

**FIRE FIGHTER ADVISORY COMMITTEE
AGENDA
March 11, 2021, 9:00 A.M.**

Due to Governor Greg Abbott's March 13, 2020 proclamation of a state of disaster affecting all counties in Texas due to the Coronavirus (COVID-19) and the Governor's March 16, 2020 suspension of certain provisions of the Texas Open Meetings Act, the March 11, 2021 meeting of the Texas Commission on Fire Protection, Fire Fighter Advisory Committee will be held by video conference, as authorized under Texas Government Code section 551.125.

Members of the public will have access and a means to participate in this meeting via video conference by registering in advance

at https://us02web.zoom.us/webinar/register/WN_8IK3j01kTF6yigfEj2vRiQ

An electronic copy of the agenda is available at www.tcfp.texas.gov, as well as a copy of the meeting materials. A recording of the meeting will be available after March 11, 2021 on the agency website at www.tcfp.texas.gov.

1. Roll call and excuse of committee members.
2. Discussion and possible action on the election of officers.
3. Adoption of December 10, 2020 Fire Fighter Advisory Committee meeting minutes.
4. Discussion of the 2020 data collected on fire fighter injuries, and possible action on developing recommendations to be submitted to the commission for approval and submission to the State Fire Marshal's Office.
5. Subjects for future agenda items.
6. Future meeting dates.
7. Adjourn meeting.

1. Roll call and excuse of committee members.

2. Discussion and possible action on the election of officers.

3. Adoption of the December 10, 2020 Fire Fighter Advisory Committee meeting minutes.

9. Subjects for Future meetings None identified.

10. Future meeting Dates The committee set the following meeting dates.
March 11, 2021, June 10, 2021, September 16, 2021, and December 2, 2021

11. Adjournment A motion was made by Jim Reidy and seconded by Daniel Anderson to adjourn. The motion carried.

Daniel DeYear
Presiding Officer

- 4. Discussion of the 2020 data collected on fire fighter injuries, and possible action on developing recommendations to be submitted to the commission for approval and submission to the State Fire Marshal's Office.**

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.

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: 4,982

Total number of individuals who sustained an injury or exposure: 5,794*

Total number of injuries reported: 2,411

Total number of exposures reported: 3,578

**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. (5,794 < 2,411 + 3,578)*

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)

545 of the 756 regulated departments used TCFP's injury reporting system in 2020. That's a reporting rate of 72%. These departments reported a total of 5,794 individuals who were either injured or exposed in calendar year 2020. Of these, 505 individuals incurred their injuries/exposures during fire suppression activities, representing 9 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 2,875 of the 5,794 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 1,239, or 21 percent, of the total reported injuries.

Skills training and wellness/fitness activities again rounded out the top five activities: 411 skills training injuries (7 percent of the total) and 399 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.

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.)

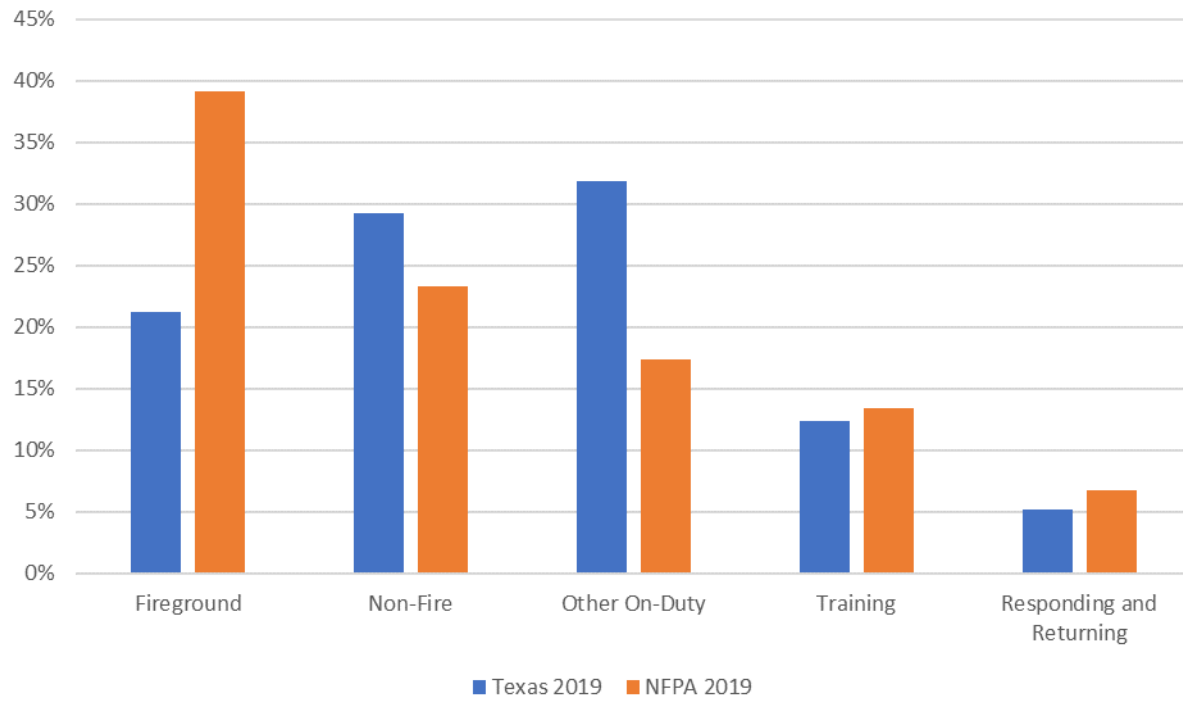
Comparing Texas 2019 and NFPA 2019

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)**

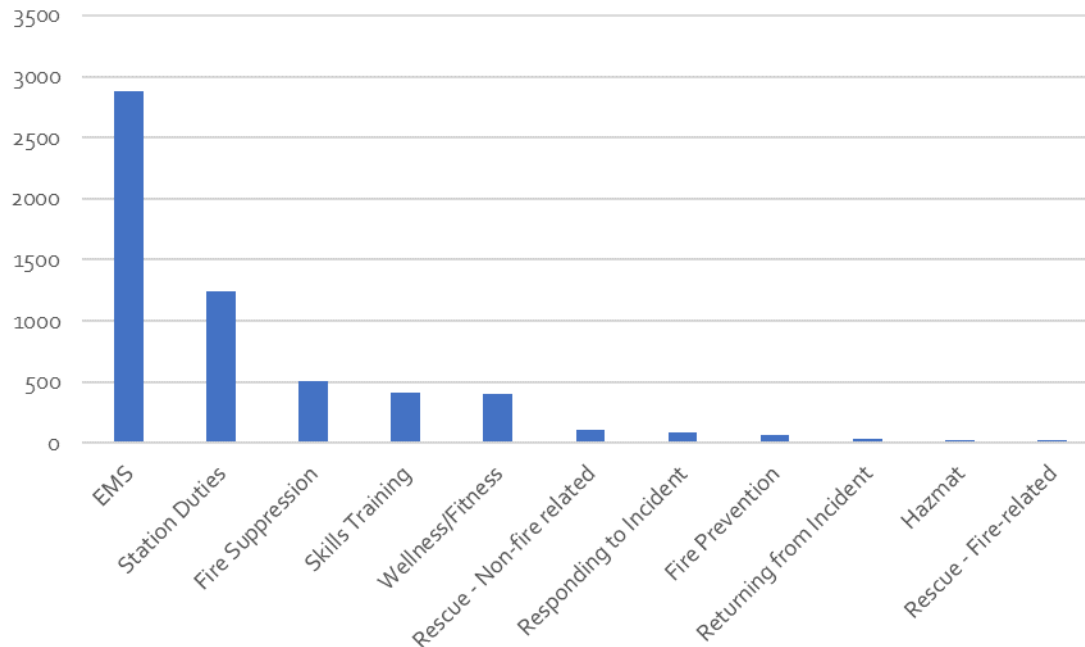


Fire Protection Personnel Injuries

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

Activity	Minor	Serious	Fatal	Total	2019	2018
EMS	2,372	501	2	2,875	922	1,027
Station Duties	640	598	1	1,239	739	639
Fire Suppression	381	123	1	505	763	799
Skills Training	293	118	0	411	469	400
Wellness/Fitness	295	104	0	399	407	417
Rescue - Non-fire related	84	29	0	113	157	183
Responding to Incident	66	23	0	89	143	163
Fire Prevention	46	24	0	70	60	90
Returning from Incident	27	13	0	40	53	91
Hazmat	22	6	0	28	26	28
Rescue - Fire-related	22	3	0	25	41	44
Total	4,248	1,542	4	5,794	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 not 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%	2,372	55.84%
Station Duties	434	13.73%	481	15.01%	437	15.08%	591	19.68%	640	15.07%
Fire Suppression	866	27.39%	662	20.66%	607	20.95%	616	20.51%	381	8.97%
Wellness/Fitness	252	7.97%	254	7.93%	286	9.87%	290	9.66%	295	6.94%
Skills Training	311	9.84%	291	9.08%	277	9.56%	330	10.99%	293	6.90%
Rescue - Non-Fire	161	5.09%	206	6.43%	157	5.42%	140	4.66%	84	1.98%
Responding to Incident	117	3.70%	156	4.87%	99	3.42%	114	3.80%	66	1.55%
Fire Prevention	47	1.49%	50	1.56%	69	2.38%	46	1.53%	46	1.08%
Returning from Incident	37	1.17%	42	1.31%	57	1.97%	39	1.30%	27	0.64%
Rescue - Fire Related	20	0.63%	113	3.53%	39	1.35%	37	1.23%	22	0.52%
Hazmat	35	1.11%	21	0.66%	27	0.93%	24	0.80%	22	0.52%
Total	3,162	100.00%	3,205	100.00%	2,898	100.00%	3,003	100.00%	4,248	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%	598	38.78%
EMS	158	17.23%	147	16.92%	184	18.76%	146	18.89%	501	32.49%
Fire Suppression	179	19.52%	157	18.07%	191	19.47%	145	18.76%	123	7.98%
Skills Training	141	15.38%	120	13.81%	123	12.54%	139	17.98%	118	7.65%
Wellness/Fitness	146	15.92%	129	14.84%	131	13.35%	117	15.14%	104	6.74%
Rescue - Non-Fire	52	5.67%	27	3.11%	26	2.65%	17	2.20%	29	1.88%
Fire Prevention	11	1.20%	15	1.73%	21	2.14%	14	1.81%	24	1.56%
Responding to Incident	36	3.93%	53	6.10%	64	6.52%	28	3.62%	23	1.49%
Returning from Incident	18	1.96%	28	3.22%	34	3.47%	14	1.81%	13	0.84%
Hazmat	3	0.33%	7	0.81%	5	0.51%	4	0.52%	6	0.39%
Rescue - Fire Related	1	0.11%	1	0.12%	1	0.10%	2	0.26%	3	0.19%
Total	917	100.00%	869	100.00%	981	100.00%	773	100.00%	1,542	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	2	50%
Fire Suppression	1	25%
Station Duties	1	25%
Total	4	100%

Emergency vs. Non-Emergency Injuries

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

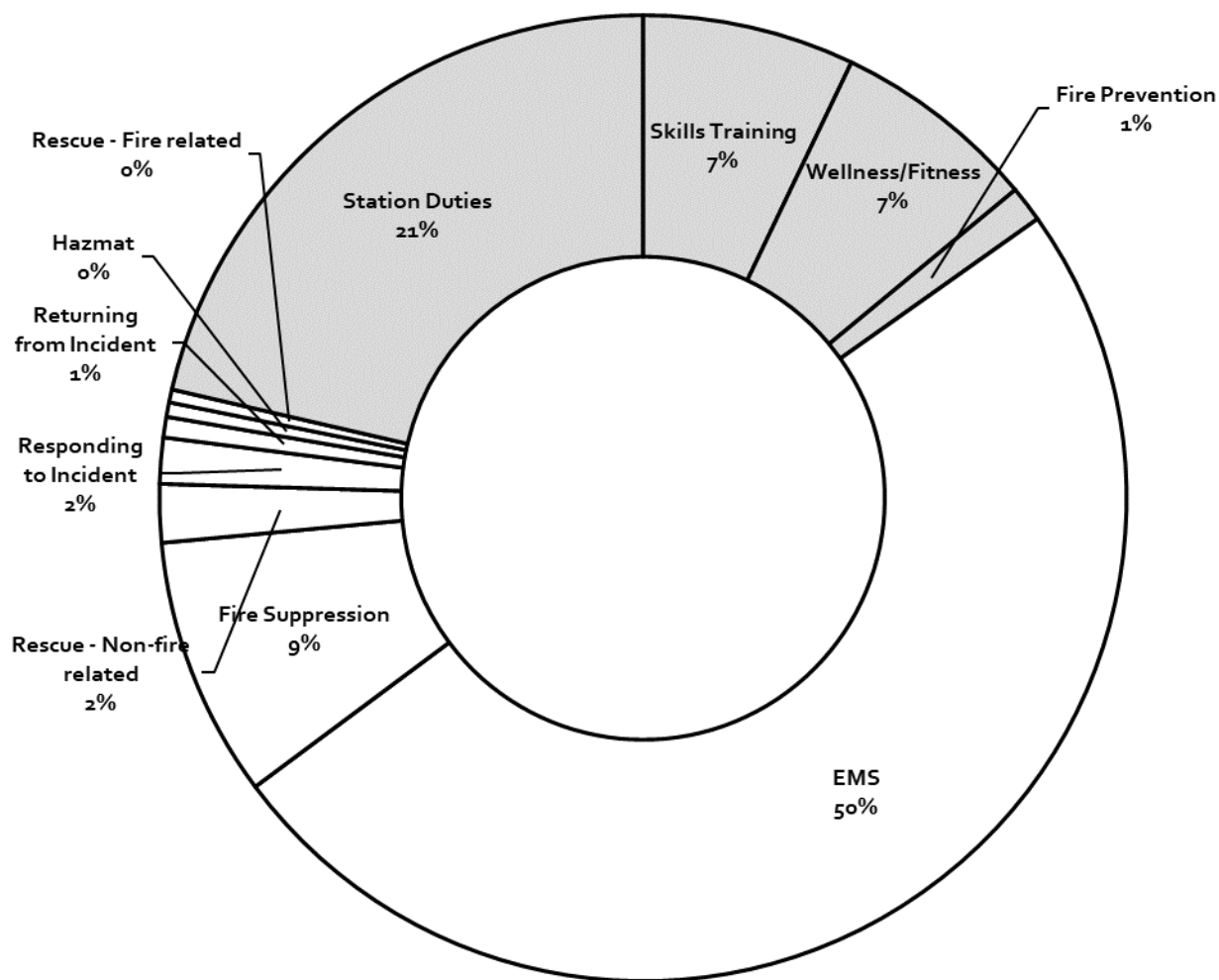
Activity	Minor	Serious	Fatal	Total
EMS	2,372	501	2	2,875
Fire Suppression	381	123	1	505
Rescue - Non-fire related	84	29	0	113
Responding to Incident	66	23	0	89
Returning from Incident	27	13	0	40
Hazmat	22	6	0	28
Rescue - Fire related	22	3	0	25
Total	2,974	698	3	3,675

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

Activity	Minor	Serious	Fatal	Total
Station Duties	640	598	1	1,239
Skills Training	293	118	0	411
Wellness/Fitness	295	104	0	399
Fire Prevention	46	24	0	70
Total	1,274	844	1	2,119

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

Emergency Activities (white) = 64%
Non-emergency Activities (gray) = 36%

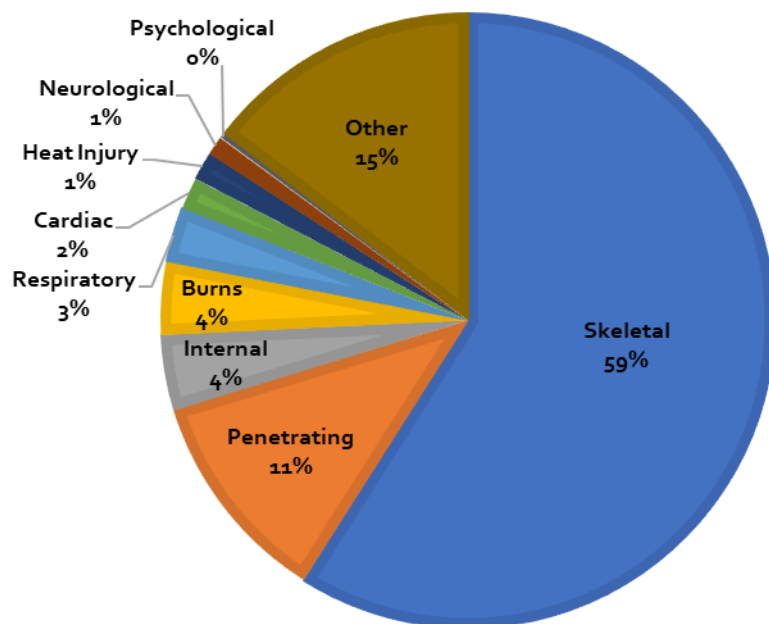


Types of Injuries

Table 8: Types of Injuries, 2020

Type of Injury	2019	
	Count	Percent
Skeletal	1,422	59%
Penetrating	273	11%
Internal	95	4%
Burns	92	4%
Respiratory	70	3%
Cardiac	40	2%
Heat Injury	36	1%
Neurological	24	1%
Psychological	7	0%
Other	352	15%
Total	2,411	100%

Figure 4: Types of Injuries, 2020

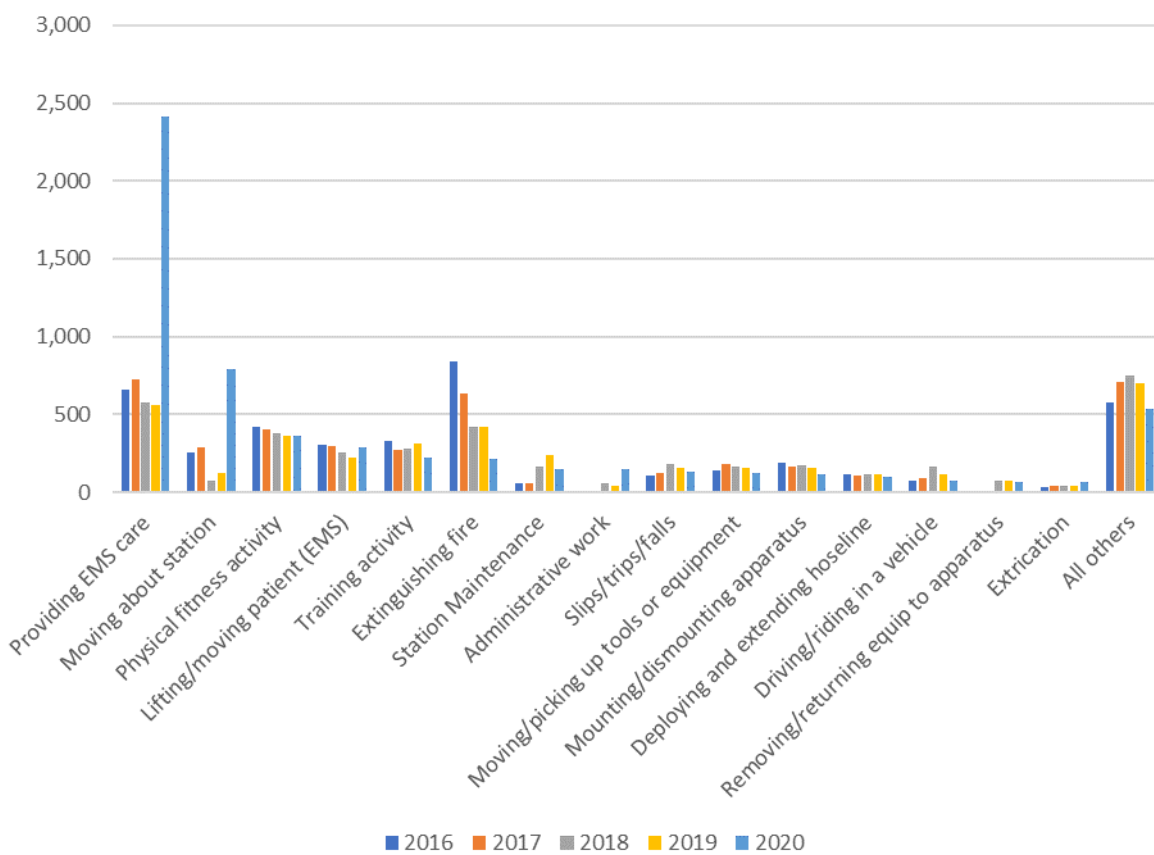


Task at Time of Injury

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	2,416
Moving about station	252	289	77	122	789
Physical fitness activity	420	401	376	364	359
Lifting/moving patient (EMS)	306	294	259	220	290
Training activity	331	273	281	309	222
Extinguishing fire	837	638	423	416	214
Station Maintenance	59	55	166	235	150
Administrative work	n/a	n/a	61	37	148
Slips/trips/falls	105	122	181	154	128
Moving/picking up tools or equipment	142	179	163	153	125
Mounting/dismounting apparatus	193	166	173	159	118
Deploying and extending hoseline	111	106	113	117	96
Driving/riding in a vehicle	70	92	166	119	70
Removing/returning equip to apparatus	1	n/a	76	76	68
Extrication	30	38	44	40	66
All others	579	709	747	703	535
Total	4,097	4,090	3,881	3,780	5,794

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	658
Lower Extremities	810	684	589
Back	490	466	420
Multiple Parts	318	255	256
Head	300	327	192
Internal	105	125	137
Chest	104	108	98
Neck	64	56	32
Hip	23	33	29
Total	3,078	2,849	2,411

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

Body Part by Sub-Type	2018	2019	2020
Back: Back	198	194	181
Back: Buttocks	1	3	2
Back: Lower Back	282	258	233
Back: Neck	4	4	1
Back: Spine	5	7	3
Chest: Abdomen	5	4	1
Chest: Abdominal Area	10	4	8
Chest: Chest	89	100	89
Head: Cheek	5	7	4
Head: Chin	7	1	4
Head: Ear	77	117	49
Head: Eye	64	60	44
Head: Face	111	112	76
Head: Jaw	1	6	2
Head: Mouth	15	16	10
Head: Nose	20	8	3
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	69
Internal: Intestinal tract	5	4	3
Internal: Lungs	9	11	51

Internal: Stomach	15	20	6
Internal: Trachea	1	1	0
Lower Extremities: Ankle	206	163	128
Lower Extremities: Foot	93	88	75
Lower Extremities: Knee	347	273	241
Lower Extremities: Lower leg	111	97	90
Lower Extremities: Toes	15	22	12
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	144
Neck: Neck	59	49	29
Neck: Throat	5	7	3
Upper Extremities: Elbow	68	44	32
Upper Extremities: Hands	361	326	300
Upper Extremities: Lower Arm	10	59	54
Upper Extremities: Shoulder	234	235	160
Upper Extremities: Upper Arm	112	72	42
Upper Extremities: Wrist	79	59	70
Total	3,078	2,849	2,411

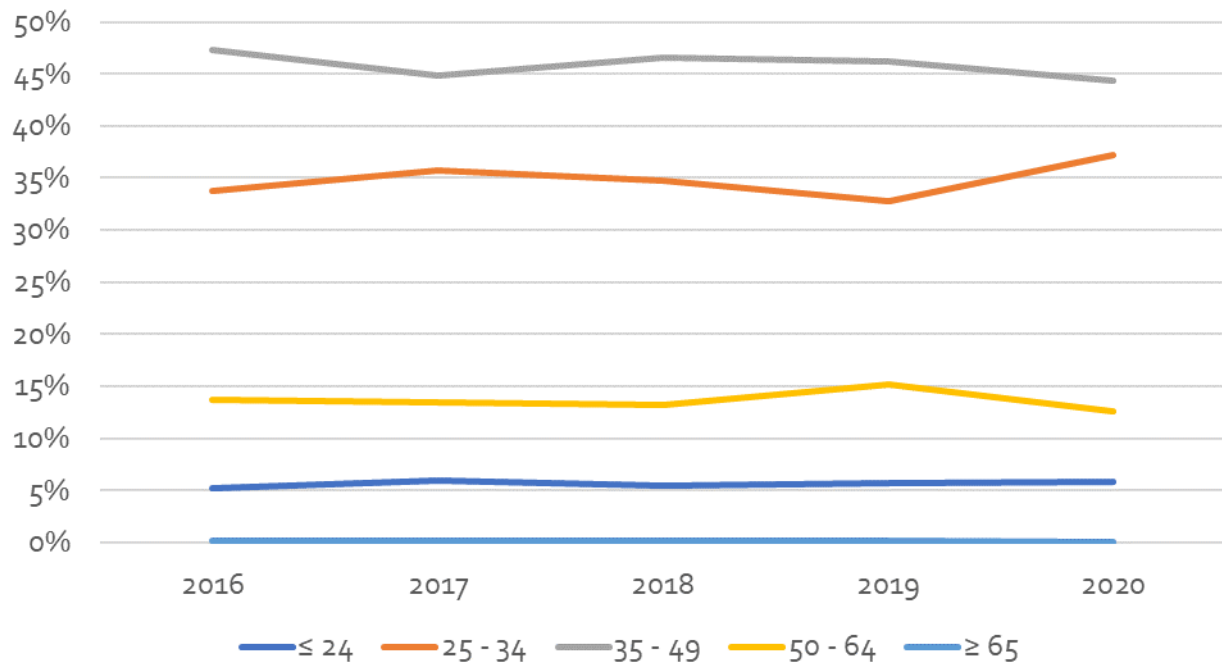
Individuals by Age Group

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%	334	5.79%
25 - 34	1,382	33.73%	1,460	35.70%	1,348	34.73%	1,220	32.82%	2,145	37.17%
35 - 49	1,939	47.33%	1,832	44.79%	1,806	46.53%	1,716	46.17%	2,563	44.41%
50 - 64	559	13.64%	550	13.45%	511	13.17%	566	15.23%	724	12.55%
≥ 65	4	0.10%	6	0.15%	6	0.15%	5	0.13%	5	0.09%
Totals	4,097	100.00%	4,090	100.00%	3,881	100.00%	3,717	100.00%	5,771	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	375	19	7,302
Station Duties	303	19	5,997
Wellness/fitness	65	39	2,539
Skills training	73	34	2,496
Fire suppression	62	20	1,250
Returning from incident	9	47	426
Rescue - nonfire-related	17	24	415
Responding to incident	14	23	331
Fire prevention	20	14	284
Rescue - fire-related	1	55	55
Hazmat	2	4	9
Total	941	27	21,104

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

Activity	Count	Days Missed	
		Average	Sum
EMS	340	14	4,983
Station Duties	274	13	3,668
Skills Training	48	12	595
Wellness/Fitness	41	13	535
Fire Suppression	51	10	512
Fire Prevention	19	13	247
Rescue - Nonfire-related	14	15	211
Responding to incident	10	12	122
Returning from incident	6	10	64
Hazmat	2	4	9
Rescue - fire-related	0	0	0
Total	805	11	10,946

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

Activity	Count	Days Missed	
		Average	Sum
EMS	29	47	1,365
Skills Training	19	60	1,140
Station Duties	20	44	883
Wellness/Fitness	16	50	803
Fire Suppression	8	50	407
Responding to incident	4	52	209
Returning from incident	1	86	86
Rescue - nonfire-related	2	42	85
Rescue - fire-related	1	55	55
Fire Prevention	1	37	37
Hazmat	0	0	0
Total	101	48	5,070

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

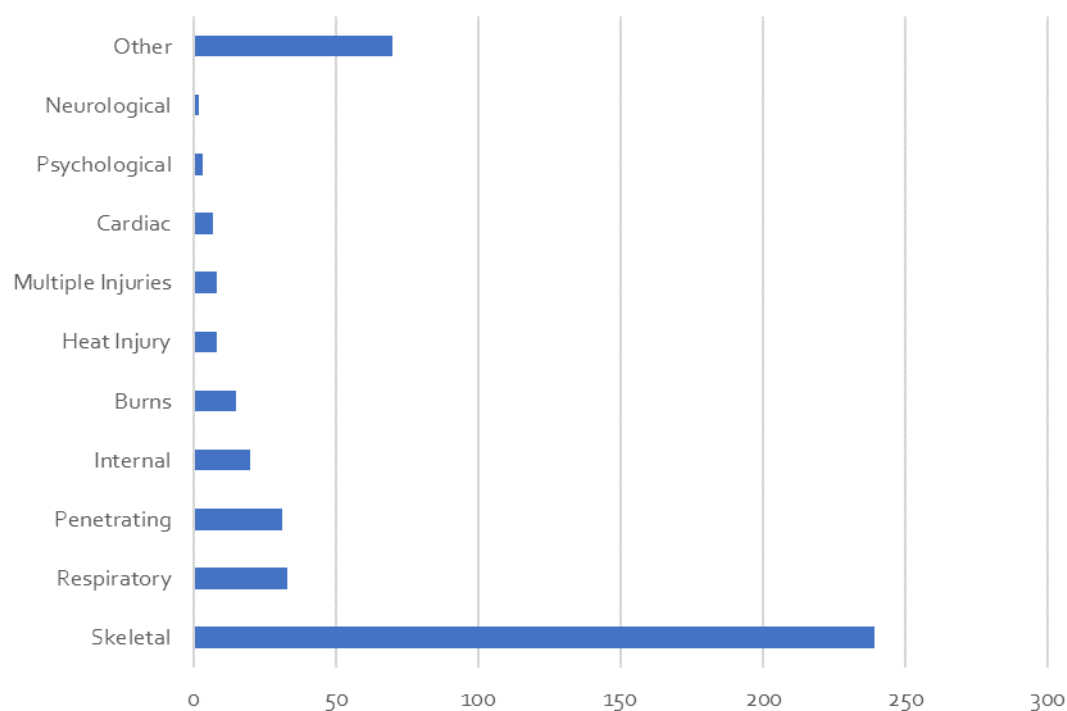
Activity	Count	Days Missed	
		Average	Sum
Station Duties	9	160	1,446
Wellness/Fitness	8	150	1,201
EMS	6	159	954
Skills Training	6	126	761
Fire Suppression	3	110	331
Returning from incident	2	138	276
Rescue - nonfire-related	1	119	119
Rescue - fire-related	0	0	0
Fire Prevention	0	0	0
Responding to incident	0	0	0
Hazmat	0	0	0
Total	35	87	5,088

Types of Injuries with Lost Time

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

Type of Injury	Count
Skeletal	239
Respiratory	33
Penetrating	31
Internal	20
Burns	15
Heat Injury	8
Multiple Injuries	8
Cardiac	7
Psychological	3
Neurological	2
Other	70
Total	436

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	76
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	92

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	11
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
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	19
Upper Extremities: Lower Arm	13
Upper Extremities: Shoulder	4
Upper Extremities: Upper Arm	0
Upper Extremities: Wrist	8
Total	92

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

Body Part	2016	2017	2018*	2019*	2020*
Ear	14	16	17	17	11
Hand and fingers	27	22	30	16	19
Face	16	9	14	10	12
Wrist	9	7	8	11	8
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	13
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	92

*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	68
Chemical: Unidentified	73	55	27
Physical: Animal venom	6	17	5
Physical: Meningitis	38	40	33
Physical: Not listed	138	201	41
Physical: Plant toxin	27	14	12
Physical: Radiation*	n/a	4	1
Physical: Unidentified	87	66	7
Physical: UV Light*	n/a	2	1
Respiratory: Blood	69	73	71
Respiratory: COVID 19*	n/a	1	1,326
Respiratory: Influenza	4	19	5
Respiratory: Not listed	108	118	56
Respiratory: Saliva	24	22	28
Respiratory: Tuberculosis	98	76	31
Respiratory: Unidentified	50	37	5
Respiratory: Vomit	7	8	8
Other: Asbestos*	n/a	3	1
Other: Carbon Monoxide*	n/a	1	5
Other: Carcinogenic Substances*	n/a	1	10
Other: Contaminated Water/Sewage*	n/a	4	11
Other: Heavy Metals*	n/a	0	1
Other: Mold*	n/a	0	8
Other: Smoke/Products of Combustion*	n/a	5	17
Other: Virus	n/a	3	1,799
Total	884	963	3,578

*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	2,789
Absorption	720
Injection/Puncture	43
Ingestion	26
Total	3,578

Figure 8: Exposure by Route, 2020, percentages

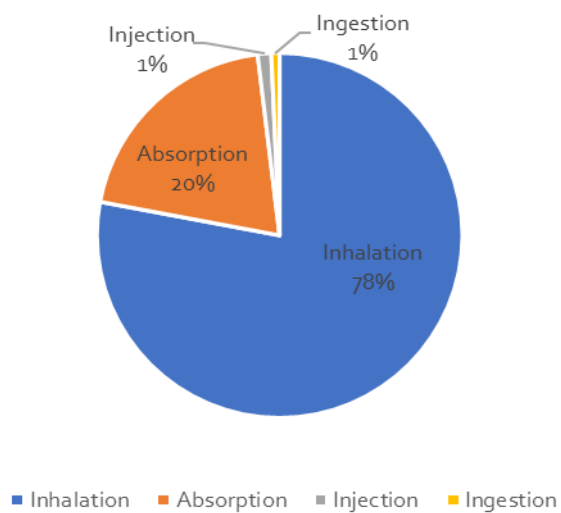


Table 24: Exposure by Substance, 2020

Substance	Count
Gas/vapor	1,722
Liquid	1,417
Solid	439
Total	3,578

Figure 9: Exposure by Substance, 2020, percentages

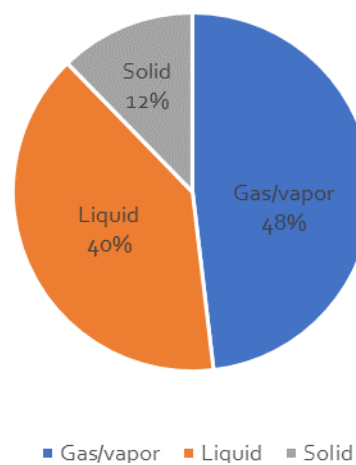


Table 25: Routes of Exposure, Historical Data, 2016 – 2017

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

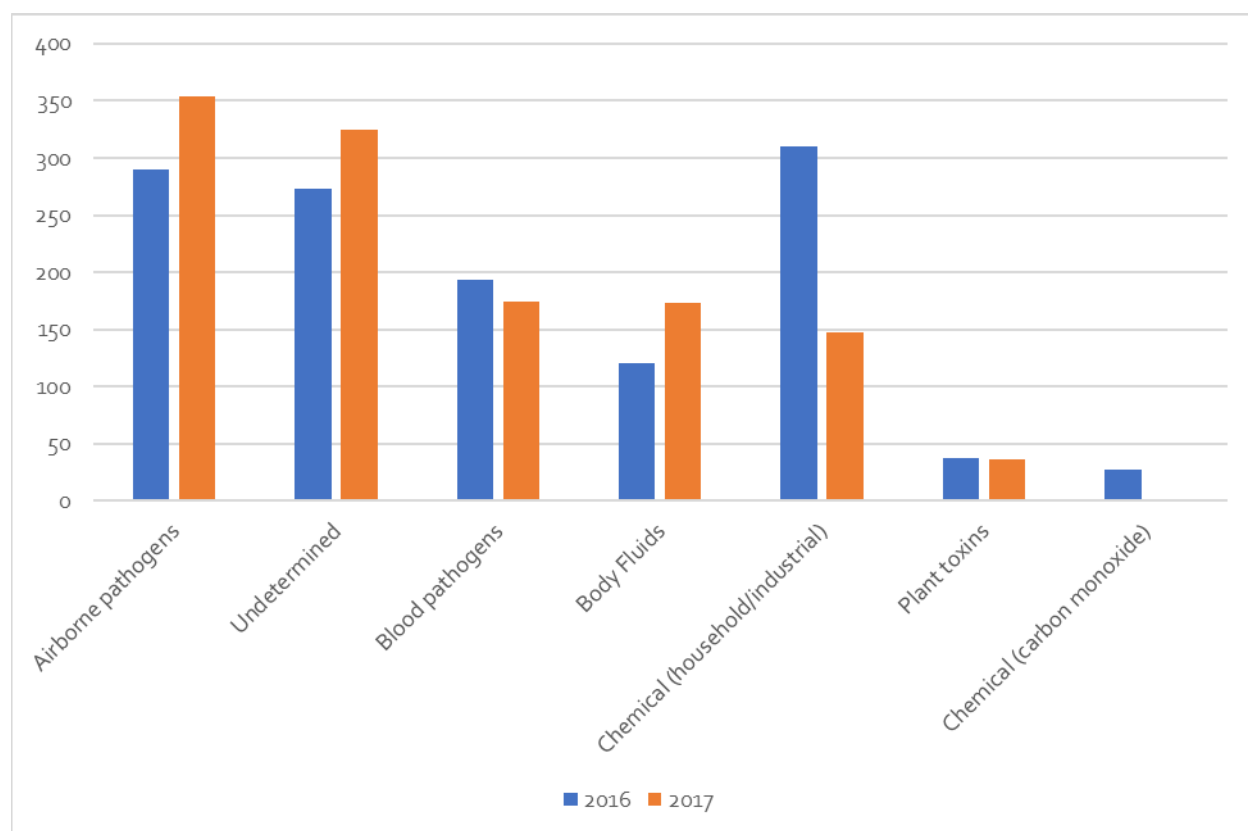


Table 26: Exposure Description, Historical Data, 2016 – 2017

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)

Lung – 1

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.

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 27 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	1	7	8	11	9	7
Fire Suppression	3	6	9	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	11	16	27	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 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:

[LAST YEAR'S RECOMMENDATIONS BELOW ... JUST A PLACE HOLDER UNTIL THE COMMISSION GIVES ITS RECOMMENDATIONS FOR THE 2020 REPORT]

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](#)

Commission's web page

[NFPA Standards adopted by the commission](#)

5. Subjects for future agenda items.

6. Future meeting dates.

7. Adjourn meeting.