
TEXAS COMMISSION ON FIRE PROTECTION INJURY REPORT

January 1, 2020 to December 31, 2020



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 2020 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 2019.

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 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.

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.

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 2020 was the tenth full year of reporting.

Grand Totals – 2020

Total number of incidents (injury reports) submitted: 5,530

Total number of individuals who sustained an injury or exposure: 6,406*

Total number of injuries reported: 2,552

Total number of exposures reported: 4,077

**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. ($6,406 < 2,552 + 4,077$)*

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)

557 of the 756 regulated departments used TCFP's injury reporting system in 2020. That's a reporting rate of 74%. These departments reported a total of 6,406 individuals who were either injured or exposed in calendar year 2020. Of these, 525 individuals incurred their injuries/exposures during fire suppression activities, representing 8 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 2020. EMS activities accounted for 3,192 of the 6,406 total individuals who were injured or exposed, or 50 percent.

After EMS and fire suppression, the next highest number reported in 2020 occurred in the performance of station duties, with 1,454, or 23 percent, of the total reported injuries.

Skills training and wellness/fitness activities again rounded out the top five activities: 429 skills training injuries (7 percent of the total) and 422 wellness/fitness injuries (7 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 36 percent of the total injuries reported in 2020.

A Note About COVID-19

It's important to mention that the COVID-19 pandemic, in many instances, caused the numbers of injuries and exposures to spike sharply in the areas of EMS-related duties (i.e., patient care) and station duties (i.e., contact with contagious co-workers). Please keep this in mind as you review the report.

State of Texas vs. NFPA

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

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.)

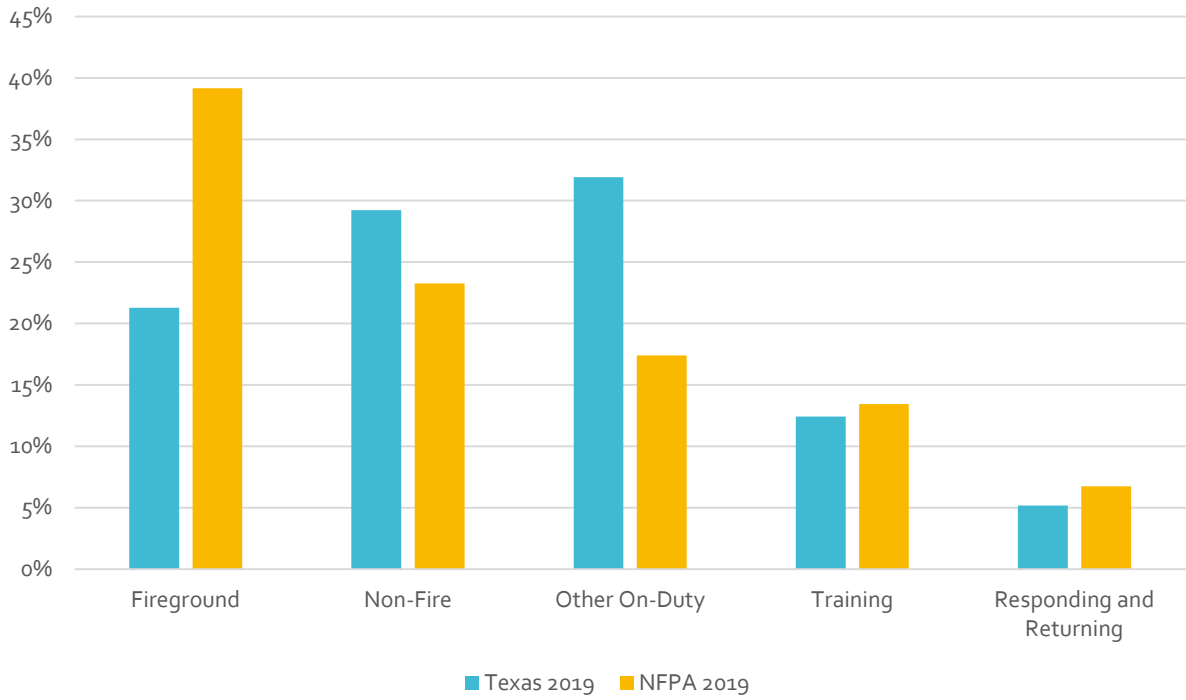
Comparing Texas 2019 and NFPA 2019

Table 1: Comparison of Texas 2019 and NFPA 2019

Category	Texas 2019		NFPA 2019	
	Count	Percent	Count	Percent
Fireground	804	21%	23,825	39%
Non-Fire	1,105	29%	14,150	23%
Other On-Duty	1,206	32%	10,575	17%
Training	469	12%	8,175	13%
Responding and Returning	196	5%	4,100	7%
Total	3,780	100%	60,825	100%

NFPA data is from the [Firefighter Injuries in the United States in 2019](#) report, copyright ©2019 National Fire Protection Association, Quincy, MA.

**Figure 1: Injuries by Activity, percentages
(Comparing Texas 2019 and NFPA 2019)**

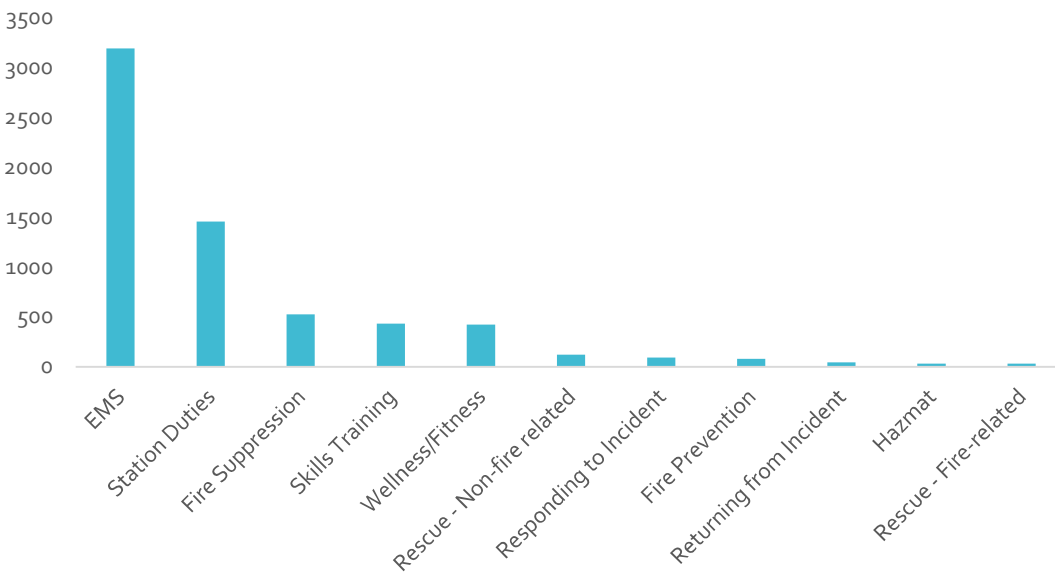


Fire Protection Personnel Injuries

Table 2: Total Injured or Exposed Individuals by Activity and Severity, 2020

Activity	Minor	Serious	Fatal	Total	2019	2018
EMS	2,529	660	3	3,192	922	1,027
Station Duties	722	731	1	1,454	739	639
Fire Suppression	397	127	1	525	763	799
Skills Training	304	125	0	429	469	400
Wellness/Fitness	306	116	0	422	407	417
Rescue - Non-fire related	89	29	0	118	157	183
Responding to Incident	68	23	0	91	143	163
Fire Prevention	49	27	0	76	60	90
Returning from Incident	28	13	0	41	53	91
Hazmat	22	7	0	29	26	28
Rescue - Fire-related	26	3	0	29	41	44
Total	4,540	1,861	5	6,406	3,780	3,881

Figure 2: Total Injured or Exposed Individuals by Activity, 2020



Injuries/Exposures by Activity

EMS activities resulted in the highest number of minor injuries in 2020 (see Table 3), which is consistent with the previous five years. **The total numbers of minor and serious injuries and exposures is up significantly in 2020 compared with previous years due to the COVID-19 pandemic.**

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

Table 3: Minor Injury/Exposure Activities, 2016 – 2020

Activity	2016		2017		2018		2019		2020	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
EMS	882	27.89%	929	28.99%	843	29.09%	776	25.84%	2,529	55.70%
Station Duties	434	13.73%	481	15.01%	437	15.08%	591	19.68%	722	15.90%
Fire Suppression	866	27.39%	662	20.66%	607	20.95%	616	20.51%	397	8.74%
Wellness/Fitness	252	7.97%	254	7.93%	286	9.87%	290	9.66%	306	6.74%
Skills Training	311	9.84%	291	9.08%	277	9.56%	330	10.99%	304	6.70%
Rescue - Non-Fire	161	5.09%	206	6.43%	157	5.42%	140	4.66%	89	1.96%
Responding to Incident	117	3.70%	156	4.87%	99	3.42%	114	3.80%	68	1.50%
Fire Prevention	47	1.49%	50	1.56%	69	2.38%	46	1.53%	49	1.08%
Returning from Incident	37	1.17%	42	1.31%	57	1.97%	39	1.30%	28	0.62%
Rescue - Fire Related	20	0.63%	113	3.53%	39	1.35%	37	1.23%	26	0.57%
Hazmat	35	1.11%	21	0.66%	27	0.93%	24	0.80%	22	0.48%
Total	3,162	100.00%	3,205	100.00%	2,898	100.00%	3,003	100.00%	4,540	100.00%

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

Table 4: Serious Injury/Exposure Activities, 2016 – 2020

Activity	2016		2017		2018		2019		2020	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Station Duties	172	18.76%	185	21.29%	201	20.49%	147	19.02%	731	39.28%
EMS	158	17.23%	147	16.92%	184	18.76%	146	18.89%	660	35.46%
Fire Suppression	179	19.52%	157	18.07%	191	19.47%	145	18.76%	127	6.82%
Skills Training	141	15.38%	120	13.81%	123	12.54%	139	17.98%	125	6.72%
Wellness/Fitness	146	15.92%	129	14.84%	131	13.35%	117	15.14%	116	6.23%
Rescue - Non-Fire	52	5.67%	27	3.11%	26	2.65%	17	2.20%	29	1.56%
Fire Prevention	11	1.20%	15	1.73%	21	2.14%	14	1.81%	27	1.45%
Responding to Incident	36	3.93%	53	6.10%	64	6.52%	28	3.62%	23	1.24%
Returning from Incident	18	1.96%	28	3.22%	34	3.47%	14	1.81%	13	0.70%
Hazmat	3	0.33%	7	0.81%	5	0.51%	4	0.52%	7	0.38%
Rescue - Fire Related	1	0.11%	1	0.12%	1	0.10%	2	0.26%	3	0.16%
Total	917	100.00%	869	100.00%	981	100.00%	773	100.00%	1,861	100.00%

(Numbers in red above = least amount of injuries for the five year period.)

Table 5: Number of Individuals Who Sustained Fatal Injuries/Exposures, 2020

Activity	Count	Percent
EMS	3	60%
Fire Suppression	1	20%
Station Duties	1	20%
Total	5	100%

Emergency vs. Non-Emergency Injuries

Table 6: Number of Injured Individuals by Emergency Activity and Severity, 2020

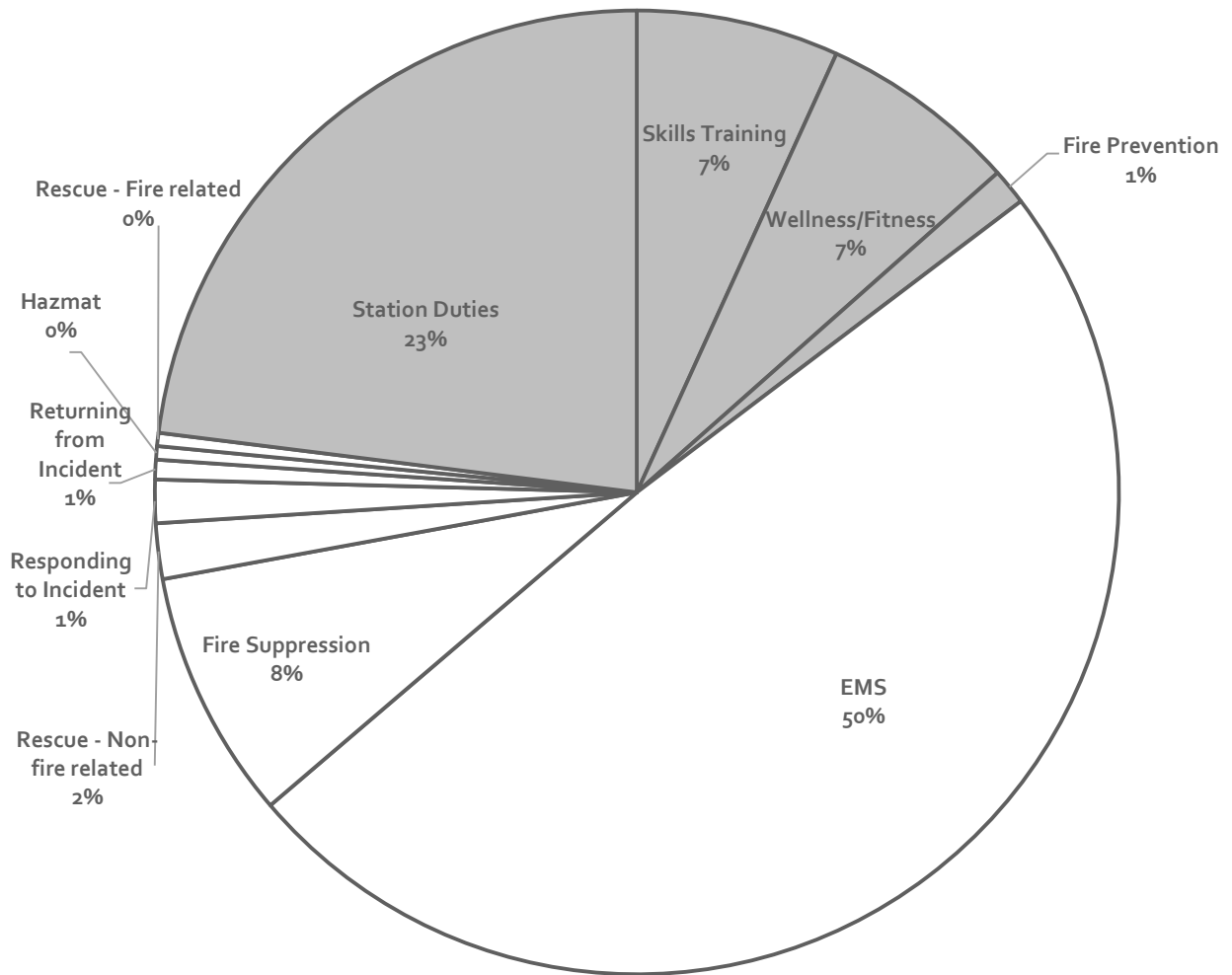
Activity	Minor	Serious	Fatal	Total
EMS	2,529	660	3	3,192
Fire Suppression	397	127	1	525
Rescue - Non-fire related	89	29	0	118
Responding to Incident	68	23	0	91
Returning from Incident	28	13	0	41
Hazmat	22	7	0	29
Rescue - Fire related	26	3	0	29
Total	3,159	862	4	4,025

Table 7: Number of Injured Individuals by Non-Emergency Activity and Severity, 2020

Activity	Minor	Serious	Fatal	Total
Station Duties	722	731	1	1,454
Skills Training	304	125	0	429
Wellness/Fitness	306	116	0	422
Fire Prevention	49	27	0	76
Total	1,381	999	1	2,381

Figure 3: Percentages of Injured Individuals in Emergency and Non-Emergency Activities, 2020

Emergency Activities (white) = 62%
Non-emergency Activities (gray) = 38%

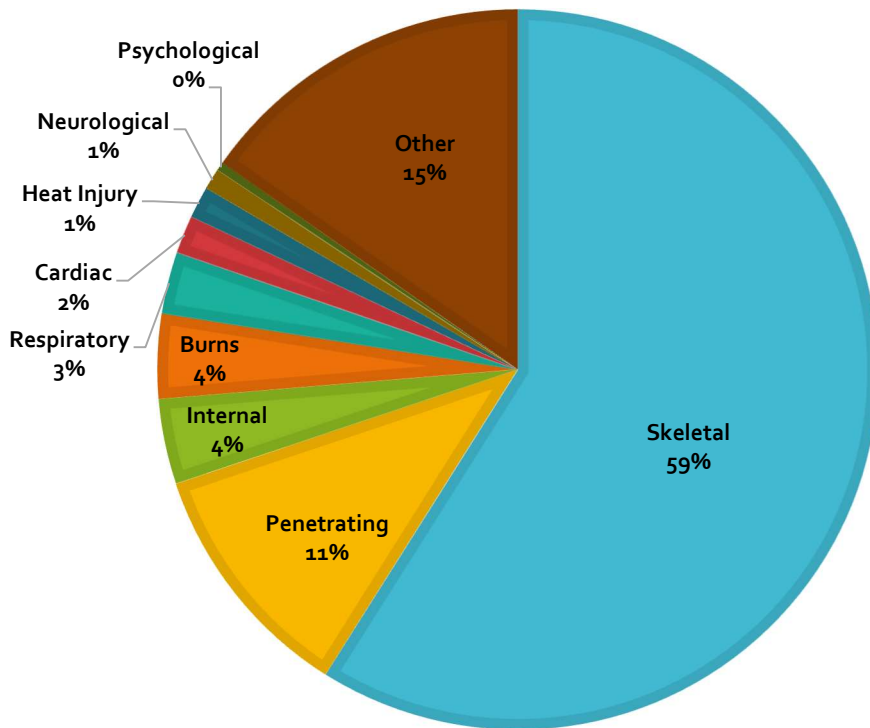


Types of Injuries

Table 8: Types of Injuries, 2020

Type of Injury	2020	
	Count	Percent
Skeletal	1,504	59%
Penetrating	282	11%
Internal	98	4%
Burns	96	4%
Respiratory	70	3%
Cardiac	44	2%
Heat Injury	36	1%
Neurological	24	1%
Psychological	10	0%
Other	388	15%
Total	2,552	100%

Figure 4: Types of Injuries, 2020

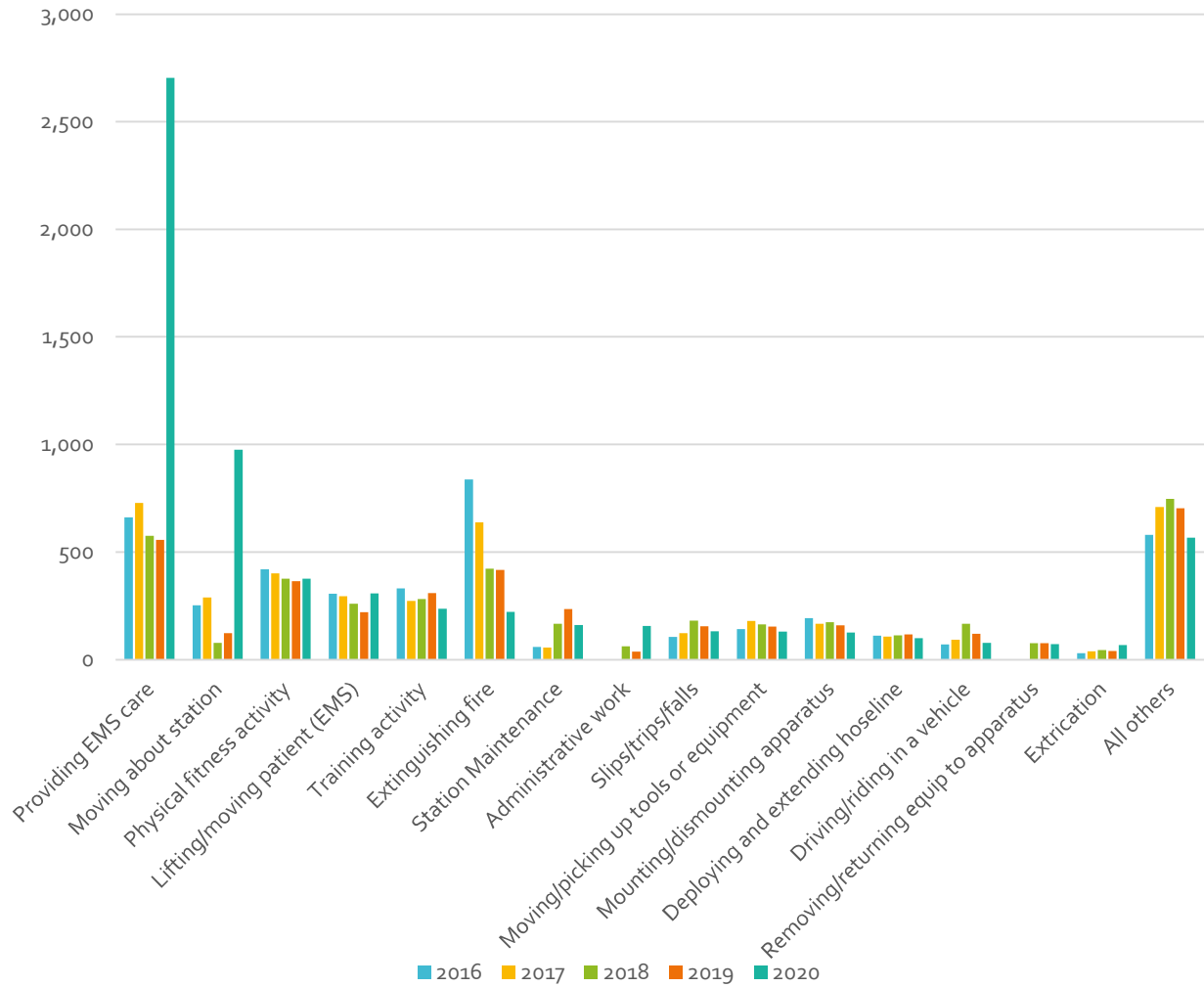


Task at Time of Injury

Table 9: Top 15 Tasks at Time of Injury, 2016-2020 (ordered by 2020, descending)

Task	2016	2017	2018	2019	2020
Providing EMS care	661	728	575	556	2,704
Moving about station	252	289	77	122	975
Physical fitness activity	420	401	376	364	376
Lifting/moving patient (EMS)	306	294	259	220	307
Training activity	331	273	281	309	236
Extinguishing fire	837	638	423	416	222
Station Maintenance	59	55	166	235	161
Administrative work	n/a	n/a	61	37	156
Slips/trips/falls	105	122	181	154	132
Moving/picking up tools or equipment	142	179	163	153	130
Mounting/dismounting apparatus	193	166	173	159	125
Deploying and extending hoseline	111	106	113	117	100
Driving/riding in a vehicle	70	92	166	119	77
Removing/returning equip to apparatus	1	n/a	76	76	71
Extrication	30	38	44	40	68
All others	579	709	747	703	566
Total	4,097	4,090	3,881	3,780	6,406

Figure 5: Top 15 Tasks at Time of Injury, 2016 – 2020



Injuries by Body Part

Table 10: Injuries by Body Part, 2016 – 2017 (ordered by 2017, descending)

Injured Body Part	2016	2017
Multiple body parts, whole body	1,007	1,064
Hand and fingers	359	365
Knee	376	315
Hip, lower back, or buttocks	283	292
Back, except spine	244	248
Shoulder	238	221
Ankle	192	179
Multiple parts	124	151
Face	116	127
Arm, lower, not including elbow or wrist	109	121
Leg, lower	132	113
Foot and toes	85	87
Head	82	78
Ear	74	76
Chest	82	76
Eye	70	73
Multiple body parts, upper body	61	73
Elbow	47	72
Wrist	74	56
Other body parts injured	342	303
Total	4,097	4,090

Because TCFP migrated to a new data management system in 2017, the data collected in years 2018-2020 has been categorized differently than it had been in the past. This is why Table 10 only goes through 2017, and we now have new tables (11 & 12) for 2018-2020 data.

Table 11: Injuries by Body Part Type, 2018 – 2020

Injured Body Part	2018	2019	2020
Upper Extremities	864	795	700
Lower Extremities	810	684	616
Back	490	466	445
Multiple Parts	318	255	281
Head	300	327	197
Internal	105	125	144
Chest	104	108	107
Neck	64	56	33
Hip	23	33	29
Total	3,078	2,849	2,552

Table 12: Injuries by Body Part Sub-Type, 2018 – 2020

Body Part by Sub-Type	2018	2019	2020
Back: Back	198	194	191
Back: Buttocks	1	3	2
Back: Lower Back	282	258	248
Back: Neck	4	4	1
Back: Spine	5	7	3
Chest: Abdomen	5	4	2
Chest: Abdominal Area	10	4	9
Chest: Chest	89	100	96
Head: Cheek	5	7	4
Head: Chin	7	1	4
Head: Ear	77	117	50
Head: Eye	64	60	44
Head: Face	111	112	78
Head: Jaw	1	6	2
Head: Mouth	15	16	10
Head: Nose	20	8	3
Head: Skull	n/a	n/a	2
Hip: Groin	9	14	9

Hip: Hip	13	18	18
Hip: Pelvis	1	1	2
Internal: Genito-urinary	4	11	4
Internal: Heart	5	7	4
Internal: Internal	66	71	74
Internal: Intestinal tract	5	4	3
Internal: Lungs	9	11	51
Internal: Stomach	15	20	8
Internal: Trachea	1	1	0
Lower Extremities: Ankle	206	163	135
Lower Extremities: Foot	93	88	78
Lower Extremities: Knee	347	273	252
Lower Extremities: Lower leg	111	97	95
Lower Extremities: Toes	15	22	13
Lower Extremities: Upper Leg	38	41	43
Multiple Parts: Lower Body	26	19	20
Multiple Parts: Unknown	26	11	27
Multiple Parts: Upper Body	74	76	65
Multiple Parts: Whole Body	192	149	169
Neck: Neck	59	49	30
Neck: Throat	5	7	3
Upper Extremities: Elbow	68	44	34
Upper Extremities: Hands	361	326	319
Upper Extremities: Lower Arm	10	59	55
Upper Extremities: Shoulder	234	235	170
Upper Extremities: Upper Arm	112	72	45
Upper Extremities: Wrist	79	59	77
Total	3,078	2,849	2,552

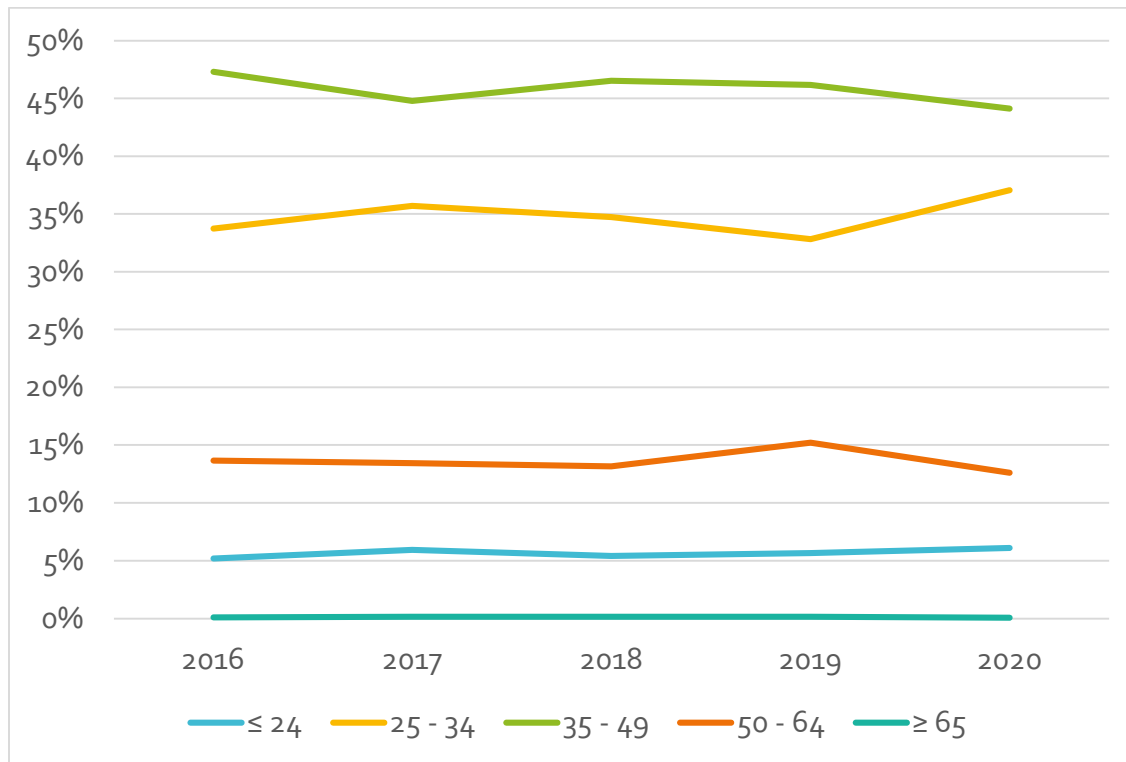
Individuals by Age Group

Table 13: Individuals by Age Group*, 2016 – 2020

Age Group	2016		2017		2018		2019		2020	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
≤ 24	213	5.20%	242	5.92%	210	5.41%	210	5.65%	389	6.10%
25 - 34	1,382	33.73%	1,460	35.70%	1,348	34.73%	1,220	32.82%	2,365	37.07%
35 - 49	1,939	47.33%	1,832	44.79%	1,806	46.53%	1,716	46.17%	2,815	44.13%
50 - 64	559	13.64%	550	13.45%	511	13.17%	566	15.23%	805	12.62%
≥ 65	4	0.10%	6	0.15%	6	0.15%	5	0.13%	5	0.08%
Totals	4,097	100.00%	4,090	100.00%	3,881	100.00%	3,717	100.00%	6,379	100.00%

*Includes injured individuals and individuals with exposures.

Figure 6: Individuals by Age Group, percentages, 2016 – 2020



Activities Resulting in Lost Time

Table 14: Activities Individuals Were Doing that Resulted in Lost Time, 2020 Totals

Activity	Count	Days Missed	
		Average	Sum
EMS	562	22	12,457
Station Duties	444	21	9,392
Wellness/fitness	76	47	3,581
Skills training	87	42	3,670
Fire suppression	76	36	2,795
Returning from incident	10	50	509
Rescue - nonfire-related	17	24	415
Responding to incident	16	39	624
Fire prevention	23	14	335
Rescue - fire-related	1	55	55
Hazmat	4	16	66
Total	1316	33	33,899

Table 15: Activities Individuals Were Doing that Resulted in Lost Time, 2020 Between 1 and 30 days

Activity	Count	Days Missed	
		Average	Sum
EMS	499	15	7,495
Station Duties	403	13	5,349
Skills Training	54	12	675
Wellness/Fitness	42	13	547
Fire Suppression	53	9	529
Fire Prevention	22	13	298
Rescue - Nonfire-related	14	15	211
Responding to incident	10	12	122
Returning from incident	6	10	64
Hazmat	3	6	18
Total	1106	12	15,308

*Table 16: Activities Individuals Were Doing that Resulted in Lost Time, 2020
Between 31 and 90 days*

Activity	Count	Days Missed	
		Average	Sum
EMS	47	45	2,125
Skills Training	23	61	1,421
Station Duties	25	44	1,121
Wellness/Fitness	22	54	1,192
Fire Suppression	11	49	545
Responding to incident	4	52	209
Returning from incident	2	84	169
Rescue - nonfire-related	2	42	85
Rescue - fire-related	1	55	55
Fire Prevention	1	37	37
Hazmat	1	48	48
Total	139	52	7,007

*Table 17: Activities Individuals Were Doing that Resulted in Lost Time, 2020
91+ days*

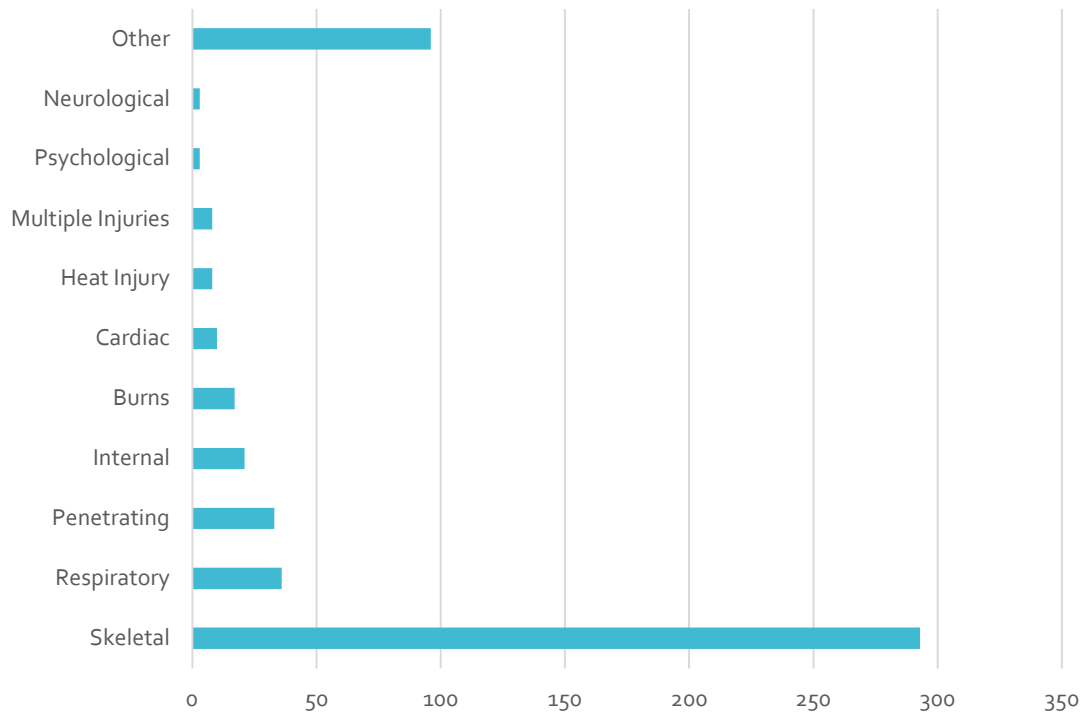
Activity	Count	Days Missed	
		Average	Sum
Station Duties	16	182	2,922
Wellness/Fitness	12	153	1,842
EMS	16	177	2,837
Skills Training	10	157	1,574
Fire Suppression	12	143	1,721
Returning from incident	2	138	276
Rescue - nonfire-related	1	119	119
Responding to incident	2	146	293
Total	71	152	11,584

Types of Injuries with Lost Time

Table 18: Types of Injuries Resulting in Lost Time, 2020

Type of Injury	Count
Skeletal	293
Respiratory	36
Penetrating	33
Internal	21
Burns	17
Cardiac	10
Heat Injury	8
Multiple Injuries	8
Psychological	3
Neurological	3
Other	96
Total	528

Figure 7: Types of Injuries Resulting in Lost Time, 2020



Burn Injuries

Table 19: All Burns, 2016 – 2020

All Burns - Types	2016	2017	2018	2019	2020
Thermal (Heat/Fire)	92	96	108	72	80
Scald or Steam	9	13	12	10	11
Chemical	3	4	6	6	2
Electrical	2	0	1	2	3
Totals	106	113	127	90	96

Table 20: Burns by Body Part Sub-Type, 2020

Body Part Sub-Type	Count
Back: Back	0
Back: Buttocks	0
Back: Lower Back	0
Back: Neck	0
Back: Spine	0
Chest: Abdomen	0
Chest: Abdominal Area	0
Chest: Chest	0
Head: Cheek	1
Head: Chin	3
Head: Ear	12
Head: Eye	3
Head: Face	8
Head: Jaw	0
Head: Mouth	0
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

According to the Texas State Fire Marshal's Office, there were 57,950 fires in 2020.

Lower Extremities: Ankle	1
Lower Extremities: Foot	4
Lower Extremities: Knee	1
Lower Extremities: Lower Leg	1
Lower Extremities: Toes	0
Lower Extremities: Upper Leg	1
Multiple Parts: Lower Body	0
Multiple Parts: Unknown	0
Multiple Parts: Upper Body	11
Multiple Parts: Whole Body	0
Neck: Neck	2
Neck: Throat	0
Upper Extremities: Elbow	1
Upper Extremities: Hands	20
Upper Extremities: Lower Arm	14
Upper Extremities: Shoulder	4
Upper Extremities: Upper Arm	0
Upper Extremities: Wrist	9
Total	96

Table 21: Burns by Body Part, 2016 – 2020, Comparison to Historical Data

Body Part	2016	2017	2018*	2019*	2020*
Ear	14	16	17	17	12
Hand and fingers	27	22	30	16	20
Face	16	9	14	10	12
Wrist	9	7	8	11	9
Multiple body parts, upper body	8	4	10	6	11
Eye	0	0	4	5	3
Hip, lower back, or buttocks	1	0	0	5	0
Foot and toes	3	1	6	4	4
Multiple parts	4	12	5	4	0
Arm, upper, not including elbow or shoulder	1	2	11	3	0
Lower extremities	2	0	8	3	3
Chest	1	1	2	2	0
Neck	4	7	2	2	2
Knee	1	2	0	1	1

Shoulder	3	6	9	1	4
Back, except spine	0	2	1	0	0
Elbow	0	1	0	0	1
Pelvis or groin	0	2	0	0	0
Throat	0	0	0	0	0
Arm, lower, not including elbow or wrist	2	12	n/a	n/a	14
Head	2	1	n/a	n/a	n/a
Leg, lower	3	3	n/a	n/a	n/a
Upper extremities	2	0	n/a	n/a	n/a
Neck and shoulders	0	1	n/a	n/a	n/a
Undetermined	3	2	n/a	n/a	0
Total	106	113	127	90	96

*The 2018, 2019, and 2020 columns were pieced together from the data in Table 20: Burns by Body Part Sub-Type, from the 2018, 2019, and 2020 injury report data. This was done in order to view trends and patterns.

Exposures

Table 22: Exposure by Sub-Type, 2018 – 2020

Exposure + Sub-Type	2018	2019	2020
Chemical: Ammonia	1	3	0
Chemical: Battery Acid*	n/a	4	0
Chemical: Benzene	2	15	1
Chemical: Bleach	1	11	0
Chemical: Not listed	151	160	70
Chemical: Unidentified	73	55	27
Physical: Animal venom	6	17	5
Physical: Meningitis	38	40	33
Physical: Not listed	138	201	42
Physical: Plant toxin	27	14	12
Physical: Radiation*	n/a	4	1
Physical: Unidentified	87	66	13
Physical: UV Light*	n/a	2	1
Respiratory: Blood	69	73	78
Respiratory: COVID 19*	n/a	1	1,715
Respiratory: Influenza	4	19	7
Respiratory: Not listed	108	118	56
Respiratory: Saliva	24	22	28
Respiratory: Tuberculosis	98	76	31
Respiratory: Unidentified	50	37	6
Respiratory: Vomit	7	8	13
Other: Asbestos*	n/a	3	1
Other: Carbon Monoxide*	n/a	1	6
Other: Carcinogenic Substances*	n/a	1	13
Other: Contaminated Water/Sewage*	n/a	4	11
Other: Heavy Metals*	n/a	0	1
Other: Mold*	n/a	0	9
Other: Smoke/Products of Combustion*	n/a	5	19
Other: Virus	n/a	3	1,878
Total	884	963	4,077

*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 23: Exposure by Route, 2020

Route	Count
Inhalation	3,208
Absorption	760
Ingestion	59
Injection/Puncture	50
Total	4,077

Figure 8: Exposure by Route, 2020, percentages

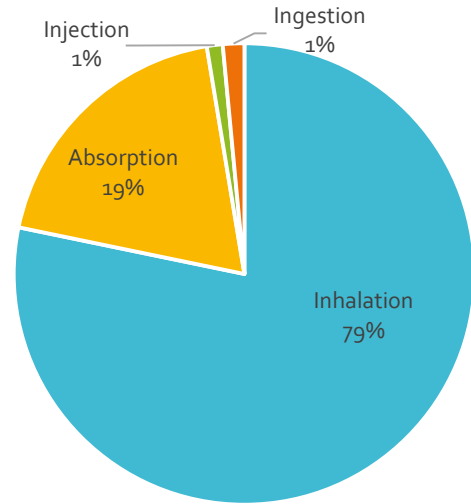


Table 24: Exposure by Substance, 2020

Substance	Count
Gas/vapor	2,029
Liquid	1,560
Solid	488
Total	4,077

Figure 9: Exposure by Substance, 2020, percentages

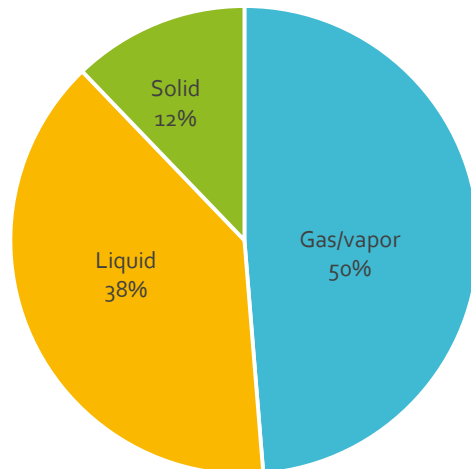


Table 25: Routes of Exposure, Historical Data, 2016 – 2017

Exposure Routes	2016	2017
Airborne pathogens	290	354
Undetermined	273	325
Blood pathogens	194	174
Body Fluids	121	173
Chemical (household/industrial)	310	147
Plant toxins	37	36
Chemical (carbon monoxide)	27	1
Total	1,252	1,210

Figure 10: Routes of Exposure, Historical Data, 2016 – 2017

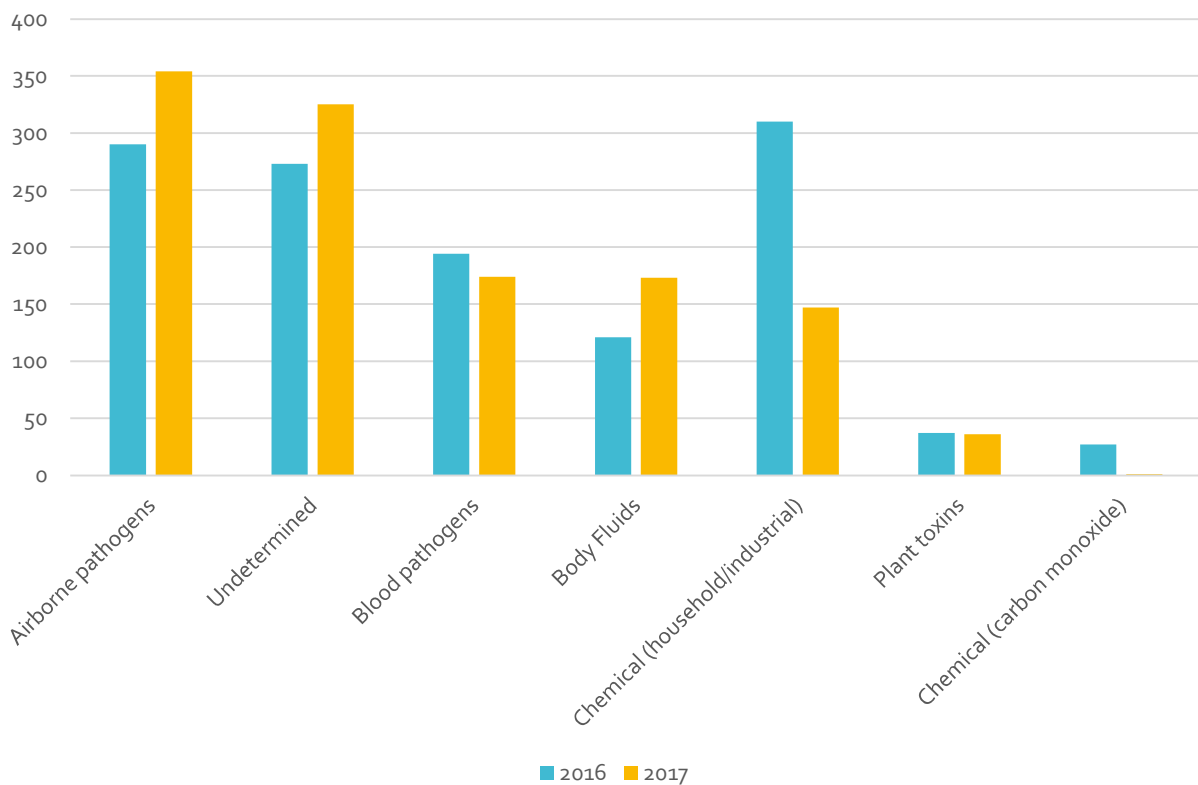


Table 26: Exposure Description, Historical Data, 2016 – 2017

Exposure description	2016	2017
Unknown	148	290
Blood	161	153
Chemicals/household/industrial	310	122
Asbestos	51	112
Tuberculosis	128	109
Body fluids	91	101
Meningitis	62	104
Animals or wildlife	90	58
Sickness, other	24	49
Poison plants	37	37
Vomit	14	17
Chlorine	1	14
Mold	26	10
Airborne, other	40	7
Staph	0	7
Carbon monoxide	26	5
HIV	4	4
Scabies	21	4
Hepatitis C	14	3
MRSA	14	3
Bacterial pneumonia	0	1
Explosive residue	0	0
Influenza	0	0
Lice	0	0
Strep	1	0
Total	1,263	1,210

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

TCFP received **47** reports of cancer diagnoses from fire departments in 2020:

Skin/Melanoma/Basal Cell/Squamous Cell carcinoma – 10

(Males, ages 34, 36, 37, 37, 38, 38, 50, 50, 53, 56)

Prostate – 9

(Males – ages 48, 52, 53, 54, 58, 58, 59, 60, 62)

Non-Hodgkin's Lymphoma – 7

(Males – 30, 38, 47, 61, 61, 64, 64)

Kidney/renal cell carcinoma – 3

(Males – 50, 51, 51)

Colon – 2

(Males – 25, 42)

Testicular – 2

(Males – 26, 33)

Thyroid – 2

(Males – 29, 30)

Breast – 1

(Female – 49)

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.

Lung – 1
Male – 30)

Stomach – 1
(Male – 43)

Throat – 1
(Male – 68)

Unidentified – 8
(Males – 31, 43, 45, 49, 53, 59, 61; Female – 18)

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 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 2020 there were 38 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 27: Injuries Attributed to SOP Issues, 2020

Activity	Minor	Serious	Total	2019	2018	2017
EMS	11	7	18	11	9	7
Fire Suppression	3	7	10	10	19	9
Skills Training	4	1	5	1	2	2
Responding to Incident	2	0	2	0	1	3
Station Duties	0	2	2	6	1	4
Wellness/Fitness	1	0	1	1	0	1
Totals	21	17	38	29	32	26

Table 28: Injuries Attributed to PPE & PASS Failures, 2020

Activity	Minor	Serious	Total	2019	2018	2017*
Fire Suppression	5	2	7	2	8	n/a
EMS	2	2	4	0	1	n/a
Skills Training	1	0	1	2	2	n/a
Totals	8	4	12	4	11	n/a

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

Fatalities

The commission's 2020 injury report includes five 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. Departments should evaluate their SOPs related to station duties to see if improvements can be made.
2. Consider early detection testing for cancer.
3. NFPA 1851 is required by state law and departments are strongly encouraged to follow it.
4. Clean everything often (e.g., clean cab, clean tools, equipment, PPE, self-decontamination after incidents, etc.)

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](#)

Commission's web page

[NFPA Standards adopted by the commission](#)