Unit 3

The importance of evidence as a foundation for prevention
Objectives

By the end of this unit, the trainee should be able to:

• state at least three reasons why evidence is important in efforts to prevent road traffic injuries;

• describe the main sources of data and evidence on road traffic injuries;

• discuss the different methods used to collect and analyze data on road traffic injuries;
Objectives

• explain the importance of research and research capacity in road traffic injury prevention;

• explain ethical issues in research on road traffic injury prevention;

• evaluate the quality of data and evidence on road traffic injury prevention in the trainee's own country.
Why collect reliable data on road traffic injuries?

- Describe the burden of road traffic injuries.
- Assess risk factors.
- Establish priorities and allocate resources for prevention.
- Develop and evaluate interventions.
- Provide information for policy-makers and decision-makers.
- Raise awareness.
**What are the main sources and types of data?**

- Number of road traffic incidents, fatalities and injuries
- Type of road users involved
- Age and sex of casualties
- Type of vehicles involved
- Police assessment of causes
- Location and sites of crashes
- Prosecutions
- Cause/responsibility e.g. alcohol, speed, vehicle factors
What are the main sources and types of data?

- Health facility settings
  - Fatal and non-fatal injuries
  - Age and sex of casualties
  - Road user categories
  - Cost of treatment
  - Alcohol or drug involvement
  - Severity and type of injuries
  - Outcome e.g. disability

- Insurance firms
  - Fatal and non-fatal injuries
  - Damage to vehicles
  - Cost of claims
  - Cost to victims
What are the main sources and types of data?

Government departments and agencies

- Population denominators
- Income and expenditure data
- Health indicators
- Exposure data
- Pollution data
- Energy consumption
- Literacy levels
What are the main sources and types of data?

Special interest groups

- Number of road traffic incidents, fatal and non-fatal injuries
- Type of road users involved
- Age and sex of casualties
- Type of vehicles involved
- Interaction of victims with vehicles
- Causes
- Location and sites of crashes
- Social and psychological impacts
- Interventions and evaluation
- Damage and losses
- Legal issues, insurance claims
- Operational data

e.g. research institutes, NGOs, transport unions, transport companies, consulting firms
How are data on road traffic injuries collected?

• Injury surveillance systems: set up in hospitals and other appropriate institutions for ongoing systematic collection, analysis, interpretation and dissemination of information.

• Community-based surveys: data collected from households and/or communities.

• Academic studies on selected topics: provide information on specific topics and may include case-control studies, in-depth crash analysis and complementary investigations.
It is not enough just to collect data...

...link and share

• Data collected and stored by a range of agencies.

• Ensure access, harmonization and linkage between different data sources and users to obtain maximum value from the information.

• Tackle the problem of coordination and sharing of information among different users.
Analyse, disseminate and use information

• Analyse data to answer questions on magnitude, patterns, risk factors, interventions and their effectiveness.
• Several software packages to use e.g. Epi Info and SPSS.
• Ensure that you share and disseminate information with colleagues, researchers, policy-makers and the public.
• Use various strategies to disseminate information: journal articles, reports, policy briefs, fact sheets, web page and newspapers.
Indicators to measure the problem

- Number of injuries

**Description**

Absolute figure indicating the number of people injured in road traffic crashes

**Use and limitations**

- Useful for planning at local levels for emergency medical services
- Useful for calculating costs of medical care
- Not very useful for making comparisons
- A large proportion of slight injuries are not reported
- Misclassification of severity of injury

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Indicators to measure the problem

- Number of deaths

Description:
Absolute figure indicating the number of people who die as a result of a road traffic crash.

Use and limitations:
- Gives a partial estimate of the magnitude of the road traffic injury problem, in terms of death.
- Useful for planning at the local level for emergency medical services.
- Not very useful for making comparisons.
Indicators to measure the problem

• Fatalities per 10,000 vehicles

**Description**
Relative figure showing ratio of fatalities to number of motor vehicles

**Use and limitations**
- Shows probability of vehicle involvement in fatal crashes
- A limited measure for assessing safety in a society because it omits non-motorized transport and other indicators of exposure
- Usually declines with motorization
Indicators to measure the problem

- Fatalities per 100,000 population

**Description**

Relative figure showing ratio of fatalities to population

**Use and limitations**

- Shows the impact of road traffic crashes on human population as a public health problem
- Useful for comparing road traffic injuries as a health problem in different communities
- Useful for estimating severity of crashes
Indicators to measure the problem

- Fatalities per vehicle-kilometre travelled

Description: Number of deaths per billion kilometres travelled

Use and limitations:
- Useful for some international comparisons, decreases with motorization
- Does not take into account non-motorized travel
Indicators to measure the problem

• Disability-adjusted life years (DALYs)

Description:

Measures healthy life years lost to disability and mortality. One disability-adjusted life year lost is equal to one year of healthy life lost, either due to premature death or disability.

Use and limitations:

- DALYs combine both mortality and disability
- DALYs do not include all the health consequences associated with injury such as mental health consequences
Problems and concerns

- Definitions and standardization of data.
- Under-reporting.
- Unavailability of certain specific data.
- Scientific soundness.
- Lack of information, data collection or evaluation of interventions.
Continue to conduct research and invest in research capacity

• A basis for generating data and evidence.
• A basis for informed decision-making.
• Develop national research capacity.
• National and community research vital to identify local problems.
• Independence of research essential to ensure quality and minimize political pressure.
Key points

• Evidence is needed for decision-making and planning.
• Reliable data and evidence are essential.
• Police departments and hospitals are major sources of road traffic injury data.
• Ensure access, harmonization and linkages between different data sources and users.
• Several problems and concerns with road traffic injury data.
• A need for continuous research and research capacity development.
Learning activity (1)

Task

Based on the key sources of data on road traffic injuries presented, describe at least two of the sources available in your country.

Expected results

The purpose of this exercise is to help trainees review the kind of data collected and kept by different agencies in their countries. Trainees are expected to comment on how adequate the data are and if this information is made readily available to users.
Learning activity (2)

Task

Using the example presented in the figure on the slide on the next page, draw graphs showing the trend in fatalities per 10,000 vehicles and fatalities per 100,000 persons for any country of your choice. The trainer is expected to provide data on number of motor vehicles, population and road traffic fatalities for a period of at least 10 years for selected countries. Where possible, the trainer should ask trainees to look for the data before the training session. This may be possible in situations where trainers have contact with trainees several days before the training session.
Learning activity (2)

Road traffic deaths in Malaysia

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Learning activity (2)

Expected results

This exercise seeks to give trainees a practical exercise to compute the two indicators, draw graphs and describe the trends that emerge.
Questions to think about

a) Based on your experience, identify any two major decisions you have made in the past regarding road traffic injury prevention. Explain what was the basis for making these decisions. Did you consider the evidence base when making the two decisions?

b) Discuss the prevailing situation with regard to coordination and sharing of data among agencies that collect information on road traffic injuries in your country. If you identify limited coordination and linkage, indicate steps that can be taken to improve this situation.
Questions to think about

c) There is a general concern about the difference between evidence and policy implementation. Does this situation exist in your country with respect to road traffic injury prevention? If so, what leads to this? What steps can be taken to address this situation?

d) Underreporting of both death and injuries is a major global problem affecting not only low-income and middle-income countries but also high-income countries. What is the situation in your country? What efforts have been made to address this problem?