Road Deaths as a Public Health Pandemic

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Definition of a pandemic

- A pandemic occurs when a negative health condition’s growth is exponential.

- This means the growth rate skyrockets, and each day cases grow more than the day prior.

- In declaring a pandemic, the agent causing the condition has nothing to do with its characteristics, prevention, or severity.

- It means the agent covers a wide area, affecting several countries and populations.
First recorded road death ever: August 31, 1896

**Victim:** Mary Ward; **Age:** 42  
**Profession:** Artist, naturalist, astronomer and microscopist

**Place of event:**  
Birr, County Offaly, Ireland

**Circumstances of event:**  
Passenger ejected from the vehicle on a bend in the road, fell under the car’s wheels and died almost instantly. The fatal injury was a broken neck.

**Vehicle involved:**  
Rosse’s Steam Powered Carriage  
It is believed that the grieving family destroyed the car after the crash.

Number of deaths due to road crashes

127 years later... in 2023 an estimated 1,354,840 people killed on roads (WHO)

Assuming 1 million deaths every year for the last 40 years...
That is more than the entire population of Canada!!
Leading causes of death, all ages, 2016

<table>
<thead>
<tr>
<th>Rank</th>
<th>Cause</th>
<th>% of total deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ischaemic heart disease</td>
<td>16.6</td>
</tr>
<tr>
<td>2</td>
<td>Stroke</td>
<td>10.2</td>
</tr>
<tr>
<td>3</td>
<td>Chronic obstructive pulmonary disease</td>
<td>5.4</td>
</tr>
<tr>
<td>4</td>
<td>Lower respiratory infections</td>
<td>5.2</td>
</tr>
<tr>
<td>5</td>
<td>Alzheimer’s disease and other dementias</td>
<td>3.5</td>
</tr>
<tr>
<td>6</td>
<td>Trachea, bronchus, lung cancers</td>
<td>3.0</td>
</tr>
<tr>
<td>7</td>
<td>Diabetes mellitus</td>
<td>2.8</td>
</tr>
<tr>
<td>8</td>
<td>Road traffic injuries</td>
<td>2.5</td>
</tr>
<tr>
<td>9</td>
<td>Diarrhoeal diseases</td>
<td>2.4</td>
</tr>
<tr>
<td>10</td>
<td>Tuberculosis</td>
<td>2.3</td>
</tr>
</tbody>
</table>

2016 WHO Global Health Estimates
Number of countries where a change in the number of road traffic deaths has been observed since 2013*

<table>
<thead>
<tr>
<th></th>
<th>Increased</th>
<th>No Change</th>
<th>Decreased</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW-INCOME</td>
<td>27</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>MIDDLE-INCOME</td>
<td>60</td>
<td>15</td>
<td>23</td>
</tr>
<tr>
<td>HIGH-INCOME</td>
<td>17</td>
<td>7</td>
<td>25</td>
</tr>
</tbody>
</table>

*These data represent countries that have seen more than a 2% change in their number of deaths since 2013, and excludes countries with populations under 200 000. The income levels are based on 2017 World Bank classifications.

Source: Global Status Report on Road Safety, 2018
Latest regional estimates

Death rates, per 100,000 population

<table>
<thead>
<tr>
<th>Global value</th>
<th>Regional values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>27</td>
</tr>
<tr>
<td>Eastern Mediterranean</td>
<td>18</td>
</tr>
<tr>
<td>Western Pacific</td>
<td>16</td>
</tr>
<tr>
<td>South-East Asia</td>
<td>16</td>
</tr>
<tr>
<td>Americas</td>
<td>15</td>
</tr>
<tr>
<td>Europe</td>
<td>7</td>
</tr>
</tbody>
</table>

General characteristics of the pandemic

- Every year over **1.35 million** people are killed on the world’s roads.

- Most (93%) of these deaths occur in **low- and middle-income countries**, even though these countries have only about 60% of the world’s vehicles.

- Road traffic deaths are the number one cause of death for those **ages 5 – 29-years-old**

- Risk of dying in a road traffic crash **depends on where you live**: the highest rates are in the African region. Rates are lowest in the European region.
General characteristics of the pandemic

• **Males are more likely to be involved** in road traffic crashes than females.

• About three quarters (73%) of all road traffic deaths occur among young males under the age of 25 years who are almost 3 times as likely to be killed in a road traffic crash as young females.

• **Common risk factors:**
  • Speeding
  • Driving under the influence of substances
  • Non-use of protective or restraint devices (helmets, seat belts, child seats)
  • Distracted driving (e.g. mobile phone use)
  • Unsafe or inadequate road infrastructure
  • Unsafe vehicles
  • Inadequate post-crash care
  • Inadequate enforcement of traffic laws or lack of laws
General characteristics of the pandemic

• **Over half** of all road traffic deaths are among pedestrians, cyclists and motorcyclists.

• A number of high- and middle-income countries have **managed to reduce their road traffic deaths** (despite increasing motorization).

• Making roads safer requires improving **infrastructure, making vehicles safer, changing road user behavior and improving post-crash care.**

• Road traffic crashes result in **economic losses to victims and their families**, often throwing them into poverty.
Changing patterns over time…

Figure 1. Trends of mortality by transport mode and subregion, Americas, 2000–2015.

Figure 2. Adjusted mortality rates per 100,000 population among pedestrians, motorcycle riders and motor vehicle occupants by sex in the Americas, 2000–2015.

Road death rates (all users) per 100,000 population

Car death rates per 100,000 population

Motorcycle death rates per 100,000 population

Cyclists’ death rates per 100,000 population

Pedestrian death rates per 100,000 population

Distribution of deaths by road user type by WHO Region

Source: Global Status Report on Road Safety, 2018
Spatial design – Purpose

Urban settings

- Cortona, Italy
- Barcelona, Spain
- Mexico DF, Mexico
- Houston, USA

Rural settings

- Conflicts with animals
- Poor infrastructure
Predominant modes in a specific space

Mumbai, India
Bogotá, Colombia
Lagos, Nigeria
Hanoi, Vietnam
Groningen, Netherlands
Dubai, U. A. E.

Environment, users, vehicles, laws…
Multi-country actions addressing Road Safety

1. **Vision Zero:** A strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all. Initiated in Sweden, expanded in Europe, applied in some regions of the Americas.

2. **Bloomberg Philanthropies Initiative for Global Road Safety – World Bank Global Road Safety Facility:** Provides funding, knowledge, and technical assistance designed to scale-up efforts of low- and middle-income countries to build their scientific, technological managerial and delivery capacities for road safety.

3. **Decade of action for Road Safety 2021-2030 and UN Road Safety Collaboration:** Inclusion of road safety on global health and development agenda, dissemination of scientific guidance on what works, strengthening of partnerships and networks, and mobilization of resources.

4. **Global Network of Road Safety Legislators:** Facilitating implementation of road safety legislation in countries working directly with legislators.
Laws, Standards: Countries applying UN safety standards, 2018

Source: Global Status Report on Road Safety, 2018
Second-order effects of the pandemic

- Loss of caregivers due to road traffic injuries leaves children unprotected and at higher risk of other negative health consequences

- Economic impact in families, communities, societies

- Increased burden to health systems hampering their ability to respond to other health threats

- Major contributor to global warming – Affects all living systems on earth
Addressing this public health pandemic

- Road Traffic Injuries and deaths are preventable
- May require prioritizing some populations
- Need to work with a system approach (Environment, users, vehicles, norms/laws)
- Dissemination of scientific knowledge, capacity building, and partnership building is essential
- Improving data systems:
  - To measure road safety deaths or injuries, persons affected, their distribution in space and time
  - To evaluate road safety interventions, policies, implementation of laws
- Data must be used for action – Implementation of policies, programs, interventions
- **Responses MUST address global threats**
- Road deaths and injuries are a **GLOBAL ISSUE**: Lessons learned from local settings can provide evidence for global use