Understanding and bridging the differences between national reported and WHO estimated road traffic fatalities

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Background

- In all countries around the globe, there are **different sources of data on road traffic fatalities from different sectors**:
  - Police data,
  - Health,
  - Insurance,
  - Transport, etc.
- There are considerable **challenges involved in the collection of complete, accurate and reliable data** on road traffic fatalities by all sectors:
  - **different definitions** may be used by different sectors, and
  - **under-reporting** is involved in data collection by all sectors.
- The **difference observed** between the **countries reported data on road traffic fatalities with the respective WHO estimates** is a concern for many countries interested in the reliability and accuracy of their data systems.
Differences in EuroMed region

<table>
<thead>
<tr>
<th>Country</th>
<th>Official Data</th>
<th>WHO report</th>
<th>Difference in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>6700</td>
<td>10466</td>
<td>56</td>
</tr>
<tr>
<td>Lebanon</td>
<td>649</td>
<td>1088</td>
<td>68</td>
</tr>
<tr>
<td>Tunisia</td>
<td>1505</td>
<td>2679</td>
<td>78</td>
</tr>
<tr>
<td>Morocco</td>
<td>3832</td>
<td>6870</td>
<td>79</td>
</tr>
<tr>
<td>Algeria</td>
<td>4540</td>
<td>9337</td>
<td>105</td>
</tr>
<tr>
<td>Jordan</td>
<td>768</td>
<td>1913</td>
<td>250</td>
</tr>
</tbody>
</table>

- Need to **better understand** the data properties and quality issues behind these differences.
- **Identify ways to improve** the quality of statistics and bridge the differences.
Different definitions

- Police data are based on the international definition of “fatalities occurring within 30 days from the crash”

- The Health Sector data also include fatalities occurring beyond that period.

- The Health Sector data are the main source of Vital Registration statistics (VRD), based on the death certificates issued by the hospitals, individual practitioners, etc.

- Source of WHO estimated fatalities
Challenges in data quality

- Even for **countries with good data systems**, a difference may occur between their reported fatalities and WHO estimates, due to the different definitions.

<table>
<thead>
<tr>
<th>Country</th>
<th>Country reported fatalities*</th>
<th>WHO estimated fatalities**</th>
<th>Difference in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>724</td>
<td>1014</td>
<td>40.1</td>
</tr>
<tr>
<td>Chile</td>
<td>1623</td>
<td>2116</td>
<td>30.4</td>
</tr>
<tr>
<td>Italy</td>
<td>3385</td>
<td>4192</td>
<td>23.8</td>
</tr>
<tr>
<td>Japan</td>
<td>4373</td>
<td>5971</td>
<td>36.5</td>
</tr>
<tr>
<td>Netherlands</td>
<td>570</td>
<td>650</td>
<td>14.0</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>5092</td>
<td>6374</td>
<td>25.2</td>
</tr>
<tr>
<td>Spain</td>
<td>1680</td>
<td>1915</td>
<td>13.9</td>
</tr>
</tbody>
</table>

- **If one or both data sources used are not of good quality**, a larger difference between country reported and WHO estimated fatalities is expected.

- **Under-reporting of road traffic fatalities represents a real challenge** on the quality data collection in all countries.
Difficulties with Police data

- Under-reporting of fatalities in the Police data files may be due to:
  - The **non-use of the 30 days** definition;
  - The **insufficient follow-up of traffic casualties** up to 30 days;
  - Some road crashes are **just not reported to the Police** (‘real’ under-reporting);
  - Some crashes are reported, but **the Police cannot go to the crash scene** and follow them due to non-adequate human resources;
  - While the Police goes to the crash, **does not properly register the incident** due to lack of competence, insufficient training or skills.
Difficulties with Health Sector data

Under-reporting of fatalities in the Health Sector data files may be due to:

- The non-use of international protocols for the classification of causes of death;
- Lack of knowledge of health sector practitioners in properly assigning cause of death (especially outside public hospitals);
- Lack of skills in drafting death certificates according to WHO standards;
- Poor coordination between central and local authorities in the collection and processing of VRD.
Summary of WHO methodology

• Country reported fatalities based on 30-days definition

• WHO estimated fatalities based on VRD
  • **Group 1:** Countries with good VRD statistics (completeness for the year estimated at 80% or more, average completeness for the decade including the country-year was 80% or more).
  • **Group 2:** Countries with other sources of information on causes of death (including recent studies submitted to WHO).
  • **Group 3:** Countries with population less than 150,000.
  • **Group 4:** Countries without eligible VRD.
    • A statistical model is used to estimate fatalities
### Understanding the differences

The only EuroMed country for which VRD meet the WHO quality criteria is **Egypt**, while all other EuroMed countries are classified in Group 4, and the WHO statistical model is used to estimate their fatalities.

However, there is **no single reason for the observed discrepancies**.

<table>
<thead>
<tr>
<th>Country</th>
<th>National reported fatalities</th>
<th>WHO estimated fatalities</th>
<th>Reported VRD</th>
<th>Year</th>
<th>Completeness</th>
<th>Country classification Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>6700</td>
<td>10466</td>
<td>11000</td>
<td>2014</td>
<td>&gt;80%</td>
<td>1</td>
</tr>
<tr>
<td>Lebanon</td>
<td>649</td>
<td>1088</td>
<td>-</td>
<td>1999</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Tunisia</td>
<td>1505</td>
<td>2679</td>
<td>298</td>
<td>2013</td>
<td>22%</td>
<td>4</td>
</tr>
<tr>
<td>Morocco</td>
<td>3832</td>
<td>6870</td>
<td>781</td>
<td>2012</td>
<td>12%</td>
<td>4</td>
</tr>
<tr>
<td>Algeria</td>
<td>4540</td>
<td>9337</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Jordan</td>
<td>768</td>
<td>1913</td>
<td>669</td>
<td>2012</td>
<td>60%</td>
<td>4</td>
</tr>
</tbody>
</table>
Different challenges in different countries (1/3)

Egypt

• WHO estimated number of fatalities is **based on the actual VRD reported**.
• However, there is a challenging situation as regards road fatalities data collection in the country. More specifically:
  • The **Police records fatalities occurring at the scene** of the crash;
  • The **EMS (Emergency Medical Services) record fatalities occurring during the transfer**;
  • The **Hospitals record fatalities occurring while in the hospital**;
• The follow-up of crash casualties for 30 days to complete the Police data files is practically not carried out for all cases.
• Therefore, the **national reported fatalities, based on the Police data, are clearly an underestimation of the actual fatalities**.
Different challenges in different countries (2/3)

Morocco

• Several good practice elements in road safety data collection:
  • engagement and systematic cooperation among key stakeholders,
  • compliance to international definitions and standards,
  • several steps of data cross-checking and validation before the publication of country reported fatalities.

• However, the VRD reported in Morocco are 5 times lower than those reported by the country, leading to classification in Group 4.
Different challenges in different countries (3/3)

Jordan

- Although the difference between country reported fatalities and WHO estimates is the largest in the region, there seems to be good potential for improvement.
- The VRD reported are relatively close to the required level of completeness.
- There are known reasons for road fatality related VRD under-reporting in the country:
  - the non-inclusion of VRD of foreigners,
  - A known misclassification of the cause of death for a part of the traffic victims.
Towards bridging the difference

• Credible data may play a key role as an effective tool for all agencies in each country for cross-checking the accuracy of their statistics.

• A smaller discrepancy between WHO estimates (VRD) and national reported data demonstrates the accuracy of the national data systems, enhances their credibility and reflects the efforts of all agencies involved.

The perfect matching of country reported data and WHO estimates is not the ultimate objective, and a small difference is reasonable, as there is a known difference in fatality definition.
Intersectoral cooperation

• The first step is the identification of the problem, and the establishment of cooperation between the Police, the Transport Sector and the Health / VRD Sector.

• The mobilization of all relevant authorities is an important prerequisite in ensuring the engagement of the pertinent agencies to the common objective of improving road fatalities data.

• At the same time, countries are strongly encouraged to establish cooperation with WHO for the identification of the country-specific challenges, and the request for tailored advice and assistance.
An intermediate objective

- **Shift to Group 2** - Countries with other sources of data on causes of death (including studies submitted to WHO)

- Cooperation of the Police and the Health Sector to implement one or more **regional studies to estimate the level of under-reporting** of road traffic fatalities.

- Based on the **linkage and matching of records in Police and Hospital databases** over a given area, with coverage by specific Police departments and Hospitals.

- **Can be implemented with relatively low resources**, and the cooperation with Universities or Research Institutes may open opportunities.
Example: the case of Greece

- Regional study on under-reporting of traffic casualties
- **Cooperation between National Technical University of Athens (national traffic accidents database) and Athens Medical School (EDISS injuries database)**
- Linkage and matching of Police and Hospital data over three regions
The eventual objective

• **Improve the quality of VRD** to meet the WHO criteria and shift to Group 1
  • adoption and use of the ICD-10 protocol of classification of diseases.
  • the adoption and use of the WHO death certificate model
  • Coverage of >80% of the population

• Several administrative steps, time and resources involved in improving VRD

• WHO may provide assistance for implementing a pilot project

• **Pilot project** based on ‘simplified’ death certificate model and on-line VRD transmission through a web platform and mobile phone application

• **A formal adoption of the process by the Ministry of Health**, and the engagement of Police, Hospitals and private doctors.
Continue efforts to improve all sectors’ data

- Even if the country is shifted to Group 2 or Group 1, incomplete and inaccurate Police data will result in the persistence of a large discrepancy - in this case due to the Police data and not to the VRD.
- Adoption and proper implementation of **international definitions** and protocols regarding road crash statistics,
- Exhaustive **follow-up of fatalities for 30 days** after the crash
- **Cross-checking of Police data with Health Sector data** and other Sectors data
- Strengthening of **cooperation among all agencies** involved in the collection, processing and publication of road crash statistics.
A joint EuroMed/WHO leaflet

- Aims at **assisting** EuroMed Partner countries **understand the differences between their reported data on road traffic fatalities with the respective WHO estimated** fatalities included in its Global Status Report of Road Safety, present ways to improve the quality of their statistics and bridge the differences.

- **The information in this publication may also assist other countries and regions** to address similar challenges.

- **Coming soon!...**
Thank you