

# Vital Registration Data

TOWARDS THE ESTABLISHMENT OF A  
ROAD SAFETY OBSERVATORY IN AFRICA  
SECOND WORKSHOP, Abuja, 2-3 July 2018

Dr. Maria Segui-Gomez, with special thanks to Dr. Kacem Iaych



Many thanks to WHO and their staff for sharing knowledge and materials

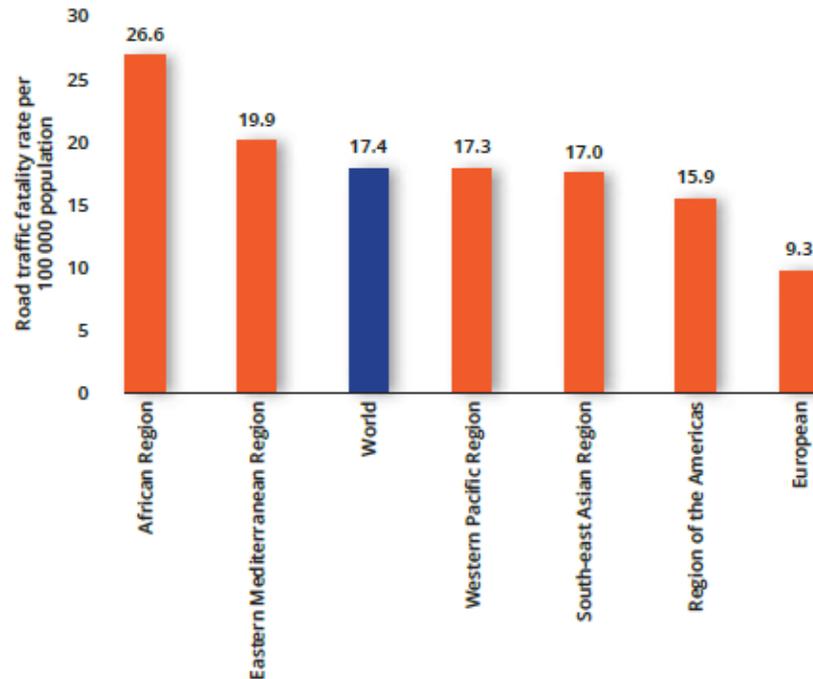
In particular, Doris Ma Fat (Dpt. Information, Evidence and Research) and Kacem laych (Dpt. Non communicable diseases) and other colleagues in their areas.



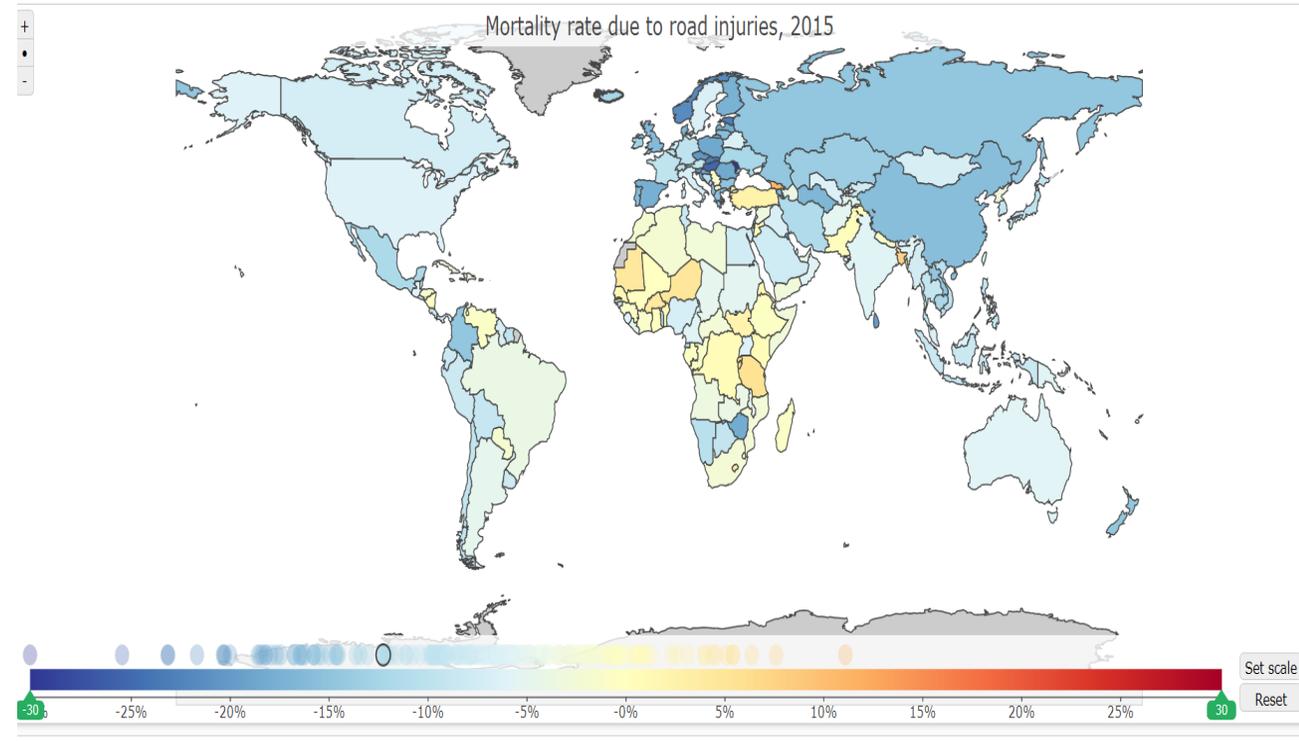
# The problem, its trend

2015 WHO Report, 1,2 Million deaths worldwide reported

Road traffic fatality rates per 100 000 population, by WHO region



2010-2015 % change, IHME webtool  
Accessed online July 25 2017  
<https://vizhub.healthdata.org/sdg>



# Really? Those are health counts...what about Police record-based counts?

- Police and health data are reported in 2015 WHO Global status report for 48 African countries (43 of them are included in WHO's African region, whereas the other 5 are in WHO's Eastern Mediterranean region)
  - Total deaths as per police 86 806
  - Total deaths as per health 276 678
- In a country per country analysis:
  - No countries with police counts higher than Vital Registration counts
  - 1 countries same value (Seychelles)
  - Health counts higher than police counts in
    - 9 countries by up to 200 deaths difference by country
    - 6 countries up to 1000 deaths difference
    - 28 countries up to 10 000 deaths difference
    - 4 countries up to 30 000 deaths difference

# Some reasons for the gaps

- Geographical coverage, whether physical or political (i.e., remote areas)
- Type of crash (i.e., underreporting vulnerable users)
- Procedural gaps (i.e., forms lost in the process)
- Time to death definition issues (i.e., on site, 24 hrs, 30 days, unlimited)
- Insufficient human and/or material resources
- Political unwillingness to admit changes in definitions

# Health vs. health

## Vital registration

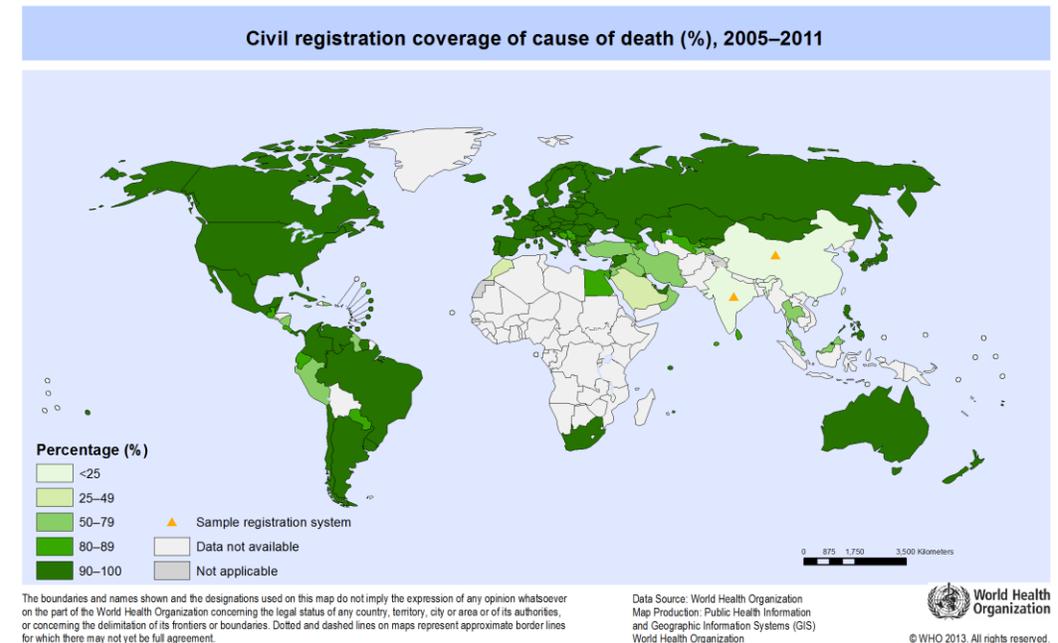
Countries with good VR systems (a.k.a “group 1”):

If Completeness for the year 80% or more, and

Average completeness for the decade including the country- year, 80% or more

Then, use of a correction factor:  
 $(\text{Usability} (\%)) = \text{completeness}(\%) * (1 - \text{deaths assigned to a garbage code} \%)$

## But ....(Unwanted) Estimation



# WHO's Group1: Countries/areas with good VR data

Argentina, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Barbados, Belarus, Belgium, Belize, Brazil, Bulgaria, Canada, Chile, China (14, 15), Colombia, Costa Rica, Croatia, Cuba, Cyprus, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Fiji, Finland, France, Georgia, Germany, Greece, Guatemala, Guyana, Hungary, Iceland, Ireland, Israel, Italy, Jamaica, Japan, Kazakhstan, Kuwait, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Maldives, Malta, Mauritius, Mexico, Montenegro, Netherlands, New Zealand, Norway, Oman, Panama, Paraguay, Philippines, Poland, Portugal, Qatar, Republic of Korea, Republic of Moldova, Romania, Russian Federation, Saint Lucia, Serbia, Singapore, Slovakia, Slovenia, South Africa, Spain, Suriname, Sweden, Switzerland, The former Yugoslav Republic of Macedonia, Trinidad and Tobago, Turkey, United Kingdom, United States of America, Uruguay, Uzbekistan, West Bank and Gaza Strip

3 in Africa

## Group 4: Countries without eligible death registration data

Afghanistan, Albania, Algeria, Angola, Armenia, Bangladesh, Benin, Bhutan, Bolivia (Plurinational State of), Bosnia and Herzegovina, Botswana, Burkina Faso, Cabo Verde, Cambodia, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Honduras, Indonesia, Iraq, Jordan, Kenya, Lao People's Democratic Republic, Lebanon, Lesotho, Liberia, Libya, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mongolia, Morocco, Mozambique, Myanmar, Namibia, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Papua New Guinea, Peru, Rwanda, Samoa, Sao Tome and Principe, Saudi Arabia, Senegal, Sierra Leone, Solomon Islands, Somalia, Sri Lanka, Sudan, Swaziland, Tajikistan, Timor-Leste, Togo, Tunisia, Turkmenistan, Uganda, United Arab Emirates, United Republic of Tanzania, Vanuatu, Yemen, Zambia, Zimbabwe

45 in Africa

# Group 4: what do they do with them/"us"?

Mathematical model using Negative binomial regression:  $\ln N = C + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \ln Pop + \epsilon$

Independent variables	Description	Included in models
ln(GDP)	WHO estimates of Gross Domestic Product (GDP) per capita (international dollars or purchasing power parity dollars, 2011 base)	Models A, B, C
ln(vehicles per capita)	Total vehicles per 1000 persons	Models A, B, C
Road density	Total roads (km) per 1000 hectares	Models A, B, C
National speed limits on rural roads	The maximum national speed limits on rural roads (km/h) from WHO questionnaire	Models A, B, C
National speed limits on urban roads	The maximum national speed limits on urban roads (km/h) from WHO questionnaire	Models A, B, C
Health system access	Health system access variable (principal component score based on a set of coverage indicators for each country)	Models A, B, C
Alcohol apparent consumption	Liters of alcohol (recorded plus unrecorded) per adult aged 15+	Models A, B, C
Population working	Proportion of population aged 15-64 years	Models A, B, C
Percentage motorbikes	Per cent of total vehicles that are motorbikes	Model B
Corruption index	Control of corruption index (units range from about -2.5 to +2.5 with higher values corresponding to better control of corruption)	Model B
National policies <i>for walking /cycling</i>	Existence of national policies that encourage walking and / or cycling	Model C
Population	Total population (used as offset in negative binomial regression)	Models A, B, C



# In a 1 to 4 classification, who are the other two?

## **Group 2: Countries with other sources of cause of death information**

For India, Iran, Thailand and Viet Nam, data on total deaths by cause were available for a single year or an earlier recent single year or group of years.

## **Group 3: Countries with population less than 150 000**

Andorra, Antigua and Barbuda, Cook Islands, Dominica, Kiribati, Marshal Islands, Micronesia (Federated States of), Monaco, Palau, Saint Vincent and Grenadines, San Marino, Seychelles, Tonga

# Clear constraints to remember

- WHO as custodian of death counts
- Vital registration systems subject to quality controls
  - Only good if death reporting equals or higher to 80% of deaths
    - Sustainable Development Goals:
      - Target 16.9: By 2030, provide legal identify for all, including birth registration
      - Targe 17.19: Proportion of countries that have conducted at least one population and housing census in the last 10 years and have achieved: 100% birth registration and 80% death registration
- Definition of road death standardized internationally both in regards to subjects, circumstances and time from event to death

# Road fatalities are not alone....

## The Need for Better Mortality Data

### Sustainable Development Goals: Targets Relevant for Mortality Statistics

- By 2030, reduce the **global maternal mortality ratio** ....
- By 2030, **end preventable deaths** of newborns and children under 5 years of age ....
- By 2030, **end the epidemics of AIDS, tuberculosis, malaria** and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases...
- By 2030, reduce by one third **premature mortality from non-communicable diseases** ....
- Strengthen the prevention and treatment of substance abuse....
- By 2030, **halve the number of global deaths and injuries** from road traffic accidents....
- By 2030, substantially reduce the **number of deaths and illnesses** from hazardous chemicals and air, water and soil pollution and contamination....
- Strengthen the capacity of all countries, in particular developing countries, for **early warning, risk reduction and management of national and global health risks**....



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## African Ministers (2015)

*'...Recognizing that the Ebola epidemic has shown that the need for death registration and real time cause-of-death information is no longer optional but critical....*

*...Call upon WHO, in collaboration with Pan African Organizations and other partners, to intensify their efforts in developing real time death registration and causes of death information systems at country level'*



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# Current situation: ongoing activities

- **World Bank** is leading the development of the CRVS e-Learning course – to be released in spring 2017. Also active in supporting countries in national ID implementation
- **Global Affairs Canada and IDRC** set up the Centre of Excellence for CRVS
- **Bloomberg D4H**: multi-partners (*CDC, Swiss Tropical and Public Health Institute, John Hopkins University, WHO, Vital Strategies and University of Melbourne*) – focussing on 20 countries
- **WHO** has developed a simplified approach to recording deaths in health facilities (**Start-Up Mortality List**). Currently updating the ICD-10 online training tool.
- **Global Fund** invests in improving mortality data
  
- **Now in Africa**: Ethiopia (GFF, Bloomberg D4H, Global Fund); Kenya (GFF, CDC), Mozambique (GFF, Canada), and Tanzania (GFF, Bloomberg D4H, Global Fund)

# Thus, must improve vital registration systems

- There are signs that both the international community and countries are increasingly committed to improving civil registration and vital statistics systems, including death registration with a reliable cause. For example, the Statistical Commission for Africa adopted a resolution in January 2012 which prioritized the strengthening of civil registration and vital statistics for the coming decade. In addition, the United Nations Commission on Information and Accountability for Women's and Children's Health recommended in its 2011 report that, as a foundation of accountability for health:  

...by 2015, all countries have taken significant steps to establish a system for registration of births, deaths and causes of death, and have well-functioning health information systems that combine data from facilities, administrative sources and surveys.
- The focus of the Health Metrics Network (HMN) hosted by WHO (<http://www.who.int/healthmetrics/en/>) is on strengthening civil registration and vital statistics systems. A crucial development in this endeavor is the increasing number of countries that are beginning to review the current situation, and to invest in the systematic strengthening of their national systems.

# Work on convergence of vita registration and pólíce records

1. Find out where your country stands on this issue
2. Embrace the challenge
3. Find out what is the status of the VR systems in your country
  1. Existence
  2. Procedure
  3. Data imported from one site to another
4. Find out whether an alternative systems exist that would allow your country to be under “Group 2”
5. Find out reasons for police-based underreporting in your country and ammend them

# Upcoming milestones

- Fourth Global Status Report on Road Safety (Nov 2018) WILL INCLUDE MODELING FOR GROUP 4 COUNTRIES
- Mobile application for the questionnaire used to create Status Report (Nov 2018)
- Data visualization tool (Nov 2018)
- WORKSHOP during First African Forum for Road Safety, Marrakesch (Nov 2018)
- Global Health Estimates (May 2018)
- LIKELY ADDITIONAL WORKSHOPS ON VR in Africa during 2019

# References

- Global Status Report on Road Safety  
[http://www.who.int/violence\\_injury\\_prevention/road\\_safety\\_status/2015/en/](http://www.who.int/violence_injury_prevention/road_safety_status/2015/en/)
- Global Health Estimates  
[http://www.who.int/healthinfo/global\\_burden\\_disease/estimates/en/index1.html](http://www.who.int/healthinfo/global_burden_disease/estimates/en/index1.html)
- WHO Mortality Database  
[http://www.who.int/healthinfo/mortality\\_data/en/](http://www.who.int/healthinfo/mortality_data/en/)

# Thanks!

