

2010 Georgia Trauma Data Summary

What is Trauma?

According to the Centers for Disease Control and Prevention (CDC) and the National Institute for Occupational Safety and Health (NIOSH), trauma injury is defined as "an injury or wound to a living body caused by the application of external force or violence." Acute trauma can occur with the sudden, one-time application of force or violence that causes immediate damage to a living body (1).

The Trauma Registry in Georgia collects information on the seriously injured patients treated at designated trauma centers in the state. In June 2002, the Georgia Department of Public Health Central Trauma Registry adopted the American College of Surgeons' (ACS) definition of trauma. According to ACS, a case of trauma is defined as any patient who was discharged with ICD-9-CM diagnosis codes between 800.00 – 959.9 after being admitted for at least 48 hours, or who:

- was transferred to or from another facility;
- died, regardless of length of stay;
- was admitted to the ICU, regardless of length of stay;
- was dead on arrival (DOA);
- had unscheduled readmissions associated with the trauma and re-admitted within 72 hours of discharge from the first visit.

This excludes any patients with ICD-9-CM codes of 905 –909 (late effects of injury), 910-924 (blisters, contusions, abrasions and insect bites), 930-939 (foreign bodies) and patients who are >65 years of age who are admitted with

isolated hip fractures that are the result of a same-level fall.

Georgia Trauma Centers

A trauma center in Georgia is a hospital that is designated by the Georgia Department of Public Health, Division of Health Protection, Office of Trauma. Georgia designated trauma centers (DTC) have 4 levels. Level I and Level II trauma centers provide a high level of surgical care to trauma patients with 24-hour availability of all essential specialties, personnel, and equipment. In addition, Level I trauma centers have trauma research programs. Level III and Level IV trauma centers do not have the full availability of specialists but provide initial evaluation, stabilization, diagnostic capabilities, and then transfer if indicated to a center with a higher level of care when warranted.

In 2010, Georgia had 17 DTC; 4 facilities were designated at Level I, 10 were Level II, one Level III, and 2 were designated at Level IV.

A total of 12,721 trauma cases were reported in 2010 from the 17 DTC in Georgia. Forty-nine percent (n=6,263; 49%) of the trauma patients received part or all of their medical care at a Level I DTC. A similar percent (n=6,186; 49%) of trauma patients received part or all of their medical care at a Level II DTC. Only one percent (n=163; 1%) of the trauma patients received part or all their medical care at a Level III DTC and another one percent (n=109; 1%) received part or all their medical care at a Level IV designated trauma center.



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Pre-hospital Information

Of the 12,721 trauma cases in Georgia during 2010, 40% occurred on the streets and highways, while 24% of traumatic injuries occurred at home.

The majority (79%) of Georgia trauma cases in 2010 were transported by ambulance, while 12% were transported by helicopter. Sixty-four percent (64%) of trauma patients were transported from the scene, 29% were transported from a referring hospital, and 6% were transported from home.

Race and Gender

Of the 12,721 reported trauma cases in Georgia during 2010, 66% occurred among males and 34% among females; 57% of the trauma patients were white, 33% were black, and 7% were of Hispanic ethnicity.

Of the 4,291 female trauma patients that were reported, 65% were white, 27% were black, and 4% were Hispanic. Of the 8,426 male trauma patients, 53% were white, 36% were black, and 8% were Hispanic. Regardless of race, the case fatality rate for trauma among males (7.2/100) was higher than that for females (4.5/100).

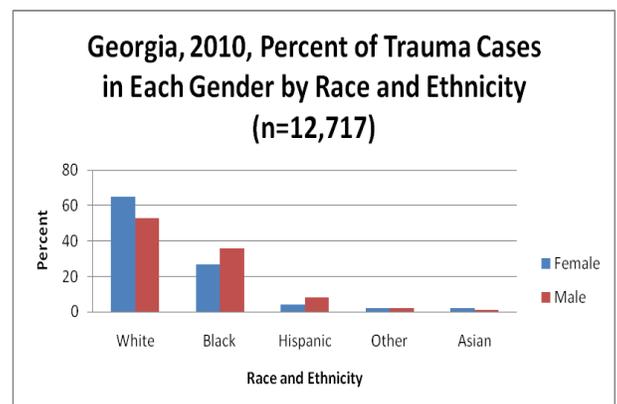
Mechanism of Injury

Eighty-eight percent (n=11,241; 88%) of the total trauma injuries were due to blunt force, while only 12% (n=1,456) were penetrating injuries. Seventy-seven percent (n=9,778; 77%) of all trauma-related injuries in Georgia in 2010 were due to: motor vehicle crashes (n=5,068;

40%), falls (n=3,712; 29%), and firearms (n=998; 8%).

The leading causes of trauma-related injuries among Georgians in 2010 differed by age groups:

- The leading causes of trauma-related injuries for patients who were less than 15 years of age were: falls (n=917; 45%), motor vehicle crashes (n=347; 17%), 'struck by, against' (n=180; 9%), 'transport, other' (n=166; 8%), 'other specified and classifiable' (n=120; 6%) and 'pedal cyclist, other' (n=90; 4%).



- The leading causes of trauma-related injuries for Georgia patients 15-54 years of age were: motor vehicle crashes (n=3,483; 48%), falls (n=1,087; 15%), firearms (n=871; 12%), 'struck by, against' (n=487; 7%), cut/pierce (n=417; 6%), and 'transport, other' (n=359; 5%).
- The leading causes of trauma-related injuries for patients 55 years and older were: falls (n=1,706; 50%), motor vehicle crashes

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(n=1,234; 36%), 'struck by, against' (n=94; 3%), firearms (n=90; 3%), 'transport, other' (n=74; 2%), and cut/pierce (n=45; 1%).

Injury Severity Score

The Injury Severity Score (ISS) is a system that classifies numerically the severity of a trauma injury. ISS scores range from 1 to 75, with a higher score representing more severe injury. ISS scores are classified into four groups: 1-8, 9-15, 16-24, and greater than 24. The ISS group score of 1-8 represents a minor injury, 9-15 is a moderate injury, 16-24 is severe injury, while a score of 24 and higher indicates a very severe injury.

Forty-two percent (n=5,380; 42%) of the reported 12,721 trauma injuries in Georgia during 2010 were minor (ISS 1-8), 35% (n=4,415) were moderate (ISS 9-15), 15% (n=1,873) were severe (ISS 16-24), and 8% (n=990) were very severe (ISS >24) injuries.

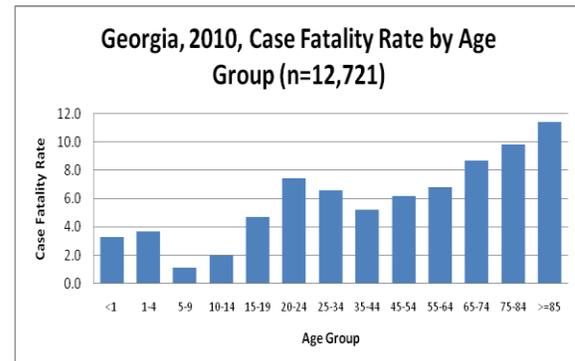
Mortality

Case-fatality rate is defined as the number of deaths per 100 reported trauma patients. The case-fatality rate increases with injury severity score; in Georgia during 2010, only 1/100 (n=55) of minor and 2.2/100 (n=99) of moderate trauma injuries resulted in death, while 10.4/100 (n=195) of the severe and 41.3/100 (n=409) of the very severe trauma injuries resulted in death.

The overall case-fatality rate for the 12,721 reported trauma-related injuries in Georgia during 2010 was 6.3/100.

The overall case-fatality rate among males (7.2/100) was 60% higher than among females (4.5/100). The case-fatality rate was 29% higher among blacks (7.5/100) than whites (5.8/100) and 74% higher than among Hispanics (4.3/100).

Case-fatality rates were highest for patients who were 75-84 years of age (9.8/100) and over 85 (11.4/100) years of age, while the case-fatality rate was the lowest for patients who were 5-9 years of age (1.1/100).



In Georgia during 2010, firearm-related trauma injuries had the highest case fatality rate (21.2/100), followed by drowning/submersion (20.0/100), suffocation (16.7/100), fire/burn (8.3/100), other specified and classifiable (7.7/100), motor vehicle crashes (7.0/100), and cut/pierce (6.0/100).

The case-fatality rate also varied by intention. Self-inflicted trauma-related injuries had the highest case fatality rate at 28.4/100, followed by undetermined 16.8/100, assault 11.0/100, and unintentional 5.0/100.

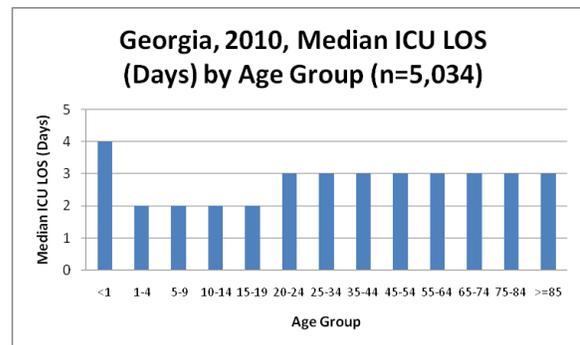
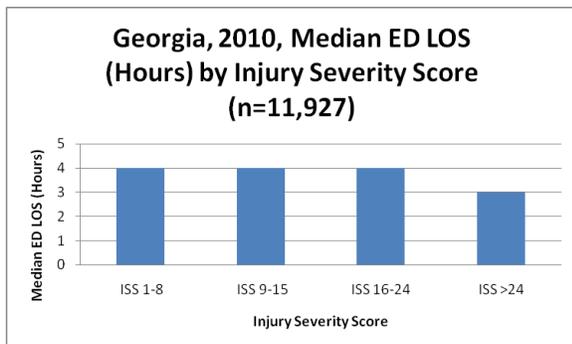
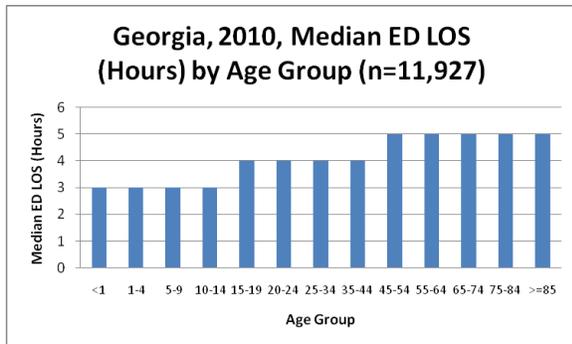
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Outcomes

For the 11,927 Georgia trauma patients who reported an Emergency Department (ED) stay due to their injuries, the overall Median Emergency Department (ED) Length of Stay (LOS) was 4 hours for both females and males of all ages. The Median ED LOS for young adults (less than 15 years of age) was 3 hours. Patients with fire/burn injuries had the shortest Median ED LOS of 2 hours. The Median ED LOS for patients with ISS greater than 24 was 3 hours, while the Median ED LOS for patients with ISS 1-8 was 4 hours.

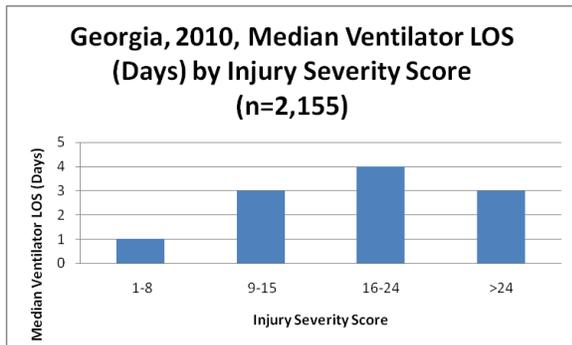
Of the 11,927 patients who were admitted to ED, 39% were discharged from the ED to the hospital floor, 34% to the ICU, 14% to the operating room (OR), 5% were discharged home, 4% were transferred to another facility, and 2% were discharged to telemetry.

There were 5,034 Georgia trauma patients admitted to Intensive Care Units (ICU). The Median ICU LOS was 3 days for both females and males of all ages. The Median ICU LOS was the shortest (2 days) for Georgia trauma patients aged 1-19 years of age. Patients with fire/burn injuries had the longest median LOS (16 days) in ICU. The more severe the injury was, the longer the median ICU LOS.



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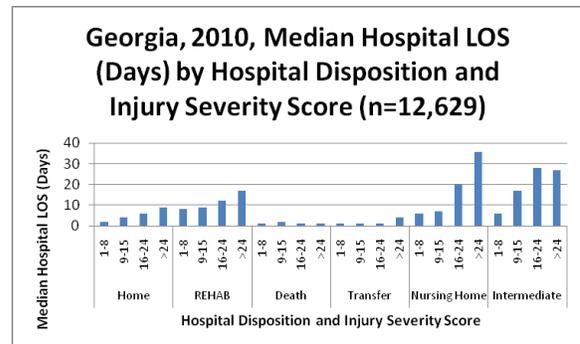
The Median Ventilator LOS (length of time a trauma patient needed ventilator assistance) was 3 days for both females and males of all ages. Patients 10-14 years of age had the shortest (1.5 days) Median Ventilator LOS. Patients with minor injury (ISS 1-8) had the shortest (1 day) Median Ventilator LOS.



Among the Georgia trauma patients who needed a ventilator (n =2,155), 43% (n =928) were discharged to home, 27% (n =575) died, 19% (n=408) were discharged to a rehabilitation facility, 5% (n =101) to a nursing home, 3% (n = 56) to an intermediate-care facility, and 2% (n=55) were transferred to another facility.

Overall, the median hospital LOS for Georgia trauma patients in 2010 (n = 12,636) was 4 days for both females and males of all ages; median hospital LOS was shortest (1 day) for patients 1-14 years of age. Patients with minor injury (ISS 1-8) had the shortest (3 days) median hospital LOS.

Trauma patients who were discharged from the hospital to intermediate care with severe (ISS 16-24) or very severe injury scores (ISS > 24) had a median hospital LOS of 28 and 27 days, respectively. Trauma patients who were discharged to a nursing home with severe or very severe injury scores had a median hospital LOS of 20 and 35.5 days, respectively, while trauma patients who were discharged to a rehabilitation facility with a severe or very severe injury scores had median hospital LOS of 12 and 17 days, respectively.



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Patients who were admitted to the hospital with recorded hospital disposition (n=12,629) had the following discharge disposition: 75% (n=9,516) home, 8% (n=1,061) a rehabilitation facility, 6%

(n=733) died, 4% (n=567) were transferred to another facility, 4% (n=529) to a nursing home, and 1% (n=70) to intermediate care. Patients who were discharged from hospital to a

rehabilitation facility, a nursing home, and intermediate had longer median hospital LOS (10 days, 7 days, and 22.5 days individually) than those discharged to home (3 days).

Hospital Disposition for Patients with Hospital LOS>0 days (Patients with Disposition as Dead On Arrival were Excluded)		
Hospital Disposition	Number of Incidents	Percent
Home	9,516	75
REHAB	1,061	8
Death	733	6
Transfer	567	4
Nursing Home	529	4
Intermediate	70	1
AMA	59	0
Hospice	35	0
Transfer Trauma	29	0
Jail	23	0
Burn Transfer	7	0
Total	12,629	100

Reference

1. <http://www.cdc.gov/niosh/programs/ti>