



## **Junior Fire Fighter Killed While Responding to Fire Alarm on His Bicycle - Pennsylvania**

### **SUMMARY**

On May 4, 2002, a 14-year-old male junior volunteer fire fighter (the victim) was fatally injured while responding to a fire alarm on his bicycle. He was on his way to the fire station and crossed a "T" intersection without stopping and was struck by an automobile. The victim was treated at the scene and then transported to a local hospital. He was later transported by helicopter to a nearby children's hospital where he was pronounced dead the following day. NIOSH investigators concluded that, to minimize the risk of similar occurrences, fire departments should

- *provide fire fighters, including junior fire fighters, with hazard awareness training that includes unique hazards that may be encountered when using unconventional means of transportation (e.g., bicycles, scooters, etc.) to respond to or return from fire alarms*

- *develop, implement, and enforce a policy which requires the use of approved personal protective equipment (PPE) including helmets and appropriate clothing when using unconventional means of transportation while responding to or returning from alarms*
- *review and revise, where applicable, Junior Emergency Service Compliance Manuals to address hazards associated with responding to or returning from fire alarms for individuals who use unconventional means of transportation*

### **INTRODUCTION**

On May 4, 2002, a 14-year-old male junior volunteer fire fighter (the victim) was fatally injured while responding to a fire alarm on his bicycle. He was on his way to the fire station and crossed a "T" intersection without stopping and was struck by an automobile. On May 7, 2002, the Pennsylvania Fire Commissioner's Office and the U.S. Fire Administration (USFA) notified the National Institute for Occupational Safety and Health



*Incident Scene*

The **Fire Fighter Fatality Investigation and Prevention Program** is conducted by the National Institute for Occupational Safety and Health (NIOSH). The purpose of the program is to determine factors that cause or contribute to fire fighter deaths suffered in the line of duty. Identification of causal and contributing factors enable researchers and safety specialists to develop strategies for preventing future similar incidents. The program does not seek to determine fault or place blame on fire departments or individual fire fighters. To request additional copies of this report (specify the case number shown in the shield above), other fatality investigation reports, or further information, visit the Program Website at

[www.cdc.gov/niosh/firehome.html](http://www.cdc.gov/niosh/firehome.html)  
or call toll free **1-800-35-NIOSH**



## Fatality Assessment and Control Evaluation Investigative Report #F2002-21

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(NIOSH) of this fatality. On May 14, 2002, the Team Leader of the NIOSH Fire Fighter Fatality Investigation and Prevention Program investigated the incident. Interviews were conducted with the Chief, assistant chiefs, the safety officer of the department, and with the police officer who investigated the incident. The NIOSH investigator reviewed copies of the Department Junior Emergency Service Compliance Manual, pictures of the incident, training records of the victim, and death certificate. The incident site was visited and photographed.

The volunteer fire department has 50 uniformed personnel and serves a population of approximately 10,000 in an area of about 1 square mile. At the time of the incident, the 14-year-old victim had been a junior volunteer fire fighter for approximately 1 year. The State of Pennsylvania provides published material (Pennsylvania Junior Emergency Services Compliance Manual) to be followed by fire departments in Pennsylvania who have members that are designated as junior fire fighters (14-17 years old). The victim had successfully completed hazardous materials and first responder awareness training.

#### **INVESTIGATION**

On May 4, 2002, a fire alarm was sounded at 1743 hours. A 14-year-old male junior volunteer fire fighter (the victim) was at home when he heard the alarm. He rode his mountain bicycle toward the fire station, and along the way he stopped at the police station and asked an officer where Company 52 was going. The police officer stated that he did not know. The victim got back on his bicycle and continued toward the fire station. He rode through the parking lot of the police station toward the fire station, which was a few blocks away. The victim was bicycling south on a two-lane roadway when he approached another two-lane roadway which is perpendicular and forms a “T” intersection. According to witnesses, the victim peddled his bicycle through a stop sign and into the

“T” intersection. He was then struck by an automobile that was traveling west on the intersecting street (See Figure and Photo). *Note: The posted speed limit is 25 mph. Two independent reconstructions of the incident determined that the vehicle was traveling around 26-27 mph when the victim was struck.* The victim, who was not wearing head protection, was thrown off the bicycle and onto the hood of the vehicle. He struck his head on the windshield (Photo 1). A witness called 911 and reported the incident, and at 1749 hours, the police, medic unit, and fire department responded. The victim was found lying face down on the roadway. He was unconscious and convulsing, but he had a pulse. The emergency medical technicians provided medical care and transported the victim to the local hospital. The victim was later transferred to a nearby children’s hospital where he was pronounced dead the following day at 0200 hours.

#### **CAUSE OF DEATH**

The cause of death as recorded on the death certificate was multiple injuries.

#### **RECOMMENDATIONS/DISCUSSIONS**

***Recommendation #1: Fire departments should provide fire fighters, including junior fire fighters, with hazard awareness training that includes unique hazards that may be encountered when using unconventional means of transportation (e.g., bicycles, scooters, etc.,) to respond to or return from fire alarms.<sup>1</sup>***

**Discussion:** Throughout the United States, numerous fire departments offer Junior Emergency Service Programs. These Junior Emergency Service Programs offer teenagers an opportunity at an early age (e.g., 14-17 year-olds) to be involved in their local fire departments, ambulance corps, and rescue squads, or to be members of forest fire crews. Since many of the teenagers involved in Junior Emergency Programs are under the age of 16, they are not old



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*Junior Fire Fighter Killed While Responding to Fire Alarm on His Bicycle - Pennsylvania*

enough to obtain a driver's license. They must either be driven to the fire station or find other means of unconventional transportation such as bicycles, scooters, skateboards, roller blades, etc., to respond to or return from the fire alarms. Fire Departments that offer Junior Emergency Service Programs should ensure that the teenagers who are using unconventional means of transportation for emergency response are aware of the hazards involved with these modes of transportation. Transportation-related hazards and appropriate measures to avoid injury should be part of the department policies and standard operating procedures. The hazard awareness training and safety procedures should be communicated to the teenagers on a regular basis, and the training should be documented. *Note: About 1 week before the incident, officers of the involved fire department had conducted a safety briefing which covered the hazards associated with responding to a fire alarm and the safety gear to be worn while responding.*

At a minimum, the following information should be communicated to individuals who use unconventional means of transportation to respond to or return from fire alarms.

- Stop at all stop signs and obey traffic lights, just as cars are required to do.
- Be careful at intersections.
- Stop and check for all traffic in both directions when exiting from a driveway, alley, or curb.
- Walk the bike across busy intersections using the crosswalk and following traffic signals.
- Ride on the right-hand side of the street in the same direction as the traffic. Never ride against the flow of traffic.
- Watch traffic closely for turning cars or cars leaving driveways.
- Use bike lanes or designated bike routes wherever possible.

- Never change directions or lanes without first looking behind and using correct hand signals.
- Don't ride too close to parked cars—doors can open suddenly.

For additional information contact: [http://www.kidshealth.org/kid/watch/out/bike\\_safety\\_p3.html](http://www.kidshealth.org/kid/watch/out/bike_safety_p3.html)

***Recommendation #2: Fire departments should develop, implement, and enforce a policy which requires the use of approved personal protective equipment (PPE) including helmets and appropriate clothing when using unconventional means of transportation while responding to or returning from alarms.<sup>2</sup>***

**Discussion:** During fire-fighting activities, the personal protective equipment that is worn by fire fighters is of paramount importance and can save lives. Likewise, the use of appropriate personal protective equipment by junior fire fighters who commonly use an unconventional means of transportation when responding to or returning from fire alarms is very important and can save lives. Fire fighters using an unconventional means of transportation for responding to and returning from fire alarms should be required to use approved head protection for the type of conveyance they are using and be required to wear appropriate clothing, gloves, and footwear. The following list provides an example of the type of safety equipment that should be worn by those who use bicycles while responding to or returning from a fire alarm:

- A bicycle helmet approved by the Consumer Product Safety Commission (CPSC) or by Snell. The Consumer Product Safety Commission (CPSC) standards set by the U.S. government were introduced in 1999. Helmets made before 1999 should be replaced by a newer helmet that has one of these two safety certifications: CPSC or Snell.



**Junior Fire Fighter Killed While Responding to Fire Alarm on His Bicycle - Pennsylvania**

Helmets should fit correctly. A helmet should

- Sit level on the head-not tilt backwards. (A hat should not be worn under the helmet.)
  - Be equipped with strong, wide straps that fasten snugly under the chin.
  - Fit sufficiently tight (with straps fastened) so that no sudden pulling or twisting can cause the helmet to move around.
  - Always be fastened while riding.
  - Be replaced every 5 years-and immediately if it has been involved in an incident.
- Appropriate clothing.
    - Use a fluorescent vest—avoid dark clothing
    - Wear lightweight clothing to avoid overheating in summer months. [http://kidshealth.org/kid/stay\\_healthy/food/water.html](http://kidshealth.org/kid/stay_healthy/food/water.html)
    - Wear clothing with tight-fitting pant legs to avoid getting clothing caught in the bicycle chain.
    - Wear gloves that provide a good grip.
    - If carrying a backpack, tighten straps and secure them to ensure that straps will not get entangled in the spokes of the wheels. [http://kidshealth.org/kid/ill\\_injure/aches/backpack.html](http://kidshealth.org/kid/ill_injure/aches/backpack.html) Wear shoes that grip the bike pedals. Never ride barefoot.

For additional information contact: [http://www.kidshealth.org/kid/watch/out/bike\\_safety\\_p2.html](http://www.kidshealth.org/kid/watch/out/bike_safety_p2.html)

**Recommendation #3: Entities that sponsor Junior Emergency Service Programs should**

***review and revise, where applicable, the Junior Emergency Service Compliance Manuals to address responding to or returning from fire alarms for individuals who use unconventional means of transportation.***

**Discussion:** Throughout the United States numerous entities sponsor and support the Junior Emergency Service Programs which offer teenagers an opportunity at an early age (e.g., 14-17 year-olds) to be involved in their local fire departments, ambulance corps, rescue squads or to be members of forest fire crews. These young individuals often use unconventional means of transportation to respond to or return from fire alarms. Compliance manuals have been published and serve as a guide to better inform emergency service organizations and their members about laws which affect their operations and programs which can help them do their job well. Entities that sponsor and support the programs should review and revise the compliance manuals, where applicable, to include training in hazard awareness and use of appropriate personal protective equipment and clothing for those individuals who use unconventional means of transportation for work.

**REFERENCES**

1. [http://www.kidshealth.org/kid/watch/out/bike\\_safety\\_p3.html](http://www.kidshealth.org/kid/watch/out/bike_safety_p3.html)
2. [http://www.kidshealth.org/kid/watch/out/bike\\_safety\\_p2.html](http://www.kidshealth.org/kid/watch/out/bike_safety_p2.html)

**INVESTIGATOR INFORMATION**

This incident was investigated by Richard W. Braddee, Team Leader, Division of Safety Research, NIOSH.



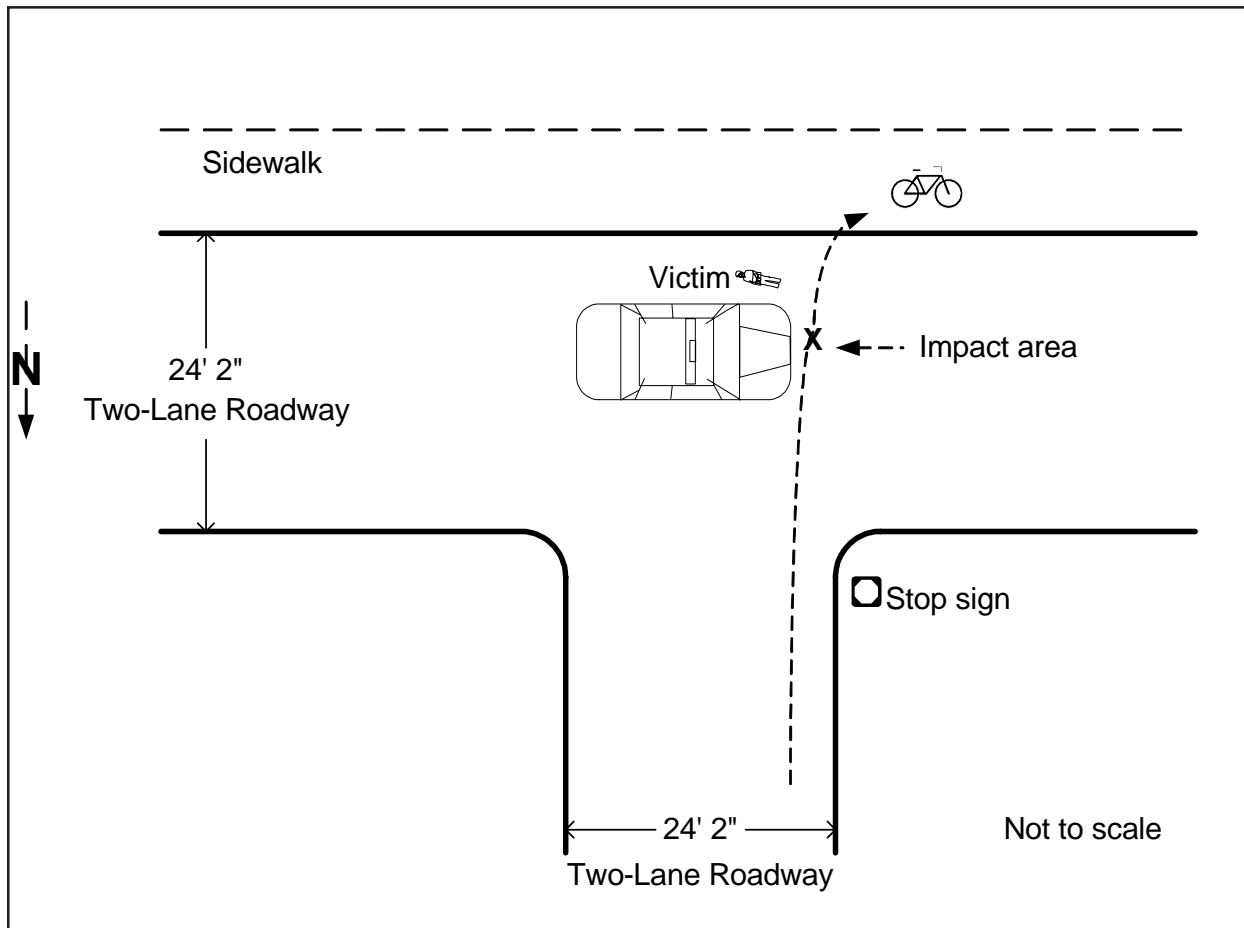
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*Junior Fire Fighter Killed While Responding to Fire Alarm on His Bicycle - Pennsylvania*



*Photo 1. Windshield of Vehicle Involved in the Incident*

*Junior Fire Fighter Killed While Responding to Fire Alarm on His Bicycle - Pennsylvania*



*Diagram. Aerial View of Incident Scene, T - Intersection*

**U. S. Department of Health and Human Services**

Public Health Service

Centers for Disease Control and Prevention

National Institute for Occupational Safety and Health

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