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Report of the Week

Every breath you take counts

9/24/2009

Report Number: 09-857
Report Date: 08/28/2009 16:36

Synopsis
FF hospitalized from cyanide poisoning.

Demographics
Department type: Combination, Mostly paid
Job or rank: Deputy Chief
Department shift: 24 hours on - 48 hours off
Age: 34 – 42
Years of fire service experience: 0 - 3
Region: FEMA Region IV
Service Area: Suburban

Event Information
Event type: Fire emergency event: structure fire, vehicle fire, wildland fire, etc.
Event date and time: 04/08/2009 22:00
Hours into the shift:
Event participation: Told of event, but neither involved nor witnessed event
Weather at time of event: Clear and Dry
Do you think this will happen again?

What were the contributing factors?
- Decision Making
- Training Issue
- Procedure

What do you believe is the loss potential?
- Life threatening injury

Event Description
Brackets [] denote reviewer de-identification

Crews from my [number deleted] battalion responded after midnight to a reported shed fire. Upon arrival they found a motor home with a large adjacent shed heavily involved. A defensive stance was the only option. They overcame the common obstacles found in a relatively remote setting with a long single driveway and no hydrants. Once the fire was knocked down, they began the mop-up and overhaul-without SCBA masks in place. As the structures were a total loss, they were out in the open air. They adjusted their positions as the winds shifted and generally stayed out of the smoke that remained. However, the wind direction was unpredictable and occasionally they found themselves in the smoke for a few seconds before they got clear again. Sound familiar?

At one point, one of the firefighters took a breath at just the wrong moment and sucked in a lung full of nasty tasting smoke. Within moments he felt light headed and somewhat disoriented. His crew members report that he was not responding

normally to verbal commands and seemed lethargic, but alert. He complained of tightness-type chest pain at 8 on of a scale of 10 radiating to the left arm, and felt that he could not take a deep breath.

As the rescue transported, they established an IV, and found BP, CO, and CO2 within normal limits with pulse oximetry on O2 at 98-100%. The patient had an altered LOC, periodically became unconscious, bradycardic and apneic, but responded to physical stimulus. A twelve lead ECG revealed only sinus bradycardia. He was delivered to the ER with no improvement in symptoms. The ER initially ruled out cardiac, believing that he had suffered from smoke inhalation. They were content for the moment with monitoring his condition through the night. Later in the hospital, the patient complained of being freezing cold, even with three blankets.

A few hours later, a training officer learned of the symptoms exhibited by our firefighter. He realized that it sounded a lot like the cyanide poisoning signs and symptoms that he had just taught to our [name deleted] medics. Through some persistence he was able to speak with and convince the ER doctor that the firefighter may be suffering from cyanide poisoning. The firefighter was not getting any better, so the hospital initiated treatment with a cyanide antidote kit. The patient's condition quickly improved and he was released the next day.

Lessons Learned

The treatment for a cyanide exposure consists of the [name deleted] Cyanide Antidote Kit. Our department now has a Cyanide Antidote Kit on 4 [name deleted] units and working on getting one for each rescue unit, though it is fairly expensive. The [name deleted] paramedics have had the training and have a protocol in place to treat our employees. If we suspect a cyanide exposure we call one of these units to begin treatment as soon as possible.

The lesson to take home is that PPE and SCBA are mandatory in any situation where you may be exposed to the products of combustion. With all the different types of engineered materials and products found in every type of structure, we should make no assumptions that there is such thing as 'safe smoke'. The days of leather lungs and snotty noses should be gone.

Discussion Questions

A single inhalation of smoke takes a firefighter from actively engaged to completely incapacitated. Once you have read the entire account of 09-857 and the related reports, consider the following:

1. What are three key factors that firefighters cite for not wearing SCBA?
2. What are three key counterpoints to the arguments for not wearing SCBA?
3. What are the cumulative effects of smoke inhalation?
4. What are the thresholds for "safe" smoke filled atmospheres?
5. What monitoring activities does your department conduct to ensure the atmosphere is returned to a safe condition prior to allowing personnel to remove their SCBA?

Related Reports

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Have you suffered from smoke inhalation? You have essentially experienced a near- miss. Tell the fire service about your experience through www.firefighternearmiss.com today.

Note: The questions posed by the reviewers are designed to generate discussion and thought in the name of promoting firefighter safety. They are not intended to pass judgment on the actions and performance of individuals in the reports.