Principles of Injury Surveillance

Ricardo Pérez Núñez
Outline

• **Definition**
  – Key elements
  – Types
  – Steps

• Rationale

• Attributes

• Concluding remarks
Definition of health surveillance

The ongoing, systematic collection, analysis and interpretation of data essential to the planning, implementation and evaluation of practice, closely integrated with the timely dissemination of these data to those who need to know. The final aspect of the surveillance chain is the application of these data to prevention and control*

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Requires engagement between those maintaining the system and those developing & implementing policies & practices

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Requires regular monitoring to ensure collection of relevant data for prevention and control purposes

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Two approaches

• Active surveillance
  – Requires active identification of “cases” as key activity ($)

• Passive surveillance
  – Relevant information collected in course of other activities (i.e. death certificates)
  – Usually requires less expenditure of resources

Steps required for surveillance

Outline

• Definition
• **Rationale**
  – Injuries: a present & future problem
  – Why injury surveillance?
  – How injury surveillance helps?
• Attributes
• Concluding remarks
# Global injury death rates and percentage change in 1990 and 2010

<table>
<thead>
<tr>
<th>Injuries</th>
<th>Age-standardised death rates (per 100 000)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1990 (95% UI)</td>
</tr>
<tr>
<td>Transport injuries</td>
<td></td>
</tr>
<tr>
<td>Road injury</td>
<td></td>
</tr>
<tr>
<td>Pedestrian injury by road vehicle</td>
<td>5.8 (4.2–6.7)</td>
</tr>
<tr>
<td>Pedal cycle vehicle</td>
<td>1.1 (0.9–1.4)</td>
</tr>
<tr>
<td>Motorised vehicle with two wheels</td>
<td>2.6 (2.0–3.3)</td>
</tr>
<tr>
<td>Motorised vehicle with three or more wheels</td>
<td>6.8 (5.5–8.4)</td>
</tr>
<tr>
<td>Road injury other</td>
<td>2.0 (1.0–3.7)</td>
</tr>
<tr>
<td>Other transport injury</td>
<td>1.0 (0.8–1.3)</td>
</tr>
</tbody>
</table>

**Change in leading causes of deaths between 1990 and 2010**

<table>
<thead>
<tr>
<th>1990 Mean rank (95% UI)</th>
<th>2010 Mean rank (95% UI)</th>
<th>% Change (95% UI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 (1-2)</td>
<td>1 Ischemic heart disease</td>
<td>1.0 (1-1)</td>
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<tr>
<td>2.0 (1-2)</td>
<td>2 Stroke</td>
<td>2.0 (2-2)</td>
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<tr>
<td>3.0 (3-4)</td>
<td>3 Lower respiratory infections</td>
<td>3.4 (3-4)</td>
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<tr>
<td>4.0 (3-4)</td>
<td>4 COPD</td>
<td>4.0 (3-4)</td>
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<tr>
<td>5.0 (5-5)</td>
<td>5 Diarrheal diseases</td>
<td>5.8 (5-10)</td>
</tr>
<tr>
<td>6.1 (6-7)</td>
<td>6 Tuberculosis</td>
<td>6.4 (5-8)</td>
</tr>
<tr>
<td>7.3 (7-9)</td>
<td>7 Preterm birth complications</td>
<td>6.7 (5-9)</td>
</tr>
<tr>
<td>8.6 (7-12)</td>
<td>8 Lung cancer</td>
<td>8.4 (5-11)</td>
</tr>
<tr>
<td>9.4 (7-13)</td>
<td>9 Malaria</td>
<td>9.0 (7-11)</td>
</tr>
<tr>
<td>10.4 (8-14)</td>
<td>10 Road injury</td>
<td>10.1 (8-13)</td>
</tr>
<tr>
<td>15.8 (13-19)</td>
<td>15 Diabetes</td>
<td>10.3 (6-13)</td>
</tr>
<tr>
<td>35.3 (28-40)</td>
<td>35 HIV/AIDS</td>
<td>14.4 (12-18)</td>
</tr>
</tbody>
</table>

Comparison of leading causes of death: 1990, 2010 and 2030

<table>
<thead>
<tr>
<th>RANK</th>
<th>1990</th>
<th>2010</th>
<th>2030</th>
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<tbody>
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<td>1</td>
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<tr>
<td>5</td>
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<td></td>
<td><strong>Road traffic injuries</strong></td>
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<tr>
<td>6</td>
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<td>7</td>
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<td>8</td>
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<td><strong>Road traffic injuries</strong></td>
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<td>9</td>
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<tr>
<td>10</td>
<td></td>
<td></td>
<td><strong>Road traffic injuries</strong></td>
</tr>
</tbody>
</table>

• Institute for Health Metrics and Evaluation.
Decade of Action

• The overall goal is to stabilize and then reduce the forecast level of RT fatalities around the world by 2020. This will be attained through:
  – improving the quality of data collection at the national, regional and global levels
  – monitoring progress and performance on a number of predefined indicators at the national, regional and global levels

Decade of Action

• Pilar 1: Road Safety Management
  – Activity 3: Develop a national strategy through:
    • establishing and maintaining data collection systems necessary to provide baseline data and monitor progress in reducing RTI and fatalities and other important indicators such as cost, etc.
  – Activity 6: Establish and support data systems for on-going M&E to include a number of process and outcomes measures including

Why injury surveillance?

As injury researchers-practitioners-advocators committed with the Decade of Action, our ultimate goal is to prevent and reduce the burden of injuries.
Reasons for doing surveillance?

• Need for data
  – standardized classification of injuries
  – comparisons between countries
  – trends and changes over time
  – injury related to other country/regional conditions (socioeconomic level)
  – determine changes in characteristics of population over time and geographical area
  – evaluate interventions
How injury surveillance helps?

- Enables definition of the “problem” in the first place:
  - Extent and nature of the problem
  - In relation to other health problems
  - Provides impetus to “want to do something”
  - Provides rationale for support from funders/stakeholders
How injury surveillance helps?

- Enables measurement of success in reducing or preventing:
  - Exposition to risk factors of interest
  - Injuries: both fatal and non-fatal
  - Negative outcomes: disabilities

→ Baseline and follow-up information
  - Trends over time
How injury surveillance helps?

• Provides information that facilitates development and implementation of interventions
  – Information that assists in the design of interventions: Who, What, Where…
  – Can help argue for more resources!
Outline

• Definition
• Rationale
• **Attributes**
  – Of a good injury surveillance system
• Concluding remarks
A good surveillance system is...

• Simple:
  – Minimizes error and contributes to sustainability

• Flexible:
  – Ability to respond to changing needs – add/remove data points

• Acceptable:
  – To both those operating the system and end users
A good surveillance system is...

- **Reliable:**
  - Excellence and quality as inherent principles

- **Useful:**
  - Practical and affordable

- **Sustainable:**
  - System must blend effortlessly with other ongoing activities
A good surveillance system is...

- **Timely:**
  - In both collection and importantly presentation

- **Secure and confidential:**
  - Should never reveal information on individuals
  - Essential for ongoing viability
Outline

• Definition
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• Concluding remarks
Concluding remarks

• Injury surveillance is a key element in preventing and reducing the global – and local - burden of injury

• In order to achieve the Decade of Action goals, countries need injury surveillance systems
Concluding remarks

Establishing a good injury surveillance system requires a planned and systematic approach.
To obtain more information...

Instituto Nacional de Salud Pública

Gracias...

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