

Strategies to Prevent Injuries among Firefighters (SPIFi): Updates to Fireground Operations

I. Fireground Injuries

Fireground operations are the fourth leading cause of TFD injuries, accounting for approximately 10% of reported injuries. As part of the SPIFi risk management process, the mapping of activities and corresponding hazards encountered during fireground response operations from call dispatch to returning to in-service (Figure 1) led to the identification of control strategies that support improving the **awareness** and **reinforcement** of best (and safe) practices.

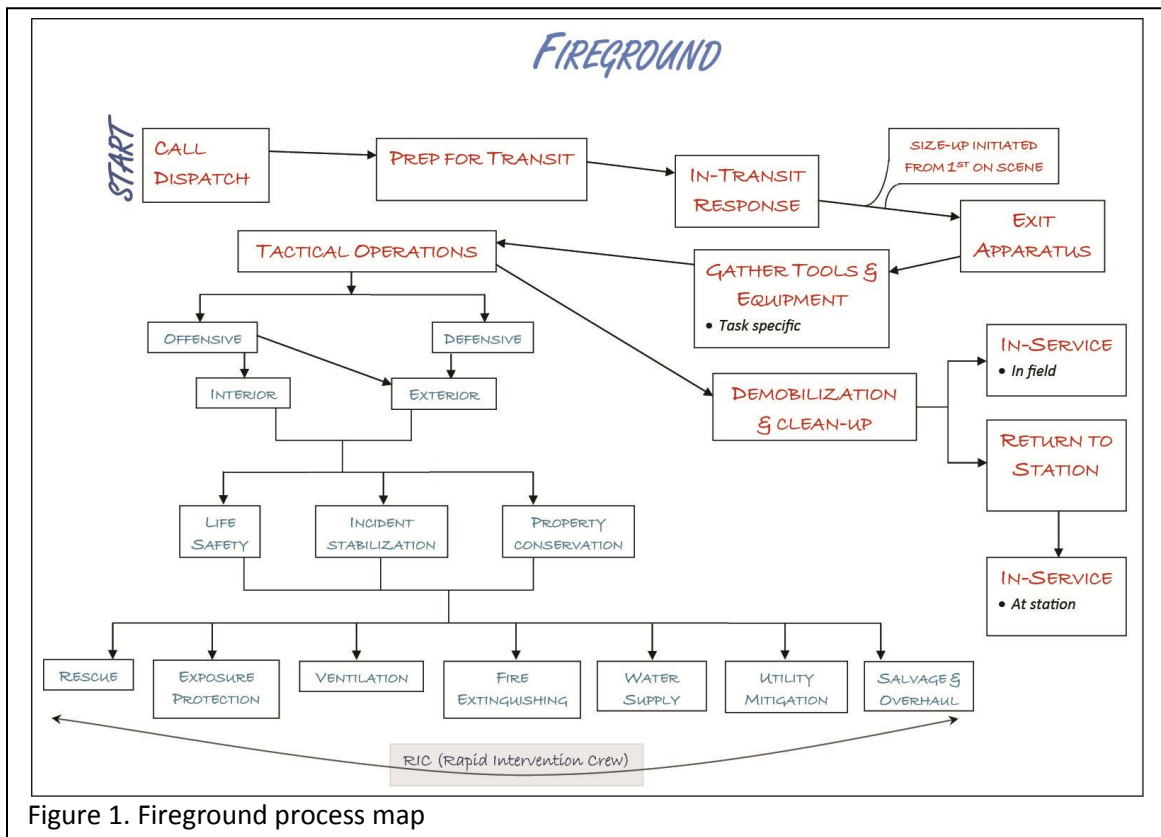


Figure 1. Fireground process map

II. Fireground Intervention Strategies

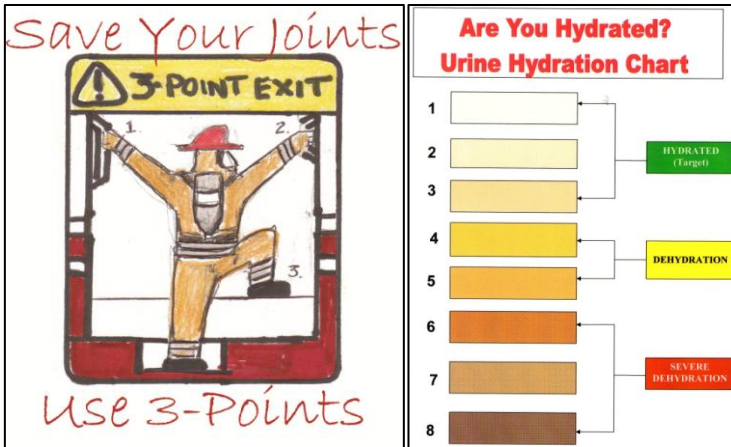
The “demobilization and clean-up” stage was identified as posing the greatest risk for injury. The top priority for controlling fireground operation injuries is to *emphasize and enforce the use of personal protective equipment (PPE) during demobilization and clean-up*, including empowering the safety officer to remove a firefighter from scene if not wearing appropriate PPE.

Another important priority is *improvements to rehab activities during and after fire suppression efforts*.

Previously, adherence to the protocol for releasing employees back to work (i.e., meeting vital sign requirements) was inconsistent. To *better define and enforce rehab protocols*, the rehab “tent” (or medic truck) should be located further away from the on-scene activities so that individuals are less likely to be mixed-in with the commotion of tactical operations. A second medic truck (or additional medics) should also be included in rehab monitoring for larger fires (i.e., a multi-alarm fire response). Active cooling using forearm immersion in cold water for 15 minutes should be considered for heat-stressed firefighters, as a study of fireground rehabilitation carried out by the University of Arizona, TFD, and Northwest Fire District, has been shown to

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reduce elevated core temperature and heart rate. In addition, *a peer safety check of equipment and PPE should be instituted (by the captain) before any overhaul, demobilization and clean-up activities.*

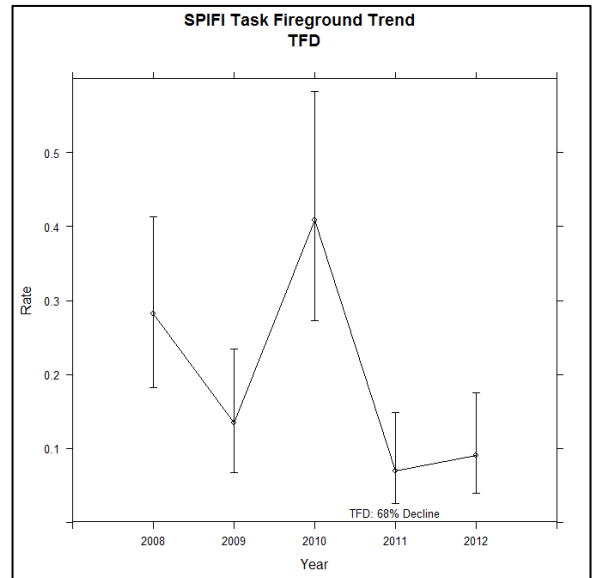


To reinforce awareness to some of the noted risks, and to help improve adherence to protocols, *visual reminders (e.g., posters, placards, and signage) were suggested.* Additional signage included a “3-points of contact” message on apparatus doors; proper PPE signs on both hose towers and chemical cabinets (e.g., eyewear, gloves, face shield); and a “Hydration” information chart (i.e. poster) was placed above station urinals and stalls to lower the potential for dehydration.

Visual reminder examples

III. Preliminary Fireground Results...

- Compared with the pre-intervention period (2008-2010), TFD fireground injuries dropped 68% in the post-intervention period (2011-2012).
- TFD commissioned employees thought this process was very valuable, especially since it allowed for diversity of opinions by involving firefighters from various levels. Participants described the value of going over the injury data and gaining a clear understanding of the causes of injuries on the fireground. The process reinforced for the participants that most of the injuries were preventable and resulted from risks that were covered during training.



IV. More evaluation and results to come

Other intervention strategies not yet implemented are under consideration by TFD’s Safety, Health and Survival Committee.

Additional details and contact information can also be found on the project website:

<http://www.spifi.publichealth.arizona.edu>

KEY POINTS

- A systematic risk management approach was used to identify, design and implement strategies to reduce workforce injuries.
- Three interventions were implemented in the area of fireground operations.
- Since implementation of the risk management interventions, the fireground injury rate at TFD has decreased 68%.
- The interventions have also been evaluated using surveys, focus groups, and interviews.