The Jamaica Injury Surveillance System
A Profile of the Intentional and Unintentional Injuries in Jamaican Hospitals

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ABSTRACT

Background: *Injuries in Jamaica are a major public health problem as demonstrated by a hospital based computerized injury surveillance system established in 1999 that provides a risk profile for injuries.*

Subjects and Method: *Injury data from 2004 were selected to provide an annual profile, as comprehensive injury data were available from nine public hospitals. These nine public hospitals provide care for 70% of the Jamaicans admitted to hospitals annually.*

Results: *Data are presented on unintentional injuries where falls caused 44%, lacerations 27% and accidental blunt injuries were 17% of these. For motor vehicle related injuries, 55% were sustained while commuting by motorcars, 17% while riding motorbikes/bicycles and 16% of those injured were pedestrians. Most violence related injuries were due to fights (76%) with acquaintances (47%) who used sharp objects (40%) to inflict the injury.*

Conclusion: *The Jamaica Injury Surveillance System (JISS) data, augmented by data collected on injuries from the health centres and the sentinel surveillance system, give a measure of the magnitude of the impact of injuries on the health services. The JISS provides data on the profile of injuries seen and treated at health facilities in Jamaica. In collaboration with police data and community-based surveys, it can be used to complete the risk profiles for different types of injuries. The data generated at the parish, regional and national levels form the basis for the design and monitoring of prevention programmes, as well as serve to support and evaluate policy, legislative control measures and measures that impact on interventions.*

Keywords: Injury Surveillance, Unintentional Injuries, Intentional Injuries, Motor Vehicle Related Injuries, Jamaica.

El Sistema de Vigilancia de Lesiones en Jamaica (SVLJ)
Un Perfil de las Lesiones Intencionales y no Intencionales en Hospitales de Jamaica

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RESUMEN

Antecedentes: *Las lesiones constituyen un problema importante de la salud pública en Jamaica, como lo demuestra el sistema de vigilancia computarizada de las lesiones, establecido en 1999, el cual proporciona un perfil de riesgo de las lesiones.*

Sujetos y Método*: Datos de lesiones ocurridas en el 2004 fueron seleccionados a fin de ofrecer un perfil anual, ya que se disponía de un conjunto amplio de datos de nueve de los hospitales públicos. Estos nueve hospitales públicos dan atención al 70% de los jamaicanos ingresados a los hospitales cada año.*

Resultados: *Se presentan datos sobre lesiones no intencionales, según los cuales las caídas representaron el 44%, las laceraciones el 27% y las contusiones accidentales el 17%. En cuanto a las lesiones relacionadas con automóviles, el 55% fueron producidas durante la transportación diaria en vehículos automotores a centros de trabajo o estudio; el 17% se produjo en viajes en motos o bicicletas; y el 16% de los heridos fueron peatones. La mayoría de las lesiones relacionadas con la violencia se*

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debieron a peleas (76%) con conocidos (47%) que usaron objetos perforocortantes (40%) para infligir las heridas.

Conclusión: *Los datos del SVLJ, aumentados con los datos sobre lesiones recopilados en los centros de salud y el sistema de vigilancia centinela, dan una medida de la magnitud del impacto de las lesiones en los servicios de salud. El SVLJ proporciona datos sobre el perfil de las lesiones vistas y tratadas en los centros de salud de Jamaica. En colaboración con datos de la policía y encuestas a nivel de la comunidad, el sistema puede ser usado para completar los perfiles de riesgo en relación con diferentes tipos de lesiones. Los datos generados a nivel provincial, regional y nacional constituyen la base para el diseño y monitoreo de los programas de prevención. Asimismo, sirven para apoyar y evaluar políticas, legislaciones, medidas de control así como medidas relativas al impacto de las intervenciones.*

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Palabras claves: Vigilancia de lesiones, lesiones no intencionales, lesiones intencionales, lesiones automovilísticas, Jamaica

INTRODUCTION

Injuries including violence-related injuries have been cited as a major cause of morbidity and mortality in Jamaica, as in other parts of the Caribbean and the rest of the world (1–5). An injury can be defined as damage, intentional or unintentional to the body, resulting from acute exposure to thermal, mechanical, electrical or chemical energy or from the absence of such essentials as heat or oxygen (1). Violence is defined as the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation (2).

An estimated five million people worldwide died from injuries in 1998 resulting in a mortality rate of 97.9 per 100 000 population. Injuries accounted for 9% of the world deaths and 12% of the world's burden of disease (1). Road traffic injuries were the leading cause of injury-related death worldwide (3). Worldwide, men are three times as likely to die from injuries as females (1). Even in low- and middle-income countries where infectious diseases have traditionally been seen as the main public health problem, injuries are among the leading causes of death and disability (1). Data from the Americas on the External Cause of Injury (ECI) between 2000 and 2005 recorded that some 1620 deaths occurred per day or approximately 593 000 deaths annually. In addition, for each death, between 10–20 non-fatal injuries were reported. This adds to the lifelong problem of disabilities with the resulting negative impact on families and society (6, 7). In the Caribbean, injuries are the leading cause of death among males 5 to 44-years old and account for 58% of deaths in the 15 to 24-year age group (8). The data from 2000–2004 show an estimate of 31 million years of potential life lost because of homicide and suicide, mostly due to the deaths of young people. Externally caused injuries are responsible for six million years of living with disabilities, compared with four million living with infectious disease and about a million living with cardiovascular disease and cancer. External cause of injury have also been cited as the leading cause of preventable mortality causing an average loss of 28.2 potential years of life (5, 6, 8).

In Jamaica, police data for 2004 reported fatalities of 55.5/100 000 from homicides, 13.6/100 000 from road traffic injuries and 1.6/100 000 from suicides (9). The impact of non-fatal injuries on the Jamaican health services is enormous. After obstetric conditions, injuries were the leading cause of discharge from Jamaican government hospitals in 2002 (10). By 2006, the estimated cost of hospital care for treatment of injuries was $2.2 billion Jamaican Dollars (11). Earlier studies had highlighted the burden of injuries on the health services. An unpublished study by McCartney and Taylor at the Kingston Public Hospital (KPH), the island's main tertiary referral hospital for trauma, recorded that 1 in 3 elective surgery lists were cancelled because of emergency surgery to treat patients who had suffered grievous bodily harm. McDonald at the University Hospital of the West Indies (UHWI), the island's main teaching hospital, reported that in 1996 trauma had accounted for 37% of patients seen in the hospital's Accident and Emergency department (12).

This paper provides a profile of the injuries seen in Jamaican hospitals as captured in the Jamaica Injury Surveillance System (JISS).

Injury data combined with reports from the KPH that the workload due to injuries was causing increasing strain on the health staff and the resources of the facility and an escalating backlog of scheduled surgery. This led to the formation of a technical working group with the mandate to address the issue of injuries in the healthcare sector and establish an Injury Surveillance System. The working group was composed of professionals from the Tropical Medicine Research Institute, the Ministry of Health (MOH), KPH, UHWI and the Division of Violence Prevention from the US Centers for Disease Control and Prevention. The working group's first objective was to develop a surveillance system to track injuries. The initial system was developed to monitor violence-related injuries and was called the Violence Related Injury Surveillance System (VRISS). This system was expanded in 1999 to track all injuries and is called the JISS (13).

Establishment of the JISS

The JISS was designed as a simple culturally appropriate data capture system where trained medical records clerks asked the *who, what, where, why* and *how* of the injury event and recorded the answer in the patients' registration database (Box 1). The workload of the doctors and nurses was minimized as they simply had to review the patients injury profile on the trauma record presented in the patient's files and make corrections as necessary.

- Designed to ensure that the system is simple, culturally appropriate while using standardized international definitions.
- Integrated into or a modification of an existing data collection system.
- Minimized workload due to implementation of the system and ensured that patient care is not compromised.
- Skills-based training used, reinforced by user prompts and training manuals.
- Incorporated a system for monitoring and quality assurance.
- Provided a system for report generation, analysis of data and for dissemination of information
- Outlined usage of the injury data to guide the development of and on-going evaluation of intervention programmes.

Box 1: Development of an Injury Surveillance System based on lessons learnt from JISS.

- Defined the epidemiological profile. Used existing data and where necessary established a data gathering mechanism at both the hospital and community level.
- Measured the impact of injuries on the society by estimating costs and disease burden.
- Used the data to identify priority areas for intervention.
- Involved communities in the planning and implementation of intervention programmes.
- Provided the basis for the establishment of an inter-sectorial mechanism to coordinate and implement interventions.
- Used the data to advocate for prevention programmes, legislative changes, ongoing research, resource allocation and policy change.
- Provided a system for ongoing monitoring, evaluation and feedback

Box 2: Use of an Injury Surveillance System to design a Control Programme based on the Jamaican JISS experience.

Data were collected from critically ill patients only after they had been stabilized. All A&E departments were provided with user prompts and training manuals to assist with in-service training for staff. Quality control was done at the local level by running reports on the completeness of the databases. Audit teams visited the hospital and periodically reviewed the sensitivity and specificity of the system. Aggregate reports were generated at the local level as needed and individual patient data downloaded for more detailed analysis at the local and national levels. Data were fed into prevention programmes at the local and national level and were used to highlight the need for intervention programmes.

SUBJECTS AND METHOD

In Jamaica, there are 23 public government run hospitals providing care for the population. These hospitals together with the tertiary teaching hospital, UHWI, provide 90% of the hospital-based care in the island. The Type A hospitals such as KPH are situated in the larger urban areas and provide the most complex mix of services available. Type B hospitals are situated in smaller urban areas and receive referrals from Type C hospitals. Type C hospitals are located in rural centres and provide general outpatient and basic inpatient services. The JISS system described in this paper collects data from nine of the major hospitals which include all seven of the government Type A and B hospitals as well as two Type C hospitals that are currently being upgraded to Type B status. These hospitals are the major providers of inpatient care providing access to specialist services.

The JISS provided information on the characteristics of the injured population and the risk factors associated with injuries by tracking the circumstances, location and method of injury. Injuries were categorized as: unintentional (accidental) injuries, violence-related injuries, intentional self-harm (attempted suicide) and motor vehicle related injuries.

RESULTS

Injury data from the island's hospitals

Data collected from all 22 government hospitals for 2004 revealed that injuries represented 11% of the over 700 000 registrations in the Accident and Emergency (A&E) departments. Unintentionally, Violence-related and Motor vehicle related injuries accounted for 45%, 38% and 17% of the injury cases respectively. Less than one per cent of injuries treated in hospitals were due to intentional self-harm, these were not analysed in this paper.

Table 1: Fatalities from injuries in Jamaica based on Police data for 2004

Type of Injury	Homicides	Road Traffic	Suicides
Male to Female ratio	9.4:1	3.7:1	3.7:1
Rate per 100 000	55.5/100 000	13.6/100 000	1.6/100 000

Source: Jamaica Constabulary Force Statistics Division, Kingston, Jamaica

Unintentional injuries seen in JISS Hospitals

In 2004, over 37 800 unintentional injuries were seen at all the government hospitals representing 4.9% of total A & E registrations and 45% of all injury registrations. Of these injured patients 62% (23 232) were seen at the A&E departments of nine major hospitals and JISS data were analysed for 77% (17 777) of the unintentional injuries seen at these nine hospitals (Table 2a and 2b).

The JISS data revealed that males were 1.8 times more likely to experience unintentional injuries than females. Among adolescents, the risk was 2.3 times higher for males than females. Age breakdown demonstrated that 57% (10 196) of those seen for unintentional injuries were 19-

Table 2a: Number of injuries seen by injury type and hospital in Jamaica, 2004

	Road Traffic	Unintentional	Violence Related	Total
A&E departments All hospitals*	14 065 (17%)	37 800 (45%)	32 202 (38%)	84 072
A&E departments Referral Hospitals**	9 945 (18%) (71%)	23 232 (43%) (62%)	21 318 (39%) (66%)	54 495 (65%)

Table 2b: Number of injuries seen by injury type and referral hospital in Jamaica 2004

A&E departments Referral Hospitals** JISS data***	9945 (18%)	23 232 (43%)	21 318 (39%)	54 495
A&E departments Referral Hospital	7085 (71%)	17 777 (77%)	15 701 (74%)	40 563 (74%)

*23 Government Hospitals (9 referral + other hospitals)
** 9 Major hospitals
*** JISS Data collected from 9 major hospitals

Sources: Hospital Monthly Statistics (HMSR) 2004
Jamaica Injury Surveillance System (JISS) 2004, Ministry of Health

years or younger while 14% (2502) were in the 20 to 29-year age group. The elderly (60 years and older) accounted for 7% (1184) of the unintentional injuries reported.

Mechanism

Falls 44%, (7788) were the most frequent mechanism of unintentional injury followed by lacerations, 27%, (4773) and accidental blunt force injury 17% (3040), burns 3.6% (633), bites 4.0% (705) and gunshots 0.4% [70] (Table 3).

showed that 48% of these lacerations occurred in the under 10 age group while 19% occurred in the 10–19-year age group.

For accidential blunt injuries, 46% (1384) occurred in the home with 15% in the street or public area and 14% in schools. Forty-eight per cent of blunt injuries were in children under 10-years of age while 22% were 10–19 years old.

The home was the location for 58% (550) burns. Age breakdown showed that 75% of these burns occurred in the under 10–19-year age group and 32% occurred in the 30–39-year age group. Fifty-three per cent of bites (362) also occurred at home while 41% occurred on the street or public area. The age group under 10-years accounted for 52% of cases.

Accidental gunshots occurred mainly on the street or in public areas while 19% occurred at home. Thirty-six of the accidental gunshots occurred in the 10–19-year age group and 32% occurred in the 30–39-year age group.

Table 3: Mechanism of unintentional injury by gender in Jamaican hospitals, 2004

Mechanism of Injury	Gender				Total	
	Male		Female			
	n	%	n	%	n	%
Falls	4612	40.6	3176	49.9	7788	43.9
Accidental laceration	3436	30.2	1337	21.0	4773	26.9
Accidental blunt	2091	18.4	949	14.9	3040	17.1
Burns	362	3.2	271	4.3	633	3.6
Bites	376	3.3	329	5.2	705	4.0
Gunshot	55	.5	15	.2	70	.4
Other	430	3.8	292	4.6	722	4.1
Total	**11 362**	**64.1**	**6369**	**35.9**	**17 731**	**100.0**

Source: Jamaica Injury Surveillance System, Ministry of Health, Jamaica
* Kingston Public, Bustamante, Spanish Town, May Pen, Mandeville, St Ann's Bay, Annotto Bay, Cornwall Regional and Savannah-La-Mar Hospitals

The majority of falls occurred in the home 5003 (76%) while the school and street each accounted for 12%. Fifty-one per cent of the fall victims were children (0–9-years) while 6% of fall victims were elderly (> 60 years).

Sixty-five per cent (3032) of accidental lacerations occurred in the home. The school and street or public area accounted for 8% and 10% respectively. Age breakdown

Location

Sixty-two per cent (10 836) of unintentional injuries took place within the home, with the home being the most common location for falls, accidental lacerations, accidental blunt force injuries, burns and bites. Of the injuries occurring at home, 42% occurred in the under 10-year age group. Among the elderly, 72% of unintentional injuries occurred in the home.

The street or public area was the location where (13%) 2251 of unintentional injuries occurred. Unintentional injuries from gunshots most frequently occurred in the street/public area. Adolescents 10–19 years old accounted for 28% (622) of injuries occurring in the street/a public area. Overall, children aged 19 years and under accounted for 47% of injuries occurring in the street/public areas. Schools/institutions accounted for (10%) 1776 of unintentional injuries. Within the schools, 12% (932) of these injuries were falls and 8% (358) were accidental lacerations. Five per cent (786) of unintentional injuries occurred in industrial/commercial areas. Thirty per cent of injuries that took place in industrial/commercial areas occurred in the 20–29-year age group and 27% in the 30–39-year age group.

Disposition

The disposition of an injured patient reflects the severity of the injury sustained. Of the unintentional injuries seen, 11% required admission to hospital. The data from the JISS demonstrate that 48% of those injured in a fall required admission while 15% of accidental lacerations and 43% of accidental blunt injuries were admitted to hospital.

Motor vehicle Related Injuries (MVRI) seen at JISS hospitals

Analysis of data revealed that 14 065 road traffic injuries (MVRI) were seen at all the government hospitals representing 1.8% of total A & E registrations and 17% of injury registrations in 2004. Of this, 9945 (71%) of these road traffic injuries (MVRI) were seen in the A & E departments at the major hospitals during 2004. The JISS provided detailed information on 7085 or 71% of the MVRI seen. The profile of the injured patient is outlined below.

Males were 1.8 times more likely to be injured in an MVRI than their female counterparts. Young adults, aged 20 to 29-years, experienced 30% (2273) of these injuries while 10–19-year olds sustained 20% (1511) of MVRIs.

Fifty-five per cent (3860) of MVRI injuries occurred in a motorcar and 11% (745) in a truck, heavy vehicle or bus and 8% (582) while on a motorbike. Pedestrians accounted for 16% (1124) and bicyclists 9% (635) of these injuries (Table 4).

The majority of pedestrians (64%) were injured in a collision with a car while 11% were injured by a bus. Of those travelling in a car, 44% were injured in a crash involving another car while 14% were as a result of injury involving a pick-up, van or jeep. Only 9% of those injured in a MVRI indicated that they were wearing safety gear. Of the MVRI seen, 19% required admission to hospital.

Intentional Injuries seen at JISS Hospitals

In 2004, over 32 200 Violence-related injuries (VRIs) were seen at all the government hospital representing 4% of total A & E registrations and 38% of all injury registrations. Of these injured patients, 66% (21 318) were seen at the A & E departments of nine major hospitals and JISS data were analysed for 74% (15 701) of the VRIs seen at these nine hospitals (Table 2). The data demonstrated that as with unintentional injuries, males were 1.4 times more likely to present with a VRI than females. Young males (20–29-years) accounted for 33% of VRI visits while males 19 years and under accounted for 24% of injury visits. Males 29 years and under therefore accounted for more than half of male VRI injury visits.

Table 4: Mode of travel for motor vehicle related injuries by gender in Jamaican hospitals* 2004

Mode of Travel	GENDER				TOTAL		Ratio M:F
	Male		Female				
	n	%	n	%	n	%	
Pedestrian	660	14.5	464	18.2	1124	15.9	1.4:1
Motorbike/Bicycle	1104	24.3	113	4.4	1217	17.2	9.8:1
Motor vehicle	2290	50.5	1570	61.6	3860	54.5	1.5:1
Truck/heavy vehicle	161	3.5	28	1.1	189	2.7	5.8:1
Bus	243	5.4	313	12.3	556	7.8	0.8:1
Other	80	1.8	59	2.3	139	2.0	1.4:1
Total	**4538**	**64.1**	**2547**	**35.9**	**7085**	**100**	**1.8:1**

Source: Jamaica Injury Surveillance System, Ministry of Health, Jamaica
**Kingston Public, Bustamante, Spanish Town, May Pen, Mandeville, St Ann's Bay, Annotto Bay, Cornwall Regiona, and Savannah-La-Mar Hospitals*

Mechanism

Forty per cent (6069) of the VRIs were inflicted by a sharp object while 31% (4715) resulted from the use of a blunt object. Gunshot wounds accounted for 7% (1074) of the

VRIs and 15% (2230) were due to the use of bodily force (Table 5).

Table 5: Circumstance of violence related injuries by gender in Jamaican hospitals* 2004

	GENDER				TOTAL	
Circumstance of Injury	**Male**		**Female**			
	n	**%**	**n**	**%**	**n**	**%**
Fight/argument	6436	74.5	4919	79.2	11 355	76.4
Robbery/Burglary	609	7.0	87	1.4	696	4.7
Drug/Gang related	258	3.0	27	0.4	285	1.9
Sexual assault	26	0.3	734	11.8	760	5.1
Child abuse	90	1.0	68	1.1	158	1.1
Other – Mob, Riot, Police shooting	1225	14.2	379	6.1	1604	10.8
Total	**8644**	**100.0**	**6214**	**100.0**	**14 858**	**100.0**

Source: Jamaica Injury Surveillance System. Ministry of Health, Jamaica
*Kingston Public, Bustamante, Spanish Town, May Pen, Mandeville, St Ann's Bay, Annotto Bay, Cornwall Regional and Savannah-La-Mar Hospitals

argument reveals that 37% (1958) of the victims were in the 20–29-year age group (Table 6).

Table 6: Method of violence related injuries by gender in Jamaican hospitals* 2004

	GENDER				TOTAL	
Method of Injury	**Male**		**Female**			
	n	**%**	**n**	**%**	**n**	**%**
Blunt object	2674	30.0	2041	32.6	4715	31.0
Bodily force	689	7.7	1541	24.6	2230	14.7
Sharp object	4376	49.0	1693	27.0	6069	40.0
Gun shot	948	10.6	126	2.0	1074	7.1
Sexual assault	23	0.3	700	11.2	723	4.8
Other – choking, Burn strangulation	218	2.4	158	2.5	376	2.5
Total	**8928**	**100.0**	**6259**	**100.0**	**15 187**	**100.0**

Source: Jamaica Injury Surveillance System Ministry of Health Jamaica
*Kingston Public, Bustamante, Spanish Town, May Pen, Mandeville, St Ann's Bay, Annotto Bay, Cornwall Regional Savannah-La-Mar Hospitals.

Victim perpetrator relationship

Examination of the victim perpetrator relationship revealed that an acquaintance was responsible for 47% (7089) of the VRIs reported while strangers inflicted 17% (2493) and an intimate partner 15% (2256). Gender stratification of these data demonstrated that an intimate partner inflicted 30% (1889) of the injuries experienced by women and females were victims of 84% (1889) of the injuries inflicted by an intimate partner. Thirty-seven per cent of the injuries perpetrated by an intimate partner were inflicted by bodily force (*eg* hitting, punching and kicking) and 14% by use of a blunt object (*eg* pipe or board). Fifty-four per cent (4699) of the injuries sustained by males were inflicted by an acquaintance. Individuals were generally more at risk from persons they knew since acquaintances were responsible for 47% (7089) of the injuries sustained in a fight or argument. An acquaintance inflicted 56% of the stab wounds, 20% of the gun shot wounds and 55% of the blunt injuries. Acquaintances were responsible for 38% of the VRIs occurring in the confines of the home, followed by an intimate partner 31% (732) and other relatives 20% (477). Acquaintances also inflicted 59% and 57% respectively of the injuries that occurred in a school or institution and on the street.

Injuries sustained during a robbery (76%) and gang or drug-related violence (69%) were more likely to be inflicted by a stranger. A stranger inflicted fifty per cent of the gunshot wounds.

Circumstance

Of the patients treated for VRIs, 76% (11 355) were injured during a fight or argument. A sharp object was used to inflict 40% (6069) of these injuries, followed by a blunt object 31%, (4715), bodily force 15%, (2230) and by gunshot 7%, (1074). An age breakdown of the VRIs sustained during a fight or

Disposition

An indication of injury severity was derived from examining the disposition of the patients experiencing VRIs. For VRI, 17% (2472) required admission to hospital and the majority of those admitted were injured in a fight or argument. These data demonstrated that 49% of those admitted to hospital were suffering from stab wounds, 21% from gunshot wounds, 19% from blunt injuries and 7% from injuries resulting from the use of bodily force.

DISCUSSION

Injuries presenting to the referral hospitals over-represent the risk of injury to the population but JISS presents data from an islandwide surveillance system providing a profile of the seriously injured population in Jamaica. Sentinel sites collect data from the 54 Ministry of Health hospitals and health centres across the country. Three per cent of patients seen at these sentinel health facilities were seen for an injury as against the 11% seen and treated for injuries at hospitals. The serious nature of many injuries means that persons often bypass primary care centres and utilize hospital A & E units for care. In Jamaica, 90% of hospital-based care occurs in the government based hospitals and in 2004 though user fees were charged, patients were not turned away due to inability to pay.

Data were available on 74% of injuries seen in the referral hospitals. Looking at the 26% of cases not tracked, it was noted that the sytem undercounts some of the more serious injuries like gunshot wounds as priorty is given to patient care over registration in JISS. Hospitals have taken to doing registration at the bedside after the patient is stabilised and this has reduced the number of cases missed. Another limitation of the study was the absence of data from the UHWI where some of the most complex referral cases are

managed. Discussions are underway to establish the system there. Data on body part affected was not collected in this dataset and thus not available for analysis.

The JISS now provides data from all the major public hospitals so that health teams in the four health regions can direct their injury prevention programmes relevant to the local profile of injuries in their communities. The Violence Prevention Programme-Jamaica was formed in 2004 in response to a need for an inter-sectoral group to respond to the growing problem of violence and its impact on the health sector. Ongoing programmes are needed to provide training and counselling in communication and negotiation skills for individuals, families and communities to reduce the use of violence to resolve conflicts. Intimate partner violence is an area for development of community-based solutions. Efforts have already started through Womens' Inc, Womens' Media Watch and through the church's violence prevention network. Police data report that 76% of violent deaths were inflicted by a firearm in 2004 (9), however, only 7% of persons treated for VRIs had their injuries inflicted by a firearm indicating the lethality of this form of violent intervention. More strangers inflicted injuries involving the use of a firearm compared to other forms of intentional injury.

The majority of MVRI fatalities were not necessarily drivers of motor vehicles but pedestrians and cyclists. Much of the attention of the police is currently focussed on the drivers but improvements in road infrastructure facilitating pedestrians and cyclists, and signage along with community and broad school-based education on road user safety is indicated. The majority of unintentional injuries occur at home and present an opportunity for focussed intervention. Falls in the younger and older age group continue to be a major cause of morbidity.

The presence of the injury surveillance system provides the evidence to guide the development of an Injury Control Programme (Box 2). The JISS has been operational for over 10-years and was integrated into the existing data collection system in Jamaican hospitals from the outset. The JISS provides an ongoing epidemiological profile and measures the impact of injuries on the health services and the society. The data provided allows for priority setting in intervention programmes and allows for evaluation of the effectiveness of the interventions. Community members and inter-sectoral groups are provided with information to guide their intervention and advocacy programmes. Data are provided that can support the need for legislative changes and serve to measure the effectiveness of these programmes and support policy changes.

These data used in collaboration with police data and community based surveys complete the risk profiles for different types of injuries. The data outlined can be generated at the parish, regional and national level and form the basis for the design and monitoring of prevention programmes. At the national level, the data are shared with the Planning Institute of Jamaica, the Ministries of National Security and Justice and other governmental and non-governmental agencies and serve to support policy and legislative control measures as well as to evaluate the impact of intervention programmes.

CONCLUSION

The JISS data, augmented by data collected on injuries from the health centres and the sentinel surveillance system, give a measure of the magnitude of the impact of injuries on the health services. There is need for ongoing support from the MOH to sustain and strengthen the JISS to ensure it will be responsive to the needs of Violence and Injury Prevention programmes as called for in the Mexico Ministerial declaration on Violence and Injury Prevention and the PAHO council meeting in 2008 (3, 5, 13, 14).

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