

Title: On the Front Lines of Fire: How do we save their lives?  
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## Abstract

The National Institute for Occupational Safety and Health (NIOSH) reports that the United States depends on about 1.1 million firefighters to protect its citizens and property from fire. NIOSH adds that approximately 336,000 are career firefighters; 812,000 are volunteers; and 80 to 100 die in the line of duty each year. NIOSH investigates each fatality individually for the cause and prevention. In contrast, my research will look at a complete dataset of 2005 firefighter fatalities and see if any of the following variables may predict firefighter death: age, cause of death, property type, type of duty (e.g. on-duty, training), and type of firefighter (e.g. career, volunteer, wildland). Some of the relationships I will investigate include the following questions. Does the type of firefighter predict the nature of death? Can the type of duty of the firefighter predict the initial incident that caused the firefighter's death? Can the nature of death, or the firefighter's age, predict the number of days in between incident and death? What are the most dangerous activities that the firefighters do? Do younger firefighters die from different incidents than older firefighters? Do career firefighters die from different incidents than volunteer firefighters? Does whether the firefighter was called to an emergency or non-emergency situation predict the initial incident that caused the firefighter's death? These questions will be analyzed with parametric and nonparametric statistics with post hoc comparisons as needed. Graphical displays including scatter plots, stratified boxplots, and correlation plots will be used to convey the findings. Through an increased understanding of relationships and predictors of firefighter mortalities, I seek to identify areas of training that are needed to reduce these tragedies.

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