6th WORLD CONFERENCE

Injury Prevention and Control

6e CONFÉRENCE MONDIALE

Prévention et contrôle des traumatismes

ABSTRACTS • RÉSUMÉS

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INJURIES, SUICIDE AND VIOLENCE:
Building Knowledge, Policies
and Practices to Promote a Safer World

TRAUMATISMES, SUICIDE ET VIOLENCE :
Construire un savoir, des politiques
et des pratiques pour promouvoir
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NIOSH FIRE FIGHTER FATALITY INVESTIGATIONS 1998-2000; OVERVIEW WITH AN EMPHASIS ON STRUCTURE-RELATED TRAUMATIC FATALITIES

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PROBLEM UNDER STUDY: Occupational fire fighter fatalities, particularly those involving burning structures, which continue to present challenges for injury prevention efforts.

OBJECTIVES: Review the causes of all fire fighter line-of-duty fatalities from 1998 to 2000, and present recommendations and discussion specifically regarding the subgroup of structure-related traumatic fatalities.

METHOD OR APPROACH: Descriptive data from the US Fire Administration on US fire fighter fatalities are combined with selected NIOSH Fire Fighter Fatality Investigation and Prevention Program (FFIPP) Reports. The FFIPP has been funded since 1998. It performs on-site, in-depth investigations of line-of-duty fire fighter deaths, with a purpose not to find fault or place blame, but to develop injury prevention recommendations to help prevent future similar deaths.

RESULTS: There were 308 line-of-duty deaths among US fire fighters during 1998-2000. These included 147 medical (non-traumatic) deaths (48%), of which 132 were due to myocardial infarction; 59 motor vehicle-related fatalities (19%); and 102 other traumatic fatalities (33%). Causes of death in the latter category were asphyxiation or burns (n=50), stuck by or fall injury (16), air transportation crashes (15), electrocution (7), drowning or SCUBA-related (6), explosion (4), and gunshot (4). NIOSH investigated 66 of these non-motor vehicle traumatic fatalities, including 44 of the 51 that involved structures. Common sce-

narios for fatalities that were associated with burning structures included falls through a floor or a roof collapse with subsequent entrapment, probable flash-over conditions, and disorientation and inability to exit the structure before running out of the Self-Contained Breathing Apparatus air supply. In most incidents, conditions deteriorated rapidly leading to the fatality, and in only 6 cases (involving 10 fatalities) had the fire fighters recognized a high danger and begun withdrawal from the burning structure. NIOSH recommendations to reduce these fatalities are incident-specific, but frequent points include the need for: continued assessment of the risk versus gain of internal attack, improved communication, close teamwork and accounting of all fire fighters, clear incident command structure and a safety assistant at most fires, a Rapid Intervention Team, and the use of Personal Alert Safety System devices to help quickly locate and rescue a downed firefighter.

CONCLUSION: Fire fighting remains one of the most hazardous occupations, and the number of fatalities has not changed dramatically in recent years. Traumatic injuries related to burning structures are the most specific to fire fighting, and account for approximately 17 percent of the fatalities. These injuries present safety and health professionals with difficult challenges in terms of prevention efforts given the inherently hazardous nature of fire scenes, as well as the common use of offensive (internal) fire fighting tactics to save civilian lives and property. Fire fighting in and around burning and therefore disintegrating structures is particularly dangerous; changing structural materials and the often unknown nature of critical factors (duration and exact location of fire, structural integrity, etc.) in most fires make safety decisions difficult. The FFIPP recommendations are aimed at improving the safety performance of fire fighting crews. However, further research is needed to allow fire fighters to better predict when a change to a defensive (external) approach is needed for structural fires. In addition, better exposure data are needed to assess trends in risk, compare data nationally and internationally, and evaluate the benefit of specific interventions.

LIMITS: These data are a case series for a limited time period, and the safety recommendations primarily represent expert opinion or consensus, without controlled intervention study validation.

CONTRIBUTION OF THE PROJECT TO THE FIELD: This project succinctly identifies the major causes of recent fire fighter occupational deaths, notes expert US recommendations for the prevention of fire scene traumatic deaths, emphasizes the need for better exposure data in order to define risk rates and intervention effectiveness, and provides a starting point for comparison with international fire fighter fatality experience.