eHealth Asia 2015
ICT for Post 2015 Health Challenges

Open Source For Injury Surveillance

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Injury

- Injury is a major public health issue with more burden on low- and middle-income countries – more than 90% of injury related deaths
- Leads to significant socio-economic losses
- Substantial portion of the direct costs absorbed by the health sector
- Traumatic injuries, poisoning and burns are the major types of injuries reported in our health statistics
- Traumatic injury is the leading cause of hospitalization in Sri Lanka since 1995
- In Sri Lanka RTIs kill at least one person every 4½ hours

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Injury

- Injuries are not accidents, they are preventable.
- Lack of accurate and timely data is the main obstacle for injury prevention in developing countries.
- Proper injury surveillance is a must to get quality injury data.

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Injury Surveillance

- "Surveillance" refers to the ongoing and systematic collection, analysis, interpretation and dissemination of health information.
- Injury surveillance produce information that describe,
  - the size and characteristics of the injury problem
  - the populations at risk for injuries
  - the risk factors for injuries
  - the injury trends
- Using the information it is possible to,
  - design and apply appropriate interventions
  - monitor the results and assess the impacts of interventions.

Injury Surveillance Systems

- WHO in collaboration with CDC has set up guidelines on injury surveillance
- Injury surveillance systems implemented in the developed countries are based on proprietary software
- Developing countries cannot afford to develop and maintain their own ISSs.
- Several attempts were made in past to establish a national injury surveillance system but they did not sustain.
- Solution is to use a well established free and open source software that can be customized according to our needs.
- So far there are no well supported open source based ISS that can be used by developing countries

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DHIS2

- DHIS2 is a web based Free and Open Source Software (FOSS) which is free to run, modify and redistribute.
- DHIS 2 is the preferred health management information system in 47 countries and it is widely implemented.
- Accepted by WHO, CDC.
- Continuously evolving with the information needs of the health sector.
- Supports both aggregate and event data.
- DHIS2 is a good solution for aggregated public health data but it cannot be used for injury surveillance without changing things dramatically.

dhis2

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Advantages/Disadvantages

ADVANTAGES

- Low cost
- Runs on any platform
- Interoperability
- Robust and secure
- New data elements can be added based on the requirement
- Data validation checks
- Flexible reports
- Data backup
- Good software support

DISADVANTAGES

- Complex interface and menus
- Difficulties in customization

National Injury Surveillance System

dhis2

Sign in

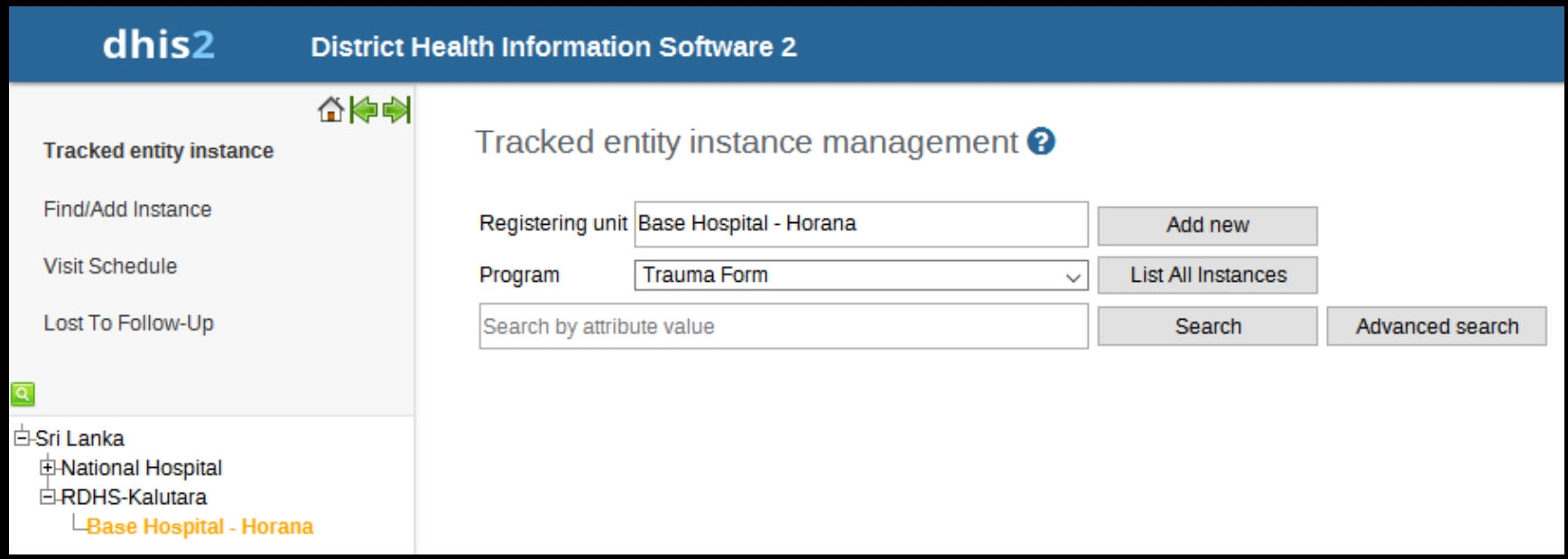
Username

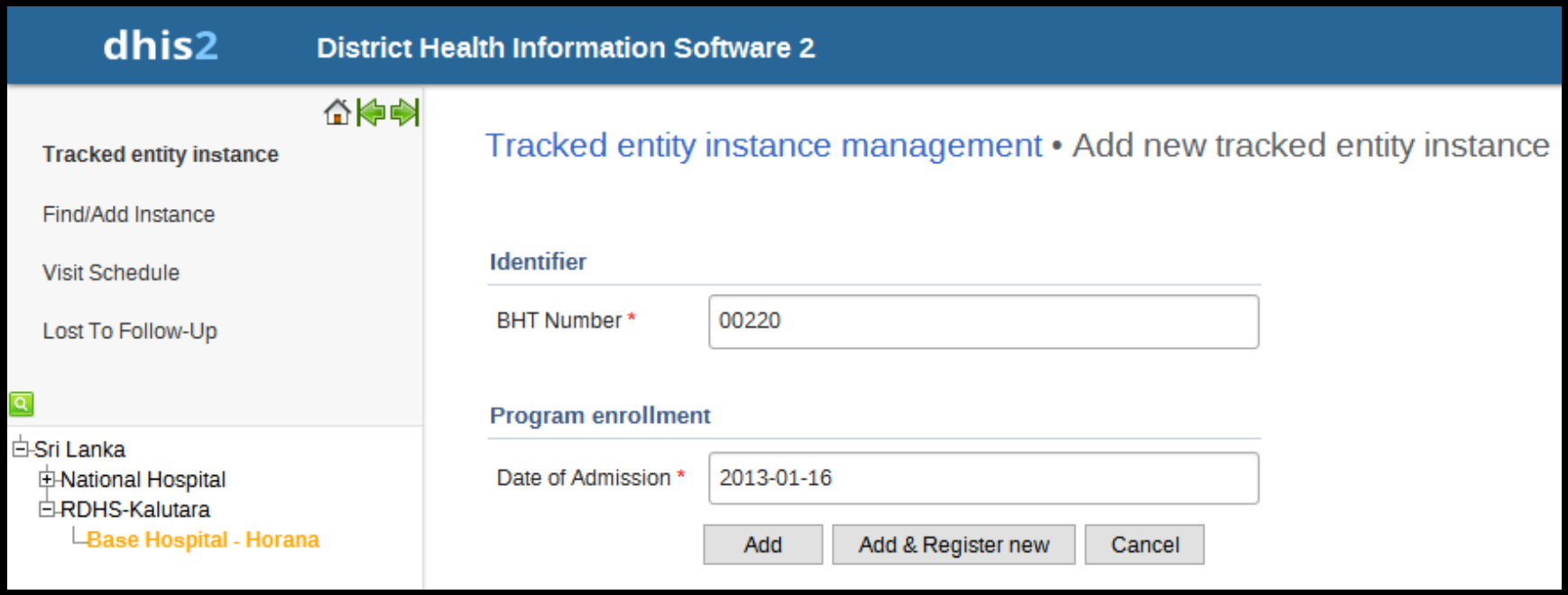
Password

Sign in

Powered by DHIS 2

[Change language]


dhis2
District Health Information Software 2
Tracked entity instance
Find/Add Instance
Visit Schedule
Lost To Follow-Up
Sri Lanka
National Hospital
RDHS-Kalutara
Base Hospital - Horana
Tracked entity instance management
Registering unit
Base Hospital - Horana
Add new
Program
Trauma Form
List All Instances
Search by attribute value
Search
Advanced search


dhis2
District Health Information Software 2
Tracked entity instance
Find/Add Instance
Visit Schedule
Lost To Follow-Up
Sri Lanka
National Hospital
RDHS-Kalutara
Base Hospital - Horana
Tracked entity instance management • Add new tracked entity instance
Identifier
BHT Number *
00220
Program enrollment
Date of Admission *
2013-01-16
Add
Add & Register new
Cancel

Data entry screen | Attributes | Program report

Toggle risk status

Age: Years Months (infants)

Sex: Male Female Unknown

Date of Injury: Unknown:

Time of Injury: Unknown

Time of Admission: Unknown

Occupation: Other (specify):

Place of Injury: Other (specify):

City/Town where the injury happened:

Activity at the time of injury: Other (specify):

Cause of Injury:

Transportation Accidents: Violence: Self-inflicted Injuries: Other Accidents/Unintentional Injuries:

Transportation of the patient to the hospital:

From site of injury/elsewhere: Mode of transportation: Other (Specify):

From another health facility: Name of facility:

Mode of transfer:

1.1 Ambulance (accompanied) 1.2 Ambulance (unaccompanied) 2. Private Vehicle

First aid / Care while transportation:

Breathing Care: Bleeding Care: IV Fluids: Splints/Slabs:

Severity at ER:

Mild Moderate Severe

Alcohol consumption by patient:

1. Yes 2. No 99. Unknown

Diagnosis 1 - ICD Code:

Diagnosis 2 - ICD Code:

Diagnosis 3 - ICD Code:

Diagnosis 4 - ICD Code:

Diagnosis 5 - ICD Code:

Diagnosis 6 - ICD Code:

Diagnosis 7 - ICD Code:

Diagnosis 8 - ICD Code:

Outcome/Disposition:

1. Discharged 2. Transferred 3. Left Against Medical Advice

4. Dead on/before Arrival 5. Dead at ETU/OPD/Ward

Date of disposition:

2a. Hospital Name: 2b. Reason for transfer:

Date of death: Time of death: Cause of death:

Add New Record:

Post comment: Add

Complete Incomplete Run validation

Place of Injury:		Other (specify):	
City/Town where the injury happened:			
Activity at the time of injury:		Other (specify):	

Cause of Injury:

Transportation Accidents: ☐	Violence: ☐	Self-inflicted Injuries: ☐	Other Accidents/Unintentional Injuries: ☐

Transportation of the patient to the hospital:

From site of injury/elsewhere: ☐	Mode of transportation:	Other (Specify):
From another health facility: ☐	Name of facility:	

Mode of transfer:

○ 1.1 Ambulance (accompanied) ○ 1.2 Ambulance (unaccompanied) ○ 2. Private Vehicle

First aid / Care while transportation:

Breathing Care: ☐	Bleeding Care: ☐	IV Fluids: ☐	Splints/Slabs: ☐

Severity at ER:	Alcohol consumption by patient:
○ Mild ○ Moderate ○ Severe	○ 1. Yes ○ 2. No ○ 99. Unknown

Diagnosis 1 - ICD Code:	
Diagnosis 2 - ICD Code:	
Diagnosis 3 - ICD Code:	
Diagnosis 4 - ICD Code:	

Cause of Injury:

Transportation Accidents: ☐	Violence: ☐	Self-inflicted Injuries: ☐	Other Accidents/Unintentional Injuries: ☐

Cause of Injury:

Transportation Accidents: ☑	Violence: ☐	Self-inflicted Injuries: ☐	Other Accidents/Unintentional Injuries: ☐

Transport Accidents

Road User :

○ 1. Pedestrian ○ 2. Driver/Rider ○ 3. Passenger

○ 99. Unknown

Seat Belt/Helmet Use:

○ 1. Yes ○ 2. No ○ 99. Unknown

Vehicle Involved: [ ] Other (specify): [ ]

Mechanism of Injury: [ ]

Data entry form management for program stage

Trauma Injury Surveillance

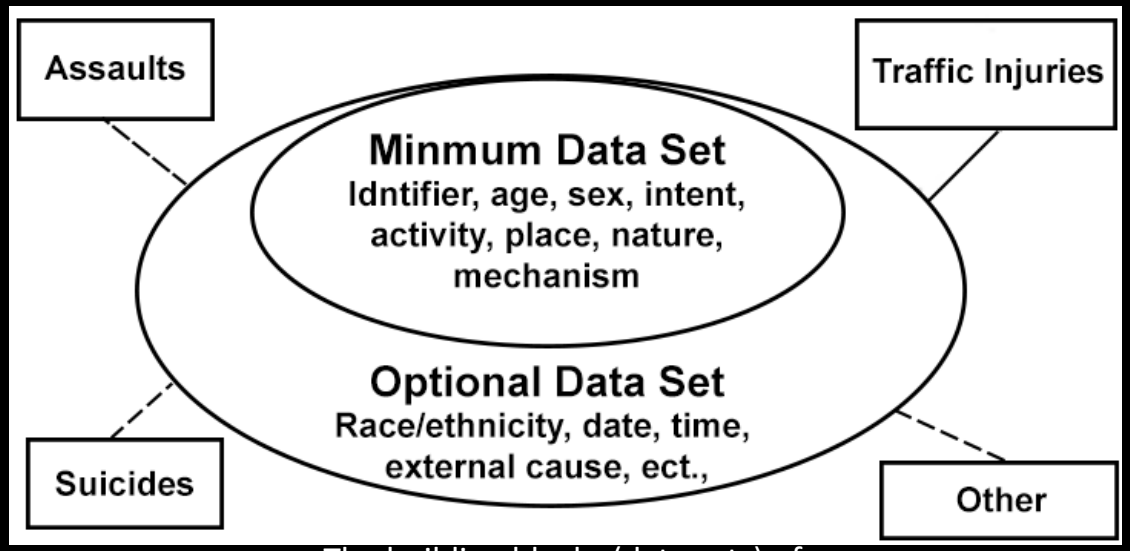
Data entry form details

Name * Trauma Injury Surveillance Form

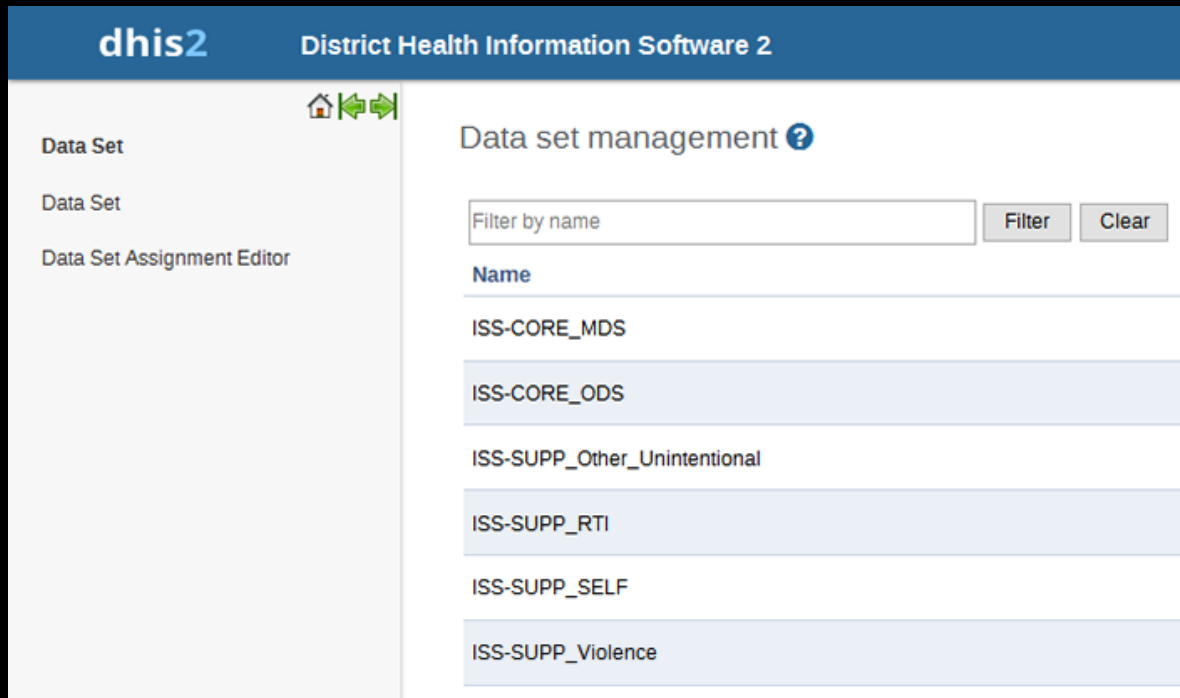
Design data entry form

Source | Styles | Format | Font | Size

```
<script type="text/javascript">
$(document).ready(function() {
//////
$('td').filter(function(){
  return $(this).text() == "No value ";
}).each(function(){
$(this).hide();
});
```



The building blocks (data sets) of an injury surveillance system - WHO



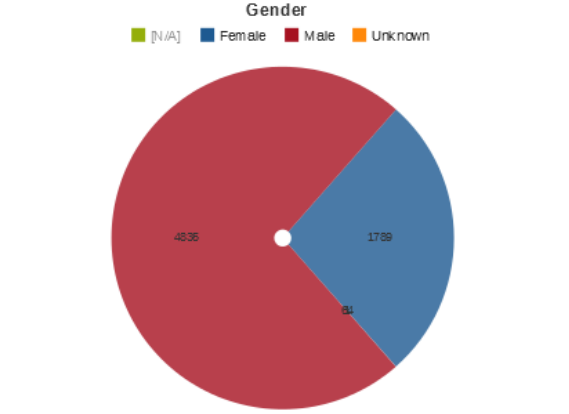
dhis2 National Injury Surveillance System Apps Profile

Megha Ganewatta (update profile!) • Write feedback • Share interpretation

Profile | Messages | Interpretations | Search for users, charts, maps, reports and resources | Search

Add | Manage | Share | < | > | Charts | Tables

Remove Get as image Explore Resize



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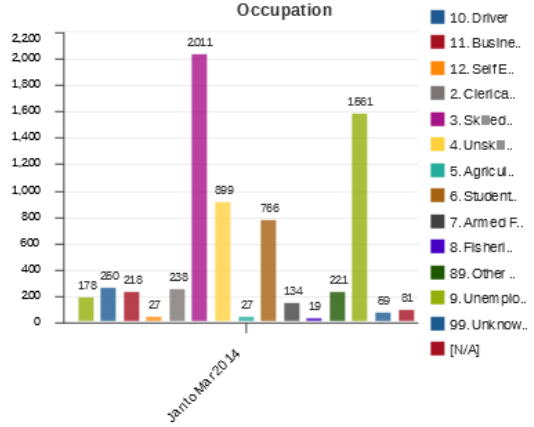

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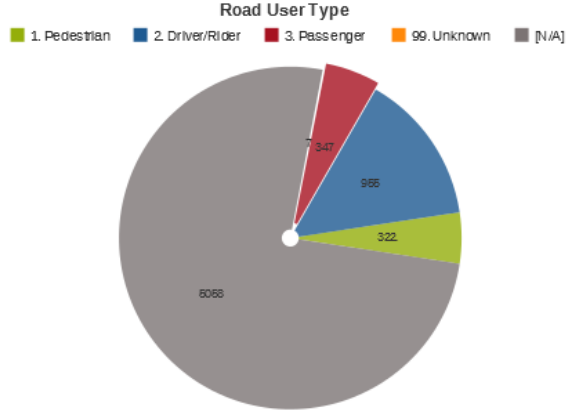

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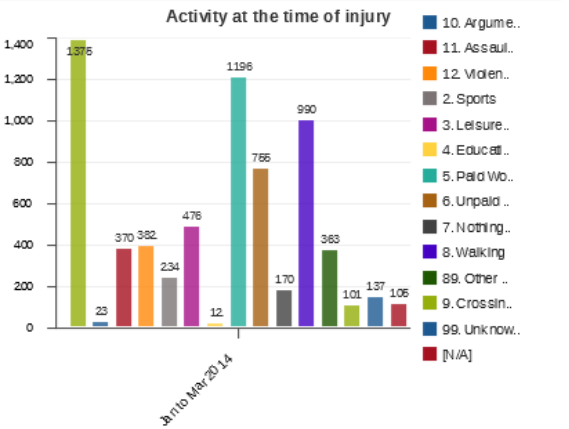

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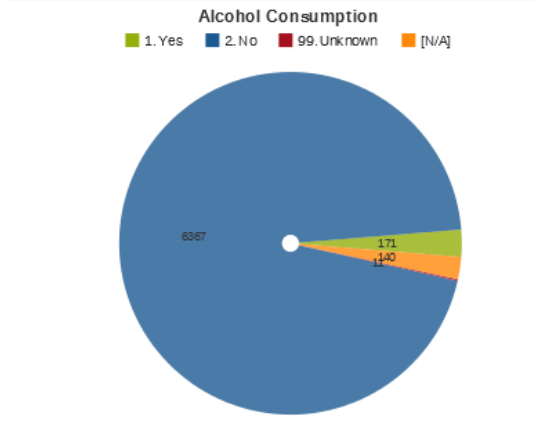

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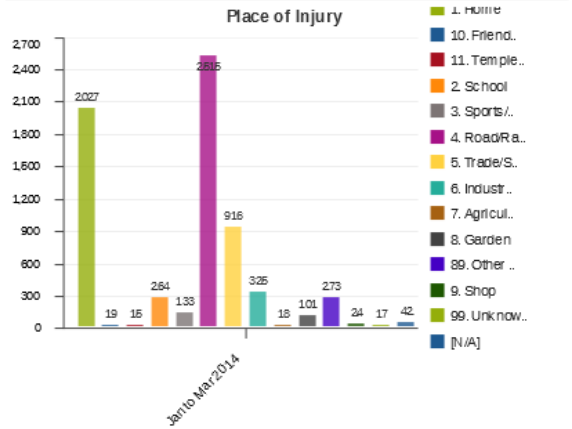


Megha Ganewatta (update profile!) • Write feedback • Share interpretation

Profile | Messages | Interpretations | Search for users, charts, maps, reports and resources | Search

Add | Manage | Share | < | > | Charts | Tables

Remove Share interpretation Explore Resize

Gender

Sex / Periods	Jan to Mar 2014	Total
[N/A]	64	64
Female	1 789	1 789
Male	4 835	4 835
Unknown	1	1
Total	6 689	6 689

Remove Share interpretation Explore Resize

Occupation

Occupation / Periods	Jan to Mar 2014	Total
1. Professional	178	178
10. Driver	250	250
11. Businessman	218	218
12. Self Employed	27	27
2. Clerical Staff	238	238
3. Skilled Labourer	2 011	2 011
4. Unskilled Labourer	899	899
5. Agriculture	27	27
6. Student/Child	766	766
7. Armed Forces/Police	134	134
8. Fisheries	19	19
89. Other (specify)	221	221

Remove Share interpretation Explore Resize

Road user type

Road User Type / Periods	Jan to Mar 2014	Total
1. Pedestrian	322	322
2. Driver/Rider	955	955
3. Passenger	347	347
99. Unknown	7	7
[N/A]	5 058	5 058
Total	6 689	6 689

Remove Share interpretation Explore Resize

Alcohol consumption

Alcohol Consumption / Periods	Jan to Mar 2014	Total
1. Yes	171	171
2. No	6 367	6 367
99. Unknown	11	11
[N/A]	140	140
Total	6 689	6 689

Remove Share interpretation Explore Resize

Transport Injuries - Mechanism of injury

Mechanism of Injury / Periods	Jan to Mar 2014	Total
1. Pedestrian or Animal	75	75
10. Non-collision transport accident	434	434
11. Other/unspecified transport accident	3	3
2. Pedal cycle	20	20
3. Two-or-three wheeled motor vehicle	433	433
4. Car(automobile) pick-up truck or van	255	255
5. Heavy transport vehicle or bus	220	220
6. Other motor vehicle	41	41
7. Railway train/vehicle	14	14
8. Other non-motor vehicle animal-driver vehicle	3	3
9. Fixed/stationary object	116	116
[N/A]	5 075	5 075

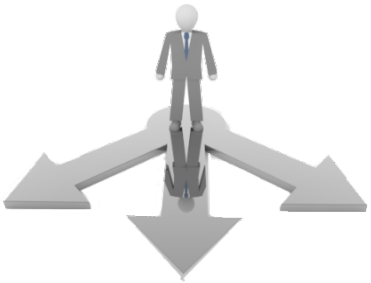
Remove Share interpretation Explore Resize

Activity at the time of injury

Activity at the time of injury / Periods	Jan to Mar 2014	Total
1. Traveling	1 375	1 375
10. Argument	23	23
11. Assault	370	370
12. Violence	382	382
2. Sports	234	234
3. Leisure Activities	476	476
4. Education	12	12
5. Paid Work	1 196	1 196
6. Unpaid Work	755	755
7. Nothing in Particular	170	170
8. Walking	990	990
89. Other (specify)	363	363

Way Forward

- Run the system on a centralized server
- Develop an app for data entry
- Paperless system



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ICT for Post 2015 Health Challanges

- SDG - Goal 3.6:
  - "By 2030, halve the number of global deaths and injuries from road traffic accidents and, in the interim, by 2020, stabilize and then reduce global deaths and injuries from road traffic accidents."

SUSTAINABLE DEVELOPMENT GOALS

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- Ms. P.S.K. Perera

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Safety isn't a slogan

It's a way of life

Thank You!

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