Accident data collection in Sierra Leone

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Objectives

▪ To establish a framework for an efficient RTC data collection system on LVRs in Sierra Leone on a pilot basis
  – Set up a methodology for RTC data collection using sample data on a pilot basis with relevant attributes and related protocols for the management of road safety on LVRs in Sierra Leone
  – Develop and implement an electronic data management system for road traffic crash data storage, analysis and retrieval for LVRs in Sierra Leone
### Activities

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<th>• Situation analysis</th>
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<td>• Literature review of similar studies</td>
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<td>• Stakeholder consultations</td>
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<td>• Framework for RTC data collection &amp; management</td>
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<td>• Stakeholder workshops</td>
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<td>• Final report</td>
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Main outcomes

A conceptual framework for RTC data collection & management

A set of RTC data collected on a pilot base in three locations across the Country

A framework for RTC data analysis

An accident data management system (software)

Train the trainers in data collection and use of the system
Data collection framework and pilot

1. Design of data collection tools
2. Design of data collection process
3. Stakeholders workshop 1 for agreement
4. Pilot data collection

ReCAP
Research for Community Access Partnership
Data analysis framework and system

Design of data analysis framework

Implement an accident data management system

Train the trainers

Stakeholders workshop 2 for agreement
Actors involved in RTC data process

Road Traffic Crash

SLP

Health services

SLRA

SSL

SLRSA

### Recommended definitions

<table>
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<th>Category</th>
<th>Internationally agreed definition</th>
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<td><strong>Fatality</strong></td>
<td>Person killed immediately or died within 30 days because of a road traffic injury.</td>
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<tr>
<td><strong>Serious Injury</strong></td>
<td>Injury that requires admission to hospital for at least 24 hours, or specialist attention</td>
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<td><strong>Casualty</strong></td>
<td>A person who has sustained physical injury because of an RTC (including death).</td>
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<tr>
<td><strong>Fatal Crash</strong></td>
<td>Any RTC resulting in a person killed immediately or dying within 30 days because of the crash</td>
</tr>
<tr>
<td><strong>Casualty Crash</strong></td>
<td>A person who has sustained physical damage because of an RTC (including death)</td>
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Data collection framework

- Ideally all data should be collected electronically.
- The process to set a complete data collection process can take several years.
- Pilot activities are useful to adapt the process.
RTC data needed

Data types

- CRASH RELATED
- ROADS RELATED
- VEHICLES RELATED
- PERSONS RELATED
Data collection forms

- Two data collection forms:
  - Police forces, to collect data elements on the field
  - Health services, to collect information on victims of RTC
- Detailed information and user manuals are provided to explain what kind of information must be collected and how
- GPS equipment would be needed for collection of location (Police)
Data elements from Police 1

CRASH RELATED
- Identifier
- Date
- Time
- City / place
- Location
- Crash Type
- Impact type
- Weather conditions
- Light conditions
- Crash severity

ROAD RELATED
- Type of roadway
- Road functional class
- Speed limit
- Road obstacles
- Surface conditions
- Junction
- Traffic control
- Road curve
- Road segment grade
Data elements from Police 2

**VEHICLES RELATED**
- Vehicle ID
- Vehicle plate
- Type
- Make
- Model
- Model year
- Engine size
- Vehicle special function
- Vehicle manoeuvre

**PERSONS RELATED**
- Person ID
- Person’s vehicle ID
- Date of birth
- Sex
- Type of road user
- Seating position
- Injury severity
- Safety equipment
- Pedestrian manoeuvre
- Alcohol use
Data from other databases

- Some data can be provided by merging of crash database with SLRSA databases on vehicles and driving licences:
  - **VEHICLES DATABASE**
    - Vehicle type (car, bus, truck, etc.)
    - Vehicle make
    - Vehicle model
    - ...
  - **DRIVING LICENCE DATABASE**
    - Drivers’ date of birth
    - Drivers’ sex
    - Driving licence issue date
Data elements from Healthcare Provider

CRASH RELATED
- Identifier
- Date of crash
- Time of crash
- Date of admission
- Time of admission
- Location

PERSON RELATED
- Person ID
- Person name
- Sex
- Birth date
- Type of injury
- Final diagnosis
- Date of exit
Pilot data collection

- 3 enumerators collected RTC data for 2 weeks in 3 area of Sierra Leone (low volume roads)
  - They used both the data collection forms
- 25 RTC collected (12 day-time – 13 night-time)
- 44 persons involved in these RTC
  - No injuries: 10 persons
  - Minor injuries: 15 persons
  - Serious injuries: 14 persons
  - Fatal injuries: 5 persons

Pilot data collection

00:00 - 06:59
16%

07:00 - 11:59
12%

12:00 - 17:59
36%

18:00 - 23:59
36%

Monday
24%

Tuesday
20%

Wednesday
8%

Thursday
16%

Friday
16%

Saturday
8%

Sunday
8%
Pilot data collection

Pilot data collection

- Driver: 48%
- Passenger: 29%
- Pedestrian: 23%

- Pedestrians: 10 (23%)
- Other vehicle passengers: 22 (50%)
- Motorcycle passengers: 12 (27%)

Pilot data collection: considerations

- High percentage of VRUs involved in RTC
  - 23% of road users are pedestrians
  - 27% of road users are driver / passenger of motorcycle

- High number of motorcycles (21 out of 35 vehicles)

- A lot of vehicles are used as taxis: 18 out of 35 (11 motorcycles)

- 8 out of 21 drivers involved in a crash run away

- 10 out of 35 vehicles involved were unregistered
DATA COLLECTION
- Filling in of RTC data elements
- Use in office (transfer from paper to PC)
- Use on the field (input on mobile device)
- Real time verification of data completeness

DATA STORAGE
- Data collected are stored into a database (local)
- Backup features available

DATA TRANSMISSION
- Sending data packages to the national database (automatically or manually)
- Web connection needed

DATA ANALYSIS
- Selection of data elements to be analysed (filters)
- Results on tables, graphs, maps
- Mapping of data
- Exportation of results in excel, pdf

SFINGE
Accident data management system

DATA STORAGE
- Data received from external sources are stored into a database (national)
- Backup features available

DATA QUALITY CHECK
- Statistics about the data included in the database
- Information on data completeness
- Possibility of analysing single RTC data

DATA MERGING
- Identification of same RTC in Police and Health services databases
- Merging of data from Police and Health services (creation of the national database)
- Data merging with those from other sources

DATA ANALYSIS
- Selection of data elements to be analysed (filters)
- Results on tables, graphs, maps
- Mapping of data
- Exportation of results in excel, pdf

SAFETY MANAGER
Thank you for your attention

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