

Texas Commission on Fire Protection

Injury Report

January 1, 2014 to December 31, 2014



TEXAS COMMISSION ON FIRE PROTECTION

Table of Contents

Table of Contents.....	i
Executive Summary.....	1
Abstract	2
Mission.....	3
Building a Community of Safety	3
Why we are collecting injury data	3
What information does the commission collect?	3
How this will help the fire service	3
Learn more and get help.....	3
Reports, Information and Data Collection.....	4
Fire Protection Personnel Injuries.....	5
Table 1: Injuries by Activity and Severity, 2014.....	5
Figure 1: Total Injuries by Activity, 2014.....	5
Emergency vs. Non-Emergency Injuries.....	6
Table2: Injuries by Emergency Activity and Severity, 2014.....	6
Table3: Injuries by Non-Emergency Activity and Severity, 2014	6
Figure 2: Percent of Total Injuries in Emergency and Non-Emergency Activities, 2014	6
Injuries by Type	7
Table 4: Types of Injury, 2012-2014 (Note: ordered high to low, 2014).....	7
Figure 3: Types of Injury, 2014.....	7
Task at Time of Injury.....	8
Table 5: Top 15 Tasks at Time of Injury, 2013-2014	8
Figure 4: Top 15 Tasks at Time of Injury, 2013-2014.....	8
Exposures	9
Table 6: Exposure Agents, 2013-2014.....	9
Figure 5: Exposure Types, 2013 - 2014.....	9
Injuries by Body Part	10
Table 7: Injuries by Body Part, 2012 - 2014.....	10
Minor and Serious Injuries by Activity.....	11
Table 8: Minor Injury Activities, 2012 - 2014.....	11
Table 9: Serious Injury Activities, 2012 - 2014.....	11
Injuries by Age Group	12

Table 10: Injuries by Age Group, 2012 - 2014.....	12
Figure 6: Injury Count by Age Group, 2012 - 2014.....	12
Injury Activities Resulting in Lost Time.....	13
Table 11: Injury Activities Resulting in Lost Time, 2014.....	13
Table 12: Activities Resulting in Lost Time, 2014, between 1 and 30 Days.....	13
Injury Activities Resulting in Lost Time (continued)	14
Table 13: Activities Resulting in Lost Time, 2014, between 31 and 90 Days.....	14
Table 14: Activities Resulting in Lost Time, 2014, 91+ Days	14
Types of Injuries with Lost Time	15
Table 15: Types of Injuries Resulting in Lost Time, 2014	15
Figure 7: Types of Injuries Resulting in Lost Time, 2014	15
Burn Injuries.....	16
Table 16: All Burns, 2013 - 2014.....	16
Table 17: Burns with Lost Time by Burn Type, 2014.....	16
Table 18: Burns by Body Part, 2013 - 2014.....	16
Burn Injuries (continued).....	17
Table 19: Burns by Emergency Activity, 2014	17
Figure 8: Burns by Emergency Activity, 2014	17
Burn Injuries (continued).....	18
Table 20: Burns by Non-Emergency Activity, 2014	18
Figure 9: Burns by Non-Emergency Activity, 2014.....	18
SOP Issues.....	19
Table 21: Injuries Attributed to SOP Issues, 2014.....	19
Fatalities.....	19
Example Injury Narratives	20
Comparison between the State of Texas (2014) and National Fire Protection Association (NFPA), U.S. Firefighter Injuries – 2013	22
Table 22: Comparison of Texas 2014 and NFPA 2013.....	22
Figure 10: Injuries by Activity Percentages – Comparing Texas 2014 and NFPA 2013	22
2014 Findings/Recommendations.....	23
Commission-adopted standards	25

Executive Summary

This report includes the abstract, mission, reports, information and data collected. The report includes fire fighter injuries reported to the Texas Commission on Fire Protection in 2014, with charts and graphs depicting the collected information. The report also compares Texas injuries to National Fire Protection Association (NFPA) U.S. Firefighter Injuries - 2013.

Under Texas Government Code §419.048, the Texas Commission on Fire Protection is charged with developing and establishing criteria to receive and analyze injury information pertaining to Texas fire fighters. The commission reviews this information to develop recommendations to help reduce fire protection personnel injuries. The commission provides this information to the State Fire Marshal's Office (SFMO) by September 1 of each year for inclusion in the SFMO's annual Firefighter Fatality Investigations Report. The commission has enacted rules about reporting injuries in the Texas Administrative Code (TAC) Title 37, Chapter 435, and has established the criteria and policies for reporting and analyzing the information.

The commission built the data systems necessary to gather this information in 2010. Development is ongoing as we receive feedback from stakeholders on the efficiency of the system. The reporting process is accomplished online through the commission's website. Every fire department regulated by the commission has been notified of the requirement to report. Several volunteer departments, which are not regulated by the commission, are also participating voluntarily.

This report concludes with recommendations from the commission.

Abstract

Texas fire departments reported 4,055 injuries to the Texas Commission on Fire Protection in calendar year 2014. Of these, 992 occurred during fire suppression activities, representing 24.5 percent of the total reported injuries. This represents a four percent increase in the ratio of fire suppression injuries to the total, which in 2013 accounted for 20.7 percent of injuries.

A larger number of reported injuries occurred in emergency medical services (EMS) activities: 1,065 of the 4,055 total reported injuries, or 26.2 percent. This represents a slight decrease in the ratio of EMS injuries to total injuries from 2013, in which 1,116 of 4,051 total injuries, or 27.5 percent, occurred during EMS activities. As in 2013, more *total* injuries occurred in EMS, but fire suppression activities resulted in more injuries that were serious: 177 of the 992 fire suppression injuries were serious (17.8 percent), and 164 of the 1,065 EMS injuries were serious (15.3 percent). The commission defines a serious injury as one that results in missed work.

After EMS and fire suppression, the next highest number of injuries reported in 2014 occurred in the performance of station duties, with 631, or 15.5 percent, of the total injuries. This is nearly the same as in 2013, with 654, or 16 percent, of the total injuries occurring in the station.

Skills training and wellness/fitness activities again rounded out the top five activities resulting in injuries, with 470 (11.5 percent) and 384 (9.4 percent), respectively. The total number of injuries reported in station duties, skills training, and wellness/fitness activities (which are all non-emergency activities) represented over a third (36.6 percent) of the total injuries. This was nearly identical to 2013.

Mission

The commission shall gather and evaluate data on fire protection personnel injuries and develop recommendations for reducing injuries.

The commission's educational and outreach programs provide information on the various educational resources available through TCFP's Ernest A. Emerson Fire Protection Resource Library, associated references linked to this subject, TCFP outreach programs such as the "Avoid Injury!" blog and newsletters, and the adoption of the "Courage to be Safe" program.

Building a Community of Safety

The goal of the Texas Commission on Fire Protection's injury reporting program is to help the fire service community identify common injuries and learn how to avoid risk and prevent injuries.

Why we are collecting injury data

Under Texas Government Code §419.048, the Texas Legislature charged the commission with gathering and evaluating data on injuries. The rules requiring regulated entities to report injuries to the commission are in Texas Administrative Code §435.23. The commission encourages volunteer entities to report injuries so that it can gain as accurate a picture as possible concerning injury trends in the Texas fire service. The injury reporting program began in March 2010.

What information does the commission collect?

- Minor, serious, critical and fatal injuries
- Activities where fire personnel are injured
- Types of injuries (burns, strain-sprains, wounds, etc.)
- Body parts being injured
- Tasks performed at the time of injury
- Missed time
- Work assignment after injury
- Malfunctions/failures of personal protective equipment (PPE), self-contained breathing apparatus (SCBA), personal alert safety systems (PASS devices) and standard operating procedures (SOPs)

How this will help the fire service

- Identify common injuries
- Identify trends in injuries
- Identify needed training
- Evaluate and find improvements in procedures
- Track lost time injuries (requested by user community)

Learn more and get help

The commission provides information on reported injuries to the fire service via its website, its "Avoid Injury!" blog, its Facebook page and in its year-end addendum to the State Fire Marshal's Office's annual report.

Reports, Information and Data Collection

This report contains data submitted by regulated and non-regulated entities. The data collected in 2014 was the fourth full year of reporting. The commission anticipates that it will take five full years of reporting to provide more substantive and accurate data for trending and analysis.

Of the approximately 659 commission-regulated entities included in this report, 539, or 81.49 percent, either submitted an injury report or a “no injury” report for months in which their personnel did not have any injuries. (Of the non-reporting departments, 66.36 percent are entities with five or fewer members.) Nine non-regulated departments participated voluntarily in the program.

The commission continually reaches out to fire protection entities to communicate the need to report, the types of information needed, and how to respond to requests for additional information. Commission staff members attend and present at the Texas Fire Chiefs Association’s regional meetings, local chiefs’ meetings, Southwest Fire Rescue, and State Firefighters’ and Fire Marshals’ Association conferences to provide information about the injury reporting program. The commission stresses the need for participation and provides reminders to regulated entities of the statutory requirement to report.

The commission’s “Avoid Injury!” blog provides information on current statistics as well as information about resources available through the Ernest A. Emerson Fire Protection Resource Library. Statistics are updated semi-monthly. Blog posts and Facebook updates provide the fire service with information on the National Fallen Firefighters Foundation’s “Courage to be Safe” program, its “16 Life Safety Initiatives,” and how the initiatives have impacted individual departments or the fire service as a whole.

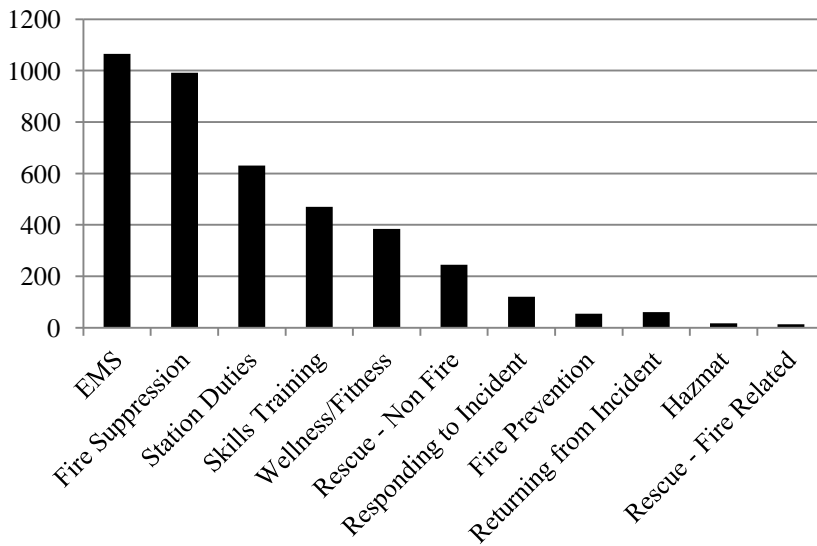
As in previous years, the commission continues to receive feedback from stakeholders on challenges they have experienced and changes they would like to see in the injury reporting program.

Fire Protection Personnel Injuries

Table 1: Injuries by Activity and Severity, 2014

Activity	Minor	Serious	Critical	Fatal	Total
EMS	900	164		1	1065
Fire Suppression	808	177	6	1	992
Station Duties	465	160	5	1	631
Skills Training	365	104	1		470
Wellness/Fitness	254	127	3		384
Rescue - Non Fire	206	38	1		245
Responding to Incident	105	16			121
Fire Prevention	43	11	1		55
Returning from Incident	42	19			61
Hazmat	12	5			17
Rescue - Fire Related	11	3			14
Total	3211	824	17	3	4055

Figure 1: Total Injuries by Activity, 2014



Emergency vs. Non-Emergency Injuries

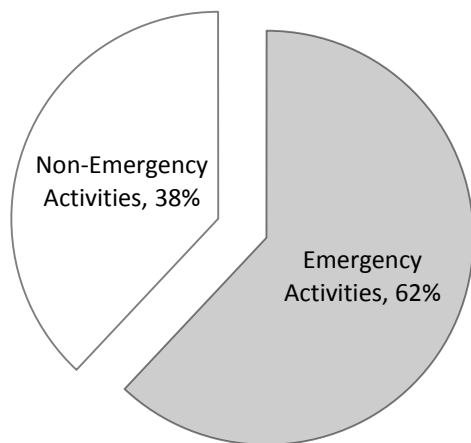
Table2: Injuries by Emergency Activity and Severity, 2014

Activity	Minor	Serious	Critical	Fatal	Total
EMS	900	164		1	1065
Fire Suppression	808	177	6	1	992
Rescue - Non Fire	206	38	1		245
Responding/Returning	147	35			182
Hazmat	12	5			17
Rescue - Fire Related	11	3			14
Total	2084	422	7	2	2515

Table3: Injuries by Non-Emergency Activity and Severity, 2014

Activity	Minor	Serious	Critical	Fatal	Total
Station Duties	465	160	5	1	631
Skills Training	365	104	1		470
Wellness/Fitness	254	127	3		384
Fire Prevention	43	11	1		55
Total	1127	402	10	1	1540

Figure 2: Percent of Total Injuries in Emergency and Non-Emergency Activities, 2014

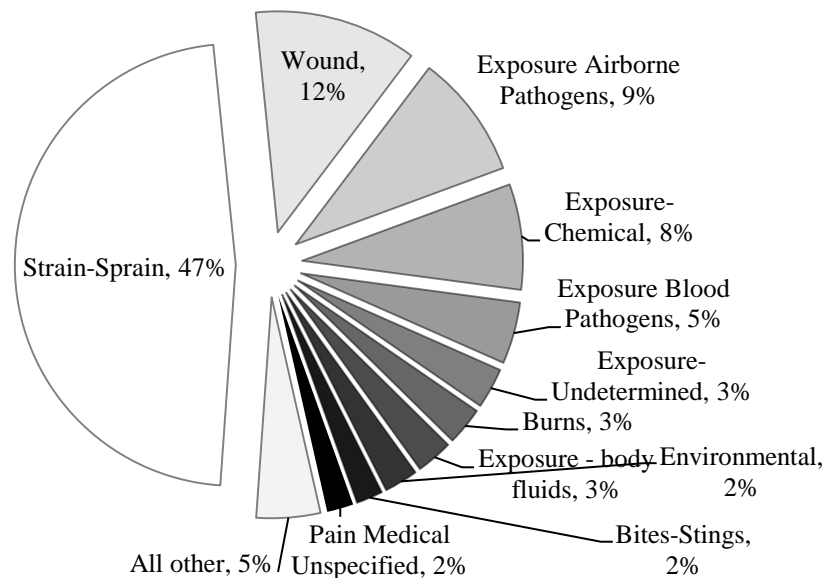


Injuries by Type

Table 4: Types of Injury, 2012-2014 (Note: ordered high to low, 2014)

Type of Injury	2012		2013		2014	
	Count	Percent	Count	Percent	Count	Percent
Strain-Sprain	2140	50.19%	2118	52.30%	1917	47.27%
Wound	631	14.80%	548	13.53%	483	11.91%
Exposure Airborne Pathogens	404	9.47%	281	6.94%	369	9.10%
Exposure-Chemical	128	3.00%	90	2.22%	313	7.72%
Exposure Blood Pathogens	160	3.75%	164	4.05%	183	4.51%
Exposure-Undetermined	23	0.54%	77	1.90%	120	2.96%
Burns	176	4.13%	166	4.07%	113	2.79%
Exposure - Body Fluids	124	2.91%	138	3.41%	109	2.69%
Environmental	133	3.12%	106	2.62%	101	2.49%
Bites-Stings	93	2.18%	87	2.15%	79	1.95%
Pain Medical Unspecified	49	1.15%	62	1.53%	79	1.95%
Chest Pains-Cardiac	40	0.94%	50	1.23%	46	1.13%
Broken Bones	46	1.08%	59	1.46%	39	0.96%
Debris/Penetrating	51	1.20%	38	0.94%	38	0.94%
Hearing Loss - Acute	18	0.42%	14	0.35%	21	0.52%
Smoke-Gas Inhalation	22	0.52%	30	0.74%	20	0.49%
Electrocution	11	0.26%	12	0.30%	12	0.30%
Hearing Loss - Chronic	7	0.16%	2	0.05%	4	0.10%
Broken Spine-Neck	4	0.09%	1	0.02%	4	0.10%
Exposure-Chemical-CO	1	0.02%	6	0.15%	3	0.07%
Heart Attack	2	0.05%	2	0.05%	1	0.02%
Stroke	1	0.02%	0	0.00%	1	0.02%
Total	4264	100.00%	4051	100.00%	4055	100.00%

Figure 3: Types of Injury, 2014



Task at Time of Injury

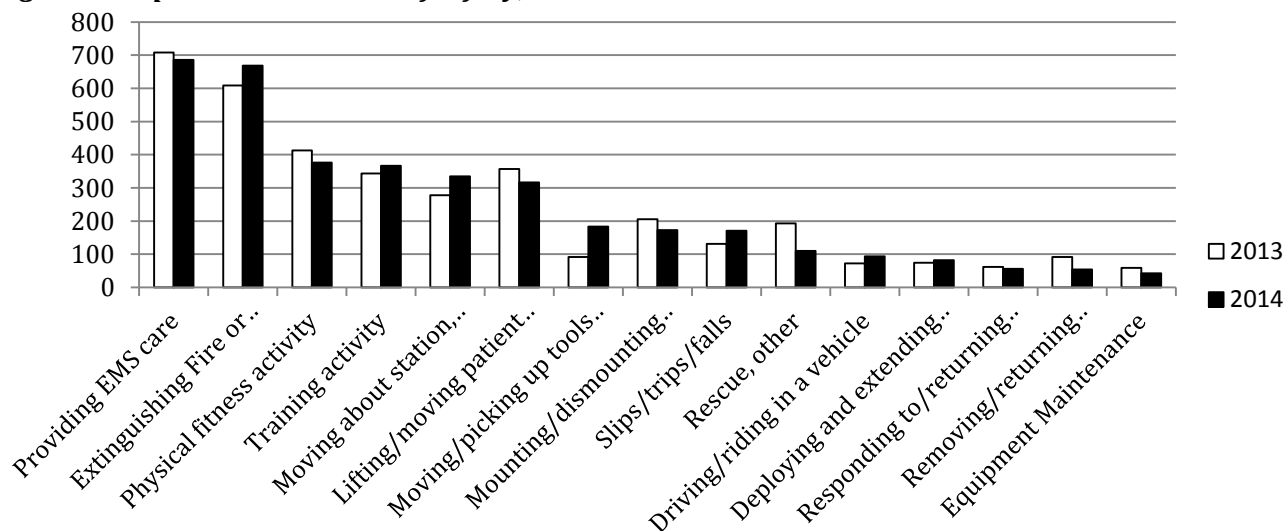
(The commission began gathering task information in mid-2012.)

Table 5: Top 15 Tasks at Time of Injury, 2013-2014

Task	2013	2014
Providing EMS care	708	686
Extinguishing Fire or Neutralizing Incident	609	669
Physical fitness activity	413	376
Training activity	344	367
Moving about station, normal activity	278	335
Lifting/moving patient (EMS)	357	317
Moving/picking up tools or equipment	92	183
Mounting/dismounting apparatus	206	173
Slips/trips/falls	131	171
Rescue, other	193	110
Driving/riding in a vehicle	72	94
Deploying and extending hoseline	74	82
Responding to/returning from incident	62	56
Removing equipment from/returning equipment to apparatus	92	54
Equipment Maintenance	59	43
All other*	361	339*
Total	4051	4055

* All Other, 2014, in Descending Order: Overhaul (42), Forcible entry (38), Operating manual tool (37), Ascending/descending stairs (30), Station maintenance (26), Extrication (23), Ascending/descending ladder (21), Moving about station, alarm sounding (15), Other: description (14), Incident investigation (13), Inspection activity (13), Vehicle maintenance (13), Operating power tool (10), Manually moving item to gain access (9), Carrying/dragging a person (rescue) (8), Crawling in a confined or otherwise hazardous area (5), Non-fire incidents (4), Operating in low/no visibility (4), Operating nozzle (4), Raising/lowering ladder (4), Administrative work (3), Operating fire department apparatus (2), Salvage (1)

Figure 4: Top 15 Tasks at Time of Injury, 2013-2014

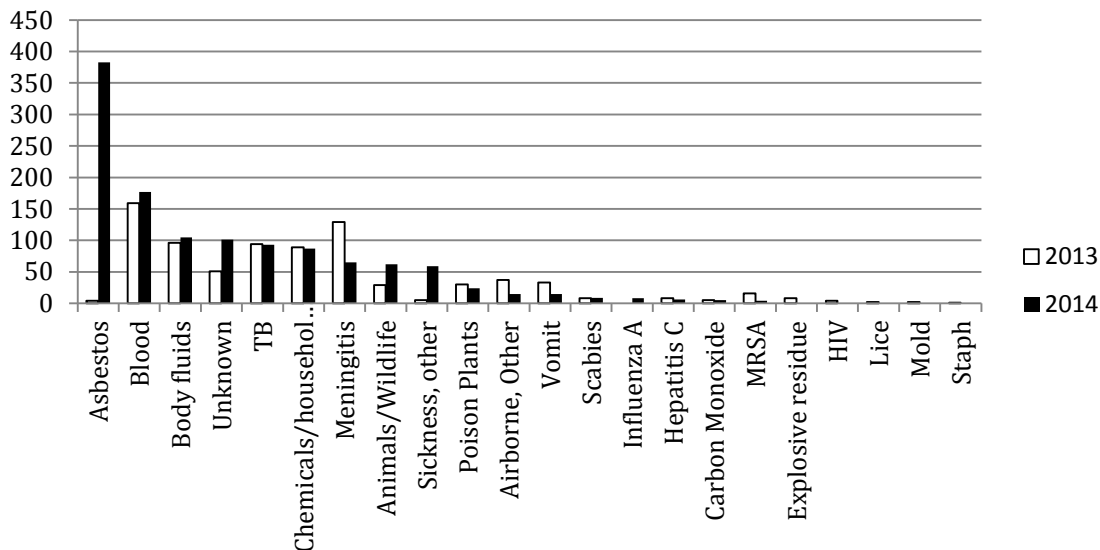


Exposures

Table 6: Exposure Agents, 2013-2014

Exposure Agents	2013	2014
Asbestos	4	383
Blood	159	177
Body fluids	96	105
Unknown	51	101
TB	94	93
Chemicals/household/industrial	89	87
Meningitis	129	65
Animals/Wildlife	29	62
Sickness, other	5	59
Poison Plants	30	24
Airborne, Other	37	15
Vomit	33	15
Scabies	8	9
Influenza A	0	8
Hepatitis C	8	6
Carbon Monoxide	5	5
MRSA	16	4
Explosive residue	8	0
HIV	4	0
Lice	2	0
Mold	2	0
Staph	1	0
Total	810	1218

Figure 5: Exposure Types, 2013 - 2014



Injuries by Body Part

Table 7: Injuries by Body Part, 2012 - 2014

Body Part	2012	2013	2014
Multiple body parts, whole body	760	595	901
Back, except spine	686	588	372
Knee	419	407	367
Hand and fingers	453	403	345
Hip, lower back, or buttocks	35	91	244
Shoulder	272	293	230
Ankle	213	207	177
Multiple Parts	5	62	160
Face	95	128	118
Eye	106	100	98
Arm, lower, not including elbow or wrist	89	84	94
Leg, lower	105	108	86
Foot and toes	132	105	79
Upper extremities	24	16	74
Head	96	94	73
Trachea and lungs	45	51	72
Wrist	71	79	68
Elbow	98	68	66
Chest	30	66	64
Ear	72	54	52
Neck	101	71	50
Other body parts injured	357	381	265*
Total	4264	4051	4055

* **Other body parts injured, 2014, in descending order:** Lower Extremities (35), Abdomen (30), Multiple body parts, upper body (27), Arm, upper, not including elbow or shoulder (26), Leg, upper (25), Pelvis or groin (22), Mouth, included are lips, teeth, and interior (20), Neck and Shoulders (15), Heart (14), Throat (13), Nose (8), Abdominal area (6), Multiple body parts, lower body (5), Spine (5), Genito-urinary (4), Head, other (2), Undetermined (3), (0), Internal (1), Internal, other (1), None (1), Stomach (1), Thorax (1)

Minor and Serious Injuries by Activity

EMS activities resulted in a higher number of minor injuries, but fire suppression activities resulted in a higher number of serious injuries in 2014. The commission defines a serious injury as one which results in the employee missing one or more full duty shifts. (Critical injuries are those in which the injured employee is hospitalized.)

Table 8: Minor Injury Activities, 2012 - 2014

Activity	2012		2013		2014	
	Count	Percent	Count	Percent	Count	Percent
EMS	1042	32.41%	934	30.28%	900	28.03%
Fire Suppression	654	20.43%	619	20.06%	808	25.16%
Station Duties	508	15.80%	452	14.65%	465	14.48%
Skills Training	367	11.42%	317	10.28%	365	11.37%
Wellness/Fitness	294	9.14%	285	9.24%	254	7.91%
Rescue - Non Fire	147	4.57%	243	7.88%	206	6.42%
Responding to Incident	90	2.80%	70	2.27%	105	3.27%
Fire Prevention	45	1.40%	66	2.14%	43	1.34%
Returning from Incident	30	0.93%	37	1.20%	42	1.31%
Hazmat	24	0.75%	44	1.43%	12	0.37%
Rescue - Fire Related	14	0.44%	18	0.58%	11	0.34%
Total	3215	100.00%	3085	100.00%	3211	100.00%

Table 9: Serious Injury Activities, 2012 - 2014

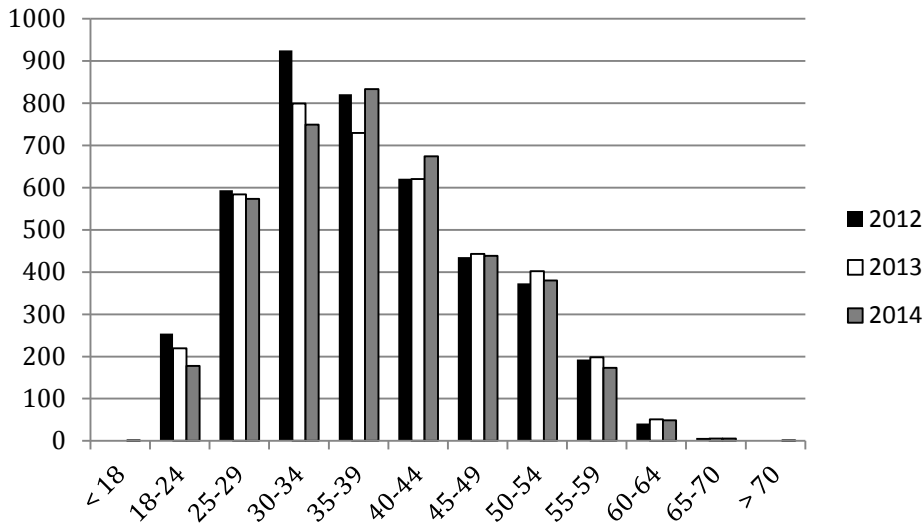
Activity	2012		2013		2014	
	Count	Percent	Count	Percent	Count	Percent
Fire Suppression	231	22.36%	206	21.89%	177	21.48%
EMS	196	18.97%	179	19.02%	164	19.90%
Station Duties	233	22.56%	201	21.36%	160	19.42%
Wellness/Fitness	134	12.97%	122	12.96%	127	15.41%
Skills Training	113	10.94%	99	10.52%	104	12.62%
Rescue - Non Fire	34	3.29%	46	4.89%	38	4.61%
Returning from Incident	24	2.32%	18	1.91%	19	2.31%
Responding to Incident	43	4.16%	42	4.46%	16	1.94%
Fire Prevention	18	1.74%	17	1.81%	11	1.33%
Hazmat	0	0	0	0	5	0.61%
Rescue - Fire Related	7	0.68%	11	1.17%	3	.036%
Total	1033	100.00%	941	100.00%	824	100.00%

Injuries by Age Group

Table 10: Injuries by Age Group, 2012 - 2014

Age group	2012		2013		2014	
	Count	Percent	Count	Percent	Count	Percent
< 18	0	0.00%	0	0.00%	1	0.02%
18-24	254	5.96%	219	5.41%	178	4.39%
25-29	594	13.93%	584	14.42%	573	14.13%
30-34	925	21.69%	799	19.73%	749	18.47%
35-39	821	19.25%	729	18.00%	833	20.54%
40-44	621	14.56%	620	15.31%	674	16.62%
45-49	435	10.20%	443	10.94%	438	10.80%
50-54	373	8.75%	402	9.90%	380	9.37%
55-59	193	4.53%	198	4.89%	173	4.27%
60-64	41	0.96%	51	1.26%	49	1.21%
65-70	7	0.16%	6	0.15%	6	0.15%
> 70	0	0.00%	0	0.00%	1	0.02%
Totals	4264	100.00%	4051	100.00%	4055	100.00%

Figure 6: Injury Count by Age Group, 2012 - 2014



Injury Activities Resulting in Lost Time

Table 11: Injury Activities Resulting in Lost Time, 2014

Activity	Count	Days Missed	
		Average	Total
Fire Suppression	145	43	6258
Station Duties	136	34	4683
EMS	133	37	4955
Wellness/Fitness	99	28	2745
Skills Training	92	33	3021
Rescue - Non Fire	38	29	1083
Returning from Incident	12	24	287
Fire Prevention	12	19	232
Responding to Incident	11	40	443
Hazmat	3	58	174
Rescue - Fire Related	2	19	38
Total	683	33	23919

Table 12: Activities Resulting in Lost Time, 2014, between 1 and 30 Days

Activity	Count	Days Missed	
		Average	Total
Fire Suppression	89	10	889
Station Duties	89	10	910
EMS	82	10	852
Wellness/Fitness	73	11	808
Skills Training	68	12	784
Rescue - Non Fire	29	10	276
Fire Prevention	10	6	63
Returning from Incident	9	12	105
Responding to Incident	6	9	54
Hazmat	2	12	24
Rescue - Fire Related	2	19	38
Total, Between 1 and 30 Days	459	11	4803

Injury Activities Resulting in Lost Time (continued)

Table 13: Activities Resulting in Lost Time, 2014, between 31 and 90 Days

Activity	Count	Days Missed	
		Average	Total
EMS	39	57	2237
Fire Suppression	33	57	1894
Station Duties	32	52	1660
Wellness/Fitness	21	51	1064
Skills Training	15	50	743
Rescue - Non Fire	5	51	253
Responding to Incident	4	63	251
Returning from Incident	2	45	89
Fire Prevention	1	45	45
Total, Between 31 and 90 Days	152	52	8236

Table 14: Activities Resulting in Lost Time, 2014, 91+ Days

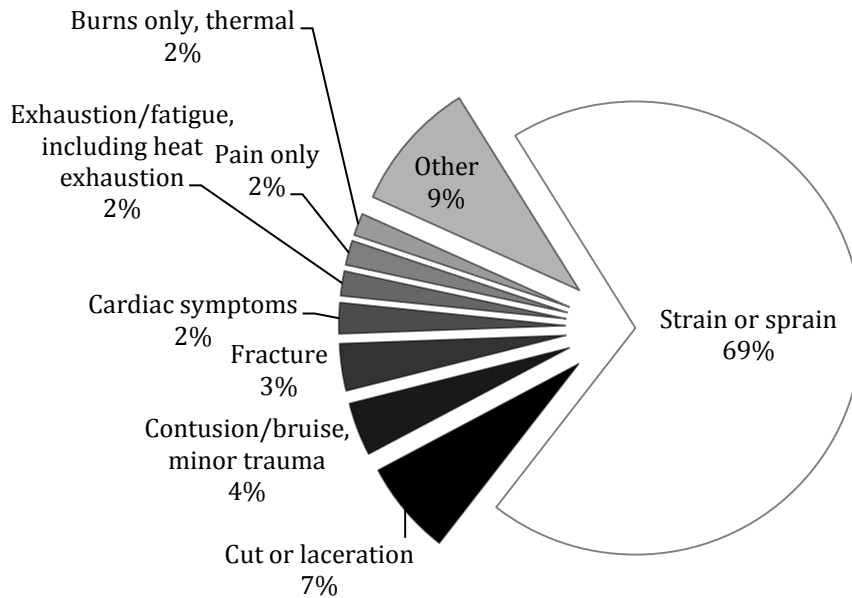
Activity	Count	Days Missed	
		Average	Total
Fire Suppression	23	151	3475
Station Duties	15	141	2113
EMS	12	156	1866
Skills Training	9	166	1494
Wellness/Fitness	5	175	873
Rescue - Non Fire	4	139	554
Hazmat	1	150	150
Responding to Incident	1	138	138
Fire Prevention	1	124	124
Returning from Incident	1	93	93
Total, 91+ Days Missed	72	143	10880

Types of Injuries with Lost Time

Table 15: Types of Injuries Resulting in Lost Time, 2014

Type of Injury	Count
Strain or sprain	474
Cut or laceration	46
Contusion/bruise, minor trauma	26
Fracture	23
Cardiac symptoms	15
Pain only	12
Exhaustion/fatigue, including heat exhaustion	12
Burns only, thermal	11
Crushing	10
Burn, scald or steam	9
Dislocation	6
Puncture wound/stab wound: penetrating	5
All other	34
Total	683

Figure 7: Types of Injuries Resulting in Lost Time, 2014



Burn Injuries

Table 16: All Burns, 2013 - 2014

All Burns - Types	2013	2014
Thermal	92	76
Scald or steam	71	33
Chemical	0	2
Electric	2	2
Total	165	113

Table 17: Burns with Lost Time by Burn Type, 2014

Burns with Lost Time	Count	Average Days Missed	Total Days Missed
Thermal	12	31.20	374
Scald or steam	9	28.00	403
Chemical	2	19.5	39
Total	23	26.2	816

Table 18: Burns by Body Part, 2013 - 2014

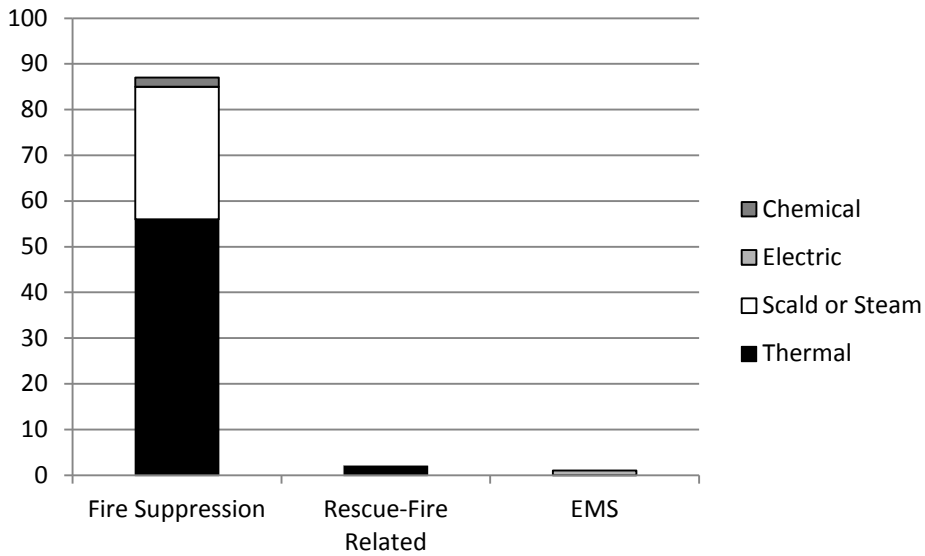
Body Part	2013	2014
Hand and fingers	35	18
Multiple parts	16	16
Ear	29	13
Face	14	13
Arm, lower, not including elbow or wrist	12	9
Neck	9	9
Upper extremities	0	6
Shoulder	13	5
Wrist	10	5
Multiple body parts, upper body	3	4
Head	5	3
Foot and toes	5	2
Arm, upper, not including elbow or shoulder	1	2
Back, except spine	0	2
Lower extremities	5	2
Leg, lower	4	1
Hip, lower back or buttocks	0	1
Eye	0	1
Neck and shoulders	1	1
Chest	1	0
Elbow	1	0
Knee	1	0
Throat	1	0
Total	166	113

Burn Injuries (continued)

Table 19: Burns by Emergency Activity, 2014

Type	Emergency Activities		
	Fire Suppression	Rescue-Fire Related	EMS
Thermal	56	2	-
Scald or Steam	29	-	-
Electric	-	-	1
Chemical	2	-	-
Total	87	2	1

Figure 8: Burns by Emergency Activity, 2014

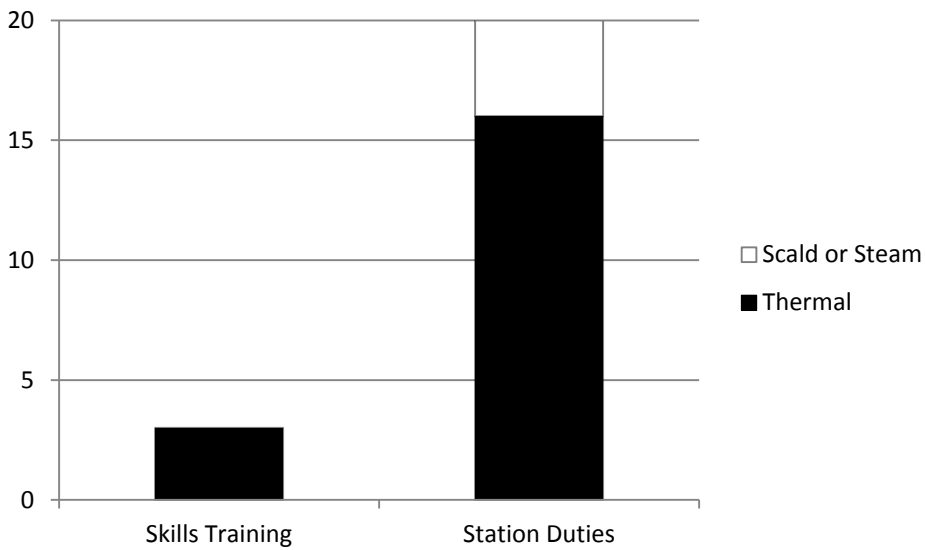


Burn Injuries (continued)

Table 20: Burns by Non-Emergency Activity, 2014

Type	Non-Emergency Activities	
	Skills Training	Station Duties
Thermal	3	16
Scald or Steam	-	4
Total	3	20

Figure 9: Burns by Non-Emergency Activity, 2014



SOP Issues

In 2014 there were 35 injuries attributed to failures of fire protection personnel to follow their departments' standard operating procedures (SOPs). All but a few were instances where the individuals were not wearing their provided PPE/SCBA gear in an environment or situation in which they should have been.

In its compliance inspections, the Texas Commission on Fire Protection verifies that fire departments have written SOPs that cover the appropriate subject matter.

Table 21: Injuries Attributed to SOP Issues, 2014

Activity	Minor	Serious	Total
Fire Suppression	7	5	12
EMS	6	-	6
Responding to Incident	3	-	3
Skills Training	3	1	4
Fire Prevention	2	-	2
Rescue – Non Fire	2	-	2
Station Duties	2	-	2
Hazmat	1	-	1
Rescue – Fire Related	1	-	1
Wellness/Fitness	1	1	2
Total	28	7	35

Fatalities

The commission's 2014 injury report includes three fatalities. The fatalities listed in this report include only those reported to the Texas Commission on Fire Protection (TCFP) by the entities it regulates. (The commission has no statutory authority to require reporting by departments it does not regulate.)

More comprehensive information regarding Texas fire service Line of Duty Deaths is included in the State Fire Marshal's Annual Report.

Example Injury Narratives

The following narratives represent one minor and one serious injury for each of the “activity” categories (EMS, Fire Suppression, Station Duties, Skills Training, Wellness/Fitness, Rescue - Non Fire, Responding to Incident, Returning from Incident, Fire Prevention, Hazmat and Rescue - Fire Related), except for Hazmat, in which no serious injuries were reported.

EMS – Minor - (Exposure Airborne Pathogens)

Fire fighter reports while on a medical call and after transporting the patient to the hospital the patient told the fire fighter that he had recently been tested for tuberculosis. No PPE was in use. The patient had been coughing. Reported as a possible exposure case.

EMS – Serious (Strain/Sprain)

Fire fighter was providing patient care, specifically lifting a patient onto a stretcher. Fire fighter experienced pain in right shoulder and reported through the chain of command. Fire fighter sent for evaluation by physician. Fire fighter suffered a dislocated shoulder and missed two 24-hour periods of work. Fire fighter released for full duty and has returned to work.

Fire Suppression – Minor (Burns)

While on fire attack hoseline inside house, fire fighter suffered a burn to left calf just above bunker boot. Fire fighter was wearing all PPE properly, and inspection of bunker pants and boots found no failure or malfunction. Fire fighters working in same area reported intense heat from burning debris on floor. Fire fighter assessed and treated at scene and remained on duty.

Fire Suppression – Serious (Chest Pain – Cardiac Symptoms)

Developed severe chest pain after firefighting interior house fire for over an hour in 100+ heat index, fully bunkered including SCBA. Was loading equipment, ladders on fire truck; was suddenly struck with severe stabbing pain.

Station Duties – Minor (Bites/Stings)

Fire fighter was attacked by a cat while taking trash to the dumpster. The cat jumped out as he opened the lid and he was scratched on the lip, chin, chest and abdomen before running away.

Station Duties - Serious (Wound)

Fire fighter was closing the door on an apparatus while the vehicle was being backed. The fire fighter’s right forearm became trapped between the apparatus passenger side door and a stationary object. This caused a crushing injury. Driver’s attention was focused on his backer and stopped immediately.

Skills Training – Minor (Broken Bones)

The injury occurred during a swift water course. The fire fighter was performing a training exercise to catch a water curtain in line with the course curriculum. He grabbed a rope while going down a water chute and broke his finger.

Skills Training – Serious (Wound)

Fire fighter was opening a gate valve on a master stream manifold after hose testing to relieve pressure from hose. The fire fighter had straddled the hose and the manifold whipped and struck the fire fighter in the lower legs.

Wellness/Fitness – Minor (Strain/Sprain)

While performing the annual physical agility test and going through the SCBA maze the fire fighter caught his shoulder in the maze and while pulling to get through it felt something give in his right shoulder. It was unknown if it was just a muscle pull or strain at that time. Pain persisted and will need further evaluation.

Example Injury Narratives (continued)

Wellness/Fitness - Serious (Wound)

Fire fighter was doing pull-ups in weight room and a homemade device that was being used to alter the grip for the pull-ups broke. Fire fighter fell backwards against the weight stack and lacerated his head which required 10 staples. Homemade device was thrown in dumpster.

Fire Prevention - Minor (Wound)

At a building where the contractor had removed sections of flooring, fire fighter stepped on unsupported section of floor covered by carpet and foot/leg fell approx 18 inches into sub-floor, bruising left shin and cutting right palm.

Fire Prevention - Serious (Strain/Sprain)

While verifying 911 posts along park trail as part of Fire Dept. 911 marker project, fire fighter jumped out of the way to avoid impact from an approaching cyclist and felt pop/pain in right knee.

HazMat - Minor (Exposure)

Fire fighter was assisting police with opening containers that contained crystal methamphetamines.

HazMat - Serious (Environmental)

Fire fighter was on a decontamination team at a hazardous materials incident wearing proper PPE. Fire fighter was overcome by heat exhaustion and transported to a local hospital.

Rescue - Fire Related - Minor (Burns)

Fire fighter attempted a rescue of a trapped fire fighter. Immediately upon entry through a window of the structure, the fire fighter came in contact with hot materials and burned wrists.

Rescue - Fire Related - Serious (Broken Bones)

While carrying equipment fire fighter tripped and fell, crushing his finger.

Rescue Non-Fire - Minor (Exposure Body Fluids)

Fire fighter was exposed while assessing patient who was restrained by police officers while being combative and spitting. Fire fighter had proper protective equipment on and fully functional at time of injury.

Rescue Non-Fire - Serious (Wound)

While landing a medical helicopter on the roadway, fire fighter's goggles were briefly dislodged from his face by turbulence. This allowed a piece of debris to enter fire fighter's eye causing a lacerated cornea.

Responding to Incident - Minor (Strain/Sprain)

Employee was driver of vehicle when he was involved in motor vehicle accident due to slick roads.

Responding to Incident - Serious (Broken Bones)

Fire fighter was responding to a structure fire when he was involved in a head-on collision with another driver who was travelling in the wrong lane on top of a bridge.

Returning From Incident - Minor (Strain/Sprain)

Fire fighter reports while returning from a fire alarm run he was tilling the truck down a rough road and strained his back.

Returning From Incident - Serious (Strain/Sprain)

FF was getting out of the apparatus on a call and missed the first step on the side of the truck. The fire fighter's foot hit the ground causing a strain on the bottom of his foot.

Comparison between the State of Texas (2014) and National Fire Protection Association (NFPA), U.S. Firefighter Injuries – 2013

For the purposes of comparison, the commission has mapped its categories to the NFPA categories as follows:

- “Fireground” includes the commission’s Fire Suppression and Rescue – Fire Related.
- “Non-Fire” includes Rescue Non-Fire, EMS and Hazmat.
- “Other On-Duty” includes Fire Prevention, Station Duties and Wellness/Fitness.

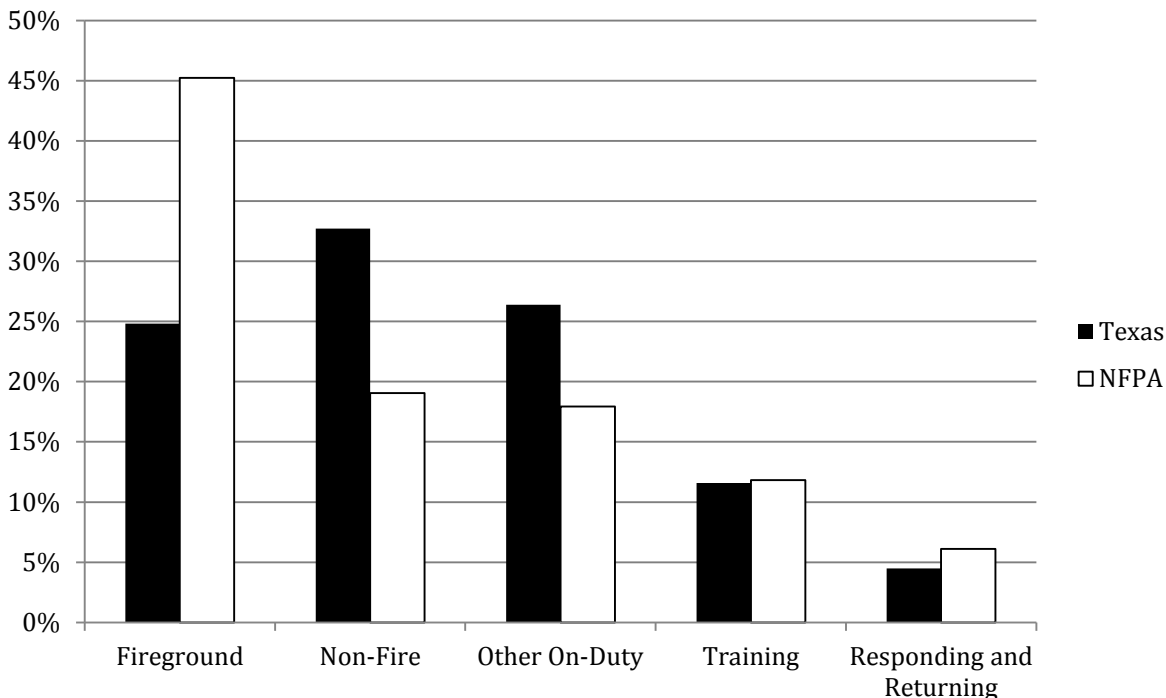
The NFPA’s “Responding and Returning” and “Training” categories appear to correspond closely to the commission’s categories. (The NFPA numbers include Texas statistics, although the reporting populations may not be the same.)

Table 22: Comparison of Texas 2014 and NFPA 2013

Category	Texas 2014		NFPA 2013*	
	Count	Percent	Count	Percent
Responding and Returning	182	4.49%	4015	6.10%
Fireground	1006	24.81%	29760	45.23%
Non-Fire	1327	32.73%	12535	19.05%
Other On-Duty	1070	26.39%	11800	17.93%
Training	470	11.59%	7770	11.81%
Total	4055	100%	65800	100.00%

* NFPA data is from [U.S. Firefighter Injuries – 2013](#), copyright© 2014, National Fire Protection Association, Quincy, MA.

Figure 10: Injuries by Activity Percentages – Comparing Texas 2014 and NFPA 2013



2014 Findings/Recommendations

The injuries reported to the Texas Commission on Fire Protection in 2014 are consistent with previous years' reporting, with one notable exception: there was a large increase in the number of asbestos exposure reports. This increase resulted largely from incidents reported by one of the state's major metropolitan departments. These kinds of reports are likely to continue to increase in future reporting years, not because fire protection personnel are facing new challenges, but because there is a greater recognition, awareness and understanding throughout the fire service that long-term illnesses may represent challenges to the long-term health of its members.

The commission intends to continue monitoring this trend. Although the reported exposures in 2014 show a dramatic increase, the commission believes it may be too soon to determine whether these exposures reports were anomalies, or whether they mark the beginning of a trend. The commission's current guidance to departments is consistent with the instructions we have provided since the beginning of the injury reporting program, which is that when a department files a First Report of Injury with their insurance carrier, it should report the injury to TCFP. This will help us gain a better understanding of how our fire departments are being impacted by these issues on a statewide basis.

Commission rule §435.23 (a) states, "A fire department shall report all Texas Workers' Compensation Commission reportable injuries that occur to on-duty regulated fire protection personnel on the commission form." The commission's guidance states, "When the department files a 'First Report of Injury' they should report the injury to the commission as well."

The commission's injury reporting program gathers and compiles *aggregate* information. The goal of the program is to gain a better understanding of the injuries suffered by the Texas fire service as a whole, rather than tracking the specifics of any individual's injuries and recovery. In fact, Texas Government Code §419.048 specifically prohibits the release of personally identifying information: "The commission may not release, and a person may not gain access to, any information that could reasonably be expected to reveal the identity of injured fire protection personnel." To comply with this statute and to protect every individual's personal medical history and health information, the commission currently does not collect or maintain personally identifying information through its injury reporting form.

This approach creates a record of an injury at a specific incident, but departments must keep detailed records internally and continue to work with the Texas Workers' Compensation Division's reporting program in long-term management of injuries and illnesses.

To help reduce injuries related to fire protection-related exposures, the commission requires that departments follow NFPA 1851, Chapter 7.1.4.2, which states that departments should contact the manufacturer of the PPE for instructions on the decontamination of PPE ensemble elements exposed to known contaminants.

Additionally, the commission encourages departments to review these guidelines from the Firefighter Cancer Support Network's April 2013 white paper, [Taking Action Against Cancer in the Fire Service](#):

What immediate actions can I take to protect myself?

1. Use SCBA from initial attack to finish of overhaul. (Not wearing SCBA in both active and post-fire environments is the most dangerous voluntary activity in the fire service today.)
2. Do gross field decon of PPE to remove as much soot and particulates as possible.
3. Use "Wet-Nap" or baby wipes to remove as much soot as possible from head, neck, jaw, throat, underarms and hands immediately and while still on the scene.
4. Change your clothes and wash them immediately after a fire.
5. Shower thoroughly after a fire.
6. Clean your PPE gloves, hood and helmet immediately after a fire.
7. Do not take contaminated clothes or PPE home or store them in your vehicle.
8. Decon fire apparatus interior after fires.
9. Keep bunker gear out of living and sleeping quarters.
10. Stop using tobacco products.
11. Use sunscreen or sun block.

The importance of annual medical examinations cannot be overstated — early detection and early treatment are essential to increasing survival.

NFPA 1851, adopted by the commission under §419.040 and 37 TAC Chapter 435, addresses the proper storage of clothing and PPE.

NFPA 1500, Chapter 10, Medical and Physical Requirements, (which under §435.5 is a commission-recommended standard) provides additional guidance, as does NFPA 1582, *Standard on Comprehensive Occupational Medical Program*. The commission encourages comprehensive pre-employment physicals to establish "baselines" against which to measure changes in employees' health throughout their careers.

The issue of occupational illness is somewhat problematic, in that the program's governing statute charges the commission with studying injury data and making recommendations to reduce injuries. The statute does not call for the commission to gather, evaluate or make recommendations for reducing illnesses. Although this may seem like a "semantic" distinction (particularly for a fire fighter who is suffering), it does represent a significant legal and logistical hurdle that may require future legislation to address.

Many fire service entities throughout the nation are studying the long-term health risks to fire protection personnel. Toxic smoke, asbestos, and other hazardous materials are potential hazards at every fire scene. As the commission's fire fighter advisory committee's presiding officer has noted, "Every fire scene is a hazardous materials scene." First responders are frequently exposed to patients with potentially contagious illnesses; in 2014 several fire protection personnel were potentially exposed to the Ebola virus. (None actually contracted the illness.) Water rescues often expose personnel to sewage and chemical hazards.

In recognition of the variety of exposures, at the June 2015 fire fighter advisory committee meeting the agency staff proposed modifying the commission's report form to include separate, specific categories of exposure/illness reporting:

- Exposure with injury
- Exposure with no injury
- Illness

The staff will work to incorporate these categories into a redesigned injury report form between now and the beginning of the 2016 reporting year.

With that noted, however, the commission believes that its injury reporting program can and should be helpful to the profession as a whole. In its relatively short lifespan, the injury reporting program has shown consistent data year-to-year that can help the Texas fire service understand how fire protection personnel are getting hurt on the job, and as a result, can provide insights as to when intervention by departments can help reduce fire protection personnel injuries.

For example, the commission can state with confidence that strains and sprains are the leading fire service injuries. Roughly half of all reported injuries - and 70 percent of lost time injuries - are the result of strains and sprains. The commission has similarly seen a consistent "60/40" balance over the years of injuries incurred in emergency vs. non-emergency situations.

These are data points that the Texas fire service did not have prior to the creation of the injury reporting program. The commission believes that more data, more information and better awareness of the challenges the fire service faces are always good. It may be helpful, for example, for the Texas fire service to know that many of its fire protection personnel are suffering injuries incurred in the performance of water rescues. Although this may not be news to Texas fire fighters, water rescues may not come immediately to the public's mind when considering the challenges its fire departments face. The Texas fire service now has the reference data to draw on which it may not have had prior to the creation of the program.

Commission-adopted standards

The commission has adopted several NFPA and other nationally recognized standards to help keep Texas fire protection personnel safe. This list summarizes the relationships between some of the Texas laws and national standards and is not intended to be all-inclusive:

Texas Government Code

[§419.040, Protective Clothing](#)

[§419.041, Self-Contained Breathing Apparatus](#)

[§419.042, Personal Alert Safety Systems](#)

[§419.043, Applicable National Fire Protection Association Standard](#)

[§419.044, Incident Management System](#)

[§419.045, Personnel Accountability System](#)

[§419.046, Fire Protection Personnel Operating at Emergency Incidents](#)

[§419.047, Commission Enforcement](#)

Texas Administrative Code

[CHAPTER 425 FIRE SERVICE INSTRUCTORS](#)

[§443.9 National Fire Protection Association Standard](#)

[CHAPTER 435 FIRE FIGHTER SAFETY](#)

[§435.21 Fire Service Joint Labor Management Wellness-Fitness Initiative](#)

[§435.23 Fire Fighter Injuries](#)

[§435.25 Courage to be Safe So Everyone Goes Home Program](#)

[§435.27 Live Fire Training Structure Evolutions](#)

[CHAPTER 451 FIRE OFFICER](#)

[CHAPTER 457 INCIDENT SAFETY OFFICER CERTIFICATION](#)

Other resources

See also the commission's web page: [NFPA Standards adopted by the commission.](#)