Republic of Iraq
Ministry of Health

Iraqi Injury Surveillance System
Triennial Report

2010-2012

Edited by
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تقديم...

الرصد الوبائي عملية مستمرة ومنظمة لجمع المعلومات عن مشكلة صحية معينة وتحليلها وتفسيرها ومراقبتها. وتهدف إلى معرفة حجم الوباء وتوجهاته وتحديد مجاميع الاحتطار في المجتمع المدروس مما يتيح تحديد الأولويات الضرورية وتخطيط البرامج الوقائية وإجراء البحوث وتقييمهما في أثناء الرصد.

وتعد الإصابات الخارجية المقصودة والعرضية الوباء الخفي في العالم ومشكلة صحية عالمية. وتتضاعف عدد الإصابات الخارجية في بعض الدول عند الحروب والاضطرابات الداخلية اللاحقة. واعتماداً على منظمة الصحة العالمية وتقديرات الصحة العالمية، قتلت الاصابات الخارجية خمسة مليون شخص في العالم سنة ٢٠١١، وتشكل الوفيات بسبب الاصابات الخارجية ٩% من الوفيات العالميةوهناك الاصابات الخارجية الشباب والاعمار الحيوية الفاعلة بمعدلات اكثر من الاعمار الأخرىولها دور كبير في الاعاقة.

ويشير مؤشر التوجهات المستقبلية العالمية لعبء الاصابات الخارجية إلى الارتفاع. وستقفز وفيات المرور إلى اعلى لتصل إلى الاسباب الخمس للوفيات الاولى في العالم "حالياً تحتل المركز السابعة". كما تشير التوقعات إلى زيادة العبء لاصابات إيذاء النفس ايضاً.

أرست وزارة الصحة العراقية ووزارة صحة اقليم كردستان العراق نظام رصد الاصابات الخارجية منذ عام ٢٠١٠ وحالياً يشمل النظام جميع دوائر الصحة العراقية. ودُعم البرنامج مادياً وفنياً من منظمة الصحة العالمية (WHO) كما دُعم فنياً من مركز السيطرة على الامراض الامريكي (CDC) واليونيسيف (UNICEF) والبرنامج الانمائي للامم المتحدة (UNDP).

أما في العراق، فإن الاصابات تودي إلى مراضة ووفيات معتبرة. وتشير التقديرات الوطنية من التقارير الاحصائية الرسمية لوزارة الصحة العراقية للسنين ٢٠٠٦-٢٠١٠ إلى أن الاصابات الخارجية تمثل السبب الثاني للوفيات لجميع الاعمار باستثناء مجموعة اعمار أقل من ٥ سنوات. كما تشير التقديرات العالمية للعبء المرضي في العراق إلى أن الاصابات الخارجية الناتجة عن الآلات والعنف بين الاشخاص والمرور والحرائق والغرق والحروب والردع القانوني من بين الاسباب الرئيسة لفقدان سني العمر في العراق.

أدعو الجهات الرسمية وغير الرسمية في العراق الاستفادة من نتائج التقرير لتخطيط ورسم البرامج الوقائية وباولويات علميةللحد من عبء الاصابات الخارجيةعلى المجتمع العراقي.

سدد الله خطانا جميعاً لخدمة العراق الجديد ...

الدكتورة

عديلة حمود حسين

وزيرة الصحة

بسم الله الرحمن الرحيم

نظرا للارتباط المباشر بين التخطيط الاستراتيجي ونظم المعلومات والبيانات الصحية لتحقيق اي هدف استراتيجي فقد اهتمت دائرة العمليات الطبية والخدمات المتخصصة المتمثلة بقسم مركز العمليات (برنامج رصد الاصابات الخارجية العراقي) اهتماما متميزا في جمع واعداد البيانات والمعلومات التي تتعلق بالاصابات الخارجية من المستشفيات ودوائر الطب العدلي المشمولة بالبرنامج لذلك تعتبر دائرتنا المصدر الرئيس لانجاز التقرير السنوي حول الاصابات الخارجية في العراق وتقديم ذلك التقرير الى اصحاب القرار في وزارة الصحة والى اي جهة حكومية او غير حكومية لها اهتمام في الجانب الصحي والسعي لايجاد افضل الوسائل الممكنة للارتقاء بالواقع الصحي العراقي ورفع مستوى الخدمات الصحية المقدمة.

وكذلك اغناء طلبة العلم والباحثين بهذه المعلومات لاسهام وزارة الصحة في تشجيع البحوث والدراسات التي تخدم سياستها الصحية وايجاد الحلول المناسبة لكل المعوقات والسلبيات التي يتم تحديدها من خلال التحليل واستخراج المؤشرات الصحية.

ان آلية اعداد التقرير لوزارتنا تتمثل بجمع البيانات من دوائر الصحة (ردهات الطوارئ ومكاتب الطب العدلي المشمولة بالبرنامج) شهريا وبعد تدقيق وتحليل هذه البيانات وبالتعاون مع منظمة الصحة العالمية ومراكز السيطرة على الامراض في اطلنطا تم انجاز هذا التقرير.

نتمنى ان نكون قد وفقنا في انجاز هذه الوثيقة المهمة التي تعكس نشاطات وزارتنا واخراجها بالشكل الذي يمكن الاستفادة منها.

والله ولي التوفيق...

الدكتور

احسان جعفر احمد

مدير عام دائرة العمليات
الطبية والخدمات المتخصصة

Iraqi Injury Surveillance System Report 2010-2012

Edited by

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Acknowledgments:

We would like to acknowledge the huge efforts experienced from all data collectors and data entry personnel in the participating provinces through the three years under study. I'd like to express my deep thanks to Dr. Syed Jaffer Hussain, WHO representative and head of mission for Iraq, Dr.Hala Sakr,technical officer, EM/RGO/DHP/HLP. Also we highly appreciate the technical assistance offered by Dr. Manhal AlHalasa, the technical advisor from WHO, for his great role in developing an Epi Info view and training process, great thanks to Ms. Ajyal Sultany ,VIPD Responsible officer, WHO Iraq , and great thanks to Dr. Oleg Bilukha , Dr Eva Leidman from CDC Atlanta for their technical role in developing the program.

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Introduction

According to the World Health Organization (WHO) Global Health Estimates (GHE), injuries killed almost 5 million people worldwide in 2011, 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. Injuries are also a major cause of disability.

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. Among people 15 to 29 years of age, almost 60% of all male deaths are attributed to injuries.

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 global leading causes of deaths, estimated numbers in 2011 and projected number in 2030[2]

	2011		2030
1	Ischaemic heart disease 462524	1	Ischaemic heart disease 786147
2	Stroke 308050	2	Stroke 542884
3	Lower respiratory infections 306264	3	Lower respiratory infections 382485
4	Preterm birth complications 178768	4	Chronic obstructive pulmonary disease 266157
5	Diarrhoeal diseases 176126	5	Road injury 249279
6	Chronic obstructive pulmonary disease 150867	6	Diabetes mellitus 199621
7	Road injury 133156	7	Preterm birth complications 142955
8	Birth asphyxia and birth trauma 111925	8	Diarrhoeal diseases 131586
9	Tuberculosis 97888	9	Hypertensive heart disease 126648
10	Diabetes mellitus 90164	10	Cirrhosis of the liver 108900
11	Congenital anomalies 80057	11	Birth asphyxia and birth trauma 91207
12	Hypertensive heart disease 71266	12	Endocrine, blood, immune disorders 82452
13	Cirrhosis of the liver 70573	13	Kidney diseases 81016
14	Collective violence and legal intervention 68455	14	Congenital anomalies 80492
15	Endocrine, blood, immune disorders 62496	15	Breast cancer 76025
16	Kidney diseases 58593	16	Self-harm 66827
17	Protein-energy malnutrition 54282	17	Trachea, bronchus, lung cancers 65052

[1] Global Health Estimates 2011

[2] Source: Global Health Observatory Data Repository: http://apps.who.int/gho/data/view.main.CODREG6EMRV?lang=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. 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 on the injury surveillance system Iraq (2010-2012) represents the first ever report in Iraq. 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 (2010-2012) data was collected from emergency departments in nine directorates and coroner offices in eight departments. After 2012, data collection has been expanded to all health directorates nationally.

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 presents the following:

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 between 2010 and 2012 and key recommendations for public health action based on these findings.
3- Gaps and challenges facing the system, and recommendations to strengthen the system.

1. Description of the Iraqi Injury Surveillance System:

1.1 Development of the system

Iraq Injury Surveillance System was gradually implemented. Data collection was first piloted beginning December 2008. During this first phase of the pilot, data was collected in four provinces—Baghdad/Rusafa,Basrah,Kerbala,and Erbil. Beginning in December 2009, five additional provinces began collecting data—Misan,Anbar,Mosel,Suleimania,and Baghdad/Karch. During these initial years of implementation, the process—training, data collection tools, data entry databases, data transfer—was regularly reviewed and refined. Table 2 outlines reporting by site during the scale up of the surveillance system.
The current report covers data collected during January 2010 – December 2012, when sites in nine health directorateswere reporting.

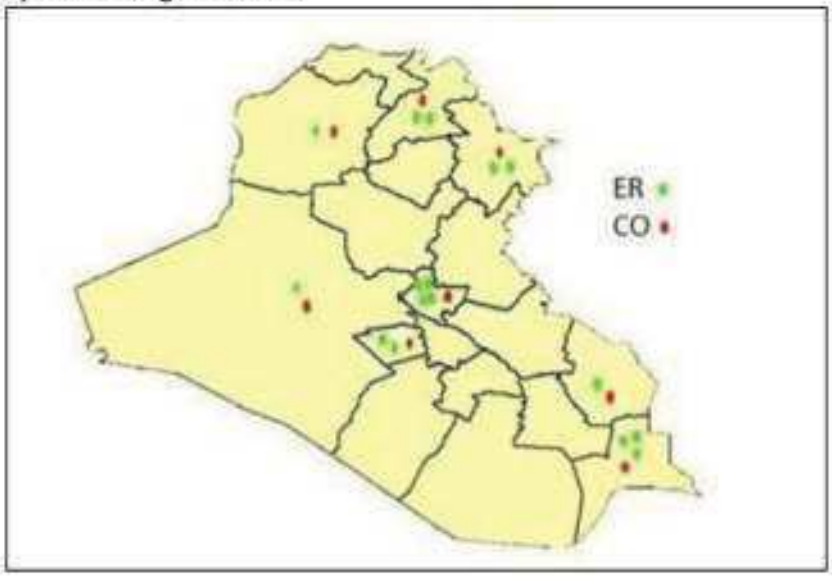
Beginning January 2013, data collection was scaled up to all 18governorates. The Surveillance System now (in 2014) collects data from one hospital emergency room and one coroner office in each province of the country (except Basra where multiple hospitals are currently reporting).

Table 2.Reporting Sites enrolled in the Injury Surveillance System, from 2008 to 2012

Directorate	Reporting Site	2008	2009	2010	2011	2012
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-Kindi Teaching Hospital	■	■	■	■	■
Baghdad/Rasafa	Al-Numan Hospital	■	■	■	■	■
Baghdad/Rasafa	Al-Shaheed Al-Sader Hospital	■	■	■	■	■
Erbil	Erbil Emergency Hospital / Erbil West	■	■	■		■
Erbil	Erbil Teaching Hospital / Erbil Center	■	■	■	■	■
Karballa	Al-Hindia general hospitals	■	■	■	■	■
Karballa	Al-Husayne Hospital	■	■	■	■	■
Karballa	Eien Tamer	■	■	■		
Misan	Al-Sader Teaching Hospital			■	■	■
Mousel	Jamhoury Teaching Hospital			■	■	■
Sulaimaniya	Emergency 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					

Figure 1. Map of the emergency rooms and coroner offices included in the Iraq Injury Surveillance System during 2010-2012



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 provincesby the end of 2013;
- Describe the epidemiology of external injuriesin 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 intentionaland 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, Labour, 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, 2010-2012

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

The number of injuries reported overall increased from 46,581 in 2010 to 68,126 in 2012; 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 three year period.

Table 4. Percent of women and children among all non-fatal injuries, 2010-2012

	2010	2011	2012
Percent Children U18	37.9	39.3	39.0
Percent Women	25.5	25.4	27.1

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 year to year.

Figure 2. Percent of women and children among all non-fatal injuries, 2010-2012

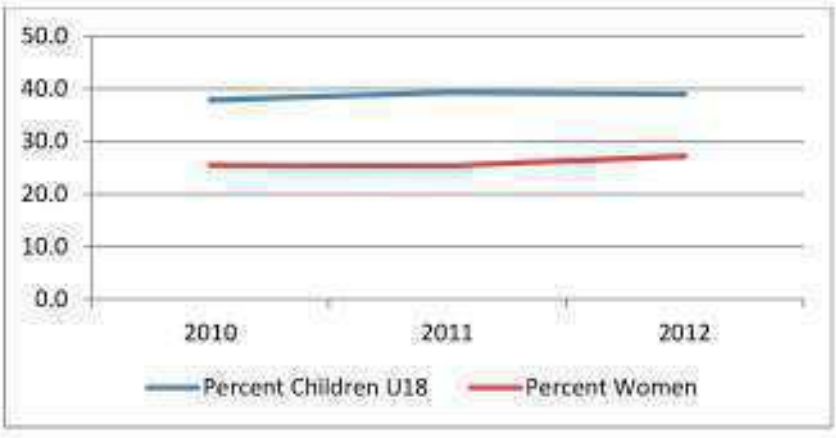


Figure 3. Age and sex distribution of all non-fatal injuries, 2012

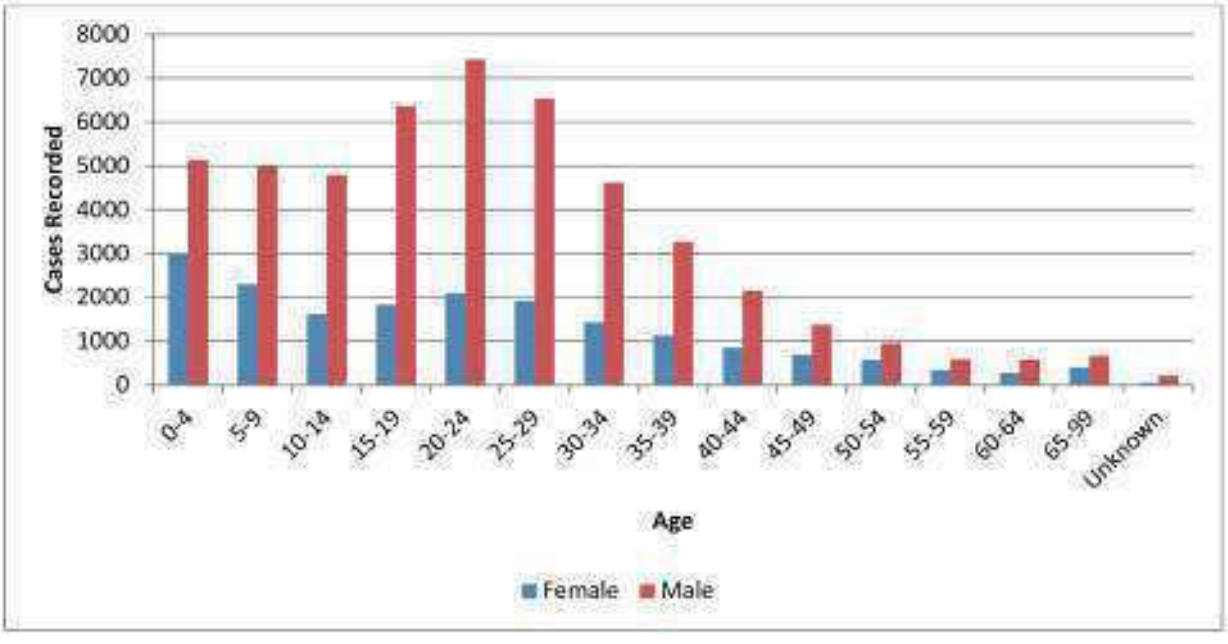


Figure3 shows the number of injuries by sex within each five year age cohort in 2012. The demographics of non-fatal injuries in 2012 were similar to those seen in 2010 and 2012 (not shown). As illustrated, males represented a greater proportion of injuries in every age cohort. Injuries disproportionately affected males 15-34 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 this age group was the highest of all age groups.

2.2 Time Trends, 2010-2012

Table 5. Percent of injuries per month among all non-fatal injuries, 2010-2012

	2010	2011	2012
January	10.6	7.4	8.3
February	9.3	6.8	8.5
March	8.2	8.3	9.8
April	10.9	7.8	9.6
May	9.0	6.7	8.3
June	6.8	6.6	7.8
July	6.7	7.5	8.4
August	7.5	9.6	7.8
September	8.5	10.9	8.2
October	8.0	11.6	8.3
November	7.0	7.5	8.0
December	7.3	9.3	6.8

Figure 4. Percent of injuries per month among all non-fatal injuries, 2010-2012

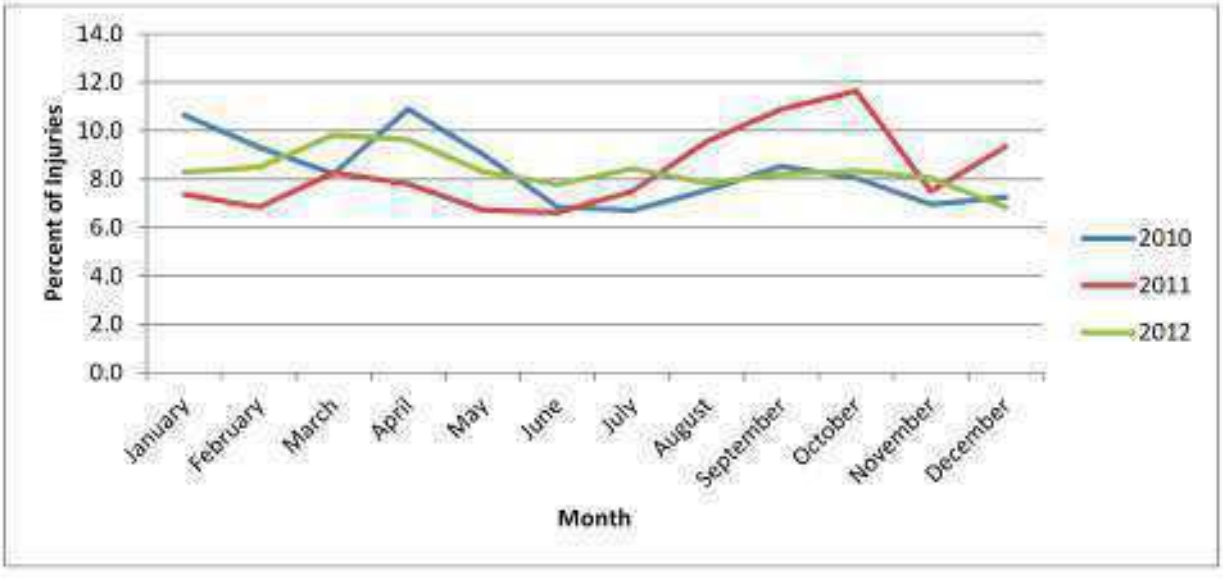


Table 5 and Figure 4 show the proportion of injuries recorded in a given year by month of injury for all three years. No consistent secular trends were identified for non-fatal injuries.

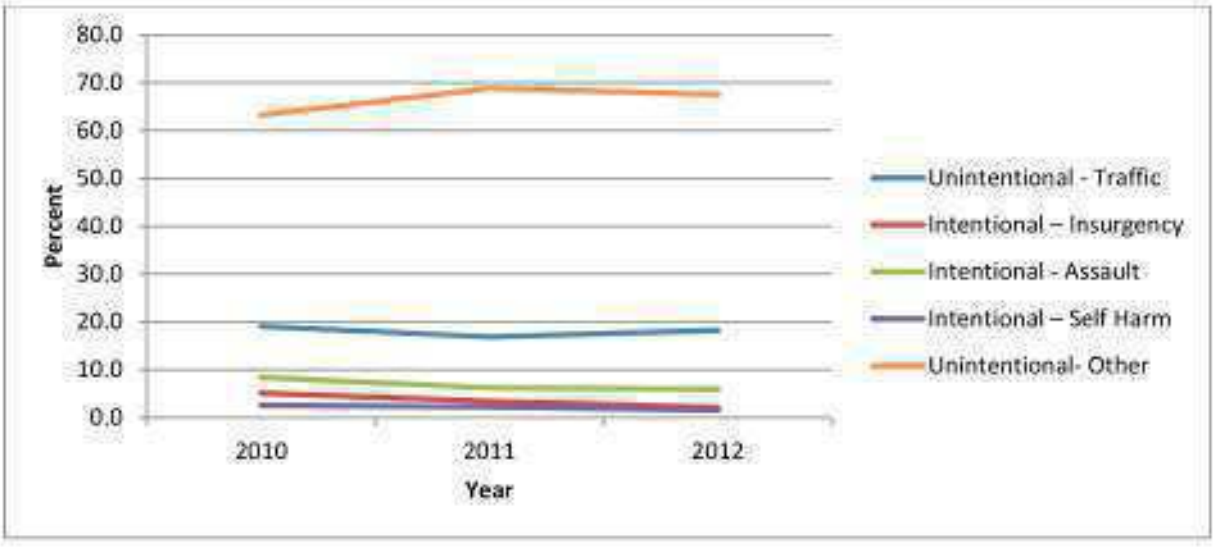
2.3 Distribution of Injuries by Intention

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, 2010-2012

	2010		2011		2012	
	N	%	N	%	N	%
Unintentional - Traffic	8,867	19.0	9,795	16.9	12,419	18.2
Intentional – Insurgency	2,400	5.2	1,959	3.4	1,470	2.2
Intentional – Assault	3,900	8.4	3,621	6.2	4,046	5.9
Intentional – Self Harm	1,198	2.6	1,285	2.2	1,048	1.5
Unintentional- Other	29,447	63.2	39,962	68.9	46,027	67.6
Unknown Intent	769	1.7	1,416	2.4	3,116	4.6

Figure 5. Percent of injuries by intention among all non-fatal injuries, 2010-2012



Unintentional injuries cause the greatest proportion of non-fatal injuries, approximately two-thirds of all non-fatal injuries each year. Traffic injuries are responsible for about 17-19% of all nonfatal injuries, the proportion of intentional injuries (assault, self-harm and insurgency-related) is relatively small and has been decreasing from 2010 to 2012. Low numbers of recorded intentional injuries may be due in part to underreporting.

Table 7.Percent of injuries by intention among all non-fatal injuries in 2012, by governorate

	Unintentional-Traffic		Intentional–Insurgency		Intentional–Assault		Intentional–Self Harm		Unintentional-Other		Unknown Intent	
	N	%	N	%	N	%	N	%	N	%	N	%
Al-Basra	628	13.7	14	0.3	98	2.1	2	0.0	3,574	78.2	256	5.7
Anbar	817	30.0	315	11.6	217	8.0	60	2.2	1,251	46.0	61	2.2
Baghdad/Karkh	565	12.9	115	2.6	544	12.5	319	7.3	2,725	62.4	97	2.3
Baghdad/Rasafa	1,961	14.8	626	4.7	1,094	8.2	238	1.8	8,525	64.2	827	6.3
Erbil	2,976	29.9	4	0.0	228	2.3	5	0.1	6,636	66.7	93	1.0
Karballa	3,309	21.3	34	0.2	1,012	6.5	116	0.7	9,868	63.6	1,172	7.7
Misan	772	22.3	85	2.5	431	12.5	44	1.3	1,706	49.3	421	12.1
Mousel	632	12.0	255	4.9	138	2.6	21	0.4	4,195	79.8	16	0.3
Sulaimaniya	759	8.4	22	0.2	284	3.1	243	2.7	7,547	83.6	173	2.0
Total	12419	18.2	1470	2.2	4046	5.9	1048	1.5	46027	67.6	3116	4.6

Table 7presents the distribution of intent of injuries by governorate in 2012. The highest proportion of insurgency-related injuries was in Anbar, followed by Mousel and Baghdad/Rasafa. The proportion of traffic injuries was highest in Anbar and Erbil, the lowest – in Mousel and Sulaymaniya. The proportion of reported self-harm injuries was very low in many governorates, including Al-Basra, Mousel, Erbil and Karballa, 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 intent

	Female			Child (U18)		
	2010	2011	2012	2010	2011	2012
Unintentional - Traffic	17.9	18.6	18.2	30	30.4	30.7
Intentional – Insurgency	13.7	9.4	9.3	13.3	10.8	11.8
Intentional - Assault	12.7	12.7	15.3	16.0	14.5	17.7
Intentional – Self Harm	30.3	33.0	46.7	30.1	27.1	23.6
Unintentional- Other	30.2	28.7	30.8	45.5	45.6	44.6
Unknown Intent	26.5	26.4	25.1	38.9	36.4	34.2

Figure 6. Proportion of females among all non-fatal injuries, by intent

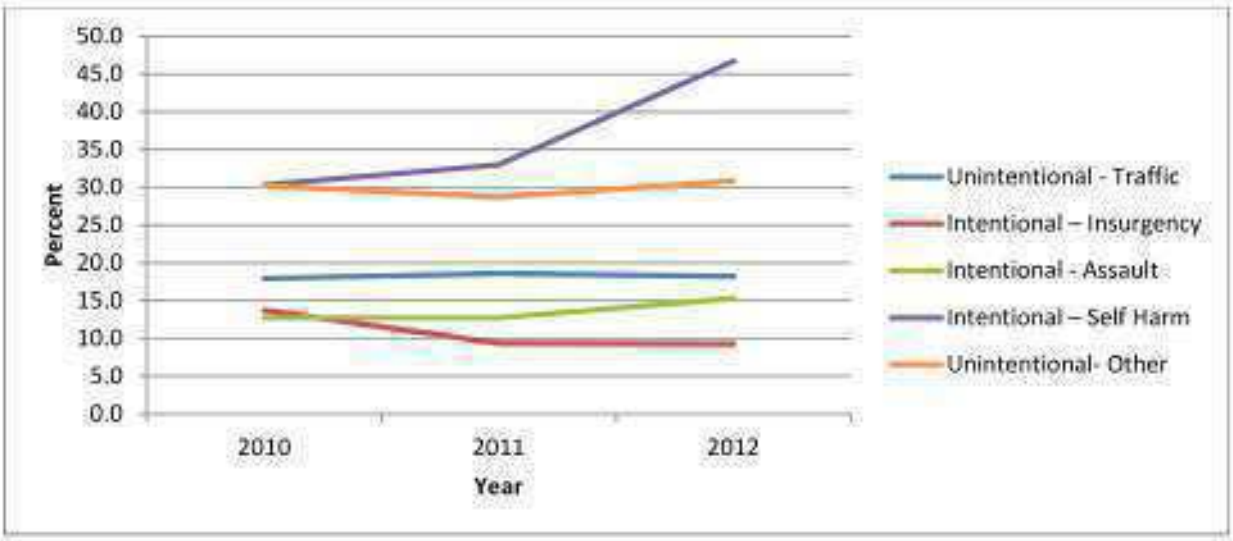


Figure 7. Proportion of children (U18) among all non-fatal injuries, by intent

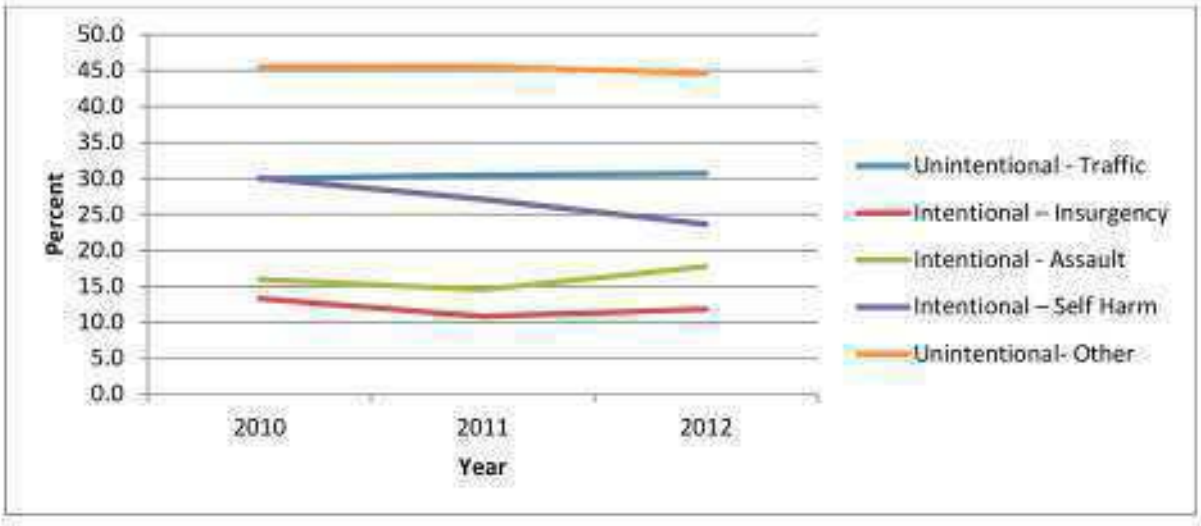


Table 8 and Figures 6 and 7 present age and sex distribution by intent category. The lowest proportion of females and children was among assault and insurgency-related injuries. The highest proportion of females was among self-harm injuries, the highest proportion of children was for unintentional (road traffic and other) injuries. Proportion of women and children among those injured by assault increased from 2011 to 2012, proportion of women in self-harm category also increased in 2012.

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, 2010-2012

	2010		2011		2012	
	N	%	N	%	N	%
Traffic	8,812	18.9	9,745	16.8	12,419	18.2
Sharp Objects	10,111	21.7	12,742	22.0	16,017	23.5
Blunt	6,082	13.1	7,667	13.2	9,792	14.4
Falls	8,777	18.8	13,256	22.8	11,453	16.8
Burns	5,979	12.8	6,412	11.1	8,555	12.6
Other/Unknown	6,820	14.7	8,217	14.2	9,890	14.6

Figure 8. Number and percent of injuries by mechanism among all non-fatal injuries, 2010-2012

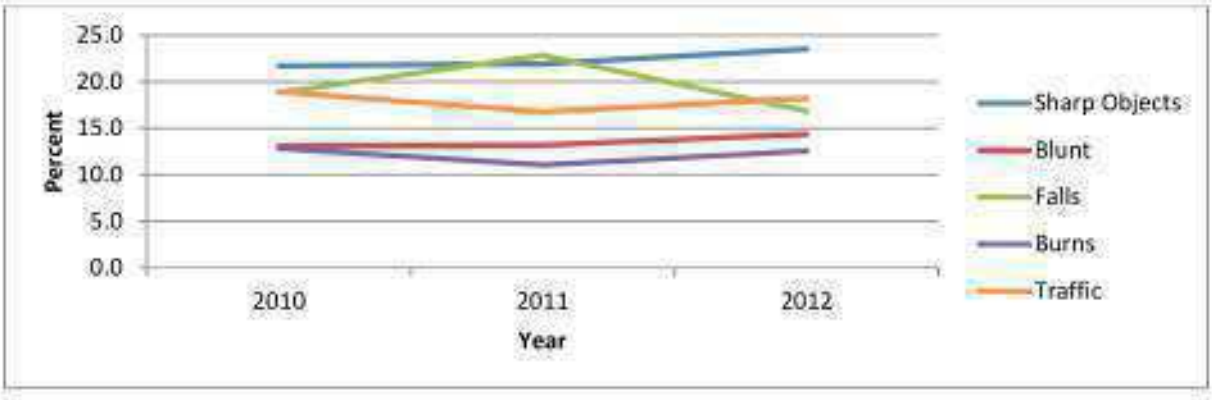


Table 9 and Figures 8 present the proportion of injuries by mechanism for 2010-2012. Sharp objects were responsible for the greatest proportion of injuries in 2010 and 2012. In 2011, the largest proportion (22.8%) were caused by falls. Other common mechanisms of injury included blunt objects, burns and traffic related injuries.

Table 10. Percent of injuries by mechanism among non-fatal unintentional-traffic injuries, 2010-2012

	2010	2011	2012
Pedestrian	11.7	16.2	16.3
Car	60.0	56.4	54.4
Bicycle	5.0	5.7	5.4
Motorcycle	22.7	21.2	22.5
Others	0.5	0.5	1.3
Unknown	0.2	0.1	0.1

Figure 9. Percent of injuries by mechanism among non-fatal unintentional-traffic injuries, 2010-2012

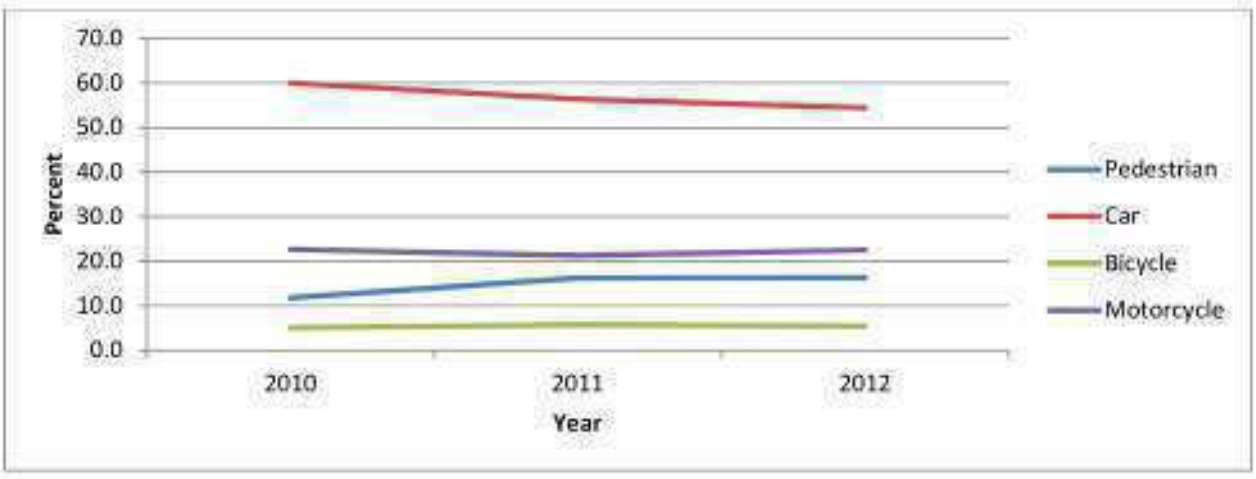


Table 10 and Figures 9 present the mechanism of injury for non-fatal traffic related injuries. Among traffic related injuries, the majority (range 54.4-60.0%) of victims were in cars. About one fifth (range 21.2-22.7%) of victims were on motorcycles. Bicycles were the least common mechanism of traffic injury. Injuries among vulnerable road users (pedestrians, bicyclists and motorcyclists) constitute more than one third of road traffic injuries; the proportion of injuries involving vulnerable road users increased during the period from 39% in 2010 to 44% in 2012.

Table 11. Percent of injuries by mechanism among non-fatal unintentional-other injuries, 2010-2012

	2010	2011	2012
Gun Fire	1.1	0.8	0.6
Sharp Tool	26.1	26.0	28.5
Blunt Tool	16.4	16.0	17.5
Falls	28.4	32.2	24.2
Burns	19.3	15.6	17.7
Poisoning	1.9	2.2	2.7
Animal / Insect Bite	1.3	1.5	2.6
Other / Unknown	5.4	5.8	6.3

Figure 10. Percent of injuries by mechanism among non-fatal unintentional-other injuries, 2010-2012

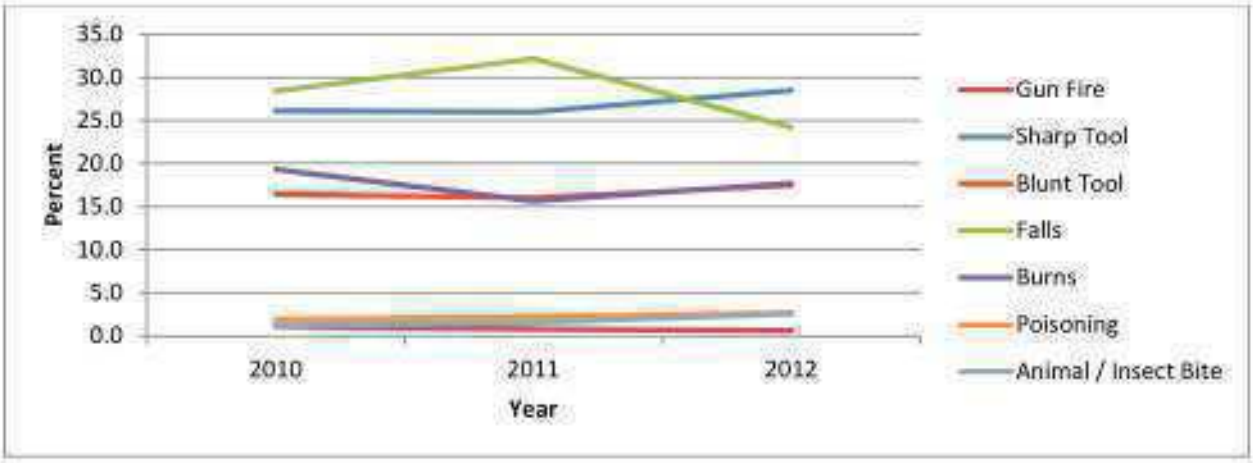


Table 11 and Figures 10 present the mechanism of injury for all other non-fatal unintentional injuries, not including traffic related injuries. The two most common causes were falls and sharp tools. More than a quarter of injuries in 2010 and 2011 were caused by falls. In 2012, sharp tools were the most common mechanism of injury (28.5%). The other two common causes of non-traffic unintentional injuries were burns and blunt tools. Unintentional injuries resulting from gunfire were uncommon (range 0.6-1.1% of deaths.)

Table 12. Percent of injuries by mechanism among non-fatal intentional-assault injuries, 2010-2012

	2010	2011	2012
Gun Fire	12.4	10.5	6.0
Sharp Tool	51.3	47.5	55.0
Blunt Tool	26.8	27.2	29.7
Falls	2.8	3.0	2.2
Burns	1.2	1.2	1.4
Animal / Insect Bite	1.2	1.0	1.2
Other / Unknown	4.4	9.7	4.5

Figure 11. Percent of injuries by mechanism among non-fatal intentional-assault injuries, 2010-2012

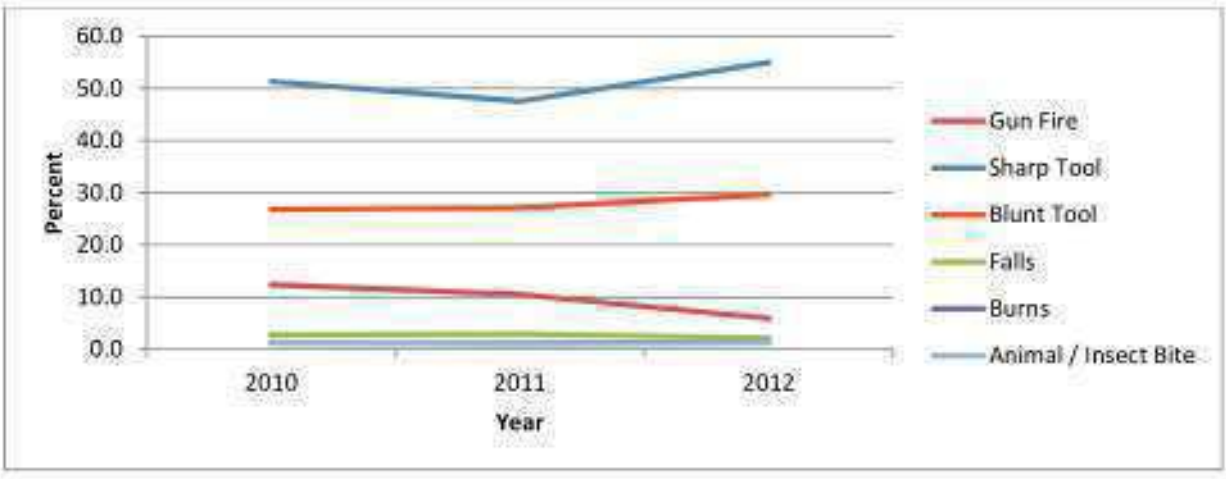


Table 12 and Figures 11 present the mechanism of injury for all non-fatal assaults. Assaults include both domestic violence and violence among strangers. The most common mechanism of assault injuries was sharp objects which caused between 47.5% and 55.0% of all assaults. Blunt objects and guns were the second and third, respectively, most common mechanism of in assault injuries. Together guns, sharp and blunt objects were responsible for more than 85% of all assaults each year.

2.5 Mass Injury Events

Table 13. Percent of injuries resulting from a mass injury event among all non-fatal injuries, 2010-2012

	2010	2011	2012
Unintentional - Traffic	10.0	6.4	3.5
Intentional – Insurgency	54.8	51.6	49.3
Intentional – Assault	3.8	6.5	2.4
Intentional – Self Harm	3.1	13.5	1.7
Unintentional- Other	1.8	1.6	0.9
Unknown Intent	6.6	3.5	1.9
Total	6.3	4.7	2.5

Table 13 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 10% of injuries overall resulted from mass casualty events. However, approximately half (range 49.3 to 54.8%) of insurgency related events resulted from mass casualty events. The high proportion of self-harm injuries in 2011 reported to be from mass injury events is unusual and may in part be explained by inconsistencies in reporting.

2.6 Place of Injury

Table 14. Percent of injuries by place among all non-fatal injuries, 2010-2012

	2010	2011	2012
Countryside	0.8	1.2	1.5
Home	46.1	48.9	47.9
Public Space	3.0	3.4	4.2
Street / Highway	34.3	30.4	30.7
Workplace	14.4	14.3	14.1
Other / Unknown	1.5	1.8	1.6

Figure 12. Percent of injuries by place among all non-fatal injuries, 2010-2012

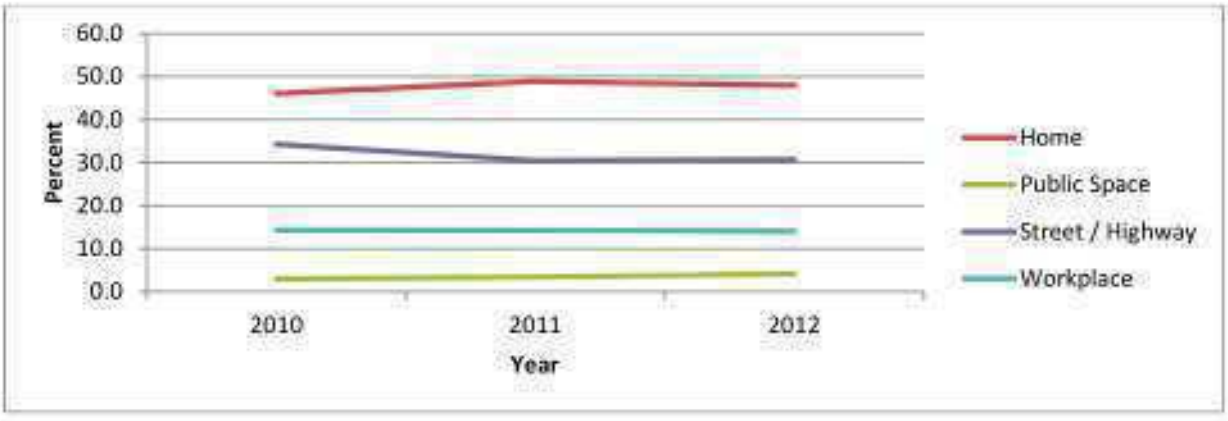


Table 14 and Figure 12 present the proportion of injuries by place where the injury occurred. Nearly half of the injuries occurred at home (range 46.1-47.9%) and more than 30% occurred on highways or streets. The third most common location of injury was the workplace. Analysis of place of injury disaggregated by sex suggested that the proportion of injuries occurring at home was higher among females than males (not shown). Among children, nearly two-thirds of injuries occurred in the home (not shown). The proportions of injuries by place were similar for all three years.

2.7 Pre-hospital Care and Disposition

Table 15. Percent of injuries receiving pre-hospital care among all non-fatal injuries, 2010-2012

	2010	2011	2012
Percent Arriving by Ambulance	9.4	6.7	4.1
Percent Arriving More than 1 Hour After Injury	12.7	10.3	8.9
Percent Receiving Care Prior to Arrival	11.9	11.4	11.9

Table 15 presents data on the pre-hospital care received by victims presenting at the emergency rooms. Analysis suggests that 9.4% of injuries arrived by ambulance in 2010, and the proportion declined over the study period. In 2010, 87.3% of injuries arrived at the emergency room within one hour of injury; the proportion increased to 89.7% in 2011 and 91.1% in 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, nearly 70% received care in the ambulance. Nearly 75% of those who received pre-hospital care arrived within one hour to health facility in 2012 (not shown).

Table 16. Percent of injuries arriving at the hospital in an ambulance among all non-fatal injuries 2010-2012, by governorate

	2010	2011	2012
Al-Basra	7.9	14.7	1.2
Anbar	14.4	14.3	8.0
Baghdad/Karkh	3.1	2.6	0.6
Baghdad/Rasafa	6.5	1.8	2.1
Erbil	5.3	5.8	7.5
Karballa	12.3	8.3	1.8
Misan	15.5	15.7	8.8
Mousel	18.2	3.9	2.9
Sulaimaniya	10	7.7	7.9

Table 16 shows the proportion of injuries arriving at the emergency room in an ambulance by governorate. In 2010, the proportion was highest in Mousel followed by Misan, Anbar, and Karballa. The proportion of victims arriving by ambulance declined between 2010 and 2012 in all governorates except for Erbil. During this period, public health interventions were ongoing in Basra and Anbar to increase ambulance utilization.

Table 17. Percent of injuries by disposition upon arrival among all non-fatal injuries, 2010-2012

	2010	2011	2012
Treated and sent home	73.4	75.8	80.5
Admitted, left against medical advice, or transferred	25.3	22.7	18.2
Dead on arrival or died in the ER	0.6	0.5	0.7
Unknown or Other	0.73	1.0	0.7

The majority of injuries were treated and discharged. This proportion increased from 73.4% in 2010 to 80.5% in 2012. The proportion treated and discharged was highest among injuries that arrived within one hour of the injury (not shown). Percentage of patients who were admitted into the hospital, transferred to a different facility, or left against medical advice, decreased from 25.3% in 2010 to 18.2% in 2012. 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 18. Number and percent of fatal injuries by governorate, 2010-2012

	2010		2011		2012	
	N	%	N	%	N	%
Basra	585	7.7	675	9.0	676	8.6
Anbar	672	8.9	815	10.9	775	9.9
Baghdad	2,835	37.3	2,395	32.0	2,754	35.2
Erbil	814	10.7	821	11.0	779	10.0
Karballa	310	4.1	366	4.9	380	4.9
Misan	345	4.5	493	6.6	512	6.6
Mousel	1,290	17.0	1,198	16.0	1,299	16.6
Sulaimaniya	743	9.8	717	9.6	647	8.3
Total	7,594	100	7,480	100.0	7,822	100.0

Table 18 presents the number and proportion of injuries by governorate for 2010 to 2012. The total number of injuries reported was relatively consistent during the three years (range 7,480-7,822). 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 19. Percent of women and children among all fatal injuries, 2010-2012

	2010	2011	2012
Percent Children U18	24.1	24.1	26.6
Percent Women	26.4	27.8	28.9

Figure 13. Percent of women and children among all fatal injuries, 2010-2012

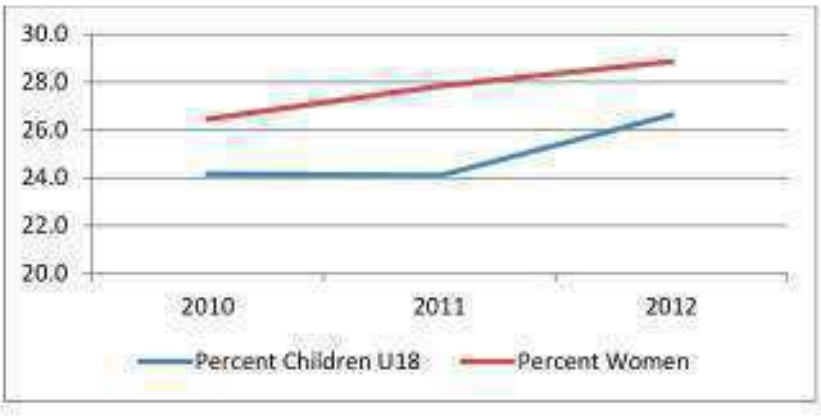


Table 19 and Figure 13 present the proportion of injuries among women and the proportion of injuries among children under 18 years of age for 2010 to 2012. Children are approximately one quarter (range 24.1-26.6%) of fatal injuries. The proportion of injuries among women gradually increased from 26.4% in 2010 to 28.9% in 2012, the proportion of children increased from 24.1% in 2010 to 26.6 in 2012. The proportion of women among fatal injuries was highest in Misan (40%, not shown).

Figure 14. Age and sex distribution of all fatal injuries, 2012

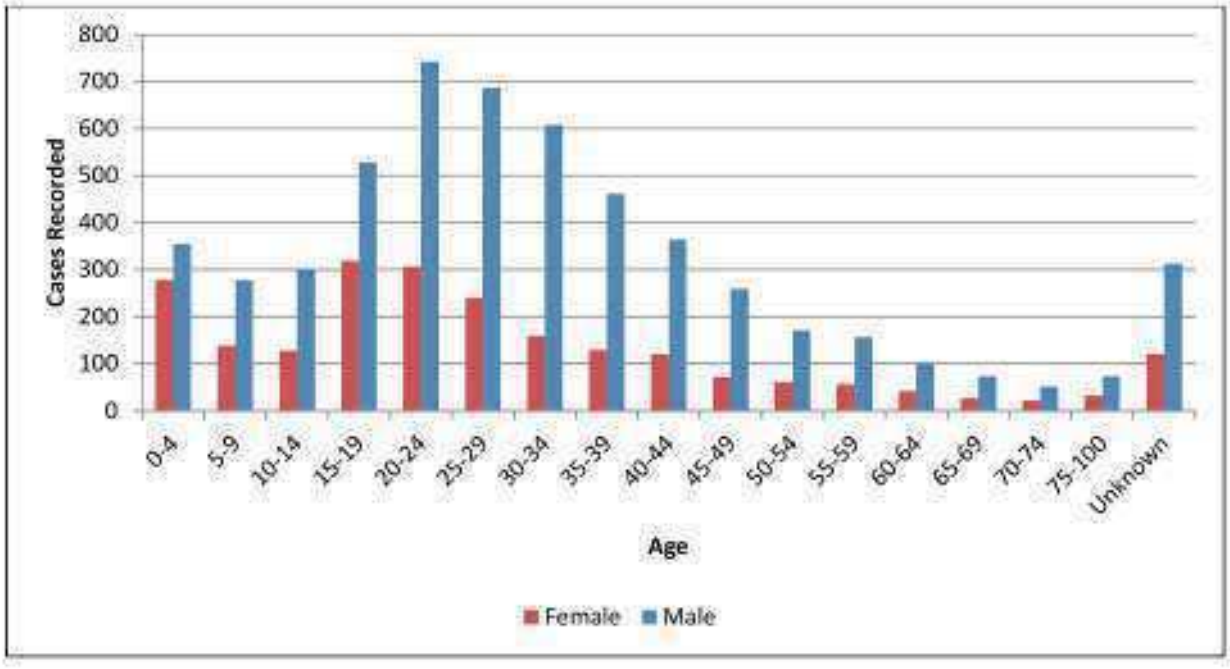


Figure 14shows the number of fatal injuries by sex within each five year age cohort in 2012. The demographics of fatal injuries in 2012 were similar to those seen in 2010 and 2011 (not shown). As with non-fatal injuries, males represented a greater proportion of injuries in every age cohort. Injuries disproportionately affected males 15-34 years of age. There was also consistently high number of injuries in the youngest age groups (0-9 years). The proportion of injuries with unknown age was higher among fatal injuries than non-fatal injuries.

3.2 Time Trends, 2010-2012

Table 20. Percent of injuries per month among all fatal injuries, 2010-2012

	2010	2011	2012
January	7.8	6.7	8.2
February	7.3	7.5	7.1
March	7.9	7.6	8.1
April	7.7	8.8	7.9
May	8.5	9.1	8.6
June	8.3	9.4	9.9
July	10.6	10.4	9.0
August	9.5	9.5	9.4
September	9.0	6.5	9.0
October	8.0	9.1	8.8
November	7.9	7.2	6.9
December	7.3	8.1	7.1

Figure 15. Percent of injuries per month among all fatal injuries, 2010-2012

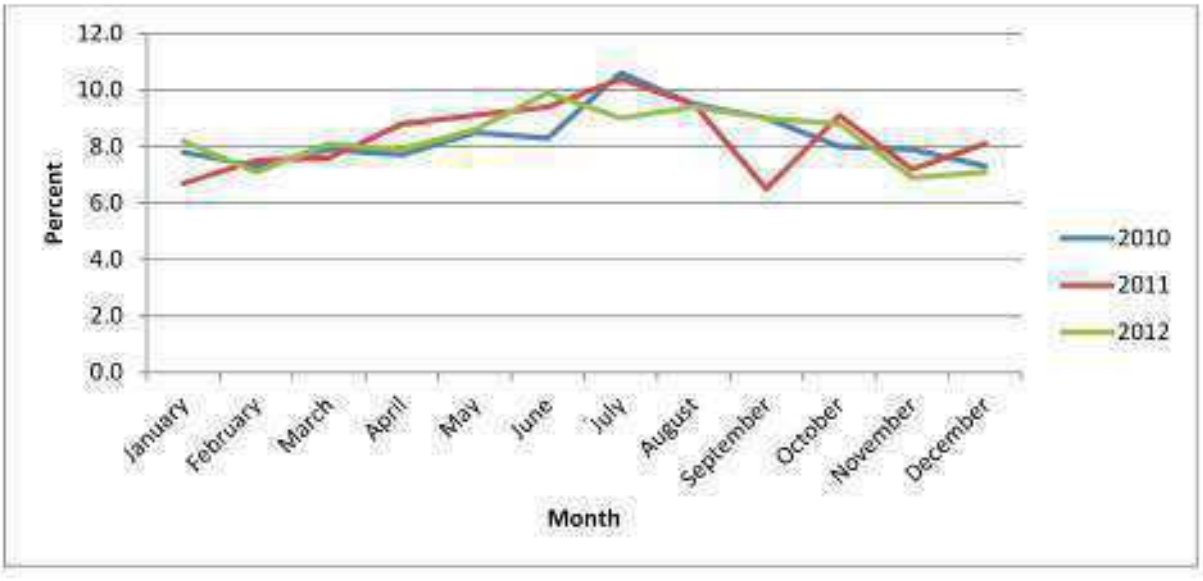


Table 20 and Figure 15 show the proportion of deaths by month for all three years. The data suggest a slight increase in deaths during June and July. There was a pronounced drop in reporting in September of 2011. Further analysis is needed to determine whether these trends are attributable to variability in the frequency of injury, reporting or other factors.

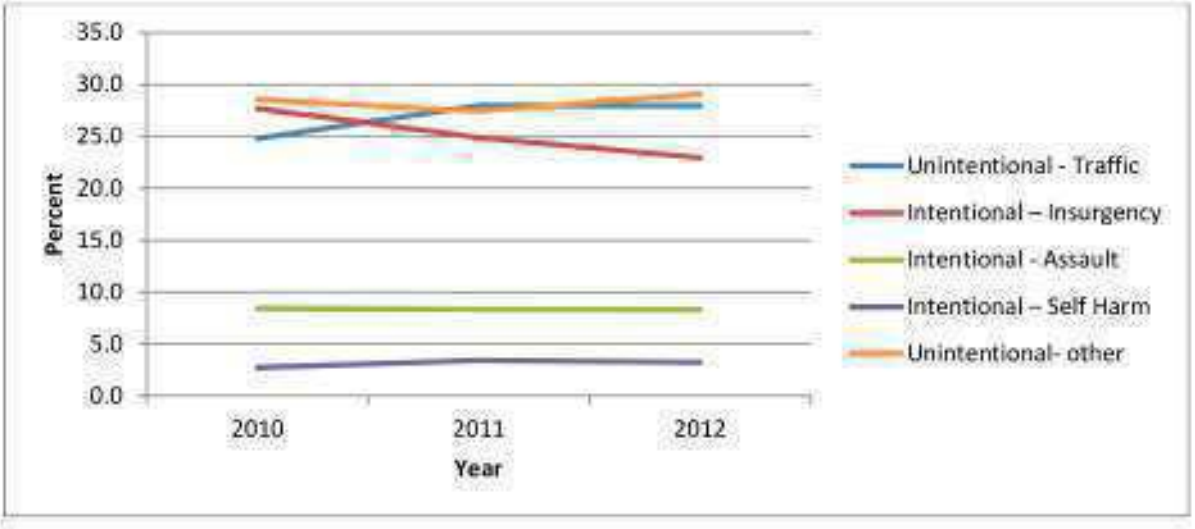
3.3 Distribution of Injuries by Intention

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 21. Number and percent of injuries by intention among all fatal injuries, 2010-2012

	2010		2011		2012	
	N	%	N	%	N	%
Unintentional - Traffic	1,885	24.8	2,093	28.0	2,186	28.0
Intentional – Insurgency	2,103	27.7	1,863	24.9	1,796	23.0
Intentional - Assault	642	8.5	625	8.4	651	8.3
Intentional – Self Harm	209	2.8	257	3.4	254	3.3
Unintentional- Other	2,168	28.6	2,050	27.4	2,277	29.1
Unknown Intent	587	7.7	592	7.9	658	8.4

Figure 16. Percent of injuries by intention among all fatal injuries, 2010-2012



The number and proportion of fatal injuries by intention are presented in Table 21 and Figure 16 for all three years. Unintentional traffic, unintentional other, and intentional insurgency-related were the three top causes of fatal injuries.Unintentional injuries other than traffic were the leading cause of injury in 2010 (28.6% of injuries) and 2012 (29.1% of injuries). In 2011, traffic related injuries were responsible for slightly more injuries than other unintentional injuries, 28.0% and 27.4% respectively. Insurgency related injuries caused 27.7% of injuries in 2010 (ranked 2nd), 24.9% in 2011 (ranked 3rd) and 23.0% in 2012 (ranked 3rd). Intentional self-harm injuries accounted for less than 4% of all fatal injuries, which may be in part due to under-reporting. Intentional assault accounted for approximately 8.5% of all fatal injuries.

Table 22.Number andPercent of injuries by intention among all fatal injuries in 2012, by governorate

	Unintentional-Traffic		Intentional–Insurgency		Intentional–Assault		Intentional–Self Harm		Unintentional-Other		Unknown Intent	
	N	%	N	%	N	%	N	%	N	%	N	%
Al-Basra	84	12.4	2	0.3	154	22.8	15	2.2	123	18.2	298	44.1
Anbar	193	24.9	239	30.8	81	10.5	1	0.1	125	16.1	136	17.6
Baghdad/Rasafa	710	25.8	962	34.9	176	6.4	9	0.3	894	32.5	3	0.1
Erbil	343	44.0	7	0.9	77	9.9	143	18.4	208	26.7	1	0.1
Karballa	173	45.5	3	0.8	46	12.1	18	4.7	130	34.2	10	2.7
Misan	157	30.7	23	4.5	37	7.2	10	2.0	189	36.9	96	18.7
Mousel	264	20.3	555	42.7	12	0.9	5	0.4	388	29.9	75	5.8
Sulaimaniya	262	40.5	5	0.8	68	10.5	53	8.2	220	34.0	39	6.0
Total	2186	27.9	1796	23.0	651	8.3	254	3.2	2277	29.1	658	8.4

Table 22 presents the intention of injuries by governorate for all fatal deaths reported in 2012. The distributions in 2010 and 2011 showed similar patterns (not shown). Insurgency related injuries were responsible for the greatest proportion of deaths in Anbar, Baghdad and Mousel in 2012. Traffic related deaths caused the greatest proportion of deaths in Erbil, Karballa and Sulaimaniya in the same year. Unintentional fatal injuries other than traffic were the primary cause of injury in Misan. 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 2012, intent was unknown for 44.1% of fatal injuries in Al-Basra, and for 17-19% of injuries in Anbar and Misan, which may indicate problems with consistency of data collection.

Table 23. Proportion of females and children among all fatal injuries, by intent

	Female			Child (U18)		
	2010	**2011**	**2012**	**2010**	**2011**	**2012**
Unintentional - Traffic	20.9	22.4	22.1	30.5	29.0	31.6
Intentional – Insurgency	11.4	11.7	12.7	9.6	8.8	9.3
Intentional - Assault	25.4	25.9	22.9	12.2	16.3	12.4
Intentional – Self Harm	57.4	56.0	52.8	20.4	22.9	24.0
Unintentional- Other	39.9	44.5	46.3	36.5	34.4	39.0
Unknown Intent	38.7	29.9	31.6	19.7	23.8	25.4

Figure 17. Proportion of females among all fatal injuries, by intent

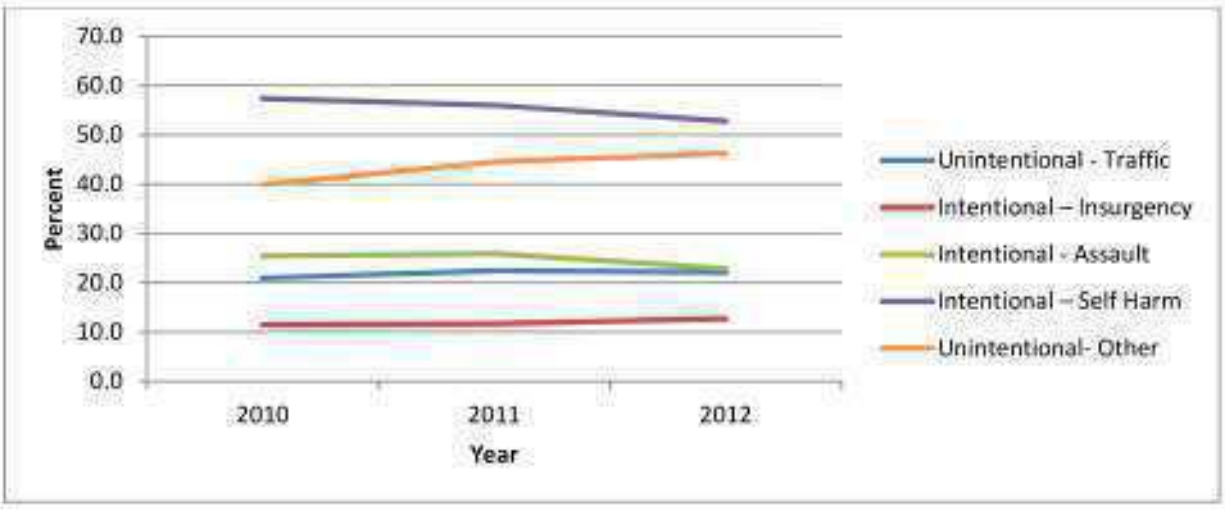


Figure 18. Proportion of children (U18) among all fatal injuries, by intent

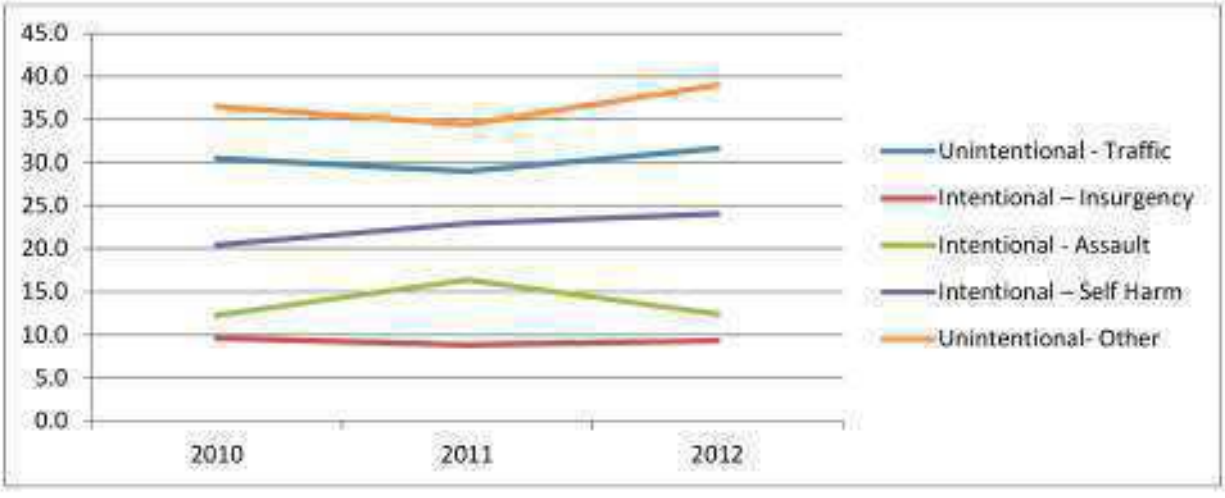


Table 23, Figure 17 and Figure 18 present the proportion of fatal injuries that were in females and children under 18 years of age for each of the six intent categories. Self-Harm was the only intent category for which women represented a majority of injuries (range 52.8-57.4%). The injury category with the highest proportion of children was unintentional injuries other than traffic, for all three years (range 34.4-39.0%). Insurgency related injuries involved the smallest proportion of women and children. Women were just over 10% of insurgency related fatal injuries (range 11.4-12.7%). Children were less than 10% of insurgency related fatal injuries (range 8.8-9.6%).

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 24. Number and percent of injuries by mechanism among all fatal injuries, 2010-2012

	2010		2011		2012	
	N	%	N	%	N	%
Traffic	1,873	24.7	2,086	27.9	2,180	27.9
Explosion (Excluding Gun)	692	9.1	543	7.3	459	5.9
Gun Fire (Insurgency)	1,388	18.3	1,308	17.5	1,332	17.0
Gun Fire (Non-Insurgency)	502	6.6	514	6.9	463	5.9
Burns	1,121	14.8	1,138	15.2	1,190	15.2
Electric Injury	539	7.1	476	6.4	609	7.8
Other/Unknown	1,479	19.5	1,415	18.9	1,589	20.3

Figure 19. Number and percent of injuries by mechanism among all fatal injuries, 2010-2012

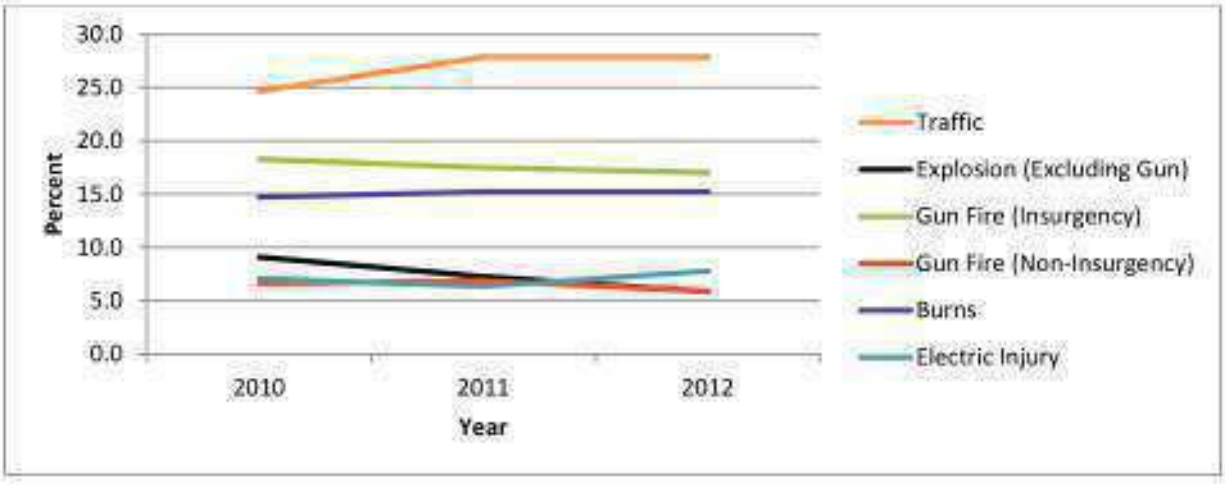
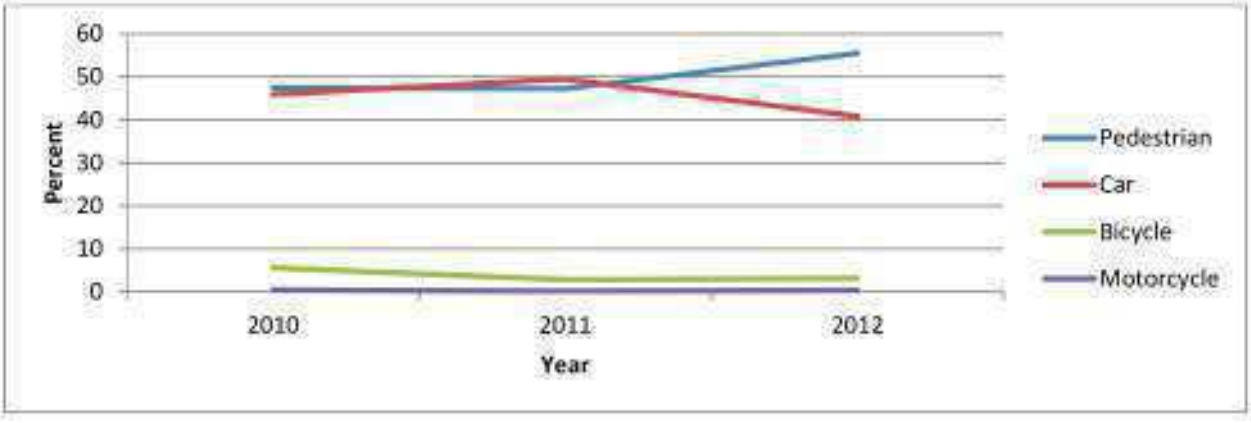


Table 24 and Figure 19 present the number and proportion of injuries by the primary mechanisms of injury. For all years, the primary mechanism of fatal injury was traffic, followed by insurgency related gun fire, then burns. Mechanism of injury stratified by age, sex, and governorate is presented in Annex 4. For all mechanisms except burns, males represent a greater proportion of the injured. Burns were the primary mechanism of injury for women. For males, traffic related injuries, followed by insurgency related gunfire was the primary mechanism of injury.

Table 25. Percent of injuries by mechanism among fatal unintentional-traffic injuries, 2010-2012

	2010	2011	2012
Pedestrian	47.4	47.2	55.5
Car	45.9	49.5	40.8
Bicycle	5.6	2.8	3.1
Motorcycle	0.5	0.1	0.4
Others	0.6	0.3	0.3
Unknown	0.1	0.0	0.0

Figure 20. Percent of injuries by mechanism among fatal unintentional-traffic injuries, 2010-2012

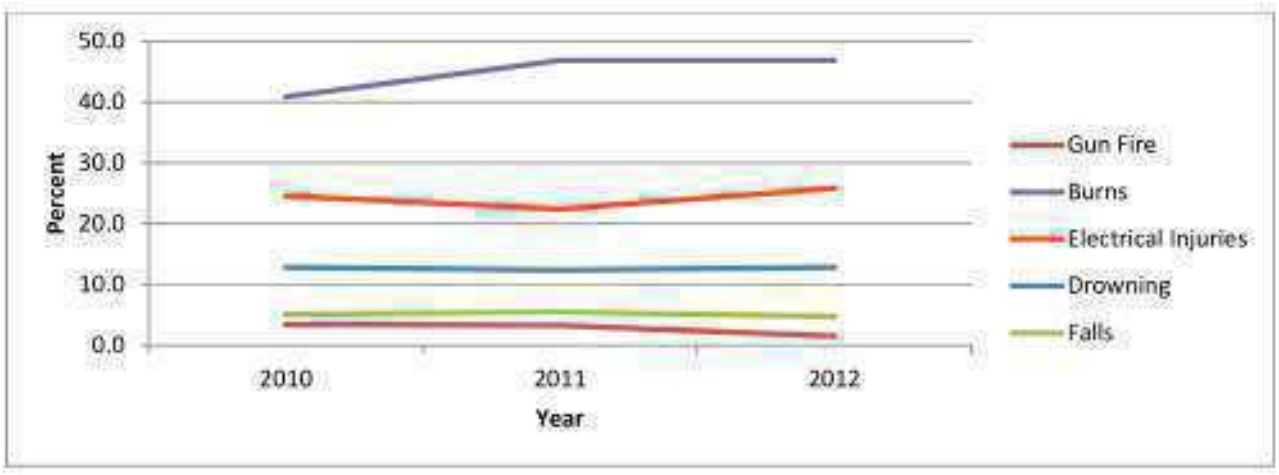


The mechanism of fatal injury for traffic related injuries is presented in Table 25 and Figure 20. In contrast to non-fatal injuries, pedestrians and cars represent similar proportion of victims of traffic related injuries. Other road users (bicycles, motorcycles, other) taken together represent fewer than 10% of victims of fatal injuries related to road traffic.

Table 26. Percent of injuries by mechanism among fatal unintentional-other injuries, 2010-2012

	2010	2011	2012
Gun Fire	3.5	3.3	1.5
Burns	40.9	46.8	46.9
Electrical Injuries	24.6	22.4	25.9
Drowning	12.9	12.4	12.9
Falls	5.1	5.6	4.8
Other / Unknown	13.1	9.5	8.1

Figure 21. Percent of injuries by mechanism among fatal unintentional-other injuries, 2010-2012

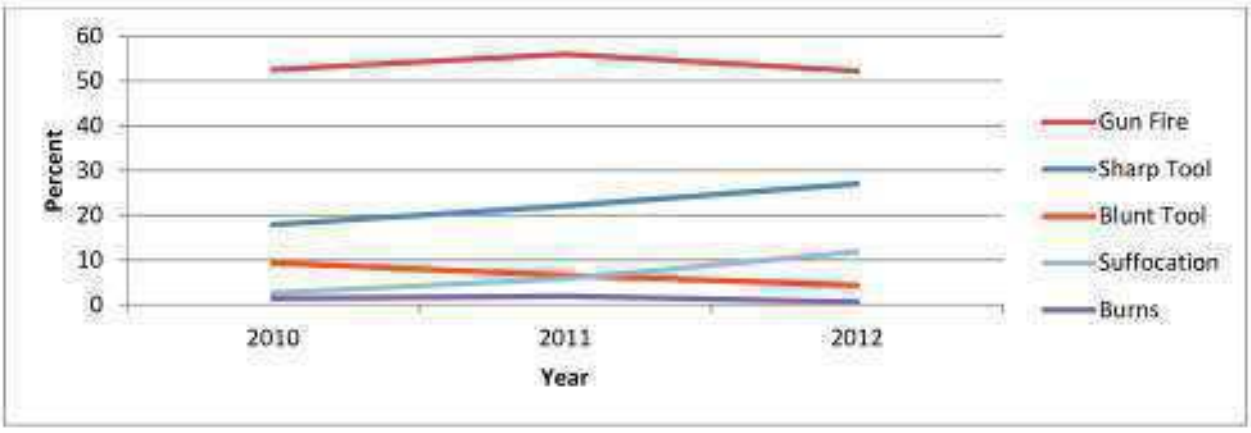


The mechanism of injury for fatal unintentional injuries other than traffic is presented in Table 26 and Figure 21. Among unintentional injuries, the largest proportion of injuries are attributable to burns (range 40.9-46.9%), followed by electrical injuries (range 22.4-25.9%) and drownings (range 12.4-12.9%). The distribution of injuries by mechanism remained stable over the three year period.

Table 27. Percent of injuries by mechanism among fatal intentional-assault injuries, 2010-2012

	2010	2011	2012
Gun Fire	52.5	56.0	52.2
Sharp Tool	17.9	22.1	27.0
Blunt Tool	9.4	6.6	4.3
Suffocation	2.7	5.8	11.8
Burns	1.4	1.9	0.6
Other / Unknown	16.2	7.7	4.0

Figure 22. Percent of injuries by mechanism among fatal intentional-assault injuries, 2010-2012



The mechanism of injury for fatal assaults is presented in Table 27 and Figure 22. Among assaults, the majority of injuries are attributable to gun fire (range 52.2-56.0%), followed by sharp tools (range 17.9-27.0%). The proportion of injuries related to blunt tools declined from 9.4% to 4.3% between 2010 and 2012. And the proportion of deaths related to suffocation gradually increased from 2.7% to 11.8%.

3.5 Mass Injury Events

Table 28. Percent of injuries resulting from a mass injury event among all fatal injuries, 2010-2012

	2010	2011	2012
Unintentional - Traffic	1.9	5.4	5.4
Intentional – Insurgency	18.7	19.3	13.1
Intentional – Assault	3.1	1.8	23.3
Intentional – Self Harm	0.5	0.0	6.3
Unintentional- Other	0.8	0.6	5.6
Unknown Intent	3.9	0.8	43.5
All Intentions	6.5	6.7	12.0

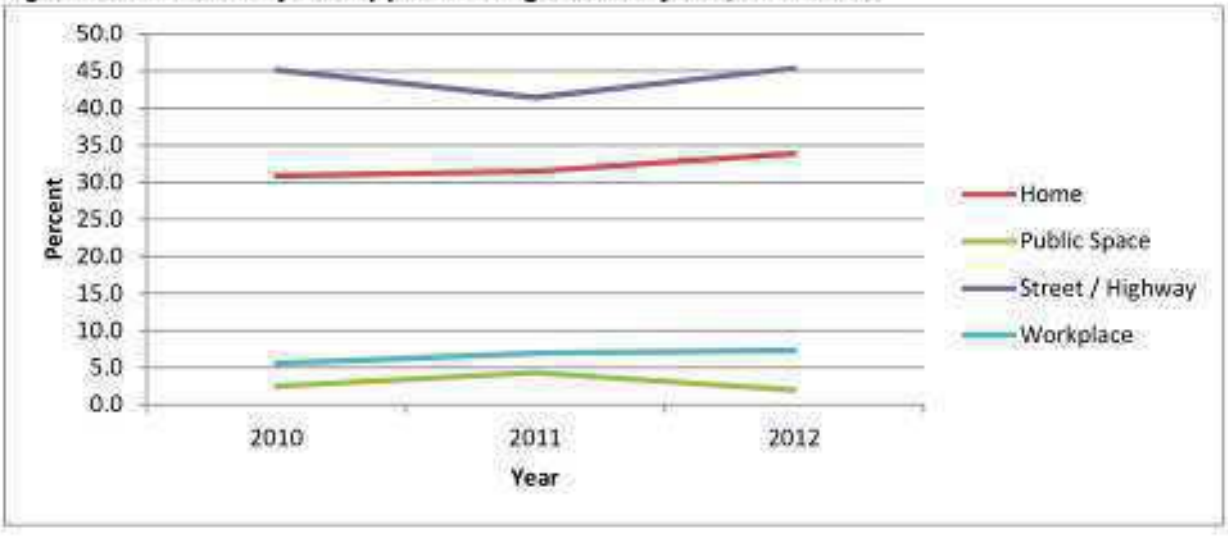
The proportion of deaths resulting from mass injury events are presented in Table 28. Mass injury event is defined as an event that caused five or more injuries. Overall, the proportion of fatal injuries resulting from mass injury events was 6.5% in 2010, 6.7% in 2011 and 12.0% in 2012. The proportion of fatal injuries resulting from a mass injury event was highest among insurgency related injuries in 2010 and 2011 and assaults in 2012.

3.6 Place of Injury

Table 29. Percent of injuries by place among all fatal injuries, 2010-2012

	2010	2011	2012
Countryside	4.8	6.5	4.3
Home	30.8	31.5	33.8
Public Space	2.5	4.3	2.0
Street / Highway	45.1	41.4	45.4
Workplace	5.5	6.9	7.3
Other / Unknown	11.2	9.4	7.2

Figure 23. Percent of injuries by place among all fatal injuries, 2010-2012



The place of injury for all fatal injuries is presented in Table 29 and Figure 23. The most common location of fatal injury was on streets or highways, followed by the home. 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 (not shown).

4. Discussion:

4.1 Discussion of Key Findings and Recommendations for Public Health Action

The Injury Surveillance System provides important data that can be used to inform public health activities to prevent and mitigate the impact of injuries.

Injury surveillance provides useful information about the demographics of injury victims. 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. Interestingly, among females the age category with the greatest number of injuries was 0-4 years. This fact has not previously been identified. Further analysis is needed to understand this risk and identify appropriate public health action to prevent injuries to young children.

A key finding of the injury surveillance is that road traffic injury is a primary mechanism of both fatal and non-fatal injuries. This finding is consistent with the Third Global Status Report for Road Safety, which documented the high burden of road traffic injuries. Both reports call for additional attention on efforts to improve road safety in Iraq. 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. One key finding from the injury surveillance is 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 nearly twice as high among fatal injuries compared to non-fatal injuries. This information should inform national policies related to vulnerable road users.

Another key point is the difference in mechanism between fatal and non-fatal unintentional-other than traffic injuries. For non-fatal injuries, the top mechanisms were falls and sharp tools, whereas for fatal injuries the top mechanism was burns followed by electrical injury and drowning.

With respect to intentional injuries, assaults were nearly three times as common compared to self-harm. This held true for both fatal and no-fatal injuries. This pattern is different from what is reported globally. Among intentional injuries identified as assaults, the primary mechanism of non-fatal injuries was sharp objects. The primary mechanism of fatal injuries was guns. The primary victims of assaults were male, and over the age of 18 years. The data on demographics and mechanism can be useful in informing public health interventions aimed at improving the health and safety of communities.

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, Baghdad and Mousel. By contrast, traffic related deaths caused the greatest proportion of deaths in Erbil, Karballa and Sulaimaniya in the same year. Unintentional fatal injuries other than traffic were the primary cause of injury in Misan. 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, the findings highlight serious problems with the current prehospital care received in Iraq. The majority of victims transported to emergency rooms in all governorates arrive by a mode of transportation other than ambulances. Even among those that arrive by ambulance, around 30% did not receive pre-hospital care. This gap needs to be properly filled through upgrading the post-crash response.

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 2010-2012) there are several key limitations that should be highlighted.

- **Use of Sentinel Hospitals:** Not all hospitals in the governorates are participating in the injury surveillance system. The catchment area of these hospitals is unknown. Given that the non-fatal surveillance is not exhaustive, these data should be used to monitor trends. Calculation of rates is not appropriate.
- **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.
- **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.
- **Staff Turnover:** Rapid turnover of the staff undermined the consistency of reporting and accuracy of reported data. Regular training and retraining are needed to ensure data quality.
- **Sustainability:** Sustainability of the surveillance system is a big challenge in some governorates because of insurgency and military operations. When facilities are closed or staff do not report because of increased insurgency, capturing these injuries is not always possible.
- **Funding:** Inadequate funding and lack of human resources, particularly skilled personnel, were perceived as challenges to the system in some hospitals.
- **Data Quality:** During the initial analysis, collaborators identified several data quality issues that can be improved. 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 remains a problem. Additionally, some of the forms were missing information. Two key variables are the intention and mechanism. For both fatal and non-fatal injuries the number of records with unknown intent increased annually.
- **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.

4.3 Recommendations for Strengthening Surveillance

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

- **Evaluation:** In-depth evaluation of this surveillance system is needed preferably by external team. An evaluation should include assessment of the accuracy and completeness of reporting by facility. Evaluations are needed at both emergency rooms and coroner offices.
- **Regular Quality Assurance:** To ensure quality, it is recommended to assign a team of trained personnel on full time basis to monitor data quality. Establishing an ongoing monitoring process will help timely identification of problems or gaps, and timely response. This group will also be responsible for trainings.
- **Enhanced Training:** All individuals involved with collecting the data should receive some training on how to report. Given the high turnover, training needs to be regularly available. Successful trainings would emphasize how to best identify the intention of an injury, and when to suspect self-harm or assault (a difficult task given the social and culture realities in Iraq). Training should also emphasize the importance of complete and accurate reporting. A separate training for data clerks is also recommended to ensure proper use of the database, including how to merge data without creating duplicates.
- **Geographic Coverage:** Expansion of the injury surveillance to include all governorates is planned. In 2010-2012 only eight governorates were reporting. Expanding the system nationally will ensure representativeness and provide a better picture on magnitude of injuries in the country.
- **Use of the Data:** To date the data has not yet been used to the extent possible to inform public health action. It is recommended to translating the data into actions and developing injury prevention program in Iraq.
- **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		☐ 1 ردهات الطوارئ		☐ 2 الطب العدلي	
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 انثى ☐9 غير معروف	B3	العمر ..... سنوات	
B4	عنوان المريض / الحالة (المحافظة)	B5	رقم شهادة الوفاة	B6	تاريخها .... / .... /	
C	سلسلة الوصول					
C1	تاريخ الاصابة .... / .... /	☐ 9 غير معروف	C2	زمن الاصابة	C3	تاريخ العثور على الجثة .... / .... / ....
C4	تاريخ الوصول الى المؤسسة الصحية .... / .... /		C5	زمن الوصول		الزمن (0 - 23) بالتوقيت العالمي
C6	وقت الإصابة المتوقع	☐1 خلال ساعة	☐ 2 خلال 24 ساعة	☐ 3 اكثر من 24 ساعة	☐ 9 غير معروف	
C7	هل حصل المصاب على إسعاف أولي قبل الوصول للطوارئ في المستشفى	☐ 1 نعم	☐ 2 لا	☐ 9 غير معروف		
C8	وسيلة الوصول (اختر إجابة واحدة فقط)	☐1 سيارة إسعاف	☐ 2 سيارة أخرى	☐ 8 وسيلة اخرى	☐ 9 غير معروف	
D	معلومات متعلقة بالإصابة					
D1	ظروف الحادثة : كيف حدثت الإصابة (اختر إجابة واحدة فقط)	في حالة اختيار (1.6 - 1.7) يعبأ حقل E				

	1 نشاط ارهابي أو عسكري		2 حوادث مرور		3 حوادث عائلية		4 حوادث مجتمعة		5 حوادث اخرى
1.1	☐طلق ناري	2.1	☐راجلاً	3.1	☐اسلحة نارية	4.1	☐أسلحة نارية	5.1	☐عضة حيوان
1.2	☐انفجار	2.2	☐سيارة	3.2	☐آلآت جارحة	4.2	☐آلآت جارحة	5.2	☐غرق
1.3	☐عبوة ناسفة	2.3	☐دراجة هوائية	3.3	☐آلآت راضة	4.3	☐آلآت راضة	5.3	☐تسمم
1.4	☐انتحاري	2.4	☐دراجة نارية	3.8	☐اخرى	4.8	☐اخرى	5.4	☐سقوط
1.5	☐سيارة مفخخة	2.8	☐اخرى	3.9	☐غير معروف	4.9	☐غير معروف	5.5	☐حروق
1.6	☐الغام أرضية	2.9	☐غير معروف					5.6	☐اختناق
1.7	☐مخلفات حربية							5.7	☐صعق كهربائي
1.8	☐اخرى							5.8	☐اخرى
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	☐ 2 مقصودة من قبل المصاب	☐ 3 عرضية من قبل الآخرين
		☐ 4 عرضية من قبل المصاب	☐ 8 اخرى	☐ 9 غير معروف
D4	المكان الجغرافي للحادث	المحافظة :	أحيل من مركز شرطة :	المنطقة : .....
D5	مكان وقوع الحادثة (اختر إجابة واحدة فقط)	☐1 السكن	☐ 2 الشارع	☐ 3 مكان العمل
		☐ 4 تجمع سكاني	☐5 السوق	
		☐ 6 الريف أو المزرعة	☐ 8 اخرى	☐ 9 غير معروف
D6	الإجراء الأولي للمريض في ردهة الطوارئ	☐1 تمت المعالجة وأرسل الى المنزل		☐ 2 خرج على مسؤوليته الخاصة
		☐ 3 ادخل المستشفى	☐ 4 متوفي عند الوصول	☐ 5 توفي في ردهة الطوارئ
		☐6 نقل الى مستشفى آخر (حدد) :		
		☐ 8 اخرى		☐ 9 غير معروف

ملئت بواسطة :	تاريخ الإملاء : .... / .... /	التوقيع
دققت بواسطة :	تاريخ التدقيق : .... / .... /	التوقيع

E	اذا كان الشخص مصاباً نتيجة الألغام أو القذائف غير المنفلقة المتروكة ، اسأل المريض الأسئلة التالية :			
E1	عنوان المصاب الكامل	المحافظة :	القضاء :	الناحية : .....
		الحي :	المحلة :	زقاق : ..... رقم الدار : .....
		أقرب نقطة دالة :		
E2	النشاط في وقت الإصابة (إختر واحدة فقط)	☐ 1 يمشي على قدميه	☐ 2 كان في العمل	☐ 3 زراعة
		☐ 4 متنقل بالسيارة	☐ 5 تعليم	☐ 6 رعي
		☐ 7 إزالة ذاتية للالغام والمخلفات الحربية		☐ 8 التسوق
		☐ 9 جمع السكراب	☐ 10 اللعب	☐ 11 نشاط ديني
		☐ 12 عابر حدود	☐ 88 اخرى	☐ 99 غير معروف
E3	كيف فجر اللغم أو القذيفة المتروكة ؟	☐ 1 عبث (لاحظ المادة)	☐ 2 حادث عرضي عن طريق اللمس أو التخطي عليها (لم يلاحظ المواد)	
		☐ 8 اخرى	☐ 9 غير معروف	
E4	من فجر المتفجر ؟	☐ 1 من قبل الشخص نفسه	☐ 2 من قبل شخص آخر	☐ 3 سيارة ☐ 9 غير معروف
E5	هل كان الضحية يعلم ان المنطقة ملغومة بالألغام ؟	☐ 1 نعم لكنه ذهب لأسباب اقتصادية		☐ 2 نعم لكنه ذهب لأسباب اخرى
		☐ 3 لا		☐ 9 غير معروف
E6	هل جرح أو قتل أشخاص آخرين في الإنفجار نفسه ؟	☐ 1 نعم	☐ 2 لا	☐ 9 غير معروف
	اذا كان الجواب نعم	عدد المصابين :	عدد المتوفين :	☐ 9 غير معروف

تعليمات ملء الإستمارة

١- يرجى قراءة التعليمات جيداً قبل الإملاء .

٢- وضع علامة ✕ داخل المربع المناسب وعدم وضع علامات اخرى مثل ✓ أو ○ ... إلخ ، وذلك لتوحيد الأجوبة لمدخل البيانات .

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

٤- يجب على الأشخاص الذين يملئون الإستمارة أن يكتبوا اسمائهم بوضوح وتوقيعهم وتاريخ الملئ والمصادقة .

٥- يملأ حقل A من قبل مسؤول البرنامج .

٦- (B) المقصود بـ(الحالة) هو المتوفى أو المصاب المحال الى المعهد .

٧- (B1) إذا كان الإسم غير معروف يدون غير معروف ولا يترك فارغاً .

٨- (B3) إذا كان العمر أقل من سنة يكتب ثلاثة اصفار (000) ويقدر عمر المصاب في حالة عدم معرفته وإن لم تتمكن من ذلك أكتب (999) .

٩- الوقت حسب التوقيت العالمي من (0-23) وبالساعات فقط وتهمل أجزاء الساعة وبالنسبة للساعة 12 ليلاً فتكتب (00) .

١٠- الإنتباه الى التسلسل المنطقي بين تاريخ الإصابة وتاريخ الوصول وتاريخ الإملاء وأن لا يقدم تاريخ الإملاء أو الوصول قبل تاريخ الإصابة .

١١- (C5) يعني بالوسيلة الأخرى أية وسيلة غير الإسعاف والسيارات (عربة ، دراجة ، طيارة ، ... إلخ) تذكر .

١٢- (D1) في حالة اختيار فقرة 1.6 ألغام و 1.7 مواد قابلة للإنفجار يجب ملئ حقل E .

١٣- (D1 1.2) عبارة - انفجار - تتضمن كل الإنفجارات غير معروفة السبب والمقذوفات عن بعد مثل صواريخ ، هاونات ، طائرات أو أي مقذوف آخر .

١٤- (D1 2.8) أخرى يقصد بها آلية حدوث الإصابة مما لم يذكر أعلاه مثل (عربة دفع ، حيوان ، قطار أو غيرها) .

١٥- (D5) تجمع سكاني يشمل دور العبادة (مسجد ، كنيسة ، ... إلخ) أو التجمعات لأغراض التطوع أو لأغراض التدريب ... إلخ .

١٦- ينبغي بذل الجهدللتفريق بين النشاط الإرهابي والإصابة خارج المنزل .

5.2 Injury Surveillance Form – English

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

Others 5		Outside Violence 4		Domestic Violence 3		Traffic Accidents 2		Explosion Accidents 1	
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

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

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

_____ :District	_____ :Police Station	_____ :Governorate	Geographical location of incident	D4

5 Market □	Public gathering 4 □	Workplace 3 □	Street 2 □	Home 1 □	(one choice) Place of occurrence	D5
Unknown 9 □		Others 8 □	Farm and countryside 6 □			

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

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 choice 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*.

5.3 Additional Analysis Tables – Non-Fatal Injury Surveillance

Table 30. Proportion of females and children among all non-fatal injuries in 2012, by governorate

	Female			Child (U18)		
	2010	2011	2012	2010	2011	2012
Al-Basra	18.7	21.0	30.5	34.9	40.5	28.8
Anbar	14.6	14.3	17.9	26.5	29.6	34.0
Baghdad/Karkh	24.9	28.0	27.5	35.2	33.2	31.1
Baghdad/Rasafa	17.7	19.8	16.0	36.0	35.8	34.6
Erbil	41.8	37.7	37.7	45.7	43.2	38.7
Karballa	20.4	22.9	25	36.8	31.1	41.1
Misan	33.4	27.0	24.9	47.8	42.9	40.0
Mousel	25.5	26.0	26.9	43.5	56.7	58.0
Sulaimaniya	33.9	31.0	37.6	39.2	38.3	41.2
Total	25.5	25.4	27.1	37.9	39.3	39.0

Table 31. Proportion of females and children among all non-fatal injuries, by mechanism

	Female			Child (U18)		
	2010	2011	2012	2010	2011	2012
Traffic	17.9	18.7	18.2	29.9	30.4	30.7
Insurgency	13.8	9.2	9.3	13.2	10.8	11.8
Sharp Objects	21.8	20.1	21.9	31.6	32.9	35.4
Blunt	21.5	20.1	20.6	35.5	33.3	37.2
Falls	29.6	29.7	31.0	54.8	56.1	54.1
Burns	46.1	45.7	48.4	51.3	52.4	50.7
Other/Unknown	24.9	28.0	34.2	33.1	33.0	32.2
Total	37.9	25.4	27.1	37.9	39.3	39.0

Table 32. Percent of injuries by five common mechanisms among all non-fatal injuries in 2010-2012, by governorate

	Traffic			Sharp Objects			Blunt Objects		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Al-Basra	11.1	6.6	5.1	16.8	12.0	8.1	12.6	3.0	5.5
Anbar	9.1	9.5	6.6	3.0	4.0	3.9	2.5	3.1	3.9
Baghdad/Karkh	3.9	5.6	4.5	8.7	7.5	7.0	12.5	11.7	13.4
Baghdad/Rasafa	16.9	17.3	15.8	23.3	25.5	22.4	27.3	27.5	25.8
Erbil	11.5	9.8	24.0	6.0	2.1	9.0	5.6	2.5	7.7
Karballa	20.4	16.5	26.6	17.0	12.2	34.0	24.4	25.8	27.6
Misan	4.4	7.1	6.2	1.0	2.6	3.9	2.0	3.3	7.0
Mousel	5.4	8.1	5.1	1.7	9.4	4.6	1.1	7.3	3.0
Sulaimaniya	17.2	19.5	6.1	22.5	24.5	7.2	12.0	15.9	5.9

	Falls			Burns		
	2010	2011	2012	2010	2011	2012
Al-Basra	10.8	10.0	5.2	4.3	2.8	2.2
Anbar	1.9	1.8	1.4	2.5	2.5	1.9
Baghdad/Karkh	5.2	3.5	5.2	2.6	2.5	2.2
Baghdad/Rasafa	16.7	20.5	14.6	8.4	11.7	9.1
Erbil	17.1	10.5	20.4	5.7	0.2	17.2
Karballa	13.6	4.2	11.9	7.7	7.9	14.8
Misan	1.2	2.1	4.0	7.3	6.2	2.2
Mousel	7.6	24.8	22.1	4.5	8.0	3.5
Sulaimaniya	25.9	22.6	15.1	57.0	58.2	47.0

5.4 Additional Analysis Tables –Fatal Injury Surveillance

Table 33. Proportion of females and children among all fatal injuries in 2012, by governorate

	Female			Child (U18)		
	2010	2011	2012	2010	2011	2012
Al-Basra	28.7	30.7	28.8	18.8	24.7	25.4
Anbar	17.1	14.2	17.3	16.8	15.6	18.4
Baghdad/Rasafa	24.7	27.1	30.1	26.3	23.3	26
Erbil	37.2	36.4	35.4	22.3	25.3	27.6
Karballa	26.5	30.6	26.1	34.8	35.8	32.6
Misan	30.4	30.8	33.2	37.5	32.7	40
Mousel	19.1	25.3	26.4	21.1	23.6	26
Sulaimaniya	38.9	34.2	32.6	24.5	22.4	25.6
Total	26.4	27.8	28.9	24.1	24.1	26.6

Table 34. Proportion of females and children among all fatal injuries, by mechanism

	Female			Child (U18)		
	2010	2011	2012	2010	2011	2012
Traffic	21.0	22.4	22.2	30.5	29.0	31.6
Explosion (No Gun)	8.4	6.8	8.9	12.1	12.6	13.7
Gun Fire (Explosion)	12.5	13.8	14.0	8.3	7.1	7.8
Gun Fire (Other)	25.3	25.3	23.1	13	18.0	13.5
Burns	67.0	70.8	73.8	29	30.0	29.7
Electric Injury	24.7	22.3	21.7	36.4	31.9	35.8
Other/Unknown	25.1	25	26.9	30.9	30.6	35.9

Table 35. Percent of injuries by six common mechanisms among all fatal injuries in 2010-2012, by governorate

	Traffic			Explosion (No Gun)			Gun Fire (Explosion)		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Al-Basra	7.5	13.5	12.4	1.7	0.4	0.3	0.7	0.0	0.0
Anbar	23.4	22.8	24.9	27.4	22.3	16.8	9.5	19.5	14.1
Baghdad	26.5	25.8	25.8	9.7	8.1	5.7	27.9	30.7	29.3
Erbil	31.6	41.5	44.0	1.5	1.0	0.8	0.2	0.0	0.1
Karballa	40.3	48.4	45.5	0.6	0.3	0.8	1.6	0.5	0.0
Misan	33.0	34.1	30.7	2.3	0.2	4.5	2.3	0.4	0.0
Mousel	15.3	19.3	20.3	16.0	13.3	10.7	39.8	33.7	32.0
Sulaimaniya	32.2	39.3	40.5	2.3	1.1	0.8	0.1	0.7	0.0

	Gun Fire (Other)			Burns			Electric Injury		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Al-Basra	16.8	17.3	16.7	6.8	9.3	7.8	2.7	3.4	5.5
Anbar	15.3	11.7	11.7	5.1	3.8	4.5	3.3	4.8	5.8
Baghdad	1.2	0.0	0.0	13.5	16.2	16.7	10.7	9.0	9.8
Erbil	12.8	13.5	11.8	27.6	20.6	25.7	5.4	3.0	5.5
Karballa	7.7	9.3	7.6	7.1	11.5	12.6	14.8	11.5	15.8
Misan	10.4	11.8	10.0	17.7	16.2	13.1	11.0	8.5	9.8
Mousel	1.2	0.0	0.0	10.9	17.7	16.4	3.3	4.0	5.7
Sulaimaniya	11.8	13.8	13.3	28.9	21.3	17.6	3.8	5.7	4.6

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