Uganda Road Safety Performance Review
Capacity Building Workshop
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ROAD ACCIDENT CAUSATION, INVESTIGATION & PREVENTION

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Outline of Presentation

1. Introduction
   - Definition of Terms.
   - Road Accidents statistics.

2. Road Accident Causation
   - Causation factors.
   - Epidemiology triad.

3. Road Accident Investigation
   - Steps undertaken.

4. Road Accident Prevention
   - Conceptual frameworks.
   - Prevention strategies.
Terminology

• **Accident:**
  Sudden & unpleasant event/happening.

• **Causation:**
  Process of one event causing/producing another event.

• **Investigation:**
  Examination of facts about a situation/problem.

• **Prevention:**
  Act of stopping something “bad” from happening.
Statistics

Global
• 1.27 million people die annually (WHO report, 2009).
• 20-50 million suffer non fatal injuries (WHO report, 2009).

Africa
• Has the highest fatality rate 26.6/100 000 deaths (WHO Report, 2015).
• 39% pedestrian deaths (WHO report, 2015).

Uganda
• Uganda lost over 3,000 people & over 15,000 injuries (2016 Police record).
• 20% of deaths are children (18 below).
• 70% involved are male aged 25-44.
• Pedestrians are one single most affected road users.
• Boda boda (motorcycle) contribute over 60% of road accidents.
Causation

• Understanding the causes of road accidents.

• 4 Key Causation factors:
  ✓ Human Factors
  ✓ Vehicle Factor
  ✓ Road/Highway Factor
  ✓ Environment Factor
Epidemiological Accident Cycle

- **Vector**
- **Host**
- **Agent**

ENVIRONMENT
Investigation

• Thorough examination of road incident/case/crash.  
  (From a injury prevention perspective)

✓ Vector (Vehicle)
✓ Host (human being)
✓ Agent (Energy- speed)
✓ Environment (Weather, road condition)
Investigation

Steps for thorough investigation

• Road death investigation
• At scene investigation
• Site investigation
• Vehicle examination
• Witness identification/interview
• Driver investigation
• Charging/court/legal
• Compensation
Prevention

• Prevention is understood as being careful, however, prevention is a scientific field that is used to combat diseases.

• Prevention is (injury) one of the spectrum of Injury Control. Injury Control has 3 aspects that make it up: Surveillance, Prevention, Treatment (Pre- & In-hospital).

• Importance of Prevention:
  ✓ Clearly identifies risk factors.
  ✓ Reduces the incidences of accident occurrences.
  ✓ Develops scientifically sound preventive efforts.
  ✓ Promotes what can be proven to work.
Conceptual Frameworks

- Are theoretical modals for organizing thoughts, ideas, processes and arguments, and information of practice.

- They specify conceptual relationships between variables – quality or quantity wise or both, specifying lines of argument (thesis).

- Are synonymous with the scientific methodology/thinking.
Prevention Strategies


2. Haddon Matrix.


DECADE ACTION PLAN

Five Pillars for a Safe Systems Approach

Build Capacity Management
Build Safer Roads
Build Safer Vehicles
Safer User behaviour
Improve Post-crash care

www.who.int/roadsafety/decade_of_action/
## The Haddon Matrix

<table>
<thead>
<tr>
<th>Pre-event</th>
<th>Event</th>
<th>Post-event</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Host (person)</strong></td>
<td><strong>Agent (Vehicle)</strong></td>
<td><strong>Vector (energy)</strong></td>
</tr>
<tr>
<td>Is the person pre-disposed or overexposed to risk? Eg Mobile use Hands free. enforcement</td>
<td>Is the agent hazardous? Eg Boda boda Helmet use</td>
<td>Over speeding Speed limit through sped bumps, rumble strips</td>
</tr>
<tr>
<td>Is the person able to tolerate force or energy transfer? Eg Age</td>
<td>Does the agent provide protection? Seatbelt use First aid box</td>
<td>Is the vector still running? Speed governor</td>
</tr>
<tr>
<td>How severe is the trauma or harm? First aid Medical personal</td>
<td>Does the agent contribute to the trauma? Eg police truck ambulance</td>
<td>Does the vector still contribute to injury even after event?</td>
</tr>
</tbody>
</table>
Public Health Approach

Problem

Data Collection/ Surveillance
What’s the problem?

Risk Factor Identification
What’s the cause?

Evaluation Interventions
What works?

Community Intervention/ Programmes
Do it?

Response
**figure 1**

**figure 1(b)**
Public Health Approach

**figure 1(a)**
Haddon's Matrix

**figure 1(c)**
Unified Model
The 5Es

1. **Engineering** (making products safer for people).
   eg helmets, car restraints like seatbelts & car seats.

2. **Environmental modification** (reducing risk): Aim at reducing the likelihood that individuals will suffer injury by reducing risks in the environment.
   eg speed bumps, rumble strips, zebra crossings, walkways, barriers.

3. **Enforcement**: legal and police measures – laws (aimed at ensuring that certain behaviours and norms are maintained in the population.
   eg laws on helmet use, seatbelt use, mobile phone use, use speed governors etc.
4. **Education / empowerment: behaviour / attitude change:** Includes programmes aimed at changing attitudes, beliefs and behaviours in the general population but also targeting individuals who are at higher risk of having an injury or accident.

   eg. awareness campaigns on safe driving like defensive driving

5. **Evaluation** (determine if intervention, policies, programs work – “Research”): Refers to those actions aimed at determining which interventions, programmes and policies work best for injury/accident prevention.

   eg. breathraisers, speed guns, educational campaigns, adverts.
Conclusion

“Prevention is Better than Cure”

One approach/intervention to accident prevention may work effectively, however, a combination of approaches and/or interventions will give greater impact.

Thank you For Listening