

# Health of the World's Adolescents

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## Global patterns of mortality in young people: a systematic analysis of population health data

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### Summary

**Background** Pronounced changes in patterns of health take place in adolescence and young adulthood, but the effects on mortality patterns worldwide have not been reported. We analysed worldwide rates and patterns of mortality between early adolescence and young adulthood.

**Methods** We obtained data from the 2004 Global Burden of Disease Study, and used all-cause mortality estimates developed for the 2006 *World Health Report*, with adjustments for revisions in death from HIV/AIDS and from war and natural disasters. Data for cause of death were derived from national vital registration when available; for other countries we used sample registration data, verbal autopsy, and disease surveillance data to model causes of death. Worldwide rates and patterns of mortality were investigated by WHO region, income status, and cause in age-groups of 10–14 years, 15–19 years, and 20–24 years.

**Findings** 2.6 million deaths occurred in people aged 10–24 years in 2004. 2.56 million (97%) of these deaths were in low-income and middle-income countries, and almost two thirds (1.67 million) were in sub-Saharan Africa and southeast Asia. Pronounced rises in mortality rates were recorded from early adolescence (10–14 years) to young adulthood (20–24 years), but reasons varied by region and sex. Maternal conditions were a leading cause of female deaths at 15%. HIV/AIDS and tuberculosis contributed to 11% of deaths. Traffic accidents were the largest cause and accounted for 14% of male and 5% of female deaths. Other prominent causes included violence (12% of male deaths) and suicide (6% of all deaths).

**Interpretation** Present global priorities for adolescent health policy, which focus on HIV/AIDS and maternal mortality, are an important but insufficient response to prevent mortality in an age-group in which more than two in five deaths are due to intentional and unintentional injuries.

**Funding** WHO and National Health and Medical Research Council.

### Introduction

Adolescence is commonly regarded as a healthy time of life, with peaks in strength, speed, fitness, and many cognitive abilities. However, major shifts in health take place around puberty as new health risks with potentially life-threatening consequences become prominent.<sup>1–3</sup> Reproductive maturity brings about risks for sexually transmitted diseases including HIV, and for women, particularly in low-income and middle-income countries, risks linked to pregnancy and child birth.<sup>4</sup> Patterns of injury change with physical maturity, with young men in particular incurring trauma from war, violence, and

traffic injuries.<sup>5</sup> Furthermore, ease of access to psychoactive substances might heighten risks for mental health disorders and suicide.<sup>6</sup> The inexperience and ongoing neurodevelopment of adolescents might leave them vulnerable to some health risks associated with economic change.<sup>7</sup>

No comprehensive studies of death in people aged 10–24 years have been done, even though this group consists of around 30% of the world's population.<sup>8</sup> Reports have generally used country data to address overall mortality or specific causes of death.<sup>9–11</sup> Some studies have compared mortality between countries<sup>12</sup> or

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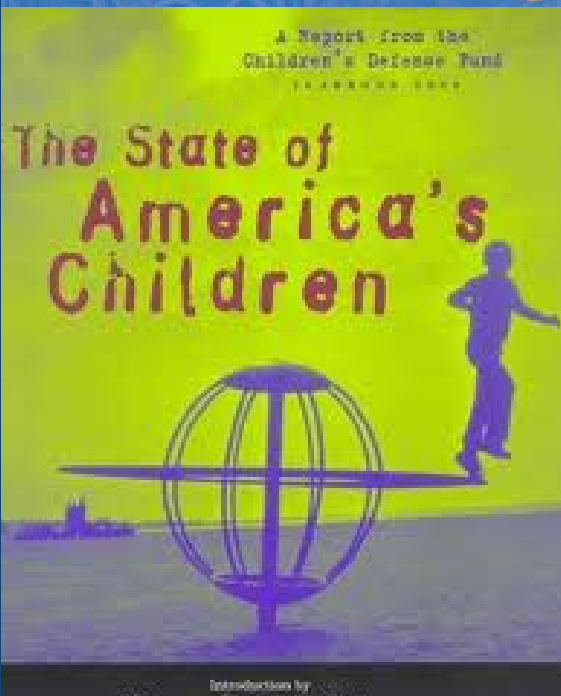
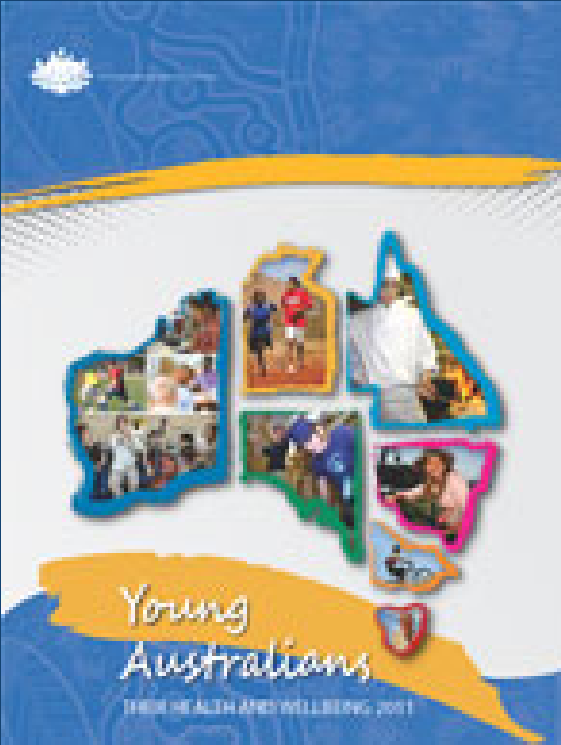
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# Country Profiles of Adolescent Health



America's children

Child trends database

Health of Young Australians

Children and young people in New Zealand

Indicators of infancy & adolescence (Sp)

State of the nation's children (Ireland)

Every Child Matters (UK)

OECD - Doing better for children

Positive indicators of child well-being

Child Health Indicators of Life &

Development

# Country Level Reports

## No Common Framework

- Little comparability across reports
  - Indicators
  - Definitions
  - Measurement
- No report comprehensive

# Three Questions

1. Which indicators?
2. How good is the current picture?
3. What do current data tell us?

# A Good Health Indicator

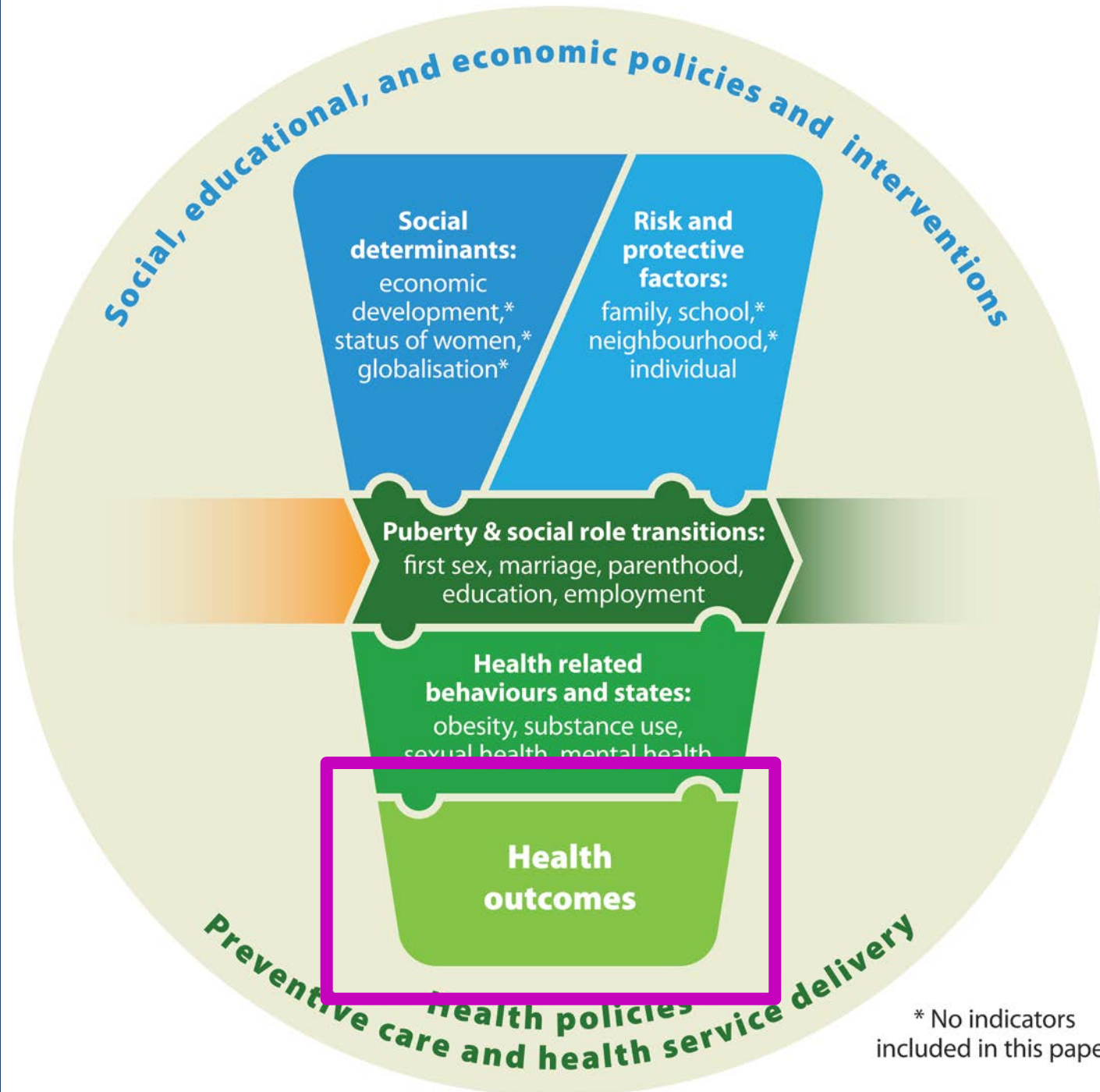
## Valid

- Public health importance
- Close to construct & measurable

## Impact

- Relevance to major policies
- Compelling and understandable
- Modifiable
- Available over time

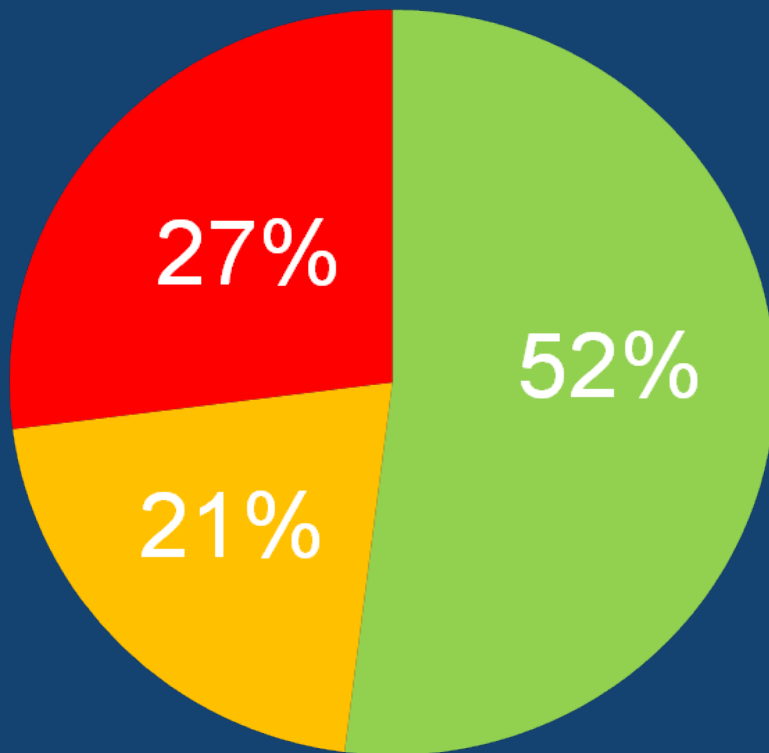




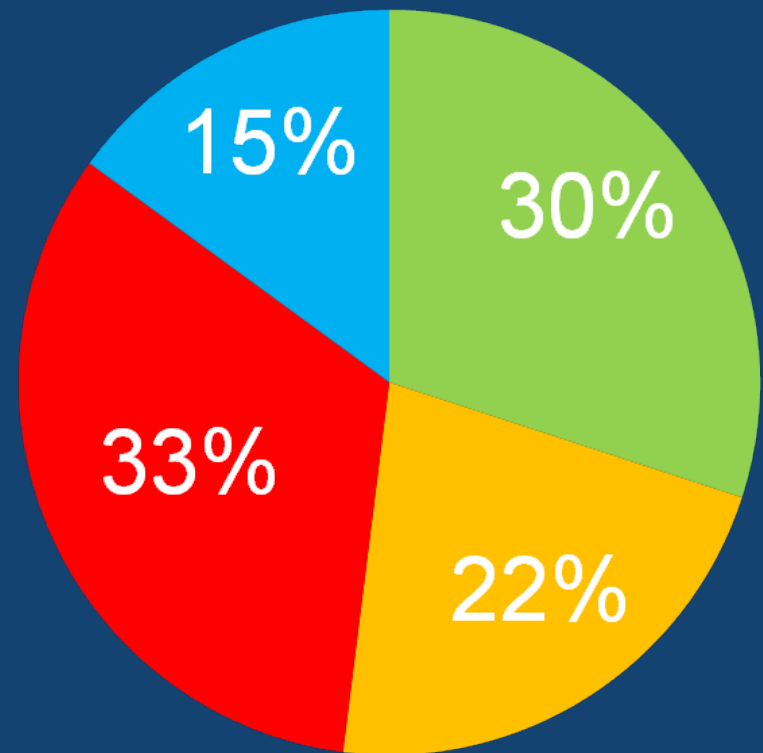
\* No indicators  
included in this paper

# How do young people die?

Male deaths aged 10-24



Female deaths aged 10-24



 Injuries     NCDs     Infectious     Maternal



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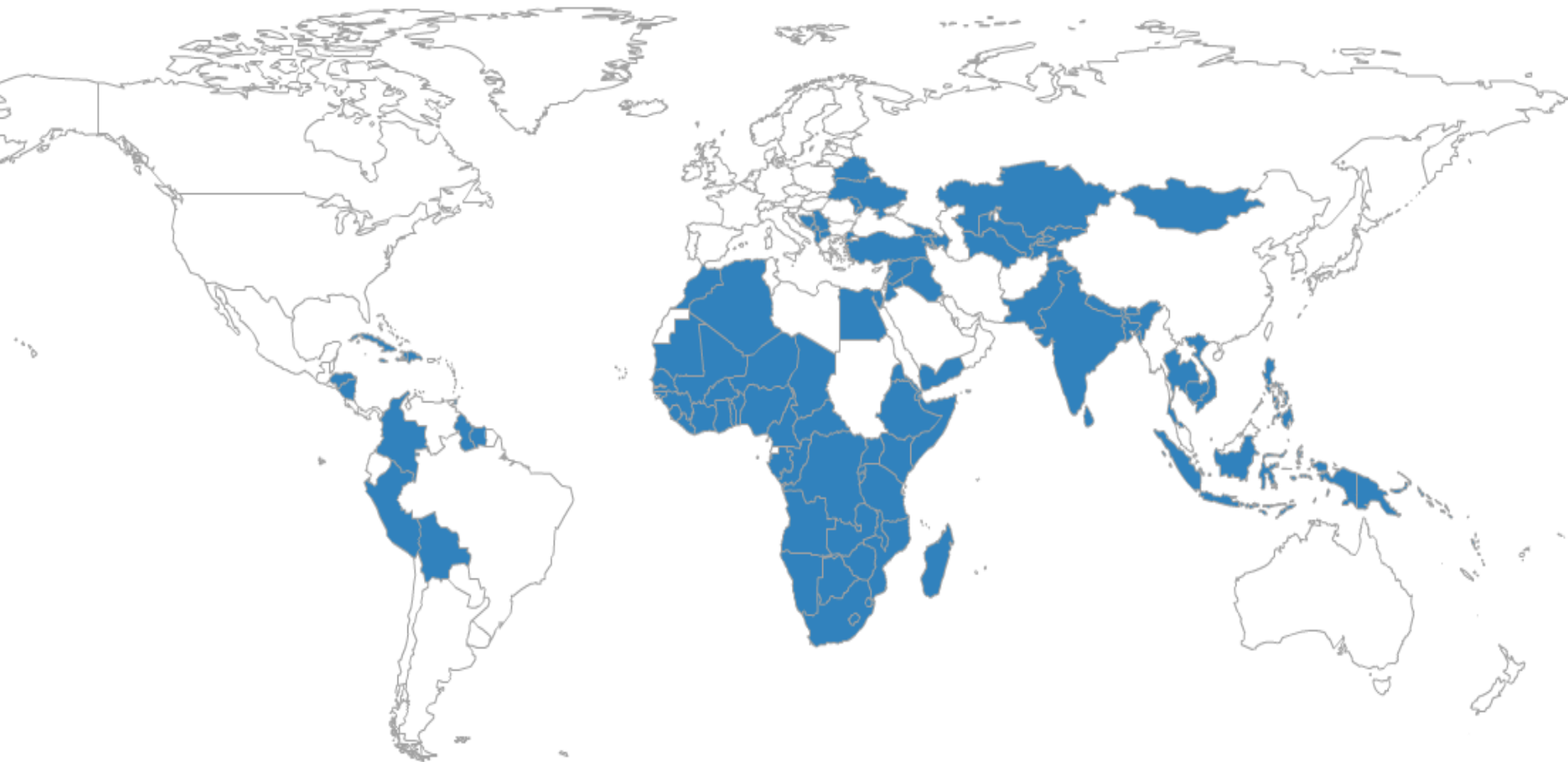
# Relevant Data

- Household Surveys (DHS – MICS)
- School Surveys
  - Health Behaviour of School Aged Children
  - Global School Health Survey
- Databases
  - Global Mortality Database
  - ILO & UNESCO
- Other
  - Global Mental Health survey

# At least 70% death registration

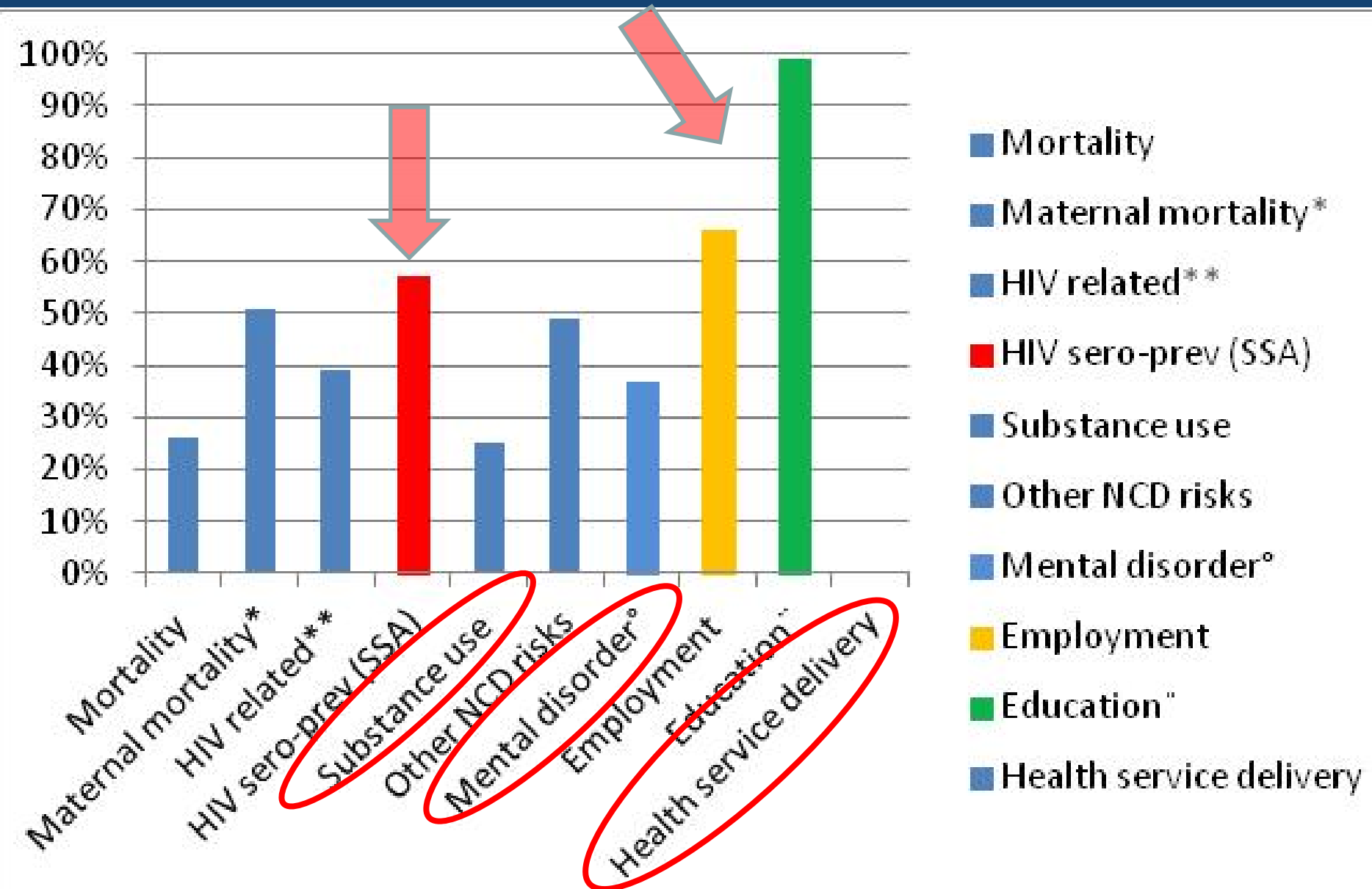


# Comparable household surveys



A world map illustrating the distribution of the genus *Euphorbia*. The map uses two shades of blue to denote different types of distribution: dark blue for native ranges and light blue for introduced ranges. The native range (dark blue) is extensive, covering North America (including Alaska, Canada, and the United States), Europe, and various regions in Africa (notably the Sahel and southern parts) and Asia (including the Indian subcontinent and parts of Southeast Asia). The introduced range (light blue) includes South America (primarily Brazil and Chile), India, and several islands in Southeast Asia and the Pacific. The map also shows the outlines of major landmasses and bodies of water.

# Global coverage of indicators

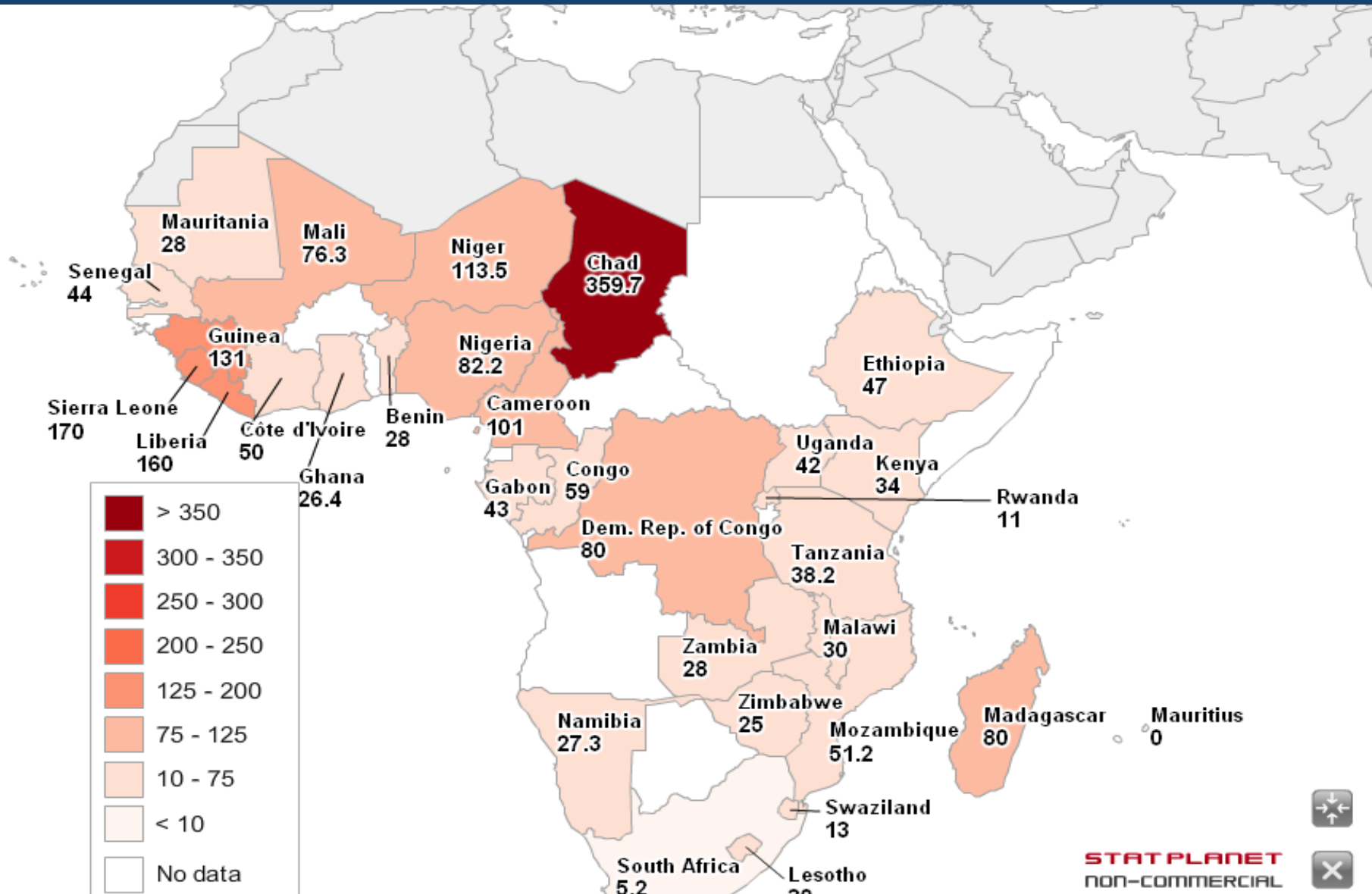


# Three Questions

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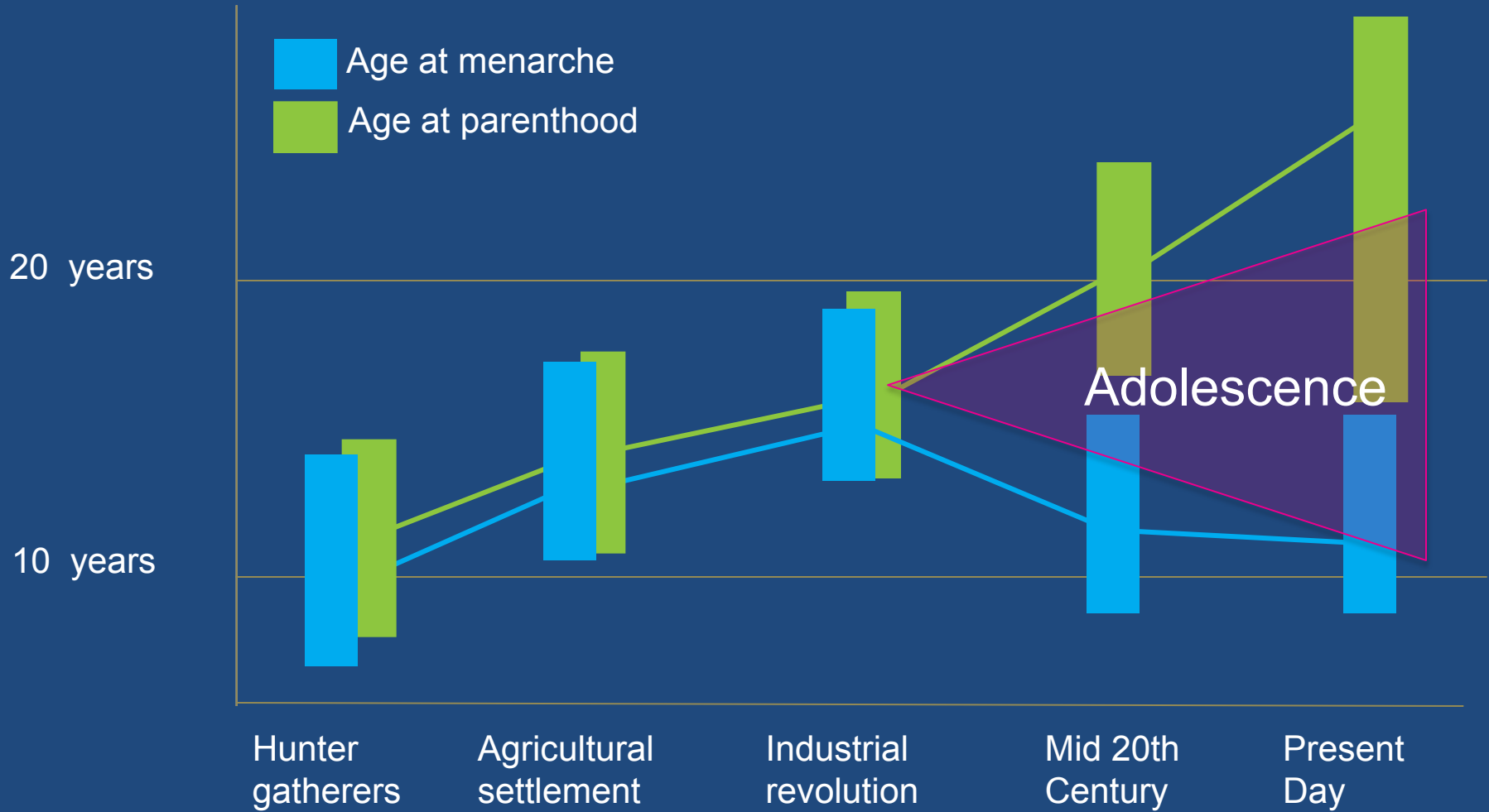


# 'Best available' estimates of maternal mortality rate in 15-19 year olds in Sub-Saharan Africa



# Changes in adolescence

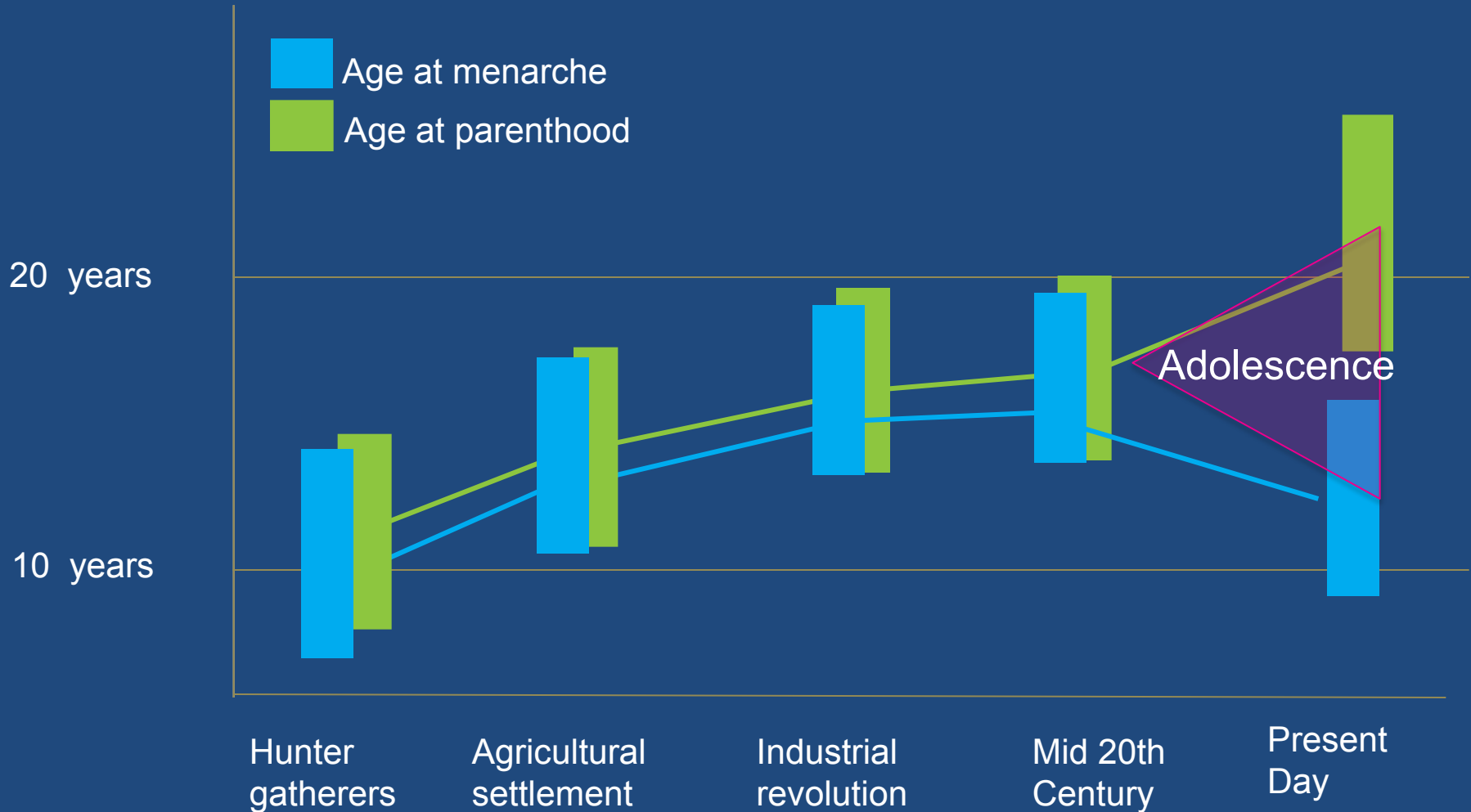
## High income countries



*Adapted from Gluckman*

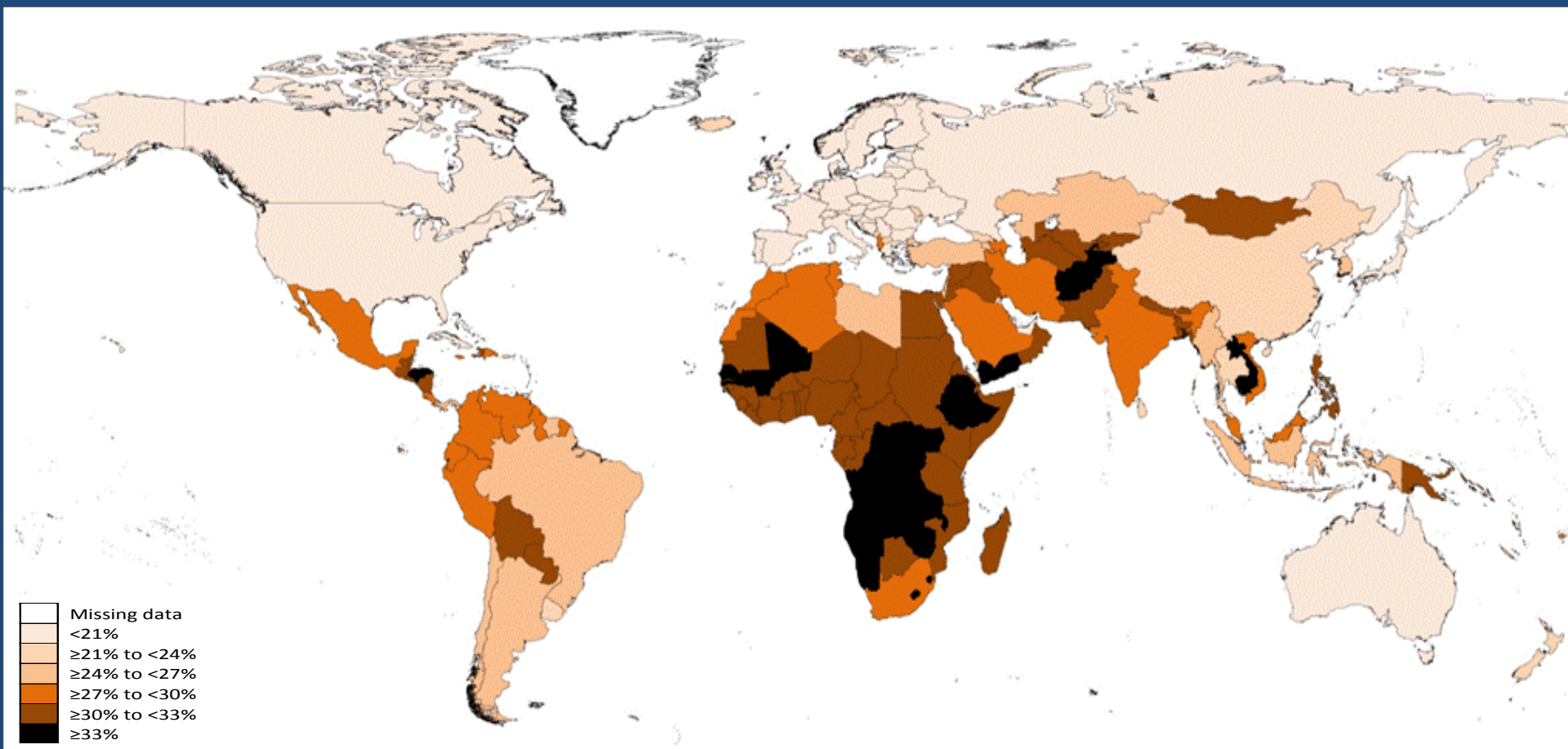
# Changes in adolescence

## Low & middle income countries



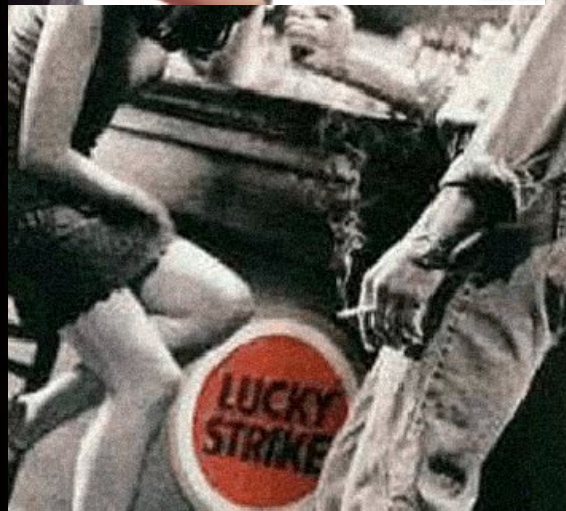
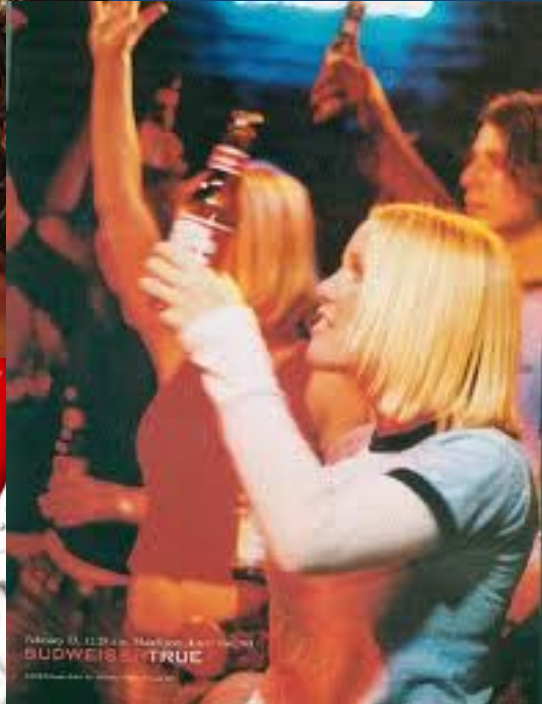
*Adapted from Gluckman*

# Nine in ten adolescents live in LMIC

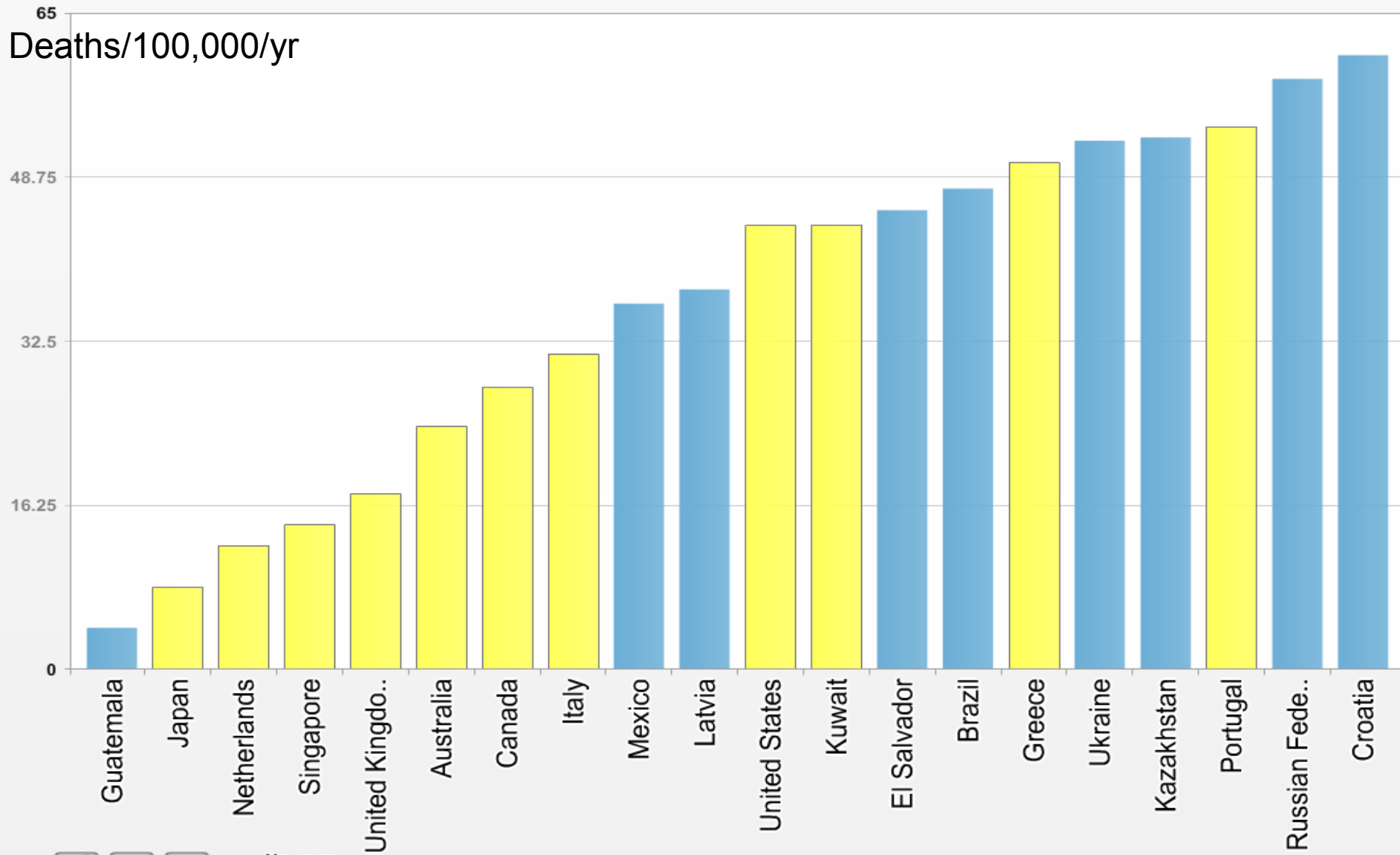


\* Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects

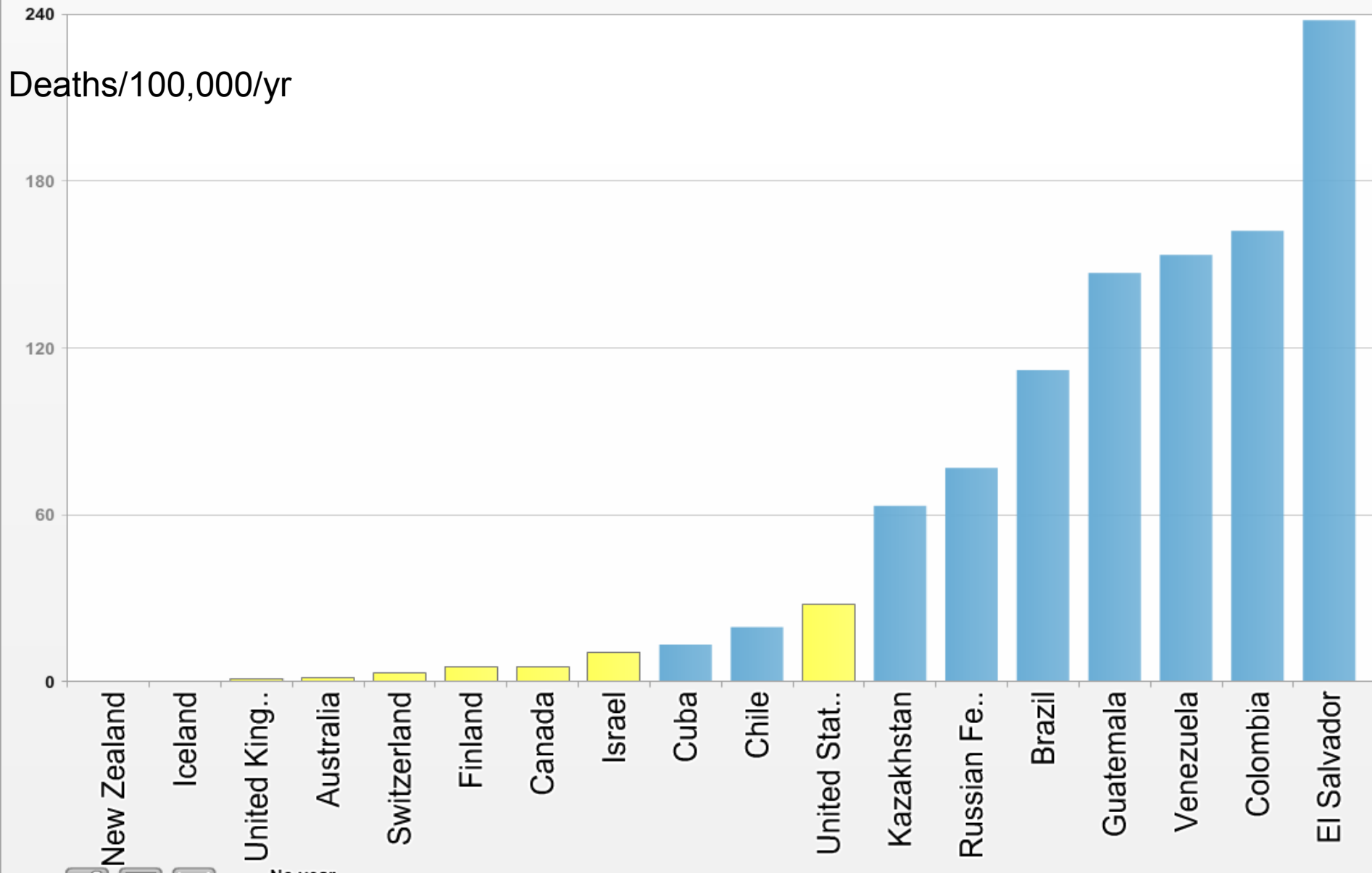




# Traffic Injury Deaths (100,000/year) in males 20-24 years: selected countries (high income yellow)

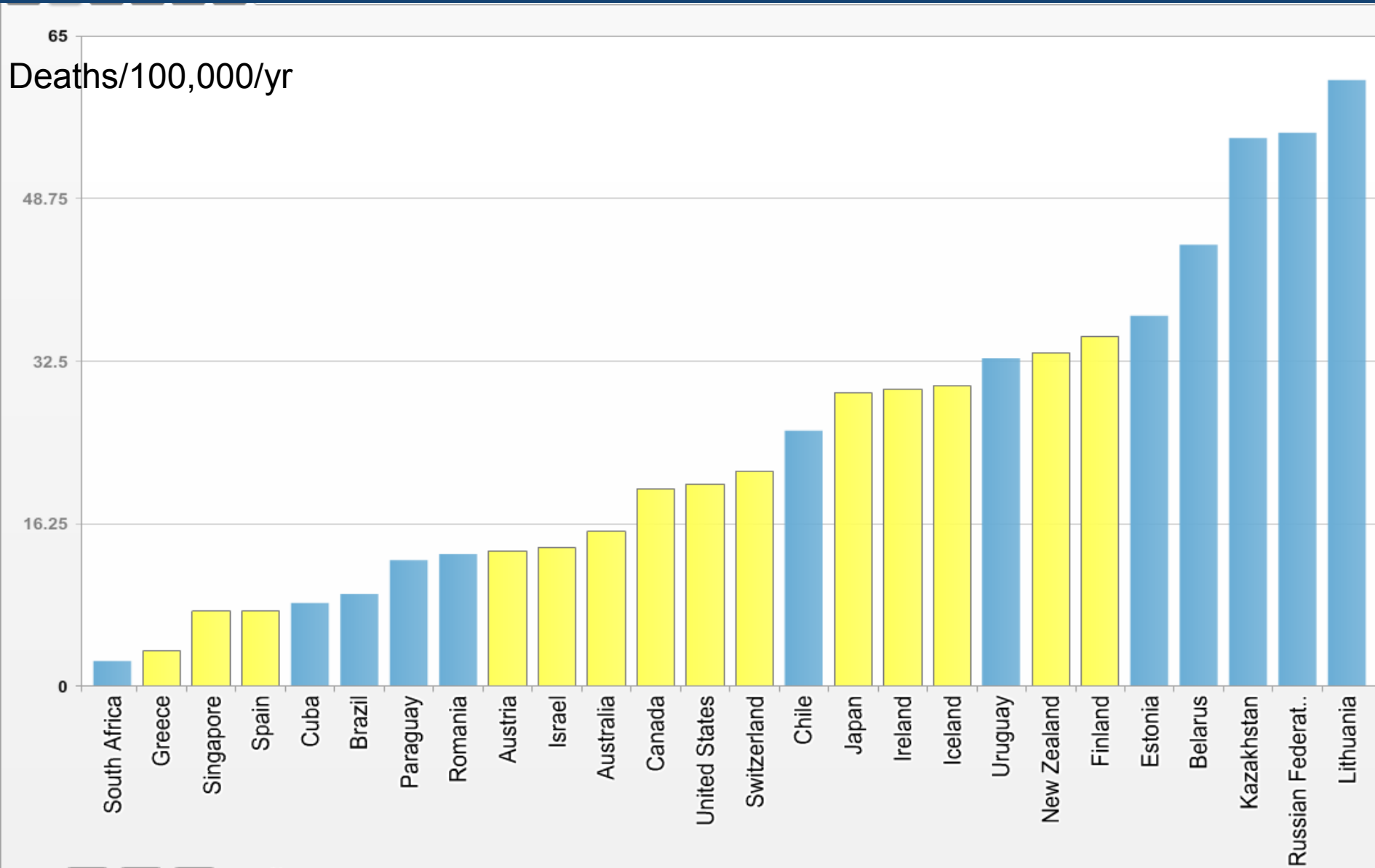


# Homicides in 20-24 year old males in selected countries across the globe

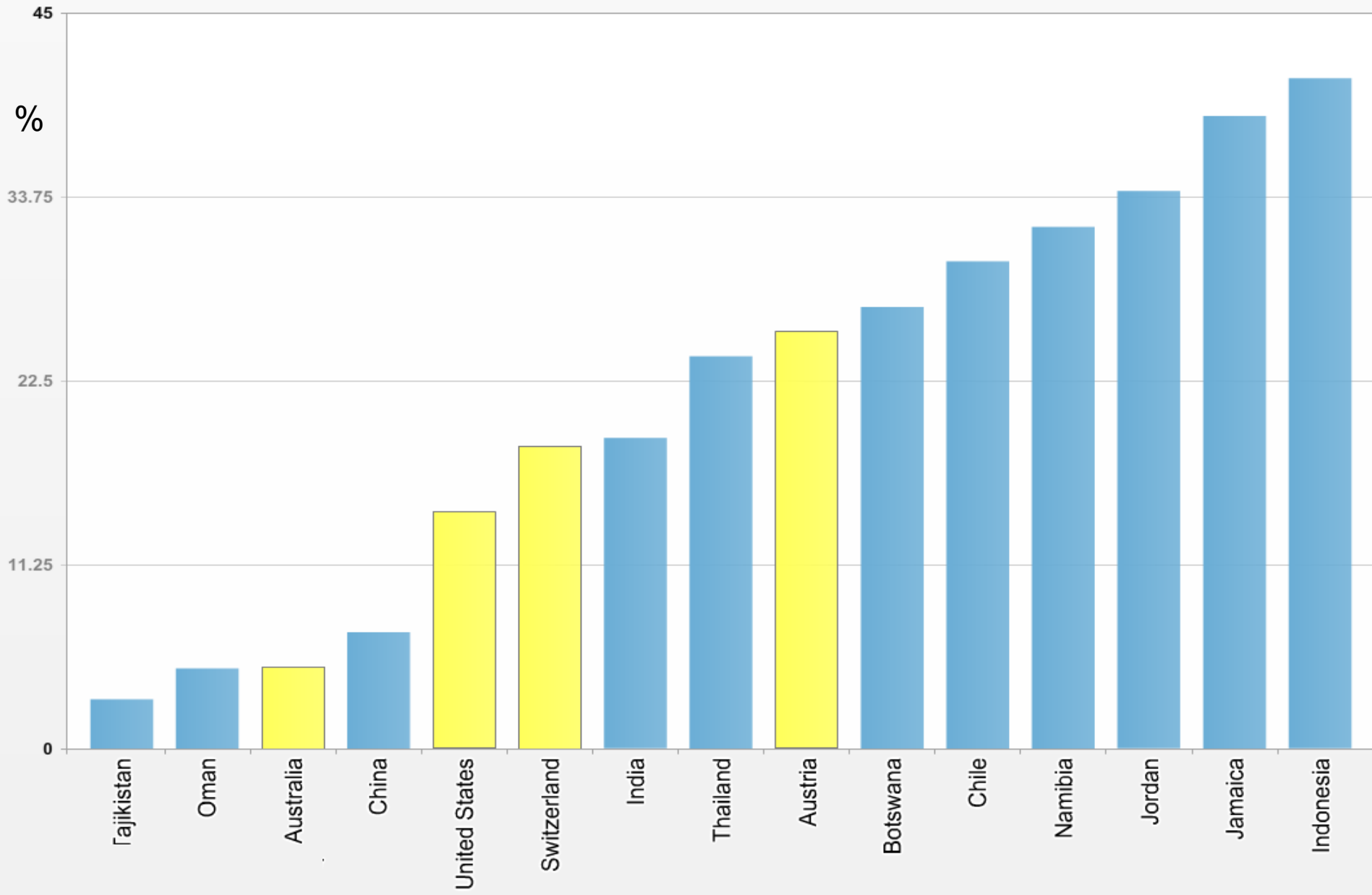




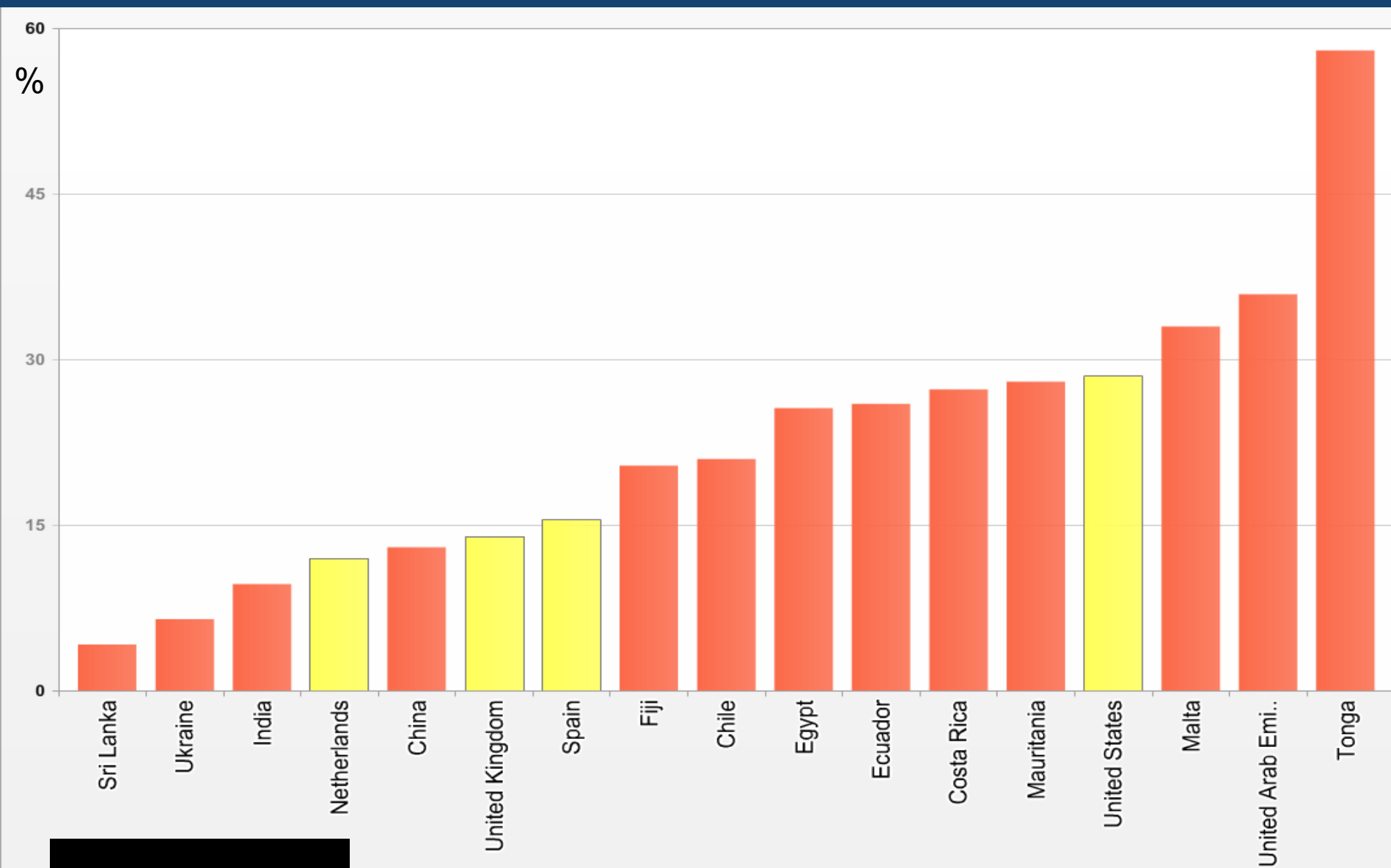
# Suicides in 20-24 year old males in selected countries across the globe



# Tobacco use (%) in males 13-15: selected countries



# Overweight in females 13-15 yrs: selected countries



7/25 indicators have >50% coverage\*

*Particularly Neglected*

- mental health, substance use
- social context
- health care delivery and prevention
- younger adolescents
- socially marginalised adolescents

# Where to from here?

## **Easier Wins (relatively)**

- Agreement on core indicators
- Harmonisation
- Country level reports

## **Worthwhile challenges**

- Integration into global data systems
- Indicator development
- Extending data systems

# A triple burden in many LMICs

(Not just sexual & reproductive health)

- Diseases of poverty
- Injury
- Risk states for NCDs
- (Mental disorders?)

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