RISK FACTORS FOR ROAD TRAFFIC INJURIES

All this information's are from Road Traffic Injury Prevention Training Manual made by World Health Organization
Keywords: crash, identify and analyze risk factors, key risk factors

A road traffic crash results from a combination of factors related to the components of the system comprising roads, the environment, vehicles and road users, and the way they interact.

Identifying the risk factors that contribute to road traffic crashes is important in identifying interventions that can reduce the risk associated with those factors.
Analytical frameworks

Various analytical frameworks can be used to identify the risk factors involved in road traffic injuries. In this presentation, we will show three frameworks or approaches:

- The public health approach
- The Haddon matrix
- The systems approach
THE PUBLIC HEALTH APPROACH

1) Surveillance
   What is the problem?

2) Risk factor identification
   What are the causes?

3) Develop and evaluate interventions
   What works?

4) Implementation
   How is it done?
Understand the four inter-related steps of the public health approach

What is the problem?
- Determine the magnitude, scope and characteristics of the problem.

What are the causes?
- Identify factors that increase the risk of disease, injury or disability.
- Determine factors that are potentially modifiable.
Understand the four inter-related steps of the public health approach

What works?

- Assess measures that can be taken to prevent the problem.
- Pilot test and evaluate interventions.

How is it done?

- Implement proven and effective interventions.
- Evaluate effectiveness of interventions.
# HADDON MATRIX

<table>
<thead>
<tr>
<th>Phase</th>
<th>Human</th>
<th>Vehicles and equipment</th>
<th>Environment</th>
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<tr>
<td><strong>Pre-crash</strong></td>
<td>Crash prevention</td>
<td>Information</td>
<td>Road design and road layout</td>
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<td>Attitudes</td>
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<td>Police enforcement</td>
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<td><strong>Post-crash</strong></td>
<td>Life sustaining</td>
<td>First-aid skill</td>
<td>Rescue facilities</td>
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<td>Access to medics</td>
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</table>

**Factors**

- Roadworthiness
- Lighting
- Braking
- Handling
- Speed management
- Police enforcement
- Pedestrian facilities
- Occupant restraints
- Other safety devices
- Crash protective design
- Crash-protective roadside objects
- Ease of access
- Fire risk
- Access to medics
- Rescue facilities
- Congestion
SYSTEM APPROACH

- Understand the system as a whole.
  - Understand interactions between different components.
  - Consider not only underlying factors, but also role of different agencies and actors in prevention efforts.
MAJOR RISK FACTORS ARE IDENTIFIABLE

- Factors influencing exposure to risk
  - economic factors
  - demographic factors
  - land-use planning practices
  - traffic mix
  - road function versus design and layout
Risk factors influencing crash involvement

- speed
- alcohol or drugs
- fatigue
- male
- vehicle defects
- youth driving together
- vulnerable road users
Risk factors influencing crash severity

- speed
- seat-belts, child restraints
- helmets
- non-crash protective roadside objects
- insufficient vehicle crash protection
- alcohol and other drugs
Risk factors influencing post-crash outcome of injuries

- delay in detecting crash
- delay in transport to a health facility
- fire resulting from collision
- leakage of hazardous materials
- alcohol and other drugs
- rescue, extraction, evacuation
- poor trauma care and rehabilitation
CONCLUSIONS

• A road traffic collision is the outcome of the interaction among a number of factors, some of which may not appear to be directly related to road traffic injuries.

• The public health approach is helpful in the analysis of risk factors and guiding decision-making.

• The Haddon matrix helps to identify human, vehicle and environmental factors during pre-, crash- and post-crash phases.
• The **systems approach** considers all factors contributing to road traffic injuries as well as the role of different agencies and actors in prevention efforts.

• **Main risk factors** can be categorized into four groups:
  - factors influencing exposure to risk
  - factors influencing crash involvement
  - factors influencing crash and injury severity
  - factors influencing post-crash injury outcomes
THANK YOU!

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