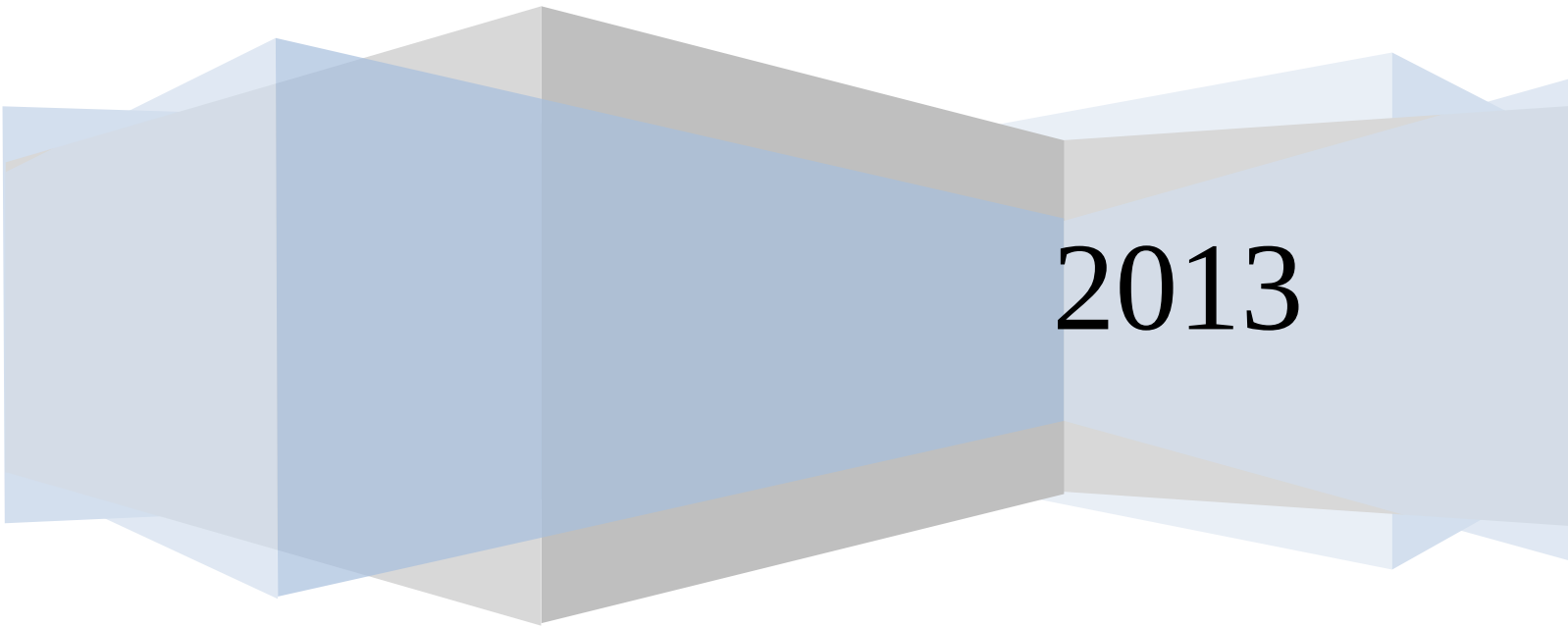
Iraqi Injury Surveillance System Annual Report 2013



Iraqi Injury Surveillance System report 2013

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Summary

Injuries are the major cause of morbidity and mortality in all countries. Injuries kill more than 5 million people worldwide. Road injuries are project to be one of the top five causes of death by 2030. In Iraq injuries cause the second leading causes of death for all age group excluding under 5. The report presents the epidemiology of both fatal and non- fatal injuries. During the period covered by this report data collected from emergency department in nine directorates and coroner offices in eight departments. The report finds the number of overall non fatal injures increased from 46,581 in 2010 to 58,919 in 2013. Males represented greater proportion of injuries in every age cohort in both fatal and non-fatal. The unintentional injures cause the greatest proportion of non-fatal injuries, traffic injures are responsible for about 17.5% of all non-fatal injuries. According to mechanism of injuries, falls were responsible for the greatest proportion of non fatal injures 28.5% followed by sharp objects, blunt objects and burn. Nearly half of the injuries occurred at home (48.9%), about 6.7% of injures arrived by Ambulance, 81.5% of injuries arrived at the emergency room within one hour of injures and over 10% of victims received some care prior to arriving emergency room. Majority of injuries were treated and discharged (72.6%).

Regarding to fatal injuries the number of deaths was relativity consistent during the four years (2010-2013). The percent of fatal injuries suggests a gradual increase in the number reported between January and July, for traffic accident remind more stable throughout the year. The greatest proportion of injuries 31.7% were attributed to intentional insurgency-related injuries. The primary mechanism of fatal injuries was insurgency-related injuries followed by road traffic incidents. Burns were the only mechanism for which women report a greater proportion of the injuries. In contrast to non-fatal injuries pedestrian and cars represent similar proportion of victims of traffic related injuries. The most common location of fatal injury was on streets or highways, home, followed by the workplace.

Introduction

Injuries are a major cause of morbidity and mortality in all countries. According to the World Health Organization (WHO), injuries kill more than 5 million people worldwide, accounting for about 9% of all global deaths.[1] Eight of the top global twenty causes of death are injury related for the age group 15-29 years of age. In the Eastern Mediterranean Region, almost half a million people die of injuries every year, accounting for about 11% of all regional deaths. Injuries disproportionately affect young, active individuals.

Global trends suggest that the burden of injuries is increasing. Road injuries are projected to be one of the top five causes of death by 2030 (currently ranked seventh). The burden of self-harm as a mechanism of injury is also expected to increase (Table 1).

Table 1.Top 20 leading causes of deaths in the Eastern Mediterranean Region, estimated numbers in 2015 and projected number in 2030[2]

Rank	2015	2030
1	Ischemic heart disease (517333)	Ischemic heart disease (786146)
2	Stroke (345606)	Stroke (542884)
3	Lower respiratory infections (306277)	Lower respiratory infections (302444)
4	Preterm birth complications (175533)	Chronic obstructive pulmonary disease (266156)
5	Chronic obstructive pulmonary disease (170935)	Road injury (249278)
6	Diarrheal diseases (165689)	Diabetes mellitus (199622)
7	Road injury (154941)	Preterm birth complications (142955)
8	Birth asphyxia & birth trauma (110797)	Diarrheal diseases (131585)
9	Diabetes mellitus (106866)	Hypertensive heart disease (126646)
10	Tuberculosis (87569)	Cirrhosis of the liver (108900)
11	Congenital anomalies (82941)	Birth asphyxia and birth trauma (93206)
12	Hypertensive heart disease (80954)	Endocrine, blood, immune disorders (92452)
13	Cirrhosis of the liver (77270)	Kidney diseases (91016)
14	Endocrine, blood, immune disorders (66975)	Congenital anomalies (86491)
15	Kidney diseases (63603)	Breast cancer (76020)
16	HIV/AIDS (56222)	Self-harm (66827)
17	Protein-energy malnutrition (52557)	Trachea, bronchus, lung cancers (65011)
18	Neonatal sepsis and infections (48379)	Tuberculosis (62141)
19	Self-harm (46144)	Rheumatic heart disease (61589)
20	Collective violence and legal intervention (41568)	Asthma (61346)

[1]Global Health Estimates 2015

[2]Source: Projections of mortality and causes of death, 2015 and 2030: http://www.who.int/healthinfo/global_burden_disease/projections/en/

In Iraq, injuries cause considerable morbidity and mortality. National estimates from the Ministry of Health Annual Reports (2006 – 2010) suggest that deaths due to external causes of injuries were the second leading cause of death for all age groups excluding children under five. Global estimates also illustrate the disability resulting from injury, including ongoing conflict. According to the Global Burden of Disease Iraq profile, mechanical forces, interpersonal violence, road traffic injuries, fire, drowning, and war and legal intervention were among the main causes of Years of Life Lost (YLL).
The Iraq Injury Surveillance System was established to ensure systematic and ongoing data collection. The data is intended to be used for public health action. Between 2008 and 2013, the surveillance system has been piloted in Iraq. The pilot was initiated in 2008 with four provinces, scaled to eight provinces in 2009, and at the end of 2013 scaled nationally.

The surveillance system aims to determine the magnitude of the public health problem and trends, to identify risk groups in the community studied, allowing prioritization and planning of the necessary preventive programs, and enable research and assessment. Rigorous data ensures that interventions to mitigate injury can be data driven and evidence based.

This report presents the epidemiology of both fatal and non-fatal injuries. External injuries are described in terms of their magnitude, geographical distribution, time, intention, and mechanism of injury. During the period covered by this report data was collected from emergency departments in nine directorates and coroner offices in eight departments.

External injuries are considered as invisible epidemic across the world and as a global health problem. Particularly in countries experiencing war, injury surveillance is an important public health intervention.

The Iraq Injury Surveillance System is implemented by the Ministry of Health and the Ministry of Health in Kurdistan. The project received technical support from the World Health Organization (WHO), US Centers for Disease Control and Prevention (CDC), United Nations Children's Fund (UNICEF), and United Nations Development Program (UNDP). WHO also provides financial support to the project.

Since the inception of this project, similar injury surveillance systems have been developed in the Kingdom of Saudi Arabia, Oman, Bahrain, Egypt and Uzbekistan with support of WHO.

Report Overview:

The current report contains four sections, including:

1- Description of the injury surveillance system in Iraq including development and rationale, system goals and objectives, methodology, definitions, data flow, ethics and limitations.
2- Overview of the findings in 2013 for non-fatal injuries from data recorded at sentinel emergency departments
3- Overview of key findings for 2013 for fatal injuries from data recorded at governorate level coroner offices
4- Summary of key findings and recommendations for public health action based on these findings, as well as recommendations to address gaps and challenges facing the system.

1. Description of the Iraqi Injury Surveillance System:

1.1 Development of the system:

Iraq Injury Surveillance System has been gradually scaled up in Iraq. Data collection was first piloted beginning December 2008. Between 2009 and 2013, data on all causes of injury were collected from coroner offices and emergency departments in eight pilot governorates— Al-Anbar, Baghdad, Basrah, Erbil, Kerbala, Maysan, Mousel, and Al-Sulaimaniya. Table 2 lists the reporting sites by governorate for all sites contributed data every month during 2013. Data from the facilities listed are presented in this Annual Report.

Over the course of 2013, the Injury Surveillance System gradually scaled up to include facilities in all 18 governorates of Iraq. Facilities in newly added governorates were trained on data collection and reporting beginning in June of 2013. Data from these facilities will be included in the annual reports beginning in 2014.

Table 2.Reporting Sites enrolled in the Injury Surveillance System, from 2013

Directorate	Reporting Site
Emergency Rooms – Non-fatal Surveillance	
Al-Basra	Al-Muan'e Hospital
Al-Basra	Basra Teaching Hospital
Al-Basra	Basra General Hospital
Anbar	Ramadi Teaching Hospital
Baghdad/Karkh	Yarmouk Hospital
Baghdad/Rasafa	Al-Shaheed Al-Sader Hospital
Erbil	Erbil Emergency Hospital / Erbil West
Erbil	Erbil Teaching Hospital / Erbil Center
Karballa	Al-Husayne Hospital
Misan	Al-Sader Teaching Hospital
Mousel	Jamhoury Teaching Hospital
Sulaimaniya	Emergency Teaching Hospital
Coroner Offices and Forensic Institutes –Fatal Surveillance	
Baghdad/Rasafa	Medico-Legal Institute of Baghdad
Al-Basra	Basrah Coroner Office
Erbil	Office of the Medico-Legal Erbil
Karbala	Office of Forensic Medicine in Karbala
Sulaimaniya	Office of the Medico-Legal Sulaymaniyah.
Mousel	Office of Forensic Medicine
Anbar	Office of the Medico-Legal Anbar
Misan	Office of the Medico-Legal Misan

1.2 Goal and objectives of the system:

The following are the goals of the Iraq Injury Surveillance System:

- Implement a national injury surveillance system that covers all Iraqi provinces by the end of 2013;
- Describe the epidemiology of external injuries in Iraq in terms of the overall burden, geographic distribution, and temporal trends;
- Provide an evidence base to inform public health interventions for those injured, including pre-hospital care;
- Inform prevention activities aimed at minimizing the burden of external injuries.

1.3 Methodology of Injury Surveillance System:

a. Injury Surveillance Case Definition

The case definition used by the Iraqi Injury Surveillance System includes all persons killed or injured as a result of an external injury, including both intentional and unintentional injuries.
For non-fatal injuries a case is defined as the first visit to the emergency department for each person with external injury, regardless of the number of injuries. The injured person with the second (or subsequent) visit due to the same external cause of injury is not considered a case. External injury includes, but is not limited to, injuries resulting from the following mechanisms – road traffic crashes, falls, fires, electricity, drowning, poisonings, natural disasters, shooting, shelling, suicide bombings and terrorist attacks. Injuries resulting from landmines or explosive remnants of war (ERWs) are included. Sexual assaults and legal intervention (action by police) are excluded.

b. Reporting Sites

The Injury Surveillance System includes both **fatal** and **non-fatal** injury surveillance.

Fatal injuries are reported by the central coroner offices or forensic institute in each health directorate. Each health directorate has one, and only one, facility that is responsible for examining injuries and issuing death certificates. Therefore, the surveillance system ***aims to capture all fatal injuries*** in participating directorates. Fatal injury surveillance is exhaustive.

Non-fatal injury surveillance, by contrast, is **sentinel** surveillance. Within each directorate, there are 1-3 hospitals reporting. Sentinel hospitals are primarily large public, general hospitals serving both urban and rural populations. Non-fatal injury surveillance ***does not aim to capture all non-fatal injuries*** however it can provide useful information on trends, and relative burden of different types and mechanisms of injury.

c. Data Collection

The data on injuries presenting to ER in the sentinel hospitals are collected by trained nurses using a standardized surveillance form. Information on demographics, cause, intent and place of injury as well as the mode of transport, pre-hospital care and patient disposition was obtained through patient interviews and review of ER medical cards. The data were entered at the ER statistical units in the hospitals and transmitted to the Directorates of Health (DOH). DOH conducted preliminary analysis and transmitted

the data to the project focal point at the Ministry of Health for final analysis. DOH shared the results of preliminary analysis with the reporting hospitals and other stakeholders.

For fatal injuries, data are collected by coroners using a similar standardized surveillance form. Forensic observation, police reports and interviews with witnesses are used to complete the form. The data are entered at the coroner office and transmitted to the Directorates of Health (DOH). DOH conducted preliminary analysis and transmitted the data to the project focal point at the Ministry of Health for final analysis.

The surveillance form used in coroner offices and ERs was prepared in English with the support of experts from the WHO and CDC. The form has been translated into Arabic and Kurdish. Data is entered into an electronic form (developed using the Epi-Info software) by trained technicians. The current form is provided as Annex 1.

The following variables are collected on the form:

- Health Directorate and Reporting Site
- Demographic information
- Date and time of injury
- Date and time of arrival at ER or CO
- Mode of transport to health facility or CO
- Death certificate number (CO data only)
- Mechanism of Injury
- Intention
- Place of injury
- Pre-hospital care (for ER only)
- Patient disposition (for ER only)
- Additional modules: detailed information on circumstances of injuries resulting from mines and ordnance

The data are transferred to the project focal point at the Ministry of Health monthly (by e-mail as well as CD), where they are merged, consolidated, processed and sent to the CDC and the WHO for review.

d. Data Quality and Completeness

Designated focal points in emergency rooms and coroner offices were trained to monitor the data collection process. These individuals are the first check to ensure accuracy and completeness of the data. They review the data daily before sending the forms for data entry.

Officials at the Operations Center of DOH and/or the Ministry of Health conducted monthly visits to monitor the process. During monthly visits, surveillance forms are compared to hospital and coroner offices' records. An external auditing team from the Ministry of Health Scientific Committee also organizes field visits to review and verify the record in each reporting site.

The injury surveillance system is a unit in the Operations Center Department; which is part of Directorate of Medical Operations and Specialized Health Services in the Ministry of Health

Additionally, the data quality is reviewed during analysis by colleagues at the WHO and CDC to comprehensively check for duplicates, missing data, consistency and face validity of the findings.

e. Ethical Consideration

The surveillance system has been approved by the Ministry of Health. Throughout all phases, the privacy of the injured persons is kept secure and confidential even when the records are transferred to the Ministry of Health. The injured persons are kept informed that all the information provided are for the improvement of the health services and will not be shared with any other legal or judicial entities and will not be used against them in any way.
Sexual assault is not documented in order to preserve the privacy of the patient in the conservative Iraqi society. Data derived from the forensic medicine departments are treated with full confidentiality while handling and all the forms are kept protected.

f. Dissemination and Use for Public Health Action

The focal point at the Ministry of Health, responsible for the surveillance system, develops the annual report with the assistance of the WHO and CDC. The report is delivered to Presidency of the Council of Ministers, National Security Council, and other MOH Directorates including the Public Health Directorate and Non-Communicable Disease Control and Prevention Section of the Primary Health Care Department.

The following Ministries receive a copy of the report: Defense, Interior, Traffic Affair, Civil Defense, the Center of Health and Professional Safety, Labor, Electricity, Oil, Planning, Education, and Industry. The annual report is also disseminated to nongovernmental organizations.

The National Committee for Injury Prevention will use the data published in the report to enhance and redirect their preventive and control measures accordingly.

2. Overview of Key Findings – Non Fatal Injury Surveillance

2.1 Overall Number of Injuries and Victim Demographics

Table 3. Number and percent of reported non-fatal injuries by governorate, 2013

Governorate	2013	2013	2012	2012	2011	2011	2010	2010
	N	%	N	%	N	%	N	%
Al-Basra	2,761	4.7	4,572	6.7	4,365	7.5	5,876	12.6
Anbar	3,033	5.2	2,721	4.0	2,713	4.7	2,161	4.6
Baghdad/Karkh	2,975	5.1	4,365	6.4	3,369	5.8	2,912	6.3
Baghdad/Rasafa	9,311	15.8	13,271	19.5	12,723	21.9	8,995	19.3
Erbil	12,038	20.4	9,942	14.6	2,966	5.1	4,207	9.0
Karballa	10,522	17.9	15,511	22.8	6,887	11.9	7,186	15.4
Misan	2,771	4.7	3,459	5.1	2,327	4.0	1,323	2.8
Mousel	6,417	10.9	5,257	7.7	7,802	13.4	2,707	5.8
Sulaimaniya	9,091	15.4	9,028	13.3	14,886	25.7	11,214	24.1
Total	58,919	100.0	68,126	100.0	58,038	100.0	46,581	100.0

The number of injuries reported overall increased from 46,581 in 2010 to 58,919 in 2013; however, this increase should be interpreted with caution as this is likely affected by the progressive roll out of the surveillance system during the period. As mentioned, the number of facilities reporting in each governorate and consistency of reporting varied during the four-year period.

In 2013, we document the most injuries in Erbil followed by Karballa. The number of injuries reported from 2012 to 2013 increased in Erbil but decreased in Karballa.

Table 4. Percent of women and children among all non-fatal injuries, 2013

Non-fatal injuries	N	%
Percent Children U18	25,355	43.1
Percent Women	16,969	28.8

Of all non-fatal injuries, about 40% were in children under 18 years of age and more than a quarter of injuries were in females. These proportions were stable, not changing significantly from previous years.

Figure 1. Age and sex distribution of all non-fatal injuries, 2013

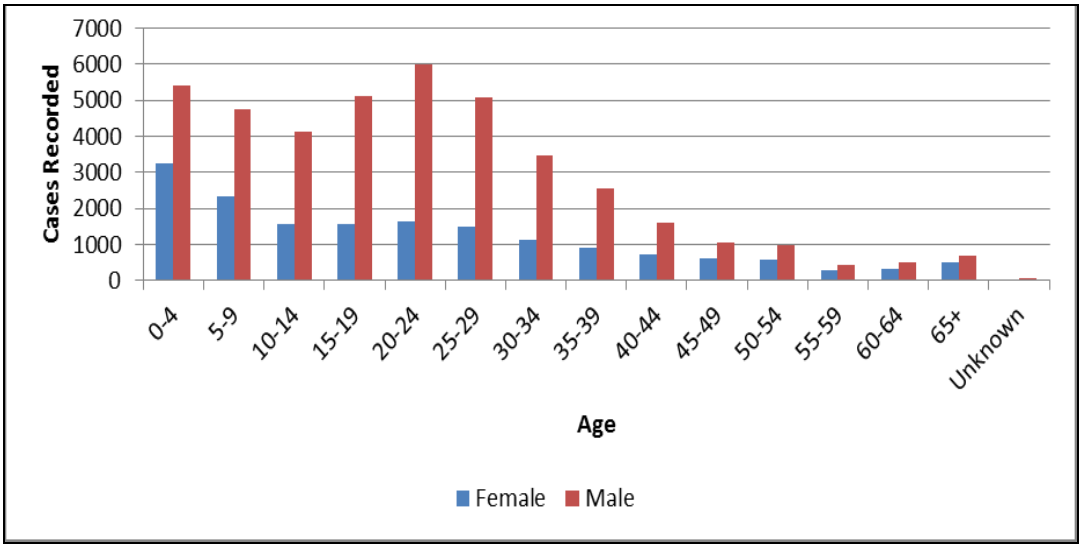


Figure 1 shows the number of injuries by sex within each five-year age cohort in 2013. The demographics of non-fatal injuries in 2013 were similar to those seen in 2010- 2012 (not shown). As illustrated, males represented a greater proportion of injuries in every age cohort. Injuries disproportionately affected males 15-29 years of age. There was also consistently high number of injuries in the youngest age groups (0-9 years). In females the number of injuries in (0-4 year) age group was the highest of all age groups.

2.2 Time Trends, 2013

Table 5. Percent of injuries per month among all non-fatal injuries, 2013

Month	2013	
	N	%
January	4,136	7.0
February	4,855	8.2
March	4,129	7.0
April	5,244	8.9
May	6,583	11.2
June	4,498	7.6
July	4,375	7.4
August	5,598	9.5
September	5,198	8.8
October	5,894	10.0
November	4,835	8.2
December	3,574	6.1

Figure 2. Percent of injuries per month among all non-fatal injuries, 2013

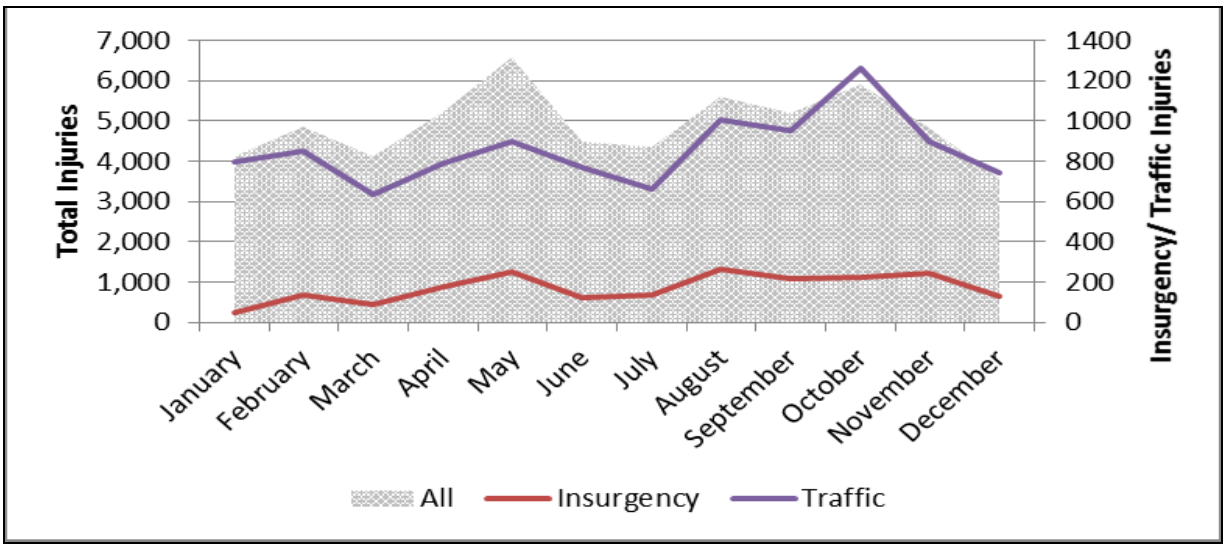


Table 5 and Figure 2 show the proportion of injuries recorded in a given year by month . No consistent secular trends were identified for non-fatal injuries.

Figure 3. Percent of injuries by time of day among all non-fatal injuries, 2013

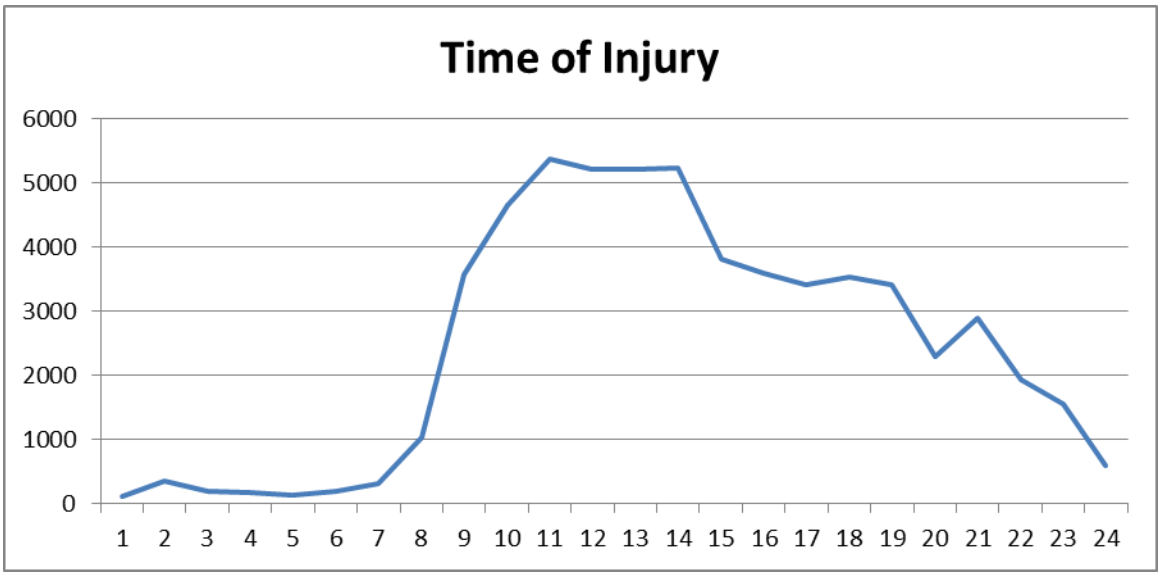


Figure 3 shows the number of injuries by the time of injury. As reported, most injuries occurred during the day time (8am to 8pm).

2.3 Distribution of Injuries by Intention

For the following analysis injuries are classified into six categories by intention— (1) unintentional – road traffic accidents, (2) intentional – insurgency related, (3) intentional – assault, (4) intentional – self-harm, (5) unintentional – other, and (6) unknown intention.

Table 6. Percent of injuries by intention among all non-fatal injuries, 2013

Intention	N	%
Unintentional - Traffic	10,281	17.5
Intentional – Insurgency	2,041	3.5
Intentional – Assault	2,442	4.1
Intentional – Self Harm	1,098	1.9
Unintentional- Other	40,699	69.1
Unknown Intent	2,358	4.0
Total	58,919	100

Table 6 presents the number and percent of injuries by intention category. Unintentional injuries cause the greatest proportion of non-fatal injuries, approximately two-thirds of all non-fatal injuries this year. Traffic injuries are responsible for about 17.5 of all nonfatal injuries. The proportion of injuries that were intentional remained below 10%. Low numbers of intentional injuries may be due in part to underreporting. The proportion of intentional injuries from insurgency increased between 2012 and 2013, while the proportion attributed to assaults declined.

Table 7. Percent of injuries by intention among all non-fatal injuries in 2013, by governorate

Governorate	Unintentional-Traffic		Intentional–Insurgency		Intentional–Assault		Intentional–Self Harm		Unintentional-Other		Unknown Intent	
	N	%	N	%	N	%	N	%	N	%	N	%
Al-Basra	594	21.5	21	0.8	78	2.8	66	2.4	1960	71.0	42	1.5
Anbar	1051	34.7	492	16.2	269	8.9	75	2.5	1097	36.2	49	1.6
Baghdad/Karkh	458	15.4	95	3.2	462	15.5	205	6.9	1708	57.4	47	1.6
Baghdad/Rasafa	1283	13.8	776	8.3	374	4.0	163	1.8	6052	65.0	663	7.1
Erbil	2630	21.8	29	0.2	268	2.2	303	2.5	8808	73.2	0	0.0
Karballa	1779	16.9	89	0.8	374	3.6	46	0.4	7393	70.3	841	8.0
Misan	507	18.3	37	1.3	149	5.4	25	0.9	1647	59.4	406	14.7
Mousel	703	11.0	484	7.5	55	0.9	13	0.2	5134	80.0	28	0.4
Sulaimaniya	1276	14.0	18	0.2	413	4.5	202	2.2	6900	75.9	282	3.1
Total	10281	17.4	2041	3.5	2442	4.1	1098	1.9	40699	69.1	2358	4.0

Table 7 presents the distribution of intent of injuries by governorate in 2013. The highest proportion of insurgency-related injuries was in Anbar, followed by Baghdad/Rasafa and Mousel. The proportion of traffic injuries was highest in Anbar and Erbil. The proportion of reported self-harm injuries was very low in many governorates, including Karballa, Misan, Mousel, and Sulaimaniya likely due to underreporting. The proportion of injuries with unknown intent was the highest in Misan, indicating possible problems with the quality of data collection.

Table 8. Proportion of females and children among all non-fatal injuries, by intention

Intention	Female		Child (U18)	
	N	%	N	%
Unintentional - Traffic	2,231	21.7	3,396	33.1
Intentional – Insurgency	195	9.6	252	12.4
Intentional - Assault	387	15.9	491	20.1
Intentional – Self Harm	308	28.1	424	38.7
Unintentional- Other	13,203	32.5	19,767	48.7
Unknown Intent	645	28.0	1,025	44.2
Total	16,969	28.8	25,355	43.1

Table 8 presents the distribution of intent of injuries by age and sex. For all intention categories, the majority of the injured were adult males. The proportion of females and children was highest among unintentional injuries other than traffic (32.5% and 48.7%, respectively) and lowest among intentional insurgency activity (9.6% and 12.4%, respectively).

Figure 4. Proportion of injuries by sex among all non-fatal injuries, by intention

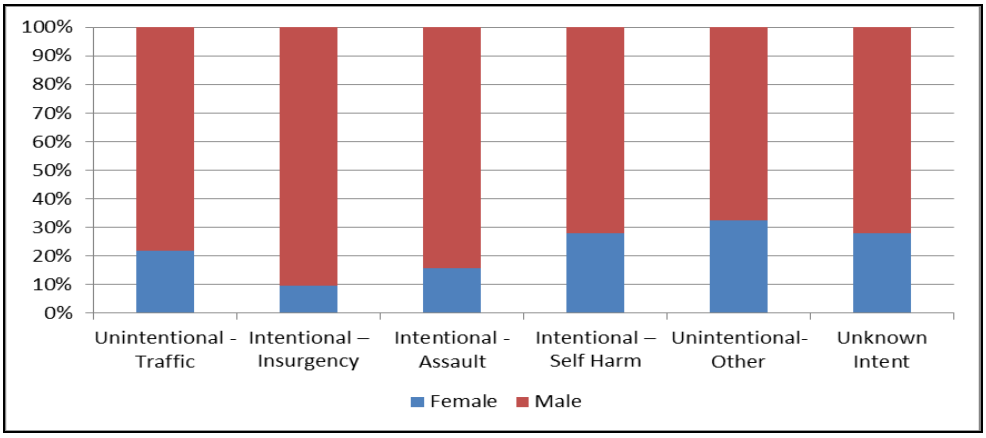
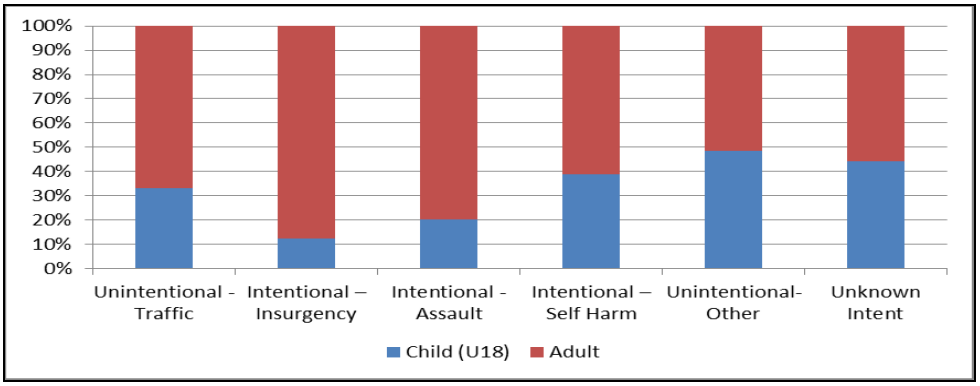


Figure 5. Proportion of injuries by age among all non-fatal injuries, by intention



2.4 Distribution of Injury by Mechanism

The following section presented injuries by the mechanism of injury. The mechanism of injury reflects the primary cause of injury as classified by a health care provider (for non-fatal injuries) or a coroner (for fatal injuries).

Table 9. Number and percent of injuries by mechanism among all non-fatal injuries, 2013

Mechanisms	N	%
Falls	16,785	28.5
Sharp Objects	10,921	18.5
Traffic	10,281	17.5
Blunt Objects	8,992	15.3
Burns	3,751	6.4
Insurgency	2,041	3.5
Animal /Insect Bite	1,568	2.7
Poisoning	1,351	2.3
Electric Injury	652	1.1
Gun-Fire (Not Insurgency)	533	0.9
Suffocation	273	0.5
Drowning	76	0.1
Other	1,575	2.7
Unknown	120	0.2
Total	58,919	100.0

Figure 6. Number and percent of injuries by mechanism among all non-fatal injuries, 2013

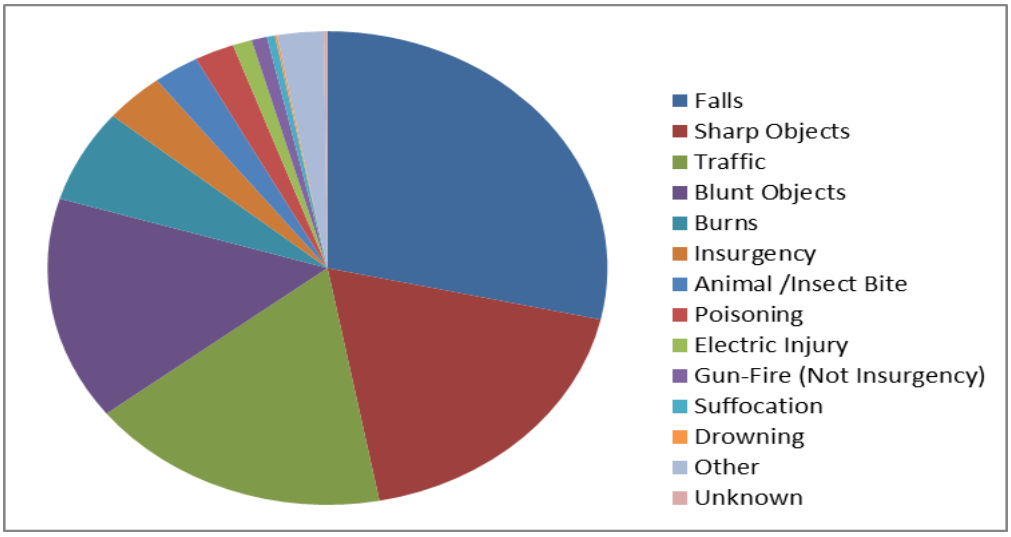


Table 9 and Figure 6 shows that falls were responsible for the greatest proportion of non-fatal injuries (28.5%) followed by sharp objects, traffic, blunt objects and burn. Falls were responsible for 16-23% of injuries from 2010-2012.

Table 10. Percent of injuries by mechanism among non-fatal unintentional-traffic injuries, 2013

Mechanism	N	%
Car	6,339	61.7
Pedestrian	1,077	10.5
Bicycle	736	7.2
Motorcycle	1,953	19.0
Other	165	1.6
Unknown	11	0.1
Total	10,281	100

Figure 7. Percent of injuries by mechanism among non-fatal unintentional-traffic injuries,2013

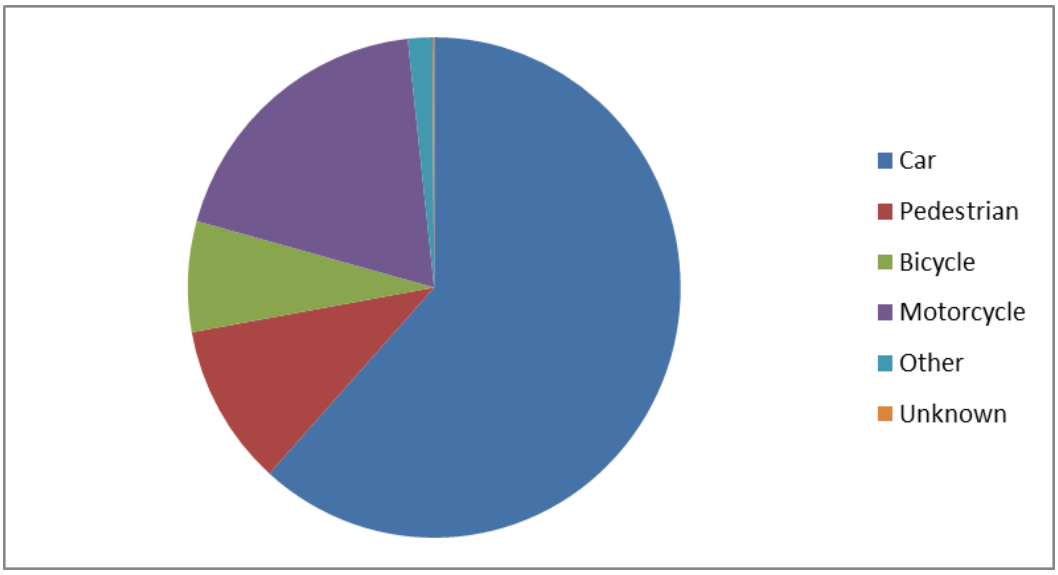


Table 10 and Figures 7 present the mechanism of injury for non-fatal traffic related injuries. Among traffic related injuries, the majority (range 61.7%) of victims were in cars. About one fifth (19.0%) of victims were on motorcycles. Injuries among vulnerable road users (pedestrians, bicyclists and motorcycles) constitute about one third of road traffic injuries.

Table 11. Percent of injuries by mechanism among non-fatal unintentional-other injuries, 2013

Mechanism	N	%
Falls	16,041	39.4
Sharp Tools	9,147	22.5
Blunt Tools	7,684	18.9
Burns	3,564	8.8
Animal/Insect bite	1,150	2.8
Poisoning	944	2.3
Electric injury	589	1.5
Suffocation	242	0.6
Gun fire	251	0.6
Drowning	64	0.2
Others	983	2.4
Unknown	40	0.1
Total	40,699	100

Figure 8. Percent of injuries by mechanism among non-fatal unintentional-other injuries, 2013

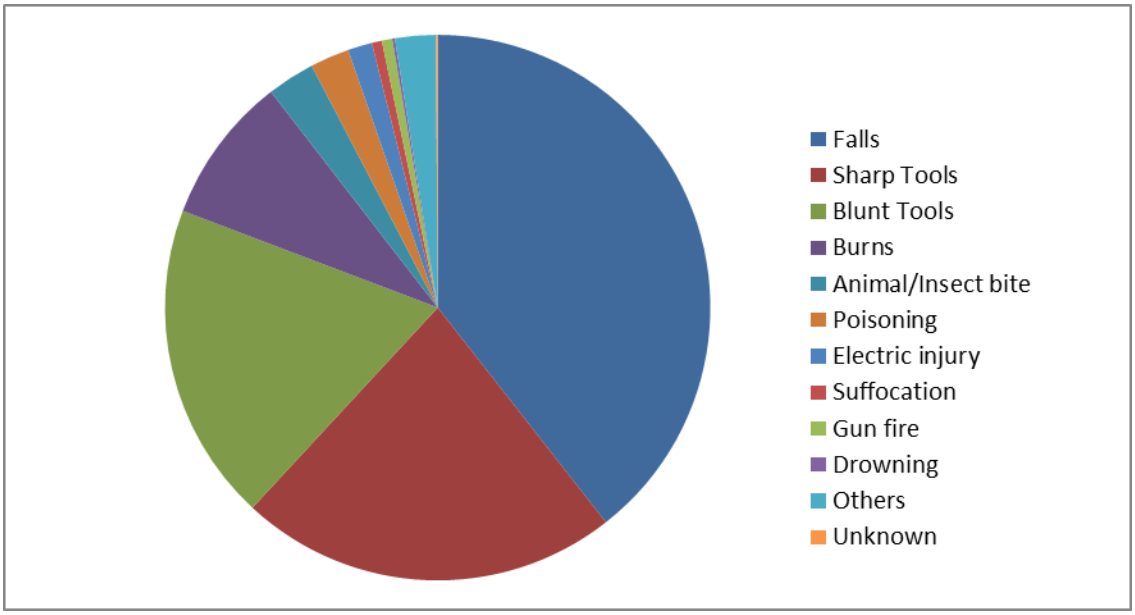


Table 11 and Figures 8 present the mechanism of injury for non-fatal unintentional injuries other than traffic. The majority of these injuries were falls (39.4%), followed by sharp tools (22.5%), blunt tools (18.9%) and burns 8.8%). Only 0.1% of injuries were coded as unknown mechanism.

Table 12. Percent of injuries by mechanism among non-fatal intentional-assault injuries.

Mechanism	N	%
Sharp Tool	1,148	47.7
Blunt Tool	726	30.2
Gunfire (Non-insurgency)	236	9.8
Fall	133	5.5
Burns	39	1.6
Poisoning	26	1.1
Electric Injury	3	0.1
Suffocation	1	0.0
Other	90	3.7
Unknown	5	0.2
Total	2,402	100

Figure 9. Percent of injuries by mechanism among non-fatal intentional-assault injuries.

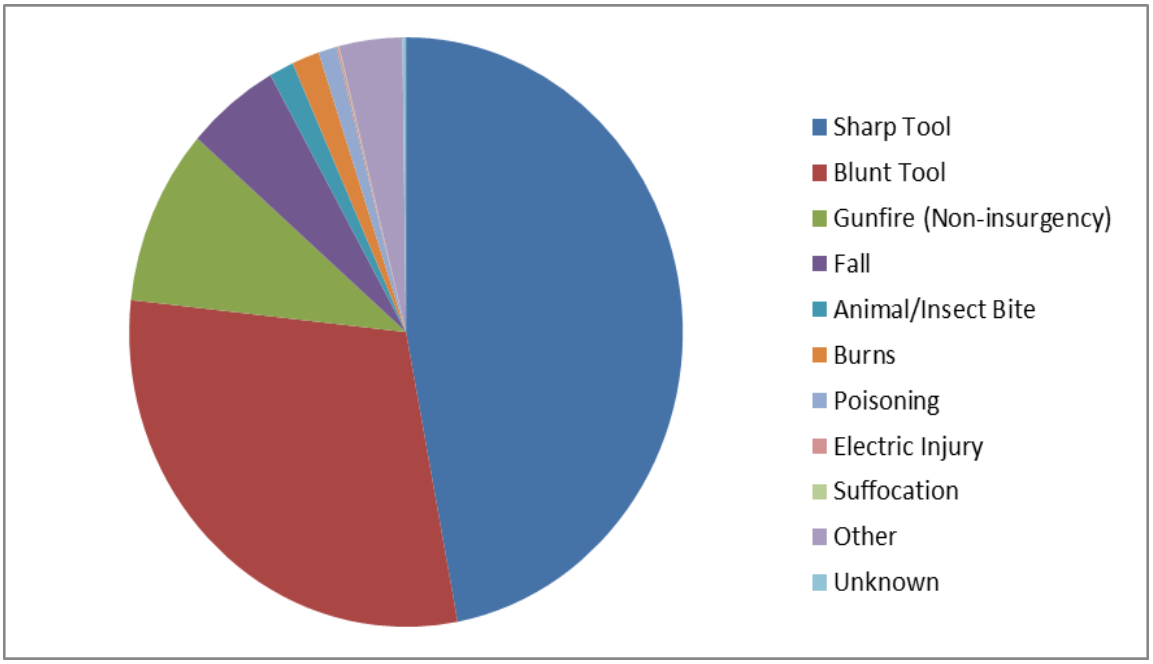


Table 12 and Figures 9 present the mechanism of injury for all non-fatal intentional-assaults. Assaults include both domestic violence and violence among strangers. Nearly half of assaults were attributed to sharp objects (47.0%). As in previous years, blunt objects and guns were the second and third, respectively. Together guns, sharp and blunt objects were responsible for more than 85% of all assaults each year.

Table 13. Percent of injuries by mechanism among non-fatal intentional-self harm injuries.

Mechanism	N	%
Fall	346	31.8
Sharp Tool	282	25.9
Poison	203	18.7
Blunt	135	12.4
Burns	42	3.8
Gun Fire	24	2.2
Electrical Injury	10	0.9
Drowning	6	0.6
Suffocation	1	0.1
Other	33	3.0
Unknown	3	0.3
Total	1085	100

Figure 10. Percent of injuries by mechanism among non-fatal intentional-self harm injuries.

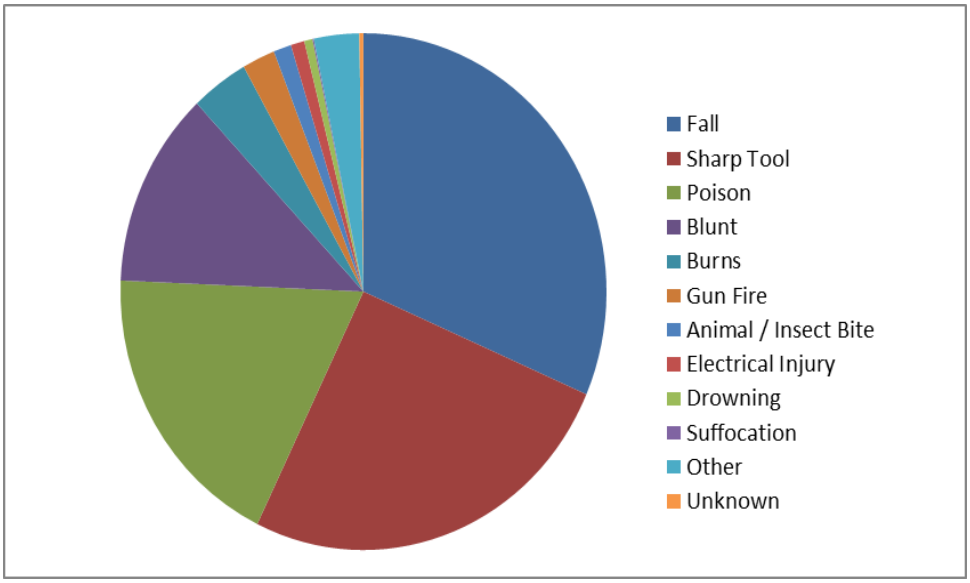


Table 13 and Figures 10 present the mechanism of injury for all non-fatal intentional self-harm injuries. The most common mechanism of self-harm was falls (31.5%) followed by sharp tools (25.7%) and poison (18.5%).

Table 14. Percent of injuries by mechanism among non-fatal insurgency activity.

Mechanism	N	%
Gun Fire	431	21.1
Explosives	974	47.7
IED	273	13.4
Suicide Bomb	53	2.6
Car Bomb	294	14.4
Land Mine	7	0.3
UXO	5	0.2
Other	3	0.2
Unknown	1	0.1
Total	2,041	100

Figure 11. Percent of injuries by mechanism among non-fatal insurgency activity.

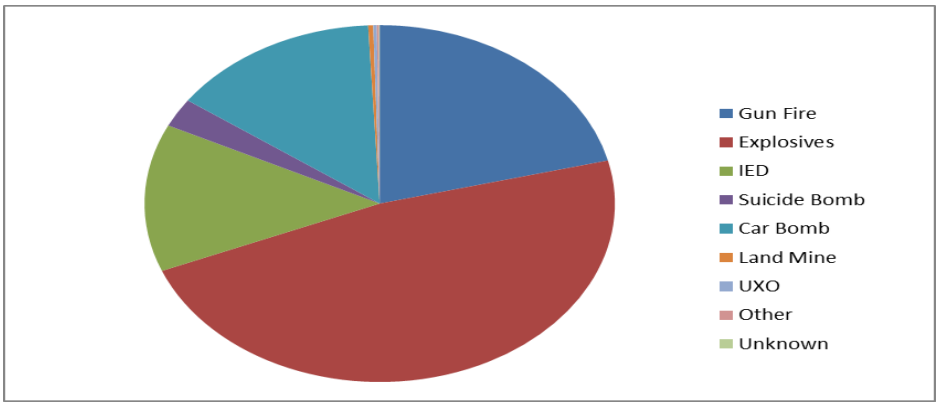


Table 14 and Figures 11 present the mechanism of injury for all non-fatal insurgency related injuries. Nearly half (47.7%) of injuries were coded as explosives other than IEDs, suicide bombs, and car bombs. This category includes conventional (manufactured) explosives as well as explosives of unknown type.

2.5 Mass Injury Events

Table 65. Percent of injuries resulting from a mass injury event among all non-fatal injuries, 2013

Mass injury	N	%
Unintentional - Traffic	414	17.3
Intentional – Insurgency	1,271	53.2
Intentional – Assault	67	2.8
Unintentional- Other	607	25.4
Unknown Intent	29	1.2
Total	2,388	100.0

Table 15 shows the proportion of injuries resulting from a mass casualty event among all injuries, by intention. Mass injury event is defined as an event that caused five or more injuries. Fewer than 5% of injuries overall resulted from mass casualty events. However, more than half (53.2%) of insurgency related events resulted from mass casualty events, an increase from the proportion recorded in 2012 (49.3%).

2.6 Place of Injury

Table 76. Percent of injuries by place among all non-fatal injuries, 2013

Place of Injury	N	%
Countryside	1,197	2.0
Home	28836	48.9
Public Space	2,062	3.5
Street / Highway	17954	30.5
Workplace	8247	14.0
Other / Unknown	623	1.1
Total	58,919	100.0

Figure 12. Percent of injuries by place among all non-fatal injuries, 2013

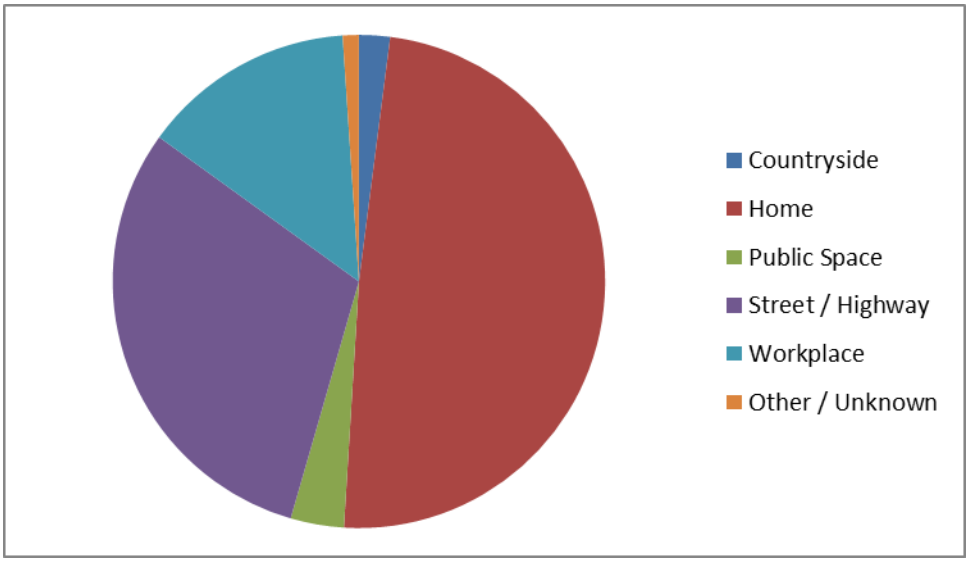


Table 16 and Figure 12 present the proportion of injuries by place where the injury occurred. Nearly half of the injuries occurred at home (48.9%) and more than 30% occurred on highways or streets. The third most common location of injury was the workplace 14.0%. Analysis of place of injury disaggregated by age and sex suggested that 69.9% of injuries among women and 62.6% of injuries among children occur at home (not shown).

2.7 Pre-hospital Care and Disposition

Table 87. Percent of injuries receiving pre-hospital care among all non-fatal injuries, 2013

Pre-hospital care	N	%
Percent Arriving by Ambulance	3,948	6.7
Percent Arriving within 1 Hour After Injury	48,010	81.5
Percent Receiving Care Prior to Arrival	6,651	11.3

Table 17 presents data on the pre-hospital care received by victims presenting at the emergency rooms. Analysis suggests that 6.7% of injuries arrived by ambulance in 2013, an increase from 2012. 81.5% of injuries arrived at the emergency room within one hour of injury; a decline from 2012. Just over 10% of victims received some care prior to arriving in the emergency room.

Additional analysis found that among the victims that arrived by ambulance, only 54.0% received care in the ambulance.

Table 98. Percent of injuries arriving at the hospital in an ambulance among all non-fatal injurie by governorate, 2013

Governorate	N	%
Al-Basra	98	3.5
Anbar	216	7.1
Baghdad/Karkh	81	2.7
Baghdad/Rasafa	728	7.8
Erbil	1,020	8.5
Karballa	253	2.4
Misan	148	5.3
Mousel	636	9.9
Sulaimaniya	768	8.4

Table 18 shows the proportion of injuries arriving at the emergency room in an ambulance by governorate. The proportion was highest in Mousel (9.9%) an increase from 2012. In Baghdad/Karkh and Karballa, fewer than 3% of injuries were transported by ambulance.

Table 109. Percent of injuries receiving pre-hospital care among all non-fatal injuries by governorate, 2013

Governorate	N	%
Al-Basra	1,622	58.7
Anbar	141	4.6
Baghdad/Karkh	177	5.9
Baghdad/Rasafa	192	2.1
Erbil	1,043	8.7
Karballa	826	7.9
Misan	345	12.5
Mousel	81	1.3
Sulaimaniya	2,224	24.5
Total	6,651	11.3

Table 19 shows the proportion of injured that received medical care prior to arrival at the emergency room. There is considerable variation in this indicator. The proportion was highest in Al-Basra (58.7%), followed by Sulaimaniya (24.5%), and Misan (12.5%). In all other governorates, fewer than 10% of injuries received care prior to arrival.

Table 20. Percent of injuries by disposition upon arrival among all non-fatal injuries, 2013

Disposition	N	%
Treated and sent home	42,777	72.6
Admitted to the hospital	13,999	23.8
Transferred to other facility	646	1.1
Left against medical advice	553	0.9
Dead on arrival	474	0.8
Died in emergency department	109	0.2
Other	75	0.1
Unknown	286	0.5

Table 20 shows the majority of injuries were treated and discharged (72.6%). Percentage of patients who were admitted into the hospital, transferred to a different facility, or left against medical advice, increase from 18.2% in 2012 to 25.8%. Less than 1% of all injuries were dead on arrival or died within the emergency room.

3. Overview of Key Findings – Fatal Injury Surveillance

3.1 Overall Number of Injuries

Table 21. Number and percent of fatal injuries by governorate, 2013

Governorate	2013		2012		2011		2010	
	N	%	N	%	N	%	N	%
Al-Basra	607	6.2	676	8.6	675	9.0	585	7.7
Anbar	1,140	11.7	775	9.9	815	10.9	672	8.9
Baghdad/Rasafa	3,413	34.9	2,754	35.2	2,395	32.0	2,835	37.3
Erbil	784	8.0	779	10.0	821	11.0	814	10.7
Karballa	395	4.0	380	4.9	366	4.9	310	4.1
Misan	557	5.7	512	6.6	493	6.6	345	4.5
Mousel	2,198	22.5	1,299	16.6	1,198	16.0	1,290	17.0
Sulaimaniya	674	6.9	647	8.3	717	9.6	743	9.8
Total	9,768	100.0	7,822	100.0	7,480	100.0	7,594	100

Table 21 presents the number and proportion of injuries by governorate for 2010 to 2013. The total number of injuries reported was relatively consistent during the four years with relatively increased in 2013 (range 7,480-9,768). More than 30% of injuries occurred in Baghdad (range 32.0-37.3%). Baghdad and Mousel together represent approximately half of all fatal injuries reported each year. These numbers are proportions, not rates, and do not account for the differences in total population by governorate.

Table 22. Percent of women and children among all fatal injuries, 2013

Percent	N	%
Children U18	1,936	21.3
Women	2,326	23.9

Table 22 presents the proportion of injuries among women and the proportion of injuries among children under 18 years of age. Children represented 21.3% and women represented 23.9% of fatal injuries. The proportion of women among fatal injuries was highest in Erbil (35.5%, not shown) and the proportion among children was highest in Karballa (36.3%).

Figure 1. Age and sex distribution of all fatal injuries, 2013

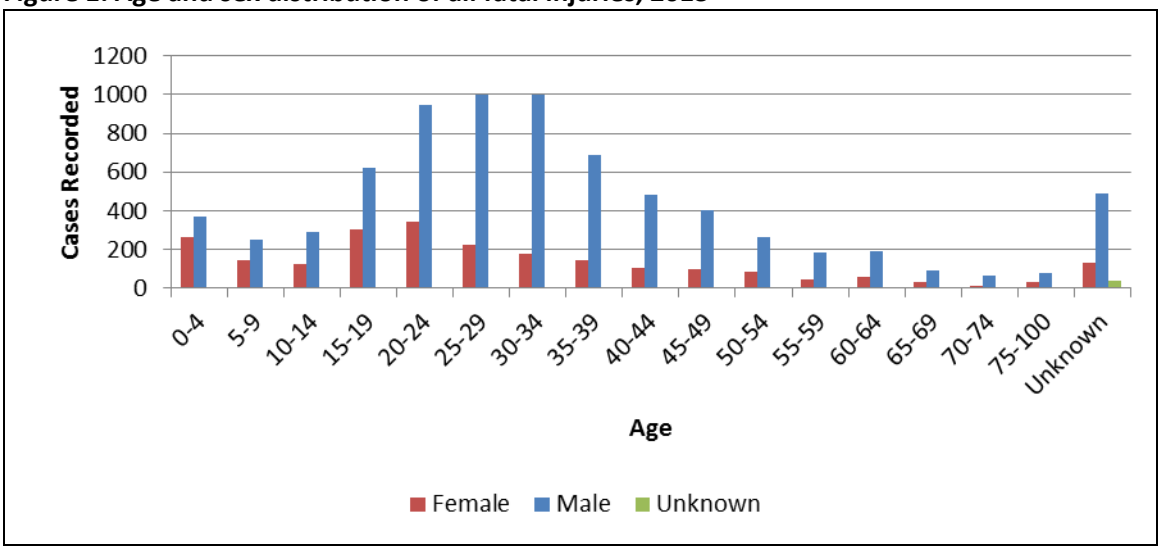


Figure 13 shows the number of fatal injuries by sex within each five year age cohort in 2013. As with non-fatal injuries, males represented a greater proportion of injuries in every age cohort. Injuries disproportionately affected males 15-39 years of age. Similar to previous years, there were also a high number of injuries in the youngest age groups (0-9 years). The proportion of injuries with unknown age (6.7%) was higher among fatal injuries than non-fatal injuries.

2.2 Time Trends, 2013

Table 23. Number of injuries per month among all fatal injuries by mechanism, 2013

Month	All	Insurgency	Other Injuries	Traffic Accidents
January	617	139	306	172
February	738	225	353	160
March	717	223	318	176
April	785	196	410	179
May	848	213	492	143
June	831	301	402	128
July	924	316	492	116
August	979	240	563	176
September	895	323	451	121
October	825	340	327	158
November	870	214	487	169
December	739	364	261	114

Figure 14. Percent of injuries per month among all fatal injuries by mechanism, 2013

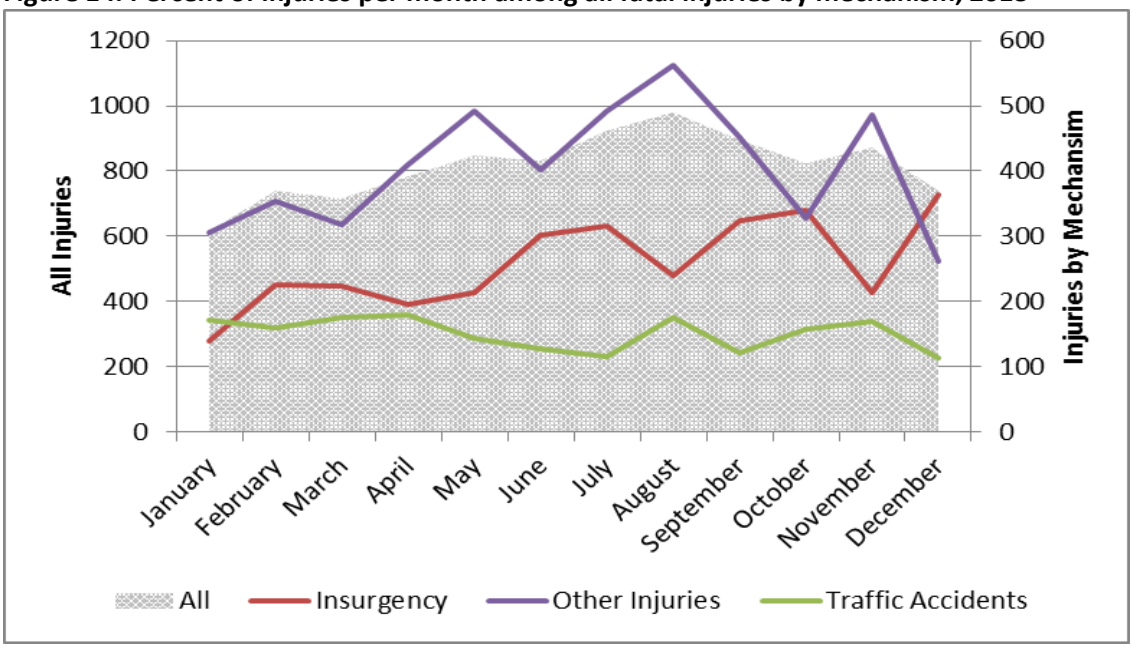


Table 23 and Figure 14 show the proportion of deaths by month. The data suggest a gradual increase in the number of fatalities reported between January and July. The number of fatalities from traffic accidents remained more stable throughout the year, compared to insurgency activity and other injuries.

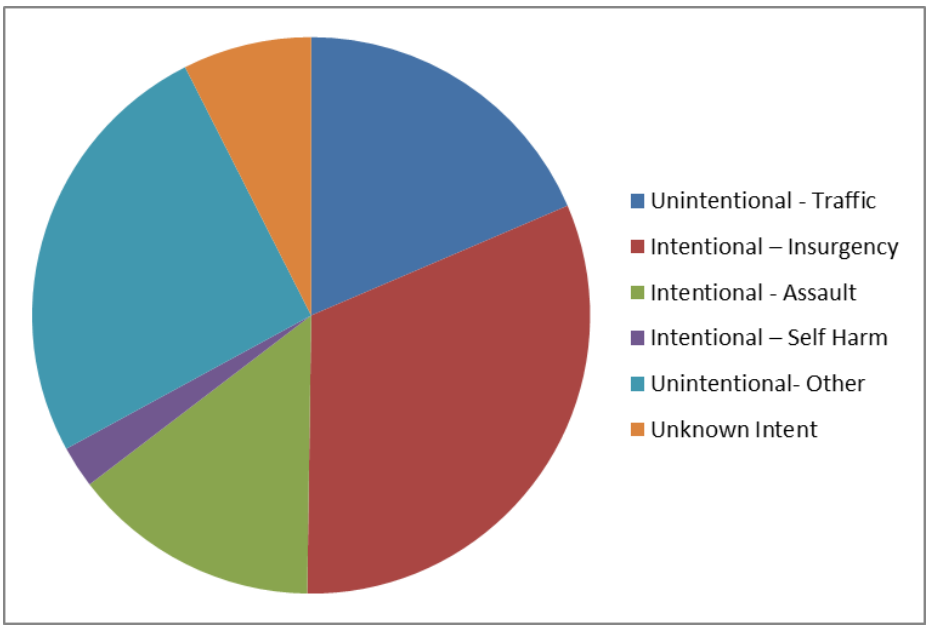
3.3 Distribution of Injuries by Intention

Injuries are classified into six categories by intention— (1) unintentional – road traffic accidents, (2) intentional – insurgency related, (3) intentional – assault, (4) intentional – self-harm, (5) unintentional – other, and (6) unknown intention.

Table 24. Number and percent of injuries by intention among all fatal injuries, 2013

Intention	N	%
Unintentional - Traffic	1,812	18.6
Intentional – Insurgency	3,094	31.7
Intentional - Assault	1,405	14.4
Intentional – Self Harm	238	2.4
Unintentional- Other	2,490	25.5
Unknown Intent	729	7.5
Total	9768	100.0

Figure 25. Percent of injuries by intention among all fatal injuries, 2013



The number and proportion of fatal injuries by intention are presented in Table 24 and Figure 15. The greatest proportion of injuries (31.7%) were attributed to intentional insurgency-related injuries. Unintentional injuries other than traffic were responsible for more than a quarter (25.5%) of all fatal injuries. Intentional self-harm injuries accounted for less than 3% of all fatal injuries, which may be in part due to under-reporting.

Table 25. Number and Percent of injuries by intention among all fatal injuries by governorate, 2013

Governorate	Unintentional-Traffic		Intentional–Insurgency		Intentional–Assault		Intentional–Self Harm		Unintentional-Other		Unknown Intent	
	N	%	N	%	N	%	N	%	N	%	N	%
Al-Basra	18	3.0	3	0.5	168	27.7	31	5.1	91	15.0	296	48.8
Anbar	241	21.1	574	50.4	76	6.7	1	0.1	141	12.4	107	9.4
Baghdad	396	11.6	925	27.1	879	25.8	5	0.1	1,141	33.4	67	2.0
Erbil	308	39.3	24	3.1	74	9.4	136	17.3	240	30.6	2	0.3
Karballa	182	46.1	1	0.3	58	14.7	13	3.3	127	32.2	14	3.5
Misan	171	30.7	14	2.5	39	7.0	9	1.6	165	29.6	159	28.5
Mousel	219	10.0	1,534	69.8	33	1.5	3	0.1	367	16.7	42	1.9
Sulaimaniya	277	41.1	19	2.8	78	11.6	40	5.9	218	32.3	42	6.2
Total	1812	18.6	3094	31.7	1405	14.4	238	2.4	2490	25.5	729	7.5

Table 25 presents the intention of injuries by governorate for all fatal deaths reported in 2013. The distribution of injuries by intent within each governorate is similar in 2013 to previous years. Insurgency related injuries were responsible for a majority of fatalities in Anbar and Mousel. Traffic related deaths caused the greatest proportion of deaths in Karballa, Sulaimaniya and Erbil. The proportion of deaths attributable to assault was highest in Al-Basra. The proportion of deaths due to self harm was less than 10% in all governorates with the exception of Erbil. In Anbar, Baghdad, and Mousel, fewer than 1% of fatalities were attributed to self-harm. Intent was unknown for 44.8% of fatal injuries in Al-Basra, and for 28.5% of injuries in Misan, which may indicate problems with consistency of data collection. Quality of reporting improved in Anbar between 2012 and 2013.

Table 116. Proportion of females and children among all fatal injuries by intention, 2013

Intention	Female		Child (U18)	
	N	%	N	%
Unintentional - Traffic	385	21.3	490	27.5
Intentional – Insurgency	205	6.7	185	6.6
Intentional - Assault	303	21.7	140	11.7
Intentional – Self Harm	126	52.9	47	19.7
Unintentional- Other	1,068	42.9	908	38.0
Unknown Intent	239	33.0	166	23.3

Figure 16. Proportion of females and males among all fatal injuries by intention, 2013

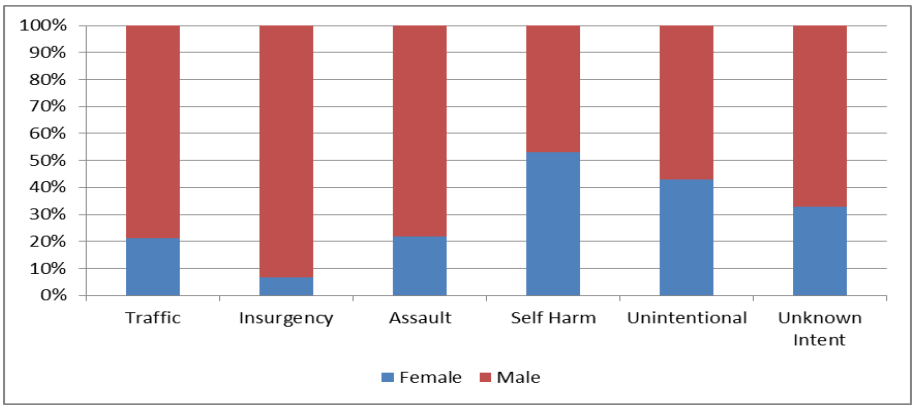


Figure 17. Proportion of adults and children (U18) among all fatal injuries by intention, 2013

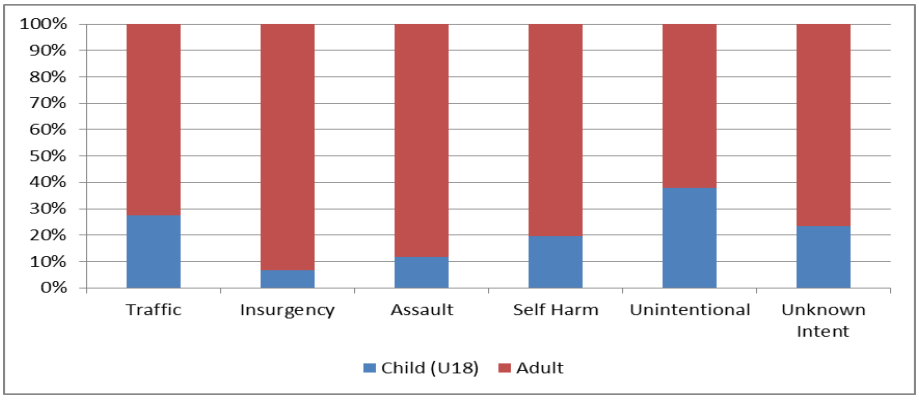


Table 26, Figure 16 and Figure 17 present the proportion of fatal injuries by age and sex of the fatality for each of the six intent categories. Self-harm was the only intent category for which women represented a majority of injuries (52.9%). Insurgency related injuries involved the smallest proportion of women (6.7%). The proportion of children under 18 years of age was also smallest for insurgency related injuries (6.6%).

3.4 Distribution of Injury by Mechanism

The following section presented injuries by the mechanism of injury. The mechanism of injury reflects the primary cause of fatal injury as classified by the coroner.

Table 27. Number and percent of injuries by mechanism among all fatal injuries, 2013

Mechanism	N	%
Traffic	1,812	18.6
Insurgency (Excluding Gunfire)	1107	11.3
Gun Fire (Insurgency)	1,987	20.3
Gun Fire (Non-Insurgency)	1,141	11.7
Burns	1,262	12.9
Electric Injury	587	6.0
Sharp Objects	168	1.7
Blunt Objects	229	2.3
Animal / Insect Bite	4	0.0
Drowning	326	3.3
Poisoning	15	0.2
Falls	254	2.6
Suffocation	171	1.8
Other	505	5.2
Unknown	200	2.0

Figure 38. Proportion of injuries by mechanism among all fatal injuries, 2013

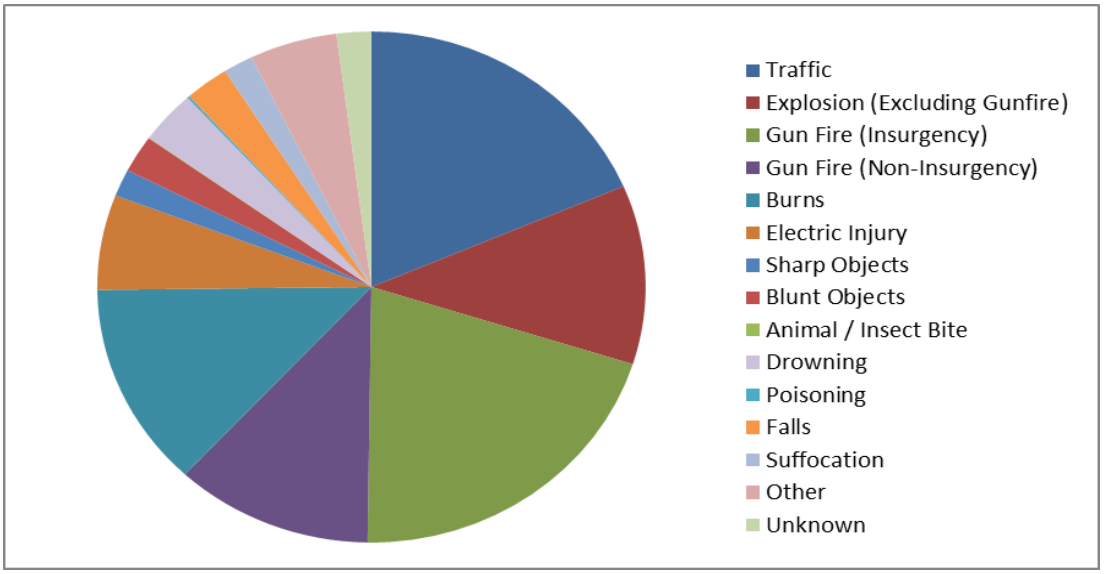


Table 27 and Figure 18 present the number and proportion of injuries by the primary mechanisms of injury. The primary mechanism of fatal injury was insurgency related gun fire, followed by traffic, then burns. The proportion of fatalities attributed to explosions and gun fire both increased compared to 2012, while the proportion attributable to traffic and burns decreased.

Table 28. Number and percent of injuries by mechanism among fatal injuries by age and sex, 2013

Mechanism	Female		Child (U18)	
	N	%	N	%
Traffic	385	21.3	490	27.5
Insurgency (Excluding Gunfire)	51	4.7	120	12.0
Gun Fire (Insurgency)	154	7.8	65	3.6
Gun Fire (Non-Insurgency)	224	19.7	109	10.9
Burns	869	69.1	356	29.5
Electric Injury	123	21.0	221	38.8
Other/Unknown	520	27.9	575	32.5

Table 28 presents the number and proportion of fatal injuries by mechanism by age and sex of the fatality. Burns were the only mechanism for which women represent a greater proportion of the injured. Adults represent the majority of fatalities for all mechanism categories. The proportion of children was highest among electrical injuries (38.8%). Overall, about a fifth of the deaths occurred among children under 18.

Table 29. Percent of injuries by mechanism among fatal unintentional-traffic injuries, 2013

Mechanism	N	%
Car	903	49.8
Pedestrian	830	45.8
Bicycle	11	0.6
Motorcycle	60	3.3
Other	7	0.4
Unknown	1	0.1
Total	1,812	100.0

The mechanism of fatal injury for traffic related injuries is presented in Table 29. In contrast to non-fatal injuries, pedestrians and cars represent similar proportion of victims of traffic related injuries. Other road users (bicycles, motorcycles, other) taken together represent fewer than 5% of victims of fatal injuries related to road traffic.

Table 30. Percent of injuries by mechanism among fatal unintentional-other injuries, 2013

Mechanism	N	%
Burns	1,090	43.8
Electric injury	566	22.7
Drowning	249	10.0
Falls	241	9.7
Blunt Tools	91	3.7
Suffocation	71	2.9
Gun fire	50	2.0
Sharp Tools	10	0.4
Poisoning	7	0.3
Animal/Insect bite	2	0.1
Others	112	4.5
Unknown	1	0.0
Total	2,490	100

The mechanism of injury for fatal unintentional injuries other than traffic is presented in Table 30. Among unintentional injuries, the largest proportion of injuries are attributable to burns (43.8%), followed by electrical injuries (22.7%) and drownings (10.0%). The distribution of injuries by mechanism in 2013 is comparable to 2012.

Table 31. Percent of injuries by mechanism among fatal intentional-assault injuries, 2013

Mechanism	N	%
Gunfire	1,003	71.4
Sharp Tool	141	10.0
Blunt Tool	114	8.1
Suffocation	62	4.4
Burns	32	2.3
Drowning	23	1.6
Poisoning	1	0.1
Electric Injury	6	0.4
Falls	2	0.1
Other	20	1.4
Unknown	1	0.1
Total	1,405	100

The mechanism of injury for fatal intentional assaults is presented in Table 31. The overwhelming majority of these injuries were caused by gunfire (71.4%). By comparison, gunfire was the primary mechanism for fewer than 10% of non-fatal assaults.

Table 32. Percent of injuries by mechanism among fatal intentional-self-harm injuries, 2013

Mechanism	N	%
Burns	107	45.0
Gun fire	47	19.8
Drowning	41	17.2
Suffocation	17	7.1
Electric injury	4	1.7
Falls	3	1.3
Sharp Tools	2	0.8
Poisoning	2	0.8
Blunt Tools	1	0.4
Others	11	4.6
Unknown	3	1.3
Total	238	100

The mechanism of injury for fatal intentional self-harm is presented in Table 32. Nearly half of these fatalities were attributed to burns (45.0%). Gunfire (19.8%) and drowning (17.2%) were also more common mechanisms.

Table 33. Percent of injuries by mechanism among fatal insurgency related injuries, 2013

Mechanism	N	%
Gun Fire	1,987	64.2
Explosives	726	23.5
IED	192	6.2
Suicide Bomb	56	1.8
Car Bomb	117	3.8
Land Mine	3	0.1
UXO	3	0.1
Other	8	0.3
Unknown	2	0.1
Total	3,094	100

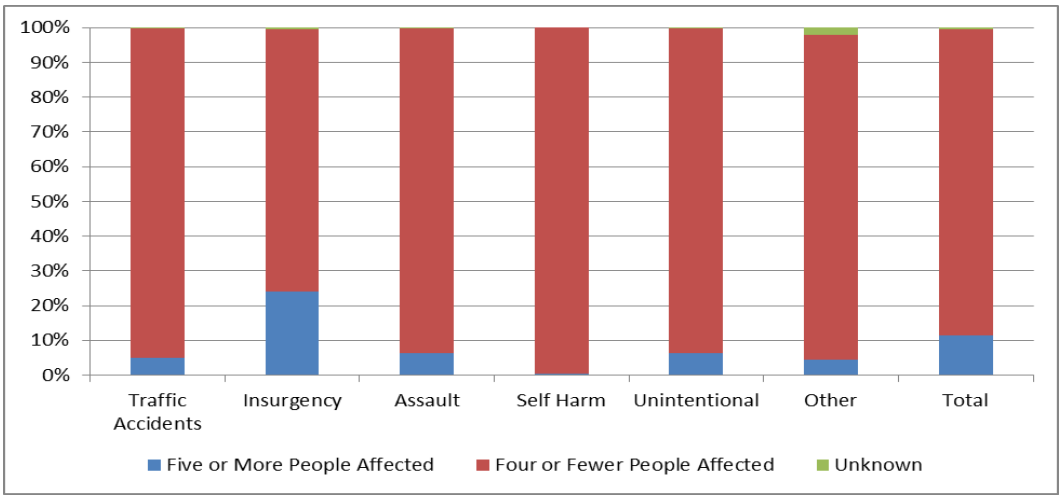
The mechanism of injury for fatal insurgency related injuries is presented in Table 33. The majority of these fatalities were attributed to gunfire (64.2%). Explosives including IEDs (6.2%), car bombs (3.8%), suicide bombs (1.8%), and other explosives (23.5%) together represent more than a third of insurgency related injury fatalities.

3.5 Mass Injury Events

Table 34. Percent of injuries resulting from a mass injury event among all fatal injuries, 2013

Intention	N	%
Unintentional - Traffic	89	4.9
Intentional – Insurgency	745	24.1
Intentional – Assault	89	6.3
Intentional – Self Harm	1	0.4
Unintentional- Other	157	6.3
Unknown Intent	33	4.5
Total	1,114	11.4

Figure 19. Percent of injuries resulting from a mass injury event among all fatal injuries, 2013



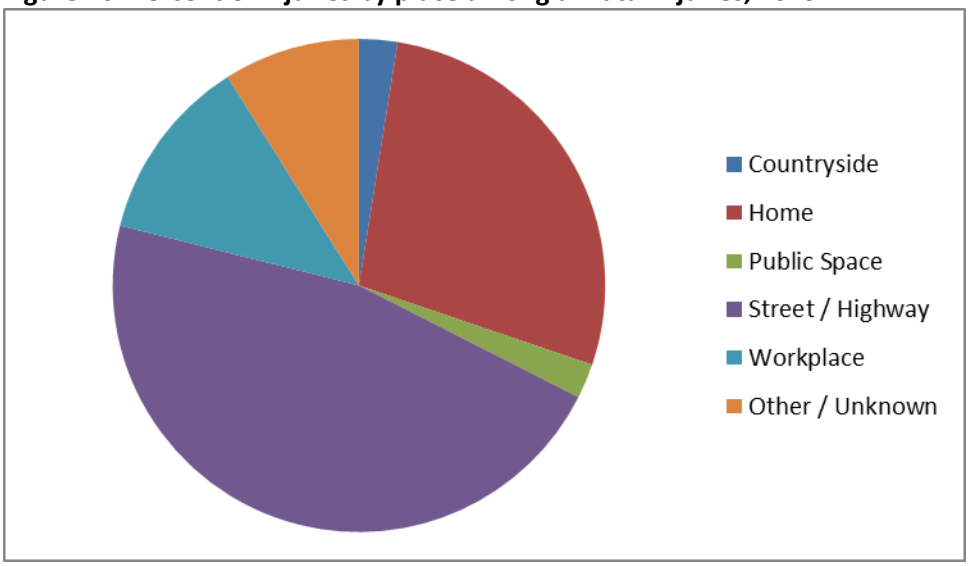
The proportion of deaths resulting from mass injury events are presented in Table 34 and Figure 19. Mass injury event is defined as an event that caused five or more injuries. Overall, the proportion of fatal injuries resulting from mass injury events was 11.4%. The proportion of fatal injuries resulting from a mass injury event was highest among insurgency related injuries (24.1%).

3.6 Place of Injury

Table 35. Percent of injuries by place among all fatal injuries, 2013

Place of injury	N	%
Countryside	246	2.5
Home	2,705	27.7
Public Space	222	2.3
Street / Highway	4,534	46.4
Workplace	1,186	12.1
Other / Unknown	875	9.0
Total	9,768	100

Figure 40. Percent of injuries by place among all fatal injuries, 2013



The place of injury for all fatal injuries is presented in Table 35 and Figure 20. The most common location of fatal injury was on streets or highways, home followed by the workplace. Public spaces – including markets and public gatherings – were relatively uncommon locations of fatal injuries. For injuries among males, the majority of injuries occurred on streets or highways whereas for females the majority of injuries occurred in the home.

4. Discussion:

4.1 Discussion of Key Findings and Recommendations for Public Health Action

Data presented here, from the final year of the pilot for the Injury Surveillance System, provides important data on injuries in Iraq. Information on the structure of injuries can be used to inform public health activities to prevent and mitigate the impact of injuries.

The injury profile depicted by the surveillance data suggests similar patterns in terms of the demographic profile of injuries in Iraq. As with previous years, data presented here shows that for both fatal and non-fatal injuries, males represent a greater proportion of the injured in all age categories. Males 15-34 were at highest risk of injury. For non-fatal injuries, the number of injuries among children 0-9 years is also high. Interestingly, as in previous years, among females the age category with the greatest number of non-fatal injuries was 0-4 years.

This year was marked by a notable increase in the number and proportion of fatal insurgency related and intentional-assault injuries. The number of insurgency related fatalities increased from 1,796 (23.0% of fatalities) in 2012 to 3,094 (31.7% of fatalities) in 2013. The number and percent of assaults also increased from 650 (8.3%) in 2012 to 1,405 (14.4%) in 2013. This is consistent with increases in violence and insurgency related activity observed in the country during 2013 and continuing into 2014. The ability of the surveillance system to detect this trend speaks to the utility of the system to inform public health action.

However, despite the violence unintentional injuries other than traffic remain the cause of the majority of non-fatal injuries (69%) and the second-most common for fatal injuries following insurgency related injuries. Given the large number of unintentional injuries (40,599 non-fatal, and 2,490 fatal) these injuries have a notable baring on resources to support the health system.

As in previous years, the 2013 data demonstrates that road traffic injury remain a primary mechanism of both fatal and non-fatal injuries. Consistent with findings from 2010-2012, we note that the mechanism of injury for road traffic accidents resulting in fatal injuries is different than non-fatal injuries. For non-fatal injuries, the majority of injured are in cars. By contrast, for fatal injuries pedestrians represent a similar proportion of victims as car users. The proportion of road traffic injuries affecting vulnerable road users (pedestrians, bicyclists, and cyclists) is more than twice as high among fatal injuries compared to non-fatal injuries. This information should inform national policies related to vulnerable road users. Special attention should be paid to the lack of vehicle standards and regulations, absence of comprehensive laws on speed, drink-driving, motorcycle helmets and absent child restraints law.

In previous reports, we note the small proportion of self-harm compared with global estimates. In Anbar, Baghdad, and Mousel less than 1% of fatalities were attributed to self-harm. Globally, self-harm is more common than assault in nearly all countries. We suspect this may be in part related to under reporting of self-harm injuries in Iraq. If true, this has implications for interpreting the data as well as providing public health services to those who injury themselves.

The data presented suggests that there are key differences in the mechanism of injury reported in different governorates. For non-fatal injury surveillance these findings should be interpreted with caution

as reporting sites are sentinel sites (only a few per governorate) and do not capture all non-fatal injuries. For fatal injuries the data points to key differences. As stated, insurgency related injuries were responsible for the greatest proportion of deaths in Anbar and Mousel. By contrast, traffic related deaths caused the greatest proportion of deaths in Erbil, Karballa and Sulaimaniya in the same year. The proportion of deaths attributable to assaults was highest in Al-Basra. Given the different composition of injuries, the public health action required in each governorate will be different. These data should be used to inform planning at the governorate level.

Finally, overall the data quality from these reporting sites is high. For non-fatal injuries less than 1% were missing age and/or sex. For fatal injuries ascertaining age and sex is more challenging, however for 2013 less than 7% of fatalities were missing age and/or sex. Coding of intention and mechanism is also high in most governorates, however problems persist in Al-Basra and Misan. Intent was recorded as unknown for 44.8% of fatal injuries in Al-Basra and for 28.5% of injuries in Misan. These difficultly coding have implications for the interpretation of the data.

4.2 Limitations of the Current Surveillance System

The Injury Surveillance in Iraq is now among one of the most robust systems globally, capturing routine data useful for public health programming. However, during the pilot phase of the program (including 2013) there are several key limitations that should be highlighted.

- **Use of Sentinel Hospitals:** One limitation of the design of the system is that not all hospitals in the governorates are participating in the injury surveillance system. In most governorates there are only 1-2 hospitals participating. The catchment area of these hospitals is unknown. Given that the non-fatal surveillance is not exhaustive calculation of rates is not appropriate.
- **Access:** In 2013, the security situation in Iraq deteriorated. Monitoring and supervision by the national team was therefore not feasible in some of the governorates with greatest insecurity. Insecurity also resulted in delays in sending data as well.
- **Limited Data/ Variables:** The current surveillance form is intentionally short to limit the burden on the health system. Information on the nature of the injury (fracture, amputation, etc.) and the body region (s) injured (head and neck, torso, etc.) are not collected.
- **Underreporting of intentional injuries:** Intentional self-harm injuries and intentional assaults accounted for a smaller proportion of injuries than seen regionally or globally. This may in part due to under-reporting due to social and cultural reasons. Additional training may be needed so that the intent of the injury can be accurately ascertained.
- **Data Quality:** During the initial analysis, collaborators identified several data quality issues. The data set had many duplicate records (records that had identical data for all variables). The number of duplicates declined between 2010 and 2012 but increased in 2013. Additionally, two key variables—intention and mechanism—were often coded as unknown. As noted above, for both fatal and non-fatal injuries the number of records with unknown intent increased between 2012 and 2013.
- **Funding:** Inadequate funding and lack of human resources, particularly skilled personnel, were perceived as challenges to the system in some hospitals. At the national level, additional staff with capacity to analyze and critically review the data are needed. The system is supported by only one full time MoH staff.
- **Monitoring and Evaluation:** Ideally, monitoring and evaluation would be a regular activity to ensure high quality data. Each participating hospital was supposed to evaluate the sensitivity of the surveillance system by comparing the number of injury cases picked by the system with the

number of cases registered by the hospital. To date, M&E activities have not been implemented as planned. Sensitivity of the surveillance system is expected to be high but is not known.

- **ICD Codes:** The external cause or mechanism of injury is not coded according to ICD codes. Given the limitations of ICD codes, this may not be an immediate priority.

4.3 Recommendations for Strengthening Surveillance

The following activities are recommended to improve the surveillance system in the upcoming year:

- **Successful Scale Up to New Governorates:** During 2013, roll out of the surveillance program to coroner offices and emergency rooms nationally began. Beginning 2014, at least one CO and ER from all governorates of Iraq will be reporting on injuries. Successful training, monitoring and mentorship will be needed to ensure the quality remains as the program expands.
- **External Evaluation:** The need for an in-depth evaluation of this surveillance system was identified in 2012 but was not feasible given increased insecurity and violence. This evaluation by an external team remains a priority so that partners have a better understanding of the accuracy and completeness of reporting by facility.
- **Regular Quality Assurance:** To ensure quality, a team of trained personal have begun monitoring data quality. As the system scales up, having more of these teams able to perform routing monitoring visits will be even more essential. This group can also support with training and re-training activities.
- **Enhanced Training:** All individuals involved with collecting the data receive some training on how to report. However, we note that problems in coding persist. Targeted trainings to address data quality problems as they are identified can help improve data quality. Some common themes to emphasize include: how to best identify the intention of an injury: when to suspect self-harm or assault (a difficult task given the social and culture realities in Iraq); distinguishing between assault and insurgency activity.
- **Use of the Data:** To date analysis is performed only at the national level. Basic analysis at the governorate level on a more frequent basis (ideally real time) is feasible given that many governorates already enter their own data. Support to build the capacity of governorate level MoH staff to analyze and interpret data could help translate the information into public health action.
- **Collaboration:** Collaboration with international partners (WHO and CDC) should continue in order to maintain high standards of data collection, analysis and reporting.

5. Annexes

5.1 Injury Surveillance Form – Arabic

وزارة الصحة
دائرة العمليات الطبية والخدمات المتخصصة/ مركز العمليات
نظام الرصد الوطني العراقي للحوادث
ردهات الطوارئ / الطب العدلي

A	معلومات عن المؤسسة الصحية			ردهات الطوارئ 1 ?		الطب العدلي 2 ?
A1	اسم دائرة الصحة _____		A2	اسم المؤسسة الصحية _____	A3	رقم المريض/الحالة _____
B	معلومات عن المريض / الحالة					
B1	اسم المريض/الحالة _____ _____		B2	الجنس ? 1 ذكر ? 2 أنثى ? 9غير معروف	B3	العمر ___ سنوات
B4	عنوان المريض/الحالة (المحافظة) _____		B5	رقم شهادة الوفاة _____	B6	تاريخها __/__/____
C	سلسلة الوصول					
C1	تاريخ الإصابة __/__/____	? 9غير معروف	C2	زمن الإصابة __	C3	تاريخ العثور على الجثة __/__/____
C4	تاريخ الوصول إلى المؤسسة الصحية __/__/____		C5	زمن الوصول __		الزمن (0-23) بالتوقيت العالمي
C6	وقت الإصابة المتوقع	? 1 خلال ساعة	? 2 خلال 24 ساعة	? 3 أكثر من 24 ساعة		? 9غير معروف
C7	هل حصل المصاب على إسعاف أولي قبل الوصول للطوارئ في المستشفى	? 1 نعم	? 2 لا			? 9 غير معروف
C8	وسيلة الوصول(اختيار واحد)	? 1 سيارة إسعاف	? 2 سيارة أخرى	? 8 وسيلة أخرى		? 9 غير معروف
D	معلومات متعلقة بالإصابة					
D1	ظروف الحادثة: كيف حدثت الإصابة (اختار إجابة واحدة فقط)	في حالة اختيار(1.6 و 1.7) يعبأ حقل E				

	1 نشاط إرهابي أو عسكري		2 حوادث مرور		3 عنف منزلي		4 عنف خارجي		5 حوادث أخرى	
1.1	? طلق ناري	2.1	? راجلاً	3.1	? أسلحة نارية	4.1	? أسلحة نارية	5.1	? عضة حيوان	
1.2	? انفجار	2.2	? سيارة	3.2	? الآت جارحة	4.2	? الآت جارحة	5.2	? غرق	
1.3	? عبوة ناسفة	2.3	? دراجة هوائية	3.3	? الآت راضه	4.3	? الآت راضه	5.3	? تسمم	
1.4	? انتحاري	2.4	? دراجة نارية	3.8	? أخرى	4.8	? أخرى	5.4	? سقوط	
1.5	? سيارة مفخخة	2.8	? أخرى	3.9	? غير معروف	4.9	? غير معروف	5.5	? حروق	
1.6	? ألغام أرضية	2.9	? غير معروف					5.6	? اختناق	
1.7	? مخلفات حربية							5.7	? صعق كهربائي	
1.8	? أخرى							5.8	? أخرى	
1.9	? غير معروف							5.9	? غير معروف	

D2	عدد المصابين 5 أو أكثر في الحادثة	? 1 نعم	? 2 لا	? 9 غير معروف
D3	القصد	? 1 مقصودة من قبل الآخرين	? 2مقصودة من قبل المصاب	? 3 عرضية من قبل الآخرين
		? 4عرضية من قبل المصاب	? 8 أخرى	? 9 غير معروف
D4	المكان الجغرافي للحادث	المحافظة: _____	أحيل من مركز شرطة: _____	المنطقة: _____
D5	مكان وقوع الحادثة (اختار واحدة)	? 1 المسكن	? 2 الشارع	? 3 مكان العمل
		? 4 تجمع سكني	? 5 السوق	
		? 6 الريف أو المزرعة	? 8 أخرى	? 9 غير معروف
D6	الإجراء الأولي للمريض في ردهة الطوارئ	? 1تمت المعالجة و أرسل إلى المنزل		? 2 خرج على مسؤوليته الخاصة
		? 3 ادخل المستشفى	? 4متوفى عند الوصول	? 5توفي في ردهة الطوارئ
		? 6 نقل إلى مستشفى آخر(حدد): _____		
		? 8 أخرى		? 9 غير معروف

ملئت بواسطة: _____	__ __	تاريخ الإملاء __/__/____	التوقيع
دققت بواسطة: _____	__ __	تاريخ التدقيق __/__/____	التوقيع

E إذا كان الشخص مصابا نتيجة الألغام أو القذائف غير المنفلقة المتروكة، اسأل المريض الأسئلة الآتية				
E1	عنوان المصاب الكامل	المحافظة: _____	القضاء: _____	الناحية: _____
		الحي: _____	المحلة: _ _ _	زقاق: _ _ رقم الدار: _ _
		أقرب نقطة دالة: _____		
E2	النشاط في وقت الإصابة (اختار إجابة واحدة فقط)	□ 1 يمشي على قدميه	□ 2 كان في العمل	□ 3 زراعة
		□ 4 متنقل بالسيارة	□ 5 تعليم	□ 6 رعي
		□ 7 إزالة ذاتية للألغام و المخلفات الحربية		□ 8 التسوق
		□ 9 جمع السكراب	□ 10 اللعب	□ 11 نشاط ديني
		□ 12 عبر حدود	□ 88 أخرى	□ 99 غير معروف
E3	كيف فجّر اللغم أو القذيفة المتروكة؟	□ 1 عبث (لاحظ المادة)	□ 2 حادث عرضي عن طريق اللمس أو التخطي عليها (لم يلاحظ المواد)	
		□ 8 أخرى	□ 9 غير معروف	
E4	من فجّر المتفجّر؟	□1 من قبل الشخص نفسه	□ 2 من قبل شخص آخر	□ 3 سيارة □ 9 غير معروف
E5	هل كان الضحية يعلم أن المنطقة ملغومة بالألغام؟	□ 1 نعم لكنه ذهب لأسباب اقتصادية		□ 2 نعم لكنه ذهب لأسباب أخرى
		□ 3 لا		□ 9 غير معروف
E6	هل جرح أو قتل أشخاص آخرين في الانفجار نفسه؟	□ 1 نعم	□ 2 لا	□ 9 غير معروف
	إذا كان الجواب نعم	عدد المصابين: _ _	عدد المتوفين: _ _	□ 9 غير معروف

تعليمات ملء الاستمارة

١- يرجى قراءة التعليمات جيداً قبل الإملاء.

٢- وضع علامة ☒ داخل المربع المناسب و عدم وضع علامات أخرى مثل √ أو ○ ... الخ ذلك لتوحيد الأجوبة لمدخل البيانات

٣- الحرص على ملء جميع حقول الاستمارة بدقة وكما يأتي: اللون الأزرق خاص للطوارئ واللون الأحمر للطب العدلي والأسود مشترك بينهما.

٤- يجب على الأشخاص الذين يملؤون الاستمارة أن يكتبوا أسمائهم بوضوح و توقيعهم و تاريخ المليء و المصادقة.

٥- يملأ حقل A من قبل مسؤول البرنامج.

٦- (B) المقصود ب (الحالة) هو المتوفي أو المصاب المحال إلى المعهد.

٧- (B1) إذا كان الاسم غير معروف يدون غير معروف و لا يترك فارغاً.

٨- (B3) إذا كان العمر أقل من سنة يكتب ثلاثة أصفار (٠٠٠) و يقدر عمر المصاب في حالة عدم معرفته و أن لم تتمكن من ذلك أكتب (٩٩٩) .

٩- الوقت حسب التوقيت العالمي من (٠٠-٢٣) و بالساعات فقط و تهمل أجزاء الساعة و بالنسبة للساعة ١٢ ليلاً فتكتب(٠٠).

١٠- الانتباه إلى التسلسل المنطقي بين تاريخ الإصابة و تاريخ الوصول و تاريخ الإملاء و أن لا يقدم تاريخ الإملاء أو الوصول قبل تاريخ الإصابة.

١١- (C8) يعني بالوسيلة الأخرى أية وسيلة غير الإسعاف والسيارات (عربة، دراجة، طيارة،...الخ) تذكر.

١٢- (D1) في حالة اختيار فقرة ١.٦ ألغام و ١.٧ مواد قابلة للانفجار يجب ملىء حقل E

١٣- (D1 ١.٢) عبارة ـ انفجار ـ تتضمن كل الانفجارات غير معروفة السبب و المقذوفات عن بعد مثل صواريخ ، هاونات، طائرات أو أي مقذوف آخر.

١٤- (D1 ٢.٨) أخرى يقصد بها آلية حدوث الإصابة مما لم يذكر أعلاه مثل (عربة دفع، حيوان، قطار أو غيرها).

١٥- (D5) تجمع سكني يشمل دور العبادة (مسجد, كنيسة.. الخ) أو التجمعات لأغراض التطوع أو لأغراض التدريب ...الخ.

١٦- ينبغي بذل الجهد للتفريق بين النشاط الإرهابي و العنف خارج المنزل.

5.2 Injury Surveillance Form – English

CO □2	ER □1		A Reporting Site **HEALTH FACILITY INFORMATION**		
Patient / Case number _ _ _ _	**A3**	Name of Health Facility_____	**A2**	Name of Health Directorate _____	**A1**
				PATIENT DEMOGRAPHIC INFORMATION **B**	
Age _ _ _ **Years**	**B 3**	**Gender** □ **1** Male □ **2** Female □**9** Unknown	**B2**	Patient\ Case full Name_____	**B1**
Date of Death Certificate _ _ _ / _ _ / _	**B 6**	**Death Certificate No** _ _ _ _ _ _ . _ _	**B5**	Patient\ Case Address) Governorate (_____	**B4**
				C ARRIVAL SEQUENCE	
Date of Cadaver Found / _ _ / _ _ _ _	**C3**	Time of Injury _ _	**C2**	□ Date Unknown **9**	Date of injury _ _ _ / _ _ / _ _ _ **C1**
Time) **0-23** (**International time**		Time of arrival_ _	**C5**	Date of arrivall to the health facility _ / _ _ / _ _ _ _	**C4**
□Unknown **9**	□3 More than 24 hours	□2 within 24 hours		□1 within 1 hour	Time from injury to arrival **C6**
□Unknown **9**	□2 No	□1 Yes	Patient got medical care before coming to ER?		**C7**
□Unknown **9**	□ 8) Others(not a car(	□ Other vehicle 2		□1 Ambulance	Mode of Arrival) one choice(**C8**
				D INJURY RELATED INFORMATION	
fill field E selected)1.6 و 1.7 (If				Circumstances (How was the injury inflected) (one choice(	**D1**

Others 5		**4 Outside Violence**		**3 Domestic Violence**		**2 Traffic Accidents**		**1 Explosion Accidents**	
□Animal bite	**5.1**	□Gun fire	**4.1**	□Gun fire	**3.1**	□Pedestrian	**2.1**	□Gun fire	**1.1**
□Drowning	**5.2**	□Sharp tools	**4.2**	□Sharp tools	**3.2**	□Car	**2.2**	□Explosive	**1.2**
□ Poisoning	**5.3**	□Blunt	**4.3**	□Blunt	**3.3**	□Bicycle	**2.3**	□IED	**1.3**
□Falls	**5.4**	□Others	**4.8**	□Others	**3.8**	□Motorcycle	**2.4**	□Suicide bomber	**1.4**
□Burns	**5.5**	□Unknown	**4.9**	□Unknown	**3.9**	□Others	**2.8**	□Car bomb	**1.5**
□ Suffocation	**5.6**					□Unknown	**2.9**	□Land mine	**1.6**
□Electric injury	**5.7**							□UXO	**1.7**
□Others	**5.8**							□Others	**1.8**
□Unknown	**5.9**							□Unknown	**1.9**

□**9** Unknown	□**2** No	□**1** Yes	**Were 5 or more people injured in this incident**	**D2**

□**3** Unintentional inflected by others	□**2** Intentional inflected by self	□**1** Intentional inflected by others	**Intention**	**D3**
□Unknown **9**	□ Others **8**	□**4** Unintentional inflected by self		

District_____ :	Police Station_____ :	**Governorate**_____ :	**Geographical location of incident**	**D4**

□ 5 Market	□**4** Public gathering	□**3** Workplace	□**2** Street	□**1** Home	**Place of occurrence**) one choice(	**D5**

□Unknown **9**	□**8** Others	□**6** Farm and countryside		
□2 Discharged agianst medical advice	□**1** Treated and sent home		**Initial patient disposition in emergency department**	**D6**
□5 Died in emergency department	□4 Dead on arrival	□**3** Admitted to the hospital		
□**6** Another Hospital) specify_____ :(				
□Unknown **9**	□**8** Others			

Sig.	Date of Filling_ _ _ _ / _ _ / _ _	Filled by__ __ _____ **:**
Sig.	Date_ _ _ _ / _ _ / _ _	Checked by__ __ _____ **:**

Instructions how to fill the form

1- **Read the instruction carefully before filling.**
2- **Use the mark ☒ inside the suitable square and do not use other marks like √ or ° in order to standardize the answers for data entry.**
3- **Care on filling all the fields in the form, the red color is used for special fields for C.O.**
4- **Data collectors and supervisors should write clearly their name, signature and date of filling.**
5- **Section A should be fillet by supervisor.**
6- **In section (B), a (Case) means the dead person or the injured transferred to C.O.**
7- **In section (B1), if the name is unknown should be written unknown and not left blank.**
8- **In section (B3), if the age less than one year will be written (000) and estimate the age of the case, if not possible will be write (999).**
9- **Time upon international time is between (0 – 23) should be written in hours and ignore the minutes, for 12 o'clock at midnight should be written (00).**
10- **Attention on the logic consequences between the date of injury, date of arrival and the date of filling.**
11- **In section (C8) others means any facility other than ambulance and cars (carriage, motorcycle, plane,…etc).**
12- **In section (D1) if the answers 1.6 Land mine or 1.7 UXO section (E) should be filled.**
13- **In section (D1 choisw 1.2 includes all unknown explosive matters and projectiles, mortar rockets, planes,….**
14- **In section (D1) choice 2.8 *others* means mode of injury that not mentioned like (carriage, animal, train,…)**
15- **In section (D5) public gathering includes (Church, Mosque, …) or other gathering for training purposes.**
16- **Emphasize on distinguish between *Explosion Accidents* and *Outside Violence*.**