STATE FIRE MARSHAL'S OFFICE

Line of Duty Death Investigation

Investigation Number 03-138-12

Firefighter Shawn Michael Espinoza
Ranger Volunteer Fire Department
December 13, 2002

Texas Department of Insurance
Austin, Texas

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Summary

A volunteer firefighter, age 29, died of a suspected heart attack after completing written testing at an Emergency Medical Technician class on December 13, 2002.

Shawn Michael Espinoza, a member of the Ranger Volunteer Fire Department, had been complaining of chest pain earlier in the day, but attributed the pain to a pulled muscle sustained during a foot ball game with his children. He had completed taking written EMT tests at the Texas State Technical College (TSTC) Annex in Breckenridge, Texas when he excused himself to the restroom. When he failed to return after 10-15 minutes, a classmate went to check on him and found him lying on the floor of the restroom. CPR was initiated and 911 was called.

Espinoza failed to respond to on-scene resuscitative efforts and was transported by ambulance to Stephens Memorial Hospital where he was pronounced dead a short time later.

Firefighter Shawn Michael Espinoza served in the Ranger Volunteer Fire Department for seven months. He is survived by his wife and two children.

Introduction

The Texas State Fire Marshal's Office was notified of the death of Ranger firefighter Shawn Espinoza on December 17, 2002. State Fire Marshal's Office (SFMO) Chief Inspector Richard L. Bishop was assigned as the lead investigator. Bishop traveled to the Ranger Volunteer Fire Department on January 6, 2003 to conduct an investigation of the incident.

Upon arrival, Bishop was advised that Shawn Michael Espinoza, a Ranger Volunteer Fire Department firefighter, was attending an Emergency Medical Technician class at the Texas State Technical College Annex in Breckenridge, Texas when he collapsed and went into cardiac arrest. Espinoza was transported from TSTC to Stephens Memorial Hospital in Breckenridge, Texas, where he was pronounced dead a short time later. No autopsy was performed.

The SFMO commenced an LODD investigation under the authority of Texas Government Code Section 417.0075. The statute requires SFMO to investigate the circumstances surrounding the death of the firefighter, including the cause and origin of the fire, the condition of the structure, and the suppression operation, to determine the factors that may have contributed to the death of the firefighter. The State Fire Marshal is required to coordinate the investigative efforts of local government officials and may enlist established fire service organizations and private entities to assist in the investigation.

The National Fallen Firefighter's Foundation and the National Institute for Occupational Safety and Health (NIOSH) Fire Fighter Fatality Investigation and Prevention Program were notified.

Origin and Cause Investigation

This fatality did not occur as a result of firefighting operations. It occurred during an Emergency Medical Technician class attended by firefighters.

Building Structure and Systems

The classroom building was not a factor in the fatality.

Investigation of the Death of the Firefighter

On December 13, 2002 at approximately 8:15 p.m., Stevens County Emergency Medical Services (EMS) received a call reporting an emergency at the (TSTC) Annex in Breckenridge, Texas. When the EMS ambulance arrived on the scene at 8:19 p.m., they observed Espinoza in cardiac and respiratory arrest in a restroom in the educational building. Other emergency medical technician (EMT) students and an EMT instructor were performing cardiopulmonary resuscitation on Espinoza.

Advanced cardiac life support (ACLS) measures were begun immediately, including administration of cardiac drugs and defibrillation. Espinoza failed to respond to CPR, which continued as the victim firefighter was transported by ambulance, departing TSTC at 8:35 p.m. and arriving at Stephens Memorial Hospital at 8:40 p.m.

ACLS was continued at the hospital. Espinoza failed to respond to treatment and he was pronounced dead at 8:56 p.m. Cause of death is a suspected heart attack. No autopsy was performed.

Personal Protective Equipment Evaluation

Firefighter Espinoza was wearing street clothing. The class did not involve any firefighting operations and there were no hazardous areas involved.

Medical Background of Victim

The Ranger Volunteer Fire Department was not able to retrieve Espinoza's application from the department's computer. Chief Fox stated that there were no medical questions on the application.

The victim had joined the department on May 1, 2002. He regularly attended monthly training meetings and had participated in weekend training schools in Abilene and Mineral Wells. These training sessions included the use of self-contained breathing apparatus (SCBA). Espinoza had not reported any medical problems during the training.

He was nearing completion of a Texas Department of Health-approved EMT training class and to receive clinical training, was permitted to respond on emergency medical calls with licensed personnel.

Firefighter Espinoza had a history of high cholesterol but did not take prescribed medicine for his condition. He also had high blood pressure, but his wife said it had improved since May 2002. His wife stated he frequently complained of indigestion and esophageal reflux. He took antacid tablets frequently and would occasionally borrow a prescription tablet from someone.

Espinoza had a family history of heart disease. His mother and father have both been treated for heart disease. Two uncles have died of heart disease at relatively young ages. His wife stated Espinoza was approximately 5' 5" in height and weighed over 200 pounds.

Espinoza's wife stated she believed his last comprehensive physical examination was when he entered the US Army in 1996 or 1997. Texas State Technical College policy requires EMT students have a physical prior to performing clinical training, but Espinoza had failed to do this.

The day of the incident, Espinoza spent time at the Ranger fire station but made no emergency calls. About 4 p.m. he played football with his children for about 45 minutes. He complained of some heartburn as he prepared to travel to Breckenridge for EMT class. His wife said he complained about three times between 5 p.m. and 8 p.m. The evening of the incident, Espinoza picked up some food to go and ate it before class. His wife said he was still having trouble and asked a classmate to run an EKG strip on him. The portable EKG/defibrillator was for training use only and was locked up, as it was not used in the EMT class. Espinoza then said he was OK and would go by the fire station in Ranger and get an EKG strip run by one of the paramedics after class.

Espinoza was taking written EMT class examinations. His wife said he was "uptight" before taking the tests. When he found out he had passed them all, his wife said he was very excited. There was a short class break and then class resumed. Espinoza excused himself to go to the restroom. His wife, also attending the training, said he appeared to walk very slowly from the classroom.

Espinoza was absent from the classroom for 10 -15 minutes. His wife and the instructor asked a male student to check on him. A fellow student found Espinoza lying on the floor just inside the restroom. He was cyanotic, not breathing, and his eyes were open

with fixed pupils. The student called for help and he, the instructor, and fellow students initiated CPR. Some students went across the street to the Breckenridge fire station to see if they had an automatic external defibrillator (AED). Neither TSTC nor the Breckenridge Fire Department had an AED.

Stephens County EMS arrived and initiated ACLS including defibrillation, intubation, and administration of medications. Espinoza failed to respond and was transported by ambulance to Stephens Memorial Hospital where he was pronounced dead after 20 minutes of treatment.

No autopsy was ordered by the local Justice of the Peace, nor did the family request one. Based on the description of his symptoms and medical history, the cause of death is suspected to have been a heart attack.

Finding

Firefighter Espinoza had several medical conditions that increased his risk of sudden cardiac death.

Recommendations

The following recommendations are based upon nationally recognized consensus standards for the fire service. Volunteer fire departments are not required by state statute to comply with these standards. All fire departments should be aware of the content of the standards and may develop programs based on them to increase the level of safety for fire department personnel.

- Fire departments should make every reasonable effort to screen firefighters for heart disease in an effort to reduce the number of heart attack deaths.

- The State Fire Marshal's Office recommends that all fire departments use NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program,* as a guide for all fire protection operations.

  NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program,* Chapter 10.1.3 states: "Candidates and members who will engage in fire suppression shall meet the medical requirements specified in NFPA 1582, *Standard on Medical Requirements for Fire Fighters and Information for Fire Department Physicians*, prior to being medically certified for duty…"

  NFPA 1582, *Standard on Medical Requirements for Fire Fighters and Information for Fire Department Physicians*, states: "The combination of the physical stress of fire fighting and exposures for a person with preexisting coronary heart disease

would be expected to increase the risk of a myocardial infarction or other acute event."

NFPA 1582 describes a history of coronary artery disease as a Category B Medical Condition. This is a medical condition that, "based on its severity or degree, could preclude a person from performing as a member in a training or emergency operational environment by presenting a significant risk to the safety and health of the person or others."

Explanatory material in Appendix B to NFPA 1582 recommends that for those individuals with symptoms suggestive of coronary artery disease, biannual testing is indicated. Periodic treadmill testing on members with cardiac histories is recommended.

- Fire departments must encourage applicants and members to be forthright in disclosing medical conditions that may endanger their lives or the lives of other firefighters or civilians.

  If an applicant indicates a medical condition that poses a significant risk of injury or death, the department may choose to assign the applicant to non-emergency duties that would not subject the applicant to undue stress or physical exertion. Medical screening may be required to make a final decision in permitting applicants to undergo firefighting training and assignment as active firefighters.

  Active firefighters and applicants that will operate fire apparatus should undergo periodic medical screening to detect conditions that could cause them to become incapacitated and lose control of the vehicle.

  Firefighters must take personal responsibility for their health and safety. Firefighters are encouraged to contact their personal physicians to discuss how their health relates to their duties and undergo periodic physical examinations.