

Post-Fire Turnout Gear Removal Practices Vary Among Florida Fire Departments



Andrew Faus^{1,2}, Raymond R. Balise^{1,2,3}, Paola Louzado-Feliciano¹, Kevin Griffin¹, Katerina M. Santiago¹,
Natasha Schaefer Solle^{2,3}, David J. Lee^{1,3}, Erin N. Kobetz^{1,2,3}, and Alberto J. Caban-Martinez^{1,3}

Departments of ¹Public Health Sciences and ²Medicine and ³Sylvester Comprehensive Cancer Center, University of Miami, Miller School of Medicine

BACKGROUND

Firefighters are at an increased risk of being diagnosed with cancer due to their exposure to different carcinogens. This risk can be reduced by removing and cleaning gear as soon as possible after overhaul is completed. Previous investigations have not studied the length of time gear is kept on after a fire. The current study found that time to gear removal varied among firefighters and departments. We examine the association between firefighters per health and safety officer (HSO), service area, and years of experience and time to post-fire turnout gear item removal.

STUDY OBJECTIVES

- To determine how post-fire time to turnout gear removal varies among firefighters and departments
- To form a hypotheses as to why these variances in time to turnout gear removal exist
- To lay a foundation for future research in order to determine how firefighters may be increasing their exposure to carcinogens and to determine methods of reducing these exposures.

METHODS

Using a cross-sectional study design, an anonymous survey was administered to Florida firefighters at the 2018 Florida Fire Chiefs' Safety and Health Conference. Time to gear removal after a fire was categorized and percentages of firefighters removing each piece of gear (e.g. hood, pants, etc.) in each time interval were reported. A contingency table analysis, using Fisher's exact tests, examined the association between the number of firefighters per HSO and gear removal time. Time to gear removal practices were also organized by fire department service area (urban and not urban) and years of experience (<15 or >15) in order to determine if these variables had an effect on gear removal practices.

RESULTS

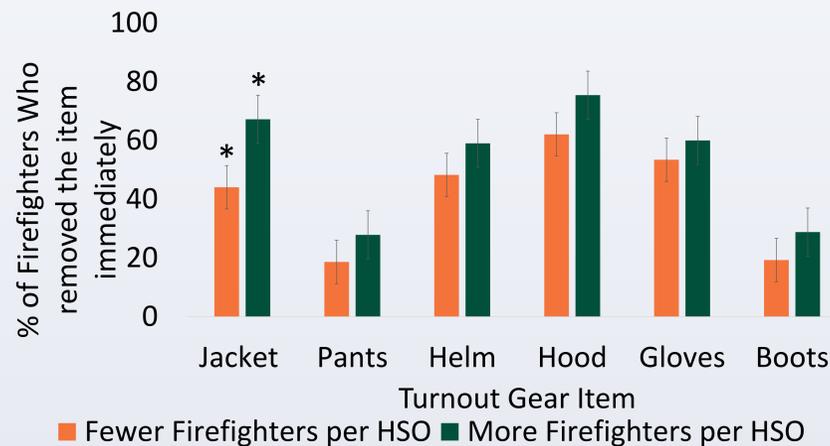


Figure 1. Turnout gear removal practices by firefighter to healthy and safety officer (HSO) ratio

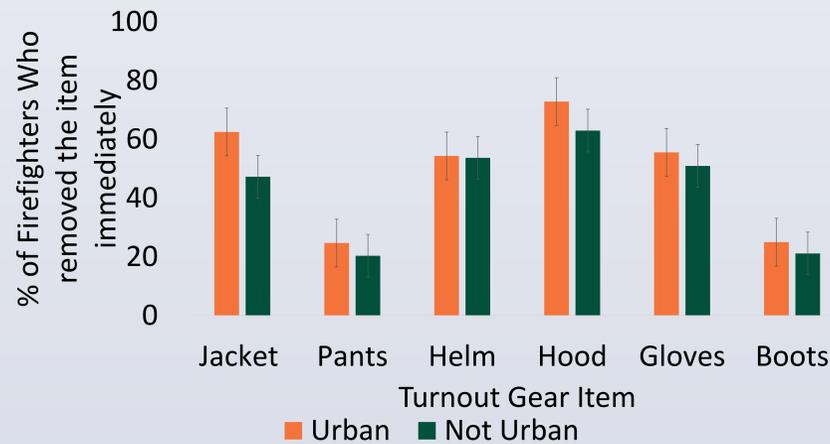


Figure 2. Turnout gear removal practices by firefighter service area

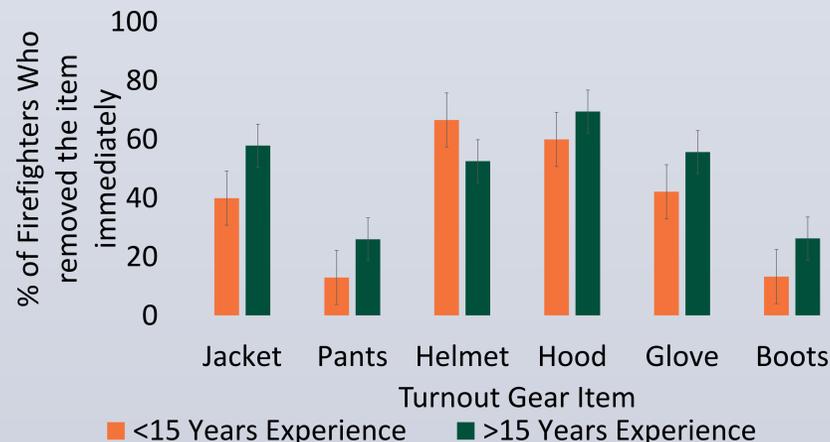


Figure 3. Turnout gear removal practices by years of experience

Among the 138 respondents, representing 63 Florida fire departments, time to gear removal after overhaul varied. Gear items such as hoods were removed within 30 minutes (90.51%) whereas other items such as pants were left on for more than 30 minutes (40%). After adjusting for multiple comparisons, trends were seen as a function of the number of firefighters per HSO. Larger fire departments (i.e. more firefighters per safety officer) were more likely to remove certain gear items immediately when compared to smaller fire departments. A statistically significant difference between small and large fire departments was found in the time to remove jackets after a fire (67% of firefighters in larger departments removed their jacket immediately compared to 44% in smaller departments, $p = 0.0165$).

CONCLUSIONS

- Fire department workforce size is associated with time to remove gear items once overhaul is completed. Larger fire departments (with more firefighters per HSO) tended to remove gear more quickly.
- Fire department service area demonstrated insignificant association with time to gear removal. Urban fire departments, however, tended to remove gear more quickly.
- Firefighter years of experience demonstrated insignificant association with time to gear removal. Younger Firefighters tended to remove gear more quickly.
- Further research into gear removal practices, and why they vary among departments, is warranted.

REFERENCES

The 2019 FAST-C Survey with the University of Miami Public Health Department