meet before teaching the subject matter.
- No standards on how a class is to be taught on practical
- No vehicle requirements; current courses may be taught in passenger vehicles (E-endorsement issue)
- No student to instructor ratio

- EVOC programs with outdated information using unqualified personnel
- No expiration on EVOC certification

Statewide survey. A survey of EMTs and paramedics in August 1998 distributed by the Bureau of Emergency Medical Services revealed by the respondents some of the following concerns:

- Not trained in appropriate vehicle
- Not enough time behind the wheel at the driving range
- Subject matter not consistent with our environmental area
- Instructor not knowledgeable in field of EVOC

Follow-up Local Survey. Another survey of 75 EVOC students conducted September-November 1999, reported that 41 students that had taken EVOC training previously suggested they did not benefit from the previous course content or presentation. 38 of the 41 students were not knowledgeable of the following according to the respondents:

- Stopping distances
- Weight transfer
- Intersection dynamics
- Speed and distance traveled in relation to speed
- Level of training did not prepare them for the type of vehicle they operated
- And other key driving points

None of the 75 students possessed a commercial motor vehicle license.

III. The Problem

- Programs taught with outdated and or the wrong information
- Programs taught without information or materials relevant to current trend in vehicle safety issues
- Ambulance and rescue classes taught in passenger vehicles
- Instructor student ratios surpassing any safe ratio that will permit proper delivery of instruction at a driving range
- Instructor and other programs taught not meeting current rule language
- Instructor teaching from what they think is correct and worked for them as apposed to using sound, current proven materials on subject matter
- Handicap the departments or agencies ability to identify a problem in a controlled environment
- Increase department's liability
- Increase risk to other EMS personnel and the public
- The program and instructors are not protected or exempt from the scrutiny of the courts in relation to training provided under vicarious liability or Deliberate Indifference standards
- Increased financial and liability burden
- Increased risk to public
- EMS incurring the financial risk of EVOC programs inappropriately taught

IV. Recommendations of the Sub-Committee

A. Rule change to reflect: Didactic- (In addition to current)

1. Fatigue Management
2. Aggressive driving act of and reaction to road rage.
3. Tire Dynamics
4. Psychological considerations of the Emergency Vehicle Operator
5. Principles of vehicle control and recovery techniques
6. Vehicle Dynamics

B. Rule change to reflect: Practical - (In addition to current)

1. Mirror Usage-Fish Eye and Convex
2. Change (1) Proper ABS braking technique (straight-line/threshold)
3. Controlled Braking (turn and brake)
4. Steering and braking technique during a skid; skid pad is optional
5. Diminishing clearance
6. Must train in vehicle of service or vehicle equivalent to similar dynamics
7. Student to instructor ratio not to exceed 5 students to 1 instructor on the driving range

C. Rule change to reflect: Instructor Requirements (New)

1. Possess a minimum of 5 years EMS driving experience
2. Be at least 21 years of age
3. Possesses a driver's license with proper endorsements to level of vehicle for which students are being trained

A statement to the Bureau of EMS

It is a pleasure to be instrumental in assisting the State in such a critical area of our field. Just one life is too much, let alone 7 in one year. When you have EMS trucks running into the rear of a parked dump truck and killing a Paramedic, you have to take a step back and ask why and how?

We are well aware that sometimes no matter how appropriate the training, things are going to happen, people are human and make mistakes, but to concede good training, training must exist.

Unfortunately in the State of Florida due to the lack of rule or legislation anyone who can afford to buy cones is an EVOC instructor, this is not just a statement it is a practice.

The "E"-endorsement exempts Paramedics, EMTs and Emergency Drivers from needing to meet commercial motor vehicle requirements, even though the vehicles they drive far exceed commercial motor vehicle standards in their physics. Cause for a red flag? Unfortunately due to this exemption we must always remember that the Paramedic, EMT or Driver we place behind the wheel is already under qualified for the vehicle they will be driving.

We are extremely concerned with the inability to track crashes involving EMS vehicles, to know

you have a problem and that the problem is far worse than the already bad numbers are showing, but not to know how much worse is debilitating. The inability to track our crashes handicaps us from making informed decisions, pinpointing problem areas, recommending continuing education or recertification, identifying and educating providers and services of trends or tracking improvements.

We strongly endorsed continuing education and recertification requirements in emergency vehicle operations and still do. We have not stopped working towards that goal. This is the first step, not the last. Our future goals have sights on a core curriculum specific to hour requirements that will ensure proper delivery of contents.

The EVOC state sub committee has been active since October of 1997. We have dedicated much time and research to the issue. Several team members took several EVOC classes throughout the State just to familiarize themselves with current trends. Be assured that the recommendations in this report were well conceived and the safety of EMS personnel and the public we have elected to serve at the heart of our every thought.

> ***First, we are respectfully requesting for the Advisory council to forward a motion and move to rule change in regards to 64E-2.012 recommendations as amended in this report. The evidence in this report is overwhelming that EMS crashes are on the rise, and current rule can be improved to meet proven, current trends enhancing the safety of the EMS professional while protecting the provider and public.***
>
> ***Secondly, we are respectfully requesting for the Advisory council to forward a motion and move to research and develop a crash reporting criteria, to track vehicle crashes and identify trends.***

The EVOC sub committee intends to remain as a team an assist the State with this and any vehicle safety issue in any way deemed appropriate. We will also be offering in services and free Instructor training to EMS providers that may request it.

Once again, thank you for your attention and time.

Respectfully,
Alejandro Castro

The CRASH 2000 report was approved through the Transformation of EMS Education and Human Resources team and accepted by EMS Advisory Council July, 2001.

The following persons listed below contributed to specifics on the report:

Captain Gary Criddle
National Highway Traffic Safety Administration (EMS)

Paramedic Alejandro Gonzalez
Lee County EMS

Francis Bucky Greene
Miami Dade Community College (Criminal Justice Campus)
Traffic Coordinator

EMT Alejandro Castro
American Medical Response (Divisional Driving Instructor)

Please review the report and recommendations for rule change.

Comparison in recommendations submitted in October2000 to amended recommendations submitted in July 2001:

October 30, 2000 key recommendations for EVOC:

- Train-the-trainer Qualifications
- Recertification requirements to maintain EVOC certification
- Instructor Requirements
- Initial on the job training requirements by all agencies

Crash 2000 report submitted July 2001 key recommendations:

- Train-the-trainer qualifications- **Removed**
- Recertification requirements to maintain EVOC certification- **Removed**
- Instructor requirements- **Modified**
- Initial on the job training requirements by all agencies- **Removed**

The recommendations finalized were simply addressing course content and delivery, no additional hours, no recertification, no initial on the job training. The changes were made after several concerns were voiced over the potential impact this could have on a service provider. Considerations were given to these concerns and while obtaining crash information statistics involving EMS we realized that our ability to track trends on this issue is severely impaired as outlined in the report.

We have sufficient information to indicate a severe problem in Florida getting worse. However, as shocking as it may be we also know that the problem is worse than these numbers are showing, but we do not know how worse? If recertification requirements were passed, we must have the ability to track the impact of these requirements.

For any additional information or questions on this report, feel free to use the contact information below:

Alejandro Castro, (305)254-3835, (305)750-9651 Pager, evocsafety@msn.com