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**Body Bags Don’t Care — Line-of-Duty Firefighter Deaths**

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You might say the title of this article is harsh. That is my intent. Not a week goes by when I don’t read about another cardiovascular disease (CVD) related line-of-duty death in [Firefighter Close Calls](https://www.firefighterclosecalls.com/) or a newly published investigation report from the [National Institute for Occupational Safety and Health](https://www.cdc.gov/niosh/fire/default.html) (NIOSH).

Case in point: A recent [NIOSH line-of-duty death (LODD) report](https://www.cdc.gov/niosh/fire/reports/face202106.html) made clear the need for pre-hire and periodic medical evaluations. A member collapsed behind the wheel while driving an apparatus to an emergency. Fortunately, the passenger was able to stop the apparatus in the oncoming lane. After the tragedy, the driver was found to have CVD. Specifically, the autopsy revealed he had severe atherosclerosis of the left anterior descending coronary artery and left circumflex coronary artery. The report noted his agency did not provide pre-hire or periodic medical evaluations.

**Quantifying LODDs**

Although the fire service has made progress in reducing the total number of LODDs that occur annually, the rate of firefighter deaths due to cardiovascular events has remained unchanged. Each year, 45% to 60% of firefighter deaths are cardiovascular-related. In spite of this, 72% of fire departments do not have programs to maintain basic firefighter fitness and health. Moreover, 61% of fire departments do not provide medical evaluations that comply with [NFPA 1582](https://www.iafc.org/docs/default-source/1vcos/vws_rrkit_nfpa-1582.pdf), the Standard on Comprehensive Occupational Medical Program for Fire Departments, for all their firefighters.

Virtually every NIOSH LODD report arising from a CVD-related death has the same recommendations:

* Provide pre-placement and annual medical evaluations to all firefighters consistent with NFPA 1582 to identify firefighters at increased risk for sudden cardiac events.
* Ensure firefighters are cleared for duty by a physician knowledgeable about the physical and mental demands of firefighting, the personal protective equipment used, and other guidance in NFPA 1582.

Despite the efforts of the NIOSH staff and national and state fire service organizations, the percentage of LODDs that are CVD-related remains unchanged regardless of how many firefighters die. Looking at LODD data before the inception of the NIOSH Fire Fighter Fatality Investigation and Prevention Program, cardiac-related deaths were 45% to 60% of all LODDs as far back as the 1970s.

While efforts to reduce the number of deaths in emergency vehicle crashes have been successful, the same cannot be said for cardiovascular events. [One source](https://extremephysiolmed.biomedcentral.com/articles/10.1186/2046-7648-2-6) states that it is likely there are 17 non-fatal cardiac events for each death. The human cost is incalculable for the families and departments that suffer an LODD. The dollar cost to society is in the hundreds of millions each year when calculating death benefits, disability pension costs, lost work time and overtime to backfill.

This paradigm must change.

**Research on LODDs**

The research tells us most of the cardiac-related LODDs are men 45 years old and older. And those are just the first two strikes because they are non-modifiable risk factors. Other non-modifiable risk factors, in addition to age and gender, are genetics, race and menopause. Typically, someone who suffers from a CVD-related LODD also has a history of modifiable risk factors, some of which are identified and treated while others go undiagnosed until revealed in an autopsy report. Every firefighter has the ability to address these modifiable risk factors, which include smoking, obesity, untreated diabetes, poor diet, high cholesterol, alcohol consumption and lack of physical activity.

For a variety of reasons, many firefighters do not seek routine medical evaluations. Chief among these reasons are cost and fear. If a firefighter lacks health care and their agency does not provide routine screenings, the cost of annual physical can be prohibitive. Other firefighters worry about the discovery of a career-ending medical condition, or they may simply fear finding out they are not as healthy as they had thought.

The NFPA’s [Fifth Fire Service Needs Assessment](https://www.nfpa.org/News-and-Research/Data-research-and-tools/Emergency-Responders/Needs-assessment), published in December 2021, revealed that 72% of fire departments do not have programs to maintain basic firefighter fitness and health. Moreover, 61% of fire departments do not provide medical and physical evaluations that comply with NFPA 1582 for all their firefighters. As a side note, the NFPA Needs Assessment reported 70% of fire departments also do not have a behavioral health program.

Lastly, the [PHASER group](https://pubmed.ncbi.nlm.nih.gov/24566608/) (Physiological Health Assessment System for Emergency Responders) published a study that found, despite ongoing efforts to improve firefighter cardiovascular health, the fitness and risk factor profile remains similar to the findings of 30 years ago. In other words, based on standard measures including aerobic capacity, muscle strength, body mass and so on, firefighters are no more physically fit today than they were three decades ago.

Digging further, I accessed both the USFA LODD spreadsheet and completed reports of NIOSH LODD investigations. The USFA spreadsheet contains 2,456 records, of which 970 were for cardiovascular-related deaths. This data set covers 2000 to 2020. The NIOSH data set contains 647 records, of which 302 were cardiovascular-related deaths. This data set covers 1984 to 2019.

The USFA cardiovascular subset contains firefighter deaths from a number of different categories: 582 volunteer, 320 career, 23 wildland, 23 paid-on-call, 16 part-time, 4 industrial and 2 unclassified. The NIOSH cardiovascular-related death subset does not break out a firefighter’s classification (e.g., volunteer, career).

For an even deeper dive, I randomized the 970-record USFA cardiac subset in Excel. Then I selected and matched the first 100 randomized records to the NIOSH LODD cardiovascular subset. This resulted in a list of 20 reports to be reviewed. These reports consisted of nine volunteer fire departments, 10 career fire departments and one paid-on-call fire department.

**Research Analysis**

In my analysis, I reviewed the 20 NIOSH LODD reports to determine whether the departments required periodic medical evaluations. Here are some highlights from my analysis of the NIOSH LODD report sample:

* 30% of all agencies (6 of 20) provided periodic medical evaluations.
* 60% of all agencies (12 of 20) did not provide periodic medical evaluations.
* 1 agency provided periodic evaluation only for the hazmat team and all apparatus operators.
* 80% of volunteer and paid-on-call agencies did not provide periodic medical evaluations.
* 40% of career agencies did not provide periodic medical evaluations to all members.

The retrospective analysis I conducted found the percentage of agencies that did not provide periodic medical evaluations closely aligned with the percentage reported in the NFPA Fifth Fire Needs Assessment (60% and 61%, respectively).

I am sure many fire chiefs, along with their respective health and safety committees, have tried to implement a periodic medical evaluation program only to have their budget requests denied or cut. Also, there are hundreds of volunteer fire departments where the cost of providing periodic medical evaluations would outstrip their entire budget. But when you consider the costs to departments and to society as a result of medical retirements, worker’s comp claims, LODD benefits and loss of institutional knowledge – not to mention the emotional losses to family and friends of firefighters who die from CVD – that is fundamentally flawed way of looking at the issue.

**A Call to Action**

Cardiovascular events remain the number one cause of firefighter LODDs. This has been the case for 50 years. The percentage of deaths caused by cardiovascular events has remained steady at 45% to 60% for those 50 years. The past three decades of efforts to change these numbers have been unsuccessful.

Other than the obvious solution of following industry standards and recommendations, the fire service has yet to find an effective way to reduce cardiac-related LODDs. Anecdotal evidence suggests that lack of funding and fear of separation from the fire service prevents many members from receiving the periodic medical evaluations they need.

To reduce CVD-related LODDs, fire service leaders must mobilize around two key objectives: (1) demand federal funding for medical evaluations, and (2) lead by example in showing support for and commitment to periodic medical evaluations, as well as a comprehensive return-to-duty process when possible. While some firefighters may indeed be moved to light duty or even be forced into medical retirement, that should be viewed as a life saved, not a career lost. And the earlier and more often departments conduct medical evaluations, the lesser the impact on firefighters' ability to keep doing what they love.

Body bags don't care. That's why we have to.

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