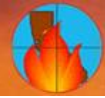


FIRESCOPE



SAFETY SPECIALIST GROUP

White Paper

FIREFIGHTER HEALTH HAZARDS AND WELLNESS

SMOKE EXPOSURES/EXERTIONAL HEAT INJURIES/RHABDOMYOLYSIS

INTRODUCTION

Firefighters have been exposed to dangerous smoke toxins and other hazardous conditions for centuries. Significant injuries and illness have been unavoidable in some cases but advances in personal protective equipment (PPE) and changes in practice have progressed over the years. However, rates of firefighter cancer, reactive airway disease, exertional heat injuries and incidences of rhabdomyolysis with acute renal failure are *increasing* and myocardial infarction remains the leading cause of on-duty deaths.

Published research from experts in the field of firefighter health hazards is growing and recommendations for best practices are numerous with proven strategies to mitigate these injuries and improve the overall health and safety of all firefighters.

PROBLEM

A year or more ago the FIRESCOPE Safety Specialist Ad-Hoc Committee set a goal to find the best possible way of decreasing firefighter health hazards using the guidance from subject matter experts in this field. Unfortunately, we found that locating the most relevant websites, research, education materials and recommended guidelines on these topics can be extremely difficult and seemingly almost impossible to address all exposures and injuries that occur during structure fires, wildland fires and all other extensive hazardous operations inherent to this occupation. This significantly limits our ability to find the best direction and potentially develop a true standard for the protection of our members.

SOLUTION

The FIRESCOPE Safety Specialist Ad-Hoc Committee recommends creating and maintaining a new Database titled “Firefighter Health Hazards and Wellness” that would be a “One-Stop” location to house the needed information in three major areas of concern: Smoke Exposures, Exertional Heat Injuries and Rhabdomyolysis. This information will reside on the FIRESCOPE website in three (3) distinct areas; on the

main FIREScope home page under the “whats new.” As new information comes in to the Safety Specialist Group, it will be added there first, also an added button titled “Firefighter Health Hazards and Wellness” will be added to the Links button on the website. (See Attachment 1). The next location will be in the Safety Specialist area and it also will be titled “Firefighter Health Hazards and Wellness” (See Attachment 2). This location will be the area that added resource information would reside. The committee will coordinate with technical and specialized experts to collect, analyze and provide a comprehensive listing of links to specialized repositories, research papers, best practice guidelines and training materials in each of these areas. The FIREScope Safety Specialist Ad-Hoc group will review and update the links to these resources twice a year. These links will redirect the user to the specific information needed. Having the information listed on both the front page and the Safety Specialist area will help users find the information easier.

SUMMARY

We recognize that this is only a beginning but a very important first step that is in alignment with our mission statement: “The goal of the FIREScope Safety Specialist Group is to develop and promote optimal health, safety, and injury prevention programs for all incident personnel. The group’s mission is to review, analyze, develop, propose and maintain an “All Hazard” Safety perspective of FIREScope programs. This will include ICS documents, processes, training and operational needs consistent with appropriate statutes and standards.”

Based on our research, we recommend the following links:

Fire Smoke Coalition

<http://www.firesmoke.org>

Firefighter Cancer Support

<http://firefightercancersupport.org/wp-content/uploads/2013/08/Taking-Action-against-Cancer-in-the-Fire-Service.pdf>

Research at IFSI - Illinois Fire Service Institute

<https://www.fsi.illinois.edu/content/research/>

Wildland Lessons Learned Center

www.wildfirelessons.net/

Cardiovascular & Chemical Exposure Risks in Modern Firefighting

https://www.fsi.illinois.edu/documents/research/CardioChemRisksModernFF_Interi

[mReport2016.pdf](#)

Journal of Emergency Medical Services

<http://www.jems.com/article/patient-care/where-theres-smoke>

Physiological Stress Associated with Structural Firefighting

<http://www.indiana.edu/~firefit/pdf/Final%20Report.pdf>

Health hazards of fire fighters: exposure assessment.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1009663/>

Preventing Fire Fighter Fatalities Due to Heart Attacks and Other Sudden Cardiovascular Events

<http://www.cdc.gov/niosh/docs/2007-133/pdfs/2007-133.pdf>

Cardiovascular & Chemical Exposure Risks in Modern Firefighting

https://www.fsi.illinois.edu/documents/research/CardioChemRisksModernFF_InterimReport2016.pdf

Extremity cooling for heat stress mitigation in military and occupational settings

<http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1192&context=usarmyresearch>

Rhabdomyolysis in Wildland Firefighters

http://www.mcftoa.org/wp-content/uploads/2011/05/Rhabdomyolysis_Safety_Info.pdf

Everyone Goes Home – Firefighter Life Safety Initiatives

<http://www.everyonegoeshome.com/>

National Institute of Standards and Technology

<http://fire.nist.gov/bfrlpubs/fire08/PDF/f08043.pdf>

Fire Science and Technology Inc.

<http://www.doctorfire.com/toxicity.html>

International Association of Firefighters

http://www.iaff.org/searchresults.asp?cx=007805093613072635228%3A_pvjlo-ajwy&cof=FORID%3A9&ie=ISO-8859-1&q=smoke+exposure

National Fire Protection Association

<http://www.nfpa.org/>

Fire Science and Technology Inc.

<http://www.doctorfire.com/toxicity.html>

Cooling hyperthermic firefighters by immersing forearms and hands in 10°C and 20°C water

https://www.researchgate.net/publication/6264846_Cooling_hyperthermic_firefighters_by_immersing_forearms_and_hands_in_10C_and_20C_water

New York State Department of Health

https://www.health.ny.gov/environmental/outdoors/air/smoke_from_fire.htm

OSHA

https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1910

Underwriters Laboratories Inc.

<http://www.ul.com/global/documents/offerings/industries/buildingmaterials/firesevice/WEBDOCUMENTS/EMW-2007-FP-02093.pdf>

United States Department of Agriculture

<http://www.fs.fed.us/t-d/pubs/pdftpubs/pdf13511803/pdf13511803dpi100.pdf>

FEMA - U.S. Fire Administration

http://www.usfa.fema.gov/downloads/pdf/publications/fa_314.pdf

Attachments

Attachment 1



Attachment 2

Document Downloads		
ICS Forms		
Doc Number	Subject	File Type
ICS 208	Site Safety and Control Plan (3 page)	
ICS 215-AG	Incident Safety Analysis-Generic	
ICS 215-AW	Incident Safety Analysis-LCES Wildland	
Guides and Terminology		
Doc Number	Subject	File Type
ICS 701	Emergency Response to Tactical Law Enforcement Incidents	
ICS 910	Firefighter Incident Safety and Accountability Guidelines	
Fire Service Reflective Vests Guidance Documents		
Subject	File Type	
FHWA Traffic Operations Policy		
Reflective Vests FAQs		
Sample Reflective Vests Department Procedures		
How to Inspect the Reflective Vest		
Risk Assessment Management		
Subject	File Type	
Group Risk Management Card		
Risk Assessment Management Worksheet		
Risk Assessment Management Worksheet (Job Hazard Analysis)		
Risk Assessment Management Worksheet Instructions		
"3 Stripes You're Out"		
Subject	File Type	
"3 Stripes You're Out" (Procedures for the identification and management of life hazard zones)		
"3 Stripes You're Out" Map Icon		
"3 Stripes You're Out" Poster (Life Hazard Electrical)		
"3 Stripes You're Out" Poster (Life Hazard Poison)		
"3 Stripes You're Out" Poster (Life Hazard Snag)		
Firefighter Health Hazards and Wellness		
Opening/Reading FIRESCOPE Documents:		