



# INDICATOR ANALYSIS

## DEATH RATE DUE TO ROAD TRAFFIC INJURIES (DEATHS PER 100 000)

ANALYSIS CONDUCTED BY FRANCOIS DAUDELIN & VAL PERCIVAL  
FOR THE LANCET-SIGHT COMMISSION ON PEACEFUL SOCIETIES THROUGH HEALTH AND GENDER EQUALITY

<p>Overview</p>	<p>According to the WHO, “approximately 1.35 million people die each year because of road traffic crashes. Road traffic crashes cost most countries 3% of their gross domestic product. More than half of all road traffic deaths are among vulnerable road users: pedestrians, cyclists, and motorcyclists. Road traffic injuries are the leading cause of death for children and young adults aged 5-29 years” (1). It is the 8<sup>th</sup> leading cause of death for people of all ages, and more people die of road traffic incidents than HIV/AIDS as of 2018 (2).</p> <p>The WHO identifies several factors that account for such high numbers, such as “rapid urbanization, poor safety standards, lack of enforcement, people driving distracted or fatigued, others under the influence of drugs or alcohol, speeding and a failure to wear seat-belts or helmets” (2). Texting increases the risk of crashing by 23 times (3). Only 45 countries have laws about drinking and driving (3). Wearing a helmet on a motorcycle can reduce the risk of death by 42% (3). These statistics indicate how preventable these deaths can be. The SDG goal relating to road traffic deaths was to halve the number of road deaths and injuries globally by 2020, this goal has not been achieved.</p>
<p>How is the indicator calculated?</p>	<p>Estimated number of road traffic deaths per 100,000 population.</p>

<p style="text-align: center;"><b>GLOBAL TRENDS</b></p>	
<p>What are the global patterns for this indicator? Trends, geographic patterns etc.</p>	<p>The WHO states that 93% of road traffic deaths occur in low- and middle-income countries, even though these countries have approximately 60% of the world's vehicles (1). Additionally, road traffic injury and death rates are highest in the African region, with notably high rates in Venezuela and Thailand as well.</p> <p>As stated in the 2018 global status report on road safety “Between 2013 and 2016, no reductions in the number of road traffic deaths were observed in any low-income country, while some reductions were observed in 48 middle- and high-income countries. Overall, the number of deaths increased in 104 countries during this period.” (2). Globally, between 2000 and 2015, “the rate of road traffic deaths has remained fairly constant” at around 18 deaths per 100,000 population (2).</p>

<p style="text-align: center;"><b>RELEVANCE TO UNDERSTANDING RELATIONSHIPS AMONG GENDER, HEALTH, FRAGILITY/PEACE</b></p>	
<p>How could this indicator contribute to our understanding of how gender, health and fragility and peace influence one another?</p>	<p>Road traffic deaths are most common among males, and in low-income contexts. In fragile or conflict-affected states, preventative measures like streetlights and speed limits may have less of an impact or be absent entirely (2). Additionally, the WHO notes that access to health services plays a major role in the number of road traffic deaths. When someone is injured in a road traffic incident, “delays of minutes can make the difference between life and death. Improving post-crash care requires ensuring access to timely prehospital care” as well as the care</p>

	received in hospitals (1). Additionally, the UN has “7 vehicle safety standards including electronic stability control, front- and side-impact protection and pedestrian front protection. Only 40 mostly high-income countries have adopted all 7 or 8 regulations” (3).
--	---

<b>UTILITY</b>	
What does the indicator measure?	The number of people who die from road traffic incidents per each 100,000 people in a given population. This includes pedestrians, cyclists, motorcyclists, and people in vehicles.
What does it NOT measure - what does it miss?	This data only accounts for deaths from road traffic- not paralysis, brain injuries, or other injuries.

<b>AVAILABILITY</b>
---------------------

Sources for indicator (CRVS, DHS etc.);	Data are collected by the WHO from 3 main sources, as detailed in its 2018 report on road safety: 1) data collected from the self-administered surveys for which responses were received from 175 Member States; 2) data collected through publicly accessible databases, including the UN Economic Commission for Europe database on road traffic conventions, government websites, as well as specialised entities such as the Global New Car Assessment Programme and road inspection data collected by the International Road Assessment Programme to measure the level of safety for different road users; and 3) Global Health Estimates generated by the WHO Department for Information, Evidence and Research (2).  Indicator data are available from the following sources:  1. WHO's Global Health Observatory (country level 2000-2019) <a href="https://www.who.int/data/gho/data/indicators/indicator-details/GHO/estimated-road-traffic-death-rate-(per-100-000-population)">https://www.who.int/data/gho/data/indicators/indicator-details/GHO/estimated-road-traffic-death-rate-(per-100-000-population)</a>
Most recent date available;	Data can be found as recently as 2019 from WHO's GHO, however the most complete and thorough data can only be found as recently as 2018.
Availability across geographic areas;	Yes. Data are available for 175 countries.

Availability in conflict affected settings;	Yes. Data can be found on most of the states affected by major conflicts from 2000-2019, including the DRC, Afghanistan, Syria, Nigeria, Iraq, the Central African Republic, Yemen and Venezuela.
---	---

<b>GRANULARITY</b>	
<i>Disaggregation at national level</i>	
Data disaggregated by sex;	Yes.
Data disaggregated by identity group (race, ethnicity);	No.
Data disaggregated by income	No.
Data disaggregated by citizenship;	No.
Data disaggregated by migration background;	No.
<i>Disaggregation at sub-national level</i>	
Data disaggregated by geographic region;	Yes. The fatal crash incidence density on average is “more than two times higher in rural than in urban areas” due to the injury fatality rate and the role of timely medical care (4).
Data disaggregated by identity group (race, ethnicity);	No.
Data disaggregated by income.	No.
Data disaggregated by age.	No.

<b>VALIDITY</b>	
Clear and accepted international standards for indicator;	This indicator relies on accurate reporting of deaths, as well as clear guidelines to what counts as a death due to road traffic. The WHO's 2018 report on road safety adjusted reported values to account for "potential under-reporting due to differences in definitions as well as limitations in the Civil Registration and Vital Statistics (CRVS) in many countries" (2, p. xiv).

Validity of measurement of indicator generally accepted;	Yes.
--	------

### RELIABILITY

Reliability of indicator generally accepted;	For countries adhering to the same definitions and data collection strategies, the process should yield the same results. Error in estimates is mostly due to underreporting.
--	---

### COMPLEXITY

Enables analysis across time and location.	Yes, this indicator does enable for analysis across time and location as there is no geographic or time-related limitation explicitly identified within its definition.
--	---

### OTHER REFLECTIONS

Are indicator values imputed/modelled?	For WHO estimates: A negative binomial regression model was used to estimate values for this indicator in India, Thailand and Viet Nam due to limited data as well as countries without death registration data at least 80% complete and with a population >150 000. Covariates used to estimate the indicator value were GDP, vehicles per capita, road density, national speed limits on rural roads, national speed limits on urban roads, health system access, alcohol consumption per capita, working population, percentage of vehicles that are motorbikes, corruption index, national policies for walking/cycling, and the population (2). <i>Uncertainty bounds are included with estimates and should be considered during analysis.</i>
Other reflections and debates	The major reports on this topic do not adequately address the differing role of road traffic deaths in urban and rural areas, nor are they disaggregated by ethnicity. These topics require further research and could potentially help researchers gain a greater understanding of how to reduce road traffic deaths among the most vulnerable.

## References

1. WHO. Road traffic injuries [Internet]. 2021 [cited 2021 Sep 16]. Available from: <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries>
2. WHO. Global status report on road safety 2018 [Internet]. WHO; 2018. Available from: <https://www.who.int/publications/i/item/9789241565684>
3. WHO. 10 Facts about road safety [Internet]. 2018 [cited 2021 Sep 16]. Available from: <https://www.who.int/news-room/facts-in-pictures/detail/road-safety>
4. Zwerling C, Peek-Asa C, Whitten PS, Choi S-W, Sprince NL, Jones MP. Fatal motor vehicle crashes in rural and urban areas: decomposing rates into contributing factors. *Injury prevention*. 2005;11(1):24–8.