



RISK MANAGEMENT INFORMATION  
**TRENDS IN FIREFIGHTER INJURIES**

*Firefighter work comp losses are some of the largest incurred in LMCIT's workers' compensation program. Recent research by LMCIT shows many of the injuries to firefighters may be preventable. This memo addresses an injury evaluation and some recommendations to abstain from work related injuries.*

**Background**

The LMCIT Workers' Compensation program has experienced increasing loss costs over the last five years, primarily as a result of increasing medical costs consistent with trends in the industry. Medical costs are now the single largest category in work comp, comprising approximately 58 percent of total loss costs in 2005. LMCIT has experienced increases in work comp medical costs every year since 2001 and predicts these costs will continue to rise.

As a result of these cost increases, LMCIT increased work comp premium rates from 7 to 12 percent in each of the last five years, with the exception of 2007. Given the medical cost trend, the only way cities can truly avoid premium increases is to avoid work comp losses altogether. With this goal in mind, LMCIT has reviewed work comp losses by job class, injury characteristics, and other criteria to help cities identify where and how to focus risk reduction and safety programs.

**Learn More**

Read more about work comp insurance in:

*Workers' Compensation for Firefighters*

It's available at [www.lmc.org](http://www.lmc.org).

On average, LMCIT handles approximately 4,300 work comp claims a year. Incurred work comp costs for the most recent five-year period totaled more than \$70 million. Firefighters have the third highest loss costs in the work comp program, comprising approximately 17 percent of total costs or approximately \$2.4 million a year, on average.

Firefighters are tied with electric & steam plant employees for having the highest average cost per claim of all LMCIT job classes—nearly \$4,300. As a comparison, the average cost per LMCIT work comp claim is approximately \$3,200. The high cost per claim for firefighters is primarily the result of several on-the-job deaths and a few severe motor vehicle accidents.

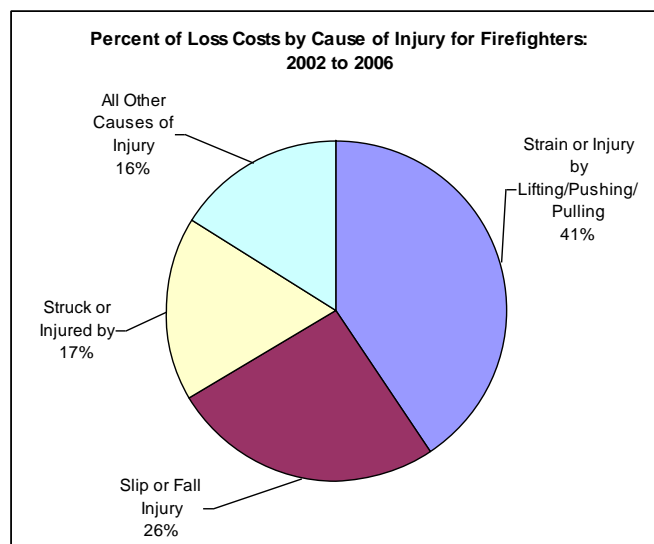
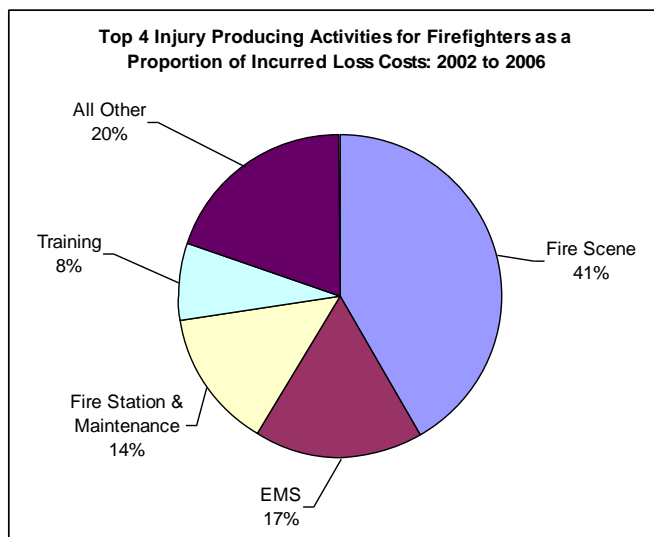
This material is provided as general information and is not a substitute for legal advice.  
Consult your attorney for advice concerning specific situations.

## Firefighter Injury Evaluation

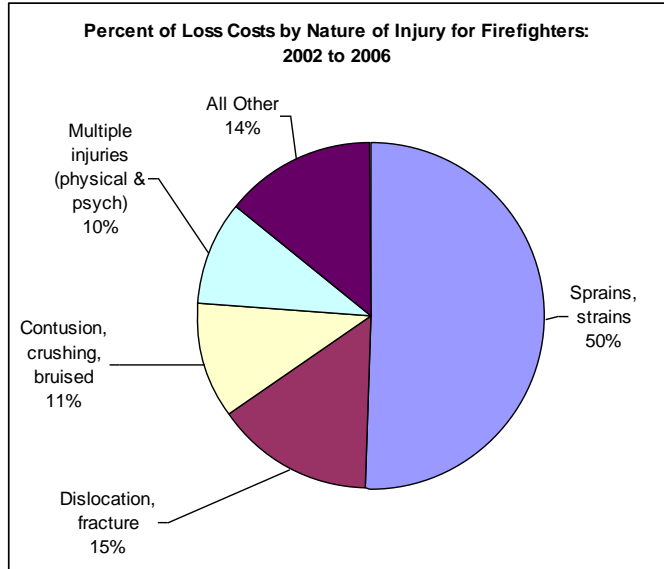
LMCIT's firefighter injury evaluation includes data from 290 lost-time firefighter work comp claims from injuries that occurred between 2002 and 2006, *excluding high-cost claims exceeding \$50,000*. (There are so few of these claims and the dollar amount is so great, including them would skew the findings). Claims included in this analysis had a total incurred value of approximately \$10.1 million. Previous LMCIT research showed no significant differences in injuries based on firefighter status as full-time, paid-on-call, or volunteer. Costs and claims from all firefighters have been combined for purposes of our analyses.

Fire injuries were classified into 13 possible injury categories: fire scenes, EMS, training, fire station and maintenance, occupational disease, repetitive stress, emergency driving, non-emergency driving, physical fitness, inspection, office work, HazMat, and other.

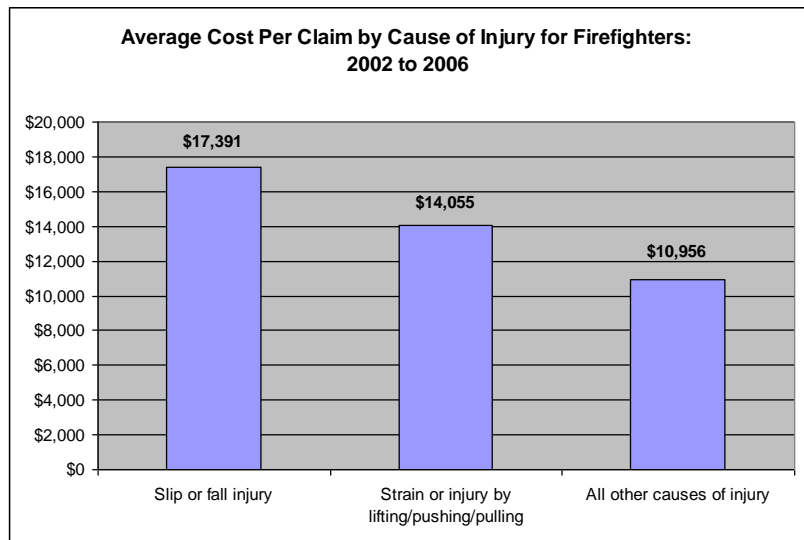
- The top four injury categories by cost for firefighters were: **fire scenes** (41 percent), **EMS operations** (17 percent), **fire station and maintenance** (14 percent), and **training** (8 percent). Eighty percent of all lost-time injury costs for firefighters can be classified into one of these four operational areas.
- Injuries from **lifting/pushing/pulling** and **slips/falls** are the most common causes of injury among firefighters, comprising more than 65 percent of all loss costs.



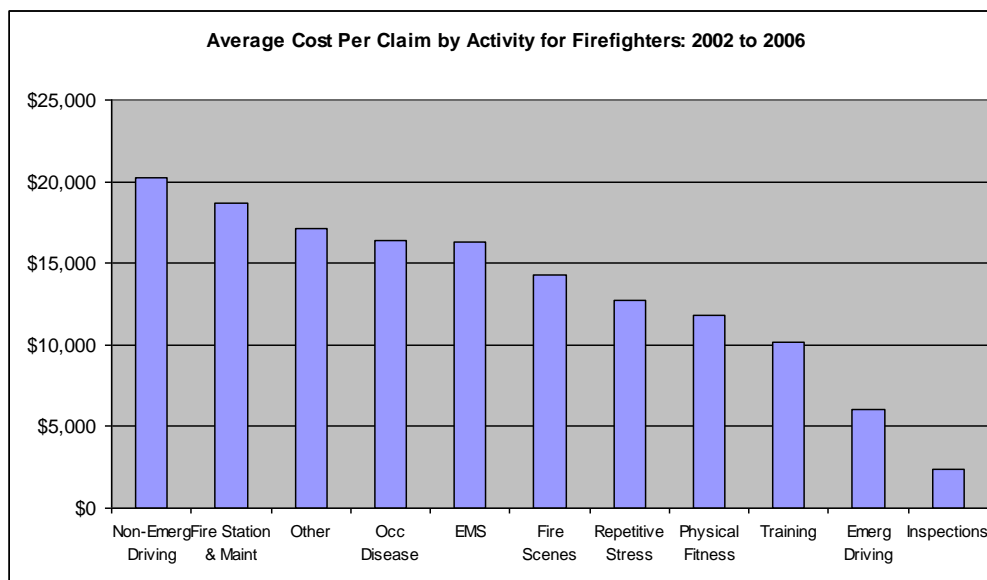
- The single most common nature of injury was *sprain/strain*. Sprains and strains comprised 50 percent of total incurred costs from 2002 to 2006. This is directly related to our findings about lifting/pushing/pulling and slips/falls. When a firefighter is injured by falling or lifting a heavy object, the result is usually a strained muscle.



- The average cost per claim for a firefighter *slip/fall* injury or a *lifting/pushing/pulling* injury is greater than the average cost per firefighter claim for all other causes of injury combined, making these injuries a primary focus area for fire departments and LMCIT.



- **Non-emergency driving** wasn't among the top injury-producing activities for firefighters; however, it merits attention. Non-emergency driving had the highest average cost per claim for firefighters—more than \$20,000.



- More than 47 percent of costs for injuries occurring at a **fire scene** were caused by a slip/fall. Among these, ice was a contributing factor in more than half of the injuries. Approximately 36 percent of injuries occurring at the fire scene were caused by lifting/pushing/pulling an object.
- Fourteen percent of injury costs for injuries to firefighter were the result of injuries which took place at the **fire station** or happened during **maintenance** activities. Injuries occurring at the fire station and during the course of routine maintenance were most often caused by lifting/pushing/pulling (43 percent of costs) and slips/falls (36 percent of costs).
- Lifting/pushing/pulling activities also accounted for more than 74 percent of all injury costs attributable to **EMS scenes**.
- Eight percent of injury costs during the period of study were due to injuries that took place during **training**. Among training injuries, 43 percent of injury costs were the result of lifting/pushing/pulling. Nearly 20 percent of training injury costs were attributable to slips/falls.
- Nearly half of all firefighter loss costs result from injuries occurring to one of three areas of the body—backs, upper extremities, and lower extremities. **Back injuries** are the single most costly injury for firefighters and other job classes within LMCIT's membership. Lower and upper extremity injuries can include a variety of injuries, ranging from shoulder strains to carpal tunnel syndrome.

- All five **firefighter deaths** among LMCIT member cities over the past decade were the result of an auto accident or a firefighter being struck by a vehicle.

In addition to classifying firefighter injuries by activity and cause of injury, LMCIT identified several other “factors” leading to firefighter injuries. These factors might be considered aggravating or contributing factors to firefighter injuries.

The most common contributing factors to a firefighter injury were: **ice, hose-handling, and traffic hazards**. Ice was a contributing factor in at least 13.7 percent of all claims. Hose-handling was a factor in at least 10.5 percent of claims, and traffic hazards were a factor in at least 6.5 percent of claims. One of these factors was mentioned in at least 31 percent of all claims.

## **Recommendations**

A firefighter on the scene of a fire during winter in Minnesota faces a unique set of job hazards. Not only does a firefighter carry around 50 to 60 pounds worth of gear, but they also have to walk on the ice that’s been created by water used to put out the fire. One can easily see how a slip/fall injury can be aggravated when a firefighter falls to the ground with the weight of his/her own body plus the weight of equipment needed to do the job.

There is no simple fix to this issue. Budgets in small cities are already strained and buying special boots to avoid these injuries would not be cheap. For cities who can’t afford ice gripping boots, we recommend regular **boot inspections**. If there isn’t a sufficient amount of tread, it’s time to replace the boots.

### **Physical Fitness**

Physical fitness is an important component in the overall effort to decrease injuries to firefighters. There is a great deal of research demonstrating that employees who are physically fit are less likely to have a work-related injury, including sprains/strains and injuries from lifting/pushing/pulling an object. In addition, a physically-fit employee is likely to be less severely injured than an employee who is not physically fit.

### **Lifting Techniques**

Many firefighters are injured handling patients while providing EMS. LMCIT has a great deal of knowledge about patient-handling injuries. We know that patient extraction and patient transportation are some of the most injury-producing activities an employee can do.

The traditional lifting techniques do not prevent patient-handling injuries. In addition, lifting injuries can be compounded by one of two factors—either EMS runs are numerous and employees are lifting repetitively throughout the day, or patient extraction is handled infrequently enough that lifting techniques are easily forgotten between events.

Ergonomic equipment designed to assist in safe patient-handling has been proven to decrease the number of patient handling injuries in hospitals and nursing homes. Similar but more portable equipment is also available for public safety personnel who provide EMS. Safe patient-handling equipment could effectively reduce a significant number of injuries for police and fire due to EMS activities. LMCIT is willing and able to advise police and fire departments who are considering the purchase of ergonomic equipment for patient handling.

### **Fire Station Risk Factors**

A municipal fire station isn't all that different from a city workshop. Many of the same risk factors exist in both environments. Some of the common musculoskeletal risk factors that firefighters face include awkward postures, prolonged postures, repetition, temperature extremes, vibration, and excessive force/weight. Common maintenance or fire station job duties include hose rolling, carrying heavy equipment and physical exertion. We assume that many of the lifting/pushing/pulling injuries firefighters experience are the result of one or all of these musculoskeletal risk factors.

#### **Learn More**

Read more about safety issues in:

*Facility Safety for Fire Departments*

It's available at [www.lmc.org](http://www.lmc.org).

A solution to these injuries might involve *job hazard evaluation* and *ergonomic guidelines*. The purpose of ergonomics is to design the job to fit the worker—not make the worker fit the job. LMCIT already has a great deal of experience in job hazard analysis and workshop ergonomics and can help departments interested in this type of evaluation.

### **Training**

Similar to the findings for police, training injuries to firefighters can be severe and quite costly. Training takes place in a controlled environment and injuries during training activities should be completely amenable to loss control.

### **Traffic Hazards**

Traffic hazards are also an area of concern for firefighters. There have been five firefighter deaths among LMCIT member cities over the past decade. All of these deaths have been the result of an auto accident or a firefighter being struck by a vehicle while on the side of a roadway. Driver training and roadway safety policies might help your department prevent firefighter injuries and deaths.

### **Future Activities**

LMCIT will continue to study firefighter injuries and consider options for loss control opportunities. We've made some important outreach to key groups such as MSFCA (Minnesota State Fire Chiefs Association), MSFDA (Minnesota State Fire Department Association), MPFF (Minnesota Professional Firefighters), and IAFF

#### **Your League Resource**

For more information on firefighter injuries, please contact the League's Research department at 651-281-1200.

(International Association of Firefighters) to help the League design solutions that will be well-received by both city administration and fire departments.

Ann Gergen & Mandy Clemenson 03/10