

## Ongoing Research

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## Development and Implementation of Integrated Road Traffic Injuries Surveillance – India (IRIS-India): A Protocol

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### Abstract

Road traffic accidents stand as one of the leading causes of mortality and morbidity across the globe. The reasons for the high burden of road traffic injuries (RTIs) in developing countries are increasing in the number of motor vehicles, poor enforcement of traffic safety regulations, inadequacy of health infrastructure and poor transport facility. However, the systematic collection of road traffic data is not well developed in many developing countries including India and under-reporting of RTIs and deaths are common. Hence, surveillance of RTIs is recommended to assess the burden, to identify high-risk groups, to establish an association with probable risk factors and to plan interventions to control the RTIs. The broad objective of this study is to establish an electronic-based comprehensive and integrated RTI surveillance system, to assess the burden of RTIs, its risk factors and outcomes across rural and urban settings in India. This study with the support of the Indian Council of Medical Research (ICMR) is progressing in three cities (Chennai, Delhi and Jaipur) and two rural areas (Chittoor and Tehri-Garhwal). At each centre, major sources of data can be categorized under two categories including health facilities and community. In urban areas, one trauma centre, one private hospital and a community of 10000-population are included in the study. In rural areas, a district hospital, a private nursing home and two sub-centres areas of different primary health centres at each site are included for the surveillance. Passive surveillance is done at the trauma centres/district hospitals, while active surveillance is done in private hospitals/nursing homes, sub-centres and communities. Before establishing the surveillance system, situational analysis has been undertaken. Surveillance-related software was developed during the preparatory stage. This electronic surveillance platform allowed to gather data electronically across multiple sites. This internet-enabled surveillance platform has several modules to capture and analyse the data. The present study provides a model of surveillance including both passive and active surveillance to cover maximum number of RTIs. This study further provides the first comprehensive epidemiology of RTIs. The results of these studies will contribute to the setting of research and investment priorities to tackle the burden of RTIs.

**Key words:** Accidents, Traffic; India; Surveillance; Trauma

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### INTRODUCTION

#### Epidemiology

Road traffic injuries (RTIs) are a large and growing public health burden and account for nearly 1.36 million deaths worldwide in 2015. RTI was ranked as the eighth leading cause of years of life lost (YLLs) (1). The burden of RTIs is projected to be the fourth leading cause of disease burden by 2030 (2, 3). The low- and middle-income countries (LMICs) account for a disproportionate share of RTIs

worldwide (4). One-fifth of these deaths occurred in South Asia. Rapid urbanization and motorization associated with rapid economic growth are some of the reasons for the rising RTI related burden in South Asia (5). India is a nation of more than 1 billion people and is one of the fastest-growing economies with rapid motorization leading to increasing RTIs burden; It has one of the highest reported mortality rates from RTI in the world (6,

7). In 2015, 6.3 million persons injured and out of them, about 1.5 million died. It is further noted that remarkable interstate variations exist in both injury rates and death rates (8). The variations in injury rates are due to several reasons like conditions of roads and vehicles, and implementation of safety measures. However, the fatality rate amongst road traffic accident (RTA) victims is different and it depends on the health system's response. Unfortunately, 50-60% of deaths occur either at the scene or in route to the hospital (9). These fatality rates (percentage of deaths out of total RTA victims) varied remarkably across Indian states and union territories. On average, 24% of RTA victims died in 2015. But this rate is as high as 52.6% in Punjab, and as low as 8.8% in Kerala (8). Previous studies have found traffic crashes to be under-reported in India by 5% for deaths and more than 50% for serious injuries (10). It is possible that most of the critical and immediately fatal cases may not get recorded in crowded urban areas of India. Therefore, it is likely that the fatality statistics for urban areas in India may be underestimated by say 10-20%. According to the Ministry of Road Transport and Highways, 61% of the RTI fatalities occur in rural areas and it is possible that a larger number of cases go unreported on rural roads too. If we assume that a significant proportion of fatalities that occur many days after the crash in rural areas are missed (that would reduce the number by less than 30% of the total deaths) and a smaller proportion of deaths on the spot or on the way to the hospital are missed, then we can expect underreporting to be around 50% of rural deaths. Overall, this would imply that the underreporting of fatalities in India may not be less than 50%.

#### **Risk factors**

Rather than mechanical, its human factor that contributes significantly to the increasing number of road accidents in India. Alcohol's involvement in various types of injuries, including RTIs is well-established among emergency department patients and has also been documented in India (11). The risk of being involved in a crash increases significantly above a blood alcohol concentration of 0.04 g/dl (12). Over speeding, refusal to follow traffic rules, and reckless driving are the main reasons for RTAs. Reckless driving like the use of mobile phones during driving, non-use of helmets and non-use of seat-belts are significant contributing factors for RTAs. Driver fatigue and sleepiness also contribute to crashes. Improper designing of roads and lack of pedestrian pavement are other contributing factors. Only 28 countries

have comprehensive road safety laws on major key risk factors like drunken driving, speeding, and failing to use helmets, seat-belts and child restraints (13).

#### **Economic impact**

RTIs can also require expensive hospital-based treatment, including trauma care (14). High out of pocket (OOP) expenditures pose a major economic burden for the affected families with one of the prior studies showing average household OOP expenses ranging from 380-780 US\$ in Bangalore (15). A study of 95 traffic accident cases in Chandigarh showed that OOP medical expenses averaged 100 US\$ (16). One-half of the households with traffic injury cases, income and food consumption declined, and indebtedness increased (17, 18). A review of four studies in India estimated the cost of traffic crashes in the country to be between 0.29% and 0.69% of the gross domestic product (19).

#### **Prevention and management**

Road traffic deaths and injuries are preventable. Effective road safety interventions should address the traffic system as a whole and look into interactions between vehicle, road users, and road infrastructure to identify the solution. Many deaths and impact of injuries can be prevented with first aid if casualties are treated immediately and by taking victims at the earliest to appropriate trauma care centre. 'Golden Hour', the first hour after trauma, is vital from the health system's perspective. If proper care is given during this period, the victims have a greater chance of survival and a reduction in the severity of their injury. Injuries occur due to a combination of agent, host, vector and environment factors (20). Understanding injuries using this model will help in identifying factors involved in an injury. This would help policymakers, professionals, product manufacturers and others to identify situations and target interventions to prevent such injuries from happening in the future or reduce the harm done when they happen.

#### **Existing challenges**

- Limited data exist addressing the problem of RTIs.
- Existing data is of poor quality, non-representative and difficult to access, and includes a limited number of relevant variables.
- The incidence and burden of RTI remains poorly measured in India.
- Various data sources exist in different parts of the country that capture information on RTIs. These data sources include that of hospital and police (for example, National Crime Records

Bureau (NCRB)). However, there is no digital RTI surveillance system that can integrate these various data sources to optimally use the information to predict etiological variables of RTI and predictors of poor outcomes due to RTI across diverse settings.

There is clearly a need for data on RTIs, which is essential for implementing preventive strategies. Strengthening and undertaking research on the public health burden and impact of RTIs, understanding of their risk factors, and studying the characteristics of trauma, using hospital and population-based studies are need of the hour. Most of the issues can be addressed by establishing a surveillance system. Hence, the Indian Council of Medical Research (ICMR) has commissioned this multi-centric study to develop a model of passive surveillance at the higher health facility and active surveillance from health and non-health sectors and community.

#### **Objectives of the study**

##### **• Broad objective**

The broad objective of this study is to establish an electronic-based comprehensive and integrated RTI surveillance system, to assess the burden of RTI, its risk factors and outcomes across rural and urban settings in India.

##### **• Specific objectives**

- To design an online electronic-based RTI surveillance system (mobile app) that enables capture of RTI data from various sources.
- To conduct a situation analysis of data sources, systems and quality for RTIs.
- To assess the facilities available for pre-hospital and trauma care in the district including for emergency transport system and their utilization.
- To describe the availability and utilization pattern of existing facilities for post-crash emergency care at various levels of the health system in both urban and rural areas.
- To describe the burden of RTAs and its epidemiological factors including the outcome.
- To describe factors associated with RTI of serious nature.

## **METHODS**

### **Definition of RTI**

An RTI is a fatal or non-fatal injury incurred as a result of a collision on a public road involving at least one moving vehicle.

### **Study area**

This study is progressing in three cities (Chennai, Delhi and Jaipur) and two rural areas (Chittoor and Tehri-Garhwal) located across the country. The

RTI-related data given in this description is calculated based on the data given by India's NCRB (21).

##### **• Chennai**

Chennai is the capital city of Tamil Nadu State. Tamil Nadu accounted for 10.5% of total accidental deaths in India in 2015. Chennai reported a total of 8206 RTI victims, of which 886 died in 2015.

##### **• Chittoor**

Chittoor is one of the district headquarters towns of Andhra Pradesh state. In 2015, the total number of RTAs in Andhra Pradesh were found to be 22,839 (about 5% of the country). Due to these RTAs, 29,439 injured and 8,297 died, these figures constitute 6.1% and 5.6% to the national totals, respectively.

##### **• Delhi**

Delhi is the second-largest metropolis by area and population in India. Delhi had reported the second-highest cases of RTAs after Chennai. The total number of persons killed in road accidents increased by 4.6% and road accident injuries by 1.4% between 2014 and 2015. Delhi city registered a total of 7,148 RTAs in 2015. Due to these RTAs, 7,385 had RTIs and 1,316 died.

##### **• Tehri-Garhwal**

It is a hilly area in the state of Uttarakhand. Uttarakhand reported 1,523 RTA in 2015. The RTIs and deaths due to these RTAs are 1,657 and 913, respectively.

##### **• Jaipur**

Jaipur is the capital city of Rajasthan. Rajasthan is the largest state in the country in terms of geographical area, which constitutes 10.4% area of the country and 5.7% of the national population. Jaipur registered a total of 3,151 RTAs in 2015. The RTIs and deaths reported due to these RTAs are 2,892 and 939, respectively.

### **Source of data**

This study is progressing in 5 participating centres across the country. At each centre, major sources of data can be categorized under two categories including health facilities and community. In urban areas (Chennai, Delhi and Jaipur), one trauma centre, one private hospital and a community of 10000-population are included in the study. In rural areas (Chittoor and Tehri-Garhwal), a district hospital, a private nursing home and two sub-centres areas of different primary health centres at each site are included for the surveillance. Passive surveillance is done at the trauma centres/district hospitals, while active surveillance is done in private hospitals/nursing homes, sub-centres and communities. Any individual brought to any surveillance points will be enrolled in the study.

Before establishing the surveillance as described above, situational analysis has been undertaken (22). The tools used for this situational analysis and also surveillance tools are given as appendix 1 and 2, respectively.

#### **Procedure for capturing data**

Software is developed during the preparatory stage by the Foundation of Health Technology Society (FHTS). FHTS is a collaborating institute and supported all teams and ICMR in developing, testing and implementing the electronic surveillance platform. This electronic surveillance platform allowed individuals to gather data electronically across multiple sites. This internet-enabled surveillance platform has several modules including:

(i) User management module: Users can register their facility and create a site profile. The system will assign a unique ID to each site. Each site coordinator will have its own user profile. In case there is no internet, the system will still capture data as a standalone application and will be able to transmit the data to a central server once connected to the internet. The site coordinator will be able to approve multiple users at each site to use the system and will also provide user access control based on their roles.

(ii) Data collection module: The surveys will be electronically designed so that the surveillance platform is easy to use even if the users have limited technology literacy.

(iii) Data validation module: If there are any error/missing data, the system will generate alert and flag the variables to ensure data completeness and accuracy.

(iv) Data management module: The system will have import and export functions such that it can import the data files in Excel, CSV or other database formats into the system. This will facilitate to import the data from 108 services into our existing system. Further, the data from police records will also be captured into the system.

(v) Data visualization module: The data recorded will then be interactively visualized using a series of charts, and graphs.

All data will be secured using a database protected password or the data gathered will be stored in an encrypted format.

#### **Intervention**

##### **• Alerting the district administration**

Bi-monthly alerts/ bulletins will be released based on the surveillance data of 2 months. These alerts will highlight the incidence of RTIs and its risk factors and provide appropriate actions to be taken by the district/local authorities including health,

police and transport systems. The actions taken by the above authorities/systems will be documented by following different methods, including interviewing key officials and community members.

##### **• Creating awareness**

The research team will develop health awareness material on prevention of RTIs and on care to be taken immediately after an accident. It will highlight the importance of the golden hour. It will be similar to the training meant for first responders in trauma care.

#### **DISCUSSION**

RTIs are a major issue in the world, especially in LMICs. India is experiencing a high burden of RTIs and the fatality rate is high compared to many countries (8). However, one of the main problems in developing strategies for preventing RTAs and injuries is the lack of actual and quality-related data (1, 23, 24). Hence, the establishment of RTI surveillance is an important step for a better understanding of the problem thus leading to RTI prevention (25). There is substantial evidence that effective surveillance systems help in reducing the burden of RTIs and their impact (26). Hence, RTI surveillance is recommended to assess the burden of injuries, identify high-risk groups and probable risk factors, and plan interventions to control and monitor the impact (27).

Hence, this study aimed to establish an electronic-based comprehensive and integrated RTI surveillance system. After establishing the system and demonstrating the feasibility of establishment within the public health system, attempts will be made to handing over it to the government for scaling-up. It is the responsibility of the government health sector to ensure the establishment of necessary data systems through the surveillance system (28). Along with collecting qualified data; analysis, interpretation and dissemination of health information and getting feedback to the beneficiaries must be considered (29).

In India, RTAs are more common on urban roads and on roads connected to urban area and majority of the accident victims are referred to urban-based tertiary care hospitals. Hence a passive surveillance system in tertiary care hospitals is being established in this study. Most of the critical and immediately fatal cases are recorded and those who die in tertiary care hospitals also enter the official statistics through police network. It is reported that more than 60% of the fatalities occur in rural areas and usually these cases of injuries,

particularly non-fatal and minor injuries, go unreported on rural roads (30). These non-fatal and minor injuries were treated in smaller nursing homes and clinics. Usually, these facilities are of private in nature, and they do not like to involve in medico-legal cases. In addition, a significant proportion of fatalities, which occur after the crash in rural areas are missed. Some deaths escape from police records as people involved in the road accidents settle the dispute out of the legal system. All these cases seldom get registered with the police. In view of these realities, the present study has integrated an active surveillance system to cover police stations, community-based health facilities like primary health centres, community health centres and private hospitals. Active surveillance is also placed in communities to track missing cases. Thus, this study is being established both passive and active surveillances comprehensively to capture all RTIs and related deaths in a particular geographical area.

#### CONCLUSIONS

RTIs have been recognized globally as an important public health problem, however, the deaths and injuries are preventable. The situation needs serious efforts through governmental policies, including establishing a surveillance system to capture RTIs occurred at all levels. The present study provides a model of surveillance including both passive and active surveillance to cover maximum number of RTIs. This study further provides the first comprehensive epidemiology of

RTIs. The results of these studies will contribute to the setting of research and investment priorities to tackle the burden of RTIs.

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#### AUTHORS' CONTRIBUTION

All the authors met the standards of authorship based on the recommendations of the International Committee of Medical Journal Editors. KRJ, PM, JK, RS, DKM and AJ contributed equally to the research and should be considered as joint second author. Former five of these authors are corresponding to the sequence of cities shown in the paper and each of these authors is responsible for research in the corresponding city. AJ is responsible for surveillance platform. MB and YS contributed equally and should be considered as joint third authors, as these authors involved in the compilation of information and initial drafting of the manuscript. The first author (BVB) is the national coordinator of this research.

#### CONFLICT OF INTEREST

None declared.

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**Appendix 1: Integrated Road Traffic Injuries Surveillance (IRIS)-India****Situational Assessment for understanding the RTI data systems**

It is necessary and a pre-requisite to do a situation analysis to understand the strength and weakness of the data systems pertaining to RTI in Tamil Nadu. The analysis will identify gaps and help in building the existing system and integration with other data sources.

WHO's Data Systems: A road safety manual for decision-makers and practitioners enumerates the following four steps for conducting a situational assessment:

1. Stakeholder analysis
2. Assessment of data sources and existing systems
3. End-user needs assessment
4. Environmental analysis

The following section details each step with its objectives and their corresponding checklists and questions for assessment.

Objectives	Checklist
<b><i>Step: 1 Stakeholder Analysis</i></b>	
Identification of organizations, potential partners and individuals who have an interest in the collection and/or use of road safety data	Have you identified all stakeholders in the law enforcement, transport and health sectors?
	Have you identified other types of stakeholders (e.g. insurance industry, NGOs, academic institutions, automobile industry)?
Examine the roles and activities of all stakeholders	Have you identified the activities and roles of each stakeholder in relation to road safety data?
	Have you identified the stakeholders who will be key supporters or opponents?
How stakeholders should be involved in the process	What is the nature, mode and form of Participation?
	Have you convened a stakeholder meeting, including supporters and opponents, data collectors and data users?
<b><i>Step: 2 Assessment of data sources and existing systems</i></b>	
Assess data sources	What are all organizations or individuals involved in collection of data pertaining to RTI?
	What information or variables are collected in the data sources?
	What is the format used to collect data?
	What is the system to store and process data?
Assess data systems	What population or geographical area (jurisdiction) is covered?
	Does it provide a census of incidents among a whole population, or does it include data from a sample of the population only?
	Are there estimates of population coverage/completeness?
	What events are captured (i.e. fatalities, non-fatal injuries, damage-only crashes)?
	What definitions are used?
	How are data transferred from the crash scene to the database (including reporting requirements)?
	What are the existing and potential linkages with other databases?
	What are the formal/informal data-sharing mechanisms with other agencies/sectors?
	What format are data stored in (as case-level records, tabulations provided to customized specifications, or only as pre-tabulated results)?
	What are training tools and training status of the staff in data systems?
How accessible are the data?	

Objectives	Checklist
Assess data quality	Are there standard definitions available for inclusion and exclusion of crashes and injuries?
	Are there SOPs available for entire data flow management process?
	Are there any under-reporting of crashes/Injuries to and by the authorities?
	For the events captured, are the data complete and accurate? What validation procedures are in place?
	What is the frequency with which missing data occurs?
	Is that the missing data systematic for certain fields and crashes?
	Are there any errors in recording data, coding data and data entry?
<b>Step: 3 End user needs assessment</b>	
For setting up and expanding the Road safety information system to enhance the usability of the system	Who are the users of the data system for policy action?
	What are the circumstances or situations that lead to require road safety information?
	What is the type of information different users requiring and expect from an information system?
	What are the sources of information users currently relying?
	What is the preferred format in which users would like to access information?
	What are the factors that affect or determine their access to, and use of, road safety information?
<b>Step: 4 Environmental Analysis</b>	
Overview of political environment	Is there a lead agency responsible for road safety? What is it and what is its main function?
	Which are the main government departments involved in road safety decision-making and what role does each department play?
	What is the nature of inter-agency relationships?
	Is there a road safety strategy, and does it include a data component?
	What are the existing policies in transport, law enforcement, health and finance that are relevant to road safety? Do they have data components? Which factors in the political environment will drive change, and which will oppose it?
	Is there adequate capacity for implementation/improvement of data collection, data processing, data analysis, and dissemination and use of data?

**Questionnaire / Checklist for situational analysis****Step 1: Stakeholders Analysis:**

1. List out all the existing stakeholders involved with road traffic injury surveillance system in your district/city? (Remember the list has to exhaustive including all the present organizations/Individuals involves in data collection and use of road safety data)
2. Identify potential organizations/Individuals or partners who might utilize or facilitate development of better road safety data systems and support in integration. (List has to add-on to the existing/ current stakeholders involved)

What is the role and activity of each organization pertaining to road traffic injury surveillance systems?

Data collection		Data management	
Report generation		Policy makers	
Clinical management		Advocacy groups	

(The above functions are only indicative and may include many other roles and activity of the organizations)

3. List the stakeholders who will be supporting or opposing the establishment and integration of the road traffic injury surveillance system.
4. What would be the nature, mode and form of participation of the stakeholders in the proposed system?
  - Advisers or consultants
  - Collaborating partners
  - As a member of a working group
  - As an individual participant
  - As a representative of a group
5. Plan a meeting involving all the stakeholders for discussion and dissemination of the proposed system.

**Questionnaire / Checklist for situational analysis****Step 2: Assessment of data sources and existing systems**

1. What is the organization/individuals involved in the road traffic injury surveillance system?
  - Police
  - Roadways Department
  - Transport Department
  - Hospitals
  - Emergency transport services
  - Government Health Facility
  - Private health facility
2. What information or variables are collected in the data sources?
  - Demographic details
  - Vehicle related details
  - Crash related details
  - Road related details
  - Person related details
  - Pre hospital care
  - Emergency transport details
  - Medical care and management
  - Outcome of the event
3. What is the format used to collect data?
  - Electronic
  - Hard copy
4. What is the system to store and process data?
  - Electronic
  - Hard copy
5. What population or geographical area (jurisdiction) is covered? (Describe)
6. Does it provide a census of incidents among a whole population, or does it include data from a sample of the population only?
7. Are there estimates of population coverage/completeness?
8. What events are captured?
  - Fatalities
  - Non-fatal injuries
  - Damage-only crashes
9. Are there definitions are used?
10. How are data transferred from the crash scene to the database?
  - Real time
  - Delayed
  - Manual
11. What are the existing and potential linkages with other databases?
12. What are the data-sharing mechanisms with other agencies/sectors?
  - Formal
  - Informal
13. What format are data stored?
  - Case-level records
  - Tabulations provided to customized specifications
  - Pre-tabulated results
14. What are training tools and training status of the staff in data systems? Describe...
  - Inclusion/Exclusion criteria
  - Definitions availability
  - Training status of the data collectors
  - Refresher training
15. How accessible are the data?

- Open source
  - Public domain
  - Paid
16. How data is analyzed?
    - Variables analyzed
    - Computerized or manual
    - Periodicity of analysis
    - Report generation
  17. Are there standard definitions available for inclusion and exclusion of crashes and injuries?
    - Yes
    - No
  18. Is there SOPs available for entire data flow management process?
    - Yes
    - No
  19. Is there any under-reporting of crashes/Injuries to and by the authorities?
    - Crash not being reported
    - Reported but not included for data collection
    - Incomplete data collection
    - Delayed or no data entry
    - Data lost
  20. For the events captured, are the data complete and accurate? What validation procedures are in place?
    - Completeness
    - Accuracy
    - Quality control mechanisms
  21. What is the frequency with which missing data occurs?
  22. Is that the missing data systematic for certain fields and crashes?
  23. Are there any errors in recording data, coding data and data entry?

**Questionnaire / Checklist for situational analysis****Step: 3 End user needs assessment**

1. Who are the users of the data system for policy action?
  - Stakeholders feedback
  - Policy decisions
2. What are the circumstances or situations that lead to require road safety information?
3. What is the type of information different users requiring and expect from an information system?
4. What are the sources of information users currently relying?
5. What is the preferred format in which users would like to access information?
6. What are the factors that affect or determine their access to, and use of, road safety information?

**Questionnaire /Checklist for situational analysis****Step: 4 Environmental Analysis**

1. Is there a lead agency responsible for road safety? What is it and what is its main function?
2. Which are the main government departments involved in road safety decision-making, and what role does each department play?
3. What is the nature of inter-agency relationships?
4. Is there a road safety strategy, and does it include a data component?
5. What are the existing policies in transport, law enforcement, health and finance that are relevant to road safety? Do they have data components? Which factors in the political environment will drive change, and which will oppose it?
6. Is there adequate capacity for implementation/improvement of data collection, data processing, data analysis, and dissemination and use of data?

## Annexure 2-A: Integrated Road Traffic Injury Surveillance (IRIS), India

**Surveillance tool for Health Facility**

Q. No.	Question	Data entry rule	Values Assigned	Req	Skip Pattern	
<b>FORM I</b>						
<b>A</b>	<b>PERSONAL IDENTIFICATION</b>					
1	Centre Code	Dropdown	Chennai	1	Yes	
			Chittoor	2		
			Jaipur	3		
			Delhi	4		
			TehriGarhwal	5		
2	Hospital Code	Dropdown	Public sector health facility	1	Yes	
			Private sector health facility	2		
3	Serial number	Numeric Box	0001-9999		Yes	
4	User code	Numeric Box	01-99		Yes	
5	IRIS ID	Auto-generated. Should not allow entering or editing the field.	Will constitute the Centre code, Hospital code, User code and Serial No. For e.g. IRIS:ID:11010005 means case belongs to Chennai, Public hospital and 1 <sup>st</sup> user and is in the fifth case in serial order	Yes	“Auto generated field” appears if we try to enter.	
Once IRIS ID is generated it should be displayed as the header of the form in display. One can save the form only after filling up to IRIS ID, before which the form cannot be saved and should be discarded. Every form should be saved with its IRISID as name.						
6	Medical Record Number (Inpatient/Out Patient Number)	Text Box			Yes	
7	AR Number (Accident Register number)	Numeric box				
8	Admission Date	Calendar pick	dd/ mm/ yyyy		Yes	
9	Admission Time	Time pick	hh:mm			
10	Respondent Name	Text Box (Alpha only)			Yes	
11	How are you related to the injured?	Dropdown	Self	1	Yes	If 1 is selected Skip Q12 to 14. If 997 go to Q12, else Skip Q12.
			Family member	2		
			Friend	3		
			Driver	4		
			Co-passenger	5		
			Unknown passerby	6		
Others	997					
12	Specify Relationship with injured	Text Box				
13	Do you have a mobile number? (Respondent)	Radio button	Yes	1	Yes	If 1 is selected go
			No	2		
			Unknown	998		

						to Q14 else skip Q14.
14	Enter Mobile Number of the Respondent	Numeric Box	Add zero (0) before 10 digit mobile number		Yes	
15	What is the name of the Injured?	Text Box (Alpha only)			Yes	
16	Do you have mobile number? (Injured)	Radio button	Yes	1	Yes	If 1 is selected go to Q17 else skip Q17.
			No	2		
			Unknown	998		
17	Enter Mobile number of the injured	Numeric Box	Add zero (0) before 10 digit mobile number		Yes	
18	Do you know the address of the injured?	Radio Button	Yes	1	Yes	If 1 is selected go to Q19 else skip Q 19 to 22.
			No	2		
19	State of Injured	Dropdown	All States Of India		Yes	
20	District of Injured	Dropdown	Districts of selected state		Yes	
21	Taluk of Injured	Dropdown	Taluk of selected District		Yes	
22	Village/Area of Injured	Text Box				
<b>B</b>	<b>SOCIO DEMOGRAPHICAL DETAIL</b>					
1	Age of Injured	Radio button (Text box is enabled based on Q1. If 1 is selected Text box1 and unknown is enabled, If 2 is selected Text box2 and unknown is enabled)	< 1year (In Months) - Text box1		Yes	B01_AgeYrs is greater than or equal to 5 show Q4, Q5 or Skip Q4, Q5
			>1 year (In Years) - Text box2			
			Unknown	998		
2	Gender of Injured	Dropdown	Male	1	Yes	
			Female	2		
			Transgender	3		
3	Educational status of the Injured	Dropdown	Illiterate	1	Yes	
			Primary	2		
			High School	3		
			Higher Secondary	4		
			Diploma/Certified course	5		
			Graduate and above	6		
Unknown	998					
4		Dropdown	Business	1	Yes	

	Occupation of the Injured		Self Employed/Medium Business	2		If 997 go to Q5, else Skip Q5.
			Professional/Executive/Managers	3		
			Employee (Govt./Private)	4		
			Skilled Manual (Artisians, Agriculture, Fishery, Forestry)	5		
			Unskilled Manual (Labour)	6		
			Home maker	7		
			Student	8		
			Unemployed	9		
			Others	997		
			Unknown	998		
5	Specify Occupation of the injured	Text Box				
<b>C ACCIDENT IDENTIFICATION DETAILS</b>						
1	Date of accident	Date pick	dd/mm/yyyy		Yes	
2	Time of accident	Time pick (Scroll)	hh:mm		Yes	
3	State of accident	Dropdown	All States Of India		Yes	
4	District of accident	Dropdown	District of selected state		Yes	
5	Taluk of accident state	Dropdown	Taluk of Selected District		Yes	
6	Village/Town of accident site	Text Box			Yes	
7	Nearest landmark of accident site	Text Box	(GIS mapping- insert map)			
8	What is the type of accident?	Dropdown	Self-fall/Skid	1	Yes	If 997 go to Q9, else Skip Q9.
			Crash with pedestrian	2		
			Crash with parked vehicle	3		
			Crash with fixed obstacle	4		
			Crash with non-fixed obstacle	5		
			Crash between two vehicles	6		
			Crash with two or more vehicles	7		
			Crash with animal	8		
			Others	997		
			Unknown	998		
9	Specify Type of Accident	Text Box				
10	What was the weather condition at the time of accident?	Dropdown	Clear	1	Yes	If 997 go to Q11, else Skip Q11.
			Hot/dry weather	2		
			Rainy	3		
			Fog/Mist/Smoke/Smog	4		

			Sever winds	5		
			Landslide	6		
			Snow	7		
			Others	997		
			Unknown	998		
11	Specify weather condition	Text Box			Yes	
12	What was the light condition at the time of accident?	Dropdown	Excess Light	1	Yes	
			Sufficient Light	2		
			Partial light	3		
			Insufficient Light	4		
			Unknown	998		
13	Has FIR been lodged	Dropdown	Yes	1	Yes	If 1 go to Q14 else Skip Q14
			No	2		
			Unknown	998		
			Not applicable	996		
14	FIR Number	Text box				
<b>D</b>	<b>ROAD RELATED DETAILS</b>					
1	What is the type of road of the accident site?	Dropdown	National highway	1	Yes	
			State highway	2		
			Major District Roads (MDR)	3		
			Other District Roads(ODR)	4		
			Village Roads (VR)	5		
			Unknown	998		
2	What is the sub-type of the accident site	Multiple Choice	One way road	1	Yes	If any 6,7,8,11,12 selected go to Q3 else Skip Q3 and Q4.
			Two way road	2		
			Single lane	3		
			Two lane road	4		
			Four or above lane road	5		
			Cross Road	6		
			Round about	7		
			Railway crossing	8		
			Curve road/ Blind curve	9		
			Gradient road	10		
			T or Staggered junction	11		
			Multiple Junction	12		
			Unknown	998		
3	Traffic Controlled by	Multiple choice	Traffic signal/ Rail road barrier	1	Yes	If 997 is selected go to Q4 else Skip Q4.
			Traffic personnel/ Railway personnel	2		
			Concerned Institute/ organization personnel	3		
			Public Volunteer	4		
			Uncontrolled	5		
			Others	997		
			Unknown	998		
4	Specify Traffic Control	Text Box				
5		Dropdown	Safe	1	Yes	

	How were the road conditions at the accident site		Slippery (Wet/Oily)	2		If 997 is selected go to Q6 else Skip Q6.
			Muddy	3		
			Rutted/Pot holed	4		
			Flooded	5		
			Snow	6		
			Work under progress	7		
			Others	997		
			Unknown	998		
6	Specify Road Condition	Text Box				
7	Do you know the Speed limit of the Road?	Dropdown	Yes	1	Yes	If 1 is selected go to Q8 else Skip Q8.
			No	2		
			Not applicable	996		
8	Enter the Speed Limit	Numeric Box			Yes	
<b>E</b>	<b>VEHICLE INFORMATION</b>					
1	How many vehicles involved in the crash?	Numeric Box			Yes	
<p>The following Questions Q2 to Q13 should repeat based on the number entered in Q1. The variable name should change with the number. For example, if 3 is entered in Q1, 3 times the Questions 2 to 13 will be repeated each time variable name number will change (Eg: E02_TypeVehcl_1 first time, E02_TypeVehcl_2 Second time and E02_TypeVehcl_3 Third time).</p> <p>Each set should have the label "Vehicle (number-1) Details", the number is based on the number of times the Question set is repeated. For example, first set will have the label "Vehicle 1 Detail", Second set will have the label "Vehicle 2 Detail" and so on up to 5.</p>						
2	What was the type of vehicle involved in the accident?	Dropdown	Bicycle/ Cycle rickshaw	1	Yes	If 997 is selected go to Q3 else Skip Q3.
			Bullock cart	2		
			Two wheeler geared	3		
			Two wheeler non-geared	4		
			Auto rickshaw	5		
			Car	6		
			Tempo traveler/Van/ City ride	7		
			Bus/Mini Bus	8		
			Trucks/Tractors	9		
			Lorry	10		
			Others	997		
			Unknown	998		
3	Specify Vehicle:	Text Box				

4	What is the special function of the vehicle?	Dropdown	Personnel private vehicle	1	Yes	If 997 is selected go to Q5 else Skip Q5.
			Public passenger vehicle	2		
			Private passenger vehicle	3		
			Goods vehicle (Public/Commercial)	4		
			Govt. official vehicle	5		
			Others	997		
			Unknown	998		
5	Specify vehicle function	Text Box				
6	Vehicle manoeuvre (action taken by vehicle immediately before it become involved in crash)	Dropdown	Normal straight driving	1	Yes	If 997 is selected go to Q7 else Skip Q7.
			Changing lane	2		
			Reversing	3		
			Turning	4		
			Over taking	5		
			Slowing/stopping/moving off	6		
			Parked	7		
			Driving off the lane/road	8		
			Others	997		
Unknown	998					
7	Specify vehicle manoeuvre	Text Box				
8	What is the driving licensure status of the vehicle driver?	Dropdown	Present Valid	1	Yes	
			Present Invalid	2		
			Absent	3		
			Learners License	4		
			Unknown	998		
			Not applicable	996		
9	Was the vehicle over speeding at the time of accident?	Dropdown	Yes	1	Yes	
			No	2		
			Unknown	998		
10		Dropdown	Safe driving	1	Yes	

	What was the driving quality of the vehicle at the time of accident?		Distracted Driving	2		
			Uncontrolled Driving	3		
			Sleepless/worn out driving	4		
			Unsafe driving due to health Impairment	5		
			Unknown	998		
<b>F</b>	<b>PERSON RELATED DATA</b>					
1	What type of road user was the injured person?	Dropdown	Driver	1	Yes	If 1 and 998 is selected skip Q2 and Q3. If 2 is selected go to Q2 and skip Q3. If 3 is selected go to Q3 and skip Q2
			Passenger	2		
			Pedestrian	3		
			Unknown	998		
2	What is the seating position of the passenger	Dropdown	Front	1	Yes	
			Rear middle	2		
			Rear side	3		
			On the roof	4		
			Standing inside/ on vehicle	5		
			Foot Board	6		
			Pillion rider (sitting behind in two wheeler)	7		
	Unknown	998				
3	Pedestrian activity at the time of accident?	Dropdown	Crossing road	1	Yes	
			Standing middle of the road	2		
			Walking/standing along shoulder of the road	3		
			Walking/standing in the footpath	4		
			Unknown	998		
4	What were the safety precautions taken by injured person at the time of accident?	Multiple choice	Seat belt worn	1	Yes	If 1 or 2 in Q1 in session F and 3 or 4 in Q2 in session E is selected enable only
			Helmet worn	2		
			Airbag present in vehicle	3		
			Followed traffic signal	4		
			Used Zebra crossing	5		
			Unknown	998		
	Not applicable	996				

						<p>options 2, 4, 996 and 998</p> <p>If 1 or 2 in Q1 in session F and 5, 6, 7 and 8 in Q2 in session E is selected then enable only options 1, 3, 4, 996 and 998</p> <p>If 3 is selected in Q1 in session F then enable only options 4, 5, 996 and 998.</p> <p>If 1 or 2 in Q1 in session F and 1, 2, 9, 10, 997 and 998 in Q2 in session E enable options only 4, 998 and 996.</p>
5	Who were Drunken/ consumed alcohol during accident?	Multiple choice	Driver of the injured vehicle	1	Yes	If 1 in Q5 and 1 in Q1 is selected or 2 in Q5 and 2 in Q1 is selected or 5 in Q5 and 3 in Q1 is selected
			Passenger/ Co-passenger of the injured vehicle	2		
			Driver of the counterpart vehicle	3		
			Passenger/Co-passenger of the counterpart vehicle	4		
			Pedestrian	5		
			Unknown	998		

						Go to Q6 else skip Q6.
6	Blood Alcohol level of the injured	Numeric Box				
7	Who used Mobile phone during accident?	Multiple choice	Driver of the injured vehicle	1	Yes	
			Driver of the counterpart vehicle	2		
			Pedestrian	3		
			Unknown	998		
<b>G</b>	<b>PRE-HOSPITAL ADMISSION DATA</b>					
1	What was the time duration taken for rescue efforts after the accident happened?	Time Format	hh:mm		Yes	
2	How was the injured person rescued?	Dropdown	Self	1	Yes	If 997 is selected go to Q3 else skip Q3.
			Known Person (Friends/ Relatives)	2		
			Driver/Passenger/Co-Passenger	3		
			Local People/ Passerby	4		
			Police	5		
			Army	6		
			Disaster Response Force (State/ National)	7		
			Others	997		
Unknown	998					
3	Specify how was the injured person rescued	Text Box				.
4	What was the reason for delay in rescuing the injured person?	Dropdown	Noticed Late	1	Yes	If 997 is selected go to Q5 else skip Q5.
			Late Information given to rescue team/ Emergency transport	2		
			Access difficulty (Difficult terrain or difficult to access site)	3		
			Weather conditions	4		
			Emergency Transport Vehicle arrived late	5		
			Others	997		
			Unknown	998		
			Not applicable	996		
5	Specify the reason for delay in rescuing the injured person	Text Box				
6	How was the injured person taken from the accident site to	Dropdown	Stretcher	1	Yes	
			Sheets	2		
			Hold by 2-4 peoples	3		

	the transport vehicle?		Carried by people on their back	4		
			Others	997		
			Unknown	998		
			Not applicable	996		
7	Specify how was the injured person taken from the accident site to the transport vehicle	Text Box				
8	Was the injured person given first aid?	Dropdown	Yes	1	Yes	If 1 go to Q9 or skip Q9, Q10, Q11 and Q12.
			No	2		
			Unknown	998		
9	Where was the first aid given?	Dropdown	At the accident site	1	Yes	If 997 go to Q10 else skip Q10.
			Nearby Govt. Hospital	2		
			Nearby Private clinic	3		
			Ambulance	4		
			Others	997		
			Unknown	998		
10	Specify where was the first aid given	Text Box				
11	Who gave the first aid?	Dropdown	Health worker/ Nurse	1	Yes	If 2,3,4 is selected in Q9 disable options 4,5 and 6. If 997 go to Q12 else skip Q12
			Ambulance technician	2		
			Doctor	3		
			Public	4		
			Police	5		
			Family members	6		
			Others	997		
			Unknown	998		
12	Specify who gave the first aid	Text Box				
13	How was the injured person transported to health facility?	Dropdown	Self	1	Yes	If 997 go to Q14 else skip Q14.
			Government Ambulance	2		
			Private Ambulance	3		
			Commercial passenger vehicle	4		
			Commercial goods vehicle	5		
			Private vehicle	6		
			Govt. Official vehicle	7		
			Others	997		
			Unknown	998		
14	Specify how was the injured person transported to health facility	Text Box				
15	Number of hospitals/health facilities visited before attending the registering hospital	Numeric Box			Yes	If 0 skip Q16, Q 17, Q18, Q19, Q20, Q21,

						Q22 and Q23. If 1 Skip Q16 If >1 go to Q16.
16	What was the first referral hospital?	Dropdown	Primary health care facility	1		
			District Government Hospitals	2		
			Other Government Hospitals	3		
			Private hospitals	4		
			Private nursing home	5		
			Unknown	998		
17	What was the Last referral hospital?	Dropdown	Primary health care facility	1	Yes	
			District Government Hospitals	2		
			Other Government Hospitals	3		
			Private hospitals	4		
			Private nursing home	5		
			Unknown	998		
18	Last Referral hospital State	Dropdown	All States in India		Yes	
19	Last Referral hospital District	Dropdown	District of selected state		Yes	
20	Last Referral hospital Taluk	Dropdown	Taluk of Selected District		Yes	
21	Last Referral hospital Village/ Town/ Area	Text Box	(GIS mapping- insert map)		Yes	
22	Reason for shifting from the referral hospital?	Dropdown	Not equipped for the treatment required	1	Yes	If 997 go to Q23 else skip Q23.
			Specialist doctors not available	2		
			Bed not available	3		
			Patient's desire	4		
			Others	997		
			Unknown	998		
23	Specify reason for shifting from the referral hospital	Text Box				
<b>H</b>	<b>AMBULACNE DETAILS</b> (This section appears only if 1 or 2 is selected in Q12 of G section else skip)					
1	Whether ambulance details available?	Radio button	Yes	1	Yes	If 2 is selected skip rest questions in this section else go to Q2.
			No	2		

2	Date of the call received by ambulance personnel regarding the accident? (Date)	Calendar Format	dd/mm/yyyy		Yes	
3	Time of the call received by ambulance personnel regarding the accident? (Time)	Time Format (Scroll)	hh:mm			
4	Date - ambulance reached the accident site? (Date)	Calendar Format	dd/mm/yyyy		Yes	
5	Time- ambulance reached the accident site? (Time)	Time Format (Scroll)	hh:mm			
6	Date patient dropped at the hospital? (Date)	Calendar Format	dd/mm/yyyy		Yes	
7	Time patient dropped at the hospital? (Time)	Time Format (Scroll)	hh:mm			
8	How was the patient managed in the transport vehicle during the transport from accident site to hospital?	Multiple choice	CPR	1		If 997 go to Q9 else skip Q9.
			Electrical defibrillation	2		
			Maintained airway	3		
			Bleeding controlled	4		
			IV Fluid	5		
			IV Blood	6		
			IV / IM Drugs	7		
			Positioning of the patient	8		
			Others	997		
			Not applicable	996		
9	Specify how was the patient managed in the transport vehicle	Text Box				
10	Ambulance has the facility to record and monitor	Multiple choice	Pulse rate	1	Yes	If 994 or 998 skip rest questions. If 1, 2, 3, 4 and 5 is yes show Q11, Q12 and Q13, Q14, Q15 and Q16 respectively. For Options not selected hide the
			BP	2		
			Respiratory Rate	3		
			Oxygen Saturation	4		
			GCS	5		
			None	994		
			Unknown	998		

						respective questions.
11	Ambulance pulse rate	Numeric box1 (First)				
		Numeric box2 (Last)				
12	Ambulance Systolic Blood Pressure	Numeric box1 (First)				
		Numeric box2 (Last)				
13	Ambulance Diastolic Blood Pressure	Numeric box1 (First)				
		Numeric box2 (Last)				
14	Ambulance Respiratory Rate	Numeric box1 (First)				
		Numeric box2 (Last)				
15	Ambulance oxygen saturation	Numeric box1 (First)				
		Numeric box2 (Last)				
16	Ambulance Glasgow Coma Scale (GCS)	Numeric box1 (First)				
		Numeric box2 (Last)				
<b>I</b>	<b>CLINICAL DETAILS (On the day of admission)</b>					
1	What was status of injured at the time of admission	Dropdown	Unconscious	1	Yes	
			Conscious	2		
			Unknown	998		
2	Co morbidity Level	Dropdown	Healthy	1		
			Non-Limiting	2		
			Limiting	3		
			Constant Threat to life	4		
			Unknown	998		
			Not documented	999		
3	Pulse rate	Numeric box				
4	Systolic BP	Numeric box				
5	Diastolic BP	Numeric box				
6	Respiratory rate	Numeric box				
7	Oxygen Saturation	Numeric box				
8	Glasgow Coma Scale (GCS)	Numeric box				
	<b>FORM II</b>					
<b>J</b>	<b>CLINICAL, TREATMENT AND OUTCOME DETAILS (Follow up- to be submitted during discharge/ death/ abscond / referral of the patient)</b>					
1	User code	Numeric Box	Jan-99		Yes	
2	IRIS ID		Dropdown of the User code synced IRIS-ID		Yes	
3	What are the parts of the body injured	Dropdown	Head	1		
			Neck	2		

			Thorax	3		
			Abdomen, lower back, lumbar spine and pelvis	4		
			Shoulder and upper arm	5		
			Elbow and forearm	6		
			Wrist and hand	7		
			Hip and thigh	8		
			Knee and lower leg	9		
			Ankle and foot	10		
			Multiple body regions	11		
			Injuries to unspecified part of trunk limb and body	12		
4	What was the nature of injuries sustained	Dropdown	Superficial injury	1		
			Open wound	2		
			Fracture	3		
			Dislocation, sprain and strain	4		
			Injury to nerves and spinal cord	5		
			Injury to blood vessels	6		
			Muscles and Tendons	7		
			Crushing Injury	8		
			Traumatic amputation	9		
			Injury to internal organs	10		
			Foreign body in natural orifice	11		
			Burns and corrosions	12		
			Other unspecified Injurie	13		
5	Type of fracture	Radio button	Open	1		
			Closed	2		
6	Describe the injury	Text Box				
7	Injury classification as per ICD_10	Dropdown	Include only Chapter XIX up to Burns and corrosion, Certain early complications of trauma and Sequel of injuries. Cascade based on response from Q2 and Q5			
8	How is the severity of injury	Dropdown	Minor	1		
			Moderate	2		
			Serious	3		
			Severe	4		
			Critical	5		
			Maximum (Untreatable)	6		
9	Abbreviated injury Scale (AIS)	Dropdown	AIS 2008 code set. Cased based on Q2, Q4, Q6 And Q7.			
10	FAST Result	Dropdown	Done-Positive	1		
			Done-Negative	2		
			Equivocal	3		
			No Facility	994		
			Not done	996		
			Unknown	998		

			Not recorded	999		
11	What is the patient treatment status?	Dropdown	First Aid Provided	1	Yes	If 997 is selected go to Q12 else skip Q12
			Stabilized	2		
			Treated in emergency room	3		
			Definitive care (Comprehensive care)	4		
			LAMA	5		
			Others	997		
12	Specify Treatment status	Text Box				
13	What is the Patient admission status?		Referred	1	Yes	If 1 is selected show questions 17 to 26 or skip questions 20 to 26. If 2 is selected skip questions 20 to 26. If 3 is selected show questions 17, 18 and 19 and skip rest of the questions
			In hospital care (Shifted to IP/ Remains admitted)	2		
			Abscond/ Left	3		
14	What was the time taken to initiate treatment? (Time between admission and first aid/ stabilization/ treatment/ to declare brought dead based on options selected in Q18)	Date pick	Date format			
		Time pick	Time format			
15	Reason for delay in treatment?	Dropdown	Delay to get investigation results	1		If 997 is selected go to Q16 else skip Q16
			Doctors not available	2		
			Delay in blood availability	3		
			Others	997		
			Not applicable	996		
16	Specify, reason for delay in treatment	Text box				
17	Outcome	Dropdown	Alive	1		If 2 is selected

			Dead	2		show Q27, 28 and 29 and skip rest of the questions If 1 is selected Show Q18, 19 and skip rest of the questions
18	Date of discharge	Calendar Format	dd/mm/yyyy			
19	Discharge summary	Text Box				
20	What is the centre referred?	Text	Primary health care facility	1	Yes	
			District Government Hospitals	2		
			Other Government Hospitals	3		
			Private hospitals	4		
			Private nursing home	5		
			Unknown	998		
21	What was mode of transport for shifting the patient to higher centre?	Dropdown	Government Ambulance	1	Yes	If 997 is selected go to Q22 else skip Q22
			Private Ambulance	2		
			Private vehicle	3		
			Others	997		
			Unknown	998		
22	Specify mode of transport for shifting patient	Text Box				
23	Date of referral	Calendar Format	dd/mm/yyy		Yes	
24	Time of referral	Time Format	hh:mm			
25	Reason for referral	Dropdown	Not equipped for the treatment required	1	Yes	If 997 is selected go to Q26 else skip Q26
			Specialist doctors not available	2		
			Bed not available	3		
			Patient's desire	4		
			Others	997		
			Unknown	998		
26	Specify reason for referral	Text Box				
27	Date of death	Calendar Format	dd/mm/yyyy		Yes	
28	Time of death	Time format	Hh:mm		Yes	
29	Cause of death	Text Box				

## Annexure 2-B: Integrated Road Traffic Injury Surveillance (IRIS), India

**Community-based road accident recording form-Informant (individual)**

Q. No.	Question	Data entry rule	Values Assigned	Req	Range	Skip Pattern
A	<b>IDENTIFICATION</b>					
1	Centre Code	Dropdown	Chennai Chitoor Jaipur Delhi Tehri Garhwal	1 2 3 4 5 Yes		
2	Serial number	Numeric Box		Yes	0001-9999	
3	User code	Numeric Box		Yes	01-99	
4	IRIS ID	Auto-generated. Should not allow entering or editing the field.	Will constitute the Centre code, Hospital code, User code and Serial No. For e.g. IRIS:ID:11010005 means case belongs to Chennai, Public hospital and 1 <sup>st</sup> user and is in the fifth case in serial order	Yes		"Auto generated field" appears if we try to enter.
5	Informant Name	Text Box		Yes		
6	Age of Injured	Radio button (Text box is enabled based on Q1. If 1 is selected Text box1 and unknown is enabled, If 2 is selected Text box2 and unknown is enabled)	< 1 year (In Months) – Text box1 >1 year (In Years) – Text box2 Unknown	998 Yes	In months- 0 to 12 In years- 1 to 150 998	B01_AgeYrs is greater than or equal to 5 show question on education, occupation
7	Gender of Injured	Dropdown	Male Female Transgender	1 2 3 Yes		
8	Educational status of the Injured	Dropdown	Illiterate Primary High School Higher Secondary Diploma/Certified course Graduate and above Unknown	1 2 3 4 5 6 998 Yes		

9	Occupation of the Injured	Dropdown	Business Self Employed/Medium Business Professional/Executive/Managers Employee (Govt./Private) Skilled Manual (Artisians, Agriculture, Fishery, Forestry) Unskilled Manual (Labour) Home maker Student Unemployed Others Unknown	1 2 3 4 5 6 7 8 9 10 997 998	Yes			If 997 go to Q6, or Skip Q6.
10	Specify Occupation of the injured	Text Box						
11	Outcome	Dropdown	Alive Dead	1 2				
12	Type of area where data is collected	Radio Button	Urban Rural Peri/sub urban Unknown	1 2 3 4	Yes			
13	Date of Data Collection	Date format	dd/mm/yyyy		Yes			
B	ACCIDENT DETAILS							
1	Date of accident	Date format	dd/mm/yyyy		Yes			
2	Time of accident	Time format	hh:mm		Yes			
3	Place of accident							
4	What is the type of accident?	Dropdown	Self-fall/Skid Crash with pedestrian Crash with parked vehicle Crash with fixed obstacle Crash with non-fixed obstacle Crash between two vehicles Crash with two or more vehicles Crash with animal Others Unknown	1 2 3 4 5 6 7 8 997 998	Yes			If 97 go to Q9, or Skip Q9. If 2 is selected show Q8 or skip Q8.
5	Specify Type of Accident	Text Box						
6	Number of fatalities	Numeric Box			Yes	0-200, 998		
7	Number of persons hospitalized	Numeric Box			Yes	0-200, 998		
8	Number of pedestrians involved	Numeric Box			Yes	1-100, 998		

9	Number of vehicles involved	Numeric Box			Yes	1-5, 998	
10	Type of vehicle involved	Multiple choice	Bicycle/ Cycle rickshaw Bullock cart Two wheeler geared Two wheeler non-gearred Auto rickshaw Car Tempo traveler/Van/ City ride Bus/Mini Bus Trucks/Tractors Lorry Others Unknown	1 2 3 4 5 6 7 8 9 10 997 998	Yes		If 97 is selected go to Q11 or Skip Q11.
11	Specify type of vehicle						