

Evaluating Firefighter On-Scene Decontamination Practices Using a National Fire Records Management System

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Journal of Occupational Medicine [Journal of Occupational and Environmental Medicine](#)

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PMCID: PMC10662600 PMID: [37550953](#)

This is the first study to describe real world on-scene exposure decontamination practices by fire personnel using data entered into a fire incident management system, with records from over 2,500 firefighters throughout the United States. Our results suggest that too few fire personnel are performing decontamination on-scene following documented exposure.

Because of the effectiveness of decontamination at decreasing fire personnel exposure risk, a recent update to the Lavender Ribbon Report for Preventing Firefighter Cancer was released by the International Association of Fire Chiefs and the National Volunteer Fire Council.⁹ This report outlines 11 best practices for preventing cancer in fire personnel including the following:

- 1. Full personal PPE must be worn throughout the entire incident, including a self-contained breathing apparatus during salvage and overhaul.*
- 2. A second hood should be provided to all entry-certified personnel in the department.*
- 3. After exit from the immediately dangerous to life or health and while still on air, immediate gross decontamination of PPE using soapy water and a brush, if weather conditions allow, should be performed. Personal protective equipment should then be placed into a sealed plastic bag and placed in an exterior compartment of the rig, or if responding in personally owned vehicle, placed in a large storage tote, thus keeping the off-gassing PPE away from self and passengers.*
- 4. Exposed areas of the body (neck, face, arms, and hands) should be wiped off immediately using wipes. Remove as much soot as*

possible from the head, neck, jaw, throat, underarms, and hands immediately.

- 5. Change clothes and wash them after exposure to products of combustion or other contaminants. Do this as soon as possible or isolate in a trash bag until washing is available.*
- 6. Shower as soon as possible after being exposed to products of combustion or other contaminants. "Shower within the hour."*
- 7. Personal protective equipment, especially turnout pants, must be prohibited in areas outside the apparatus floor (ie, kitchen, sleeping areas, etc) and never in the member's household.*
- 8. Wipes, or soap and water, should also be used to decontaminate and clean apparatus seats, self-contained breathing apparatus, and interior crew area regularly, especially after incidents where personnel were exposed to products of combustion.*
- 9. All firefighters should get an annual physical, as early detection is the key to survival.*
- 10. Tobacco products of any variety, including dip and e-cigarettes, should never be used on or off duty.*
- 11. Fully document all fire or chemical exposures on incident reports and personal exposure reports.*

CONCLUSIONS

Fire personnel may not be taking all necessary, and recommended, steps to reduce carcinogenic exposures after a working fire. On-scene post-fire decontamination procedures were underused in this study. Almost one in five fire personnel with a documented exposure did not document performance of any decontamination procedures on-scene after a fire incident. Furthermore, documentation of best practices for on-scene decontamination was rare, with less than 5% of exposed fire personnel in this study documenting all on-scene decontamination best practices outlined by the International Association of Fire Chiefs and the National Volunteer Fire Council. Fire personnel in rural areas may be at even greater risk when compared with those in urban areas. The lack of on-scene decontamination procedure performance documentation was even more pronounced in rural areas. When responding to incidents in rural areas fire personnel had significantly reduced odds of performing any decontamination procedures when compared with fire responses in urban areas. Almost a quarter of fire personnel did not document any on-scene decontamination procedures after a working fire in a rural area.

Leadership in the fire service should continue to emphasize the need for complete and accurate documentation of exposures and decontamination procedures. Documentation of fire personnel demographics should be encouraged in personnel management systems.