



# WEEKLY EPIDEMIOLOGICAL REPORT

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## Injuries – a Significant Public Health Problem in Sri Lanka

### Definition and categorization of injuries

The World health organization defines an injury as: a bodily lesion resulting from an acute exposure to physical agents such as mechanical energy, heat, electricity, chemicals, and ionizing radiation or an impairment of function from sudden lack of essential agents such as air, water and warmth as in drowning, strangulation or freezing.

Injuries can be categorized in a number of ways. For identifying intervention opportunities they are categorized by the intent – intentional and unintentional injuries. Intentional injuries include ‘self inflicted injuries, interpersonal violence and collective violence’. Unintentional injuries are further sub-divided based on the causal mechanism (Road Traffic Injuries, Drowning, Burns/Fires, Falls and Poisoning) and the place of injury (Road traffic injuries, Home injuries, Occupational injuries, Leisure injuries etc).

### Global burden due to injuries

According to the World Health Report (2006), injuries are a leading cause of death, hospitalization and disability throughout the world accounting for 9% of all deaths and 16% of the burden of disability annually. Injuries ranked 5<sup>th</sup> among all causes of death in the South East Asia Region.

More than 90% of injury-related deaths occur in low and middle income countries. The unsafe conditions of living, working and travel, and lack of prevention efforts, limited access to high-quality treatment and rehabilitation services are some of the main reasons. Injuries also contribute to significant socioeconomic losses. Health sector absorbs a substantial portion of the direct costs arising from injury including emergency care, surgery and rehabilitation.

### Scale of the problem in Sri Lanka

Epidemiological data sources for injuries in Sri Lanka are the: Indoor Morbidity and Mortality Register

(IMMR), Department of the Registrar General, Department of Police and Ministry of Labour. The IMMR, codes injuries using Chapter XIX of the International Classification of Diseases, Tenth revision (ICD-10). Practice of chapter XIX, deprives information on the common causes (RTI, Drowning, Falls) or places of injuries (RTI, Home injuries, Occupational injuries, Leisure injuries etc). Therefore, traumatic injuries, poisoning, burns/corrosions are the major types of injuries reported in the National Health Statistics. Traumatic injuries continue to be the leading cause of hospitalization since 1995. According to annual health statistics, in 2008, out of the total (4,897,815), admissions to government hospitals, 663,881 (**proportionate morbidity** \* 14 %) were due to traumatic injuries (both intentional and unintentional) with 1022 deaths. In the same year, there were 63,738 admissions due to poisoning (both intentional and unintentional). This includes 18,033 (28.3 %) due to pesticides and 45,705 (71.7%) due to substances such as drugs, medicaments, biological substances and non-medicinal substances. Poisoning is among the ten leading causes of deaths (1253 deaths with **proportionate mortality** \*\* of 3%) in the government hospitals. Furthermore, there were a total of 13,318 hospital admissions and 229 deaths due to burns and corrosions. Injuries affect mostly the economically productive age group and also affect more males than females. In 2008, among admissions to government hospitals due to injuries (both intentional and unintentional) 53.3% were in the 17-49 year age group and 65.3% were among males.

In contrast, deaths related to injuries are coded by the Registrar General according to Chapter XX of ICD -10. Consequently, data on deaths due to different types of unintentional injuries (Road traffic injuries, Poisoning, falls, fires, Drowning and others) and in-

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tentional injuries (self-inflicted, interpersonal violence, war and others) are available separately. In 2005, injuries accounted for 23.1% (30,548) of all registered deaths in Sri Lanka. Road Traffic Injuries consisted of 7.2% of all injury related deaths. Other unintentional injuries reported were: Falls 3.1%, accidental drowning/submersion 2.8%, accidental exposure to smoke/fire/flame 1.0% accidental poisoning 0.6% of all injury related deaths.

Among unintentional injuries, Road Traffic Injuries (RTI) represents the major fraction. According to the Police Department statistics, in 2008, a total of 31872 RTI occurred in Sri Lanka, of which 2176 were fatal accidents, killing 2328 people. In Sri Lanka, RTI kill at least one person in every four and half hours.

In 2008, 49 fatal and 1525 non fatal occupational accidents were reported. Industrial Safety Division of the Ministry of Labour reports that, Sri Lanka losses around 500,000 man-days each year owing to occupational accidents. Home accidents are another important area where more consideration may be needed. The exact magnitude of this problem is not known.

According to a community based study carried out in 2003, in Galle District, Sri Lanka, 2% of individuals reported non-fatal injuries during preceding 30 days, giving an age-sex-sector adjusted annual incidence of 24.6 per 100 population. Among them, 93.3% were non-fatal unintentional injuries. The leading causes were falls (26.7%) and mechanical injuries (25.6%), followed by RTI (20.5%).

An understanding of the nature and scale of injuries including epidemiology, risk factors, the direct and indirect economic costs, proven and promising preventive measures and available services, is essential for developing effective policies and strategies to address this problem. Furthermore, accurate data are required to evaluate the success and cost-effectiveness of evolving strategies for injury prevention. In Sri Lanka, existing data sources underestimate the extent of injuries for a variety of reasons. For an example, lack of appropriate coding of injuries (ICD-10 Chapter XX) in the Indoor Morbidity and Mortality Register deprives necessary information for developing preventive interventions. This emphasizes the importance of establishing a National injury information system, linked to other sectors such as Registrar General, Department of Police and Ministry of Labour etc.

#### Prevention of Injuries

Prevention of injuries can be classified according to the epidemiological model of prevention: Primary prevention is the reduction in exposure to risks and prevention of injuries from occurring, through the adoption of safer behaviours and safer environments. Secondary prevention is the reductions in the severity of an injury and its impact in the event of an injury e.g. early diagnosis and appropriate management by applying basic first aid at the scene of an injury, early transportation to a hospital, emergency and inward trauma care, all aimed at preventing more serious consequences once an injury has occurred. Tertiary prevention includes reductions in the consequences of injury through physical and psychological rehabilitation.

Primary prevention is achieved by removing or reducing the underlying causes and risk factors. There are many evidence-based, time tested and effective population based preventive interventions available. These are characterized by approaching the population as

a whole to change the social norms to reduce the average risks. Some of the interventions proven to be cost-effective in achieving better behavioural change in the population include helmet use for all motorcyclists, use of seatbelts, sobriety check points, survival swimming teaching for all children, safety curriculum for all pre-school and primary school children. At community level, injuries have wider medical, social and financial implications that call for a coordinated response. Raising awareness of individual and group safe behaviours among the general public will empower them to actively participate in changing or modifying risky behaviors and risk environments. Developing competencies in safety promotion and injury prevention among preventive health staff e.g. Public Health Midwife, Public Health Inspectors as well as non-health staff at grass root level e.g. Grama Niladari, Samurdhi Officers etc. will help in strengthening their capacity to make the general public aware on risky behaviors and risk environments.

Injured persons often require prompt, effective and comprehensive care to reduce the probability of dying or becoming disabled and to enable their recovery and rehabilitation. In order to improve outcomes, the full spectrum of care must be provided: from pre-hospital care, efficient and quick transport, care at fixed facilities, to rehabilitation, social reintegration and recovery services. Pre-hospital care covers services provided on the site where the injury occurred and the transportation of victims to a healthcare facility, including both the formal emergency ambulance services and informal systems. Care at fixed facilities includes initial emergency care and definitive trauma care by adopting a core set of essential trauma care services as well as appropriate referral between health facilities. Early and Integrated rehabilitative services including community based rehabilitation (CBR) programmes are needed to minimize their functional disabilities and hasten their return to active life.

While it is well known that different injury types need different approaches, an analysis of the current injury prevention efforts in Sri Lanka reveals the following: lack of collaborative action between different stakeholders involved in injury prevention, poor enforcement of laws and regulations, lack of an injury information system linking all sectors, poor community awareness and active participation in prevention of injuries. In addition, despite the well distributed network of health institutions throughout the country, trauma care is currently provided mainly through secondary and tertiary care level health institutions and less emphasis is placed on primary health care level. However, given the complex nature of the causes of injuries, their prevention and management require action across a wide range of sectors at all levels; local, regional and national.

*\*Proportionate morbidity* is the number of cases due to a given cause, out of the total number of cases due to all causes, in a specified population; expressed as a percentage.

*\*\*Proportionate mortality* is the number of deaths due to a given cause, out of the total number of deaths due to all causes, in a specified population, expressed as a percentage.

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**Table 1: Vaccine-preventable Diseases & AFP** 25<sup>th</sup> September - 01<sup>st</sup> October 2010(39<sup>th</sup> Week)

Disease	No. of Cases by Province									Number of cases during current week in 2010	Number of cases during same week in 2009	Total number of cases to date in 2010	Total number of cases to date in 2009	Difference between the number of cases to date in 2010 & 2009
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	00	00	00	00	00	00	00	00	00	00	66	57	+ 15.8 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	-
Measles	00	00	01	00	00	00	00	00	00	04	00	82	143	- 42.6 %
Tetanus	00	00	00	00	00	00	00	00	00	01	00	18	20	- 10.0 %
Whooping Cough	00	00	00	00	00	00	00	00	00	01	02	27	53	- 49.0 %
Tuberculosis	342	03	01	02	05	13	07	02	01	376	175	7480	7829	-04.5 %

**Table 2: Newly Introduced Notifiable Disease** 25<sup>th</sup> September - 01<sup>st</sup> October 2010(39<sup>th</sup> Week)

Disease	No. of Cases by Province									Number of cases during current week in 2010	Number of cases during same week in 2009	Total number of cases to date in 2010	Total number of cases to date in 2009	Difference between the number of cases to date in 2010 & 2009
	W	C	S	N	E	NW	NC	U	Sab					
Chickenpox	15	04	08	01	04	08	06	07	09	62	398	2696	13335	- 79.9 %
Meningitis	01 CO=1	00	00	00	01 AM=1	04 KN=3 PU=1	02 AP=1 PO=1	01 BD=1	00	09	19	1308	928	+ 40.9 %
Mumps	04	00	05	00	01	02	01	00	01	14	25	929	1461	- 36.4 %
Leishmaniasis	00	00	02 HB=1 MT=1	00	00	01 KN=1	05 AP=5	00	00	08	09	286	553	- 48.3 %

**Key to Table 1 & 2**

Provinces: W: Western, C: Central, S: Southern, N: North, E: East, NC: North Central, NW: North Western, U: Uva, Sab: Sabaragamuwa.  
 DPDHS Divisions: CB: Colombo, GM: Gampaha, KL: Kalutara, KD: Kandy, ML: Matale, NE: Nuwara Eliya, GL: Galle, HB: Hambantota, MT: Matara, JF: Jaffna, KN: Killinochchi, MN: Mannar, VA: Vavuniya, MU: Mullaitivu, BT: Batticaloa, AM: Ampara, TR: Trincomalee, KM: Kalmunai, KR: Kurunegala, PU: Puttalam, AP: Anuradhapura, PO: Polonnaruwa, BD: Badulla, MO: Moneragala, RP: Ratnapura, KG: Kegalle.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps.

Special Surveillance: Acute Flaccid Paralysis.

Leishmaniasis is notifiable only after the General Circular No: 02/102/2008 issued on 23 September 2008.

Influenza Surveillances at Sentinel Hospital										
Month	Human Surveillance							Animal Surveillance		
	Number of Expected	No Received	Influenza A	Influenza B	Pan H1N1	H3N2	Other	Pooled Sample	Serum Samples	Positives
August	600	86	00	00	00	00	00	109	357	00
September	600	151	00	00	02	00	00	197	65	00

**Table 4: Selected notifiable diseases reported by Medical Officers of Health**  
25<sup>th</sup> September - 01<sup>st</sup> October 2010(39<sup>th</sup> Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Returns received timely
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
Colombo	56	5454	6	257	0	14	11	125	1	38	15	469	0	7	0	55	0	1	100
Gampaha	23	3659	4	134	0	25	0	42	0	20	11	364	1	14	2	94	0	4	73
Kalutara	13	1717	2	205	0	13	2	26	0	74	14	317	1	3	0	31	0	1	100
Kandy	14	1514	3	261	0	4	2	27	0	14	3	94	4	121	2	118	0	1	87
Matale	3	561	3	269	0	6	1	33	0	72	5	87	0	6	1	49	0	1	83
Nuwara	5	201	3	312	0	0	2	107	0	84	1	24	2	56	3	38	0	0	92
Galle	11	1043	4	226	1	7	0	5	0	17	7	88	0	19	2	14	1	4	89
Hambantota	7	761	1	66	0	7	1	4	1	13	0	82	0	81	2	15	0	0	91
Matara	9	559	1	154	0	8	2	11	0	49	7	299	2	119	0	17	0	0	88
Jaffna	9	2694	3	228	0	4	4	487	0	8	0	1	0	112	4	61	0	2	83
Kilinochchi	1	39	0	14	0	0	0	10	0	1	0	3	0	0	0	1	0	0	100
Mannar	7	527	0	42	0	2	0	41	0	10	0	0	0	1	0	16	0	0	50
Vavuniya	2	570	1	44	0	3	1	42	1	11	0	2	0	1	2	12	0	1	100
Mullaitivu	0	21	0	6	0	0	0	3	0	0	0	0	0	2	0	1	0	0	17
Batticaloa	3	1179	2	153	0	4	1	34	0	36	1	12	0	3	1	5	1	3	93
Ampara	1	144	3	87	0	1	0	8	0	65	0	30	0	1	0	11	0	0	71
Trincomalee	4	939	3	135	0	14	0	7	0	11	0	20	0	18	0	14	0	1	73
Kurunegala	7	1325	3	260	1	19	1	36	1	15	4	262	1	52	2	104	1	4	86
Puttalam	6	943	3	123	0	7	1	49	0	124	0	67	0	1	0	21	0	1	56
Anuradhapura	4	996	4	75	0	11	0	11	1	39	0	73	0	25	0	44	0	3	74
Polonnaruwa	0	378	4	90	0	1	0	6	0	8	2	56	0	2	1	42	0	0	100
Badulla	9	1233	2	174	0	1	1	78	0	27	1	71	3	90	3	92	0	0	73
Monaragala	9	950	0	152	0	1	1	34	0	7	0	32	1	73	3	75	0	3	64
Ratnapura	28	2622	7	420	0	5	1	17	0	26	13	338	1	56	1	88	0	2	61
Kegalle	7	845	2	126	0	15	1	56	0	21	10	238	1	23	3	97	0	0	82
Kalmunai	0	506	11	256	0	3	1	8	0	9	0	3	0	0	0	11	0	1	69
<b>SRI LANKA</b>	<b>238</b>	<b>31380</b>	<b>75</b>	<b>4269</b>	<b>02</b>	<b>175</b>	<b>34</b>	<b>1307</b>	<b>05</b>	<b>799</b>	<b>94</b>	<b>3032</b>	<b>17</b>	<b>886</b>	<b>32</b>	<b>1126</b>	<b>03</b>	<b>33</b>	<b>80</b>

Source: Weekly Returns of Communicable Diseases WRCD).

\*Dengue Fever / DHF refers to Dengue Fever / Dengue Haemorrhagic Fever.

\*\*Timely refers to returns received on or before 01<sup>st</sup> October, 2010 Total number of reporting units =311. Number of reporting units data provided for the current week: 259

A = Cases reported during the current week. B = Cumulative cases for the year.

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**ON STATE SERVICE**

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