

---

# 2022 INJURY REPORT

---

An Annual Summary of Fire Fighter Injuries, Exposures, and Cancer Diagnoses Reported to the Texas Commission on Fire Protection in Calendar Year 2022

By  
Grace Wilson  
of the  
Texas Commission on Fire Protection

*Published in cooperation with the Health and Wellness Committee of the Texas Commission on Fire Protection, August 2023*



Texas Commission on Fire Protection  
PO Box 2286  
Austin, TX 78768  
512-936-3838

*This publication can be downloaded free of charge on-line:  
<https://www.tcfp.texas.gov/services/injury-reports>*

## Table of Contents

<b>Mission</b> .....	3
<b>Executive Summary</b> .....	4
<b>Abstract</b> .....	5
The “Bird’s Eye View” .....	5
<b>State of Texas vs. NFPA</b> .....	6
<b>Fire Protection Personnel Injuries</b> .....	8
<b>Injuries/Exposures by Activity</b> .....	9
Fatalities.....	10
<b>Emergency vs. Non-Emergency Injuries</b> .....	11
<b>Types of Injuries</b> .....	13
<b>Task at Time of Injury</b> .....	14
<b>Injuries by Body Part</b> .....	16
<b>Individuals by Age Group</b> .....	18
<b>Activities Resulting in Lost Time</b> .....	19
<b>Types of Injuries with Lost Time</b> .....	21
<b>Burn Injuries</b> .....	22
<b>Exposures</b> .....	24
<b>Cancer</b> .....	26
<b>SOP Issues; PPE and PASS Failures</b> .....	28
<b>Recommendations</b> .....	29
<b>Commission-Adopted Standards</b> .....	30

# 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,
- Exposures (toxic and pathogenic)
- Cancer diagnoses
- 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

## Executive Summary

The information in this report is collected by the Texas Commission on Fire Protection (TCFP) via an on-line injury reporting application. At the time of this writing, the TCFP regulated 38,150 individuals and 795 entities. This report is a comprehensive analysis of injuries and exposures to Texas fire fighters. These injuries and exposures were reported to the TCFP in 2022 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 2021.

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 newer system is ongoing as we receive feedback from stakeholders. The reporting process is accomplished online via TCFP's FIDO system. 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.

## Grand Totals – 2022

Total number of incidents (injury reports) submitted: 7,496

Total number of individuals who sustained an injury or exposure: 7,253\* (A)

Total number of injuries reported: 3,426 (B)

Total number of exposures reported: 4,151 (C)

*\*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. (A < B + C)*

**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)

## The "Bird's Eye View"

**Reporting Rate 77%.** 609 of the 795 regulated departments used TCFP's injury reporting system in 2022.

Top 5 activities that resulted in injuries or exposures:

1. **EMS** = 2,528 injured individuals (35% of the total reported injuries/exposures)
2. **Station Duties** = 2,449 (34% of the total)
3. **Fire Suppression** = 846 (12% of the total)
4. **Skills Training** = 491 (7% of the total)
5. **Wellness/Fitness** = 422 (6% of the total)

# State of Texas vs. NFPA

## Comparison between the State of Texas (2021) and National Fire Protection Association (NFPA) U.S. Firefighter Injuries (2021)

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.)

**Please keep in mind that the comparisons between Texas and the NFPA are using numbers from 2021**, and not 2022 data as in the remainder of this report. NFPA’s 2022 injury data will not be published and available until 2024.

### Comparing Texas 2021 and NFPA 2021

**Table 1: Comparison of Texas 2021 and NFPA 2021**

Category	Texas 2021		NFPA 2021	
	Count	Percent	Count	Percent
Fireground	742	12%	19,200	32%
Non-Fire	2,947	46%	13,325	22%
Other On-Duty	2,095	33%	14,850	25%
Training	423	7%	8,125	13%
Responding and Returning	223	3%	4,950	8%
<b>Total</b>	<b>6,430</b>	<b>100%</b>	<b>60,450</b>	<b>100%</b>

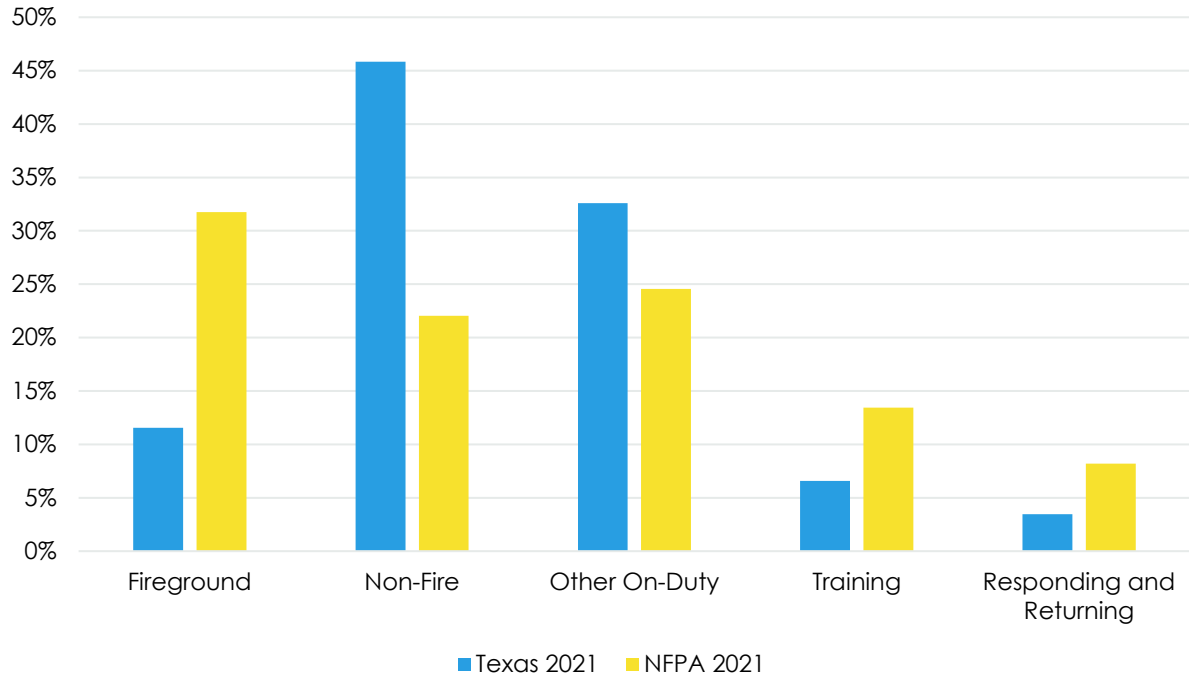
### Fatalities in 2021

**NFPA:** 135 on-duty firefighter fatalities (70 non-COVID deaths, 65 from COVID)

**Texas:** 3 reported fatalities (2 from COVID, 1 colon cancer)

NFPA data is from the [United States Firefighter Injuries in 2021](#) report, copyright 2022, National Fire Protection Association, Quincy, MA.

**Figure 1: Injuries by Activity, percentages**  
(Comparing Texas 2021 and NFPA 2021)

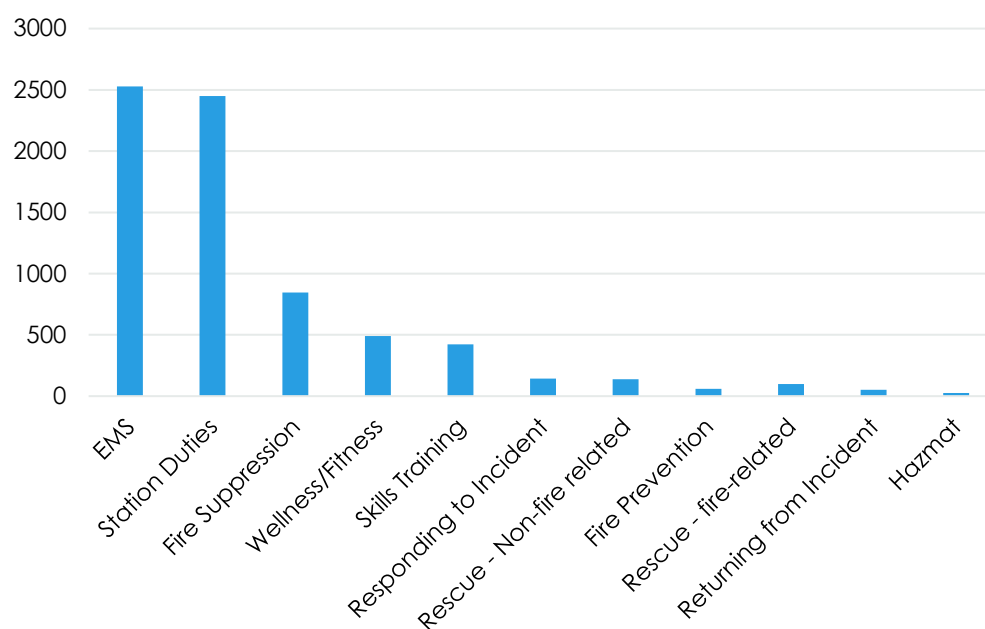


## Fire Protection Personnel Injuries

**Table 2: Total Injured or Exposed Individuals by Activity and Severity, 2022**

Activity	Minor	Serious	Fatal	Total	2021	2020
EMS	1,461	1,067	0	2,528	2,852	3,192
Station Duties	1,132	1,316	1	2,449	1,594	1,454
Fire Suppression	653	192	1	846	691	525
Skills Training	362	129	0	491	423	429
Wellness/Fitness	293	129	0	422	450	422
Rescue - nonfire	110	32	0	142	116	118
Responding to incident	97	40	0	137	158	91
Fire prevention	39	61	0	100	51	76
Rescue - fire-related	55	5	0	60	51	29
Returning from Incident	31	21	0	52	65	41
Hazmat	22	4	0	26	44	29
<b>Total</b>	<b>4,255</b>	<b>2,996</b>	<b>2</b>	<b>7,253</b>	<b>6,495</b>	<b>6,406</b>

**Figure 2: Total Injured or Exposed Individuals by Activity, 2022**





## Injuries/Exposures by Activity

EMS activities resulted in the highest number of minor injuries in 2022 (see Table 3), which is consistent with the previous five years. The effects of the COVID-19 pandemic can be seen starting in 2020.

**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, 2018 – 2022**

Activity	2018		2019		2020		2021		2022	
	Count	%	Count	%	Count	%	Count	%	Count	%
EMS	843	29%	776	26%	2,529	56%	2,095	47%	1,461	34%
Station Duties	437	15%	591	20%	722	16%	828	19%	1,132	27%
Fire Suppression	607	21%	616	21%	397	9%	537	12%	653	15%
Skills Training	277	10%	330	11%	304	7%	303	7%	362	9%
Wellness/Fitness	286	10%	290	10%	306	7%	311	7%	293	7%
Rescue - Non-Fire	157	5%	140	5%	89	2%	94	2%	110	3%
Responding to Incident	99	3%	114	4%	68	2%	123	3%	97	2%
Rescue - Fire Related	39	1%	37	1%	26	1%	41	1%	55	1%
Fire Prevention	69	2%	46	2%	49	1%	40	1%	39	1%
Returning from Incident	57	2%	39	1%	28	1%	41	1%	31	1%
Hazmat	27	1%	24	1%	22	0%	41	1%	22	1%
<b>Total</b>	<b>2,871</b>	<b>100%</b>	<b>2,979</b>	<b>100%</b>	<b>4,518</b>	<b>100%</b>	<b>4,413</b>	<b>100%</b>	<b>4,255</b>	<b>100%</b>

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

**Table 4: Serious Injury/Exposure Activities, 2018 – 2022**

Activity	2018		2019		2020		2021		2022	
	Count	%	Count	%	Count	%	Count	%	Count	%
Station Duties	201	20%	147	19%	731	39%	766	38%	1,316	44%
EMS	184	19%	146	19%	660	35%	755	37%	1,067	36%
Fire Suppression	191	19%	145	19%	127	7%	153	8%	192	6%
Wellness/Fitness	131	13%	117	15%	116	6%	139	7%	129	4%
Skills Training	123	13%	139	18%	125	7%	120	6%	129	4%
Fire Prevention	21	2%	14	2%	27	1%	11	1%	61	2%
Responding to Incident	64	7%	28	4%	23	1%	35	2%	40	1%
Rescue - Non-Fire	26	3%	17	2%	29	2%	22	1%	32	1%
Returning from Incident	34	3%	14	2%	13	1%	24	1%	21	1%
Rescue - Fire Related	1	0%	2	0%	3	0%	10	0%	5	0%
Hazmat	5	1%	4	1%	7	0%	3	0%	4	0%
<b>Total</b>	<b>981</b>	<b>100%</b>	<b>773</b>	<b>100%</b>	<b>1,861</b>	<b>100%</b>	<b>2,038</b>	<b>100%</b>	<b>2,996</b>	<b>100%</b>

(Numbers in red above = lowest number of injuries for the five year period.)

### Fatalities

The commission's 2022 injury report includes two fatalities (one from cancer, one from COVID-19). Fatalities noted 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 four Texas fire fighter fatality incident investigations in 2022. Comprehensive information about the investigations may be found on their website at the following web address:

<https://www.tdi.texas.gov/fire/fmloddannuals.html>

**Table 5: Number of Individuals Who Sustained Fatal Injuries/Exposures, 2022**

Activity	Count	Percent
Station Duties	1	50%
Fire Suppression	1	50%
<b>Total</b>	<b>2</b>	<b>100%</b>

## Emergency vs. Non-Emergency Injuries

**Table 6: Number of Injured Individuals by Emergency Activity and Severity, 2022**

<b>Activity</b>	<b>Minor</b>	<b>Serious</b>	<b>Fatal</b>	<b>Total</b>
EMS	1,461	1,067	0	2,528
Fire Suppression	653	192	1	846
Rescue - Non-fire related	110	32	0	142
Responding to Incident	97	40	0	137
Returning from Incident	31	21	0	52
Hazmat	22	4	0	26
Rescue - Fire related	55	5	0	60
<b>Total</b>	<b>2,429</b>	<b>1,361</b>	<b>1</b>	<b>3,791</b>

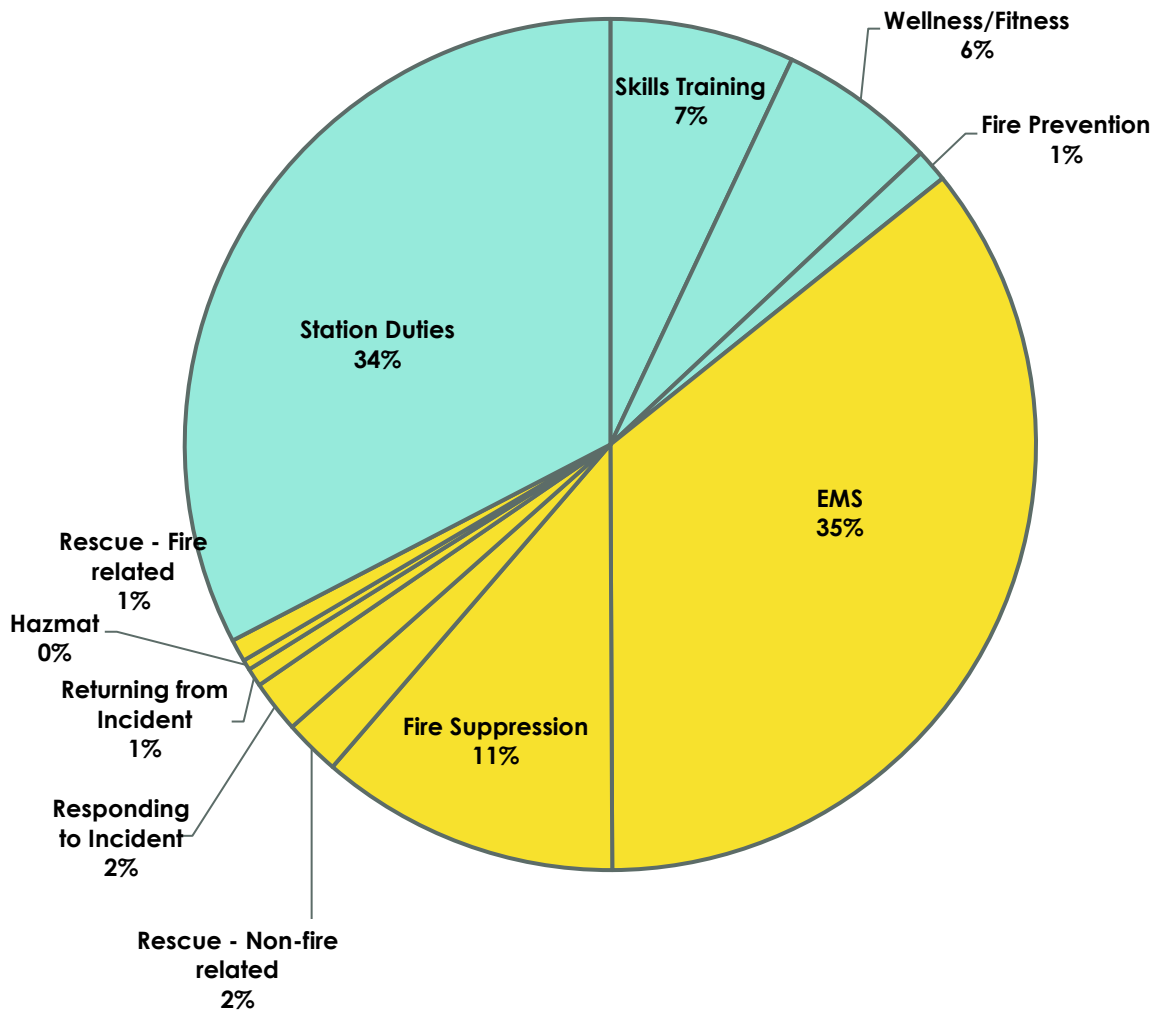
**Table 7: Number of Injured Individuals by Non-Emergency Activity and Severity, 2022**

<b>Activity</b>	<b>Minor</b>	<b>Serious</b>	<b>Fatal</b>	<b>Total</b>
Station Duties	1,132	1,316	1	2,449
Skills Training	362	129	0	491
Wellness/Fitness	293	129	0	422
Fire Prevention	39	61	0	100
<b>Total</b>	<b>1,826</b>	<b>1,635</b>	<b>1</b>	<b>3,462</b>

Figure 3: Percentages of Injured Individuals in Emergency and Non-Emergency Activities, 2022

Emergency Activities = 53%

Non-emergency Activity Activities = 47%

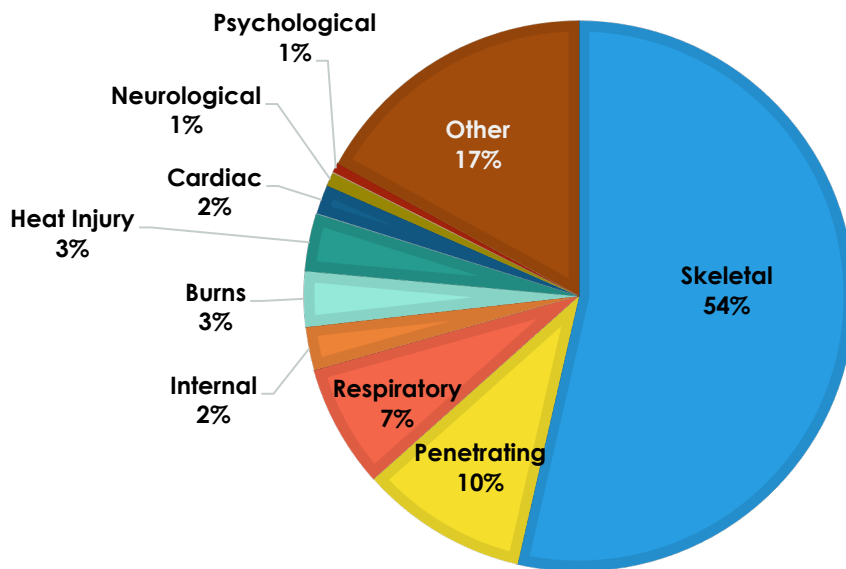


# Types of Injuries

**Table 8: Types of Injuries, 2022**

Type of Injury	2022	
	Count	Percent
Skeletal	1,834	54%
Penetrating	333	10%
Respiratory	239	7%
Heat Injury	114	3%
Burns	112	3%
Internal	94	3%
Cardiac	58	2%
Neurological	27	1%
Psychological	21	1%
Other	580	17%
<b>Total</b>	<b>3,412</b>	<b>100%</b>

**Figure 4: Types of Injuries, 2022**

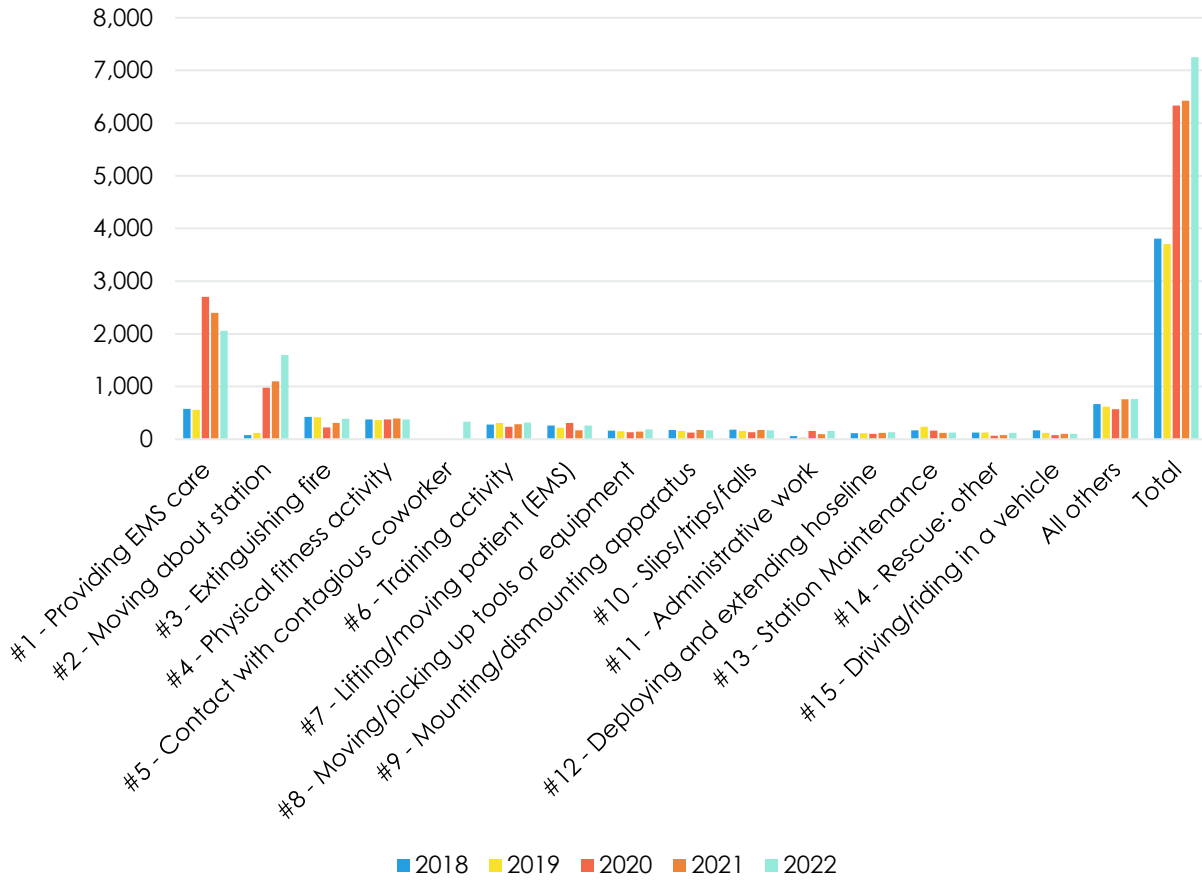


## Task at Time of Injury

**Table 9: Top 15 Tasks at Time of Injury, 2018 – 2022 (ordered by 2022, descending)**

<b>Task</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
#1 - Providing EMS care	575	556	2,704	2,398	2,057
#2 - Moving about station	77	122	975	1,100	1,599
#3 - Extinguishing fire	423	416	222	306	389
#4 - Physical fitness activity	376	364	376	394	378
#5 - Contact with contagious coworker	n/a	n/a	n/a	n/a	332
#6 - Training activity	281	309	236	284	312
#7 - Lifting/moving patient (EMS)	259	220	307	168	260
#8 - Moving/picking up tools or equipment	163	153	130	142	187
#9 - Mounting/dismounting apparatus	173	159	125	175	168
#10 - Slips/trips/falls	181	154	132	177	168
#11 - Administrative work	61	37	156	98	156
#12 - Deploying and extending hoseline	113	117	100	119	133
#13 - Station Maintenance	166	235	161	123	124
#14 - Rescue: other	126	126	64	79	123
#15 - Driving/riding in a vehicle	166	119	77	100	101
All others	665	617	570	760	766
<b>Total</b>	<b>3,805</b>	<b>3,704</b>	<b>6,335</b>	<b>6,423</b>	<b>7,253</b>

**Figure 5: Top 15 Tasks at Time of Injury, 2018 – 2022**



## Injuries by Body Part

**Table 10: Injuries by Body Part Type, 2018 – 2022**

Injured Body Part	2018	2019	2020	2021	2022
Upper Extremities	864	795	700	812	859
Lower Extremities	810	684	616	724	787
Back	490	466	445	492	511
Multiple Parts	318	255	281	284	389
Internal	105	125	144	402	337
Head	300	327	197	248	323
Chest	104	108	107	124	146
Neck	64	56	33	38	50
Hip	23	33	29	35	24
<b>Total</b>	<b>3,078</b>	<b>2,849</b>	<b>2,552</b>	<b>3,159</b>	<b>3,426</b>

**Table 11: Injuries by Body Part Sub-Type, 2018 – 2022**

Body Part by Sub-Type	2018	2019	2020	2021	2022
Back: Back	198	194	191	191	214
Back: Buttocks	1	3	2	2	1
Back: Lower Back	282	258	248	287	284
Back: Neck	4	4	1	8	5
Back: Spine	5	7	3	4	7
Chest: Abdomen	5	4	2	3	3
Chest: Abdominal Area	10	4	9	5	9
Chest: Chest	89	100	96	116	134
Head: Brain	n/a	n/a	n/a	7	24
Head: Cheek	5	7	4	7	7
Head: Chin	7	1	4	2	3
Head: Ear	77	117	50	52	50
Head: Eye	64	60	44	50	58
Head: Face	111	112	78	57	32
Head: Forehead	n/a	n/a	n/a	3	31



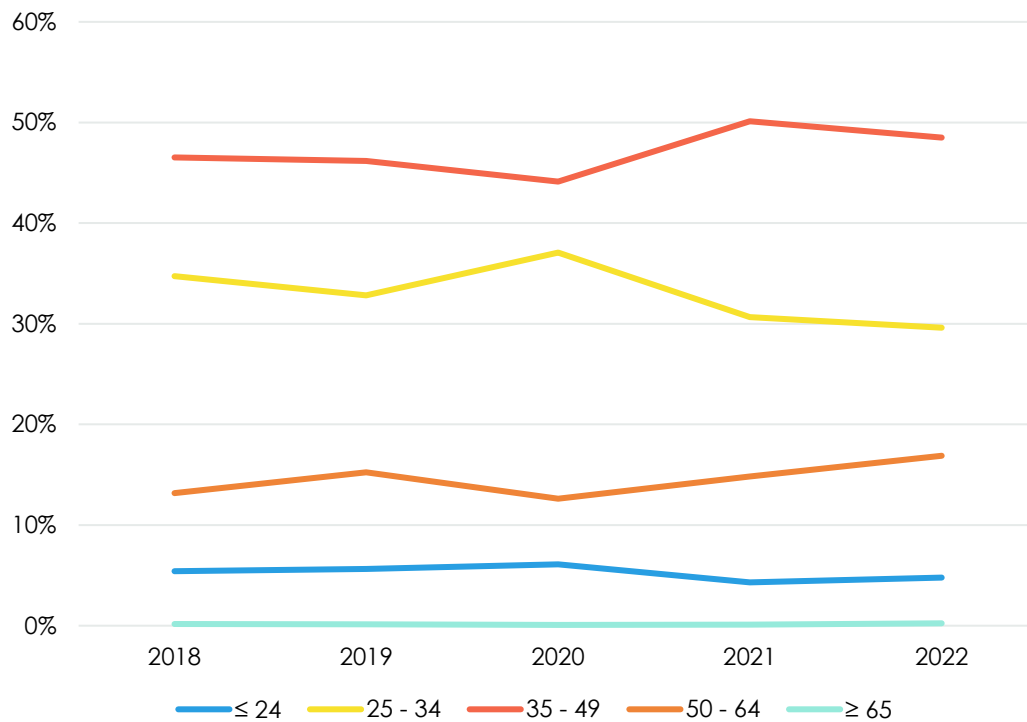
Head: Jaw	1	6	2	2	0
Head: Mouth	15	16	10	8	7
Head: Nose	20	8	3	9	60
Head: Skull	n/a	n/a	2	51	51
Hip: Groin	9	14	9	12	6
Hip: Hip	13	18	18	23	16
Hip: Pelvis	1	1	2	0	2
Internal: Genito-urinary	4	11	4	1	2
Internal: Heart	5	7	4	6	16
Internal: Internal	66	71	74	264	156
Internal: Intestinal tract	5	4	3	2	1
Internal: Lungs	9	11	51	114	150
Internal: Stomach	15	20	8	14	12
Internal: Trachea	1	1	0	1	0
Lower Extremities: Ankle	206	163	135	171	162
Lower Extremities: Foot	93	88	78	78	95
Lower Extremities: Knee	347	273	252	316	357
Lower Extremities: Lower leg	111	97	95	104	59
Lower Extremities: Toes	15	22	13	14	17
Lower Extremities: Upper Leg	38	41	43	41	67
Multiple Parts: Lower Body	26	19	20	15	16
Multiple Parts: Unknown	26	11	27	22	39
Multiple Parts: Upper Body	74	76	65	74	65
Multiple Parts: Whole Body	192	149	169	173	269
Neck: Neck	59	49	30	37	49
Neck: Throat	5	7	3	1	1
Upper Extremities: Elbow	68	44	34	44	63
Upper Extremities: Hands	361	326	319	315	356
Upper Extremities: Lower Arm	10	59	55	55	49
Upper Extremities: Shoulder	234	235	170	270	245
Upper Extremities: Upper Arm	112	72	45	68	94
Upper Extremities: Wrist	79	59	77	60	52
<b>Total</b>	<b>3,078</b>	<b>2,849</b>	<b>2,552</b>	<b>3,159</b>	<b>3,396</b>

## Individuals by Age Group

*Table 12: Individuals by Age Group, 2018 – 2022*

Age Group	2018		2019		2020		2021		2022	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
≤ 24	210	5.41%	210	5.65%	389	6.10%	279	4.31%	329	4.54%
25 - 34	1,348	34.73%	1,220	32.82%	2,365	37.07%	1,986	30.65%	2,141	29.52%
35 - 49	1,806	46.53%	1,716	46.17%	2,815	44.13%	3,248	50.12%	3,548	48.92%
50 - 64	511	13.17%	566	15.23%	805	12.62%	961	14.83%	1,216	16.77%
≥ 65	6	0.15%	5	0.13%	5	0.08%	6	0.09%	19	0.26%
<b>Totals</b>	<b>3,881</b>	<b>100.00%</b>	<b>3,717</b>	<b>100.00%</b>	<b>6,379</b>	<b>100.00%</b>	<b>6,480</b>	<b>100.00%</b>	<b>7,253</b>	<b>100.00%</b>

*Figure 6: Individuals by Age Group, percentages, 2018 – 2022*



## Activities Resulting in Lost Time

**Table 13: Activities Individuals Were Doing that Resulted in Lost Time, 2022, Totals**

Activity	Count	Days Missed	
		Average	Sum
EMS	1012	11	12,138
Station Duties	953	13	12,912
Fire suppression	141	36	5,186
Wellness/fitness	100	39	3,996
Skills training	94	40	3,797
Fire prevention	52	13	682
Responding to incident	32	29	958
Rescue - nonfire-related	21	27	576
Returning from incident	19	39	754
Rescue - fire-related	5	33	166
Hazmat	3	14	43
<b>Total</b>	<b>2,432</b>	<b>27</b>	<b>41,208</b>

**Table 14: Activities Individuals Were Doing that Resulted in Lost Time, 2022 Between 1 and 30 Days**

Activity	Count	Days Missed	
		Average	Sum
EMS	979	9	9,197
Station Duties	921	10	9,285
Fire suppression	106	10	1,070
Skills training	65	8	574
Wellness/fitness	64	11	732
Fire prevention	49	9	448
Responding to incident	25	10	267
Rescue - nonfire-related	18	8	158
Returning from incident	13	13	170
Rescue - fire-related	4	17	69
Hazmat	3	14	43
<b>Total</b>	<b>2,247</b>	<b>11</b>	<b>22,013</b>

**Table 15: Activities Individuals Were Doing that Resulted in Lost Time, 2022  
Between 31 and 90 Days**

Activity	Count	Days Missed	
		Average	Sum
EMS	24	51	1,240
Wellness/Fitness	23	56	1,299
Station Duties	19	44	841
Fire Suppression	19	55	1,062
Skills Training	15	57	855
Responding to incident	4	45	182
Returning from incident	4	40	161
Fire Prevention	2	61	123
Rescue - nonfire-related	1	53	53
<b>Total</b>	<b>111</b>	<b>51</b>	<b>5,816</b>

**Table 16: Activities Individuals Were Doing that Resulted in Lost Time, 2022  
91+ Days**

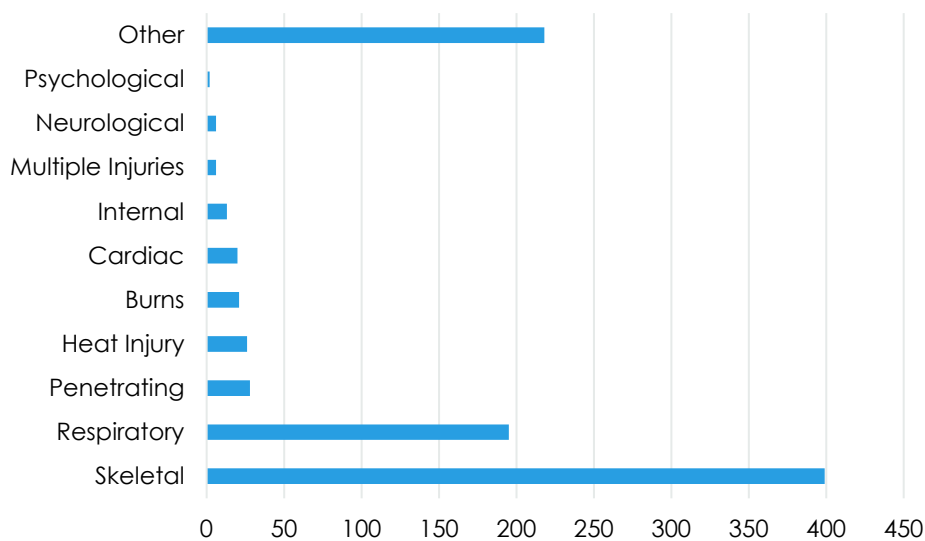
Activity	Count	Days Missed	
		Average	Sum
Fire Suppression	16	190	3,054
Skills Training	14	169	2,368
Station Duties	13	214	2,786
Wellness/Fitness	13	151	1,965
EMS	9	189	1,701
Responding to incident	3	169	509
Rescue - nonfire-related	2	182	365
Fire Prevention	1	111	111
Rescue - fire-related	1	97	97
<b>Total</b>	<b>42</b>	<b>159</b>	<b>7,534</b>

## Types of Injuries with Lost Time

**Table 17: Types of Injuries Resulting in Lost Time, 2022**

Type of Injury	Count
Skeletal	399
Respiratory	195
Penetrating	28
Internal	13
Burns	21
Cardiac	20
Heat Injury	26
Multiple Injuries	6
Psychological	2
Neurological	6
Other	218
<b>Total</b>	<b>934</b>

**Figure 7: Types of Injuries Resulting in Lost Time, 2022**



## Burn Injuries

**Table 18: All Burns, 2018 – 2022**

All Burns - Types	2018	2019	2020	2021	2022
Heat/Fire (thermal)	108	72	80	66	83
Scald or Steam	12	10	11	12	19
Chemical	6	6	2	3	6
Electrical	1	2	3	4	4
<b>Totals</b>	<b>127</b>	<b>90</b>	<b>96</b>	<b>85</b>	<b>112</b>

**Table 19: Burns by Body Part Sub-Type, 2018 – 2022**

Body Part Sub-Type	2018	2019	2020	2021	2022
Back: Back	1	0	0	2	2
Back: Buttocks	0	0	0	0	n/a
Back: Lower Back	0	0	0	0	0
Back: Neck	0	0	0	0	0
Back: Spine	0	0	0	0	0
Chest: Abdomen	0	2	0	0	0
Chest: Abdominal Area	0	0	0	0	0
Chest: Chest	2	0	0	0	3
Head: Brain	n/a	n/a	n/a	0	0
Head: Cheek	2	1	1	1	4
Head: Chin	2	1	3	0	1
Head: Ear	17	17	12	13	9
Head: Eye	4	5	3	2	0
Head: Face	9	7	8	2	6
Head: Forehead	n/a	n/a	n/a	1	2
Head: Jaw	0	0	0	0	n/a
Head: Mouth	0	1	0	0	0
Head: Nose	1	0	0	1	0
Head: Skull	n/a	n/a	0	0	1

Hip: Groin	0	0	0	0	0
Hip: Hip	0	0	0	1	0
Hip: Pelvis	0	0	0	n/a	0
Internal: Genito-urinary	0	0	0	0	0
Internal: Heart	0	0	0	0	0
Internal: Internal	0	0	0	0	0
Internal: Intestinal tract	0	0	0	0	0
Internal: Lungs	0	0	0	0	0
Internal: Stomach	0	0	0	0	0
Internal: Trachea	0	0	n/a	0	n/a
Lower Extremities: Ankle	0	0	1	1	1
Lower Extremities: Foot	6	3	4	3	4
Lower Extremities: Knee	0	1	1	0	0
Lower Extremities: Lower Leg	8	3	1	3	5
Lower Extremities: Toes	0	1	0	0	0
Lower Extremities: Upper Leg	0	0	1	0	1
Multiple Parts: Lower Body	0	0	0	0	1
Multiple Parts: Unknown	0	0	0	0	1
Multiple Parts: Upper Body	10	6	11	7	7
Multiple Parts: Whole Body	5	4	0	3	4
Neck: Neck	2	2	2	2	5
Neck: Throat	0	0	0	0	0
Upper Extremities: Elbow	0	0	1	2	2
Upper Extremities: Hands	30	16	20	24	21
Upper Extremities: Lower Arm	0	5	14	8	10
Upper Extremities: Shoulder	9	1	4	3	12
Upper Extremities: Upper Arm	11	3	0	3	8
Upper Extremities: Wrist	8	11	9	3	2
<b>Totals</b>	<b>127</b>	<b>90</b>	<b>96</b>	<b>85</b>	<b>112</b>

## Exposures

**Table 20: Exposures by Sub-type, 2018 – 2022**

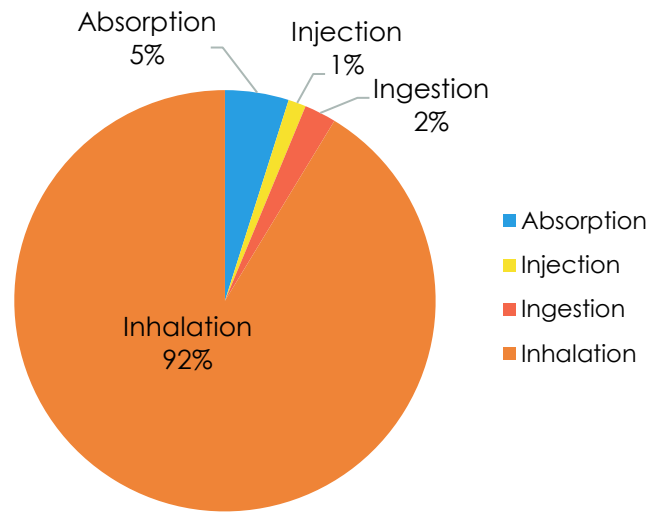
<b>Exposure + Sub-Type</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
Chemical: Ammonia	1	3	0	6	0
Chemical: Battery Acid	n/a	4	0	2	1
Chemical: Benzene	2	15	1	1	0
Chemical: Bleach	1	11	0	2	0
Chemical: Not listed	151	160	70	40	25
Chemical: Unidentified	73	55	27	34	42
Physical: Animal venom	6	17	5	7	3
Physical: Meningitis	38	40	33	3	3
Physical: Not listed	138	201	42	27	35
Physical: Plant toxin	27	14	12	24	22
Physical: Radiation	n/a	4	1	0	0
Physical: Unidentified	87	66	13	17	24
Physical: UV Light	n/a	2	1	0	1
Respiratory: Blood	69	73	78	54	48
Respiratory: COVID 19	n/a	1	1,715	2,878	3,466
Respiratory: Influenza	4	19	7	2	2
Respiratory: Not listed	108	118	56	8	9
Respiratory: Saliva	24	22	28	15	23
Respiratory: Tuberculosis	98	76	31	16	29
Respiratory: Unidentified	50	37	6	19	13
Respiratory: Vomit	7	8	13	4	4
Other: Asbestos	n/a	3	1	109	30
Other: Carbon Monoxide	n/a	1	6	2	11
Other: Carcinogenic Substances	n/a	1	13	15	21
Other: Contaminated Water/Sewage	n/a	4	11	8	21
Other: Chlorine	n/a	n/a	n/a	6	3
Other: Heavy Metals	n/a	0	1	0	1
Other: Mold	n/a	0	9	4	29
Other: Smoke/Products of Combustion	n/a	5	19	37	81
Other: Virus	n/a	3	1,878	266	203
<b>Total</b>	<b>884</b>	<b>963</b>	<b>4,077</b>	<b>3,606</b>	<b>4,150</b>



**Table 21: Exposure by Route, 2022**

Route	Count
Inhalation	3,808
Absorption	191
Injection/Puncture	60
Ingestion	92
<b>Total</b>	<b>4,151</b>

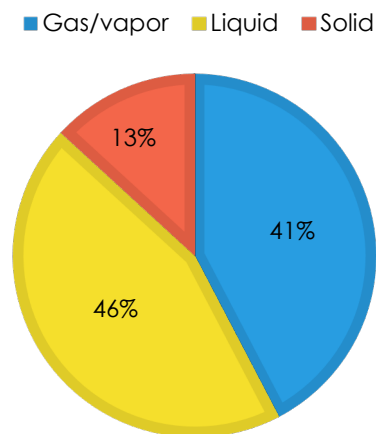
**Figure 8: Exposure by Route, 2022, percentages**



**Table 22: Exposure by Substance, 2022**

Substance	Count
Liquid	1,952
Gas/vapor	1,656
Solid	543
<b>Total</b>	<b>4,151</b>

**Figure 9: Exposure by Substance, 2022, percentages**



# 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 **70** reports of cancer diagnoses from fire departments in 2022:

**Skin** – 17 reports

(Males, ages 40, 40, 43, 44, 45, 47, 49, 49, 50, 51, 52, 54, 54, 55, 59, 61)

(Female – 49)

**Prostate** – 8

(Males – 49, 49, 53, 54, 57, 58, 62, 64)

**Blood** – 6

(Males – 39, 43, 44, 47, 47, 48)

**Colon** – 5

(Males – 47, 51, 53, 61)

(Female – 52)

**Kidney** – 4

(Males – 54, 60, 68)

(Female – 34)

**Testicular** – 4

(Males – 26, 31, 31, 33)

**Thyroid** – 3  
(Males – 34, 38, 38)

**Adenoid** – 1  
(Male – 57)

**Bladder** – 1  
(Male – 51)

**Brain** – 1  
(Male – 62)

**Breast** – 1  
(Female – 52)

**Bone** – 1  
(Male – 34)

**Lung** – 1  
(Male – 47)

**Pancreas** – 1  
(Male – 41)

**Rectal** – 1  
(Male – 47)

**Stomach** – 1  
(Male – 49)

**Unidentified** – 14  
(Males – 29, 31, 36, 41, 41, 41, 41, 47, 52, 53, 55, 56, 61, 68)

### **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.

**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; PPE and PASS Failures

In 2022 there were 17 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 wearing it.

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

**Table 23: Injuries Attributed to SOP Issues, 2022**

Activity	Minor	Serious	Total	Previous years' totals			
				2021	2020	2019	2018
EMS	1	0	1	1	18	11	9
Fire Suppression	4	3	7	8	10	10	19
Skills Training	3	0	3	2	5	1	2
Fire related rescue	1	0	1	0	0	2	0
Station Duties	3	1	4	1	2	6	1
Nonfire related rescue	1	0	1	0	0	4	0
<b>Totals</b>	<b>13</b>	<b>4</b>	<b>17</b>	<b>12</b>	<b>35</b>	<b>34</b>	<b>31</b>

**Table 24: Injuries Attributed to PPE and PASS Failures, 2022**

Activity	Minor	Serious	Fatal	Total	Previous years' totals			
					2021	2020	2019	2018
Fire Suppression	6	1	0	7	4	7	2	8
Skills Training	1	0	0	1	1	1	2	2
<b>Totals</b>	<b>7</b>	<b>1</b>	<b>0</b>	<b>8</b>	<b>5</b>	<b>8</b>	<b>4</b>	<b>10</b>

## 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 and reminders for the Texas Fire Service:

1. *NFPA 1851: Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting* is required by state law.
2. Ensure all appropriate PPE is properly worn on all emergency response incidents.
3. The commission strongly encourages the use of PPE during routine station duties and in training scenarios.
4. Inspect your PPE regularly and replace/repair damaged or worn items.
5. Continue to review and practice roadway safety and traffic incident management practices.
6. Review all of your department's SOPs with a focus on injury prevention, especially with regard to skeletal injuries that result from lifting and moving objects/patients.
7. Review decontamination procedures for medical calls and structure fires.
8. Review injury trends within your individual department.

## 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