
TEXAS COMMISSION ON FIRE PROTECTION INJURY REPORT

January 1, 2019 to December 31, 2019



TEXAS COMMISSION ON FIRE PROTECTION

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Mission

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

Information the commission collects

- Minor, serious, and fatal injuries, as well as toxic exposures
- 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 and exposures
- Identify trends in injuries and exposures
- Identify needed training
- Evaluate and find improvements in procedures
- Track lost time injuries (requested by user community)

Executive Summary

The information in this report is collected by the Texas Commission on Fire Protection (TCFP) via an on-line injury reporting application. The report is a comprehensive analysis of injuries and exposures to Texas fire fighters. These injuries and exposures were reported to the TCFP in 2019 by fire departments throughout the state, and this report contains charts and graphs depicting the results of the information that was collected. The report also compares Texas fire fighter injury statistics with national statistics that were gathered by the National Fire Protection Association (NFPA) in 2018.

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 injuries to fire protection personnel. 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 originally built the data systems necessary to gather this information in 2010. In 2017 the data systems were then migrated from a Microsoft Access database structure to a new system which was developed in-house and designed specifically to meet the information resource needs of the TCFP. Fine-tuning of this new system is ongoing as we receive feedback from stakeholders. The reporting process is accomplished online. Fire departments regulated by the commission have 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 to help reduce the number of fire fighter injuries in Texas and to improve the injury reporting program.

Abstract

This report contains data submitted by regulated and non-regulated entities. The data collected in 2019 was the ninth full year of reporting.

Grand Totals - 2019

Total number of incidents (injury reports) submitted: 3,537

Total number of individuals who sustained an injury or exposure: 3,780*

Total number of injuries reported: 2,849

Total number of exposures reported: 963

**Note that an individual could have more than one injury or could have an injury and an exposure. This explains why the total number of individuals who sustained an injury is less than the total number of injuries + total number of exposures. ($3,780 < 2,849 + 963$)*

Because the injury reporting system was reconfigured in 2018, the information collected by the TCFP has evolved over the last couple of years. It's important to remember that one incident report can have multiple individuals involved, and **each** of those individuals can have **one or more** injuries. For example:

- Joe and Bob were burned in a fire while on duty. This resulted in:
 - One incident (one injury report), with
 - Two individuals who...
 - Sustained three injuries
 - Joe was burned on the hand and arm (two injuries)
 - Bob was burned on the leg (one injury)

550 of the 748 regulated departments used TCFP's injury reporting system in 2019. That's a reporting rate of 74%. These departments reported a total of 3,780 individuals who were either injured or exposed in calendar year 2019. Of these, **763** individuals incurred their injuries/exposures during fire suppression activities, representing 20 percent of the total reported injuries (see Table 1).

Injuries and exposures from emergency medical services (EMS) activities surpassed those from fire suppression activities in 2019. EMS activities accounted for **922** of the 3,780 total individuals who were injured or exposed, or 24 percent.

After EMS and fire suppression, the next highest number reported in 2019 occurred in the performance of station duties, with **739**, or 20 percent, of the total reported injuries.

Skills training and wellness/fitness activities again rounded out the top five activities: **469** skills training injuries (12 percent of the total) and **407** wellness/fitness injuries (11 percent of the total).

We feel it's important to note that the total number of injured or exposed individuals reported in station duties, wellness/fitness activities, and skills training (which are all non-emergency activities) accounted for 43 percent of the total injuries reported in 2019.

State of Texas vs. NFPA

Comparison between the State of Texas (2019) and National Fire Protection Association (NFPA), U.S. Firefighter Injuries - 2018

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 categories.
- “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.)

Comparing Texas 2019 and NFPA 2018

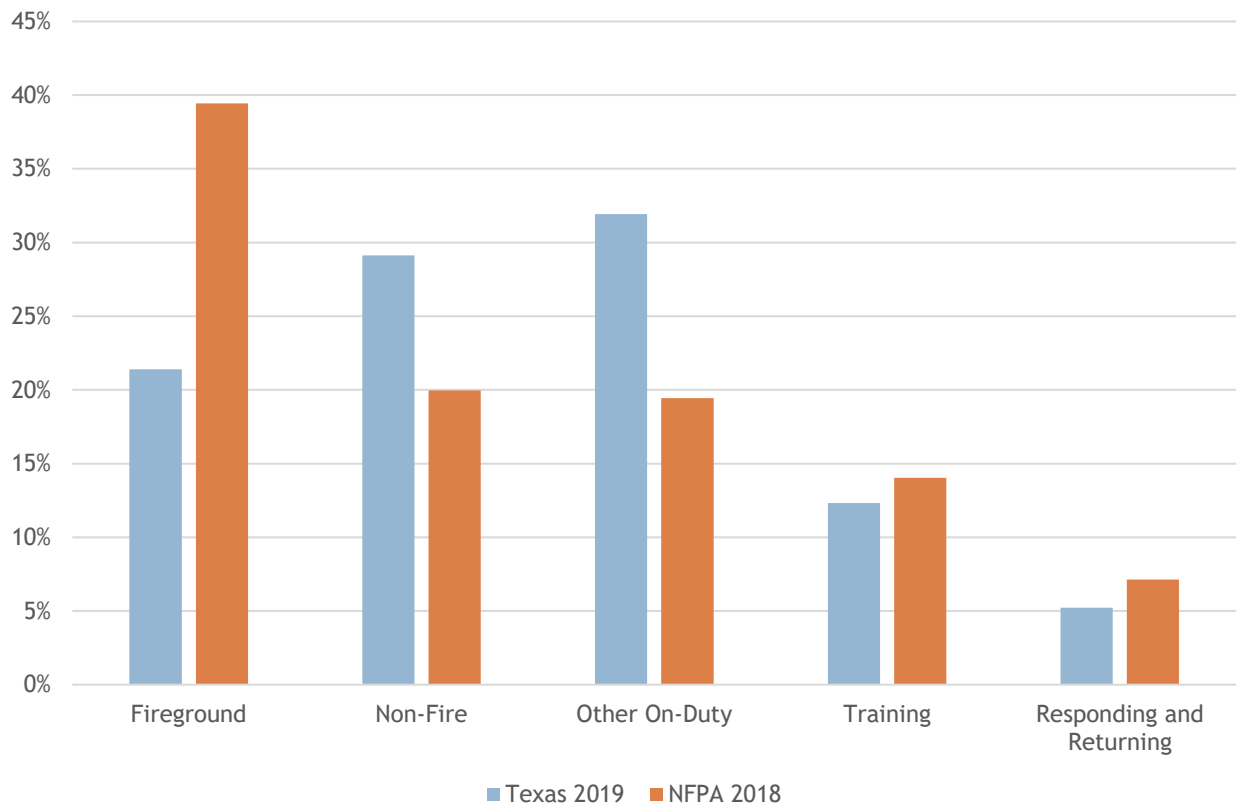
Table 28: Comparison of Texas 2019 and NFPA 2018

Category	Texas 2019		NFPA 2018	
	Count	Percent	Count	Percent
Fireground	804	21%	22,975	39%
Non-Fire	1,105	29%	11,625	20%
Other On-Duty	1,206	32%	11,325	19%
Training	469	12%	8,175	14%
Responding and Returning	196	5%	4,150	7%
Total	3,780	100%	58,250	100%

While Texas seems to be doing similarly to the rest of the US in terms of training injuries and injuries resulting from responding and returning from incidents, we appear to have a much better track record on the fireground. Unfortunately, though, Texas appears to be doing significantly worse than the rest of the country when it comes to sustaining injuries in the “non-fire” and “other on-duty” categories.

NFPA data is from the [United States Firefighter Injuries in 2018 report](#), copyright ©2018 National Fire Protection Association, Quincy, MA.

*Injuries by Activity, percentages
(Comparing Texas 2019 and NFPA 2018)*

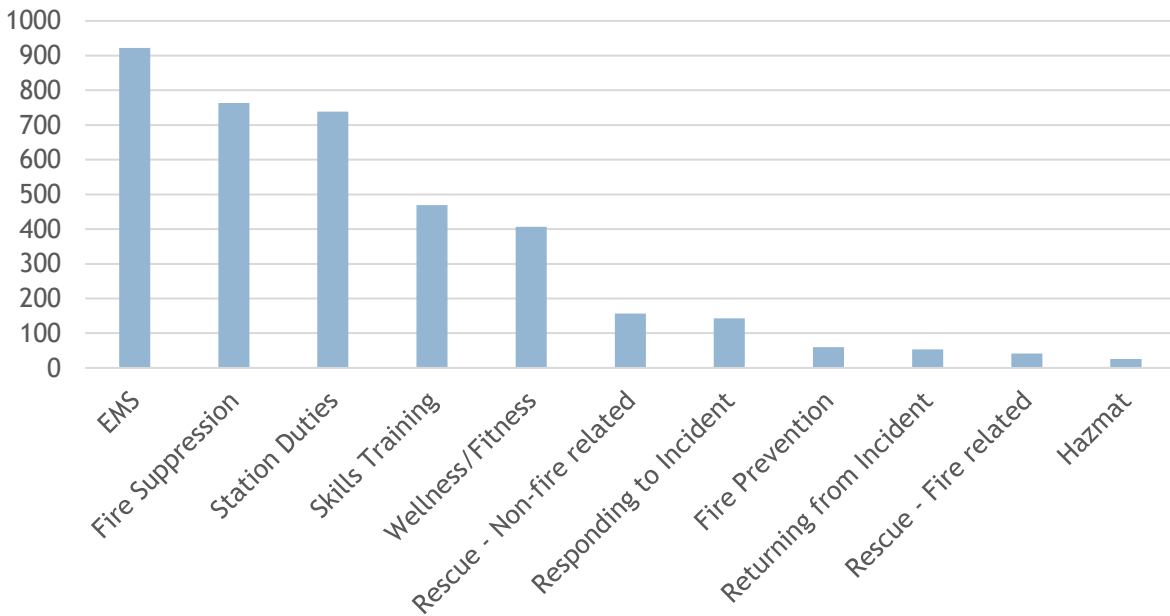


Fire Protection Personnel Injuries

Table 1: Total Injured or Exposed Individuals by Activity and Severity, 2019

Activity	Minor	Serious	Fatal	Total	2018	2017
EMS	776	146	0	922	1027	1079
Fire Suppression	616	145	2	763	799	827
Station Duties	591	147	1	739	639	668
Skills Training	330	139	0	469	400	412
Wellness/Fitness	290	117	0	407	417	384
Rescue - Non-fire related	140	17	0	157	183	233
Responding to Incident	114	28	1	143	163	209
Fire Prevention	46	14	0	60	90	66
Returning from Incident	39	14	0	53	91	70
Rescue - Fire related	37	4	0	41	44	120
Hazmat	24	2	0	26	28	22
Total	3003	773	4	3780	3881	4090

Figure 1: Total Injured or Exposed Individuals by Activity, 2019



Injuries by Activity

EMS activities resulted in the highest number of minor injuries for 2019 (see Table 2). The total number of serious fire suppression injuries is down significantly, compared with previous years. (See Table 3. The commission defines a serious injury as one which results in the employee missing one or more full duty shifts.)

<p>Definitions</p> <p>Minor = Injury that does <u>not</u> result in the employee missing a full duty period.</p> <p>Serious = Injury that results in the employee missing one or more full duty periods.</p> <p>Fatal = The injured individual did not survive.</p>

Table 2: Minor Injury Activities, 2015 - 2019

Activity	2015		2016		2017		2018		2019	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
EMS	792	28.24%	882	27.89%	929	28.99%	843	29.09%	776	25.84%
Fire Suppression	618	22.03%	866	27.39%	662	20.66%	607	20.95%	616	20.51%
Station Duties	396	14.12%	434	13.73%	481	15.01%	437	15.08%	591	19.68%
Skills Training	288	10.27%	311	9.84%	291	9.08%	277	9.56%	330	10.99%
Wellness/Fitness	278	9.91%	252	7.97%	254	7.93%	286	9.87%	290	9.66%
Rescue - Non-Fire	204	7.27%	161	5.09%	206	6.43%	157	5.42%	140	4.66%
Responding to Incident	122	4.35%	117	3.70%	156	4.87%	99	3.42%	114	3.80%
Fire Prevention	41	1.46%	47	1.49%	50	1.56%	69	2.38%	46	1.53%
Returning from Incident	33	1.18%	37	1.17%	42	1.31%	57	1.97%	39	1.30%
Rescue - Fire Related	22	0.78%	20	0.63%	113	3.53%	39	1.35%	37	1.23%
Hazmat	11	0.39%	35	1.11%	21	0.66%	27	0.93%	24	0.80%
Total	2805	100.00%	3162	100.00%	3205	100.00%	2898	100.00%	3003	100.00%

(Numbers in green = least amount of injuries for the five-year period.)

Table 3: Serious Injury Activities, 2015 - 2019

Activity	2015		2016		2017		2018		2019	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Station Duties	174	19.31%	172	18.76%	185	21.29%	201	20.49%	147	19.02%
EMS	185	20.53%	158	17.23%	147	16.92%	184	18.76%	146	18.89%
Fire Suppression	160	17.76%	179	19.52%	157	18.07%	191	19.47%	145	18.76%
Skills Training	126	13.98%	141	15.38%	120	13.81%	123	12.54%	139	17.98%
Wellness/Fitness	125	13.87%	146	15.92%	129	14.84%	131	13.35%	117	15.14%
Responding to Incident	44	4.88%	36	3.93%	53	6.10%	64	6.52%	28	3.62%
Rescue - Non-Fire	46	5.11%	52	5.67%	27	3.11%	26	2.65%	17	2.20%
Returning from Incident	13	1.44%	18	1.96%	28	3.22%	34	3.47%	14	1.81%
Fire Prevention	12	1.33%	11	1.20%	15	1.73%	21	2.14%	14	1.81%
Rescue - Fire Related	12	1.33%	3	0.33%	7	0.81%	5	0.51%	4	0.52%
Hazmat	4	0.44%	1	0.11%	1	0.12%	1	0.10%	2	0.26%
Total	901	100.00%	917	100.00%	869	100.00%	981	100.00%	773	100.00%

(Numbers in green = least amount of injuries for the five-year period.)

Table 4: Number of Individuals Who Sustained Fatal Injuries, 2019

Activity	Count	Percent
Fire Suppression	2	50.00%
Station Duties	1	25.00%
Responding to Incident	1	25.00%
Total	4	100.00%

Emergency vs. Non-Emergency Injuries

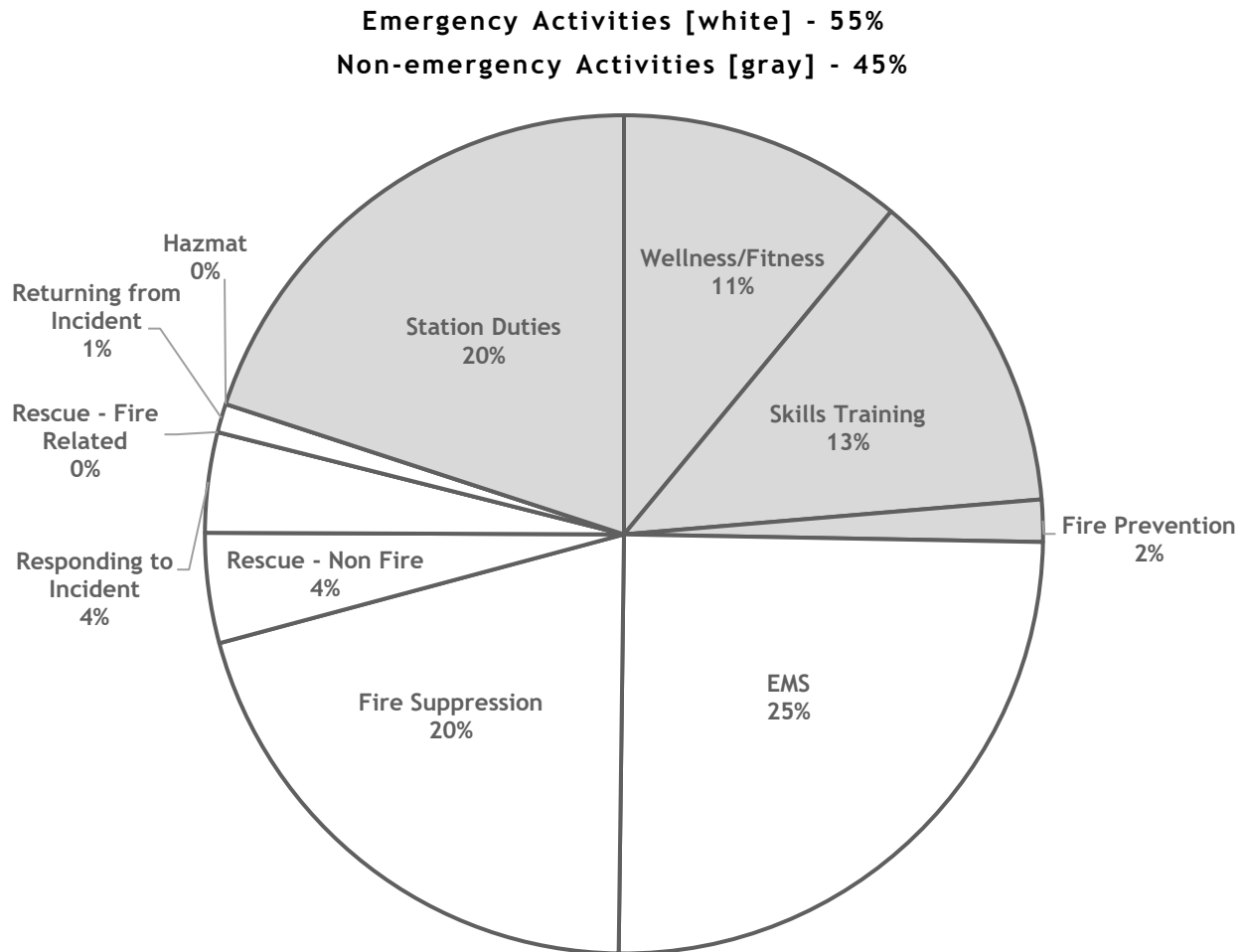
Table 5: Number of Injured Individuals by Emergency Activity and Severity, 2019

Activity	Minor	Serious	Fatal	Total
EMS	776	146	0	922
Fire Suppression	616	145	2	763
Rescue - Non-Fire	140	17	0	157
Responding to Incident	114	28	1	143
Returning from Incident	39	14	0	53
Rescue - Fire Related	37	4	0	41
Hazmat	24	2	0	26
Total	1746	356	3	2105

Table 6: Number of Injured Individuals by Non-Emergency Activity and Severity, 2019

Activity	Minor	Serious	Fatal	Total
Station Duties	591	147	1	739
Skills Training	330	139	0	469
Wellness/Fitness	290	117	0	407
Fire Prevention	46	14	0	60
Total	1257	417	1	1675

Figure 2: Percentages of Injured Individuals in Emergency and Non-Emergency Activities, 2019

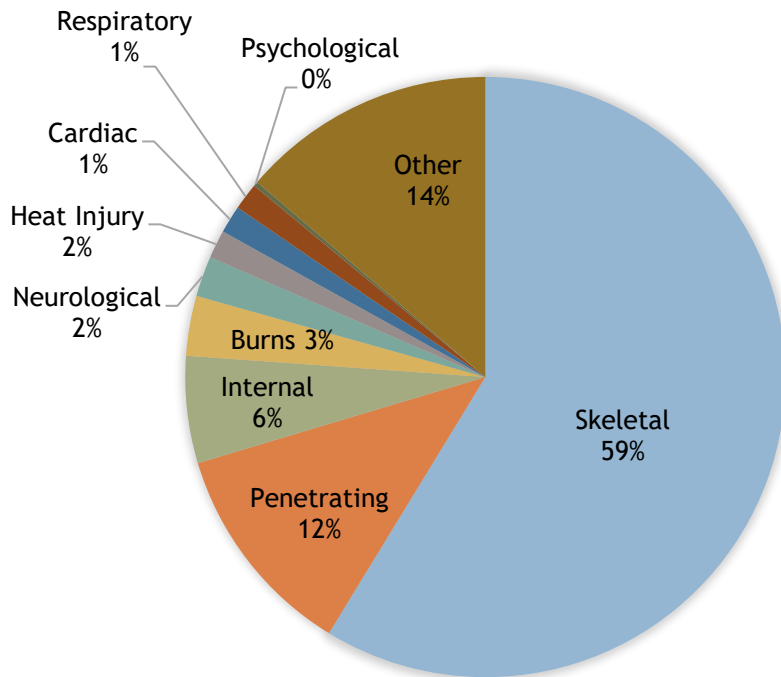


Types of Injuries

Table 7: Types of Injury, 2019

Type of Injury	2019	
	Count	Percent
Skeletal	1691	59%
Penetrating	325	11%
Internal	162	6%
Burns	90	3%
Neurological	60	2%
Heat Injury	45	2%
Cardiac	41	1%
Respiratory	40	1%
Psychological	7	0%
Other	388	14%
Total	2849	100%

Figure 3: Types of Injuries, 2019

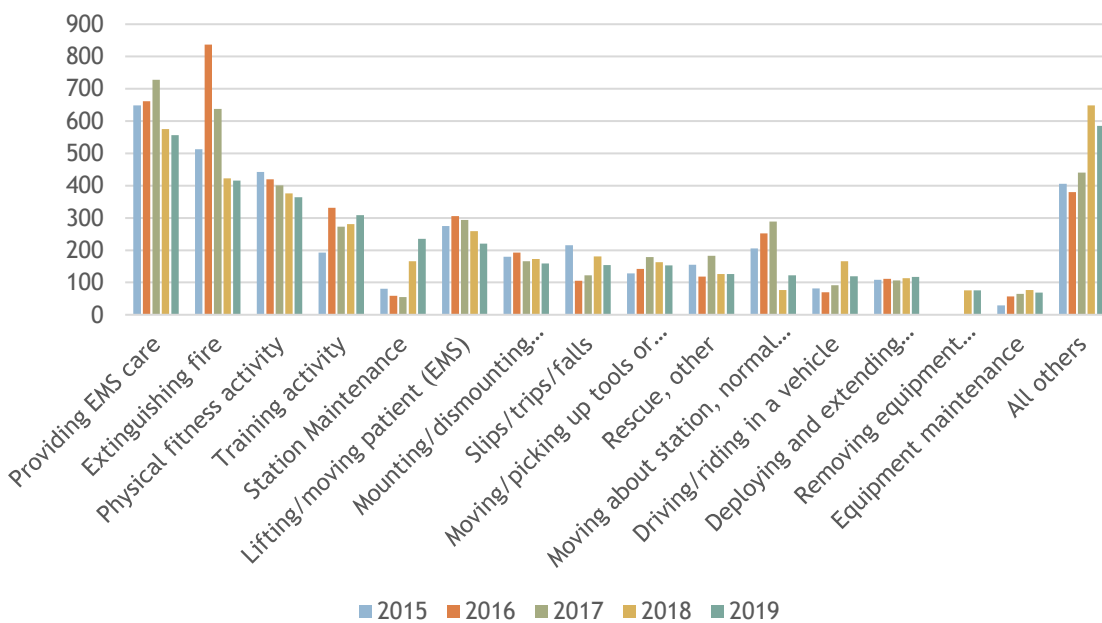


Task at Time of Injury

Table 8: Top 15 Tasks at Time of Injury, 2015-2019 (ordered by 2019, descending)

Task	2015	2016	2017	2018	2019
Providing EMS care	649	661	728	575	556
Extinguishing fire	513	837	638	423	416
Physical fitness activity	442	420	401	376	364
Training activity	193	331	273	281	309
Station Maintenance	81	59	55	166	235
Lifting/moving patient (EMS)	275	306	294	259	220
Mounting/dismounting apparatus	180	193	166	173	159
Slips/trips/falls	215	105	122	181	154
Moving/picking up tools or equipment	128	142	179	163	153
Rescue, other	155	118	183	126	126
Moving about station, normal activity	206	252	289	77	122
Driving/riding in a vehicle	82	70	92	166	119
Deploying and extending hoseline	108	111	106	113	117
Removing equipment from/returning equipment to storage	n/a	n/a	n/a	76	76
Equipment maintenance	29	57	65	77	69
All others	406	380	440	649	585
Total	3721	4097	4090	3881	3780

Figure 4: Top 15 Tasks at Time of Injury, 2015 - 2019



Injuries by Body Part

Table 9: Injuries by Body Part, 2015 - 2017 (ordered by 2017, descending)

Injured Body Part	2015	2016	2017
Multiple body parts, whole body	659	1007	1064
Hand and fingers	328	359	365
Knee	369	376	315
Hip, lower back, or buttocks	316	283	292
Back, except spine	207	244	248
Shoulder	241	238	221
Ankle	202	192	179
Multiple Parts	180	124	151
Face	140	116	127
Arm, lower, not including elbow or wrist	84	109	121
Leg, lower	117	132	113
Foot and toes	71	85	87
Head	69	82	78
Ear	60	74	76
Chest	40	82	76
Eye	75	70	73
Multiple body parts, upper body	52	61	73
Elbow	51	47	72
Wrist	48	74	56
Other body parts injured	500	342	303
Total	3809	4097	4090

Because TCFP migrated to a new data management system in 2017, the data collected in years 2018-2019 was categorized differently than it had been in the past. This is why Table 9 only goes through 2017, and we now have new tables (10 & 11) for 2018-2019 data.

Table 10: Injuries by Body Part Type, 2018 & 2019

Injured Body Part	2018	2019
Upper Extremities	864	795
Lower Extremities	810	684
Back	490	466
Head	300	327
Multiple Parts	318	255
Internal	105	125
Chest	104	108
Neck	64	56
Hip	23	33
Total	3078	2849

Table 11: Injuries by Body Part Sub-Type, 2018 & 2019

Body Part by Sub-Type	2018	2019
Back: Back	198	194
Back: Buttocks	1	3
Back: Lower Back	282	258
Back: Neck	4	4
Back: Spine	5	7
Chest: Abdomen	5	4
Chest: Abdominal Area	10	4
Chest: Chest	89	100
Head: Cheek	5	7
Head: Chin	7	1
Head: Ear	77	117
Head: Eye	64	60
Head: Face	111	112
Head: Jaw	1	6
Head: Mouth	15	16
Head: Nose	20	8
Hip: Groin	9	14
Hip: Hip	13	18

Hip: Pelvis	1	1
Internal: Genito-urinary	4	11
Internal: Heart	5	7
Internal: Internal	66	71
Internal: Intestinal tract	5	4
Internal: Lungs	9	11
Internal: Stomach	15	20
Internal: Trachea	1	1
Lower Extremities: Ankle	206	163
Lower Extremities: Foot	93	88
Lower Extremities: Knee	347	273
Lower Extremities: Lower leg	111	97
Lower Extremities: Toes	15	22
Lower Extremities: Upper Leg	38	41
Multiple Parts: Lower Body	26	19
Multiple Parts: Unknown	26	11
Multiple Parts: Upper Body	74	76
Multiple Parts: Whole Body	192	149
Neck: Neck	59	49
Neck: Throat	5	7
Upper Extremities: Elbow	68	44
Upper Extremities: Hands	361	326
Upper Extremities: Lower Arm	10	59
Upper Extremities: Shoulder	234	235
Upper Extremities: Upper Arm	112	72
Upper Extremities: Wrist	79	59
Total	3078	2849

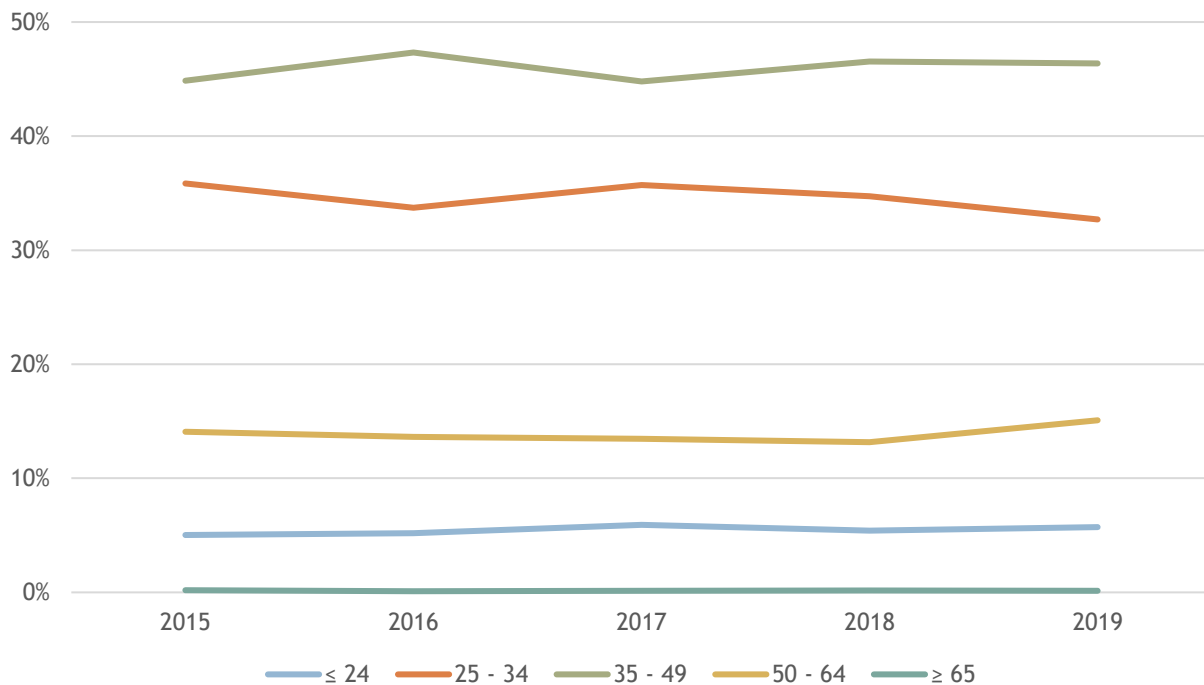
Individuals by Age Group

Table 12: Individuals by Age Group, 2015 - 2019*

Age Group	2015		2016		2017		2018		2019	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
≤ 24	187	5.03%	213	5.20%	242	5.92%	210	5.41%	210	5.65%
25 - 34	1334	35.85%	1382	33.73%	1460	35.70%	1348	34.73%	1220	32.82%
35 - 49	1669	44.85%	1939	47.33%	1832	44.79%	1806	46.53%	1716	46.17%
50 - 64	524	14.08%	559	13.64%	550	13.45%	511	13.17%	566	15.23%
≥ 65	7	0.19%	4	0.10%	6	0.15%	6	0.15%	5	0.13%
Totals	3721	100.00%	4097	100.00%	4090	100.00%	3881	100.00%	3717	100.00%

*Includes injured individuals and individuals with exposures.

Figure 5: Individuals by Age Group, percentages, 2014 - 2019



Injury Activities Resulting in Lost Time

Table 13: Activities Individuals Were Doing that Resulted in Lost Time, 2019, Totals

Activity	Count	Days Missed	
		Average	Sum
Fire Suppression	82	44	3619
EMS	75	41	3086
Wellness/Fitness	59	45	2679
Skills Training	70	37	2617
Station Duties	79	30	2446
Responding to Incident	9	21	189
Fire Prevention	8	21	173
Rescue - Non-Fire	10	17	171
Returning from Incident	10	15	154
Rescue - Fire Related	2	12	25
Hazmat	1	10	10
Total	323	25	11550

Table 14: Activities Individuals Were Doing that Resulted in Lost Time, 2019, Between 1 and 30 days

Activity	Count	Days Missed	
		Average	Sum
Station Duties	57	11	633
Skills Training	48	11	532
Fire Suppression	49	10	500
EMS	42	11	487
Wellness/Fitness	40	10	405
Returning from Incident	9	13	122
Rescue - Non-Fire	8	10	86
Responding to Incident	6	9	54
Fire Prevention	6	4	28
Rescue - Fire Related	2	12	25
Hazmat	1	10	10
Total	163	10	1717

Table 15: Activities Individuals Were Doing that Resulted in Lost Time, 2019, between 31 and 90 days

Activity	Count	Days Missed	
		Average	Sum
EMS	23	49	1148
Fire Suppression	19	49	943
Skills Training	16	58	928
Station Duties	16	44	712
Wellness/Fitness	7	44	312
Responding to Incident	3	45	135
Rescue - Non-Fire	2	42	85
Fire Prevention	1	40	40
Returning from Incident	1	32	32
Total	88	45	4335

Table 16: Activities Individuals Were Doing that Resulted in Lost Time, 2019, 91+ days

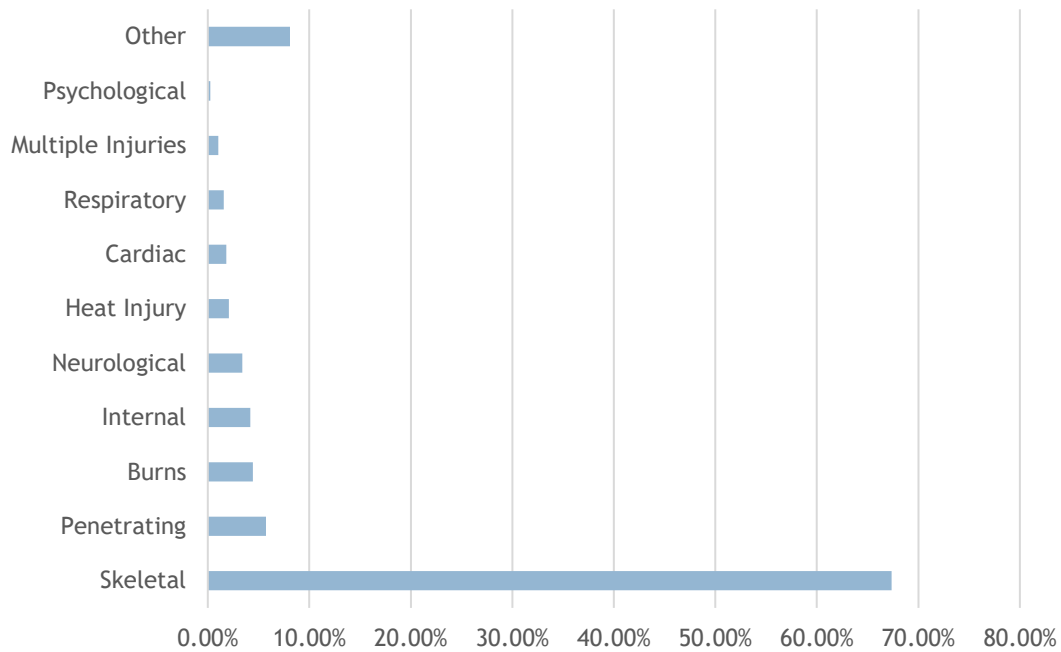
Activity	Count	Days Missed	
		Average	Sum
Fire Suppression	14	155	2176
Wellness/Fitness	12	163	1962
EMS	10	145	1451
Skills Training	6	192	1157
Station Duties	6	183	1101
Fire Prevention	1	105	105
Total	49	144	1206

Types of Injuries with Lost Time

Table 17: Types of Injuries Resulting in Lost Time, 2019

Type of Injury	Count
Skeletal	258
Penetrating	22
Burns	17
Internal	16
Neurological	13
Heat Injury	8
Cardiac	7
Respiratory	6
Multiple Injuries	4
Psychological	1
Other	31
Totals	383

Figure 6: Types of Injuries Resulting in Lost Time, 2019



Burn Injuries

Table 18: All Burns, 2015 - 2019

All Burns - Types	2015	2016	2017	2018	2019
Thermal (Heat/Fire)	85	92	96	108	72
Scald or Steam	10	9	13	12	10
Chemical	0	3	4	6	6
Electrical	0	2	0	1	2
Totals	95	106	113	127	90

Table 19: Burns by Body Part Sub-Type, 2019

Body Part Sub-Type	Count
Back: Back	0
Back: Buttocks	0
Back: Lower Back	0
Back: Neck	0
Back: Spine	0
Chest: Abdomen	2
Chest: Abdominal Area	0
Chest: Chest	0
Head: Cheek	1
Head: Chin	1
Head: Ear	17
Head: Eye	5
Head: Face	7
Head: Jaw	0
Head: Mouth	1
Head: Nose	0
Hip: Groin	0
Hip: Hip	0
Hip: Pelvis	0
Internal: Genito-urinary	0

Internal: Heart	0
Internal: Internal	0
Internal: Intestinal tract	0
Internal: Lungs	0
Internal: Stomach	0
Internal: Trachea	0
Lower Extremities: Ankle	0
Lower Extremities: Foot	3
Lower Extremities: Knee	1
Lower Extremities: Lower leg	3
Lower Extremities: Toes	1
Lower Extremities: Upper Leg	0
Multiple Parts: Lower Body	0
Multiple Parts: Unknown	0
Multiple Parts: Upper Body	6
Multiple Parts: Whole Body	4
Neck: Neck	2
Neck: Throat	0
Upper Extremities: Elbow	0
Upper Extremities: Hands	16
Upper Extremities: Lower Back	5
Upper Extremities: Shoulder	1
Upper Extremities: Upper Arm	3
Upper Extremities: Wrist	11
Total	90

Table 20: Burns by Body Part, 2015 - 2017, Historical Data

Body Part	2015	2016	2017	2018*	2019*
Ear	22	14	16	17	17
Hand and fingers	14	27	22	30	16
Face	12	16	9	14	10
Wrist	4	9	7	8	11
Multiple body parts, upper body	5	8	4	10	6
Eye	0	0	0	4	5

Hip, lower back, or buttocks	0	1	0	0	5
Foot and toes	1	3	1	6	4
Multiple parts	8	4	12	5	4
Arm, upper, not including elbow or shoulder	2	1	2	11	3
Lower extremities	1	2	0	8	3
Chest	0	1	1	2	2
Neck	6	4	7	2	2
Knee	0	1	2	0	1
Shoulder	5	3	6	9	1
Back, except spine	0	0	2	1	0
Elbow	0	0	1	0	0
Pelvis or groin	0	0	2	0	0
Throat	0	0	0	0	0
Arm, lower, not including elbow or wrist	3	2	12	n/a	n/a
Head	4	2	1	n/a	n/a
Leg, lower	6	3	3	n/a	n/a
Upper extremities	2	2	0	n/a	n/a
Neck and shoulders	0	0	1	n/a	n/a
Undetermined	0	3	2	n/a	n/a
Total	95	106	113	127	90

*The 2018 & 2019 columns were pieced together from the data in Table 19: Burns by Body Part Sub-Type, from the 2018 and 2019 injury report data. This was done in order to view trends and patterns.

Exposures

Table 21: Exposure by Sub-Type, 2018 - 2019

Exposure + Sub-Type	2018	2019
Chemical: Ammonia	1	3
Chemical: Battery Acid*	n/a	4
Chemical: Benzene	2	15
Chemical: Bleach	1	11
Chemical: Not listed	151	160
Chemical: Unidentified	73	55
Physical: Animal venom	6	17
Physical: Meningitis	38	40
Physical: Not listed	138	201
Physical: Plant toxin	27	14
Physical: Radiation*	n/a	4
Physical: Unidentified	87	66
Physical: UV Light*	n/a	2
Respiratory: Blood	69	73
Respiratory: COVID 19*	n/a	1
Respiratory: Influenza	4	19
Respiratory: Not listed	108	118
Respiratory: Saliva	24	22
Respiratory: Tuberculosis	98	76
Respiratory: Unidentified	50	37
Respiratory: Vomit	7	8
Other: Asbestos*	n/a	3
Other: Carbon Monoxide*	n/a	1
Other: Carcinogenic Substances*	n/a	1
Other: Contaminated Water/Sewage*	n/a	4
Other: Smoke/Products of Combustion*	n/a	5
Other: Virus	n/a	3
Total	884	963

Due to the change in our information management system, the exposure data collected in calendar years 2018 and 2019 is less specific than the exposure data collected in previous years. This is why we currently have “historical data” in separate charts and figures than that for 2018 and 2019.

*These exposure types were added to the injury reporting application in 2019, which is why they have n/a in the numbers column for 2018.

Table 22: Exposure by Route, 2019

Route	Count
Absorption	386
Ingestion	31
Inhalation	478
Injection/Puncture	68
Total	963

Figure 7: Exposure by Route, 2019, percentages

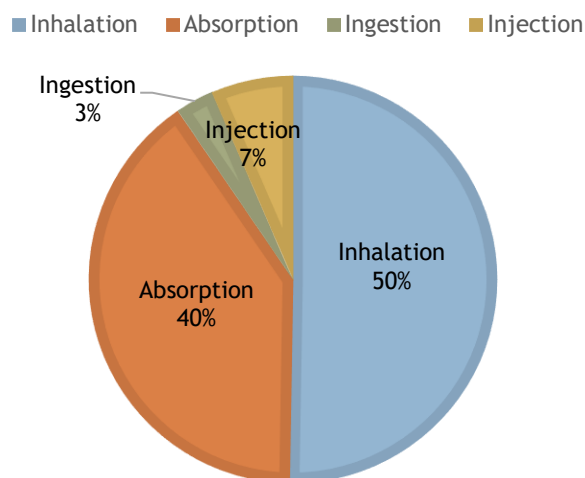


Table 23: Exposure by Substance, 2019

Substance	Count
Gas/vapor	412
Liquid	317
Solid	234
Total	963

Figure 8: Exposure by Substance, 2019, Percentages

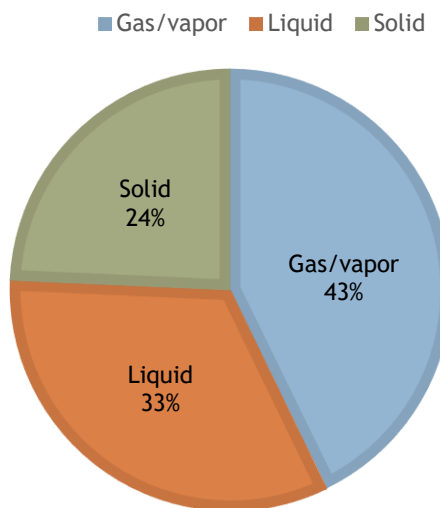


Table 24: Routes of Exposure, 2015 - 2017, Historical Data (ordered by 2017, descending)

Exposure Routes	2015	2016	2017
Airborne pathogens	141	290	354
Undetermined	287	273	325
Blood pathogens	181	194	174
Body Fluids	167	121	173
Chemical (household/industrial)	53	310	147
Plant Toxins	54	37	36
Chemical (carbon monoxide)	3	27	1
Total	886	1252	1210

Figure 9: Routes of Exposure, 2015 - 2017, Historical data

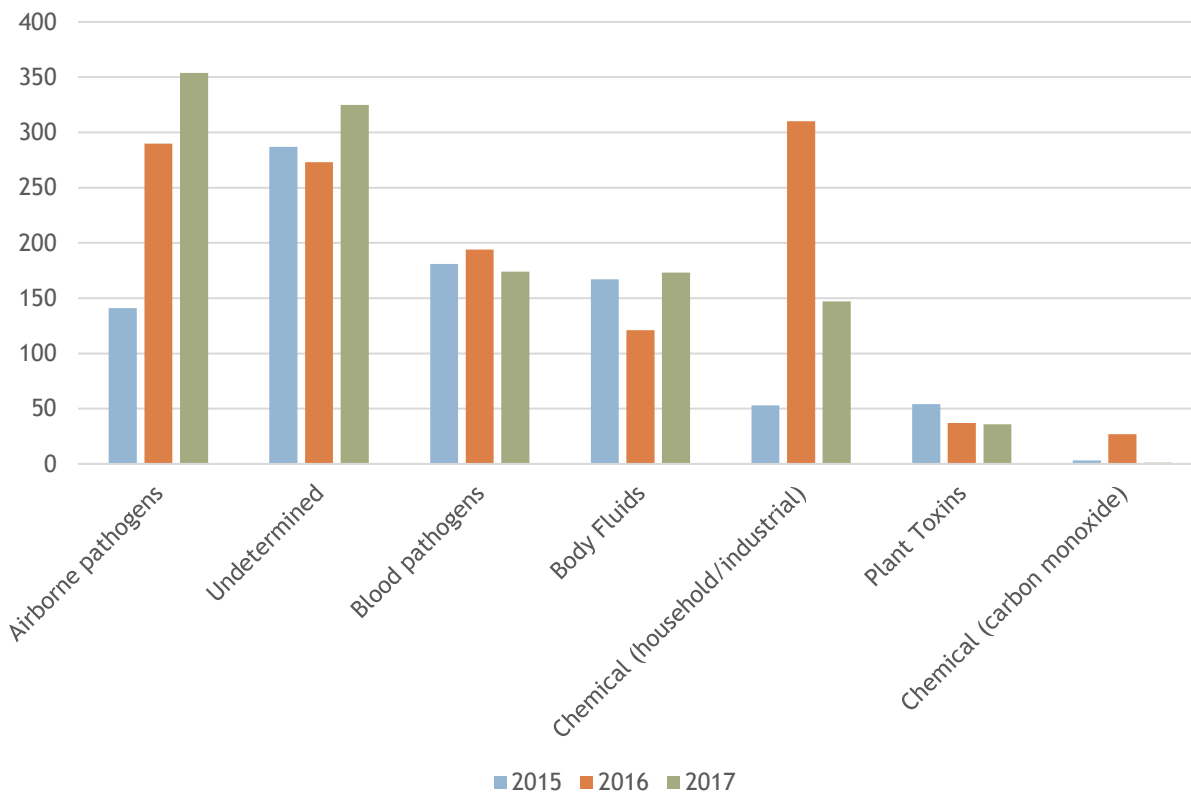


Table 25: Exposure description, 2015 - 2017, Historical Data (ordered by 2017, descending)

Exposure description	2015	2016	2017
Unknown	256	148	290
Blood	167	161	153
Chemicals/household/industrial	36	310	122
Asbestos	51	51	112
Tuberculosis	73	128	109
Body fluids	92	91	101
Meningitis	91	62	104
Animals or wildlife	75	90	58
Sickness, other	21	24	49
Poison plants	61	37	37
Vomit	19	14	17
Chlorine	4	1	14
Mold	4	26	10
Airborne, other	7	40	7
Staph	3	0	7
Carbon monoxide	8	26	5
HIV	11	4	4
Scabies	4	21	4
Hepatitis C	10	14	3
MRSA	0	14	3
Bacterial pneumonia	1	0	1
Explosive residue	0	0	0
Influenza	0	0	0
Lice	0	0	0
Strep	0	1	0
Total	994	1263	1210

Cancer

In June of 2019, the Governor of Texas signed Senate Bill 2551 (SB 2551) which expanded the scope of the law in which firefighters and EMTs who suffer from cancer are presumed to have developed the condition during the course and scope of their employment. The types of cancer this law addresses include:

- cancers that originate at the stomach, colon, rectum, skin, prostate, testis or brain
- non-Hodgkin's lymphoma
- multiple myeloma
- malignant melanoma
- renal cell carcinoma

The commission received **19** reports of cancer diagnoses from fire departments in 2019:

Skin/Melanoma/Basal Cell Carcinoma - 6
(Males, 36, 48, 51, 55, 56, 61)

Testicular - 1
(Males, 37)

Prostate - 3
(Males, 50, 57, 60)

Colorectal - 1
(Male, 33)

Colon - 2
(Female, 47; Male, 51)

Anal - 1
(Male, 55)

Kidney - 1
(Male, 54)

A Reminder for Fire Departments

Any injuries to fire protection personnel that are reported to the Texas Worker's Compensation Commission must be reported to the Texas Commission on Fire Protection. This includes cancer diagnoses.

Throat - 1
(Male, 54)

Unidentified - 3
(Female, 32; Males, 46, 53)

The commission strongly encourages fire departments to report cancer diagnoses; the commission recognizes that the number of job-related cancers reported during this time-period represents only a small fraction of the cases that Texas fire departments are currently managing. There is a growing awareness of the impact that cancer is having on fire protection personnel nationwide, and the commission urges departments to use this reporting tool to help contribute to the education and awareness of the issue in Texas.

SOP Issues

In 2019 there were 33 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 26: Injuries Attributed to SOP Issues, 2019

Activity	Minor	Serious	Total	2018	2017
EMS	11	0	11	9	7
Fire Suppression	6	4	10	19	9
Station Duties	5	1	6	1	4
Rescue - Non-fire	3	1	4	0	1
Rescue - Fire-related	2	0	2	0	0
Skills Training	0	1	1	2	2
Wellness/fitness	0	1	1	0	1
Responding to Incident	0	0	0	1	3
Fire Prevention	0	0	0	0	1
Totals	27	8	35	32	28

Table 27: Injuries Attributed to PPE & PASS Failures, 2019

Activity	Minor	Serious	Total	2018	2017*
Fire Suppression	2	0	2	8	n/a
Skills Training	1	1	2	2	n/a
Station Duties	1	0	1	0	n/a
Rescue - Non-fire	0	0	0	2	n/a
EMS	0	0	0	1	n/a
Rescue - Fire-related	0	0	0	1	n/a
Totals	4	1	5	14	n/a

*TCFP did not start collecting information on PPE & PASS failures until 2018.

Fatalities

The commission's 2019 injury report includes four fatalities. Fatalities listed in this report include only those reported to the Texas Commission on Fire Protection (TCFP) by the entities it regulates.

The State Fire Marshal's Office conducted three Texas fire fighter fatality incident investigations between September 1, 2018 and August 31, 2019. Comprehensive information about the investigations may be found on their website at the following web address: <https://www.tdi.texas.gov/fire/fmloddannuals.html>

Recommendations

The commission would like to thank Texas fire departments for their ongoing participation in reporting fire protection personnel injuries. This report would not be possible without their efforts.

Based on their review of the data contained within this report, the commission offers the following recommendations:

Recommendations for the Texas Fire Service

1. Continue to focus on reducing strains and sprains:
 - Stretching
 - EMS equipment review/patient moving
 - Equipment deployment/apparatus design
2. Continue to focus on reducing weightlifting injuries:
 - Clarify the purpose of weightlifting (functional fitness vs. body sculpting)
 - Review types of exercise routines
3. Focus on safety during non-emergency activities, especially:
 - station duties
 - training exercises
 - wellness/fitness activities
4. Increase cancer reporting and prevention activities:
 - Consider early detection testing
 - Review the Health and Wellness Committee's March 2019 [presentation](#)
 - Read *The Lavender Ribbon Report* (download a copy [here](#))
 - Clean everything often
5. Reduce fire ground injuries through prevention:
 - Fire risk analysis
 - Familiarity walk through
 - Pre-planning with focus on firefighter safety and injury prevention

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

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