A call for action to declare trauma as a disease

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Gratitude

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Original manuscript produced by the Argentine Academy of Medicine (Acad. Jorge Neira; Acad. Vicente Gutiérrez), Fundación Trauma Argentina (Jorge Neira, MD, FCCM; Ezequiel Monteverde, MD; Laura Bosque, PhD) and endorsed by the Argentine Ministry of Health.
Acute injuries/trauma have been considered the number one killer and major cause of disability of children and young people.


‘Neglected disease of modern society’ for more than 50 years.

Acute injuries/trauma

:: Kill more than five million people worldwide annually and cause harm to millions more.
:: Account for 9% of global mortality and are a threat to health in every country of the world.
:: For every death: dozens of hospitalizations, hundreds of emergency department visits and thousands of doctors’ appointments.
:: Large proportion of people surviving their injuries incurs temporary or permanent disabilities.

https://www.who.int/topics/injuries/en/
In countries that replaced the concept of “accident” by “facts and injuries” and focused on acute injury as an integral, inclusive and undivided entity, significant progress has been made in the reduction of deaths and disability.


However, in most countries, unintentional acute injuries (trauma) are still typically considered as “accidents”, with little research effort committed to studying and reducing this disease.

Considering trauma as a disease with an integrated comprehensive approach in the health agenda will allow countries not only to control but to prevent trauma.

It is time for all countries to make this transition and declare trauma as a disease.
When reported, it is still described disaggregated.

Consequently, the healthcare community fails to consider trauma as a single disease.

Acute injury (trauma) is defined as the physical damage that results when a human body is exposed to levels of energy kinetic, thermal, chemical, electrical, radiant in amounts that exceed the threshold of physiological tolerance or the impairment of normal function resulting from a lack of oxygen or heat.


The failure to scientifically link causes to consequences has contributed to a confusing social understanding of trauma.
Classification

Intentional
- Homicides
- Suicides
- Other forms of violence

Unintentional
- MVCs
- Falls
- Working
- Household
- Recreational
- School
- Sports
Trauma Definition

Disease concept

The case for considering trauma as a disease.
Opportunity of prevention!!

Measles vs. Trauma

- Known ethiological agent (Measles: virus; Trauma: blunt, penetrating)
- Identifiable signs and symptoms (Measles: rash, fever; Trauma: bleeding, edema)
- A distinctive pathophysiology and identifiable cellular and organs disruptions (Measles: immune response; Trauma: mechanical force and tissue damage)
The burden of disease
WHO Injury Chart Book 2002

Global Injury-related Mortality

Russia 118/100,000*
Singapore 14/100,000*

8 times!

WHO. http://apps.who.int/iris/bitstream/10665/42566/1/924156220X.pdf
The burden of disease

Mortality due to homicide, 2012

Mortality rate
(per 100,000 population)

Data not available
Not applicable

Data Sources: World Health Organization
Map production: Information Evidence and Research (IER)
World Health Organization

http://gamapserver.who.int/mapLibrary/Files/Maps/Global_RoadTraffic_Mortality_2013.png
The burden of disease **Homicide**

**Homicide mechanism, by region (2012 or latest year)**

- **Africa** (54 countries):
  - Firearms: 42%
  - Sharp objects: 30%
  - Others: 28%

- **Americas** (36 countries):
  - Firearms: 17%
  - Sharp objects: 66%
  - Others: 17%

- **Asia** (50 countries):
  - Firearms: 47%
  - Sharp objects: 25%
  - Others: 28%

- **Europe** (42 countries):
  - Firearms: 13%
  - Sharp objects: 33%
  - Others: 54%

- **Oceania** (10 countries):
  - Firearms: 35%
  - Sharp objects: 10%
  - Others: 55%

- **Global** (192 countries):
  - Firearms: 35%
  - Sharp objects: 24%
  - Others: 41%

**Map 1.1: Homicide rates, by country or territory (2012 or latest year)**

UNODC. 2012
The burden of disease

Age-standardized suicide rates (per 100 000 population), both sexes, 2016

Suicide rate (per 100 000 population)
- <5.0
- 5.0–9.9
- 10.0–14.9
- Data not available
- ≥15.0

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Data Production: Information Evidence and Research (IER)
World Health Organization

http://gamapserver.who.int/map_library/Files/Maps/Global_AS_suicide_rates_bothsexes_2016.png
The burden of disease

Suicide: facts and figures

Suicide is the second leading cause of death among 15-29 year-olds.

Close to 800,000 people die by suicide every year, 1 death every 40 seconds.

High-income countries: 79% of suicides occur in low- and middle-income countries.

There are more deaths from suicide than from war and homicide together, 55%.

Pesticides, hanging, and firearms are the most common methods used globally.

https://www.who.int/mental_health/suicide-prevention/infographics_suicide.pdf?ua=1
The burden of disease

Road traffic mortality rate, 2013*

Sweden, United Kingdom: 2.8/100,000*

Bulgaria: 9.8/100,000*

90% of road traffic deaths occur in LMICs, which account for only 53% of the world’s registered vehicles.

World Health Organization.

Only 28 countries (7% of the world’s population) have adequate policies addressing all five road traffic risk factors: speed, drink-driving, helmets, seat-belts and child restraints.

Global status report on road safety 2013: supporting a decade of action.

Almost 50% of dead people are considered “vulnerable users”: motorcyclist, cyclists, pedestrians.
The burden of disease
Motor Vehicles Crashes

› Will become the 7th cause of death in 2030.
› Represent 3% of GDP in those countries
› Sustainable Development Goals Agenda plan to lower these deaths in 50% in 2030
The burden of disease

Worldwide, fatal and non-fatal trauma is associated with an **annual economic** cost of approximately **US$ 670 billion in medical care expenses and lost productivity.**


In MVCs, 1.2 million people die annually and an additional 20-50 million survive with mild to serious disabilities. The **overall cost** of car crashes has been estimated at more than **US$160 billion annually.**

The burden of disease

Trauma related costs

24/25 countries with the greatest disability-adjusted life years (DALY) losses due to traffic injuries are LMICs, while 48% of the 25 countries with the highest economic losses are HICs.


MVCs cost an average of 3% of a country’s gross domestic product (GDP), roughly 2% in HICs and up to 5% in LMICs. These estimates include direct and indirect costs.

It is crucial to consider the lack of adequate pre-hospital and hospital emergency care


and the scarcity of specific trauma training in health teams.

Mock C et al. Inj Cont Safety Promotion. 2003; 10: 45-51
Mock CN et al. Trauma Q. 1999; 14: 345–348.
The burden of disease
Road Safety – Global Plan

https://www.who.int/roadsafety/decade_of_action/plan/plan_english.pdf?ua=1
WHO - Global Alliance for the Care of the Injured (GACI)

The launch of the Global Alliance for the Care of the Injured (GACI), with the aim of minimizing the trauma burden through the development of trauma systems, is an important initiative to achieve these goals.

http://www.who.int/emergencycare/gaci/background/en/
Global Public Health Issue

World Health Day: Road safety is no accident!

The term accident:
- Sudden and unexpected fact.
- Attributed to fortune, fate or divine intervention.
- Prevents its approach due to its “random nature”


Injuries are Predictable and Preventable!!
Why a disease framework is suitable for trauma

Public health policies for **communicable and non-communicable diseases** cast light on the **impact of interventions** developed under the **disease framework**:

- identify the problem,
- measure the consequences,
- find the causative agent,
- develop treatment strategies and
- implement a prevention plan all within a measurement and analysis continuum.


Why a disease framework is suitable for trauma

To declare trauma as a disease would result in the following continuum and response: once the **causes** and consequences of this disease have been **identified**, health authorities must receive the appropriate support to develop an **injury prevention and control plan** to reduce trauma mortality, as well as improve treatment and rehabilitation.

Trauma as a disease

Why a disease framework is suitable for trauma

With respect to prevention, a horizontal plan (with integrated programmes, aiming for Health System improvement) is preferable to a vertical one (targeted, disease-specific programmes) given that risk construction is determined by different components of the environment.

Pedersen D. Intervention 2014; 12: 278-282
Why a disease framework is suitable for trauma

Certain interventions, such as those linked to controlling the five road traffic risk factors, may act like “magic bullets”, so a diagonal approach, i.e., a strategy where explicit interventions toward specific goals (such as the reduction of driving under the influence of alcohol) could mix with such generic issues as safer roads or the promulgation of helmet and speed limit laws, may also be appropriate.

Frenk J. Bridging the Divide: Comprehensive Reform to Improve Health in Mexico. Lecture for WHO Commission on Social Determinants of Health, Nairobi.
It is necessary to develop a better understanding of local variability in order to design, implement and follow up on effective prevention programmes.


It is essential that intensive age-specific research on diagnosis and therapeutic strategies be undertaken with the support of medical agencies in both HICs and LMICs.

It is essential to develop trauma registries, not only to yield rational interventions but also to inform policymakers and improve clinical practice.
IAP for Health member academies should draw attention to the need for a strong paradigm shift to consider acute injury/trauma as a biopsychosocial disease.

This will enhance the development of better acute and post-acute care systems, surveillance institutions as well as research organizations in each country.

They should also encourage scientific and healthcare communities to join with other regional academies to promote an urgently-needed paradigm shift essential to reduce inequities in healthcare between countries.
At country level, IAP for Health member academies should:

- Assess current national responses to trauma victims and determine the most effective role to improve the trauma systems.
- Support scientific institutions to ensure health teams can provide the best possible care.
- Develop curricula for physicians, nurses and technicians.
- Help universities and research institutions to secure funds to develop a disease model approach.
- Encourage the development of systematic trauma prevention strategies.
At regional level, IAP for Health member academies should help establish regional agreements to:

1. Reduce well-known risk factors for MVCs:
   - speed limits,
   - drinking and driving laws,
   - compulsory use of helmets,
   - seat-belts and child restraints,
   - banning the use of cell phones while driving

2. Promote violence prevention using the **information obtained from trauma registries**
3. Develop collaborative strategies to secure more funds for the necessary research.
4. Establish a common standard for data reporting.
Achievement

IAP has taken the first step addressing trauma as a global public health issue

Challenge

Encourage governments and healthcare organizations to implement a comprehensive action plan

Future

So trauma can stop being the ‘neglected disease’

Reducing unintentional and intentional injuries and preventable deaths
A call for action to declare trauma as a disease