FIRST RESPONDER LINE OF DUTY DEATH CAUSES AND PREVENTION STRATEGIES

InfoBrief

International Public Safety Association

APRIL 2019

ABOUT

The ***2018 International Public Safety Association Line of Duty Death InfoBrief*** was developed by members of the IPSA's Memorial Committee[i].

INTRODUCTION

Working as a first responder is inherently dangerous. It is the mission of the IPSA is to bring the emergency response community together for a stronger, more integrated response when safeguarding our neighborhoods. The IPSA's Memorial Committee reviews line of duty death data, analyzes the causes and shares the findings with the field to inform practice, safety and policy.

The IPSA asks the emergency response community to use the information in this document to learn about the causes of first responder line of duty deaths and to consider adopting the proposed recommendations.

DATA LIMITATIONS

It is important to note the limitations of the line of duty death data reviewed. Each public safety discipline tracks its own line of duty death on its own systems. Data was reviewed from the ODMP website, the USFA, EMS1 and the Canadian Fallen Firefighters Foundation. A centralized source for Canadian law enforcement line of duty deaths was not discovered.

Reviewing first responder line of duty death data from multiple sources is challenging and presented several limitations. Each source captured and presented different data. Some sources included a narrative of the circumstances with each listing while others did not. Some sources provided agency contact information and others did not.

Several factors impact the accuracy of these sites and their data. For example, a practitioner may succumb to injury or an occupational related illness days, months or years after the event and it may skew the data reported in a given calendar year. Suicide outpaces all other causes of death, yet it continues to be under-reported and is not captured by the data sources the IPSA cites in this document.

The IPSA continues to recommend the development of an international line of duty death national repository. Data will be more consistent, more easily retrieved, analyzed and will contribute to valuable policy and safety guidelines.

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2018 DATA SUMMARY & RECOMMENDATIONS

For calendar year 2018, there were over 300 line of duty deaths in the United States and Canada across all disciplines (law enforcement, K9, fire service and EMS).

- Officer Down Memorial Page reported 163 law enforcement fatalities
- Officer Down Memorial Page reported 25 K9 fatalities
- United States Fire Administration reported 84 firefighter fatalities
- EMS1 reported 21 fatalities (note that USFA may have accounted for some of this data)
- Canadian Fallen Firefighters Foundation reported 33 firefighter fatalities

Illnesses

Occupational related line of duty deaths remains high. Cancer, cardio and respiratory illnesses, exposure to toxins and other diseases related to the job of a first responder continue to be a leading cause of death. Occupational line of duty deaths do not always occur immediately. There are several cases in which a first responder passes away several years after an exposure or a career ended.

Personal Protective Equipment

Significant improvements have been made to personal protective equipment (PPE). According to OSHA, Personal Protective Equipment is defined as: “Personal protective equipment, commonly referred to as ‘PPE’, is equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses. These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards. Personal protective equipment may include items such as gloves, safety glasses and shoes, earplugs or muffs, hard hats, respirators, or coveralls, vests and full body suits.”

In today’s market, body armor is lighter and more resilient to penetration. Stops higher caliber bullets. Firefighter gear is becoming more impervious to containments, covers every facet of the wearer and has better thermal insulation. Self-Contained Breathing Apparatus (SCBA) are lighter and provides a higher capacity of air supply and equipped with pressure monitors and warning devices. But protection does not come without cost. Body armor can be somewhat restrictive, inhibiting an officer’s freedom of movement. Depending on how much PPE a first responder is wearing, it can even lead to over-exertion because of the excess weight of the equipment.

Physical Fitness and Wellness Programs

The duties of a first responder demand a high level of physical fitness. Unfortunately, obesity is plaguing first responders in the UNITED STATES A previous FBI study estimated that more than 80 percent of United States cops are obese. Further, the CDC previously reported that more than 70 percent of United States firefighters suffer from obesity. Obesity creates a tremendous amount of risk from a health and safety perspective.

Many departments are implementing fitness and wellness programs to improve the collective fitness level of their organizations. Investments have been made in awareness programs, fitness equipment, medical surveillance initiatives and healthy diet counselling. Many departments are creating internal or shared medical resources to provide education, policy, literature and other means of changing the culture to adopt fitness principles, and many have dedicated

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exercise equipment or gyms, and those who don't seek support from commercial health clubs and gyms who gladly offer their resources as community support.

Beyond an annual physical, agencies have developed policies that require wellness exams based upon certain circumstances as officer involved shootings, major fire or rescue emergencies and mass casualty events. This medical surveillance program is mandatory, conducted by the department safety officer or other dedicated medical resources, and the first responder may not return to duty until the examination or observation is complete. Included in these programs is healthy diet education, teaching the firehouse cooks how to prepare healthy meals, how to teach patrol officers to avoid fast food, and how to teach EMS personnel foods to avoid. It is a combination of these initiatives that will or have, over time, created a healthier workforce.

Cancer

Cancer and other job-related illness are taking an increasing toll on first responders. Within the last few years, active duty personnel and retirees are succumbing to cancer and other diseases of toxic exposure at an alarmingly high rate. Studies have shown that particulate matter in the suit and stain on firefighter gear is transmitted like an infectious microbe where ever post incident PPE is transported: in the vehicle/apparatus, in the station, in personal vehicles and in the residences of responders. The worrisome part of the latter is that the families of responders are potentially exposed to toxic and hazardous substances.

All fires are hazardous materials incidents. It is important to note that this is a concern not just for the fire services, but all first responders. Law enforcement officer often arrive first on scene of a fire situation and attempts rescue – exposing themselves to the same hazards without the benefit of PPE. EMS personnel who treat and transport burn and smoke inhalation victims can be contaminated with combustion by-products.

On July 7, 2018, H.R.931, the Firefighter Cancer Registry Act of 2018[vii] was signed in to law. It requires that the Centers for Disease Control and Prevention needs to establish a process for monitoring and collecting firefighter cancer data. While the law requires only voluntary participation at the onset, it does provide guidelines and procedures for agencies to develop a reporting process. Every effort should be made to encourage national participation in this registry.

The IPSA recommends the registry be opened to all first responders, not just firefighters. It is not uncommon for law enforcement to arrive first on scene of a structure fire or auto-fire and attempt rescue, without the benefit of protective clothing. Further, EMS transporting burn or respiratory distress patients in an enclosed space (patient compartment) are exposed to the same kind of toxins on the victim's skin and clothing. The IPSA recommends enhancing the surveillance program to include all public safety personnel and all hazards, that all incident of contact with toxins be documented (exposure reporting), and protocols are engaged to decontaminate and treat exposed personnel.

Suicide

Suicide is a particularly tragic occurrence. It is well documented that many first responders experience Post Traumatic Stress following an event or after a series of events. There have been cases in which a court has ruled that a first responder suicide can be considered a line of duty death and subject to appropriate compensation; however, this is not common practice. Since first responder suicides are not included in the data from the line of duty death reporting organizations the IPSA reviewed, this report does not go into further detail.

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The stigma associated with depression, PTSD and suicide is prevalent in the public safety profession. Over the past several years, the suicide rate among first responders and public safety officials has been shown to equal or surpass the rate of those who died in the line of duty. In 2018, at least 159 officers died by suicide[viii]. When comparing law enforcement deaths by accidents, suicides and homicides, the suicide rate is notably higher than the homicide rate.

Suicide in the first responder community remains high. In 2017, the Ruderman Family Foundation found that 103 firefighters and 140 law enforcement officers died suicide in the United States.[ix] The exact number of first responder suicides are not known because there is no formalized process or system to capture the data. While the IPSA does not know the true extent of the problem, we can take measures to prevent them. Crisis intervention teams, telephone hotlines, departmental and peer counselors are all positive measures to prevent suicide.

To reduce the suicide rate among first responders, awareness training must begin in the academies with periodic in-service training throughout a first responder's career. Supervisors must be trained to recognize undue stress in a member. Perhaps even a psychological evaluation as part of medical surveillance and physical exams. Mandatory debriefings following particularly heinous incidents. Mitigation of suicide rates also entails a change in the first responder culture by supporting officers, firefighters and EMS responders who may need psychological counseling as well as medication. The suicide rate will not decline until public safety administrators implement policy changes and institute programs to help those affected by the extreme trauma of this profession.

The American Society for Suicide Prevention conducts the Out of the Darkness walk in the United States. The public safety community should recognize that suicide among our members is significant and get involved to prevent another tragedy.

The public safety profession must invest time and energy to prevent suicides.

Recommendations to reduce illness-related line of duty deaths

1. **Expand first responder performance evaluations to include specific measures addressing fitness for duty – include obesity, mental wellness**. Individuals and agencies should consider developing and implementing performance evaluation programs that include an obesity measure and overall fitness for duty. An annual psychological assessment should be included in annual physical exams and wellness monitoring, as well as formal debriefings following particularly difficult or traumatic incidents.

2. **Continue to improve wellness programs**. Many states have enacted presumptive legislation that considers cancer and cardio-respiratory diseases to be occupational related to firefighting and, therefore, provides coverage for diagnosis and treatment. A great outcome of this presumptive policy is that covered persons are required to sign a pledge that they will not use tobacco products. These laws should be updated to reflect vaping as there is a strong suspicion that chemicals in vape water, especially chemical flavorings, can damage respiratory tissues.

3. **Increase research and development into Internet of Things.** Imagine a computerized application that displays windows for each responder monitoring and reporting on biological and environmental sensors. These sensors that would aid in the detection of CBRNE substances, provide for monitoring of responder vital signs, and provide the ability to track personnel location and movement while working in an IDLH environment.

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4. **Implement practices to reduce contamination**. All agencies should assess their risks based upon their unique response profile and adopt policies that reduce the risk of contamination. This would include the adoption of operational practices such as mandatory post-fire decontamination, cleansing of PPE, carrying contaminated PPE in sealed bags and assessing personnel for exposure.

5. **Improve situational awareness.** The key is situational awareness and the responder wearing the proper protective gear for the environment where he or she is responding. Situational awareness is enhanced when 9-1-1 telecommuicators inquire about the circumstances and environment and report their findings to responding units.

6. **Protect against skin and respiratory exposure**. The human body is an amazing collection of orifices: eyes, ears, nose and mouth. Even the skin contains pours, which can be entryways to the human core. Extreme care must be taken when encountering or entering an IDLH or otherwise contaminated environment. Agencies and first responders must review their infection control and exposure policies against industry best practices and continually update them as research continues. As policies are updated, the agency must make sure personnel are trained on those updates and that operational practices are adjusted accordingly.

7. **Implement practices for PPE cleaning/disinfecting.** The NFPA has established Standard 1851: Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting. Agencies must review their care and maintenance of PPE gear against this standard and make necessary adjustments. Agencies must issue their personnel with sealed gear bags to transport PPE to and from station houses. Agencies must also assure that they have ample replacement or substitute gear to cover for the PPE taken out of service for cleaning. Further, law enforcement and EMS must establish and/or review their policies when a member has encountered a hazardous or infections environment.

8. **Enhance chemical/bio detection**. Fire departments with HAZMAT teams already have an array of sophisticated sensing equipment. However, with the arrival of the IoT, the ability to sense and capture data about the operational environments is a valuable tool in force protection. Miniaturized, light-weight, and low-power sensors – either established or deployed by first responders – can monitor an area reacting to and sending notification to a receiving device based upon its intended sense state, presumably to the Incident Safety Officer or the Incident Commander. These devices are purpose built, designed to be highly economical and readily available. In some cases, these devices are single-use and disposable.

9. **Review occupational disease presumption laws**. In states with occupational disease presumption laws, it is difficult to substantiate that a sickness is a direct result of firefighting. The Pacific Northwest has adopted the Personnel Injury-Illness Exposure Reporting System (PIIERS), originally developed by the Washing State Council of Firefighters. The reporting system is currently used in Washington, Idaho, Montana and Alaska. Other states should identify how to create a similar exposure and injury system.

10. **To create an international repository that captures first responder suicide data.** While there are organizations and resources investigating and researching first responder suicides, each appear to be doing it independently from other like organizations. This makes identifying accurate data across all first responder disciplines difficult and what data is obtained is inconsistent. The IPSA recommends the development of standard research and reporting structure so that data may be obtained and used to develop mitigation measures.

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Vehicle Accidents

Vehicle accidents continues to be a leading cause for line of duty deaths. Vehicle accidents include crash of single vehicles, multiple vehicles, struck by vehicle, during routine driving, or response/pursuit. When reviewing data from third party sources, there is very little information cited to explain the crash (e.g. excessive speed, distracted driver or medical emergency). Further, there is no consistent data whether the occupants were wearing seat belts, whether the airbags deployed or did materials and equipment dislodged that may have caused a fatality.

Recommendations to reduce vehicle accident-related line of duty deaths

1. **Always wear a seatbelt.** Empirical research shows that wearing a seatbelt will save lives. First responders need to buckle up, despite any temporary discomfort duty gear may impose.

2. **Improve the Emergency Vehicle Operator Course.** The EVOC is presented at law enforcement, fire and EMS academies across the United States It is not clear what commercial ambulance companies provide for their drivers, although EVOC training is available to them. The recommendation is to examine EVOC training courses for its relevance to today's environment. Volunteers responding in personal vehicles should practice the same driving skills as though they were operating an emergency vehicle.

3. **Enhance use of GPS and other technologies.** Many CAD systems are integrated with GIS mapping that display locations of incidents, locations of traffic and other hazards and locations of responders. Maps should be integrated with driving direction applications that recommend not only best route, but also routes free of congestion and other traffic hazards. The GIS should also track the location of responding units and produce a warning when two responders travel near one another or produce a warning when two are nearing the same intersection. This should be not only cross disciplinary, but cross jurisdictional when multiple departments are responding. Auto manufacturers have created Automated Crash Avoidance Systems. NHTSA is aggressively researching collision avoidance technology and has established the Advanced Crash Avoidance Technologies Program[xi] to reduce the frequency and severity of vehicle crashes.

4. **Consider the use of Remote Vehicle Monitoring.** RVM is not new. The transportation industry uses it to monitor commercial, semi-truck drivers. Vehicles are remotely monitored for speed, cargo load, signs of driver fatigue and other mechanical, performance or profile characteristics. This can be applied to emergency vehicles. Speed monitoring would be conducted based upon policies driven by response profile:

    - Is this a vehicle pursuit?
    - Is the law enforcement officer responding to an active threat event?
    - Is the patient in cardiac arrest?
    - Is this a structure fire with persons trapped?
    - Is this a routine alarm, bank alarm or minor injury call?

5. **Review vehicle design**. Contemporary vehicle designs have a keen focus on safety. For emergency vehicles, however, this industry often stuffs the interior with communications and other gear that can defeat built in safety measures. Radios, mobile data computers, warning device controls, weapons, firefighting tools and other items occupy the interior spaces often creating its own set of hazards.

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6. **Improve incident scene safety.** Below is a list of items that all agencies can adopt to improve scene safety.

    - Staging an emergency vehicle with warning devices activated up road from the accident scene to give approaching drivers ample warning. Similar tactics may be achieved in communities that have sponsored transportation assistance units.
    - On limited access, divided highways with unprotected medians, stage a unit with warning devices activated up road on the opposite side from the accident scene to provide approaching drivers ample warning.
    - Position emergency vehicles behind the accident scene, angled toward the roadway to provide a protective shield.
    - Deploy adequate flares and warning devices directing traffic around and away from the accident site.
    - Require all emergency personnel on scene to wear reflective vests and essential PPE.

Gunfire

Law enforcement continues to be the highest risk profession among first responders to be killed in the line of duty by gunfire. According to ODMP, there were 52 gunfire-related line of duty deaths in law enforcement. There was also at least one gunfire fatality in the fire/EMS profession in 2018.

Recommendations to reduce gunfire-related line of duty deaths

1. **Enhance body armor by decreasing its weight and increasing flexibility, provide for more coverage, and enhance it ballistics, shielding capabilities.** Body armor should protect vital areas against any form of penetration, whether a projectile from a firearm or a penetrating object intended to stab the officer.

2. **Consider body armor for other first responders**. With increasing frequency, first responders are being assaulted and targeted. The number of non-law enforcement responders who are stabbed or shot at is increasing.

3. **Consider protecting emergency vehicles with bullet proof glass, increased armor plating, motion detection and gunshot detection**. These technologies are available today and agencies should explore enhanced protection for emergency vehicles. This recommendation of additional armor is based on the data that suggests officers were intentionally targeted and ambushed while in their patrol cars.

4. **Ride in pairs.** If the resources are available, first responders – especially patrol officers – should ride in pairs.

5. **Increase firearms training.** Law enforcement officers are required to undergo a certain number of hours of firearms training. Unfortunately, the time allotted for training is generally very limited and does not correlate to the volume of gun violence in the UNITED STATES Departments need to review their training hours and add training hours to keep their officers safe.

6. **Carry patrol rifles.** Agencies need to review their current policies and review recent research to see if they should equip their officers with patrol rifles.

7. **Review after-action reports.** Request after-action reports from other agencies and consider applying those lessons learned in your department.

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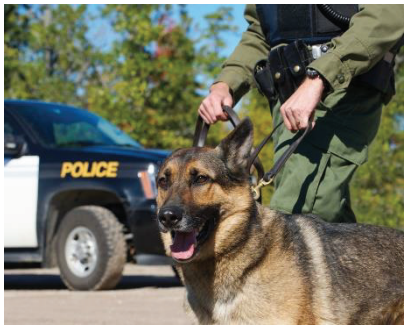
Assaults

Assaults appear to be the lowest cause of death to a first responder in 2018. Assaults include injuries sustained in a correctional facility, during the apprehension of a suspect, when investigating a crime scene, by a patient or bystander in spontaneous and unanticipated attacks on first responders.

First responders need to enhance situational awareness on the incident scene to monitor personnel working an emergency incident looking for signs of contaminate exposure, overexertion, cardiac arrhythmias and lowered oxyhemoglobin saturation. In a state-of-the-art setting, this could include remote monitoring of responder vital signs, combined with operational policies that requirement pulling the responder off-line for untoward signs or symptoms, and having that person fully evaluated by medical personnel.

K9s

The use of service animals in public safety is growing. And it's not just in law enforcement. Explosive and contraband detection, vapor wake, search and rescue and therapy dogs are employed by all first responder disciplines.



The causes of the 25 K9s LODDs in 2019, were from gunfire or stabbing, heat exhaustion, cardiac arrest, killed in a vehicle accident or other causes. Several of the heat exhaustion cases were due to the K9 officer being left in the patrol vehicle, either intentionally with the air conditioning failing, or were unintentionally left in the vehicle by mistake.

Focused efforts are needed in the care, protection and transportation of service animals. The investment an agency makes in training service dogs and their handlers is significant. A K9 LODD results in substantial financial loss to a department as well as substantial emotional harm to its handler.

HONORING THE FALLEN

The study of data is impersonal. In honor of the memory of the fallen first responders, four stories, one from each discipline, are added to lend compassion to this report.

Police Officer Glenn Anthony Doss, Jr. with Detroit (MI) Police Department

Officer Doss responded to a domestic violence call at 2230hrs on January 24, 2018. As he and his partner arrived on scene, a male occupant of the incident address was outside the home and opened fire on the patrol car striking officer Doss in the head. His partner immediately rushed Officer Doss to the emergency room where he underwent immediate surgery. Unfortunately, Officer Doss succumbed to his injury four days later. Officer Doss was a two-year veteran of the DPD and left behind a 9-month-old child. Officer Doss' father was also a Detroit PD veteran.

Volunteer Firefighter Natalie Dempsey with Mizpah (NJ) Volunteer Fire Company

On Christmas morning, at 0615hrs, 21-year-old Firefighter Dempsey was responding to the fire station to join a crew answering an alarm for a structure fire when she lost control of her vehicle. Her vehicle left the roadway and crashed into a guard rail. Firefighter Dempsey was pronounced deceased at the scene as a result of the critical injury she received. The crash remained under investigation at the time of posting.

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Rico Caruso, Greg Rosenthal, and Klint Mitchell with Ascension Health Spirit

After delivering a critically ill patient to the receiving facility, the Ascension helicopter was returning to base when it crashed into a heavily wooded area with treacherous terrain. The location of the crash was near Hazelhurst, a small town 150 miles northwest of Green Bay. All three are believed to have perished on impact. There was no distress call from the craft, and response was not initiated until the team had been missing with no communications for 25 minutes.

K9 Rocky with Riverhead (NY) Police Department

K9 Rocky was a German Shepherd who served the RPD for seven years. At 0230hrs on September 2, 2018, K9 Rocky's handler was involved in a vehicle chase of a DWI checkpoint evader who has crashed his vehicle into the checkpoint patrol car. A pursuit ensued when the driver failed officer orders and fled the scene. The pursuing patrol car attempted to overtake the fleeing vehicle, but the driver was aggressive and dangerous, causing a crash of the patrol car into a utility pole, killing K9 Rocky.

REFERENCES

[i] Members of the IPSA's Memorial Committee include Heather R. Cotter, Executive Director, Battalion Chief (Ret) James W. Dundas, Jr., Chair, Lt. Joseph "Paul" Manley, Vice Chair and Chief (Ret) Robert Mitchell
[ii] https://www.odmp.org/search/year?year=2018
[iii] https://www.odmp.org/search?name=&agency=&state=&cause=&from=2018&to=2018&filter=k9
[iv] https://apps.usfa.fema.gov/firefighter-fatalities/fatalityData/list?deathYear=2018&offset=0&max=10
[v] https://www.ems1.com/LODD-Line-of-duty-deaths/
[vi] http://www.cfff.ca/EN/fallen.html
[vii] https://www.congress.gov/bill/115th-congress/house-bill/931
[viii] https://www.policeone.com/lodd/articles/482561006-Report-More-cops-died-by-suicide-than-in-line-of-duty-in-2018/
[ix] https://rudermanfoundation.org/white_papers/police-officers-and-firefighters-are-more-likely-to-die-by-suicide-than-in-line-of-duty/
[x] NFPA - http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1851

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