



# Data Analytics Express Memo

## GPD Injury Prevention Analysis

# 2022-02  
Report Date: 09/30/2021

### Introduction

This analysis was performed by Internal Audit at the request of the Glendale Police Department (GPD). The objective of this analysis is to identify risk factors for common injuries within GPD in order to improve injury prevention, reduce workers' compensation and overtime costs, and extend the career of police officers. The scope of the analysis covers workers' compensation claims from July 1, 2012 through June 30, 2021 filed by Officers<sup>1</sup>. This analysis focuses on performing general injury trends and injury risk profiling analyses based on provided data without performing an audit or independent verification. However, in order to perform data analytics, we reviewed the data for reasonableness, consistency and completeness.

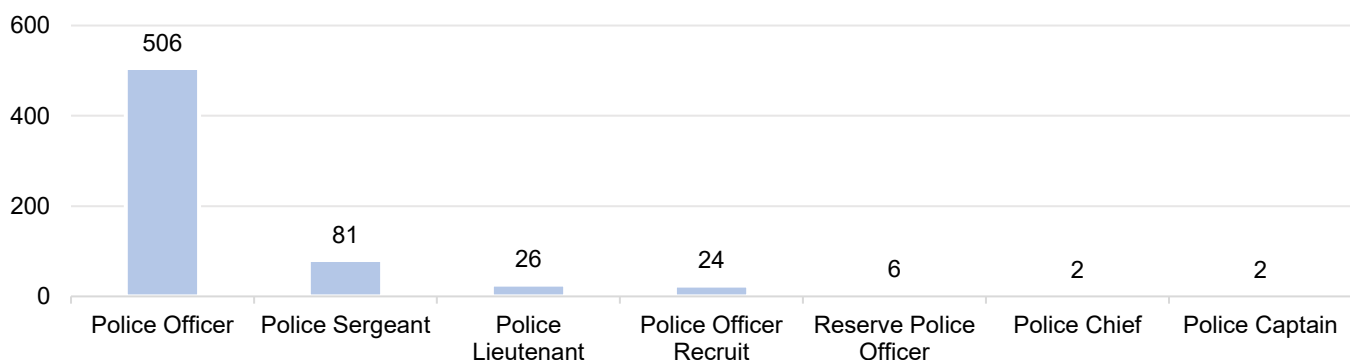
### Background

#### 1. GPD Officer Injury Claim Management

When an Officer is injured on the job, a workers' compensation claim may be filed with the third party administrator (TPA) that handles all workers' compensation claims for GPD. The claims database maintained by the TPA is currently the only comprehensive record of Officer workers' compensation injuries. The Human Resources Department (HR) performs initial injury intake for GPD and provides basic injury description to the TPA. The TPA tracks many aspects of the injury when they are reported (this is referred to as the Claim Data Intake process), such as injury date, claim type, occupation of the officer at the time of injury, hire date, age, injury cause description, nature of injury, injured body part description, and claim cost information among others.<sup>2</sup>

Based on the TPA provided claims data for the ten-year period from July 1, 2012 through June 30, 2021, there were a total of 647 in scope claims filed by 252 Officers, with Police Officers reporting the most claims, followed by Police Sergeants and Police Lieutenants.

#### Exhibit 1: Claims Filed by Position from FY 2012 to FY 2021



<sup>1</sup> For the purpose of this analysis, Officers include the positions of Police Captain, Police Chief, Police Lieutenant, Police Officer, Police Officer Recruit, Police Sergeant and Reserve Police Officer. There were five Police Officers with a detective/investigative reference in their job description in the TPA database, these employees have been categorized as Police Officers.

<sup>2</sup> There are five in-scope claim types in the TPA database: First Aid, Future Medical, Indemnity and Indemnity/Future Medical; see Appendix D for details.

## 2. Officer Injury Type, Claim Type and Benefit Category

Officers face unique hazards while working in complex, highly dynamic environments that increase their risk of occupational injury and illness. The State of California Labor Code Division 4 Workers' Compensation and Insurance defines an injury as either:

1. **Specific** - occurring as the result of one incident or exposure which causes disability or need for medical treatment; or
2. **Cumulative** - occurring as repetitive mentally or physically traumatic activities extending over a period of time, the combined effect of which causes any disability or need for medical treatment.

The Labor Code presumes several types of illnesses/injuries to arise out of and in the course of employment for Officers – these are known as the presumptive workers' compensation injuries.<sup>3</sup> There are also different types of workers' compensation benefits that can be paid by the employer, such as medical benefits, temporary or permanent disability benefits and others, these are detailed in Appendix D.

## 3. Officer Injury Risk Factors

Currently, GPD does not perform profiling analysis to determine risk factors that are correlated with Officer injuries. Although the existing TPA claims database can be used to do basic injury risk profiling, the injury data is currently not systematically or consistently entered into the database. Despite these limitations, Internal Audit has compared the available TPA claims data against the risk factors identified through research and data analytics to determine if they are also applicable to injuries sustained by GPD Officers. See Analysis 13, 14 and Appendix C for details.

## Conclusion

Based on the data provided by TPA, GPD has spent a total of \$23.5 million on 647 workers' compensation claims filed by 252 Officers in the past ten fiscal years. Although Indemnity claims are the most frequently filed, Future Medical claims are the costliest category overall totaling \$12 million, which accounted for half of the total claim costs. There were almost three times more specific injuries compared to cumulative trauma claims, but the average cost per cumulative trauma claim is 172% higher. Top causes of specific injuries include physical movement, robbery/assault, and being hit/struck/caught by object or person. On average, 55 Officers filed a claim every fiscal year, and 62% of all Officers filed more than one claim.

Injury risk profiling analysis results show that the following six factors appear to be correlated with Officer injuries (referenced in 5% or more of claims):

- Specific days of week (Tue and Wed)
- Having more than 20 years of experience
- Suspect/inmate involvement
- Having only up to 5 years of experience
- Incident occurring during training
- Officer vehicle type, motorcycle

Additionally, 14 other factors were applicable to less than 5% of applicable claims and six factors did not allow for a determination whether they were risk factors due to data limitations. The report has two recommendations related to improving the existing Officer injury database data quality, and Injury Data Intake process by gathering injury details that can eventually be used as a reliable database for future injury risk analysis.

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<sup>3</sup> California Labor Code based public safety presumptions: Heart, Hernia and Pneumonia (§3212); Cancer (§3212.1); Tuberculosis (§3212.6); Blood-Borne Infectious Disease or Methicillin Resistant Staphylococcus Aureus (MRSA) (§3212.8); Bio-Chemical Exposure (§3212.85); Meningitis (§3212.9) and Lower Back Impairment (§3213.2).

# List of Analyses and Appendices

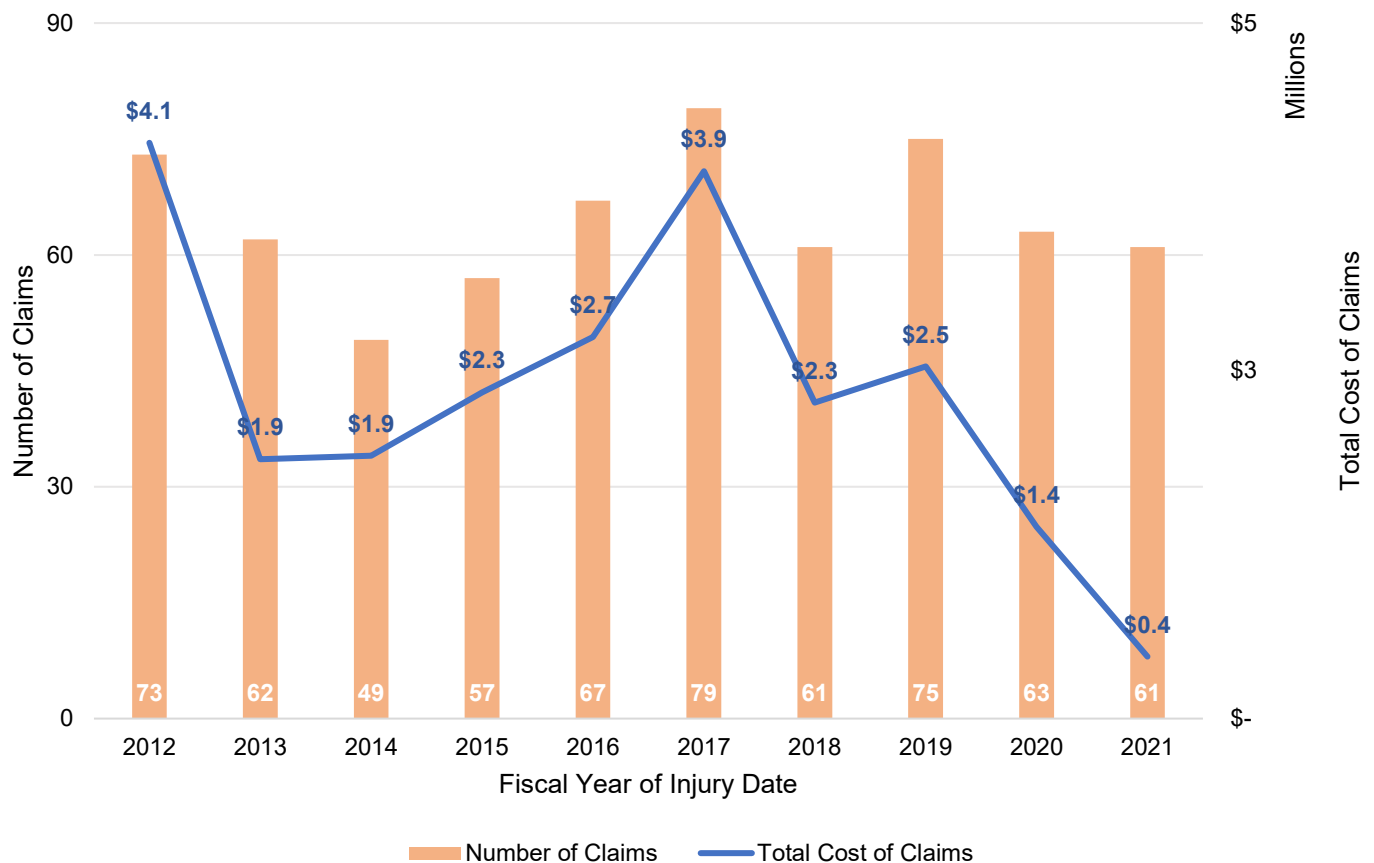
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## Detailed Analyses

### Analysis 1 Number of Claims and Total Costs by Fiscal Year

- There were a total of 647 claims with a total cost of \$23.5 million filed by Officers from FY 2012 to FY 2021.
- On average, there were 65 claims reported, this may include an employee filing more than one claim, during a given year.

**Chart 1: Number of Claims and Total Costs by Fiscal Year<sup>4</sup>**

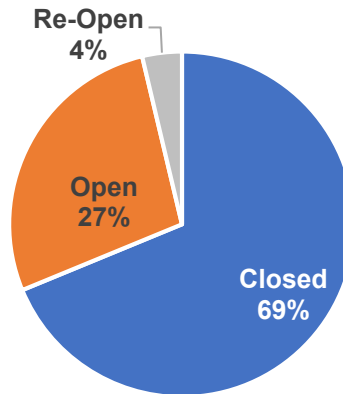


<sup>4</sup> According to the TPA, the Injury Date refers to the date of injury for specific injuries, and the last day of exposure for cumulative trauma. This definition applies throughout the report.

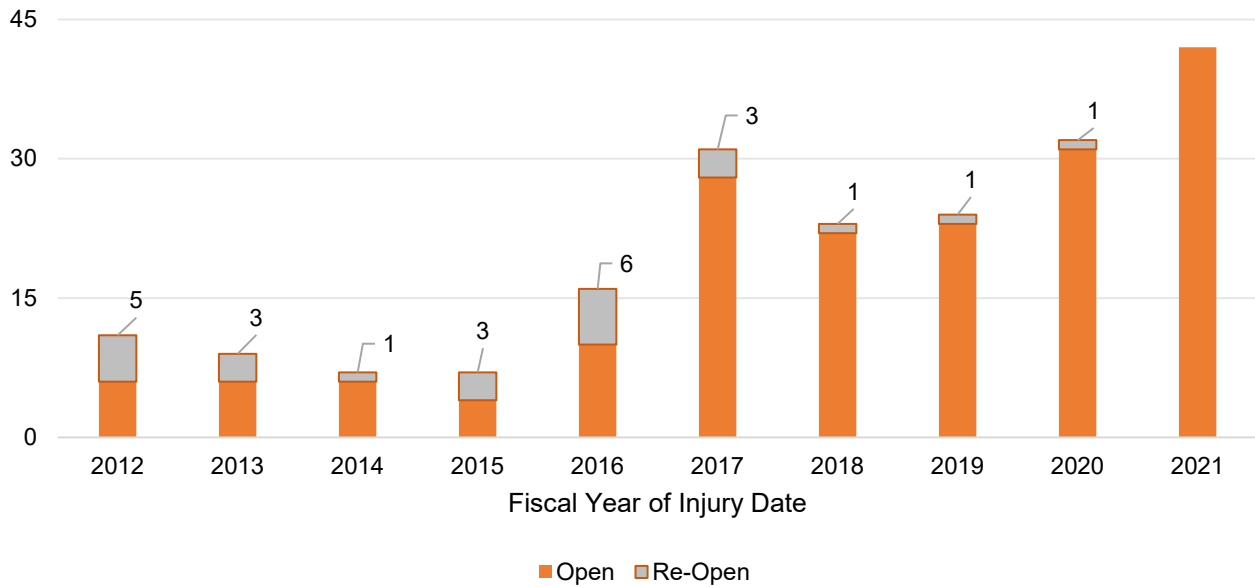
## Analysis 2 Number of Claims by Status

- Out of the total 647 claims, 445 (or 69%) claims were in Closed status, and 202 (or 31%) were in Open or Re-Open status.
- 24 (or 4%) claims were in Re-Open status, and 178 (or 28%) claims were in Open status.

**Chart 2A: Percentage of Claims by Status to Total Claims**



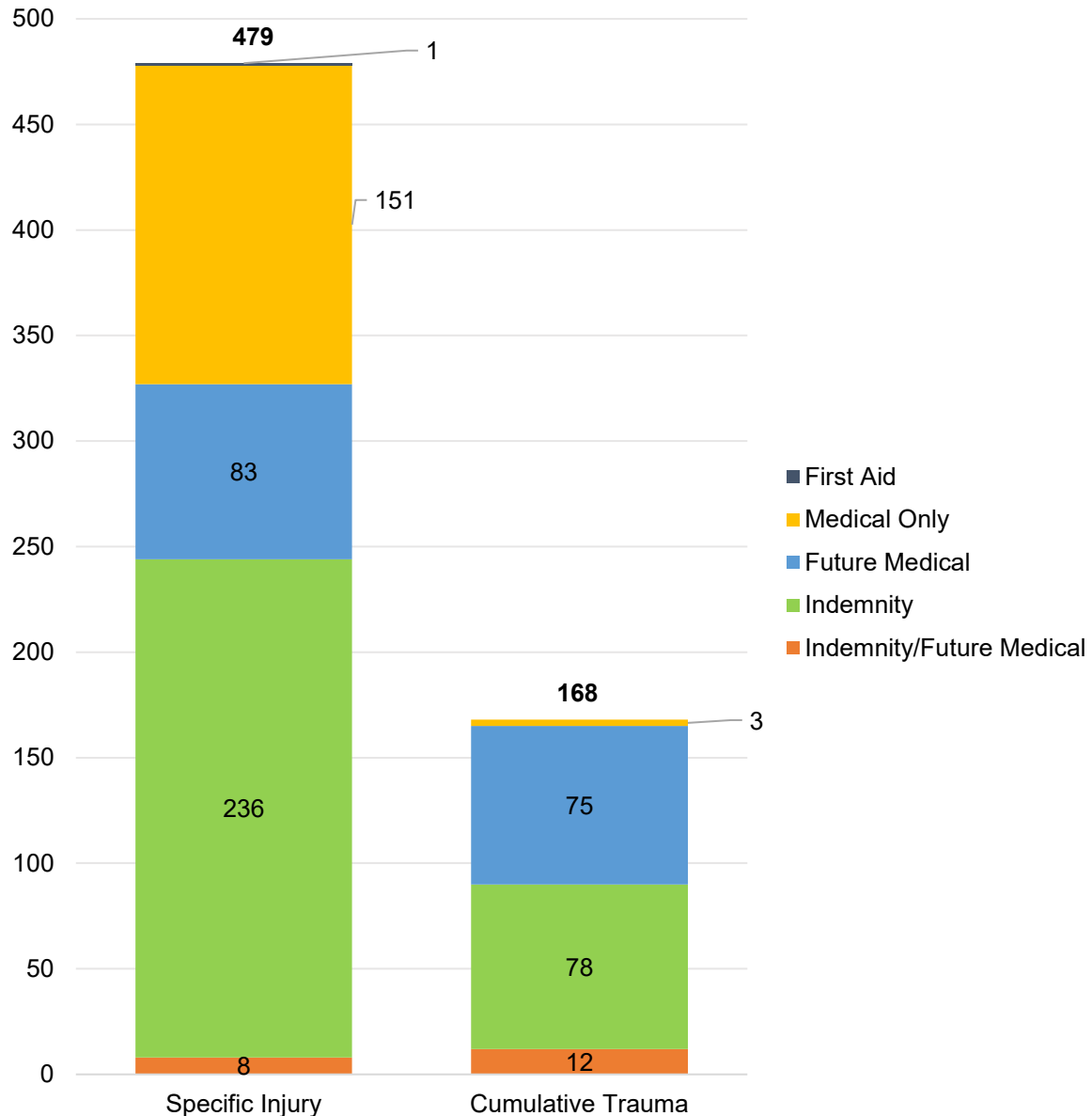
**Chart 2B: Number of Claims in Open and Re-Open Status**



### Analysis 3 Number of Claims by Injury and Claim Type

- Out of the 647 claims, 479 (or 74%) were **specific injuries claims**, 236 of which were Indemnity claims, followed by 151 Medical Only, 83 Future Medical, 8 Indemnity/Future Medical, and 1 First Aid claim.
- The remaining 168 (or 26%) were **cumulative trauma** claims, 78 of which were Indemnity, 75 Future Medical, 12 Indemnity/Future Medical, and 3 Medical Only claims.

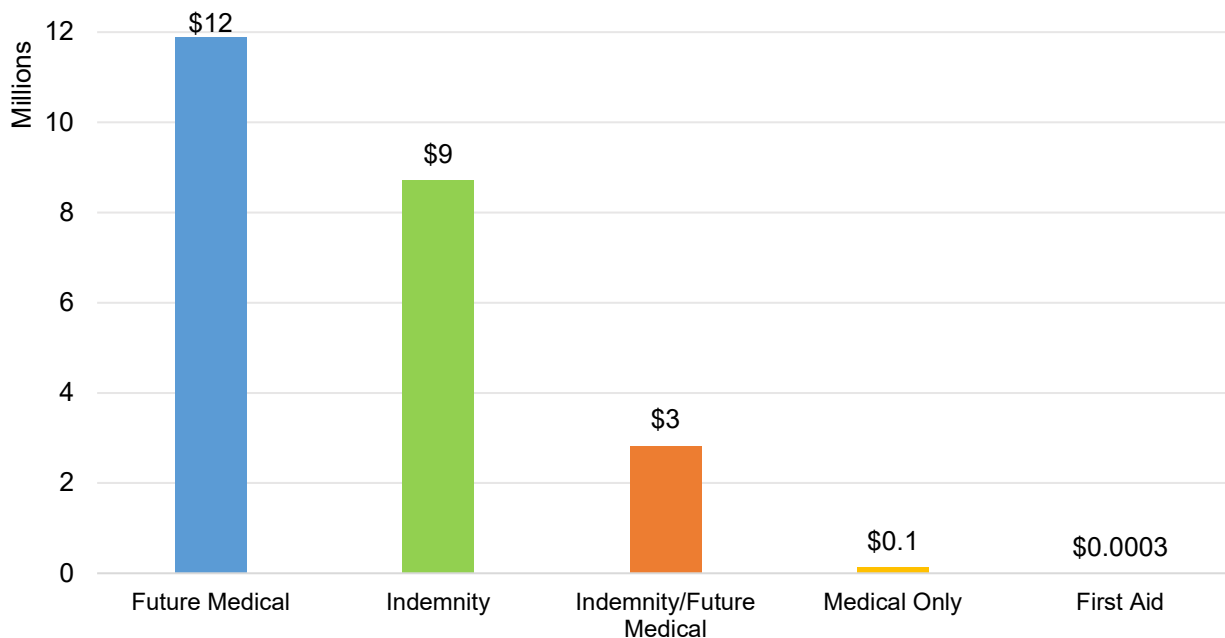
**Chart 3: Number of Claims by Injury and Claim Type**



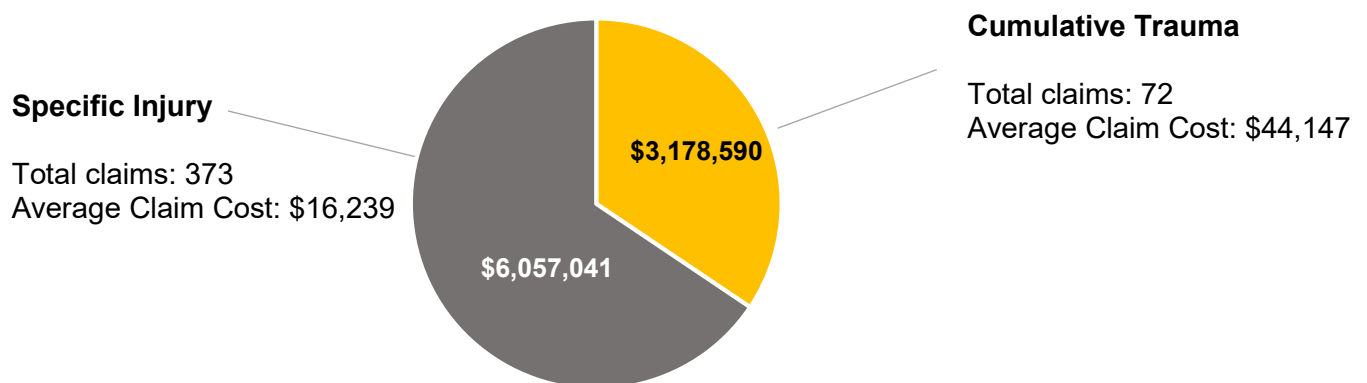
## Analysis 4 Costs by Claim Type and Injury Type

- Of the total claim cost of \$23.5 million from the 647 claims, \$12 million has been spent on Future Medical claims, followed by \$9 million on Indemnity, \$3 million on Indemnity/Future Medical, \$124,000 on Medical Only, and \$300 on one First Aid claim.
- Out of 445 claims in Closed status, there have been less cumulative trauma claims, a total of 72, costing over \$3 million, compared to 373 specific injury claims, costing over \$6 million. However, the average cost for a cumulative trauma claim is 172% higher, at \$44,147 per claim, compared to the average cost of a specific injury claim, which is at \$16,239 per claim.

**Chart 4A: Total Costs by Claim Type from FY 2012 to FY 2021**



**Chart 4B: Total and Average Costs for Closed Claims by Injury Type<sup>5</sup>**

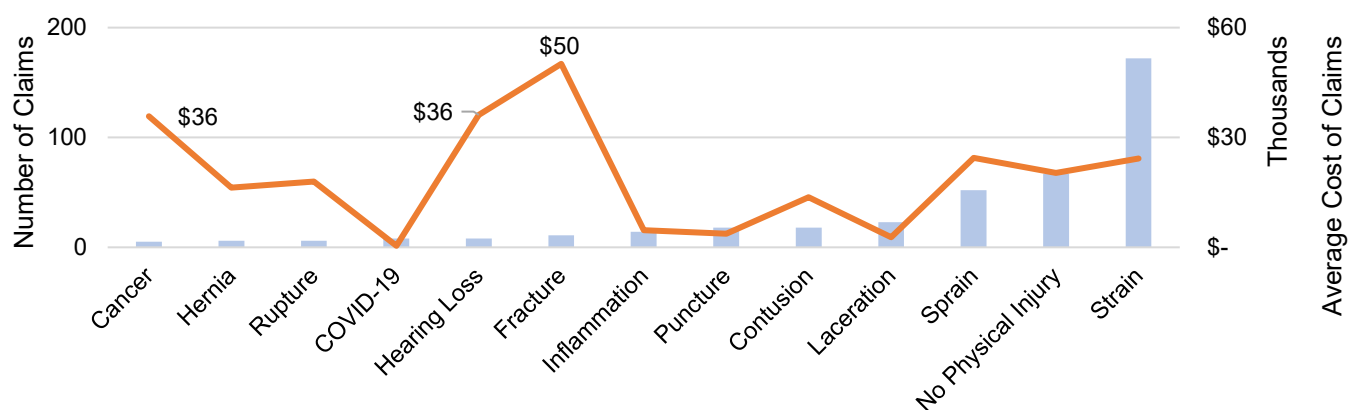


<sup>5</sup> Chart 4B is based on cases in the Closed status.

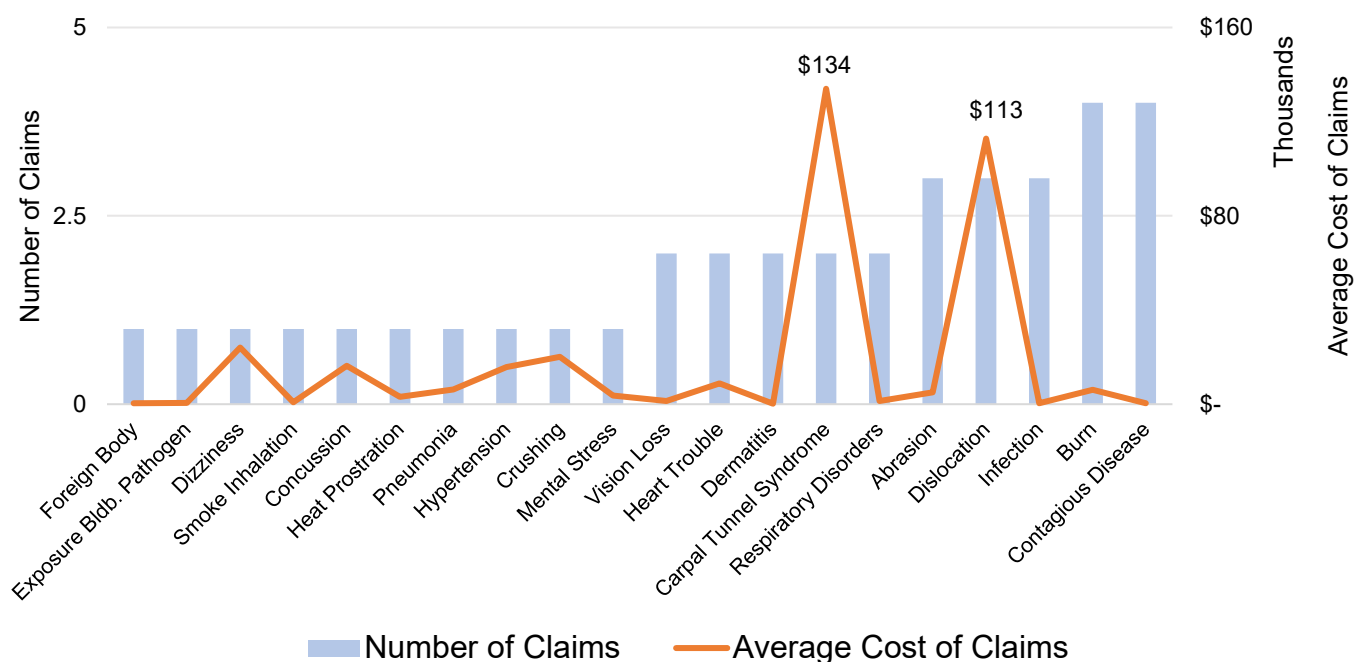
## Analysis 5 Number of Claims and Average Costs by Nature of Injury

- For Closed claims, there were 33 different types of Nature of Injury categories, 13 of these categories are shown in Chart 5A, each of these categories had five or more claims. The top three Nature of Injury categories are fractures with an average claim cost of \$50,000; followed by hearing loss and cancer, both at \$36,000 per claim.
- For the remaining 20 Nature of Injury categories, each had less than five claims (37 claims total). There were two categories with outlier average costs, Dislocation (average cost of \$113,000) and Carpal Tunnel Syndrome (average cost of \$134,000); the remaining categories had an average cost of around \$5,000 per claim.

**Chart 5A: Number of Claims and Average Cost by Nature of Injury (Five or More Claims)<sup>6</sup>**



**Chart 5B: Number of Claims and Average Cost by Nature of Injury (Less than Five Claims)**



<sup>6</sup> Charts 5A and 5B reflect claims in the Closed status. Chart 5A reflects Nature of Injury categories that had five or more claims in that specific category, and 5B is Nature of Injury categories that had less than five claims. The average claim costs are rounded to the nearest thousand.



## Analysis 6 Total Costs and Recoveries by Benefit Type

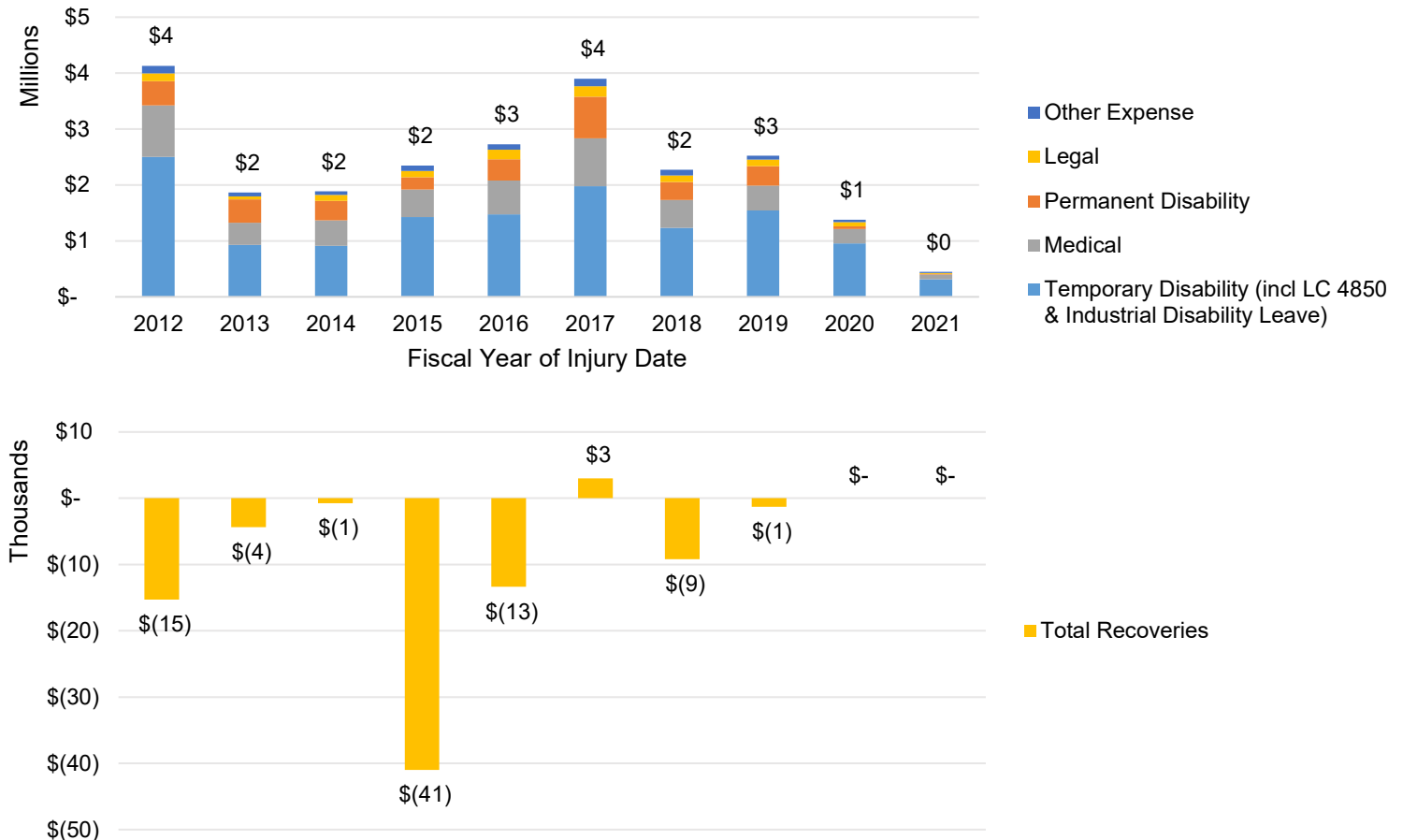
- According to the TPA's current benefit types, in the past ten fiscal years, the benefits that have been paid are as follows:

○ Temporary Disability (incl. Labor Code 4850 and Industrial Disability Leave)	\$13,273,000
○ Medical	\$5,014,000
○ Permanent Disability	\$3,258,000
○ Legal Expenses	\$1,096,000
○ Other Expenses	\$834,000
○ Other Indemnity & Vocational Rehabilitation	\$70,000

The total reserve for all Open and Re-Open claims was \$13,984,000, which is not included in the total costs.

- In the past ten fiscal years, recoveries on claims have totaled \$82,000.

**Chart 6: Total Costs and Recoveries for Claims by Benefit Type<sup>7</sup>**

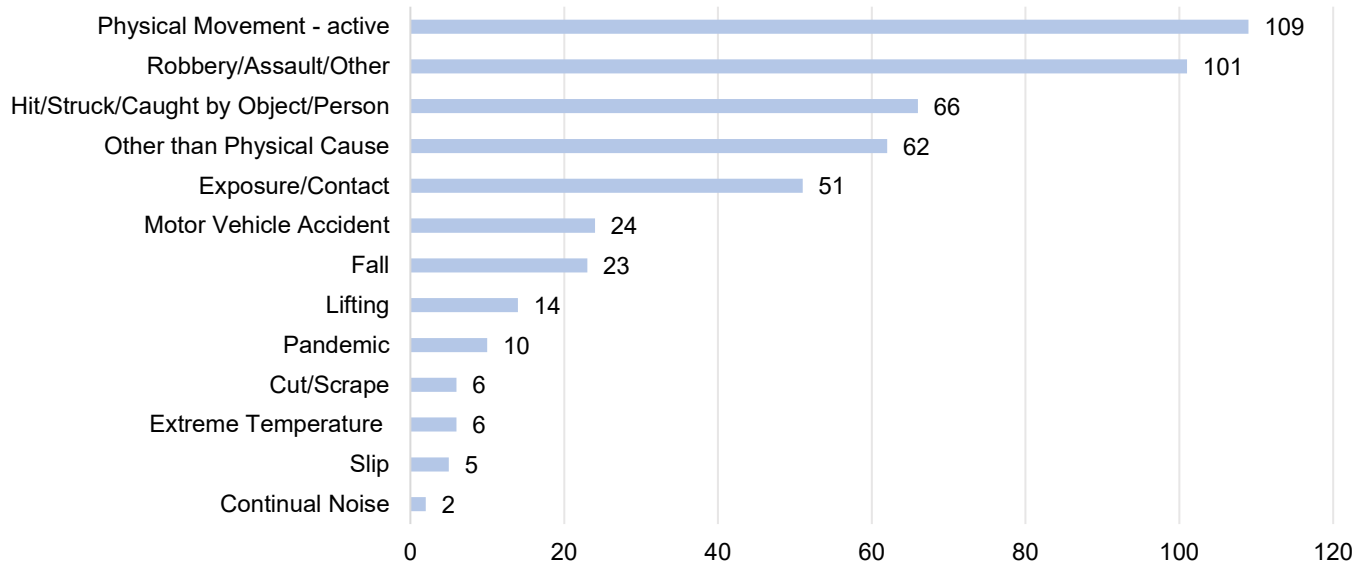


<sup>7</sup> There were also benefits paid in the following categories: Other Indemnity (\$38,000) and Vocational Rehabilitation (\$32,000). See Appendix D for descriptions of all benefit types as defined by TPA. The costs, reserves and recoveries are rounded to the nearest thousand.

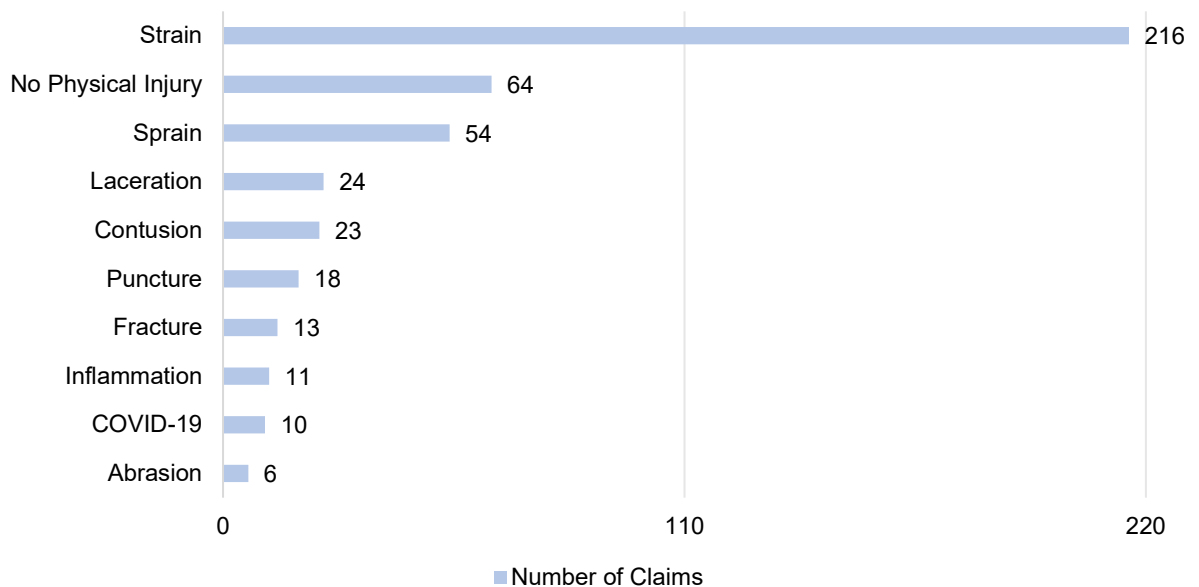
## Analysis 7 Specific Injury – Causes and Nature of Injury

- The top five causes for specific injuries include Physical Movement – active (23%), Robbery/Assault/Other (21%), Hit/Struck/Caught by Object/Person (14%), Other than Physical Cause (13%), and Exposure/Contact (11%).
- Top 10 categories of nature of specific injuries include strain, no physical injury, sprain, laceration, contusion, puncture, fracture, inflammation, COVID-19, and abrasion.

**Chart 7A: Specific Injuries – Cause Categories<sup>8</sup>**



**Chart 7B: Specific Injuries – Top 10 Nature of Injury Categories**

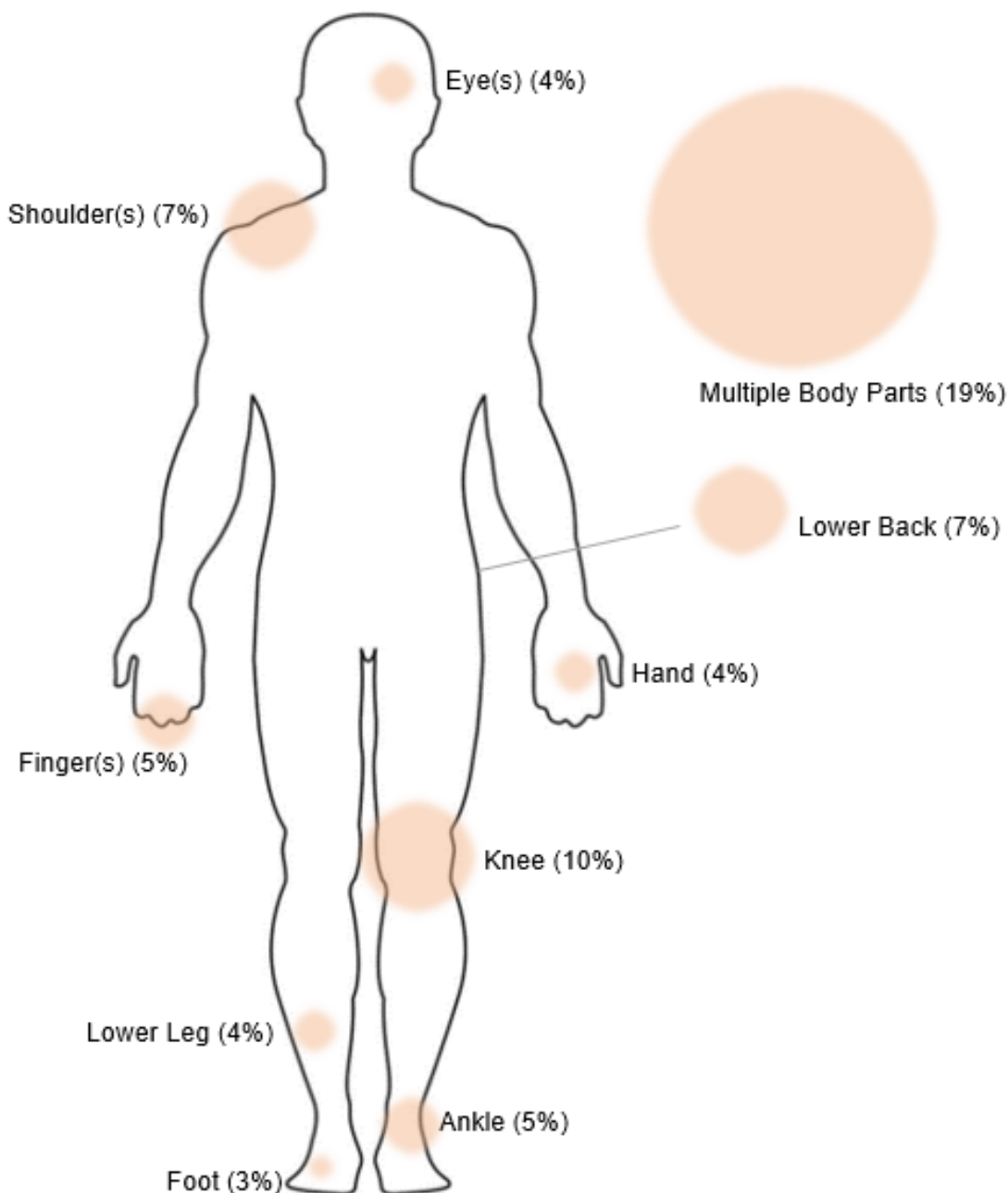


<sup>8</sup> Internal Audit categorized existing Cause Description categories into broader groups. For look-up between original Cause Descriptions and categories used in this chart, see Appendix B.

## Analysis 8 Specific Injuries – Most Likely Injured Body Parts

- The top 10 body parts injured for the 479 specific injuries are multiple body parts (19%), knee (10%), lower back (7%), shoulder(s) (7%), finger(s) (5%), ankle (5%), hand (4%), lower leg (4%), eye(s) (4%) and foot (3%).

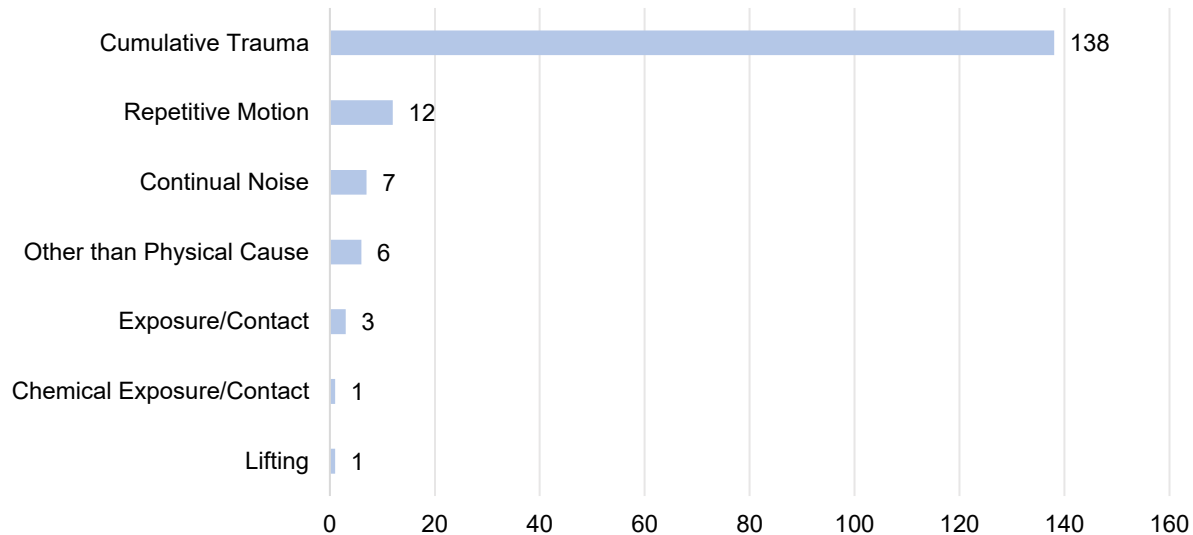
**Chart 8: Top 10 Body Parts Most Likely to be Injured for Specific Injuries**



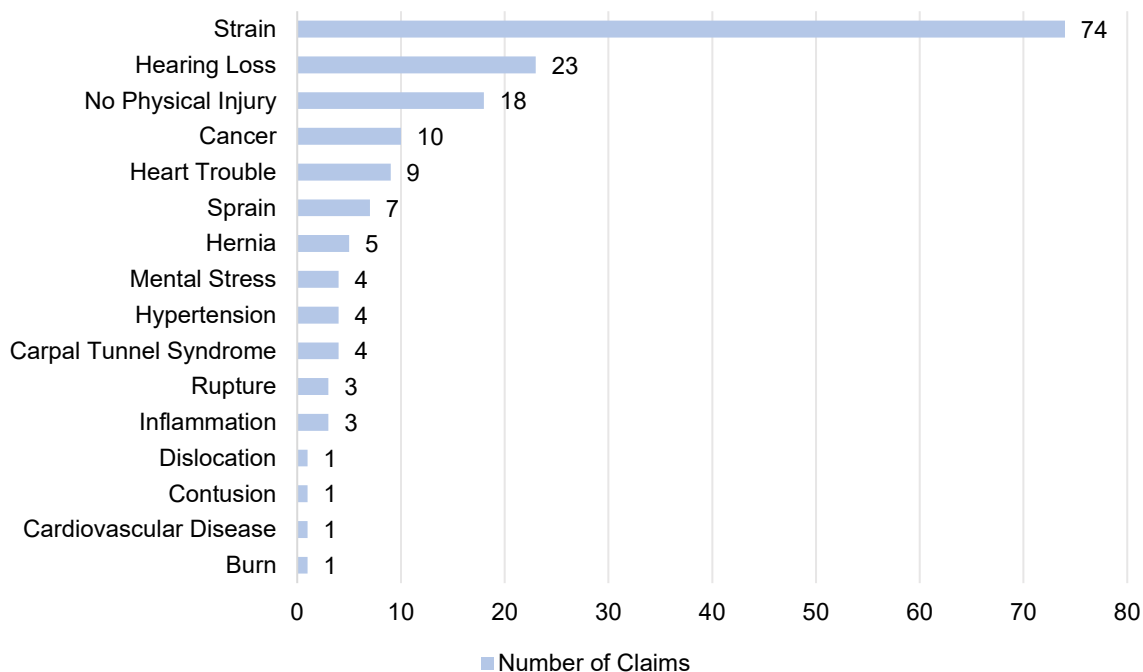
## Analysis 9 Cumulative Trauma – Causes and Nature of Injury

- The causes for 168 cumulative trauma claims include Cumulative Trauma (82%), Repetitive Motion (7%), Continual Noise (4%), Other than Physical Cause (4%), Exposure/Contact (2%), Chemical Exposure/Contact (1%) and Lifting (1%).
- The top five categories of nature of cumulative trauma include strain, hearing loss, no physical injury, cancer, and heart trouble.

**Chart 9A: Cumulative Trauma – Cause Categories**



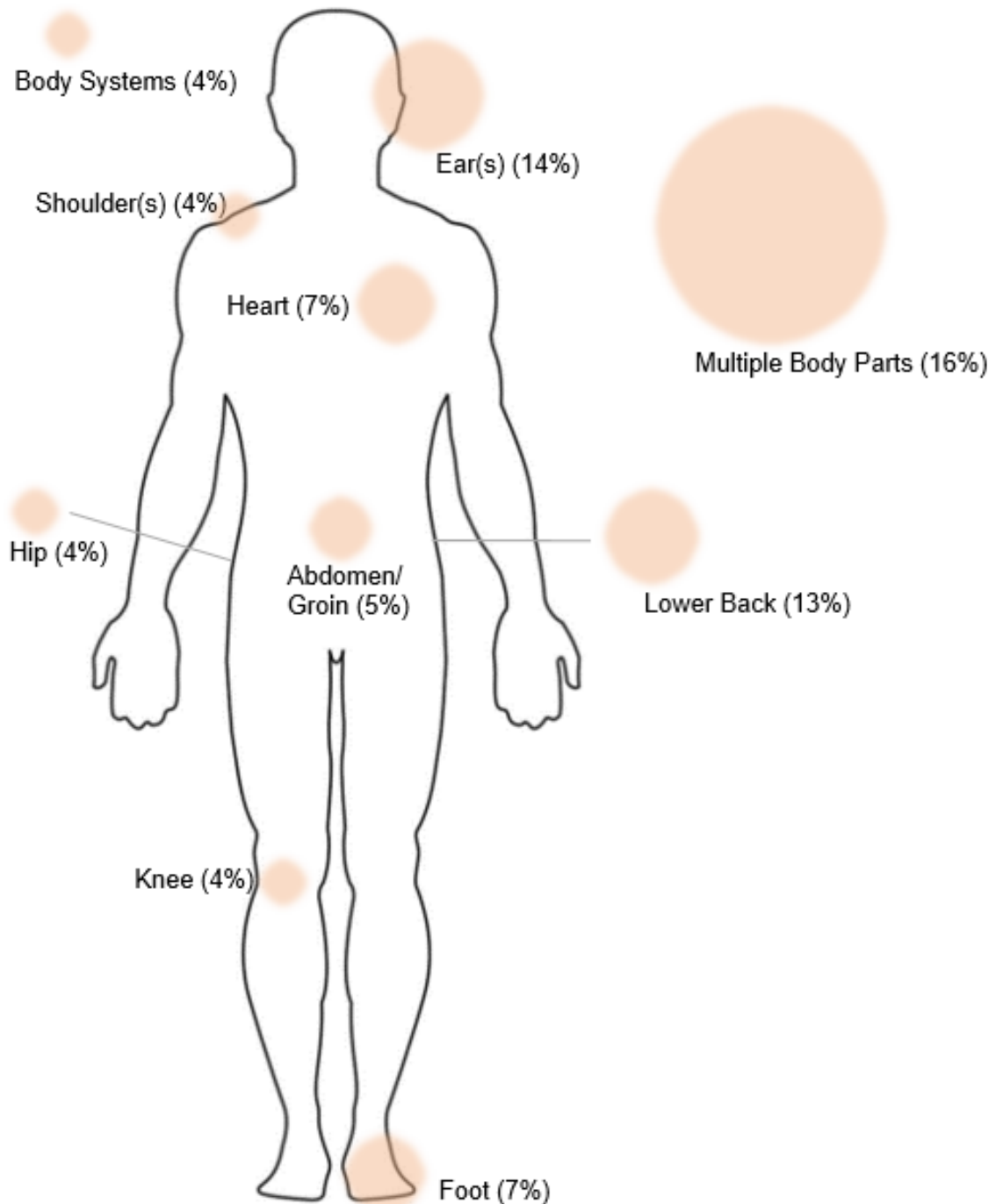
**Chart 9B: Cumulative Trauma – Nature of Injury Categories**



## Analysis 10 Cumulative Trauma – Most Likely Injured Body Parts

- The top 10 body parts injured for the 168 cumulative trauma injuries include multiple body parts (16%), ear(s) (14%), lower back (13%), foot (7%), heart (7%), abdomen/groin (5%), body systems (4%), knee (4%), shoulder(s) (4%) and hip (4%).

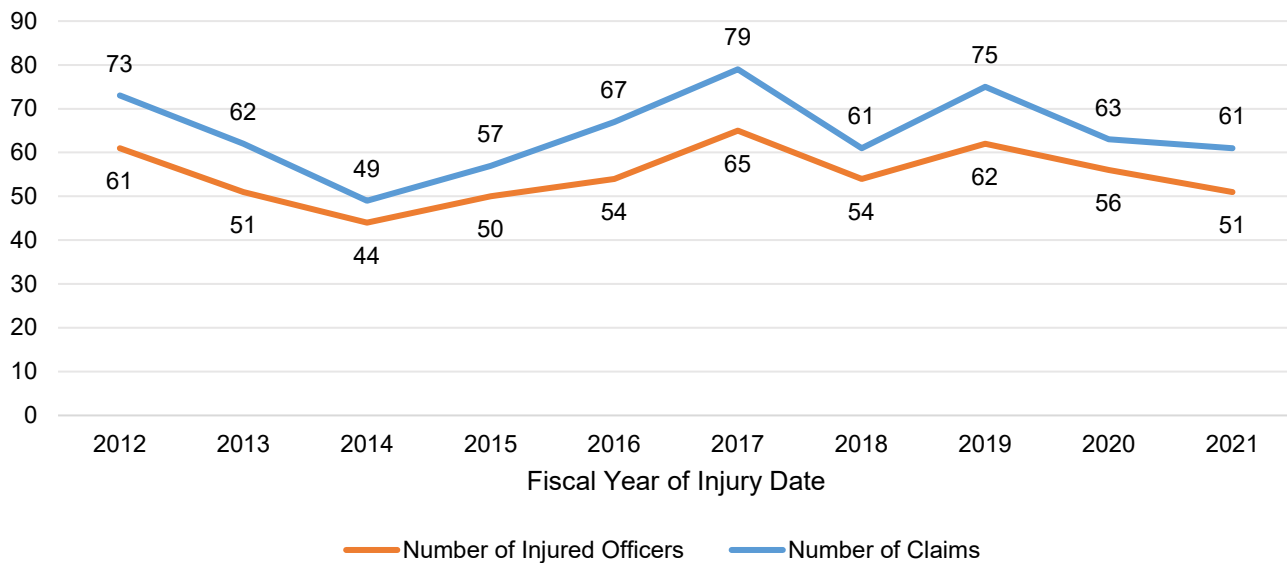
**Chart 10: Top 10 Body Parts Most Likely to be Injured for Cumulative Trauma**



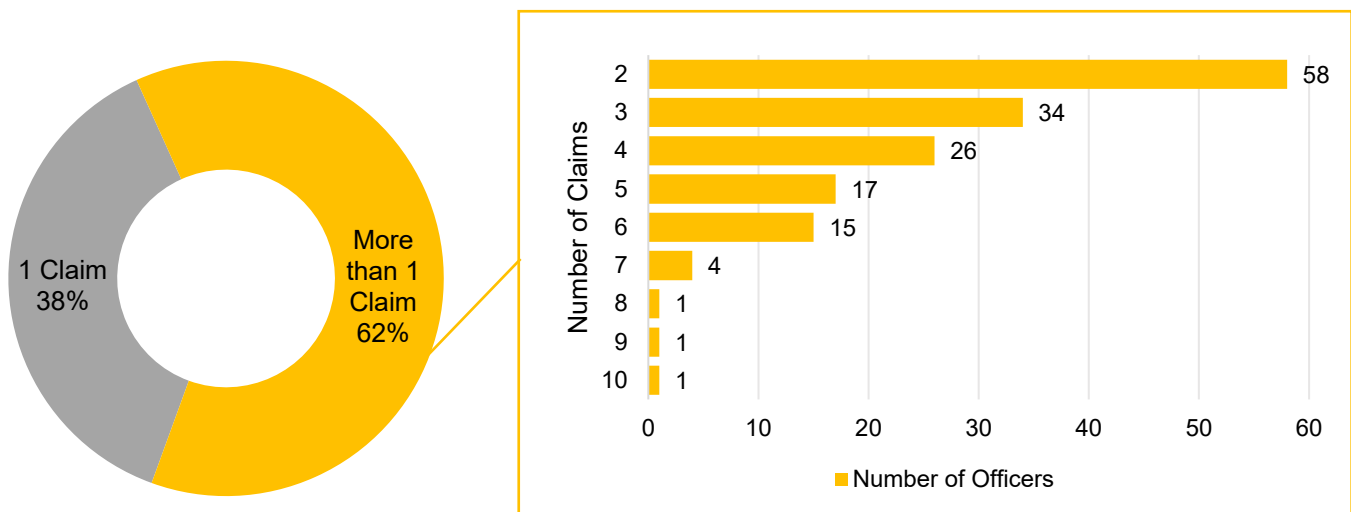
## Analysis 11 Number of Injured Officers and Number of Claims

- A total of 252 Officers were injured during the past ten fiscal years. Each year, there has been at least one Officer that has reported more than one injury. On average, 55 Officers were injured per year, compared to an average of 65 claims per year.
- 157 (or 62%) of Officers filed more than one claim.

**Chart 11A: Number of Injured Officers and Number of Claims by Fiscal Year**



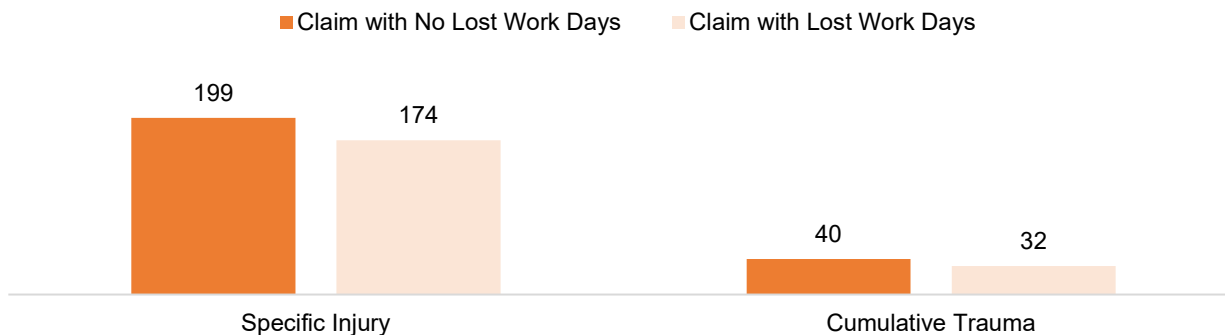
**Chart 11B: Percentage of Officers with 1 or More than 1 Claim(s)**



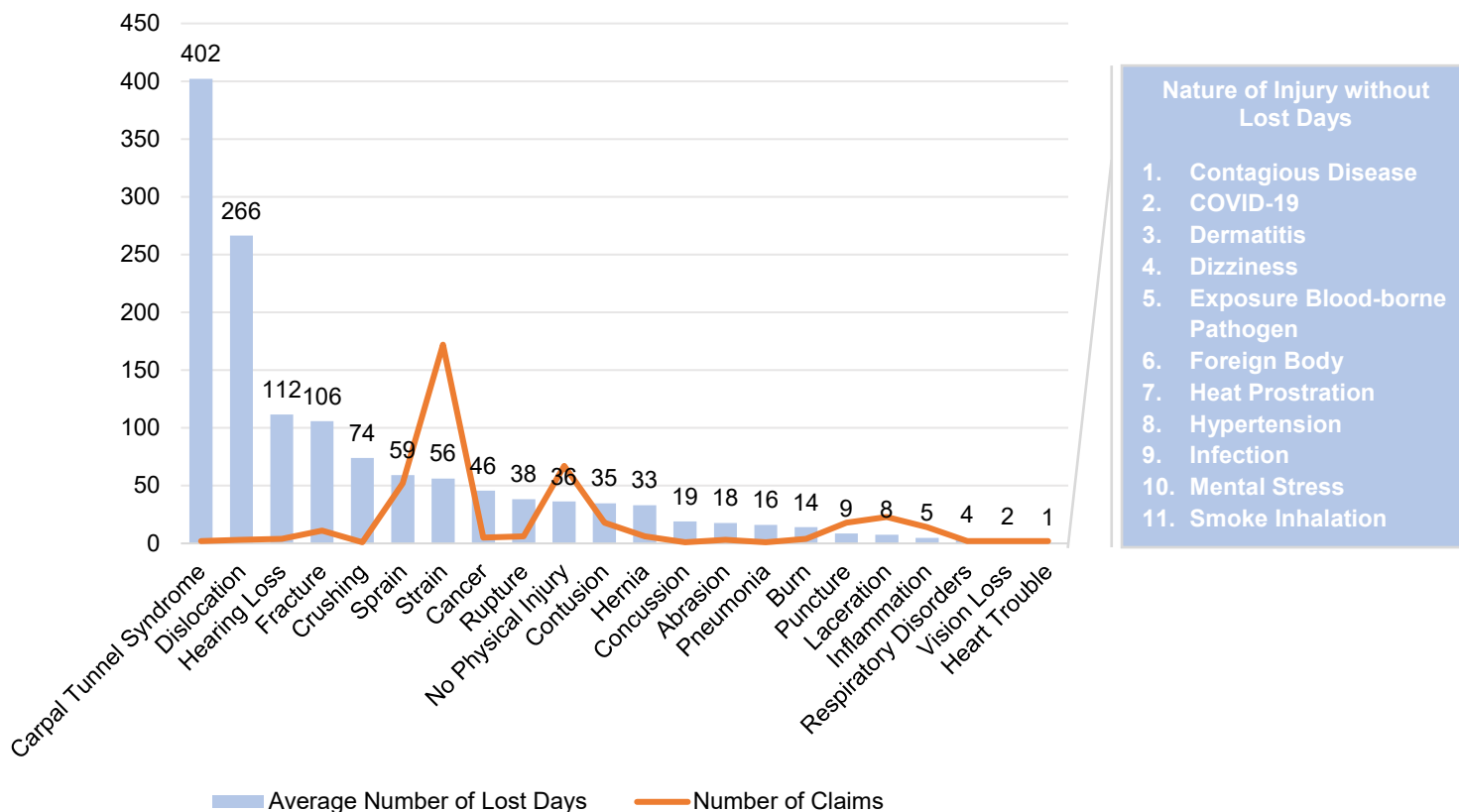
## Analysis 12 Number of Lost Days

- 32 (or 44%) out of 72 closed cumulative trauma claims had lost days<sup>9</sup>, compared to 174 (or 47%) out of 373 specific injury claims. Closed cumulative trauma claims have on average 93 lost days, compared to 36 days for specific injuries.
- Claims with the highest number of lost days include injuries such as carpal tunnel syndrome, dislocation, hearing loss, fracture, and claims with no lost day include contagious disease, COVID-19, dermatitis, dizziness, etc.

**Chart 12A: Number of Closed Claims with Lost Days by Injury Type<sup>10</sup>**



**Chart 12B: Average Number of Lost Days by Nature of Injury**



<sup>9</sup> Per the TPA, the lost days are the number of calendar days based on a seven-day work week.

<sup>10</sup> Analysis 12 was performed only for claims that were in Closed status.

# Injury Risk Profiling

## Analysis 13 Injury Risk Profiling Summary

- Based upon review of 17 studies, it was noted that 23 risk factors were correlated to law enforcement personnel injuries. Internal Audit analyzed TPA claims data for the past ten fiscal years against these risk factors to determine whether there is correlation between the risk factors and GPD Officer injuries. The assumptions used in this analysis are based on the following:
  - there is correlation between risk factor and Officer injury if the risk factor is referenced in 5% or more of applicable claims;
  - there is no correlation between risk factor and Officer injury if the risk factor is referenced in less than 5% of applicable claims; and
  - correlation could not be determined for certain risk factors due to data limitation.

Additionally, three factors (specific days of week, more than 20 years of experience and suspect/inmate involvement) were identified to be correlated with Officer injuries that were derived from performing data analytics on the TPA provided claims data.

- The top six risk factors that appear to be correlated with Officer injuries are:
  - Specific days of week (Tuesday and Wednesday)
  - More than 20 years of experience
  - Suspect/inmate involvement
  - Up to 5 years of experience
  - Incident occurred during training
  - Officer vehicle type, motorcycle
- Chart 13 lists the 26 (23 studied and three based on data analytics) risk factors and their correlation to Officer injuries. The Results column shows the number of claims that had references to the risk factor, and the percentage to the total applicable claims based on injury type. It also notes whether the risk factor is currently part of the Claim Data Intake process, and the quality of the data as it relates to the systematic and categorical collection of the risk factor.

**Reference to Observation/Recommendation:** Appendix E



## Chart 13: Injury Risk Profiling Summary for GPD Officer Injuries<sup>11</sup>

- 1 Reliable - Collected Categorically - Used Existing Data Fields to Analyze Risk
- 2 Unreliable - Collected Categorically - Used Existing Data Fields and Manual Review to Analyze Risk
- 3 Unreliable - Not Collected Categorically - Analytics and Manual Review Required to Analyze Risk
- 4 Data Not Available

Ref No	Injury Risk Factor	Results	Injury Type <sup>12</sup>	Part of Claim Data Intake (Yes/No)	Quality of Data
Risk Factor Referenced in 5% or More of Claims					
1	Specific Days of Week (Tue & Wed)	214 (or 45%)	SI	No	3
2	More than 20 Years of Experience	204 (or 32%)	CT/SI		
3	Suspect/Inmate Involvement	144 (or 30%)	SI		
4	Up to 5 Years of Experience	121 (or 19%)	CT/SI	No	
5	Incident Occurred during Training	81 (or 17%)	SI		
6	Officer Vehicle Type, Motorcycle	30 (or 6%)	SI		
Risk Factor Referenced in Less than 5% of Claims					
7	Injury Occurred during Operational Policing Tasks/Patrol	32 (or 4.9%)	CT/SI	No	3
8	Multiple Vehicle Collisions	18 (or 3.8%)	SI	Yes	1
9	Body Armor Wear	23 (or 3.6%)	CT/SI	No	3
10	Arresting Suspect	22 (or 3.4%)	CT/SI	No	
11	Officer Training in Areas of Arrest Procedure, Tactics and Use of Force	14 (or 2.9%)	SI	No	
12	Lifting Heavy Objects	15 (or 2.3%)	CT/SI	Yes	1
13	Exposure to Traumatic Events, Horrific Incidents and Psych Stressors	13 (or 2.0%)	CT/SI	Yes	2
14	Exposure to High Levels of Noise	8 (or 1.2%)	CT/SI	Yes	1

<sup>11</sup> See Appendix C for an unabridged version of Chart 13 that includes methodology of the risk profiling analysis, and references for the reviewed studies.

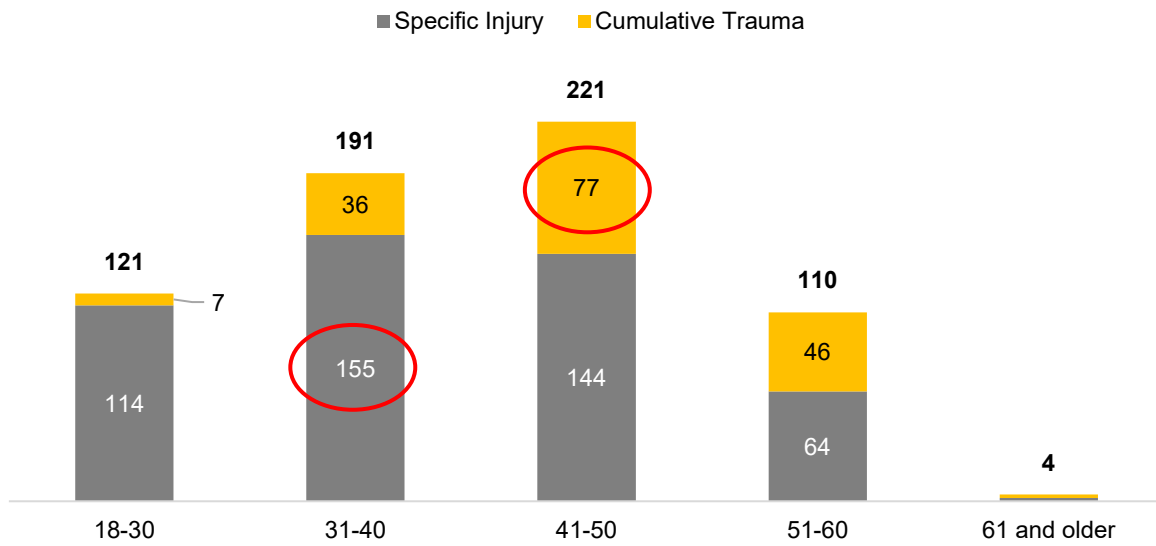
<sup>12</sup> SI denotes Specific Injury and CT denotes Cumulative Trauma. SI (total claims=479), CT (total claims=168) and SI/CT (total claims=649).

Ref No	Injury Risk Factor	Results	Injury Type <sup>12</sup>	Part of Claim Data Intake (Yes/No)	Quality of Data
15	Driving Long Distances	1 (or 0.6%)	CT	No	3
16	Police Encounters with Suspects Under Influence of Alcohol and/or Drugs	3 (or 0.6%)	SI	No	
17	Needlestick Injuries, Cuts from Contaminated Objects, Human Bites	2 (or 0.4%)	SI	Yes	2
18	Night Shift Work	2 (or 0.4%)	SI	No	3
19	Answering a Domestic Disturbance Call Alone	1 (or 0.2%)	SI	No	
20	Conducting Traffic Control or Assisting Motorists	1 (or 0.2%)	SI	No	
Unable to Conclusively Determine Correlation					
21	Exposure to High Concentrations of CO2, General Air Pollution and Tear Gas	N/A	CT/SI	No	4
22	Offenders Who had Prior Conviction	N/A	CT/SI	No	
23	Wearing Seatbelt	N/A	CT/SI	No	
24	Officer Weight	N/A	CT/SI	No	
25	Fewer Officers Present during a Call	N/A	CT/SI	No	
26	Fitness Program Participation	N/A	CT/SI	No	

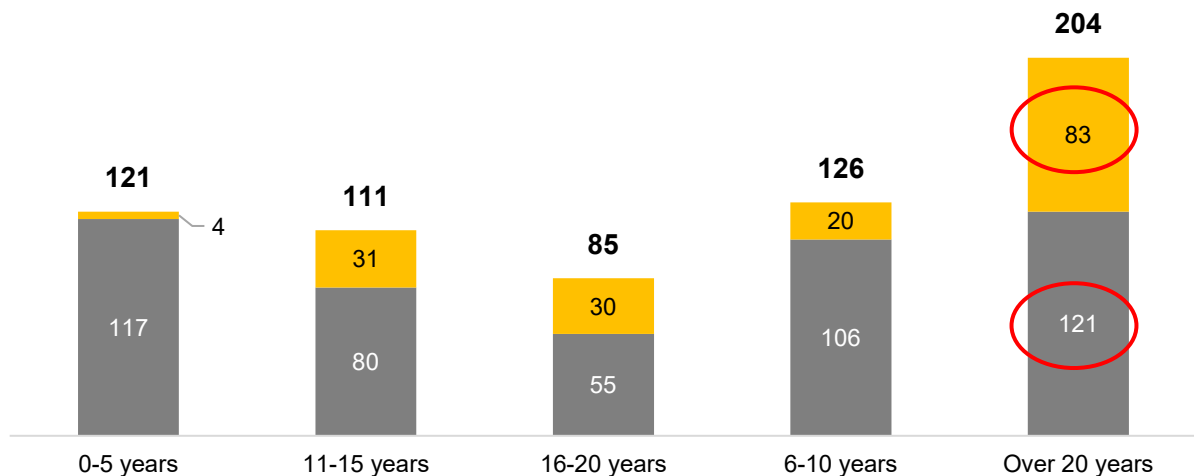
## Analysis 14 Age and Years of Service as Injury Risk Factors

- 155 (or 32%) out of 479 specific injuries were between the 31-40 age range. 77 (or 46%) out of 168 cumulative trauma claims occurred between the 41-50 age range.
- 121 (or 25%) out of 479 specific injuries, and 83 (or 49%) out of 168 cumulative trauma claims were filed by Officers with more than 20 years of experience.

**Chart 14A: Number of Claims by Age Range**



**Chart 14B: Number of Claims by Years of Service**



## Distribution List

### For Information

- Margaret Agus, City Resource Specialist
- Matthew Doyle, Director of Human Resources
- Tim Feeley, Deputy Police Chief
- Michele Flynn, Director of Finance
- Michael Garcia, City Attorney
- Roubik Golanian, City Manager
- Ann Maurer, Chief Assistant City Attorney
- Timothy Oswandel, Police Lieutenant
- Dania Portillo, Workers' Compensation Administrator
- Carl Povilaitis, Police Chief
- John Takhtalian, Deputy City Manager
- Audit Committee
- City Council

## Appendix A: Objective, Scope, & Methodology

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The objective of this analysis is to identify risk factors for common injuries within GPD in order to improve injury prevention, reduce workers' compensation and overtime costs, and extend the career of officers.

The scope of the analysis covers Officer workers' compensation claims from July 1, 2012 through June 30, 2021 based on data provided by TPA. It excludes Closed claims with \$0 incurred. The in scope claims represent 91% of all GPD claims over the past ten fiscal years.

The scope of this analysis does not cover auditing the integrity of the system-generated data that was provided by TPA. Rather, Internal Audit used the data provided, made corrections as necessary, and recommended data improvements for future analysis. Also, due to the inconsistency of recording SNB IOD<sup>13</sup> (overtime tracking code in time-entry system), the overtime cost resulted from IOD was not performed.

Internal Audit performed the following:

- Researched publically available studies to identify risk factors that have a correlation with law enforcement personnel injuries;
- Interviewed Human Resources staff to learn background information about workers' compensation claims and Officer injuries;
- Interviewed TPA staff to obtain workers' compensation claims data for GPD for the in scope period;
- Performed internal data validation using an automated Arbutus Analytics script and necessary data correction and modification of the obtained claims data;
- Analyzed claims data to identify the following:
  - Injury summary statistics including claim time-series analysis, number of claims by claim and injury type, costs analysis by claim type, nature of injury and benefit type, analyses focused on specific injuries and cumulative trauma, lost days analysis, frequency of claims per Officer, and injury risk profiling analysis.
  - Performed data review and inquiries to identify whether studied and data analytics-based injury risk factors are applicable to GPD.

### Assumptions and Limitations

- The analysis has relied upon the integrity of the data as-is without independent validation or audit. Internal Audit assumed that each claim that has more than \$0 total costs, was an actual injury that was sustained by employee.
- Majority of the injury risk profiling analysis was performed using manual review of cases through the use of keyword search, the inherent risk of subjective interpretation poses a risk that the risk factors in question may not be correlated to the claims.
- Internal Audit researched 17 studies to perform the injury risk profiling analysis, there is a risk that the risk factors used in this analysis may not be as relevant as other studies to GPD injuries.

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<sup>13</sup> Injured On Duty

## Appendix B: Cause Description Re-Categorization Methodology

The table below is a summary of broader Injury Cause categories grouped by Internal Audit based on existing TPA Cause Description categories.

Original Cause Description Category	Auditor Re-Categorization
Bending/Stooping	Physical Movement - active
Biochemical Substances	Exposure/Contact
Caught by Miscellaneous	Hit/Struck/Caught by Object/Person
Caught in Handled Object	Hit/Struck/Caught by Object/Person
Chemical Exposure/Contact	Exposure/Contact
Climbing	Physical Movement - active
Continual Noise	Continual Noise
Cumulative Trauma	Cumulative Trauma
Cut/Scraped by Broken	Cut/Scrape
Cut/Scraped by Hand Tool	Cut/Scrape
Cut/Scraped by Handled	Cut/Scrape
Cut/Scraped by Other	Cut/Scrape
Dust/Gas/Fume/Vapor	Exposure/Contact
Electrical Current Contact	Exposure/Contact
Exposure/Contact	Exposure/Contact
Extreme Temperature	Extreme Temperature
Fall from Different Level	Fall
Fall on Same Level	Fall
Fall on Slippery Substance	Fall
Fire/Flame Contact	Exposure/Contact
Foreign Matter/Object in	Exposure/Contact
Hit by Co-Worker/Patient	Hit/Struck/Caught by Object/Person
Hit by Falling/Flying Object	Hit/Struck/Caught by Object/Person
Hit by Handled Object	Hit/Struck/Caught by Object/Person
Hit by Miscellaneous Object	Hit/Struck/Caught by Object/Person
Hit by Motor Vehicle	Hit/Struck/Caught by Object/Person
Hit/Injured by Animal/Insect	Hit/Struck/Caught by Object/Person
Hot Object/Substance	Exposure/Contact
Jumping	Physical Movement - active
Lifting	Lifting
Multi-Vehicle Accident	Motor Vehicle Accident
Other than Physical Cause	Other than Physical Cause
Pandemic	Pandemic
Pushing or Pulling	Physical Movement - active
Reaching	Physical Movement - active
Repetitive Motion	Physical Movement - active
Robbery/Assault/Other	Robbery/Assault/Other
Running	Physical Movement - active
Slip did not fall	Slip
Struck Handled/Lifted	Hit/Struck/Caught by Object/Person
Struck Miscellaneous	Hit/Struck/Caught by Object/Person
Struck Stationary Object	Hit/Struck/Caught by Object/Person
Trip did not fall	Physical Movement - active
Twisting	Physical Movement - active
Vehicle Accident	Motor Vehicle Accident
Vehicle hit Fixed Object	Motor Vehicle Accident

## Appendix C: Detailed Summary of Injury Risk Factors

- ① Reliable - Collected Categorically - Used Existing Data Fields to Analyze Risk
- ② Unreliable - Collected Categorically - Used Existing Data Fields and Manual Review to Analyze Risk
- ③ Unreliable - Not Collected Categorically - Analytics and Manual Review Required to Analyze Risk
- ④ Data Not Available

Ref No	Injury Risk Factor	Results	Resulting Injuries	Cite #	Source of Risk Factor	Injury Type	Part of Claim Data Intake (Yes/No)	Risk Factor Analysis Method	Quality of Data
<b>Risk Factor Referenced in 5% or More of Claims</b>									
1	Specific Days of Week (Tue & Wed)	214 (or 45%)	More likely to get injured		Analytics-based	SI	No	Auditor classified each claim based on day of week	③
2	More than 20 Years of Experience	204 (or 32%)	More likely to get injured			CT/SI		Auditor classified each claim based on years of experience	
3	Suspect/Inmate Involvement	144 (or 30%)	More likely to get injured			SI		The "How Incident Occurred" and "Injury Desc" fields were searched manually for officer attempting to arrest a suspect, dealing with inmate, or another person that was resisting	
4	Up to 5 Years of Experience	121 (or 19%)	More likely to get injured	5	Outside Study	CT/SI		Auditor classified each claim based on years of experience	
5	Incident Occurred during Training	81 (or 17%)	Strain, sprain and upper body injuries more common	5, 6	Outside Study	SI		The "How Incident Occurred" and "Injury Desc" fields were searched for the following keywords: training	
6	Officer Vehicle Type, Motorcycle	30 (or 6%)	Increased Risk of Injury	7	Outside Study	SI		The "How Incident Occurred" and "Injury Desc" fields were searched for the following keywords: motorcycle	

Ref No	Injury Risk Factor	Results	Resulting Injuries	Cite #	Source of Risk Factor	Injury Type	Part of Claim Data Intake (Yes/No)	Risk Factor Analysis Method	Quality of Data
<b>Risk Factor Referenced in Less than 5% of Claims</b>									
7	Injury Occurred during Operational Policing Tasks/Patrol	<b>32 (or 4.9%)</b>	Sprains, Fractures or Even Fatalities  Injuries that result in more work days lost	5, 6	Outside Study	CT/SI	No	The "How Incident Occurred" and "Injury Desc" fields were searched for the following keywords: patrol	3
8	Multiple Vehicle Collisions	<b>18 (or 3.8%)</b>	Increased Risk of Injury	7	Outside Study	SI	Yes	Field: Cause Code Desc, Value: Multi-Vehicle Accident	1
9	Body Armor Wear	<b>23 (or 3.6%)</b>	Inconclusive: one study showed that wearing body armor results in fewer days lost to injury and rehabilitation, while another study shows that body armor wear is a significant officer safety issue	5	Outside Study	CT/SI	No	The "How Incident Occurred" and "Injury Desc" fields were searched for the following keywords: armor, gear, belt, vest, wearing	3
10	Arresting Suspect	<b>22 (or 3.4%)</b>	Increased risk of verbal/physical abuse, intoxication and physical injury from suspect	2	Outside Study	CT/SI	No	The "How Incident Occurred" and "Injury Desc" fields were searched for the following keywords: arrest	



Ref No	Injury Risk Factor	Results	Resulting Injuries	Cite #	Source of Risk Factor	Injury Type	Part of Claim Data Intake (Yes/No)	Risk Factor Analysis Method	Quality of Data
11	Officer Training in Areas of Arrest Procedure, Tactics and Use of Force	14 (or 2.9%)	(Affecting an arrest) Fewer days of work lost after an injury. (Use-of-force training) decrease in OSHA-reportable injuries	5	Outside Study	SI	No	The "How Incident Occurred" and "Injury Desc" fields were searched for the following keywords: tactic, use of force	3
12	Lifting Heavy Objects	15 (or 2.3%)	Musculoskeletal Hazards	14	Outside Study	CT/SI	Yes	Field: Cause Code Desc, Value: Lifting	1
13	Exposure to Traumatic Events, Horrific Incidents and Psych Stressors	13 (or 2.0%)	Post-Traumatic Stress Disorder, Metabolic Syndrome (a cluster of risk factors including dyslipidemia, abdominal adiposity, reduced glucose tolerance and hypertension)	3, 11	Outside Study	CT/SI	Yes	Field: Nature of Injury, Value(s): Mental Stress, No Physical Injury (In addition, the "How Incident Occurred" and "Injury Desc" fields were searched for the following keywords: stress, panic, anxiety, post, PTSD and traumatic for further review	2
14	Exposure to High Levels of Noise	8 (or 1.2%)	Noise-induced Hearing Loss	8, 17	Outside Study	CT/SI	Yes	Field: Cause Code Desc, Value: Continual Noise Field: Nature of Injury, Value(s): Hearing Loss (Cumulative), Hearing Loss (Specific Trauma)	1
15	Driving Long Distances	1 (or 0.6%)	Musculoskeletal Hazards	14	Outside Study	CT	No	The "How Incident Occurred" and "Injury Desc" fields were searched for the following keywords: driving, distance	3

Ref No	Injury Risk Factor	Results	Resulting Injuries	Cite #	Source of Risk Factor	Injury Type	Part of Claim Data Intake (Yes/No)	Risk Factor Analysis Method	Quality of Data
16	Police Encounters with Suspects Under Influence of Alcohol and/or Drugs	3 (or 0.5%)	Higher number of work days lost for the injured officer, as well as more days in rehabilitation; higher probability of an injury being OSHA reportable	5	Outside Study	CT/SI	No	The "How Incident Occurred" and "Injury Desc" fields were searched for the following keywords: alcohol, drug, intox, influence	3
17	Needlestick Injuries, Cuts from Contaminated Objects, Human Bites	2 (or 0.4%)	Blood Borne Diseases (HIV, viral hepatitis)	9, 12, 13	Outside Study	SI	Yes	Field: Cause Code Desc, Value: Cut/Scraped by Other, Foreign Matter/Object in, (For both injuries, the "How Incident Occurred" field was reviewed one-by-one as well for precise categorization)	2
18	Night Shift Work	2 (or 0.4%)	Exposure to more stressful events, Higher Incidence of Long-Term Injury	10, 16	Outside Study	SI	No	The "How Incident Occurred" and "Injury Desc" fields were searched for the following keywords: night shift, nightshift, graveyard, grave	3
19	Answering a Domestic Disturbance Call Alone	1 (or 0.2%)	Increased risk of verbal/physical abuse, intoxication and physical injury from suspect	2	Outside Study	SI	No	The "How Incident Occurred" and "Injury Desc" fields were searched for the following keywords: arrest	
20	Conducting Traffic Control or Assisting Motorists	1 (or 0.2%)	Increased Risk of Injury	7	Outside Study	SI	No	The "How Incident Occurred" and "Injury Desc" fields were searched for the following keywords: traffic control	

Ref No	Injury Risk Factor	Results	Resulting Injuries	Cite #	Source of Risk Factor	Injury Type	Part of Claim Data Intake (Yes/No)	Risk Factor Analysis Method	Quality of Data
Unable to Conclusively Determine Correlation									
21	Exposure to High Concentrations of CO2, General Air Pollution and Tear Gas	N/A	Cancer, Decreased Lung Function and Dermatitis Risk	1, 4, 14, 15	Outside Study	CT/SI	No	The "Nature of Injury" field was filtered for Cancer, Dermatitis, Respiratory Disorders, Smoke Inhalation and each associated case was manually reviewed	4
22	Offenders Who had Prior Conviction	N/A	Resulted in injury with more work days lost	5	Outside Study	CT/SI	No	The "How Incident Occurred" and "Injury Desc" fields were searched for the following keywords: conviction, seatbelt, obese, obesity, overweight	
23	Wearing Seatbelt	N/A	Lower Number of Rehab Days and Missed Days Lost	5, 7	Outside Study	CT/SI	No		
24	Officer Weight	N/A	Overweight officers reported more days of work lost, more rehabilitation days	5	Outside Study	CT/SI	No		
25	Fewer Officers Present during a Call	N/A	More severe injuries, more work days lost and more days spent in rehabilitation	5	Outside Study	CT/SI	No	This information is currently not being collected categorically and data was not searched due to lack of clear keyword search methodology	
26	Fitness Program Participation	N/A	Less Injuries Reportable to OSHA	5	Outside Study	CT/SI	No		

## Appendix C (Cont'd): References

The Cite # in Appendix are sourced from the studies below.

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## Appendix D: Types of Workers' Compensation Benefits and Claims

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Workers' compensation benefits that can be paid to employees in case of workplace injuries<sup>14</sup>:

- Death Benefit – payments to spouse, children, or other dependents if employee dies from a job injury or illness;
- Industrial Disability Leave – benefit that is composed of the difference between Temporary Disability State rate and employee's full salary; this category was introduced in 2021;
- Labor Code 4850 – benefit that is composed of the difference between Temporary Disability State rate and employee's full salary; this category was used prior to 2021;
- Legal Paid – paid for by City to defend claims;
- Medical Care – medical treatment paid for by employer to help recover from an injury or illness caused by work;
- Permanent Disability – payments if complete recovery is not possible and the injury causes a permanent loss of physical or mental function that a doctor can measure;
- Other Indemnity – death benefit and life pension benefits;
- Other Expense – allocated expenses including the cost to investigate claim, cost containment services;
- Supplemental Job Displacement Benefit – a voucher to help pay for retraining or skill enhancement if eligible to receive permanent disability benefits, employer does not offer work, and employee does not return to work for employer;
- Temporary Disability – payments if wages are lost and if injury prevents from doing regular job duties while recovering past one year of disability, State rate up to the maximum temporary disability benefits;
- Vocational Rehabilitation – supplemental job displacement benefits provided to employee.

There are five types of claim categories that are in the workers' compensation claims database:

- First Aid – claims that are filed for work-related injury that require only one medical visit with one follow-up visit and with no medication prescribed;
- Future Medical – claims that are filed for work-related injury or illness that require ongoing lifetime medical treatment'
- Indemnity – claims that are filed for work-related injury or illness which normally results in loss of time from work. Temporary and Permanent Disability are the two major types of indemnity claims;
- Indemnity/Future Medical – claims that are filed where injury provides employee with the right to receive ongoing lifetime medical treatment and also wage/loss or indemnity benefits;
- Medical Only – claims that are filed for work-related injuries or illnesses for which there are no lost time benefits, there is only medical treatment.

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<sup>14</sup> The descriptions of benefit and claim types are provided by TPA.

## Appendix E: Observations and Recommendations

Item #1	Workers' Compensation Database Data Quality Improvement
<p><b><u>Observation(s):</u></b></p> <p>The existing TPA claims database has many fields that can be populated during the injury intake process. Internal Audit reviewed certain fields for this analysis and noted the following data quality issues:</p> <ul style="list-style-type: none"> <li>• Date of Birth – this field designates the employee's date of birth. There were claims with employee date of birth that did not match the date of birth in Munis.</li> <li>• Hire Date – this field designates the employee's hire date. There were claims with employee hire date that did not match hire date(s) in Munis.</li> <li>• Age – this field designates the employee's age at the time of injury. The age field is dependent on the Date of Birth field, therefore, has incorrect age listed for claims when Date of Birth did not match the data in Munis.</li> <li>• Employee – this field designates the employee name. In the analysis, the convention of "Last Name, First Name" was used, however, there were many other formats aside from the selected convention, rendering the values in this field inconsistent.</li> <li>• Injury Type– currently, the Cause Code Description field is used to categorize a claim as cumulative trauma, and if the value is not cumulative trauma it is presumed to be specific injury. However, it was noted that although a claim may not have the cumulative trauma value in the Cause Code Description field, other fields, such as Nature of Injury and/or Incident Type fields may contain references to cumulative trauma instead.</li> </ul> <p><b><u>Recommendation(s):</u></b></p> <p>GPD Management consider the following to improve existing TPA claims data:</p> <ul style="list-style-type: none"> <li>• Ensure that date of birth and hire date match Munis dates.</li> <li>• Ensure that the age field is updated based on the correct date of birth values.</li> <li>• Establish a naming convention to ensure consistently entered employee names that match Munis, or enter employee ID.</li> <li>• Establish a method to consistently categorize an injury as cumulative trauma vs. specific injury, and ensure that the final determination of the injury being cumulative trauma or specific injury is updated in the data.</li> </ul>	<p><b><u>Management Response:</u></b></p> <p>GPD Management will review the analysis and take necessary steps toward improving the claims data quality.</p> <p>HR will coordinate with TPA to ensure that data quality improvements are made to the existing claims data as well as for the claims data entry going forward.</p>
<p><b>Ref. to Analysis: General Recommendation</b></p>	

Item #2	Injury Risk Profiling - Data Collection
<p><b><u>Observation(s):</u></b></p> <p>Currently, GPD does not perform injury risk profiling to identify risk factors that are correlated to Officer injuries. From the 26 injury risk factors noted in Appendix C, Internal Audit found that only three risk factors, “Multiple Vehicle Collision”, “Lifting Heavy Objects”, “Exposure to High Levels of Noise” were being consistently tracked in the database. The rest of the 23 injury risk factors are either not reliable, not collected categorically, or not collected at all, as follows:</p> <ul style="list-style-type: none"> <li>➊ Reliable - Collected Categorically - Used Existing Data Fields to Analyze Risk</li> <li>➋ Unreliable - Collected Categorically - Used Existing Data Fields and Manual Review to Analyze Risk</li> <li>➌ Unreliable - Not Collected Categorically - Analytics and Manual Review Required to Analyze Risk</li> <li>➍ Data Not Available</li> </ul> <p><b><u>Recommendation(s):</u></b></p> <p>GPD Management, in coordination with the TPA, ensure that the category ➋ risk factors are consistently entered in the database as part of injury intake. Additionally, consider adding risk factor categories ➌ and ➍ to the injury intake process, by either:</p> <ul style="list-style-type: none"> <li>Working in coordination with TPA to add risk factors to the injury intake process, or</li> <li>Performing injury intake internally by gathering injury details that can eventually be used as a reliable database for future analysis. To accomplish this, consider referring to the Citation #5 listed in Appendix B study for a larger universe of possible injury risk factors that can be collected.<sup>15</sup></li> </ul>	<p><b><u>Management Response:</u></b></p> <p>GPD Management will review the analysis and take necessary steps toward improving the claims data quality, and consider the alternatives presented in regards to future risk profiling analysis.</p>
<p><b>Ref. to Analysis: Analysis 13, Appendix C</b></p>	

<sup>15</sup> International Association of Chiefs of Police, and Bureau of Justice Assistance. "Reducing Officer Injuries Final Report: A Summary of Data Findings and Recommendations from a Multi-Agency Injury Tracking Study." Bureau of Justice Assistance, Bureau of Justice Assistance, 2013, <https://bja.ojp.gov/library/publications/reducing-officer-injuries-final-report-summary-data-findings-and>. A copy of this report has been provided to GPD.