



# Georgia Trauma Registry 2019 Annual Report

# Office of EMS and Trauma

## **Vision**

A Healthy and Safe Georgia – exceptional patient outcomes through comprehensive, statewide, integrated, data-driven, equitable, and people-centered Emergency Medical Services and time-sensitive systems of care.

## **Mission**

The mission of the Georgia Office of EMS and Trauma is to reduce death and disability by providing regulation, guidance, and leadership to enable the assessment, planning, development, and promotion of statewide Emergency Medical Services and time-sensitive systems of care.

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## Introduction

The Georgia Trauma Annual Report 2019 is a demographic epidemiological analysis of the Georgia Trauma Registry data for the year 2019 based on data downloaded on August 1, 2021. The Designated Trauma Centers (DTC) in Georgia participate in the National Trauma Data Bank (NTDB). In 2019, Georgia had 31 DTC; 6 facilities were designated at Level I, 11 were Level II, 7 were Level III, and 7 were designated at Level IV. Included in facility totals are one Level I pediatric facility and two Level II pediatric facilities. A total of 34,419 trauma cases were reported in 2019 from 31 DTC in Georgia. Facility information such as trauma levels is provided to allow readers to have an overall picture of the Georgia Designated Trauma Centers (Appendix 1). Trauma registry criteria are provided in the Appendix 2. This report provides analysis of time to definitive care, patient's demographic information, injury characteristics, payment sources, intents, mortality, and outcomes.

The mission of the Georgia trauma system is to save lives and provide the best possible outcomes through improved trauma care and injury prevention. The Georgia Trauma Registry is dedicated to collect trauma data and provide useful information to benefit the public health of Georgia's citizens.

The purpose of this report is to inform the medical community, the public, and the decision makers about issues that characterize the most recent state of care for trauma patients. Implications of this report are wide in areas including epidemiology, injury prevention, research, education, acute care, resource allocation, and policy decision. The Georgia Department of Public Health, Office of EMS and Trauma would like to thank all the trauma centers that contributed data. Many thanks go to the Georgia trauma coordinators, trauma registrars and staff for their great efforts in collecting data and improving data quality.

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## Summary

### Hospitals

- 31 designated trauma hospitals submitted data in 2019.
  - 5 Level I adult centers and 1 Level 1 pediatric center.
  - 9 Level II adult centers and 2 Level 2 pediatric centers.
  - 7 Level III adult centers.
  - 7 Level IV adult centers.

### Age

- The frequency of injuries initially peak in ages 18 to 30, primarily from MVT-related incidents, and peak again between the ages of 56 and 61, when falls begin to increase.
- Fall-related injuries spike in children aged 0-9 and adults over the age of 60.
- Males account for 66.6% of all incidents up to age 70; after age 70, most patients are female.

### Mechanism of Injury

The mechanism of injury was based on NTDB published reference 'External Cause of Injury Matrix and Trauma Type Map (<https://www.facs.org/quality-programs/trauma/tqp/center-programs/ntdb>).

- Falls account for 44.3% of cases in the registry data. The frequency of Fall related injuries increases in children under age 9 and adults over the age of 60.
- Motor vehicle traffic related (MVT) injuries account for 30.2% of cases in the registry data. The frequency of MVT injuries peak between age 18 to 29.
- Firearm injuries account for 6.7% of cases in the registry data and peak between age 18 to 30.
- Suffocation, firearm, and drowning/submersion injuries have the highest case fatality rates, with suffocation at 57.1%, firearm at 16.5%, and drowning/submersion at 11.1%.

### Injury Severity Score

The Injury Severity Score (ISS) is a system for numerically stratifying injury severity. The ISS system has a range of 1-75, and injury severity increases with a higher score. This

report groups ISS 1-8 as minor; 9-15 as moderate; 16-24 as severe; and greater than 24 as very severe.

- Almost half (45.1%) of the trauma registry patients suffered minor injuries and about one-third (37.3%) have moderate injuries.
- Case fatality rates increase with injury severity, with the most severe group experiencing a case fatality rate of almost 29.8%.
- Median Length of Stay (LOS) increases for each consecutive severity grouping.
- Median Ventilator Days increase for each consecutive severity grouping.
- Median Intensive Care Unit (ICU) Days increase for each consecutive severity grouping.

### **Mortality**

- The overall mortality rate is 4.0%.
- Case fatality rates are highest in the patient age group 20-24.
- The male case fatality rate (4.9%) is much higher than female case fatality rate (2.6%).
- The largest number of deaths is caused by motor vehicle traffic injuries, followed by firearm injuries and fall-related injuries.
- Firearm, suffocation, and drowning/submersion have the highest case fatality rates.
- Firearm injuries have the highest case fatality rate at 16.5% among the selected mechanisms (top six) shown in the report.

### **Payment**

- Medicare is the largest payment source at 27.0%.
- Private/Commercial insurance is the second largest category at 21.8%.
- Self-Pay is the third largest category at 18.7%.
- Medicaid is the fourth largest category at 11.6%.

## Facility Information

All facilities seeking designation status are expected to meet specific criteria as set forth by the Department of Public Health, Office of EMS and Trauma (OEMST). The department utilizes the document, "Resources for Optimal Care of the Injured Patient", published by the American College of Surgeons. All designated hospital must submit trauma registry data to the OEMST and maintain a performance improvement process with thorough documentation.

**Level I Trauma Facility** – is the highest level of trauma center designation and offers the greatest level of comprehensive trauma care, from prevention through rehabilitation.

Level I facilities have the major responsibility for leading in trauma education, research, and planning. Facilities that meet Level I criteria will be academic facilities.

**Level II Trauma Facility** – can provide the same level of clinical care as a Level I, but usually does not have the focus on research, education, and systems planning. Some patients with very complex injuries, such as replantation, may require transfer to a Level I center.

**Level III Trauma Facility** – provides trauma assessment, resuscitation, emergency surgery, stabilization and if needed, transfer of patients requiring more definitive care to Level I or II centers. Well trained emergency department physicians and general surgeons are required.

**Level IV Trauma Facility** – provides advanced trauma life support and stabilization of patients received in their facility. Well trained mid-level providers may assist to expedite the transfer of patients requiring more definitive care to Level I or II centers. Level IV centers may be a clinic or hospital in a remote or rural area and may or may not have a physician available 24 hours a day.

Table 1

| Facilities by Level                                                                                |        |         |
|----------------------------------------------------------------------------------------------------|--------|---------|
| Level                                                                                              | Number | Percent |
| I                                                                                                  | 6      | 19.4    |
| II                                                                                                 | 11     | 35.5    |
| III                                                                                                | 7      | 22.6    |
| IV                                                                                                 | 7      | 22.6    |
| Total                                                                                              | 31     | 100.0   |
| More than half of the designated trauma facilities are either a Level I or Level II trauma center. |        |         |

Figure 1

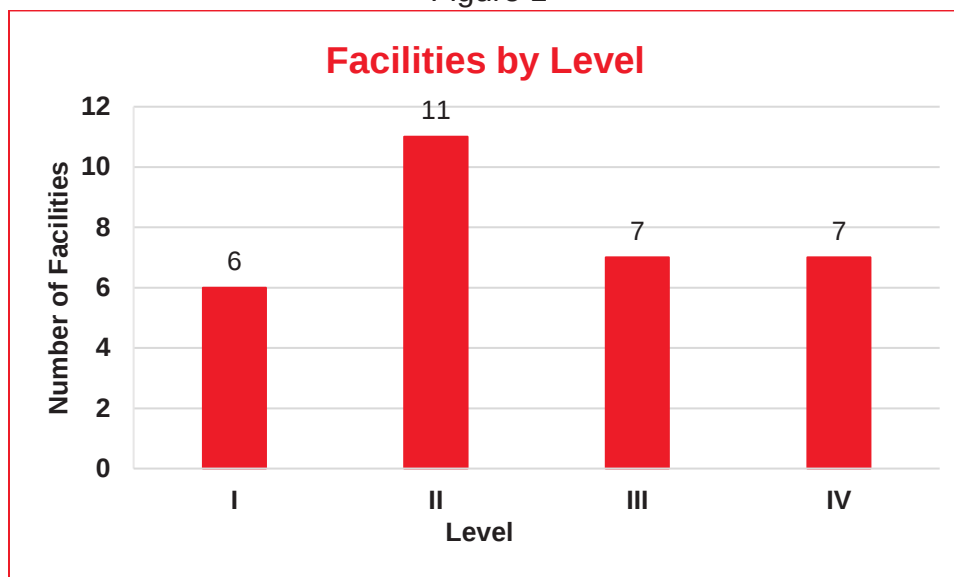


Table 2

| Incidents by Facility Level                                                      |        |         |
|----------------------------------------------------------------------------------|--------|---------|
| Level                                                                            | Number | Percent |
| I                                                                                | 17,608 | 51.2    |
| II                                                                               | 13,649 | 39.7    |
| III                                                                              | 2,697  | 7.8     |
| IV                                                                               | 465    | 1.4     |
| Total                                                                            | 34,419 | 100.0   |
| About 90% trauma patients were treated in Level I or Level II trauma facilities. |        |         |

Figure 2A

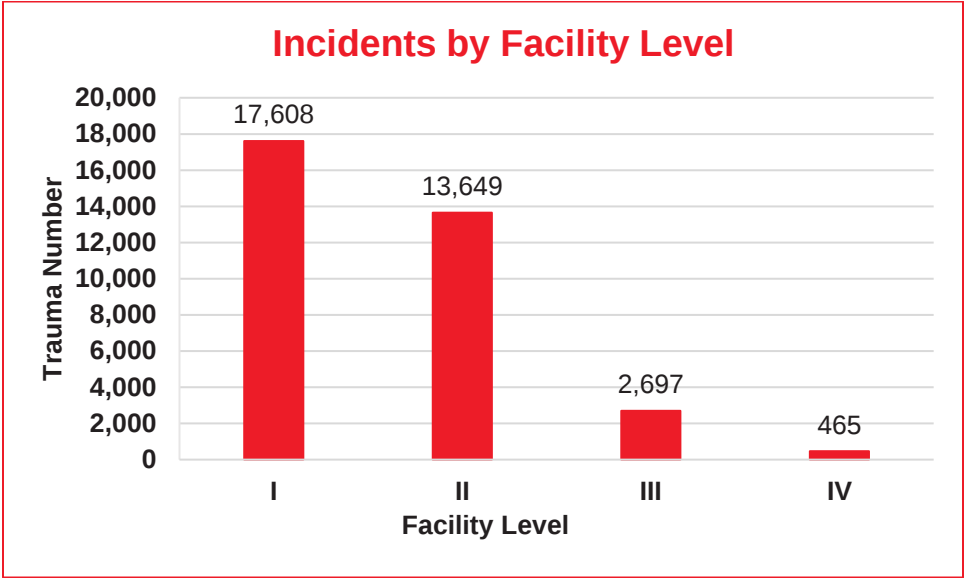
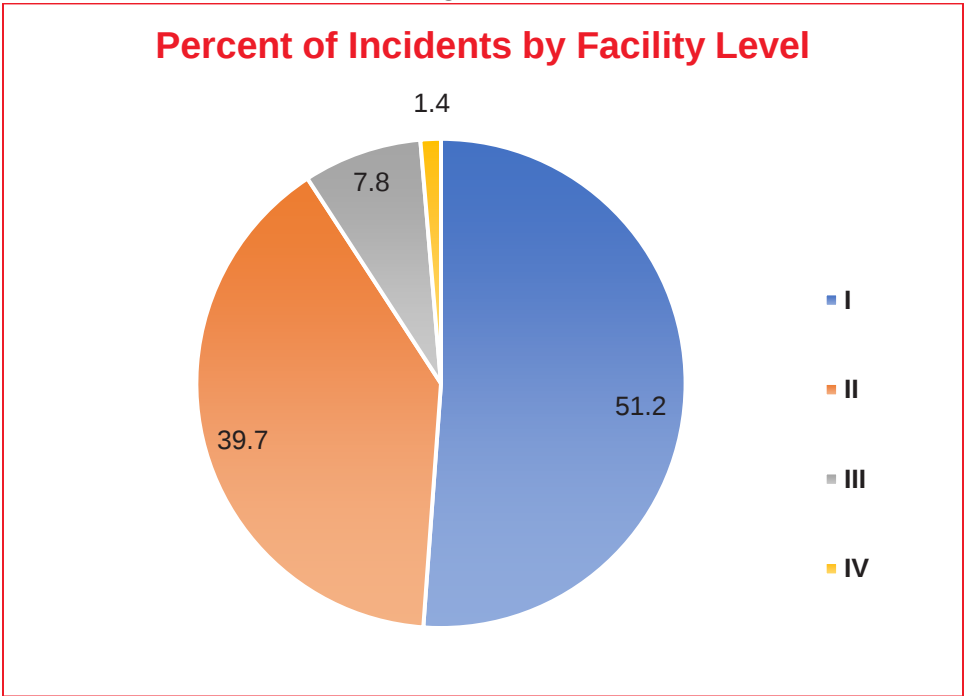


Figure 2B



## Prehospital Information

The goal of the Emergency Medical Services (EMS) system is to prevent further injury, initiate resuscitation, and provide safe and timely transport of the injured patient. Patients should be transported directly to the center most appropriately equipped and staffed to handle the patient's injuries. The tables and graphs in this section display data indicating where patients came from before arriving at a designated trauma center.

Table 3

| Incidents by EMS Region                                                                                                                                                                                                                                                                     |           |         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------|
| EMS Region                                                                                                                                                                                                                                                                                  | Frequency | Percent |
| R1                                                                                                                                                                                                                                                                                          | 2,546     | 7.4     |
| R2                                                                                                                                                                                                                                                                                          | 1,838     | 5.3     |
| R3                                                                                                                                                                                                                                                                                          | 15,901    | 46.2    |
| R5                                                                                                                                                                                                                                                                                          | 3,697     | 10.7    |
| R6                                                                                                                                                                                                                                                                                          | 3,209     | 9.3     |
| R7                                                                                                                                                                                                                                                                                          | 971       | 2.8     |
| R8                                                                                                                                                                                                                                                                                          | 757       | 2.2     |
| R9                                                                                                                                                                                                                                                                                          | 3,535     | 10.3    |
| R10                                                                                                                                                                                                                                                                                         | 1,965     | 5.7     |
| Total                                                                                                                                                                                                                                                                                       | 34,419    | 100.0   |
| The frequency of trauma patients in Table 3 represents the number of patients treated in designated trauma centers located in different EMS regions. In 2019, there were no designated trauma centers in EMS Region 4. Facilities in EMS Region 3 treated the most trauma patients (46.2%). |           |         |

Figure 3A

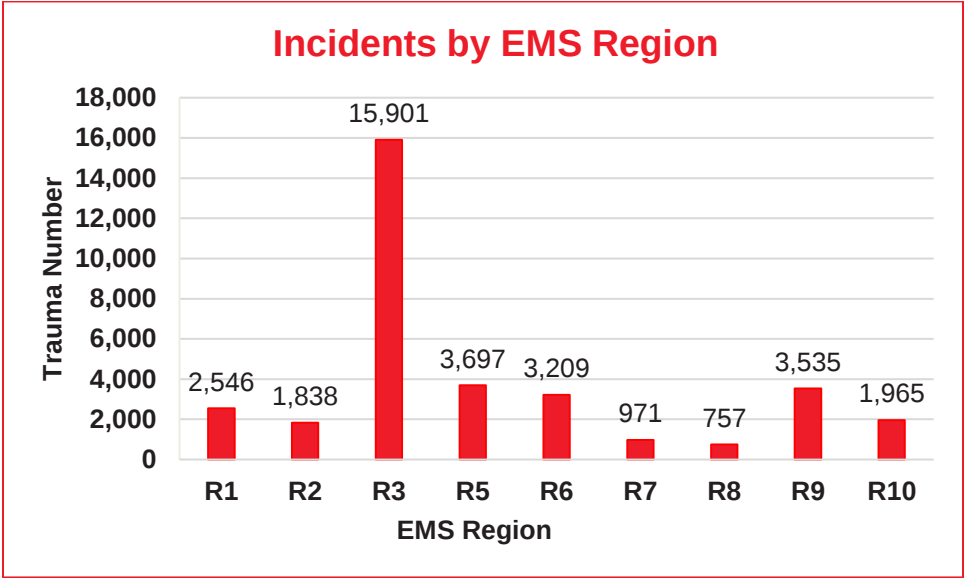


Figure 3B

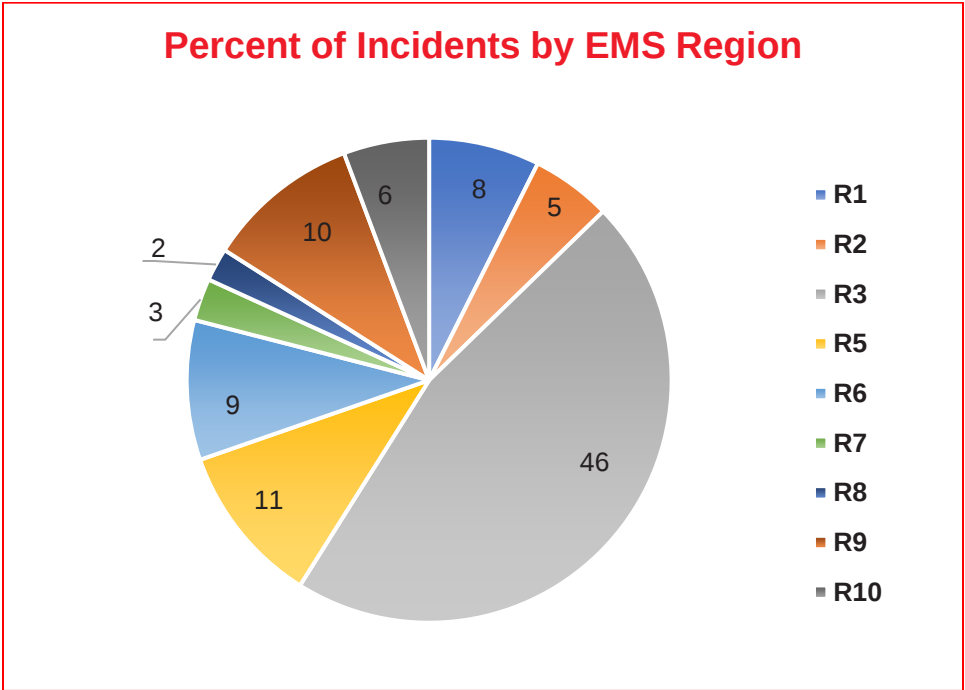
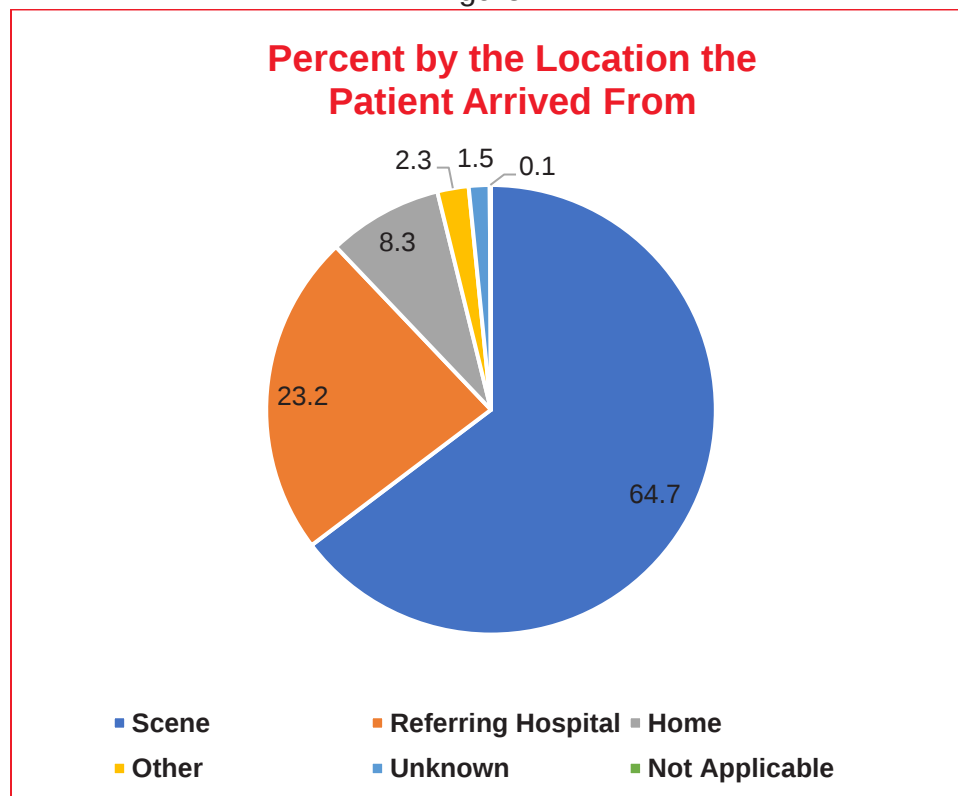


Table 4

| Frequency of Patients by<br>the Location the Patient Arrived From |        |        |        |         |
|-------------------------------------------------------------------|--------|--------|--------|---------|
| Frequency                                                         | ISS≤15 | ISS>15 | Total  | Percent |
| Scene                                                             | 17,865 | 4,363  | 22,228 | 64.7    |
| Referring<br>Hospital                                             | 6,670  | 1,296  | 7,966  | 23.2    |
| Home                                                              | 2,625  | 214    | 2,839  | 8.3     |
| Other                                                             | 719    | 55     | 774    | 2.3     |
| Not<br>Applicable                                                 | 29     | 3      | 32     | 0.1     |
| Unknown                                                           | 434    | 80     | 514    | 1.5     |
| Total                                                             | 28,342 | 6,011  | 34,353 | 100.0   |
| Frequency missing = 66.                                           |        |        |        |         |

Figure 4



## Time to Definitive Care Analysis

In the trauma registry data, 22,228 cases (64.7%) reported the patient arrived from the 'Scene' of the injury, which are the original data sources for **Scene Group** (S Group). Additionally, 7,966 cases (23.2%) reported the patient arrived from a 'Referring Hospital', which are the original data sources for **Referring Group** (R Group).

### For Patients from the 'Scene' of the Injury: S Group

There are 22,228 cases reported to have arrived from the '**Scene**' of the injury. Among these 22,228 cases, 19,763 cases were linked with a Prehospital Provider data. Among these 19,763 cases, 18,481 cases have the Emergency Medical Service (EMS) provider's role as '**Transport from Scene to Facility**'. These 18,481 cases are the data sources of the **S Group**.

#### Time from EMS Dispatch Time to EMS Scene Arrival Time (Tables 5A1, 5A2, 5A3)

Among these 18,481 cases, 15,969 cases (86.4%) have valid values in the four fields: EMS Dispatch Date, EMS Dispatch Time, EMS Scene Arrival Date, and EMS Scene Arrival Time. Among these 18,481 cases, **13.6% of the cases have missing data in at least one of the four fields**. The data in the 15,969 cases is used to calculate the median time from EMS Dispatch to EMS Scene Arrival.

Table 5A1

#### S Group, All ISS, Median Time from EMS Dispatch Time to EMS Scene Arrival Time

| Hospital Level                                                                                                                                                                                              | Frequency | Median Total Time |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------|
| 1                                                                                                                                                                                                           | 7,814     | 0:09:00           |
| 2                                                                                                                                                                                                           | 6,846     | 0:08:00           |
| 3                                                                                                                                                                                                           | 1,177     | 0:08:00           |
| 4                                                                                                                                                                                                           | 132       | 0:09:00           |
| <b>Total</b>                                                                                                                                                                                                | 15,969    | 0:09:00           |
| Time Format is HH:MM:SS (the following tables have the same Time Format). The hospitals are the destination Hospitals. The median total time from EMS Dispatch Time to EMS Scene Arrival Time is 9 minutes. |           |                   |

Table 5A2

| S Group, ISS <=15, Median Time from EMS Dispatch Time to EMS Scene Arrival Time |           |                   |
|---------------------------------------------------------------------------------|-----------|-------------------|
| Hospital Level                                                                  | Frequency | Median Total Time |
| 1                                                                               | 5,893     | 0:09:00           |
| 2                                                                               | 5,568     | 0:08:00           |
| 3                                                                               | 1,075     | 0:08:00           |
| 4                                                                               | 106       | 0:09:30           |
| Total                                                                           | 12,642    | 0:09:00           |

Table 5A3

| S Group, ISS >15, Median Time from EMS Dispatch Time to EMS Scene Arrival Time                                                                                                                            |           |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------|
| Hospital Level                                                                                                                                                                                            | Frequency | Median Total Time |
| 1                                                                                                                                                                                                         | 1,921     | 0:09:00           |
| 2                                                                                                                                                                                                         | 1,278     | 0:08:00           |
| 3                                                                                                                                                                                                         | 102       | 0:08:00           |
| 4                                                                                                                                                                                                         | 26        | 0:08:00           |
| Total                                                                                                                                                                                                     | 3,327     | 0:08:00           |
| For more severely injured patients (ISS >15), the median total time from EMS Dispatch Time to the EMS Scene Arrival Time is 1 minute shorter than that of minor and moderate injured patients (ISS <=15). |           |                   |

### **Time from EMS Scene Arrival Time to EMS Scene Departure Time (Tables 5B1, 5B2, 5B3)**

Among these 18,481 cases, 15,914 cases (86.1%) have valid values in the four fields: EMS Scene Arrival Date, EMS Scene Arrival Time, EMS Scene Departure Date, and EMS Scene Departure Time. Among these 18,481 cases, **13.9% of the cases have missing data in at least one of the four fields.** The data from these 15,914 cases is used to calculate the median time from EMS Scene Arrival Time to EMS Scene Departure Time.

Table 5B1

| <b>S Group, ISS All, Median Time from EMS Scene Arrival Time to EMS Scene Departure Time</b> |                  |                          |
|----------------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                        | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                     | 7,783            | 0:18:00                  |
| <b>2</b>                                                                                     | 6,825            | 0:16:00                  |
| <b>3</b>                                                                                     | 1,174            | 0:18:00                  |
| <b>4</b>                                                                                     | 132              | 0:17:00                  |
| <b>Total</b>                                                                                 | 15,914           | 0:17:00                  |
| The median total time from EMS Scene Arrival Time to EMS Scene Departure Time is 17 minutes. |                  |                          |

Table 5B2

| <b>S Group, ISS &lt;=15, Median Time from EMS Scene Arrival Time to EMS Scene Departure Time</b> |                  |                          |
|--------------------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                            | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                         | 5,871            | 0:19:00                  |
| <b>2</b>                                                                                         | 5,551            | 0:17:00                  |
| <b>3</b>                                                                                         | 1,072            | 0:18:00                  |
| <b>4</b>                                                                                         | 106              | 0:18:00                  |
| <b>Total</b>                                                                                     | 12,600           | 0:18:00                  |

Table 5B3

| <b>S Group, ISS &gt;15, Median Time from EMS Scene Arrival Time to EMS Scene Departure Time</b>                                                                                                           |                  |                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                                                                                                                                     | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                                                                                                                                  | 1,912            | 0:16:00                  |
| <b>2</b>                                                                                                                                                                                                  | 1,274            | 0:15:00                  |
| <b>3</b>                                                                                                                                                                                                  | 102              | 0:18:00                  |
| <b>4</b>                                                                                                                                                                                                  | 26               | 0:15:00                  |
| <b>Total</b>                                                                                                                                                                                              | 3,314            | 0:16:00                  |
| For more severely injured patients (ISS >15), median total time from EMS Scene Arrival Time to EMS Scene Departure Time is 2 minutes shorter than that of minor and moderate injured patients (ISS <=15). |                  |                          |

**Time from EMS Scene Departure Time to Hospital Emergency Department (ED) Arrival Time (Tables 5C1, 5C2, 5C3)**

Among these 18,481 cases, 15,927 cases (86.2%) have valid values in the four fields: EMS Scene Departure Date, EMS Scene Departure Time, ED Arrival Date, and ED Arrival Time. Among these 18,481 cases, **13.8% of the cases have missing data in at least one of the four fields.** The data from these 15,927 cases is used to calculate the median time from EMS Scene Departure Time to the Hospital ED Arrival Time.

Table 5C1

| <b>S Group, ISS All, Median Time from EMS Scene Departure Time to Hospital ED Arrival Time</b> |                  |                          |
|------------------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                          | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                       | 7,792            | 0:24:00                  |
| <b>2</b>                                                                                       | 6,830            | 0:24:00                  |
| <b>3</b>                                                                                       | 1,173            | 0:21:00                  |
| <b>4</b>                                                                                       | 132              | 0:16:00                  |
| <b>Total</b>                                                                                   | 15,927           | 0:24:00                  |
| The median total time from EMS Scene Departure Time to Hospital ED Arrival Time is 24 minutes. |                  |                          |

Table 5C2

| <b>S Group, ISS ≤15, Median Time from EMS Scene Departure Time to Hospital ED Arrival Time</b> |                  |                          |
|------------------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                          | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                       | 5,878            | 0:24:00                  |
| <b>2</b>                                                                                       | 5,555            | 0:25:00                  |
| <b>3</b>                                                                                       | 1,071            | 0:22:00                  |
| <b>4</b>                                                                                       | 106              | 0:16:00                  |
| <b>Total</b>                                                                                   | 12,610           | 0:24:00                  |

Table 5C3

| <b>S Group, ISS &gt;15, Median Time from EMS Scene Departure Time to Hospital ED Arrival Time</b>                                                                                                          |                  |                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                                                                                                                                      | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                                                                                                                                   | 1,914            | 0:22:00                  |
| <b>2</b>                                                                                                                                                                                                   | 1,275            | 0:20:00                  |
| <b>3</b>                                                                                                                                                                                                   | 102              | 0:14:00                  |
| <b>4</b>                                                                                                                                                                                                   | 26               | 0:10:00                  |
| <b>Total</b>                                                                                                                                                                                               | 3,317            | 0:21:00                  |
| For more severely injured patients (ISS >15), median total time from EMS Scene Departure Time to Hospital ED Arrival Time is 3 minutes shorter than that of minor and moderate injured patients (ISS ≤15). |                  |                          |

**Time from EMS Dispatch Time to Hospital ED Arrival Time (Tables 5D1, 5D2, 5D3)**

Among these 18,481 cases, 15,997 cases (86.6%) have valid values in the four fields: EMS Dispatch Date, EMS Dispatch Time, ED Arrival Date, and ED Arrival Time. Among these 18,481 cases, **13.4% of the cases have missing data in at least one of the four fields.** The data from these 15,997 cases is used to calculate the median time from EMS Dispatch Time to Hospital ED Arrival Time.

Table 5D1

| <b>S Group, ISS All, Median Time from EMS Dispatch Time to Hospital ED Arrival Time</b> |                  |                          |
|-----------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                   | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                | 7,832            | 0:54:00                  |
| <b>2</b>                                                                                | 6,856            | 0:51:00                  |
| <b>3</b>                                                                                | 1,177            | 0:51:00                  |
| <b>4</b>                                                                                | 132              | 0:45:30                  |
| <b>Total</b>                                                                            | 15,997           | 0:52:00                  |
| The median total time from EMS Dispatch Time to Hospital ED Arrival Time is 52 minutes. |                  |                          |

Table 5D2

| <b>S Group, ISS ≤15, Median Time from EMS Dispatch Time to Hospital ED Arrival Time</b> |                  |                          |
|-----------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                   | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                | 5,906            | 0:55:00                  |
| <b>2</b>                                                                                | 5,576            | 0:52:00                  |
| <b>3</b>                                                                                | 1,075            | 0:52:00                  |
| <b>4</b>                                                                                | 106              | 0:48:00                  |
| <b>Total</b>                                                                            | 12,663           | 0:53:00                  |

Table 5D3

| <b>S Group, ISS &gt;15, Median Time from EMS Dispatch Time to Hospital ED Arrival Time</b>                                                                                                          |                  |                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                                                                                                                               | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                                                                                                                            | 1,926            | 0:50:00                  |
| <b>2</b>                                                                                                                                                                                            | 1,280            | 0:44:30                  |
| <b>3</b>                                                                                                                                                                                            | 102              | 0:44:00                  |
| <b>4</b>                                                                                                                                                                                            | 26               | 0:40:00                  |
| <b>Total</b>                                                                                                                                                                                        | 3,334            | 0:47:00                  |
| For more severely injured patients (ISS >15), median total time from EMS Dispatch Time to Hospital ED Arrival Time is 6 minutes shorter than that of minor and moderate injured patients (ISS ≤15). |                  |                          |

## For Patients from Referral Hospital: R Group

There are 7,966 cases reported to have arrived from a 'Referring Hospital'. Among these 7,966 cases, 7,920 cases were linked with Referring Hospital data. Among these 7,920 cases, 4,465 cases were linked with Prehospital Provider data. Among these 4,465 cases, 3,107 cases have the EMS provider's role as 'Transport from Scene to Facility'. These 3,107 cases are used for analysis for R Group time analysis.

### Time from EMS Dispatch to EMS Scene Arrival Time (Tables 6A1, 6A2, 6A3)

Among these 3,107 cases, 580 cases (18.7%) have valid values in the four fields: EMS Dispatch Date, EMS Dispatch Time, EMS Scene Arrival Date, and EMS Scene Arrival Time. Among these 3,107 cases, **81.3% of the cases have missing data in at least one of the four fields**. The data with these 580 cases is used to calculate the median time from EMS Dispatch Time to EMS Scene Arrival Time.

Table 6A1

| R Group, ISS All, Median Time from<br>EMS Dispatch Time to<br>EMS Scene Arrival Time                                             |           |                   |
|----------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------|
| Hospital Level                                                                                                                   | Frequency | Median Total Time |
| 1                                                                                                                                | 358       | 0:09:00           |
| 2                                                                                                                                | 217       | 0:09:00           |
| 3                                                                                                                                | 5         | 0:13:00           |
| <b>Total</b>                                                                                                                     | 580       | 0:09:00           |
| The median total time from EMS Dispatch Time to<br>Scene Arrival Time is 9 minutes, which is the same as that<br>in the S Group. |           |                   |

Table 6A2

| R Group, ISS <=15, Median Time from<br>EMS Dispatch Time to<br>EMS Scene Arrival Time |           |                   |
|---------------------------------------------------------------------------------------|-----------|-------------------|
| Hospital Level                                                                        | Frequency | Median Total Time |
| 1                                                                                     | 264       | 0:09:00           |
| 2                                                                                     | 174       | 0:09:00           |
| 3                                                                                     | 4         | 0:11:00           |
| <b>Total</b>                                                                          | 442       | 0:09:00           |

Table 6A3

| R Group, ISS >15, Median Time from<br>EMS Dispatch Time to<br>EMS Scene Arrival Time                                                                                                  |           |                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------|
| Hospital Level                                                                                                                                                                        | Frequency | Median Total Time |
| 1                                                                                                                                                                                     | 94        | 0:09:00           |
| 2                                                                                                                                                                                     | 43        | 0:08:00           |
| 3                                                                                                                                                                                     | 1         | 0:16:00           |
| Total                                                                                                                                                                                 | 138       | 0:09:00           |
| Both the more severely injured patients (ISS >15) and minor and moderate injured patients (ISS ≤15) have the same median total time from EMS Dispatch Time to EMS Scene Arrival Time. |           |                   |

**Time from EMS Scene Arrival Time to EMS Scene Departure Time (Tables 6B1, 6B2, 6B3)**

Among these 3,107 cases, 573 cases (18.4%) have valid values in the four fields: EMS Scene Arrival Date, EMS Scene Arrival Time, EMS Scene Departure Date, and EMS Scene Departure Time. Among these 3,107 cases, **81.6% of the cases have missing data in at least one of the four fields.** The data with these 573 cases is used to calculate the median time from EMS Scene Arrival Time to EMS Scene Departure Time.

Table 6B1

| R Group, ISS All, Median Time from<br>EMS Scene Arrival Time to<br>EMS Scene Departure Time                                        |           |                   |
|------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------|
| Hospital Level                                                                                                                     | Frequency | Median Total Time |
| 1                                                                                                                                  | 352       | 0:18:00           |
| 2                                                                                                                                  | 216       | 0:16:00           |
| 3                                                                                                                                  | 5         | 0:20:00           |
| Total                                                                                                                              | 573       | 0:17:00           |
| The median total time from EMS Scene Arrival Time to EMS Scene Departure Time is 17 minutes, which is the same as that of S Group. |           |                   |

Table 6B2

| R Group, ISS <=15, Median Time from<br>EMS Scene Arrival Time to<br>EMS Scene Departure Time |           |                   |
|----------------------------------------------------------------------------------------------|-----------|-------------------|
| Hospital Level                                                                               | Frequency | Median Total Time |
| 1                                                                                            | 261       | 0:19:00           |
| 2                                                                                            | 173       | 0:16:00           |
| 3                                                                                            | 4         | 0:20:30           |
| Total                                                                                        | 438       | 0:18:00           |

Table 6B3

| R Group, ISS >15, Median Time from<br>EMS Scene Arrival Time to<br>EMS Scene Departure Time                                                                                                               |           |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------|
| Hospital Level                                                                                                                                                                                            | Frequency | Median Total Time |
| 1                                                                                                                                                                                                         | 91        | 0:16:00           |
| 2                                                                                                                                                                                                         | 43        | 0:16:00           |
| 3                                                                                                                                                                                                         | 1         | 0:14:00           |
| Total                                                                                                                                                                                                     | 135       | 0:16:00           |
| For more severely injured patients (ISS >15), median total time from EMS Scene Arrival Time to EMS Scene Departure Time is 2 minutes shorter than that of minor and moderate injured patients (ISS <=15). |           |                   |

### **Time from EMS Scene Departure Time to Referral Hospital Arrival Time (Tables 6C1, 6C2, 6C3)**

Among these 3,107 cases, 526 cases (16.9%) have valid values in the four fields: EMS Scene Departure Date, and EMS Scene Departure Time, Referral Hospital Arrival Date, and Referral Hospital Arrival Time.

Among these 3,107 cases, **83.1% of the cases have missing data in at least one of the four fields.** The data from the 526 cases is used to calculate the median time from EMS Scene Departure Time to Referral Hospital Arrival Time.

Table 6C1

| <b>R Group, ISS All, Median Time from EMS Scene Departure Time to Referral Hospital Arrival Time</b> |                  |                          |
|------------------------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                                | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                             | 316              | 0:18:00                  |
| <b>2</b>                                                                                             | 205              | 0:19:00                  |
| <b>3</b>                                                                                             | 5                | 0:16:00                  |
| <b>Total</b>                                                                                         | 526              | 0:18:00                  |
| The median total time from EMS Scene Departure Time to Referral Hospital Arrival Time is 18 minutes. |                  |                          |

Table 6C2

| <b>R Group, ISS &lt;=15, Median Time from EMS Scene Departure Time to Referral Hospital Arrival Time</b> |                  |                          |
|----------------------------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                                    | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                                 | 234              | 0:18:00                  |
| <b>2</b>                                                                                                 | 163              | 0:19:00                  |
| <b>3</b>                                                                                                 | 4                | 0:14:00                  |
| <b>Total</b>                                                                                             | 401              | 0:18:00                  |

Table 6C3

| <b>R Group, ISS &gt;15, Median Time from EMS Scene Departure Time to Referral Hospital Arrival Time</b> |                  |                          |
|---------------------------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                                   | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                                | 82               | 0:17:00                  |
| <b>2</b>                                                                                                | 42               | 0:18:30                  |
| <b>3</b>                                                                                                | 1                | 0:23:00                  |
| <b>Total</b>                                                                                            | 125              | 0:18:00                  |

### **Time from Referral Hospital Arrival Time to the Final Destination Hospital ED Arrival Time (Tables 6D1, 6D2, 6D3)**

Among these 3,107 cases, 2,396 cases (77.1%) have valid values in the four fields: Referral Hospital Arrival Date, Referral Hospital Arrival Time, final destination Hospital ED arrival Date, and final destination Hospital ED arrival Time. Among these 3,107 cases, **22.9% of the cases have missing data in at least one of the four fields.** The data from the 2,396 cases is used to calculate the median time from Referral Hospital Arrival Time to the final destination Hospital ED Arrival Time.

Table 6D1

| <b>R Group, ISS All, Median Time from Referral Hospital Arrival Time to the Final Destination Hospital ED Arrival Time</b> |                  |                          |
|----------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                                                      | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                                                   | 1,755            | 4:38:00                  |
| <b>2</b>                                                                                                                   | 634              | 4:49:00                  |
| <b>3</b>                                                                                                                   | 7                | 11:30:00                 |
| <b>Total</b>                                                                                                               | 2,396            | 4:41:00                  |
| The median total time from Referral Hospital Arrival to Destination Hospital ED Arrival is 4 hours and 41 minutes.         |                  |                          |

Table 6D2

| <b>R Group, ISS ≤15, Median Time from Referral Hospital Arrival Time to the Final Destination Hospital ED Arrival Time</b> |                  |                          |
|----------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                                                      | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                                                   | 1,331            | 4:49:00                  |
| <b>2</b>                                                                                                                   | 524              | 4:59:00                  |
| <b>3</b>                                                                                                                   | 5                | 11:30:00                 |
| <b>Total</b>                                                                                                               | 1,860            | 4:53:00                  |

Table 6D3

| R Group, ISS >15, Median Time from Referral Hospital Arrival Time to the Final Destination Hospital ED Arrival Time                                                                                                                                |           |                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------|
| Hospital Level                                                                                                                                                                                                                                     | Frequency | Median Total Time |
| 1                                                                                                                                                                                                                                                  | 424       | 3:59:30           |
| 2                                                                                                                                                                                                                                                  | 110       | 3:57:00           |
| 3                                                                                                                                                                                                                                                  | 2         | 21:53:00          |
| Total                                                                                                                                                                                                                                              | 536       | 3:59:30           |
| For more severely injured patients (ISS >15), median total time from the Referral Hospital Arrival Time to the final destination Hospital ED Arrival Time is about 53 minutes shorter than that of minor and moderate injured patients (ISS <=15). |           |                   |

**Time from EMS Dispatch Time to the Final Destination Hospital ED Arrival Time (Tables 6E1, 6E2, 6E3)**

Among these 3,107 cases, 583 cases (18.8%) have valid values in the four fields: EMS Dispatch Date, EMS Dispatch Time, final destination Hospital ED arrival Date, and final destination Hospital ED arrival Time. Among these 3,107 cases, **81.2% of the cases have missing data in at least one of the four fields.** The data from the 583 cases is used to calculate the mean and median time from EMS Dispatch Time to the final destination Hospital ED Arrival Time.

Table 6E1

| R Group, ISS All, Median Time from EMS Dispatch Time to the Final Destination Hospital ED Arrival Time |           |                   |
|--------------------------------------------------------------------------------------------------------|-----------|-------------------|
| Hospital Level                                                                                         | Frequency | Median Total Time |
| 1                                                                                                      | 361       | 5:07:00           |
| 2                                                                                                      | 219       | 5:40:00           |
| 3                                                                                                      | 3         | 12:53:00          |
| Total                                                                                                  | 583       | 5:23:00           |

Table 6E2

| <b>R Group, ISS &lt;=15, Median Time from<br/>EMS Dispatch Time to<br/>the Final Destination Hospital ED Arrival Time</b> |                  |                          |
|---------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                                                     | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                                                  | 265              | 5:35:00                  |
| <b>2</b>                                                                                                                  | 177              | 5:45:00                  |
| <b>3</b>                                                                                                                  | 2                | 11:06:30                 |
| <b>Total</b>                                                                                                              | 444              | 5:40:30                  |

Table 6E3

| <b>R Group, ISS &gt;15, Median Time from<br/>EMS Dispatch Time to<br/>the Final Destination Hospital ED Arrival Time</b>                                                                                                          |                  |                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------|
| <b>Hospital Level</b>                                                                                                                                                                                                             | <b>Frequency</b> | <b>Median Total Time</b> |
| <b>1</b>                                                                                                                                                                                                                          | 96               | 4:17:00                  |
| <b>2</b>                                                                                                                                                                                                                          | 42               | 4:40:30                  |
| <b>3</b>                                                                                                                                                                                                                          | 1                | 36:31:00                 |
| <b>Total</b>                                                                                                                                                                                                                      | 139              | 4:24:00                  |
| For more severely injured patients (ISS >15), median total time from EMS Dispatch Time to the final destination Hospital ED Arrival Time is about 76 minutes shorter than that of minor and moderate injured patients (ISS <=15). |                  |                          |

## Demographic Information

Demographics are used to identify age groups and genders that may be at high risk for certain injuries. With this type of information, injury prevention programs can focus on the causes of injuries, a target audience, and specific regions of the state.

Table 7

| <b>Incidents by Age</b>                                      |               |                |               |                           |
|--------------------------------------------------------------|---------------|----------------|---------------|---------------------------|
| <b>Age Group</b>                                             | <b>Number</b> | <b>Percent</b> | <b>Deaths</b> | <b>Case Fatality Rate</b> |
| <b>&lt;1</b>                                                 | 470           | 1.4            | 12            | 2.6                       |
| <b>1-4</b>                                                   | 976           | 2.8            | 11            | 1.1                       |
| <b>5-9</b>                                                   | 1,416         | 4.1            | 9             | 0.6                       |
| <b>10-14</b>                                                 | 1,290         | 3.7            | 18            | 1.4                       |
| <b>15-19</b>                                                 | 1,938         | 5.6            | 75            | 3.9                       |
| <b>20-24</b>                                                 | 2,209         | 6.4            | 123           | 5.6                       |
| <b>25-34</b>                                                 | 4,373         | 12.7           | 202           | 4.6                       |
| <b>35-44</b>                                                 | 3,404         | 9.9            | 140           | 4.1                       |
| <b>45-54</b>                                                 | 3,485         | 10.1           | 154           | 4.4                       |
| <b>55-64</b>                                                 | 4,070         | 11.8           | 178           | 4.4                       |
| <b>65-74</b>                                                 | 4,041         | 11.7           | 158           | 3.9                       |
| <b>75-84</b>                                                 | 3,830         | 11.1           | 156           | 4.1                       |
| <b>&gt;=85</b>                                               | 2,916         | 8.5            | 133           | 4.6                       |
| <b>NK/NR</b>                                                 | 1             | 0.0            | 1             | 100.0                     |
| <b>Total</b>                                                 | 34,419        | 100.0          | 1,370         | 4.0                       |
| Case Fatality Rate in age group 20-24 is the highest (5.6%). |               |                |               |                           |

Figure 7A

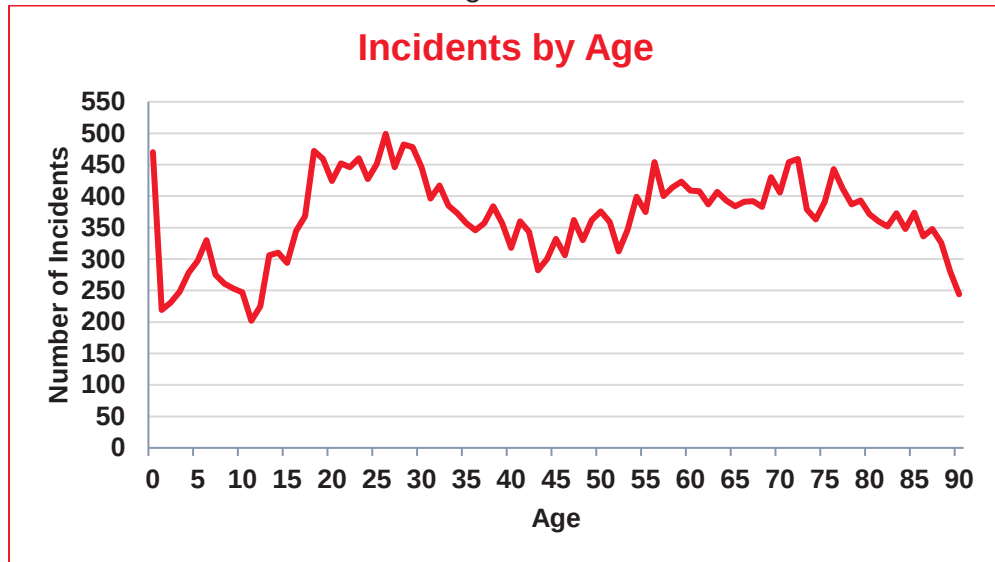


Figure 7B

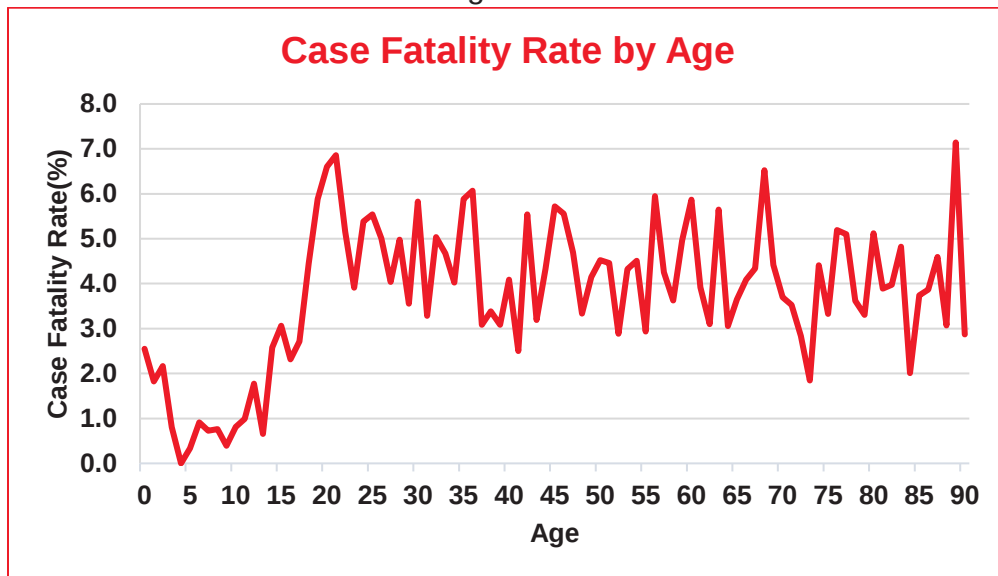


Table 8

| <b>Incidents and Case Fatality Rate by Age and Gender</b>                                                                                                                                                                                                                                                                                                                  |                            |                          |                            |                          |                                                |                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------|----------------------------|--------------------------|------------------------------------------------|------------------------------------------|
| <b>Age</b>                                                                                                                                                                                                                                                                                                                                                                 | <b>Number<br/>(Female)</b> | <b>Number<br/>(Male)</b> | <b>Deaths<br/>(Female)</b> | <b>Deaths<br/>(Male)</b> | <b>Case<br/>Fatality<br/>Rate<br/>(Female)</b> | <b>Case<br/>Fatality<br/>Rate (Male)</b> |
| <b>&lt;1</b>                                                                                                                                                                                                                                                                                                                                                               | 208                        | 262                      | 5                          | 7                        | 2.4                                            | 2.7                                      |
| <b>1-4</b>                                                                                                                                                                                                                                                                                                                                                                 | 417                        | 559                      | 4                          | 7                        | 1.0                                            | 1.3                                      |
| <b>5-9</b>                                                                                                                                                                                                                                                                                                                                                                 | 607                        | 809                      | 4                          | 5                        | 0.7                                            | 0.6                                      |
| <b>10-14</b>                                                                                                                                                                                                                                                                                                                                                               | 414                        | 876                      | 8                          | 10                       | 1.9                                            | 1.1                                      |
| <b>15-19</b>                                                                                                                                                                                                                                                                                                                                                               | 521                        | 1,417                    | 13                         | 62                       | 2.5                                            | 4.4                                      |
| <b>20-24</b>                                                                                                                                                                                                                                                                                                                                                               | 564                        | 1,645                    | 23                         | 100                      | 4.1                                            | 6.1                                      |
| <b>25-34</b>                                                                                                                                                                                                                                                                                                                                                               | 1,176                      | 3,197                    | 30                         | 172                      | 2.6                                            | 5.4                                      |
| <b>35-44</b>                                                                                                                                                                                                                                                                                                                                                               | 965                        | 2,439                    | 26                         | 114                      | 2.7                                            | 4.7                                      |
| <b>45-54</b>                                                                                                                                                                                                                                                                                                                                                               | 1,108                      | 2,377                    | 41                         | 113                      | 3.7                                            | 4.8                                      |
| <b>55-64</b>                                                                                                                                                                                                                                                                                                                                                               | 1,575                      | 2,495                    | 39                         | 139                      | 2.5                                            | 5.6                                      |
| <b>65-74</b>                                                                                                                                                                                                                                                                                                                                                               | 2,023                      | 2,018                    | 55                         | 103                      | 2.7                                            | 5.1                                      |
| <b>75-84</b>                                                                                                                                                                                                                                                                                                                                                               | 2,355                      | 1,475                    | 54                         | 102                      | 2.3                                            | 6.9                                      |
| <b>&gt;=85</b>                                                                                                                                                                                                                                                                                                                                                             | 2,103                      | 813                      | 69                         | 64                       | 3.3                                            | 7.9                                      |
| <b>NK/NR</b>                                                                                                                                                                                                                                                                                                                                                               | 0                          | 1                        | 0                          | 1                        | 0.0                                            | 100.0                                    |
| <b>Total</b>                                                                                                                                                                                                                                                                                                                                                               | 14,036                     | 20,383                   | 371                        | 999                      | 2.6                                            | 4.9                                      |
| <p>The Incidents number of males (20,383) is much higher than that of female (14,036). Male Case Fatality Rate (4.9%) is higher than female Case Fatality Rate (2.6%). In the female population, the Case Fatality Rate in age group 20-24 is the highest (4.1%). In the male population, the Case Fatality Rate in age group equal or above 85 is the highest (7.9%).</p> |                            |                          |                            |                          |                                                |                                          |

Figure 8A

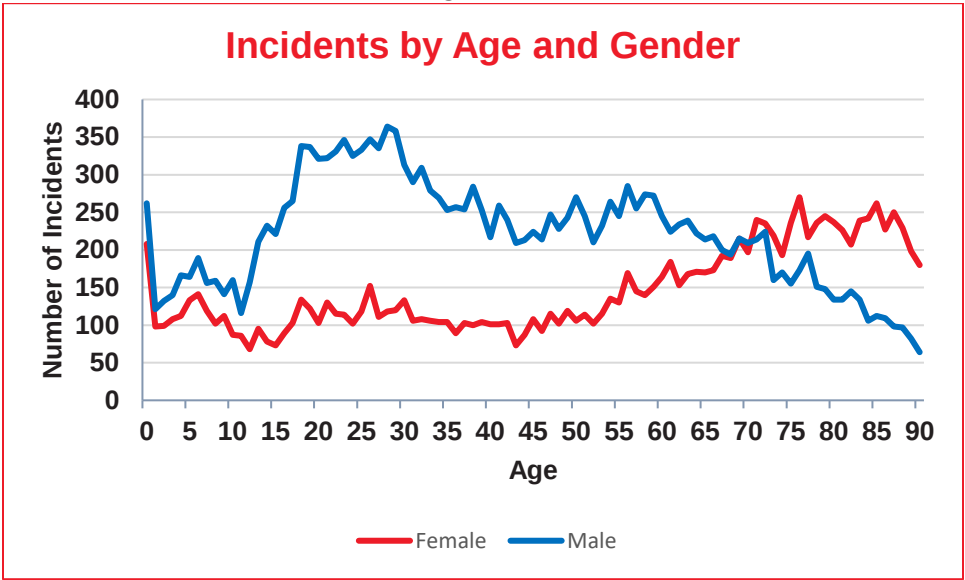


Figure 8B

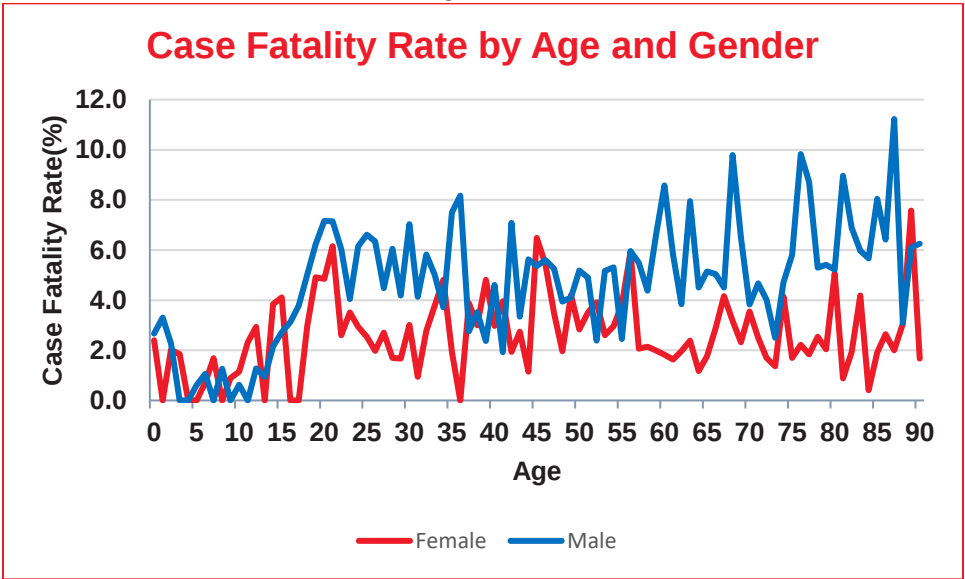


Table 9

| <b>Incidents by Alcohol Use</b>                                                                                      |               |                |
|----------------------------------------------------------------------------------------------------------------------|---------------|----------------|
| <b>Alcohol Use Indicator</b>                                                                                         | <b>Number</b> | <b>Percent</b> |
| <b>No (Not Tested)</b>                                                                                               | 21,530        | 62.6           |
| <b>No (Confirmed by Test)</b>                                                                                        | 9,421         | 27.4           |
| <b>Yes (Confirmed by Test [Beyond Legal Limit])</b>                                                                  | 2,496         | 7.3            |
| <b>Yes (Confirmed by Test [Trace Levels])</b>                                                                        | 903           | 2.6            |
| <b>Not Applicable</b>                                                                                                | 57            | 0.2            |
| <b>Unknown</b>                                                                                                       | 11            | 0.0            |
| <b>Total</b>                                                                                                         | 34,418        | 100.0          |
| Frequency missing = 1. The incidents number of Alcohol level beyond legal limit (confirmed by test) is 2,496 (7.3%). |               |                |

Figure 9

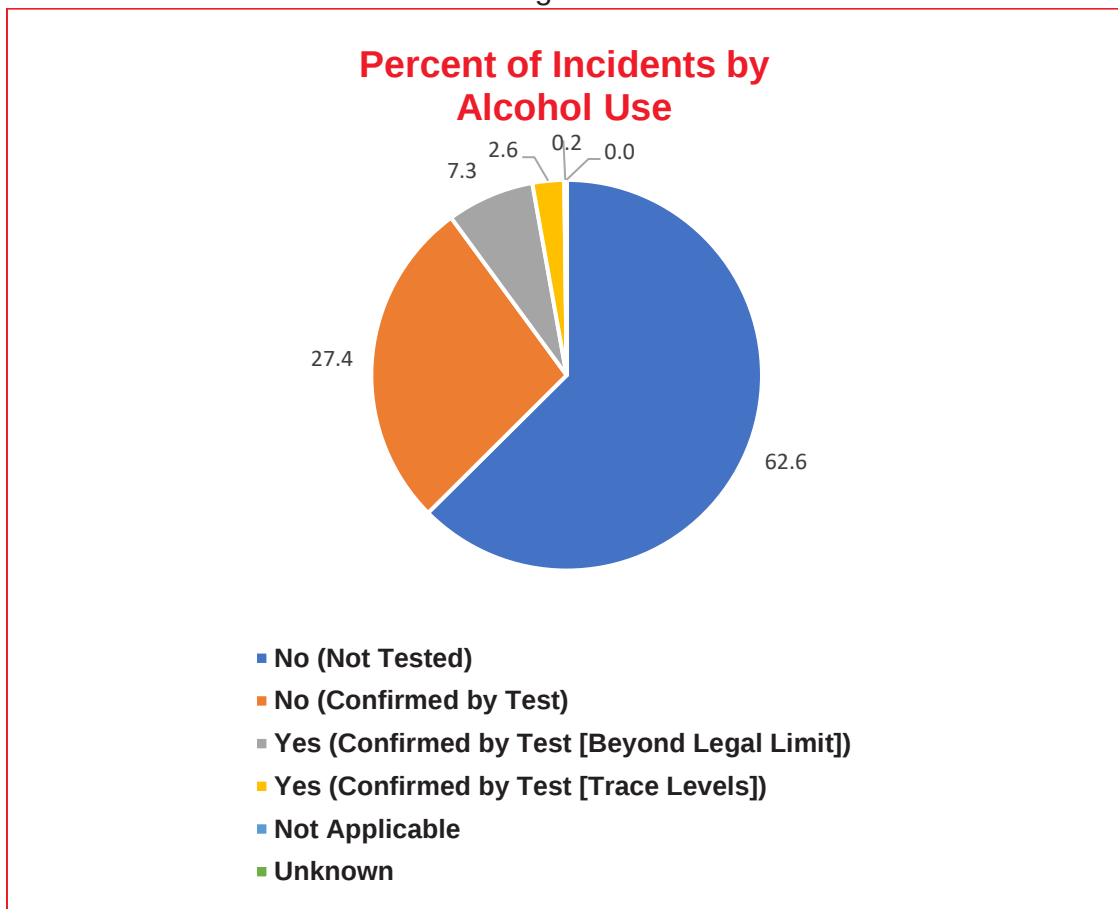


Table 10

| <b>Incidents by Drug Use</b>                                                                         |                  |                |
|------------------------------------------------------------------------------------------------------|------------------|----------------|
| <b>Drug Code</b>                                                                                     | <b>Frequency</b> | <b>Percent</b> |
| No (Not Tested)                                                                                      | 26,626           | 77.4           |
| No (Confirmed by Test)                                                                               | 3,275            | 9.5            |
| Yes (Confirmed by Test [Illegal Use Drug])                                                           | 2,382            | 6.9            |
| Not Applicable                                                                                       | 1,610            | 4.7            |
| Yes (Confirmed by Test [Prescription Drug])                                                          | 509              | 1.5            |
| Unknown                                                                                              | 16               | 0.0            |
| <b>Total</b>                                                                                         | <b>34,418</b>    | <b>100.0</b>   |
| Frequency missing = 1. The incidents number of illegal drug use (confirmed by test) is 2,382 (6.9%). |                  |                |

Figure 10

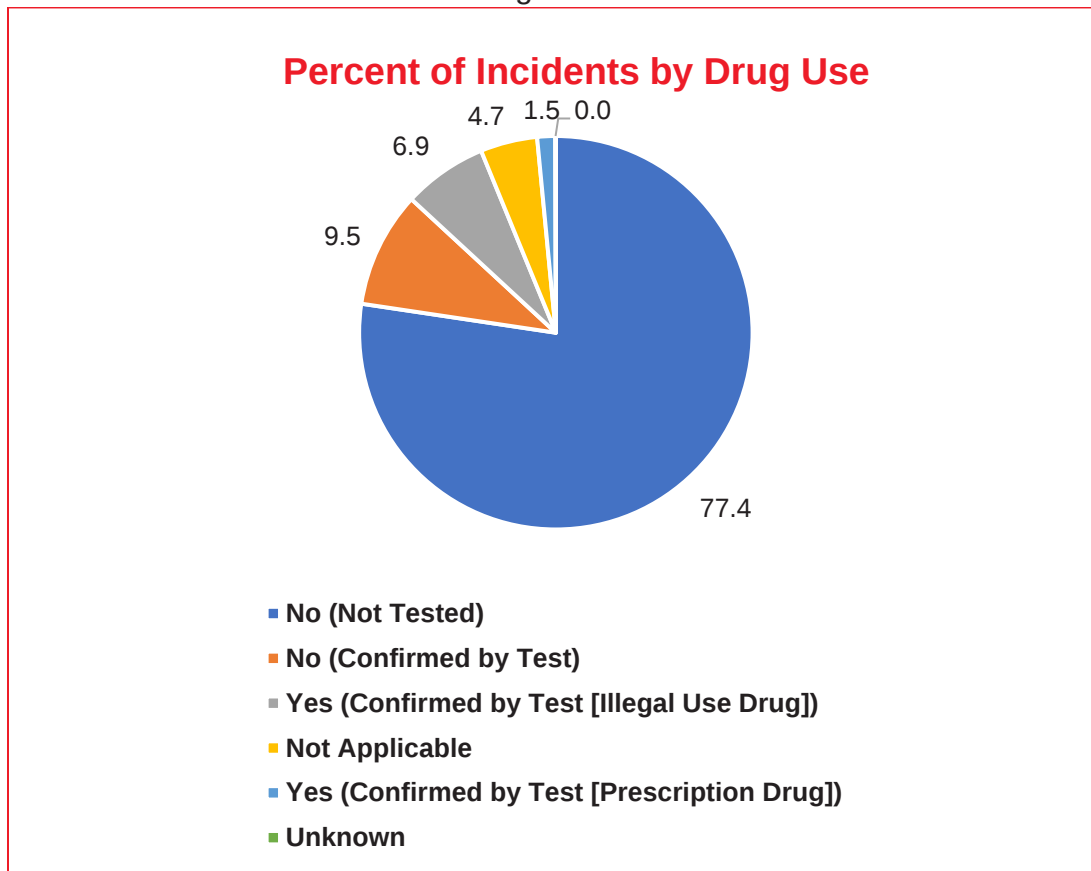
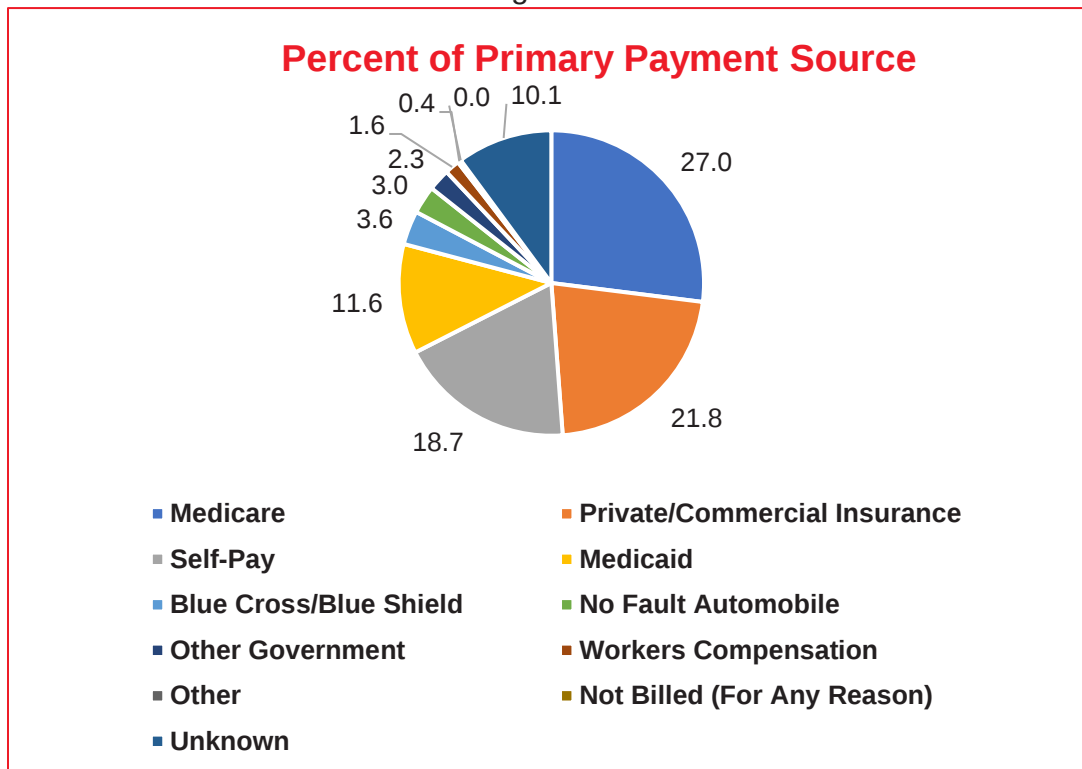


Table 11

| Primary Payment Source                                                    |               |              |
|---------------------------------------------------------------------------|---------------|--------------|
| Primary Payor                                                             | Frequency     | Percent      |
| Medicare                                                                  | 9,287         | 27.0         |
| Private/Commercial Insurance                                              | 7,514         | 21.8         |
| Self-Pay                                                                  | 6,428         | 18.7         |
| Medicaid                                                                  | 4,004         | 11.6         |
| Blue Cross/Blue Shield                                                    | 1,234         | 3.6          |
| No Fault Automobile                                                       | 1,014         | 3.0          |
| Other Government                                                          | 794           | 2.3          |
| Workers Compensation                                                      | 535           | 1.6          |
| Other                                                                     | 123           | 0.4          |
| Not Billed (For Any Reason)                                               | 4             | 0.0          |
| Unknown                                                                   | 3,481         | 10.1         |
| <b>Total</b>                                                              | <b>34,418</b> | <b>100.0</b> |
| Frequency missing = 1. The most frequent primary payor is Medicare (27%). |               |              |

Figure 11



## Injury Characteristics

Mechanism of injury or causes of injury are identified and tracked in the trauma registry. Some age groups may be identified as at risk for certain injuries such as motor vehicle crashes or falls. This information is also used to target injury prevention programs. In some cases, road improvements, pedestrian walkways and driving laws have been improved to reduce injury.

Table 12

| <b>Incidents by Mechanism of Injury</b>                                                                                                                                                                                                          |               |                |               |                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------|---------------|---------------------------|
| <b>Mechanism</b>                                                                                                                                                                                                                                 | <b>Number</b> | <b>Percent</b> | <b>Deaths</b> | <b>Case Fatality Rate</b> |
| Fall                                                                                                                                                                                                                                             | 15,147        | 44.3           | 366           | 2.4                       |
| Motor vehicle traffic                                                                                                                                                                                                                            | 10,333        | 30.2           | 519           | 5.0                       |
| Firearm                                                                                                                                                                                                                                          | 2,294         | 6.7            | 379           | 16.5                      |
| Struck by, against                                                                                                                                                                                                                               | 1,992         | 5.8            | 22            | 1.1                       |
| Cut/pierce                                                                                                                                                                                                                                       | 1,398         | 4.1            | 18            | 1.3                       |
| Transport, other                                                                                                                                                                                                                                 | 873           | 2.6            | 15            | 1.7                       |
| Other specified and classifiable                                                                                                                                                                                                                 | 459           | 1.3            | 7             | 1.5                       |
| Pedal cyclist, other                                                                                                                                                                                                                             | 395           | 1.2            | 6             | 1.5                       |
| Natural/environmental, Bites and Stings                                                                                                                                                                                                          | 260           | 0.8            | 1             | 0.4                       |
| Machinery                                                                                                                                                                                                                                        | 248           | 0.7            | 2             | 0.8                       |
| Pedestrian, other                                                                                                                                                                                                                                | 214           | 0.6            | 10            | 4.7                       |
| Natural/environmental, Other                                                                                                                                                                                                                     | 132           | 0.4            | 1             | 0.8                       |
| Overexertion                                                                                                                                                                                                                                     | 122           | 0.4            | 0             | 0.0                       |
| Other specified, not elsewhere classifiable                                                                                                                                                                                                      | 80            | 0.2            | 5             | 6.3                       |
| Fire/flame                                                                                                                                                                                                                                       | 79            | 0.2            | 2             | 2.5                       |
| Unspecified                                                                                                                                                                                                                                      | 71            | 0.2            | 2             | 2.8                       |
| Hot object/substance                                                                                                                                                                                                                             | 56            | 0.2            | 0             | 0.0                       |
| Drowning/submersion                                                                                                                                                                                                                              | 9             | 0.0            | 1             | 11.1                      |
| Suffocation                                                                                                                                                                                                                                      | 7             | 0.0            | 4             | 57.1                      |
| Poisoning                                                                                                                                                                                                                                        | 1             | 0.0            | 0             | 0.0                       |
| <b>Total</b>                                                                                                                                                                                                                                     | <b>34,170</b> | <b>100.0</b>   | <b>1,360</b>  | <b>4.0</b>                |
| Frequency missing = 249. The largest number of incidents is caused by fall injuries, followed by motor vehicle traffic injuries and firearm injuries. Among these top three injuries, firearm injury has the highest case fatality rate (16.5%). |               |                |               |                           |

Figure 12A

**Percent of Incidents by  
Selected Mechanism of Injury**

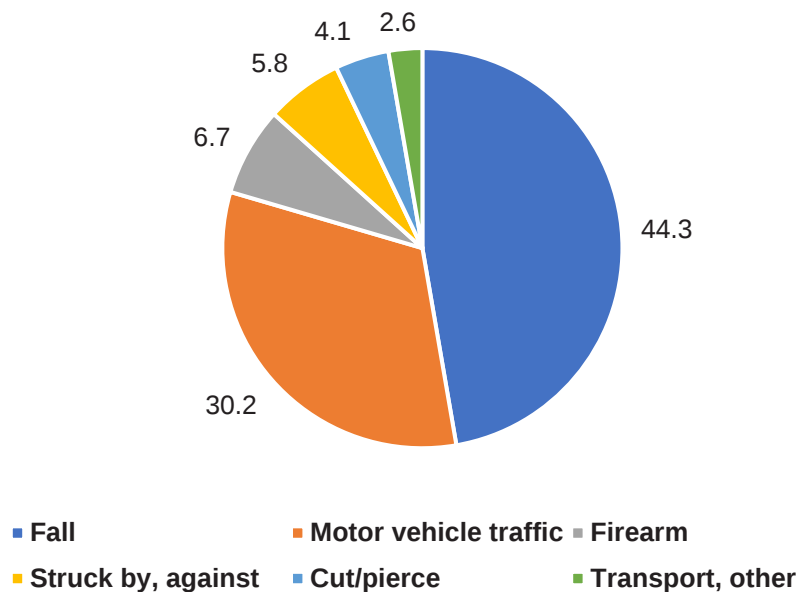


Figure 12B

**Percent of Case Fatality Rate by  
Selected Mechanism of Injury**

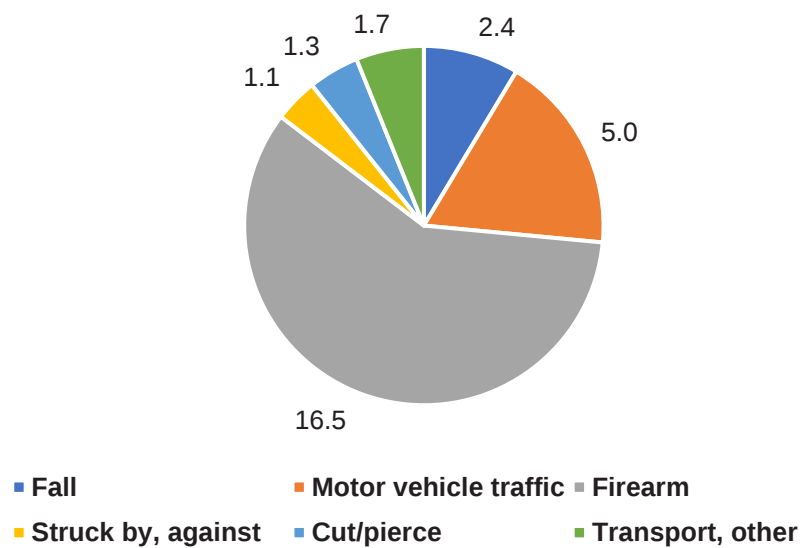


Table 13

| Incidents by Selected Mechanism of Injury and Age |        |                       |         |                    |            |                  |
|---------------------------------------------------|--------|-----------------------|---------|--------------------|------------|------------------|
| Age                                               | Fall   | Motor vehicle traffic | Firearm | Struck by, against | Cut/pierce | Transport, other |
| <1                                                | 246    | 34                    | 2       | 17                 | 1          | 2                |
| 1-4                                               | 523    | 135                   | 19      | 49                 | 19         | 31               |
| 5-9                                               | 764    | 275                   | 22      | 90                 | 24         | 61               |
| 10-14                                             | 424    | 287                   | 64      | 153                | 31         | 143              |
| 15-19                                             | 270    | 833                   | 324     | 197                | 84         | 101              |
| 20-24                                             | 211    | 1,057                 | 441     | 146                | 160        | 71               |
| 25-34                                             | 536    | 1,994                 | 709     | 312                | 401        | 135              |
| 35-44                                             | 689    | 1,436                 | 331     | 312                | 279        | 97               |
| 45-54                                             | 1,029  | 1,398                 | 211     | 288                | 190        | 95               |
| 55-64                                             | 1,895  | 1,351                 | 106     | 223                | 127        | 71               |
| 65-74                                             | 2,710  | 892                   | 40      | 119                | 69         | 47               |
| 75-84                                             | 3,188  | 466                   | 16      | 56                 | 11         | 15               |
| >=85                                              | 2,662  | 175                   | 8       | 30                 | 2          | 4                |
| NK/NR                                             | 0      | 0                     | 1       | 0                  | 0          | 0                |
| Total                                             | 15,147 | 10,333                | 2,294   | 1,992              | 1,398      | 873              |

For people age less than 15 years and older than 54 years, the number of fall injuries is higher than motor vehicle traffic injuries. For people age between 15 to 54 years, the number of motor vehicle traffic injuries is higher than fall injuries.

Figure 13

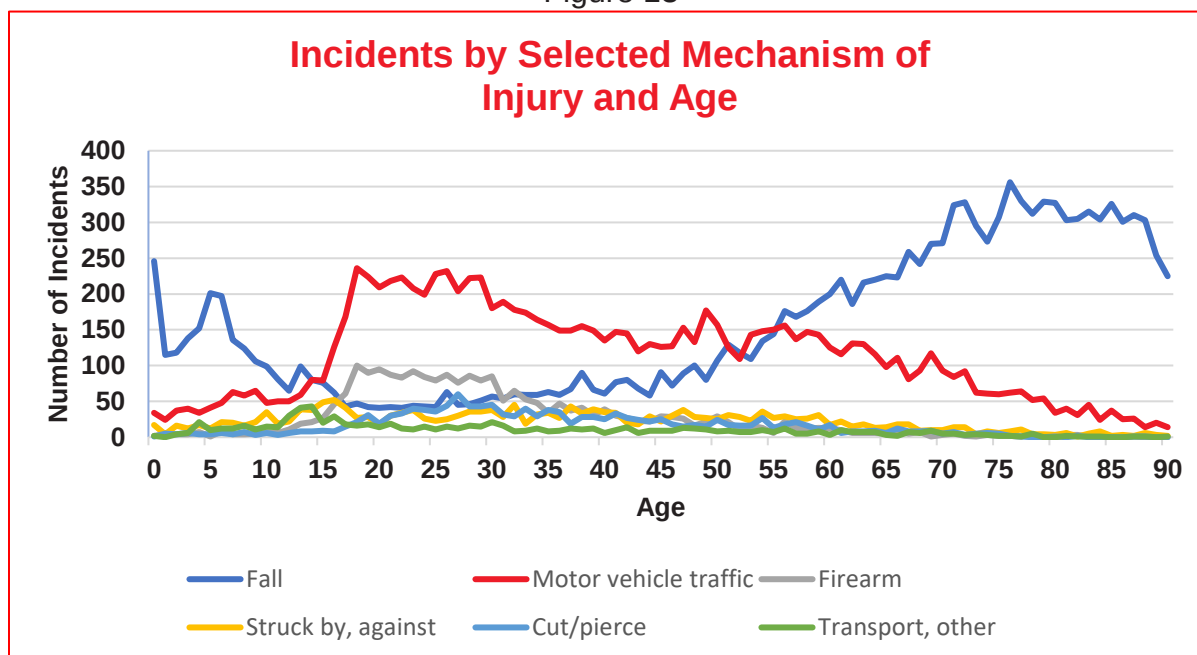


Table 14

| <b>Case Fatality Rate by Selected Mechanism of Injury and Age</b>                         |             |                              |                |                           |                   |                         |
|-------------------------------------------------------------------------------------------|-------------|------------------------------|----------------|---------------------------|-------------------|-------------------------|
| <b>Age</b>                                                                                | <b>Fall</b> | <b>Motor vehicle traffic</b> | <b>Firearm</b> | <b>Struck by, against</b> | <b>Cut/pierce</b> | <b>Transport, other</b> |
| <b>&lt;1</b>                                                                              | 0.4         | 14.7                         | 0.0            | 0.0                       | 0.0               | 0.0                     |
| <b>1-4</b>                                                                                | 0.4         | 0.7                          | 10.5           | 0.0                       | 0.0               | 0.0                     |
| <b>5-9</b>                                                                                | 0.0         | 2.5                          | 9.1            | 0.0                       | 0.0               | 0.0                     |
| <b>10-14</b>                                                                              | 0.0         | 3.1                          | 7.8            | 0.0                       | 0.0               | 0.7                     |
| <b>15-19</b>                                                                              | 0.4         | 2.5                          | 14.5           | 0.5                       | 1.2               | 2.0                     |
| <b>20-24</b>                                                                              | 0.9         | 4.4                          | 14.1           | 0.7                       | 1.9               | 4.2                     |
| <b>25-34</b>                                                                              | 1.3         | 3.9                          | 14.1           | 1.6                       | 1.0               | 0.7                     |
| <b>35-44</b>                                                                              | 1.5         | 4.0                          | 17.8           | 0.3                       | 1.1               | 2.1                     |
| <b>45-54</b>                                                                              | 1.7         | 5.5                          | 22.7           | 0.7                       | 1.6               | 2.1                     |
| <b>55-64</b>                                                                              | 2.0         | 7.4                          | 24.5           | 1.8                       | 3.1               | 2.8                     |
| <b>65-74</b>                                                                              | 2.8         | 7.1                          | 30.0           | 4.2                       | 0.0               | 0.0                     |
| <b>75-84</b>                                                                              | 3.5         | 7.3                          | 50.0           | 3.6                       | 0.0               | 6.7                     |
| <b>&gt;=85</b>                                                                            | 3.8         | 11.4                         | 87.5           | 3.3                       | 0.0               | 25.0                    |
| <b>NK/NR</b>                                                                              | 0.0         | 0.0                          | 100.0          | 0.0                       | 0.0               | 0.0                     |
| <b>Total</b>                                                                              | 2.4         | 5.0                          | 16.5           | 1.1                       | 1.3               | 1.7                     |
| Among the six selected mechanisms, the highest case fatality rate is in firearm injuries. |             |                              |                |                           |                   |                         |

Figure 14

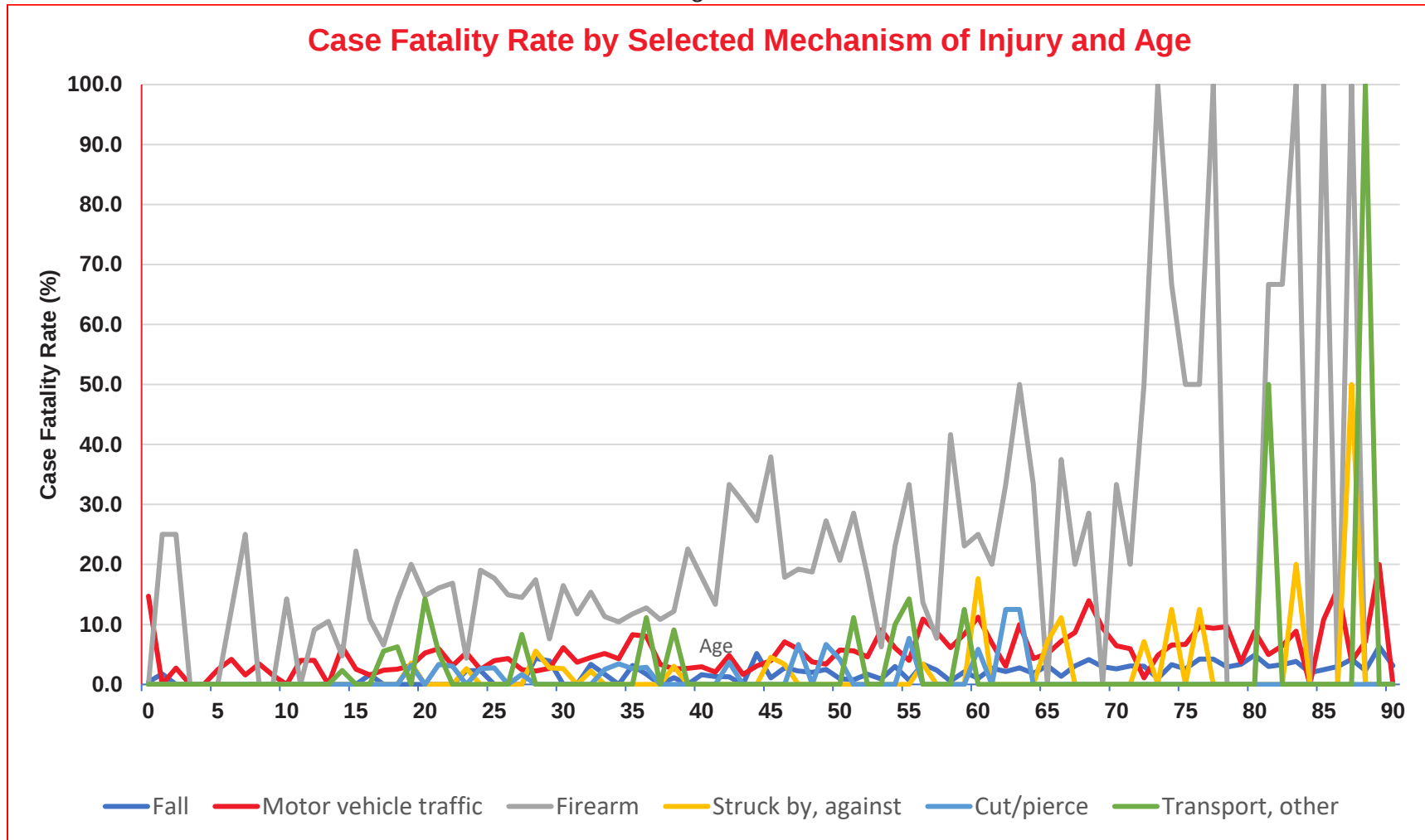


Table 15

| <b>Incidents and Case Fatality Rate by Mechanism of Injury and Gender</b>                                                                                                                                                                                       |                         |                       |                                    |                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------|------------------------------------|----------------------------------|
| <b>Mechanism</b>                                                                                                                                                                                                                                                | <b>Percent (Female)</b> | <b>Percent (Male)</b> | <b>Case Fatality Rate (Female)</b> | <b>Case Fatality Rate (Male)</b> |
| Fall                                                                                                                                                                                                                                                            | 57.9                    | 35.0                  | 1.8                                | 3.1                              |
| Motor vehicle traffic                                                                                                                                                                                                                                           | 28.7                    | 31.3                  | 3.7                                | 5.9                              |
| Firearm                                                                                                                                                                                                                                                         | 2.3                     | 9.8                   | 15.1                               | 16.8                             |
| Struck by, against                                                                                                                                                                                                                                              | 3.0                     | 7.8                   | 0.7                                | 1.2                              |
| Cut/pierce                                                                                                                                                                                                                                                      | 1.7                     | 5.8                   | 2.6                                | 1.0                              |
| Transport, other                                                                                                                                                                                                                                                | 2.2                     | 2.8                   | 1.0                                | 2.1                              |
| Other specified and classifiable                                                                                                                                                                                                                                | 0.5                     | 1.9                   | 2.7                                | 1.3                              |
| Pedal cyclist, other                                                                                                                                                                                                                                            | 0.6                     | 1.6                   | 1.3                                | 1.6                              |
| Natural/environmental, Bites and stings                                                                                                                                                                                                                         | 1.0                     | 0.6                   | 0.7                                | 0.0                              |
| Machinery                                                                                                                                                                                                                                                       | 0.2                     | 1.1                   | 0.0                                | 0.9                              |
| Pedestrian, other                                                                                                                                                                                                                                               | 0.6                     | 0.6                   | 2.4                                | 6.2                              |
| Natural/environmental, Other                                                                                                                                                                                                                                    | 0.5                     | 0.3                   | 0.0                                | 1.5                              |
| Overexertion                                                                                                                                                                                                                                                    | 0.3                     | 0.4                   | 0.0                                | 0.0                              |
| Other specified, not elsewhere classifiable                                                                                                                                                                                                                     | 0.2                     | 0.2                   | 6.7                                | 6.0                              |
| Fire/flame                                                                                                                                                                                                                                                      | 0.2                     | 0.3                   | 3.8                                | 1.9                              |
| Unspecified                                                                                                                                                                                                                                                     | 0.1                     | 0.3                   | 6.7                                | 1.8                              |
| Hot object/substance                                                                                                                                                                                                                                            | 0.2                     | 0.2                   | 0.0                                | 0.0                              |
| Drowning/submersion                                                                                                                                                                                                                                             | 0.0                     | 0.0                   | 0.0                                | 16.7                             |
| Suffocation                                                                                                                                                                                                                                                     | 0.0                     | 0.0                   | 50.0                               | 60.0                             |
| Poisoning                                                                                                                                                                                                                                                       | 0.0                     | 0.0                   | 0.0                                | 0.0                              |
| <b>Total</b>                                                                                                                                                                                                                                                    | <b>100.0</b>            | <b>100.0</b>          | <b>2.6</b>                         | <b>4.9</b>                       |
| The percent of fall injuries in female (57.9%) is much higher than that in male (35.0%). The percent of firearm injuries in male (9.8%) is much higher than that in female (2.3%). Case fatality rate in male (4.9%) is much higher than that in female (2.6%). |                         |                       |                                    |                                  |

Figure 15A

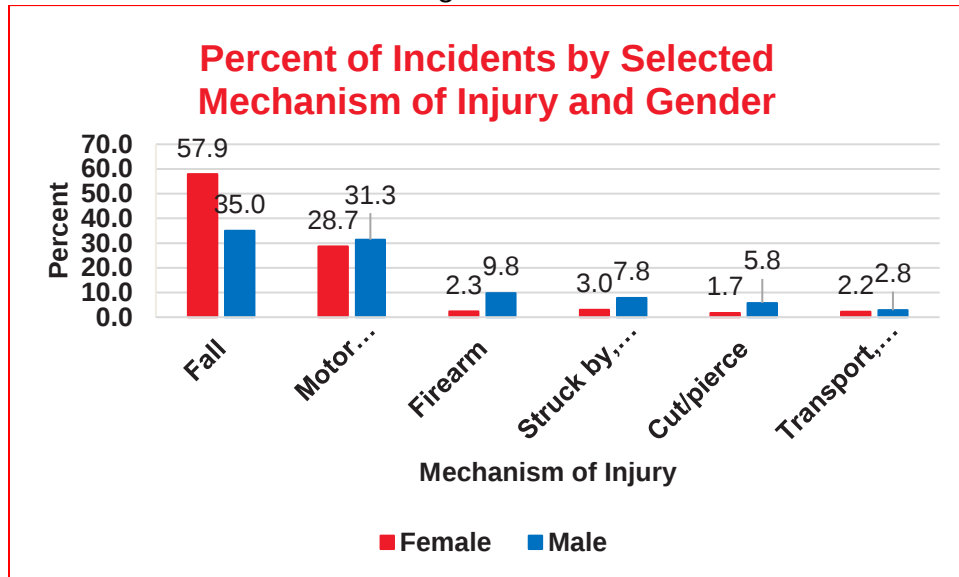


Figure 15B

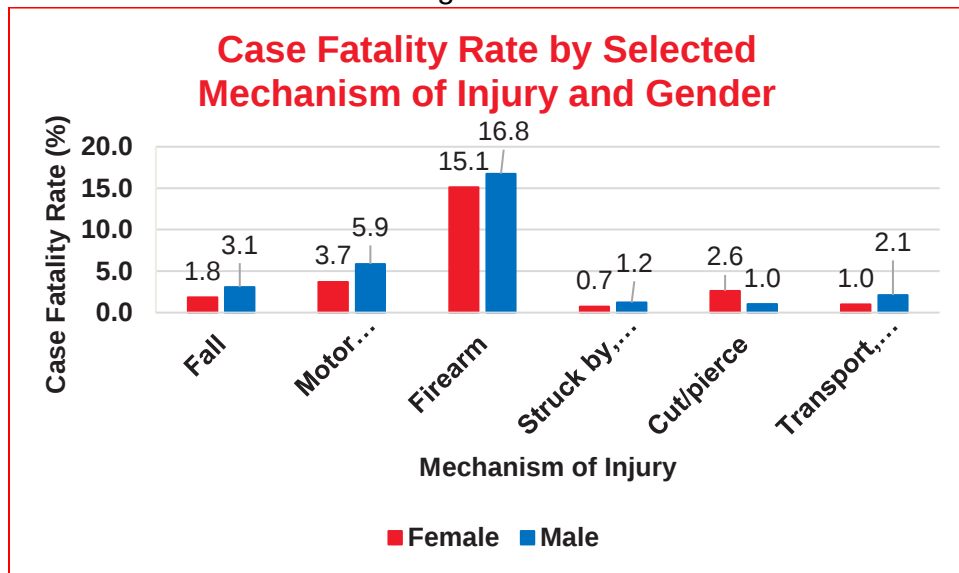


Table 16

| <b>Incidents and Case Fatality Rate by Injury Severity Score (ISS)</b>                                                                                               |               |                |               |                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------|---------------|---------------------------|
| <b>ISS</b>                                                                                                                                                           | <b>Number</b> | <b>Percent</b> | <b>Deaths</b> | <b>Case Fatality Rate</b> |
| <b>1-8</b>                                                                                                                                                           | 15,523        | 45.1           | 160           | 1.0                       |
| <b>9-15</b>                                                                                                                                                          | 12,833        | 37.3           | 246           | 1.9                       |
| <b>16-24</b>                                                                                                                                                         | 3,505         | 10.2           | 206           | 5.9                       |
| <b>&gt;24</b>                                                                                                                                                        | 2,518         | 7.3            | 751           | 29.8                      |
| <b>NK/NR</b>                                                                                                                                                         | 40            | 0.1            | 7             | 17.5                      |
| <b>Total</b>                                                                                                                                                         | 34,419        | 100.0          | 1,370         | 4.0                       |
| Minor injuries (45.1%) and moderate injuries (37.3%) account for 82.4 percent of all the injuries. Very severe injuries have the highest case fatality rate (29.8%). |               |                |               |                           |

Figure 16A

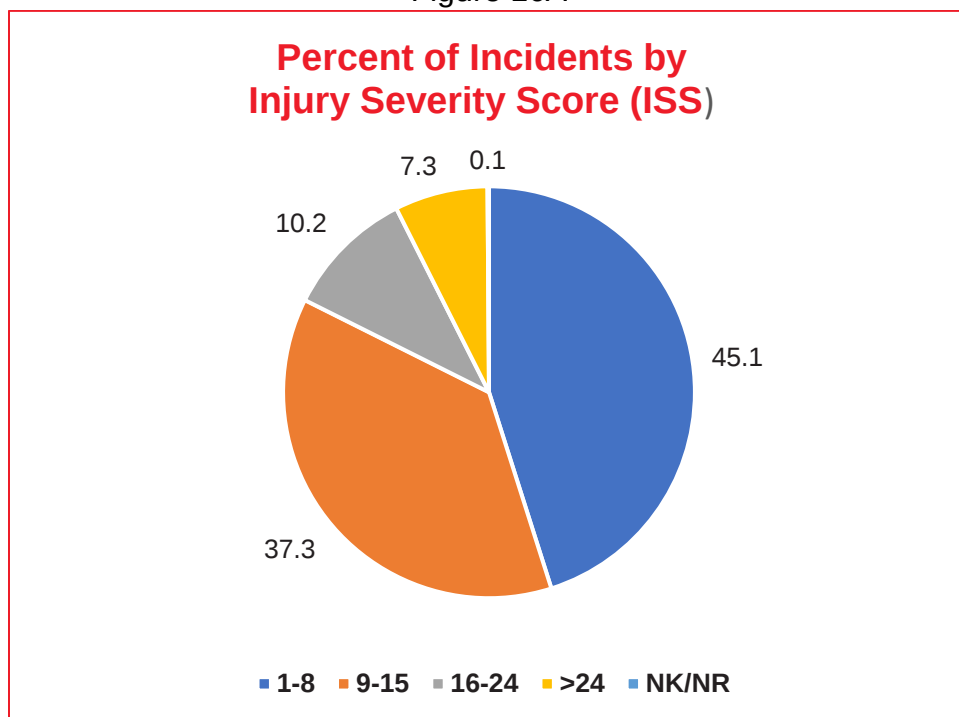


Figure 16B

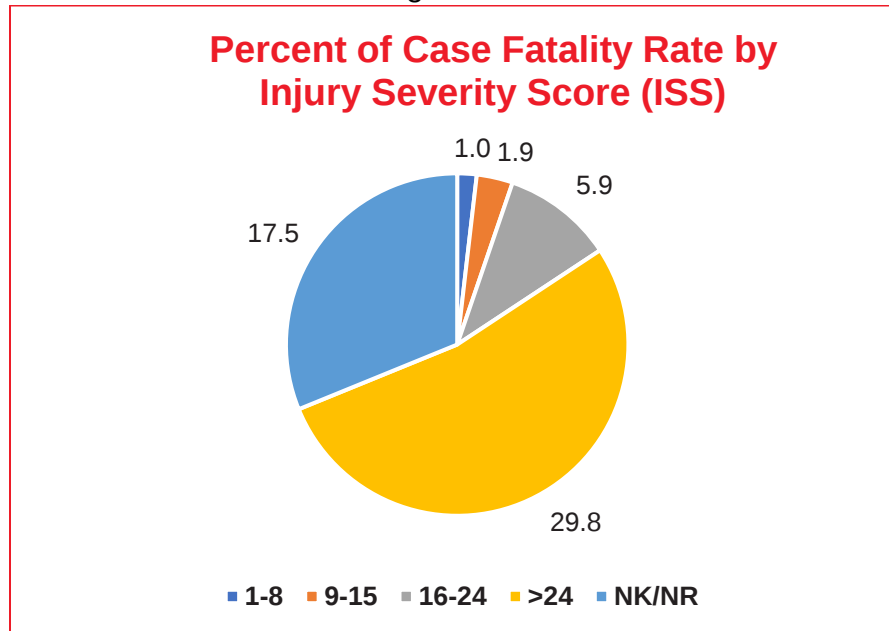


Table 17

| Incidents by Injury Severity Score (ISS) and Age                                  |               |               |              |              |           |               |
|-----------------------------------------------------------------------------------|---------------|---------------|--------------|--------------|-----------|---------------|
| Age                                                                               | ISS 1-8       | ISS 9-15      | ISS 16-24    | ISS >24      | ISS NK/NR | Total         |
| <1                                                                                | 228           | 166           | 41           | 35           | 0         | 470           |
| 1-4                                                                               | 672           | 229           | 47           | 25           | 3         | 976           |
| 5-9                                                                               | 1,156         | 169           | 55           | 36           | 0         | 1,416         |
| 10-14                                                                             | 897           | 275           | 65           | 49           | 4         | 1,290         |
| 15-19                                                                             | 977           | 589           | 203          | 166          | 3         | 1,938         |
| 20-24                                                                             | 969           | 703           | 275          | 262          | 0         | 2,209         |
| 25-34                                                                             | 2,057         | 1,345         | 521          | 443          | 7         | 4,373         |
| 35-44                                                                             | 1,621         | 1,088         | 390          | 301          | 4         | 3,404         |
| 45-54                                                                             | 1,551         | 1,199         | 442          | 292          | 1         | 3,485         |
| 55-64                                                                             | 1,715         | 1,590         | 477          | 284          | 4         | 4,070         |
| 65-74                                                                             | 1,487         | 1,877         | 413          | 259          | 5         | 4,041         |
| 75-84                                                                             | 1,302         | 1,946         | 356          | 222          | 4         | 3,830         |
| >=85                                                                              | 891           | 1,657         | 219          | 144          | 5         | 2,916         |
| NK/NR                                                                             | 0             | 0             | 1            | 0            | 0         | 1             |
| <b>Total</b>                                                                      | <b>15,523</b> | <b>12,833</b> | <b>3,505</b> | <b>2,518</b> | <b>40</b> | <b>34,419</b> |
| The largest number (443) of very severe injuries (ISS >24) is in age group 25-34. |               |               |              |              |           |               |

Figure 17

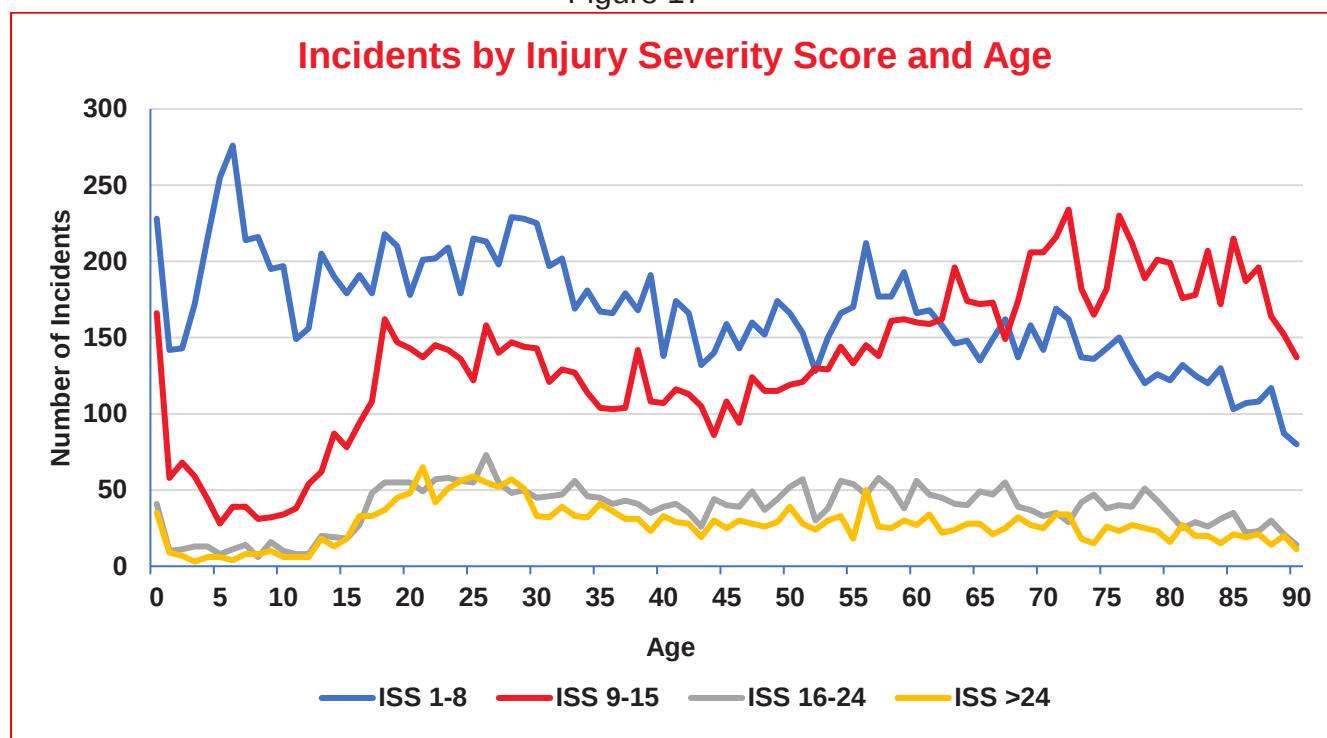


Table 18

| <b>Case Fatality Rate by Injury Severity Score (ISS) and Age</b>   |                |                 |                  |                   |              |              |
|--------------------------------------------------------------------|----------------|-----------------|------------------|-------------------|--------------|--------------|
| <b>Age Group</b>                                                   | <b>ISS 1-8</b> | <b>ISS 9-15</b> | <b>ISS 16-24</b> | <b>ISS &gt;24</b> | <b>NK/NR</b> | <b>Total</b> |
| <1                                                                 | 0.9            | 0.6             | 4.9              | 20.0              | 0.0          | 2.6          |
| 1-4                                                                | 0.0            | 0.4             | 6.4              | 20.0              | 66.7         | 1.1          |
| 5-9                                                                | 0.0            | 0.6             | 7.3              | 11.1              | 0.0          | 0.6          |
| 10-14                                                              | 0.2            | 0.4             | 1.5              | 26.5              | 25.0         | 1.4          |
| 15-19                                                              | 0.5            | 1.5             | 6.4              | 28.9              | 0.0          | 3.9          |
| 20-24                                                              | 1.1            | 0.9             | 6.2              | 34.0              | 0.0          | 5.6          |
| 25-34                                                              | 1.1            | 1.5             | 5.2              | 29.6              | 14.3         | 4.6          |
| 35-44                                                              | 0.8            | 0.9             | 3.3              | 34.6              | 0.0          | 4.1          |
| 45-54                                                              | 1.2            | 1.8             | 6.3              | 29.5              | 100.0        | 4.4          |
| 55-64                                                              | 2.0            | 1.8             | 5.7              | 30.6              | 25.0         | 4.4          |
| 65-74                                                              | 1.5            | 2.3             | 4.6              | 28.2              | 20.0         | 3.9          |
| 75-84                                                              | 1.2            | 2.6             | 8.1              | 27.5              | 0.0          | 4.1          |
| >=85                                                               | 1.5            | 3.3             | 10.0             | 29.9              | 0.0          | 4.6          |
| NK/NR                                                              | 0.0            | 0.0             | 100.0            | 0.0               | 0.0          | 100.0        |
| <b>Total</b>                                                       | <b>1.0</b>     | <b>1.9</b>      | <b>5.9</b>       | <b>29.8</b>       | <b>17.5</b>  | <b>4.0</b>   |
| The largest total case fatality rate (5.6%) is in age group 20-24. |                |                 |                  |                   |              |              |

Figure 18A

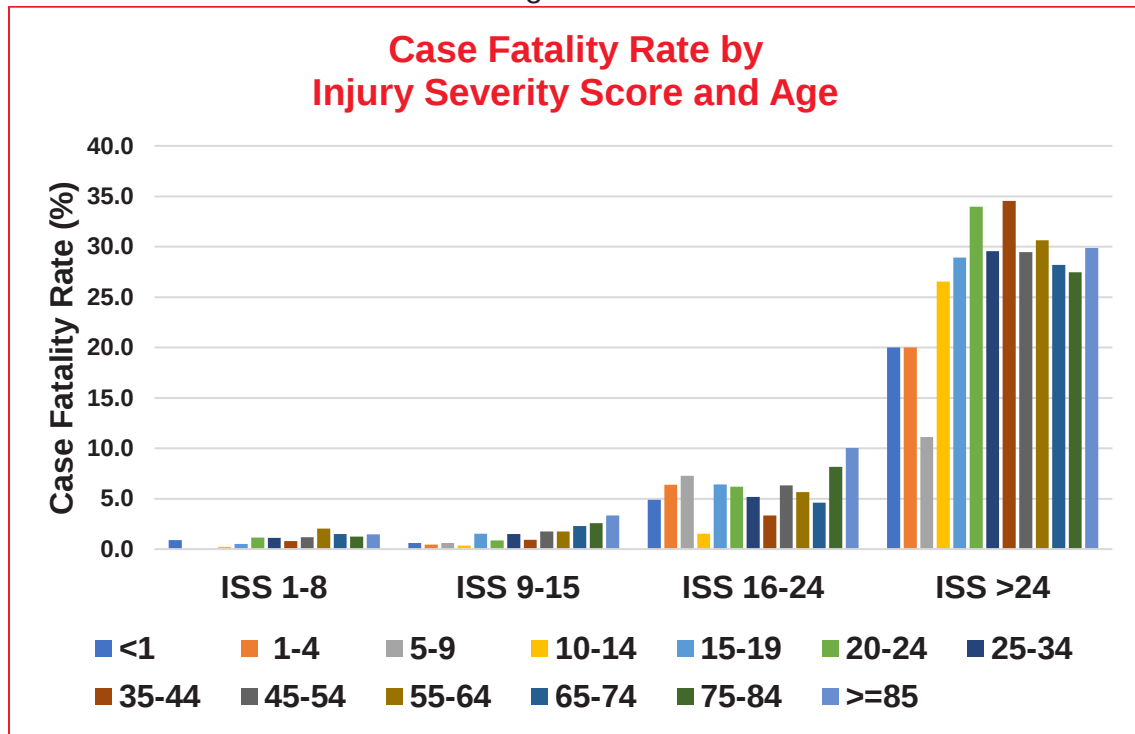


Figure 18B

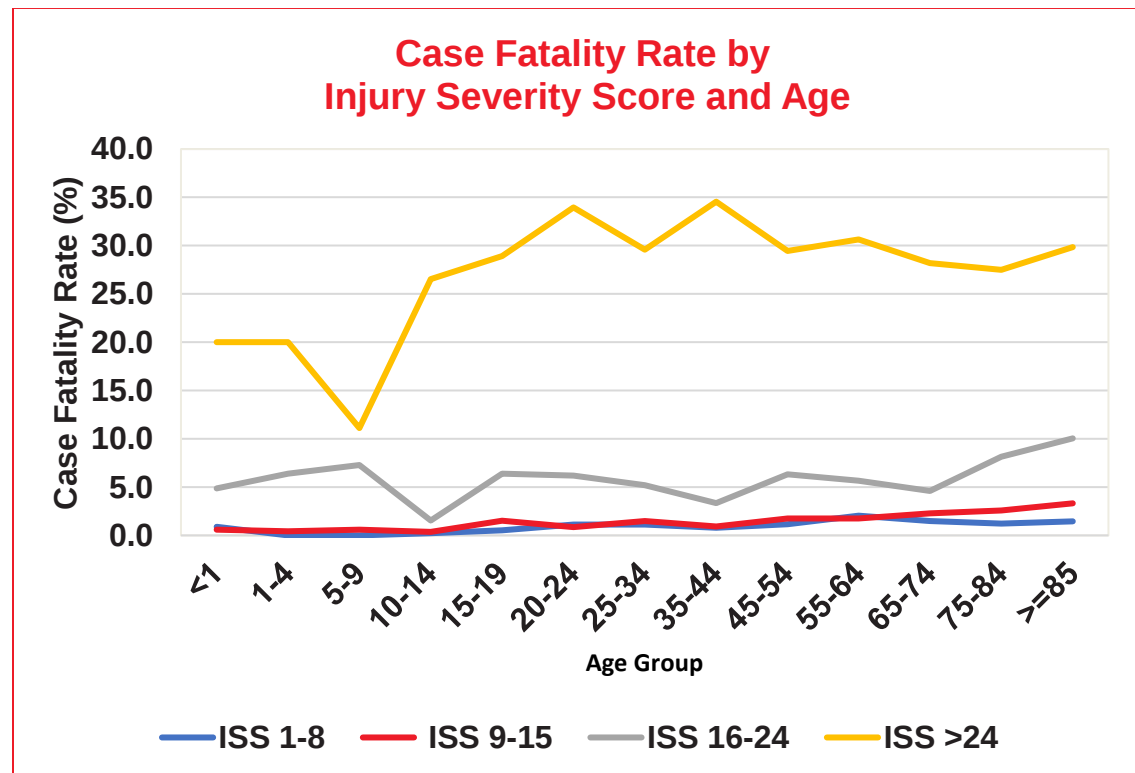


Table 19

| <b>Incidents and Case Fatality Rate by Work-Related Injury</b> |               |                |               |                           |
|----------------------------------------------------------------|---------------|----------------|---------------|---------------------------|
| <b>Work-Related Injury</b>                                     | <b>Number</b> | <b>Percent</b> | <b>Deaths</b> | <b>Case Fatality Rate</b> |
| <b>False</b>                                                   | 32,944        | 95.7           | 1,346         | 4.1                       |
| <b>True</b>                                                    | 1,395         | 4.1            | 21            | 1.5                       |
| <b>Unknown</b>                                                 | 80            | 0.2            | 3             | 3.8                       |
| <b>Total</b>                                                   | 34,419        | 100.0          | 1,370         | 4.0                       |

There are 1,395 incidents reported as true work-related injuries, which account for 4.1 percent of all injuries.

Figure 19A

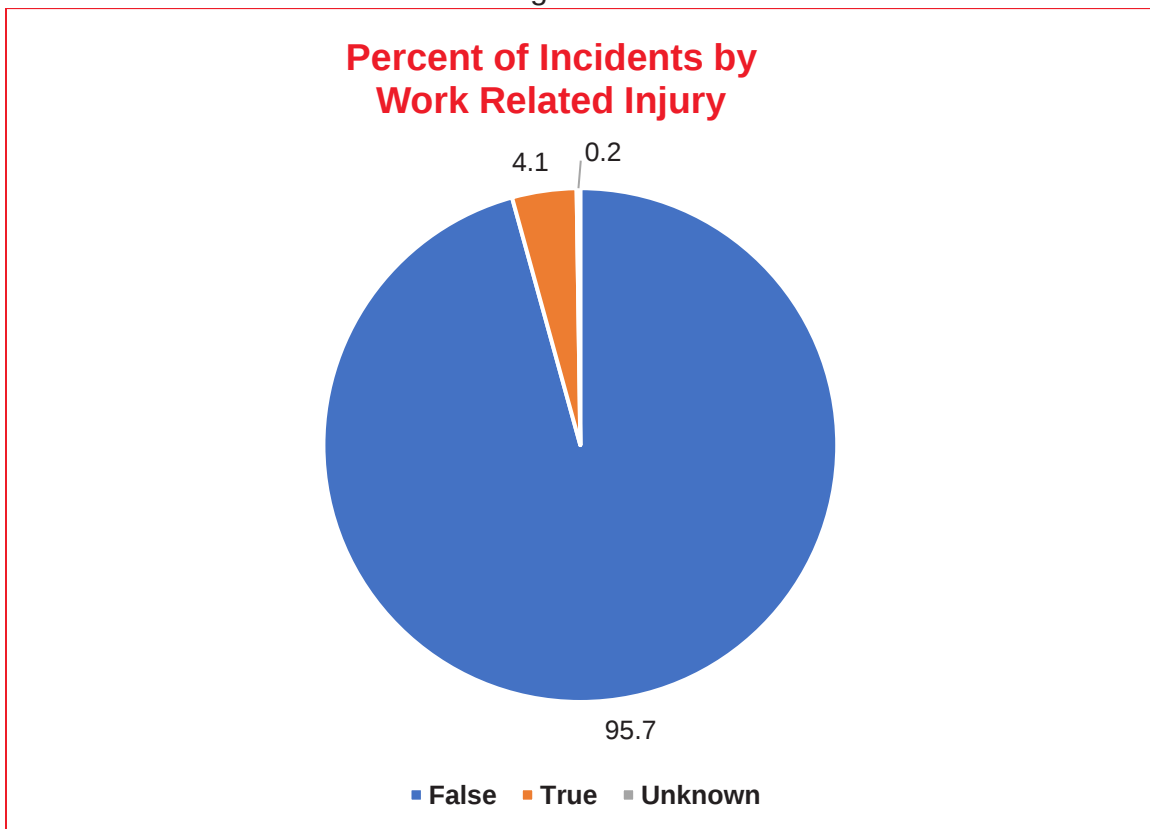


Figure 19B

### Percent of Case Fatality Rate by Work Related Injury

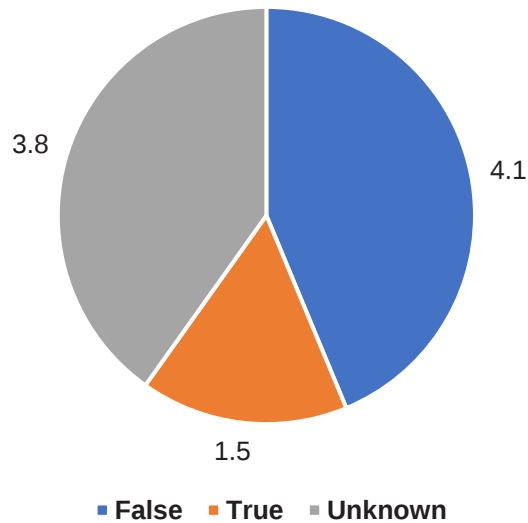


Table 20

### Incidents and Case Fatality Rate by Intent

| Intent                                                                                                                                                                                                   | Number        | Percent      | Deaths       | Case Fatality Rate |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|--------------|--------------------|
| Unintentional                                                                                                                                                                                            | 30,145        | 87.6         | 952          | 3.2                |
| Assault                                                                                                                                                                                                  | 3,405         | 9.9          | 242          | 7.1                |
| Self-inflicted                                                                                                                                                                                           | 447           | 1.3          | 124          | 27.7               |
| Undetermined                                                                                                                                                                                             | 330           | 1.0          | 39           | 11.8               |
| Other                                                                                                                                                                                                    | 66            | 0.2          | 11           | 16.7               |
| <b>Total</b>                                                                                                                                                                                             | <b>34,393</b> | <b>100.0</b> | <b>1,368</b> | <b>4.0</b>         |
| Frequency missing = 26. Most of the injuries are unintentional injuries (87.6%). Assault injuries account for 9.9% of all the injuries. The case fatality rate of self-inflicted is the highest (27.7%). |               |              |              |                    |

Figure 20A

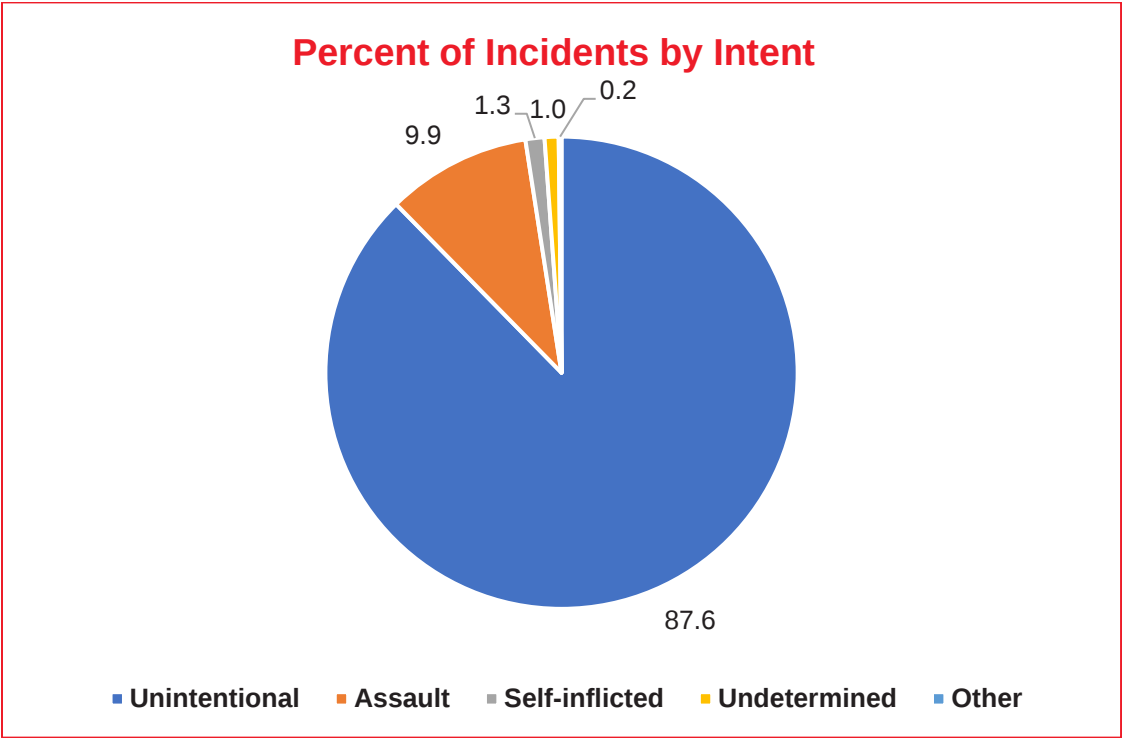


Figure 20B

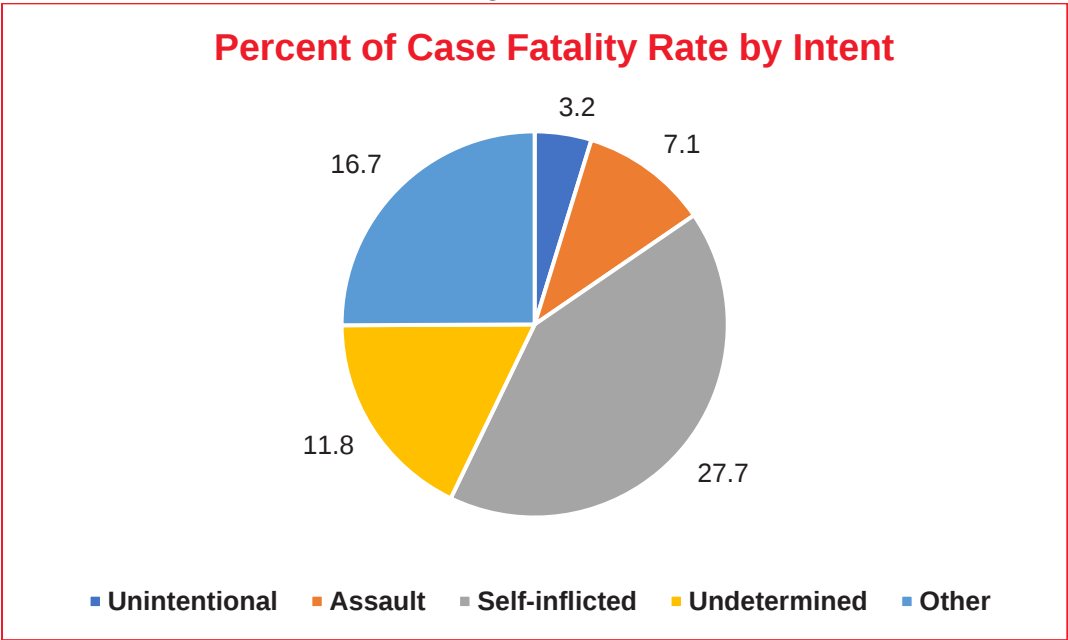


Table 21

| <b>Incidents and Case Fatality Rate by Top 40 Injury Places</b>        |              |                |             |                 |
|------------------------------------------------------------------------|--------------|----------------|-------------|-----------------|
| <b>ICD10 Injury Place</b>                                              | <b>Total</b> | <b>Percent</b> | <b>Dead</b> | <b>Fatality</b> |
| Unspecified place or not applicable                                    | 4,556        | 13.2           | 121         | 2.7             |
| Unspecified street and highway                                         | 4,388        | 12.7           | 217         | 4.9             |
| Local residential or business street                                   | 3,530        | 10.3           | 178         | 5.0             |
| Unspecified place in single-family (private) house                     | 2,001        | 5.8            | 88          | 4.4             |
| Unspecified place in unspecified non-institutional (private) residence | 1,842        | 5.4            | 74          | 4.0             |
| State road                                                             | 1,425        | 4.1            | 91          | 6.4             |
| Other place in single-family (private) house                           | 1,164        | 3.4            | 53          | 4.6             |
| Interstate highway                                                     | 958          | 2.8            | 57          | 5.9             |
| Garden or yard in single-family (private) house                        | 946          | 2.7            | 39          | 4.1             |
| Other place in unspecified non-institutional (private) residence       | 705          | 2.0            | 20          | 2.8             |
| Garden or yard of unspecified non-institutional (private) residence    | 613          | 1.8            | 16          | 2.6             |
| Bedroom of single-family (private) house                               | 611          | 1.8            | 31          | 5.1             |
| Unspecified place in nursing home                                      | 550          | 1.6            | 24          | 4.4             |
| Bathroom of single-family (private) house                              | 515          | 1.5            | 18          | 3.5             |
| Other recreation area                                                  | 480          | 1.4            | 2           | 0.4             |
| Parking lot                                                            | 479          | 1.4            | 32          | 6.7             |
| Kitchen of single-family (private) house                               | 425          | 1.2            | 10          | 2.4             |
| Bedroom of unspecified non-institutional (private) residence           | 420          | 1.2            | 17          | 4.0             |
| Private driveway to single-family (private) house                      | 366          | 1.1            | 14          | 3.8             |

|                                                                         |     |     |    |     |
|-------------------------------------------------------------------------|-----|-----|----|-----|
| <b>Unspecified place in apartment</b>                                   | 338 | 1.0 | 21 | 6.2 |
| <b>Bathroom of unspecified private residence single-family or house</b> | 333 | 1.0 | 5  | 1.5 |
| <b>Unspecified place in prison</b>                                      | 332 | 1.0 | 3  | 0.9 |
| <b>Other specified places</b>                                           | 330 | 1.0 | 8  | 2.4 |
| <b>Other trade areas</b>                                                | 329 | 1.0 | 13 | 4.0 |
| <b>Bedroom in nursing home</b>                                          | 328 | 1.0 | 14 | 4.3 |
| <b>Parkway</b>                                                          | 321 | 0.9 | 24 | 7.5 |
| <b>Sidewalk</b>                                                         | 303 | 0.9 | 8  | 2.6 |
| <b>Other paved roadways</b>                                             | 254 | 0.7 | 4  | 1.6 |
| <b>Restaurant or cafe</b>                                               | 252 | 0.7 | 13 | 5.2 |
| <b>Other specified industrial and construction area</b>                 | 249 | 0.7 | 6  | 2.4 |
| <b>Kitchen of unspecified non-institutional (private) residence</b>     | 233 | 0.7 | 1  | 0.4 |
| <b>Building [any] under construction</b>                                | 208 | 0.6 | 1  | 0.5 |
| <b>Other specified sports and athletic area</b>                         | 191 | 0.6 | 0  | 0.0 |
| <b>Supermarket, store or market</b>                                     | 190 | 0.6 | 5  | 2.6 |
| <b>Other place in apartment</b>                                         | 186 | 0.5 | 14 | 7.5 |
| <b>Unknown</b>                                                          | 181 | 0.5 | 5  | 2.8 |
| <b>Other wilderness area</b>                                            | 171 | 0.5 | 3  | 1.8 |
| <b>Private garage of single-family (private) house</b>                  | 159 | 0.5 | 8  | 5.0 |
| <b>Shop (commercial)</b>                                                | 156 | 0.5 | 10 | 6.4 |
| <b>Unspecified place in other specified residential institution</b>     | 152 | 0.4 | 4  | 2.6 |

Table 22

| <b>Incidents by AIS Severity and Discharge Status</b>                               |              |                |               |                             |
|-------------------------------------------------------------------------------------|--------------|----------------|---------------|-----------------------------|
| <b>AIS Severity</b>                                                                 | <b>Total</b> | <b>Percent</b> | <b>Deaths</b> | <b>Case Fatality Rate %</b> |
| <b>Maximum</b>                                                                      | 72           | 0.2            | 61            | 84.7                        |
| <b>Critical</b>                                                                     | 1,641        | 4.8            | 575           | 35.0                        |
| <b>Severe</b>                                                                       | 2,392        | 7.0            | 226           | 9.4                         |
| <b>Serious</b>                                                                      | 13,036       | 37.9           | 324           | 2.5                         |
| <b>Moderate</b>                                                                     | 13,512       | 39.3           | 97            | 0.7                         |
| <b>Minor</b>                                                                        | 3,726        | 10.8           | 80            | 2.1                         |
| <b>Total</b>                                                                        | 34,379       | 100.0          | 1,363         | 4.0                         |
| Patients with the maximum AIS severity have the highest case fatality rate (84.7%). |              |                |               |                             |

Figure 22A

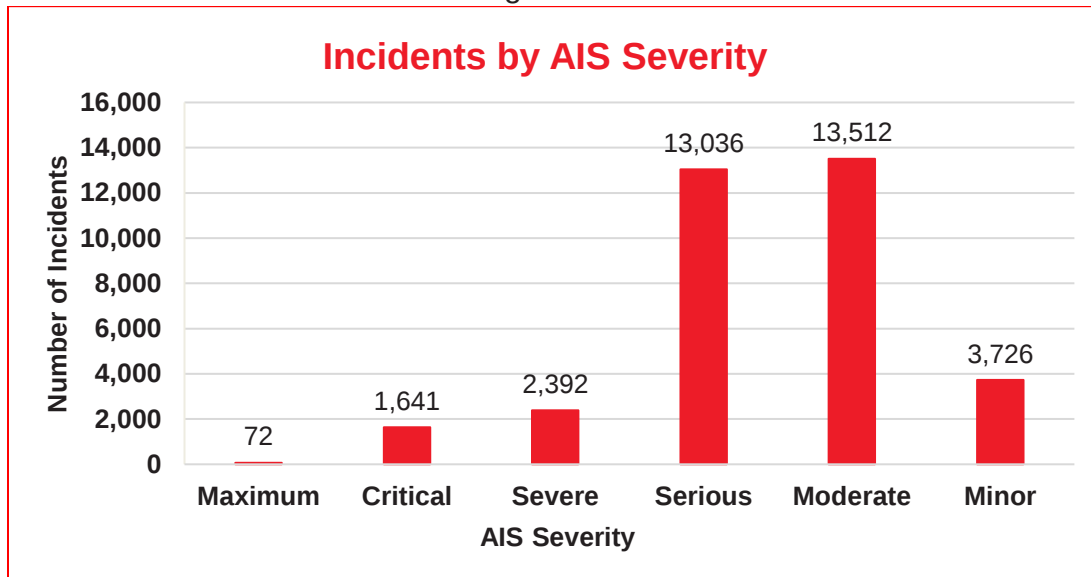


Figure 22B

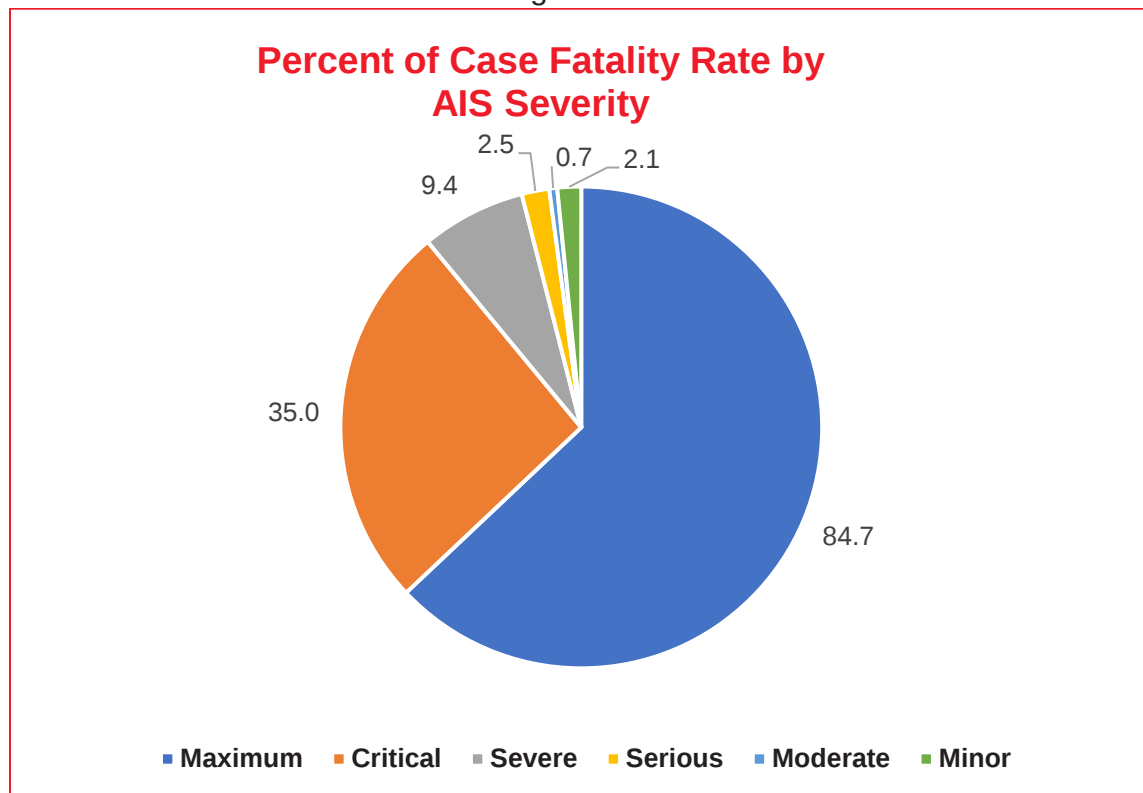


Table 23

| Incidents by ISS Body Region and Discharge Status                                                                                                                                                                   |               |              |              |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|--------------|----------------------|
| ISS Body Region                                                                                                                                                                                                     | Number        | Percent      | Deaths       | Case Fatality Rate % |
| Extremities or Pelvic Girdle                                                                                                                                                                                        | 14,114        | 41.1         | 193          | 1.4                  |
| Head or Neck                                                                                                                                                                                                        | 8,362         | 24.3         | 663          | 7.9                  |
| Chest                                                                                                                                                                                                               | 5,197         | 15.1         | 305          | 5.9                  |
| External                                                                                                                                                                                                            | 2,765         | 8.0          | 104          | 3.8                  |
| Abdominal or Pelvic Contents                                                                                                                                                                                        | 2,480         | 7.2          | 90           | 3.6                  |
| Face                                                                                                                                                                                                                | 1,461         | 4.2          | 8            | 0.5                  |
| <b>Total</b>                                                                                                                                                                                                        | <b>34,379</b> | <b>100.0</b> | <b>1,363</b> | <b>4.0</b>           |
| If a patient has multiple injured body regions, only one region with the highest AIS severity is counted. Patients with the highest AIS severity in head or neck region have the highest case fatality rate (7.9%). |               |              |              |                      |

Figure 23A

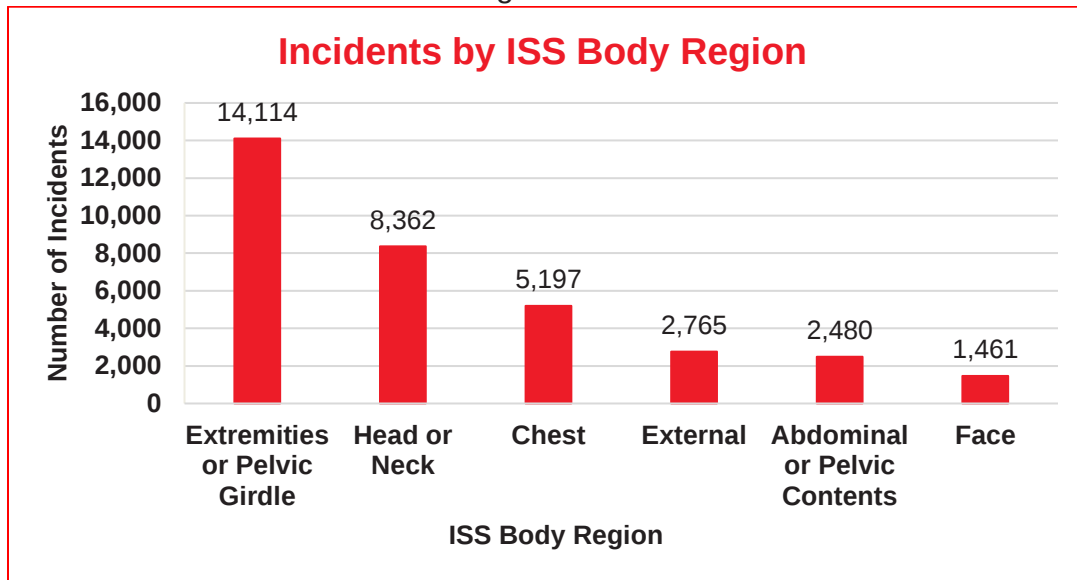


Figure 23B

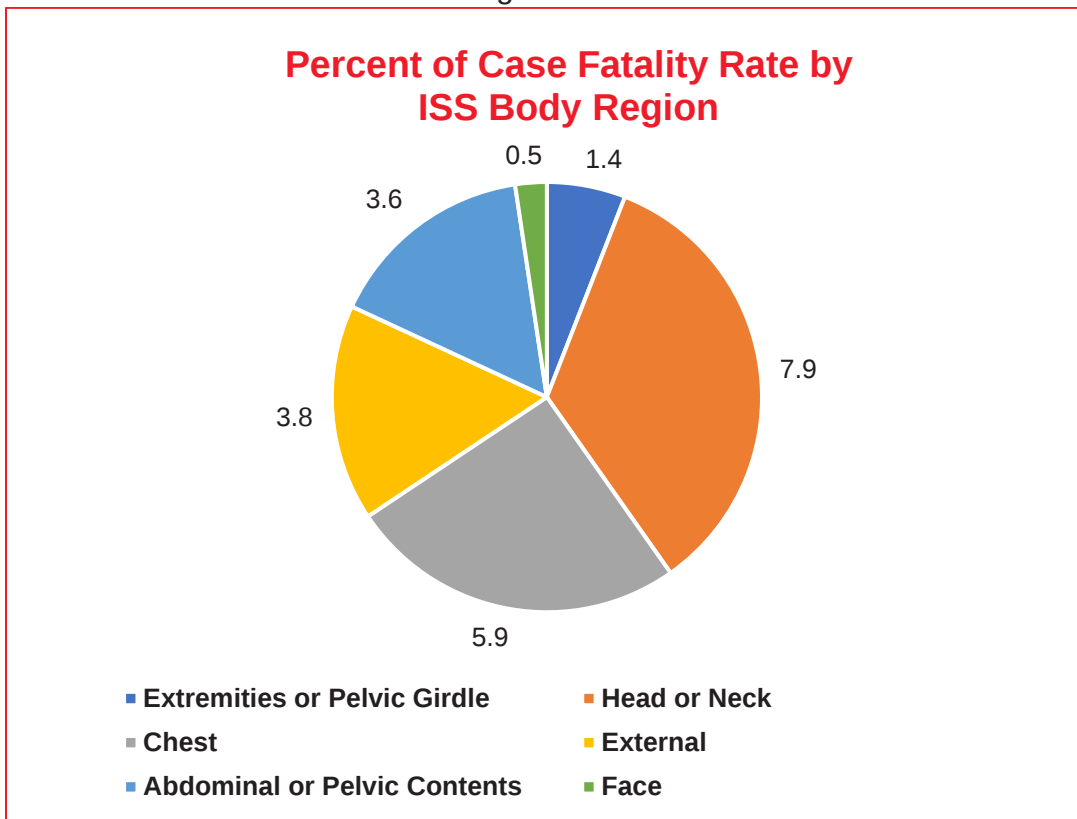
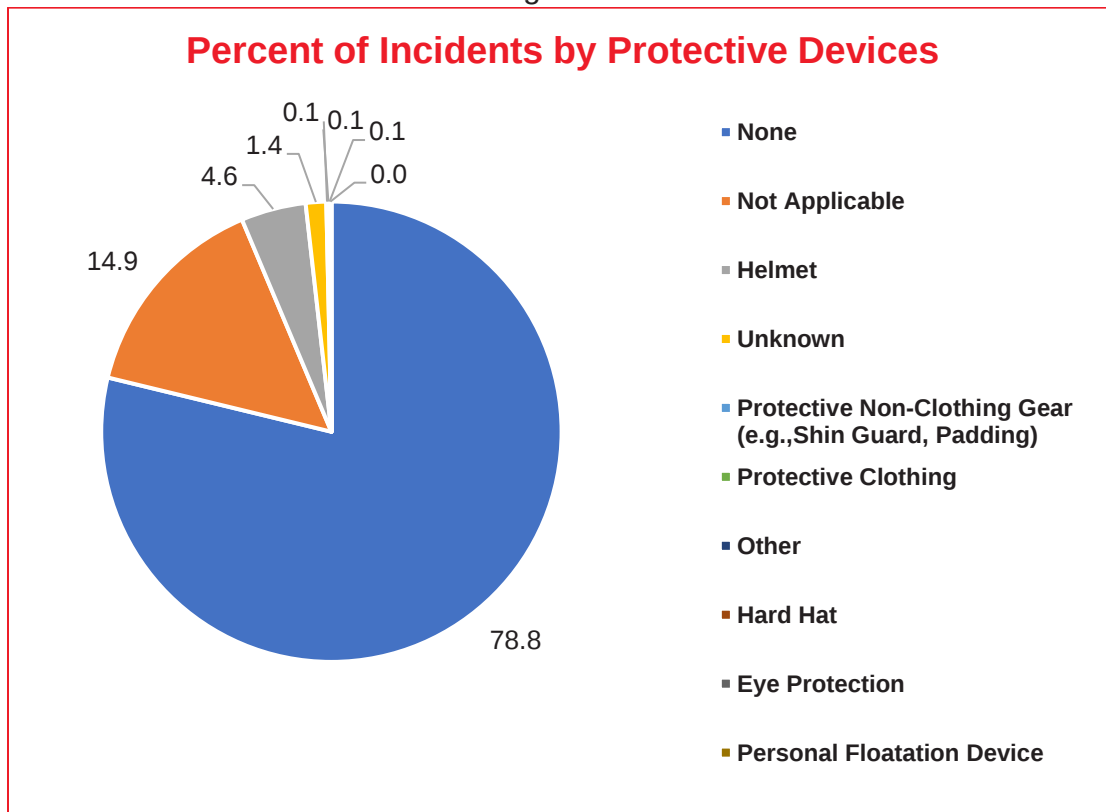


Table 24

| <b>Incidents by Protective Devices</b>                          |                  |                |
|-----------------------------------------------------------------|------------------|----------------|
| <b>Protective Device</b>                                        | <b>Frequency</b> | <b>Percent</b> |
| <b>None</b>                                                     | 27,118           | 78.8           |
| <b>Not Applicable</b>                                           | 5,115            | 14.9           |
| <b>Helmet</b>                                                   | 1,569            | 4.6            |
| <b>Unknown</b>                                                  | 495              | 1.4            |
| <b>Protective Non-Clothing Gear (e.g., Shin Guard, Padding)</b> | 35               | 0.1            |
| <b>Protective Clothing</b>                                      | 30               | 0.1            |
| <b>Other</b>                                                    | 29               | 0.1            |
| <b>Hard Hat</b>                                                 | 13               | 0.0            |
| <b>Eye Protection</b>                                           | 11               | 0.0            |
| <b>Personal Floatation Device</b>                               | 4                | 0.0            |
| <b>Total</b>                                                    | 34,419           | 100.0          |

Figure 24



## Outcomes Information

Outcome measurements describe the results of intervention and management of injuries. Positive patient outcomes result from an effective and efficient system of care.

Table 25

| <b>Median Length of Stay (LOS) in Days by Mechanism of Injury</b>            |               |               |
|------------------------------------------------------------------------------|---------------|---------------|
| <b>Mechanism</b>                                                             | <b>Number</b> | <b>Median</b> |
| Fall                                                                         | 14,156        | 4             |
| Motor vehicle traffic                                                        | 9,626         | 3             |
| Firearm                                                                      | 1,965         | 3             |
| Struck by, against                                                           | 1,707         | 2             |
| Cut/pierce                                                                   | 1,250         | 2             |
| Transport, other                                                             | 793           | 2             |
| Other specified and classifiable                                             | 414           | 2             |
| Pedal cyclist, other                                                         | 319           | 2             |
| Machinery                                                                    | 236           | 1             |
| Natural/environmental, Bites and stings                                      | 201           | 2             |
| Pedestrian, other                                                            | 197           | 3             |
| Natural/environmental, Other                                                 | 116           | 2             |
| Overexertion                                                                 | 109           | 2             |
| Other specified, not elsewhere classifiable                                  | 72            | 3             |
| Unspecified                                                                  | 66            | 2             |
| Fire/flame                                                                   | 56            | 1             |
| Hot object/substance                                                         | 32            | 1             |
| Drowning/submersion                                                          | 9             | 2             |
| Suffocation                                                                  | 7             | 1             |
| Patients with fall injuries have the highest median length of stay (4 days). |               |               |

Figure 25

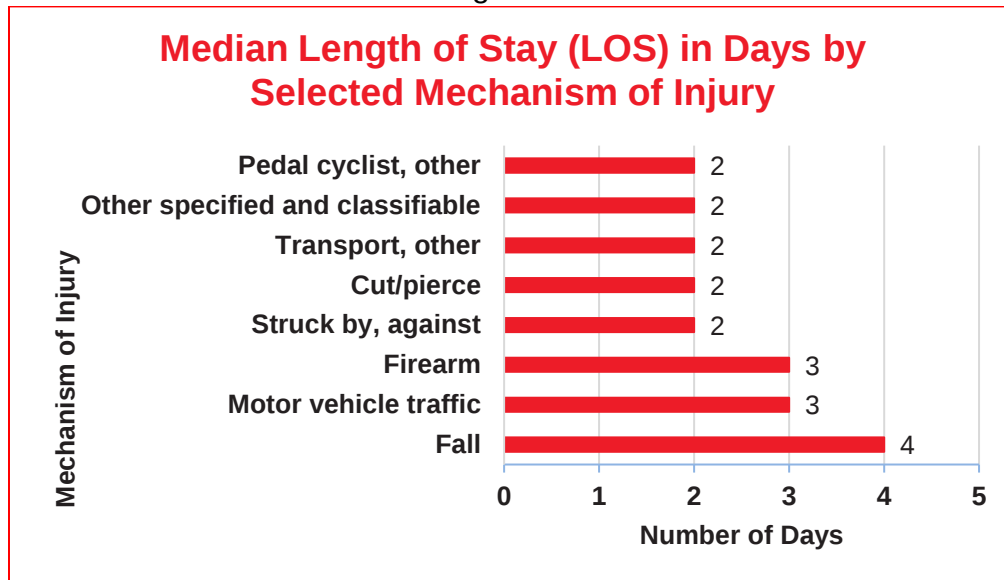


Table 26

| Median Length of Stay (LOS) in Days by<br>Injury Severity Score |        |        |
|-----------------------------------------------------------------|--------|--------|
| ISS                                                             | Number | Median |
| 1-8                                                             | 13,502 | 2      |
| 9-15                                                            | 12,384 | 4      |
| 16-24                                                           | 3,383  | 6      |
| >24                                                             | 2,266  | 9      |
| NK/NR                                                           | 29     | 1      |
| Median length of stay increases with injury severity scores.    |        |        |

Figure 26

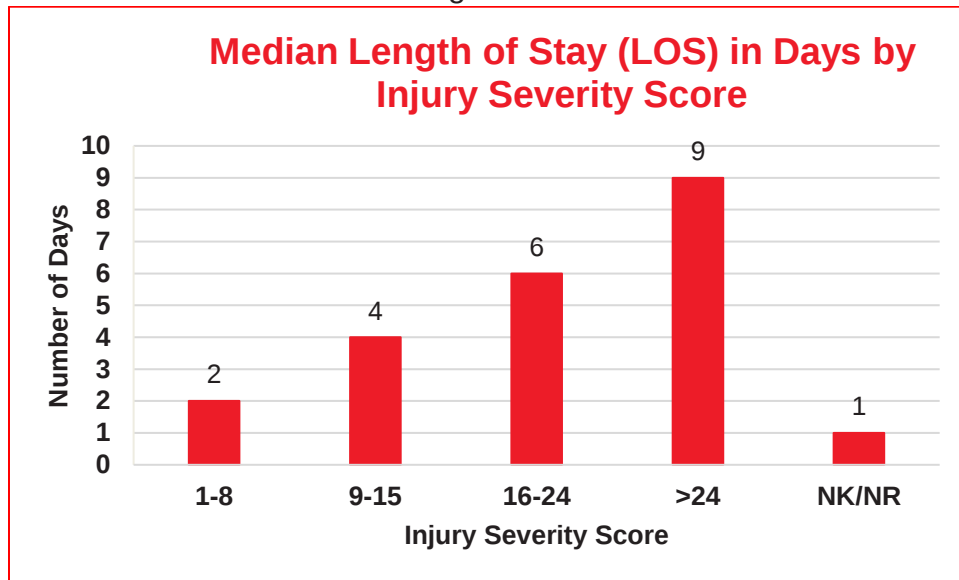


Table 27

| Median Ventilator Days by Mechanism of Injury                                                                            |        |        |
|--------------------------------------------------------------------------------------------------------------------------|--------|--------|
| Mechanism                                                                                                                | Number | Median |
| Motor vehicle traffic                                                                                                    | 1,431  | 4      |
| Fall                                                                                                                     | 771    | 4      |
| Firearm                                                                                                                  | 498    | 2      |
| Struck by, against                                                                                                       | 117    | 3      |
| Cut/pierce                                                                                                               | 96     | 2      |
| Transport, other                                                                                                         | 49     | 3      |
| Other specified and classifiable                                                                                         | 30     | 3      |
| Fire/flame                                                                                                               | 25     | 1      |
| Pedestrian, other                                                                                                        | 20     | 4      |
| Other specified, not elsewhere classifiable                                                                              | 14     | 3      |
| Unspecified                                                                                                              | 12     | 3      |
| Machinery                                                                                                                | 9      | 3      |
| Natural/environmental, Other                                                                                             | 8      | 4      |
| Pedal cyclist, other                                                                                                     | 8      | 3      |
| Natural/environmental, Bites and stings                                                                                  | 5      | 2      |
| Suffocation                                                                                                              | 3      | 8      |
| Drowning/submersion                                                                                                      | 1      | 4      |
| Overexertion                                                                                                             | 1      | 6      |
| Inpatients with ventilator days >0. Patients with suffocation injuries have the highest median ventilator days (8 days). |        |        |

Figure 27

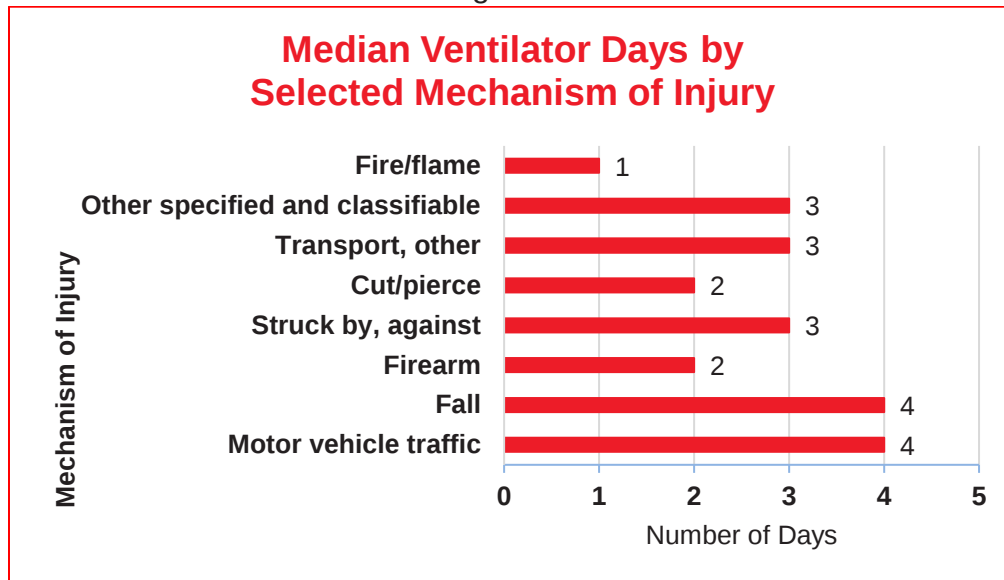


Table 28

| Median Ventilator Days by Injury Severity Score (ISS)                     |        |        |
|---------------------------------------------------------------------------|--------|--------|
| ISS                                                                       | Number | Median |
| 1-8                                                                       | 332    | 2      |
| 9-15                                                                      | 648    | 3      |
| 16-24                                                                     | 793    | 4      |
| >24                                                                       | 1,358  | 5      |
| NK/NR                                                                     | 3      | 2      |
| Median ventilator days increase as injury severity scores (ISS) increase. |        |        |

Figure 28

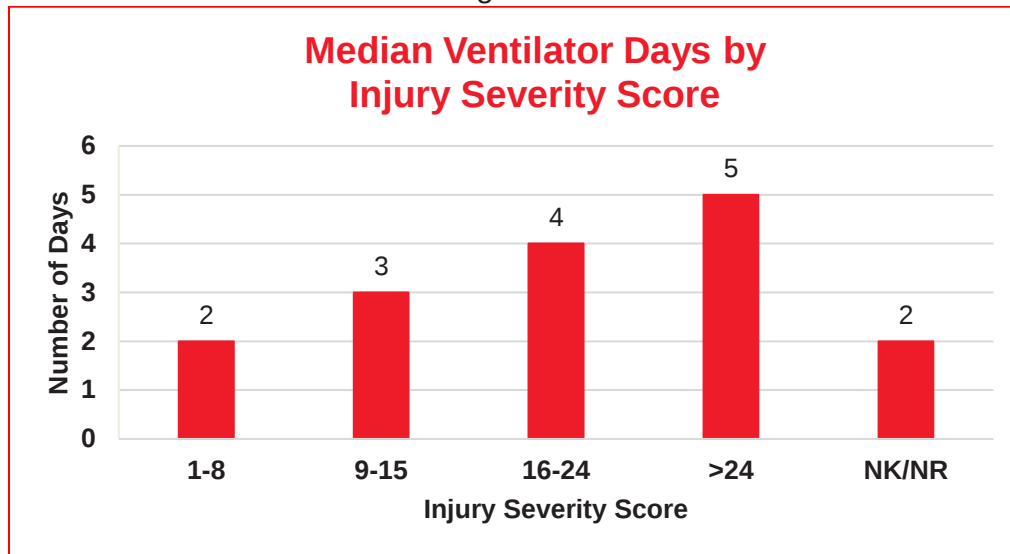


Table 29

| Median ICU Days by Mechanism of Injury                                                                     |        |        |
|------------------------------------------------------------------------------------------------------------|--------|--------|
| Mechanism                                                                                                  | Number | Median |
| Fall                                                                                                       | 3,224  | 3      |
| Motor vehicle traffic                                                                                      | 3,212  | 4      |
| Firearm                                                                                                    | 778    | 3      |
| Struck by, against                                                                                         | 381    | 3      |
| Cut/pierce                                                                                                 | 226    | 3      |
| Transport, other                                                                                           | 181    | 3      |
| Other specified and classifiable                                                                           | 67     | 4      |
| Pedestrian, other                                                                                          | 56     | 4      |
| Pedal cyclist, other                                                                                       | 52     | 2      |
| Natural/environmental, Other                                                                               | 36     | 2      |
| Machinery                                                                                                  | 31     | 3      |
| Unspecified                                                                                                | 22     | 3      |
| Other specified, not elsewhere classifiable                                                                | 21     | 3      |
| Natural/environmental, Bites and stings                                                                    | 15     | 3      |
| Fire/flame                                                                                                 | 12     | 5      |
| Drowning/submersion                                                                                        | 5      | 2      |
| Overexertion                                                                                               | 3      | 2      |
| Suffocation                                                                                                | 3      | 11     |
| Inpatients with ICU days > 0. Patients with fire/flame injuries have the highest median ICU days (5 days). |        |        |

Figure 29

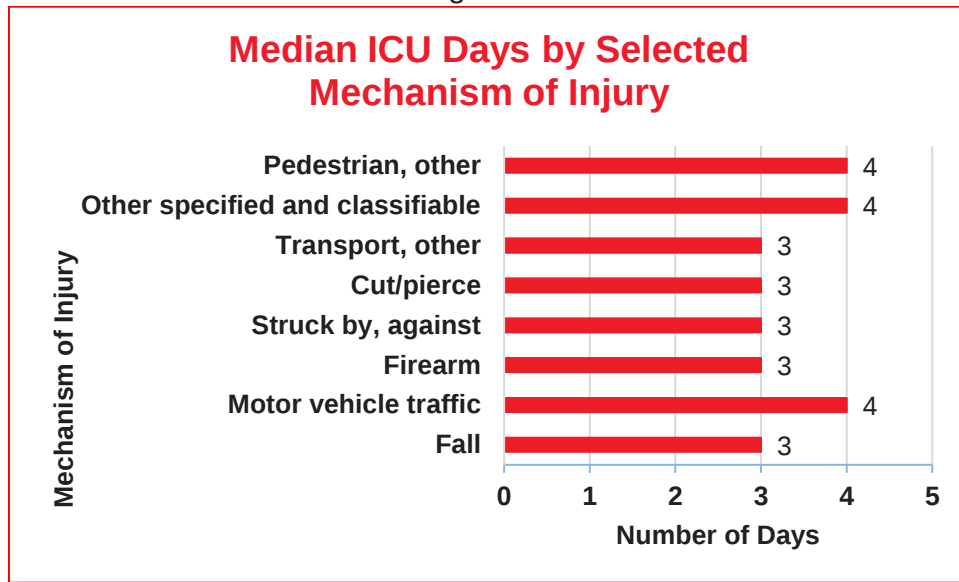


Table 30

| Median ICU Days by Injury Severity Score (ISS)        |        |        |
|-------------------------------------------------------|--------|--------|
| ISS                                                   | Number | Median |
| 1-8                                                   | 1,395  | 2      |
| 9-15                                                  | 2,840  | 3      |
| 16-24                                                 | 2,203  | 4      |
| >24                                                   | 1,948  | 6      |
| NK/NR                                                 | 6      | 4      |
| Median ICU Days increase with injury severity scores. |        |        |

Figure 30

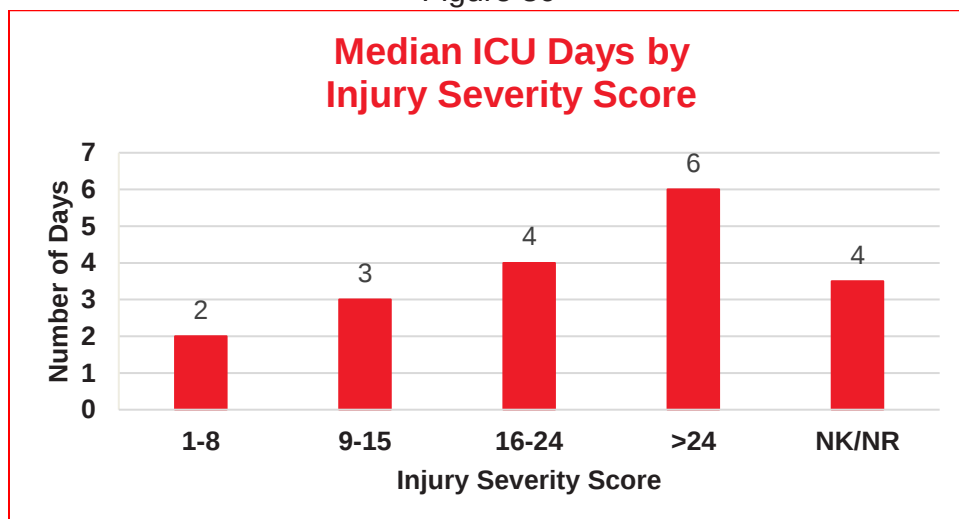


Table 31

| <b>Incidents by ED Discharge Disposition</b>                                                                                                                                                                                   |               |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------|
| <b>ED Disposition</b>                                                                                                                                                                                                          | <b>Number</b> | <b>Percent</b> |
| <b>Floor Bed (General Admission, Non-Specialty Unit Bed)</b>                                                                                                                                                                   | 15,639        | 45.4           |
| <b>Intensive Care Unit (ICU)</b>                                                                                                                                                                                               | 6,018         | 17.5           |
| <b>Operating Room</b>                                                                                                                                                                                                          | 5,007         | 14.5           |
| <b>Home without Services</b>                                                                                                                                                                                                   | 2,301         | 6.7            |
| <b>Transferred to Another Hospital</b>                                                                                                                                                                                         | 1,763         | 5.1            |
| <b>Telemetry/Step-Down Unit (Less Acuity than ICU)</b>                                                                                                                                                                         | 1,191         | 3.5            |
| <b>Observation Unit (Unit that Provides LT 24 Hour Stays)</b>                                                                                                                                                                  | 1,101         | 3.2            |
| <b>Not Applicable</b>                                                                                                                                                                                                          | 612           | 1.8            |
| <b>Died/Expired</b>                                                                                                                                                                                                            | 539           | 1.6            |
| <b>Left Against Medical Advice</b>                                                                                                                                                                                             | 88            | 0.3            |
| <b>Burn Center</b>                                                                                                                                                                                                             | 82            | 0.2            |
| <b>Other (Jail, Institutional Care, Mental Health, etc.)</b>                                                                                                                                                                   | 67            | 0.2            |
| <b>Home with Services</b>                                                                                                                                                                                                      | 8             | 0.0            |
| <b>Total</b>                                                                                                                                                                                                                   | 34,416        | 100.0          |
| Frequency missing = 3. Less than half of the ED Dispositions were to a floor Bed (45.4%). Of the 34,416 trauma registry cases, the Emergency Department (ED) disposition mortality rate was 1.6%, representing 539 lives lost. |               |                |

Figure 31

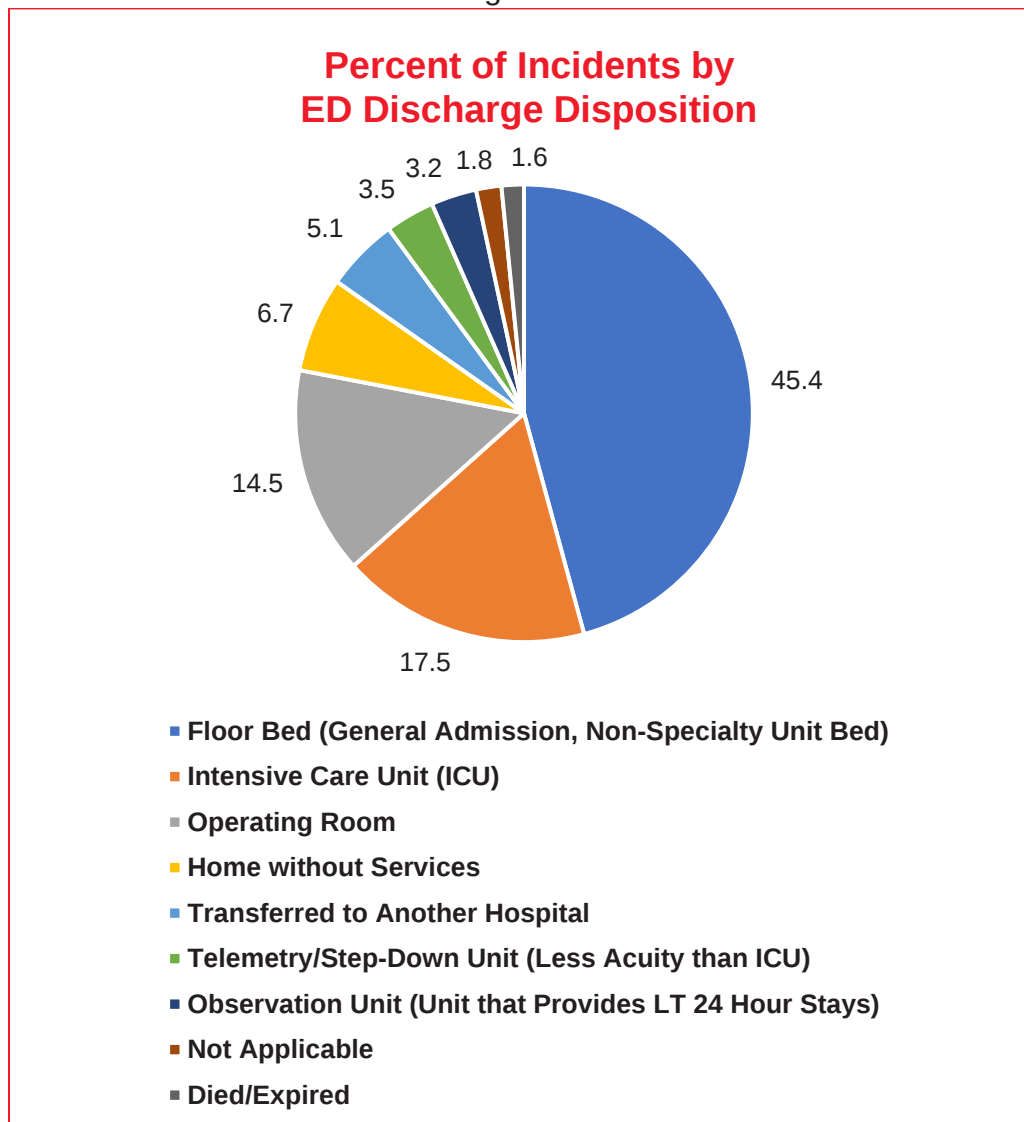


Table 32

| <b>Incidents by Signs of Life</b>                                        |               |                |
|--------------------------------------------------------------------------|---------------|----------------|
| <b>Signs of Life</b>                                                     | <b>Number</b> | <b>Percent</b> |
| <b>Arrived with Signs of Life</b>                                        | 33,961        | 98.7           |
| <b>Arrived with No Signs of Life</b>                                     | 456           | 1.3            |
| <b>Not Applicable</b>                                                    | 1             | 0.0            |
| <b>Total</b>                                                             | 34,418        | 100.0          |
| Frequency missing = 1. Most (98.7%) patients arrived with signs of life. |               |                |

Figure 32

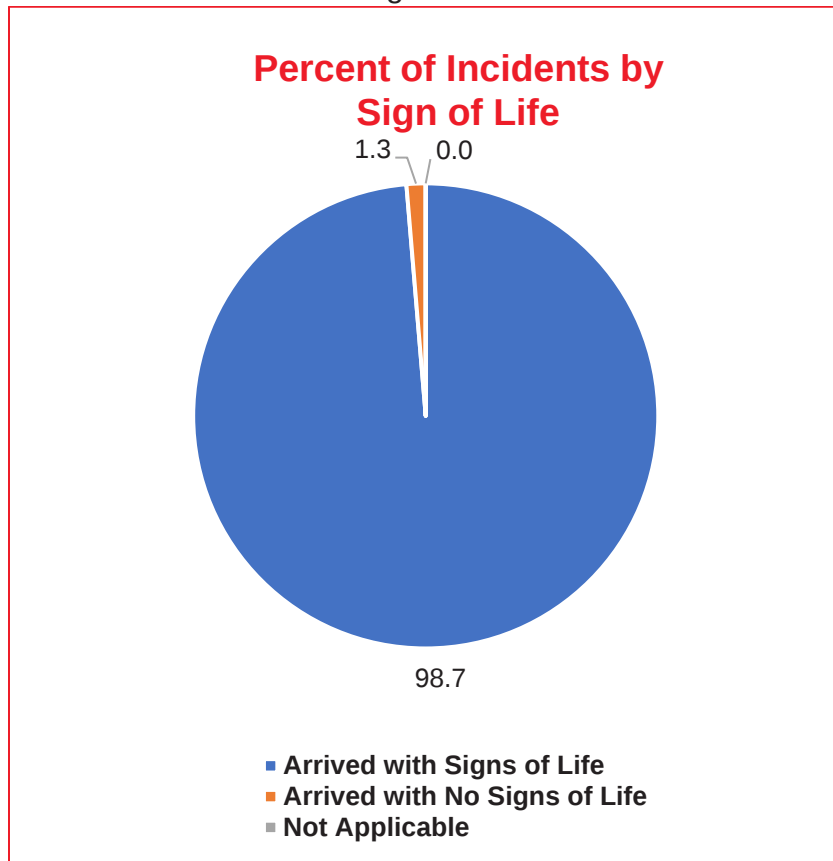
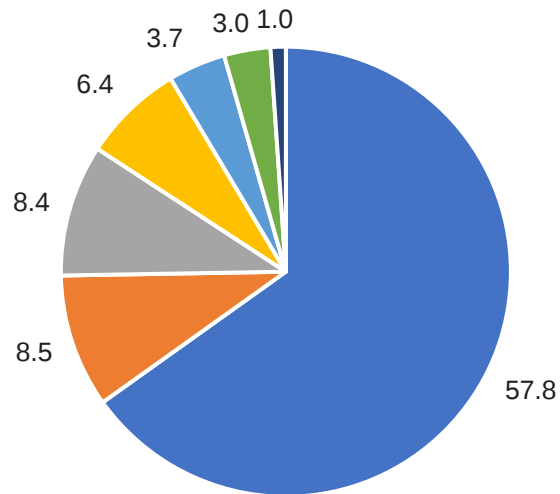


Table 33

| <b>Incidents by Hospital Discharge Disposition</b>                                                                              |               |                |
|---------------------------------------------------------------------------------------------------------------------------------|---------------|----------------|
| <b>Discharge Disposition</b>                                                                                                    | <b>Number</b> | <b>Percent</b> |
| Discharged Home with No Home Services                                                                                           | 19,908        | 57.8           |
| Discharged/Transferred to Inpatient Rehab or Designated Unit                                                                    | 2,931         | 8.5            |
| Discharged/Transferred to Skilled Nursing Facility (SNF)                                                                        | 2,895         | 8.4            |
| Discharge/Transferred to Home Under Care of Organized Home Health Service                                                       | 2,211         | 6.4            |
| Discharged/Transferred to a Short-Term General Hospital for Inpatient Care                                                      | 1,264         | 3.7            |
| Expired                                                                                                                         | 1,018         | 3.0            |
| Discharged/Transferred to Hospice Care                                                                                          | 335           | 1.0            |
| Left Against Medical Advice or Discontinued Care                                                                                | 335           | 1.0            |
| Discharged/Transferred to Court/Law Enforcement                                                                                 | 324           | 0.9            |
| Discharged/Transferred to Long Term Care Hospital (LTCH)                                                                        | 179           | 0.5            |
| Discharged/Transferred to Another Type of Institution not Defined Elsewhere                                                     | 147           | 0.4            |
| Discharged/Transferred to a Psychiatric Hospital or Distinct Part Unit of a Hosp                                                | 138           | 0.4            |
| Discharged/Transferred to an Intermediate Care Facility (ICF)                                                                   | 110           | 0.3            |
| Burn Center                                                                                                                     | 63            | 0.2            |
| Discharged/Transferred to Another Type of Rehab or LTCF                                                                         | 4             | 0.0            |
| Not Applicable                                                                                                                  | 2,557         | 7.4            |
| <b>Total</b>                                                                                                                    | <b>34,419</b> | <b>100.0</b>   |
| Of the 34,416 trauma registry cases, the Hospital Discharge Disposition mortality rate was 3.0%, representing 1,018 lives lost. |               |                |

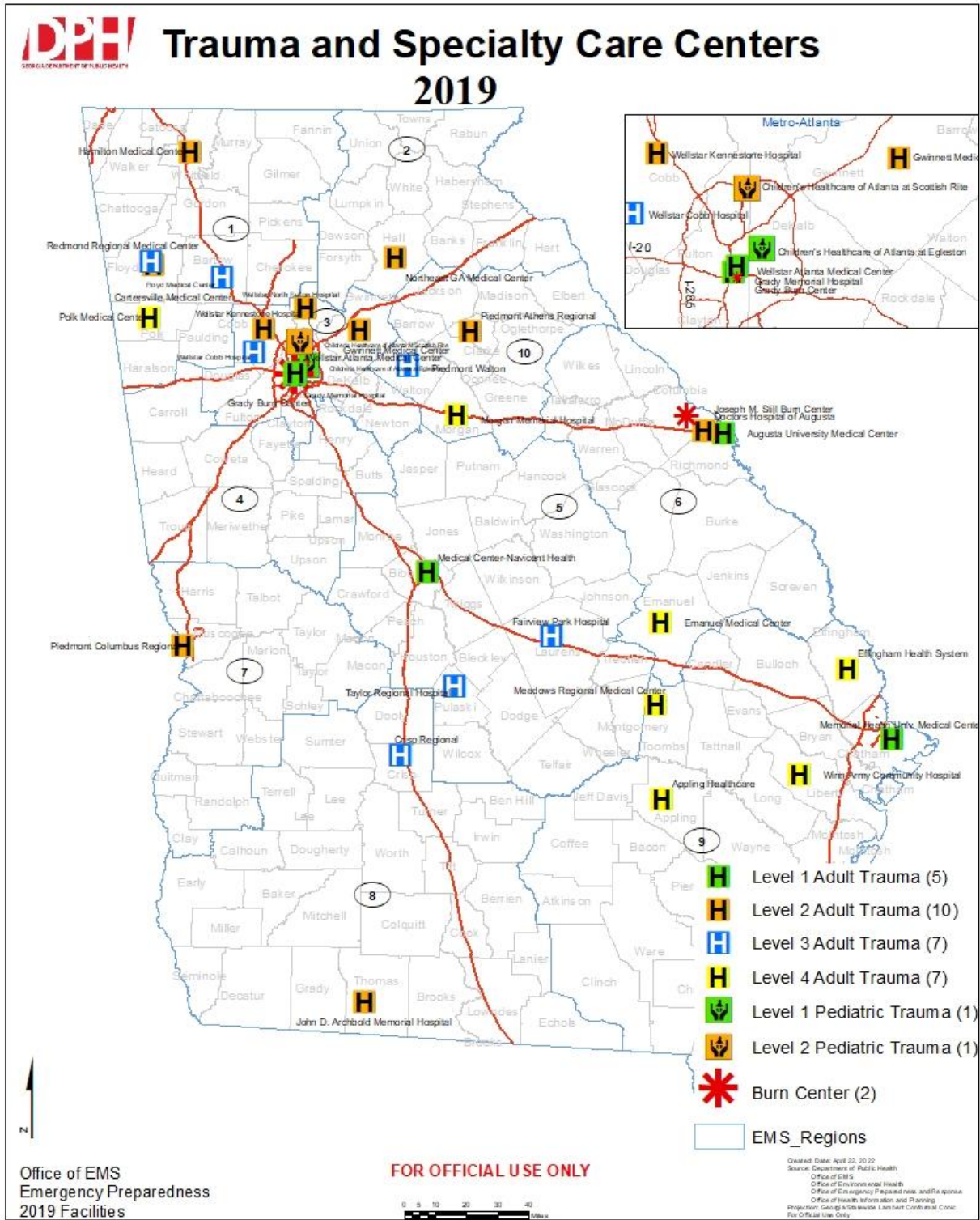
Figure 33

**Percent of Incidents by  
Hospital Discharge Disposition**



- Discharged Home with No Home Services
- Discharged/Transferred to Inpatient Rehab or Designated Unit
- Discharged/Transferred to Skilled Nursing Facility (SNF)
- Discharge/Transferred to Home Under Care of Organized Home Health Service
- Discharged/Transferred to a Short-Term General Hospital for Inpatient Care
- Expired
- Discharged/Transferred to Hospice Care

# Appendix 1



## Appendix 2

### Trauma Registry Inclusion Criteria

Any patient with ICD-10 CM diagnosis code below:

- S00-S99 with 7<sup>th</sup> character modifiers of A, B, or C. (see exclusions)
- T07 (unspecified multiple injuries)
- T14 (injury of unspecified body region)
- T79.A1 – T79.A9 with 7<sup>th</sup> character modifier of A (Traumatic Compartment Syndrome – initial diagnosis)
- Retired ICD-9-CM: any patient with ICD-9-CM diagnosis code between 800.00 – 959.9.

Excluding patients with:

- *Diagnosis codes of ICD-10-CM superficial injuries:*
  - S00, S10, S20, S30, S40, S50, S60, S70, S80, S90
- *Late effect codes with the 7<sup>th</sup> character modifier of D through S.*
- *Patients with isolated burn injuries*
- *Patients with injuries older than 30 days from first ED arrival date*
- *Retired: diagnosis codes of ICD-9-CM 905 –909.9 (late effects of injury)*
- *Retired: diagnosis codes of ICD-9-CM 910-924.9 (blisters, contusions, abrasions, and insect bites)*
- *Retired: diagnosis codes of ICD-9-CM 930-939.9 (foreign bodies)*

AND MUST INCLUDE ONE OF THE FOLLOWING IN ADDITION TO  
A QUALIFYING DIAGNOSIS CODE LISTED ABOVE

- Admitted to the hospital after discharge from the ED, regardless of length of stay.
- Transferred to or from another facility by ground EMS or Air transport.
- Died, regardless of length of stay.
- DOA: defined as a patient that died from a traumatic injury before hospital arrival.
- Unplanned readmissions, associated with the trauma, within 72 hours of discharge from the first visit.

Additional criteria:

## Georgia Trauma Registry 2019 Annual Report

- The Georgia data collection standard for blood utilization includes data for any blood products administered within the first 4 hours from the patient arrival time.

Revised: Blood collection revised 07/10/2019, 12/18/2017 eff. 01/01/2018, 03/01/2016, 05/20/2015, 04/23/2014, 02/14/2013, 12/31/2012 eff. 01/01/2013

Created: 06/26/2002