



**Umeå Centre for  
Global Health Research**



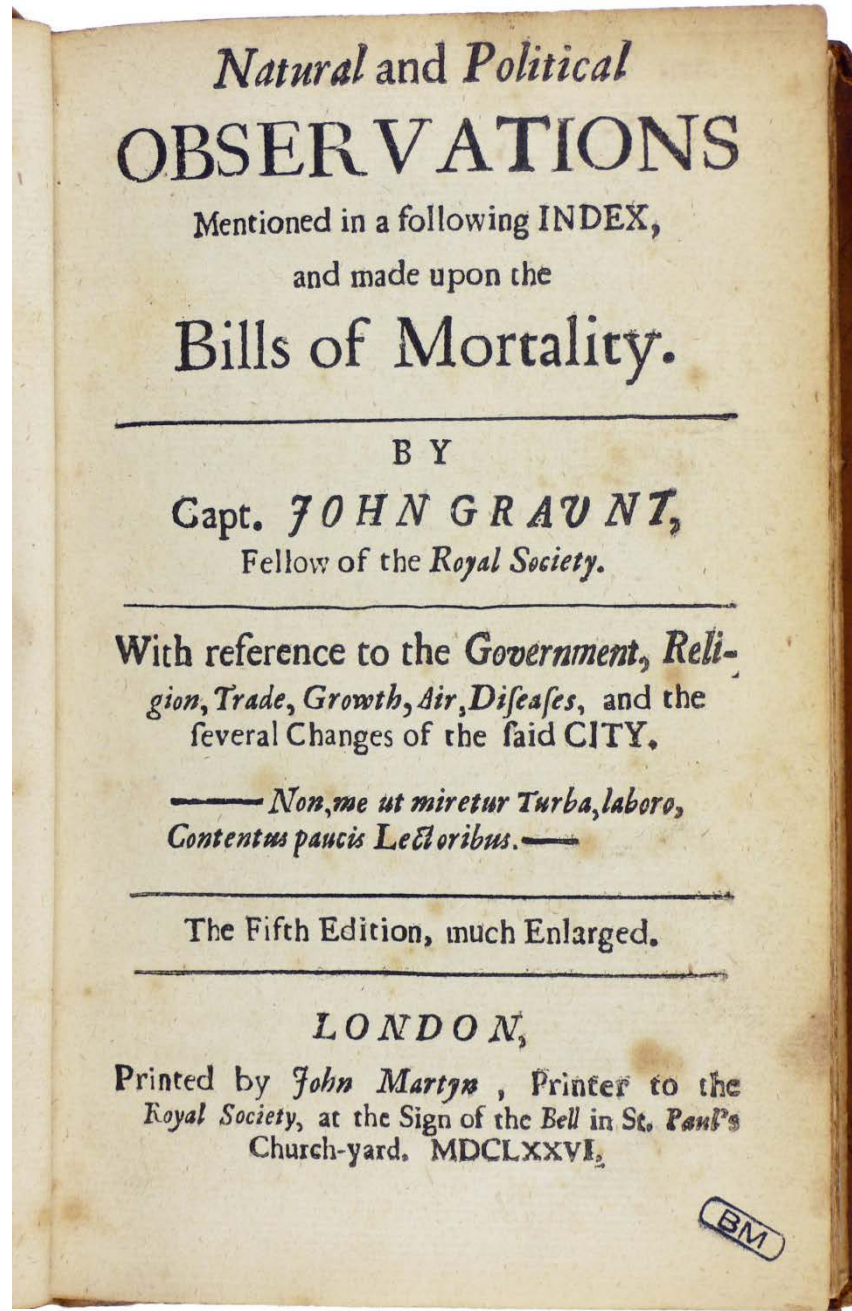
WHO Collaborating Centre  
for Verbal Autopsy

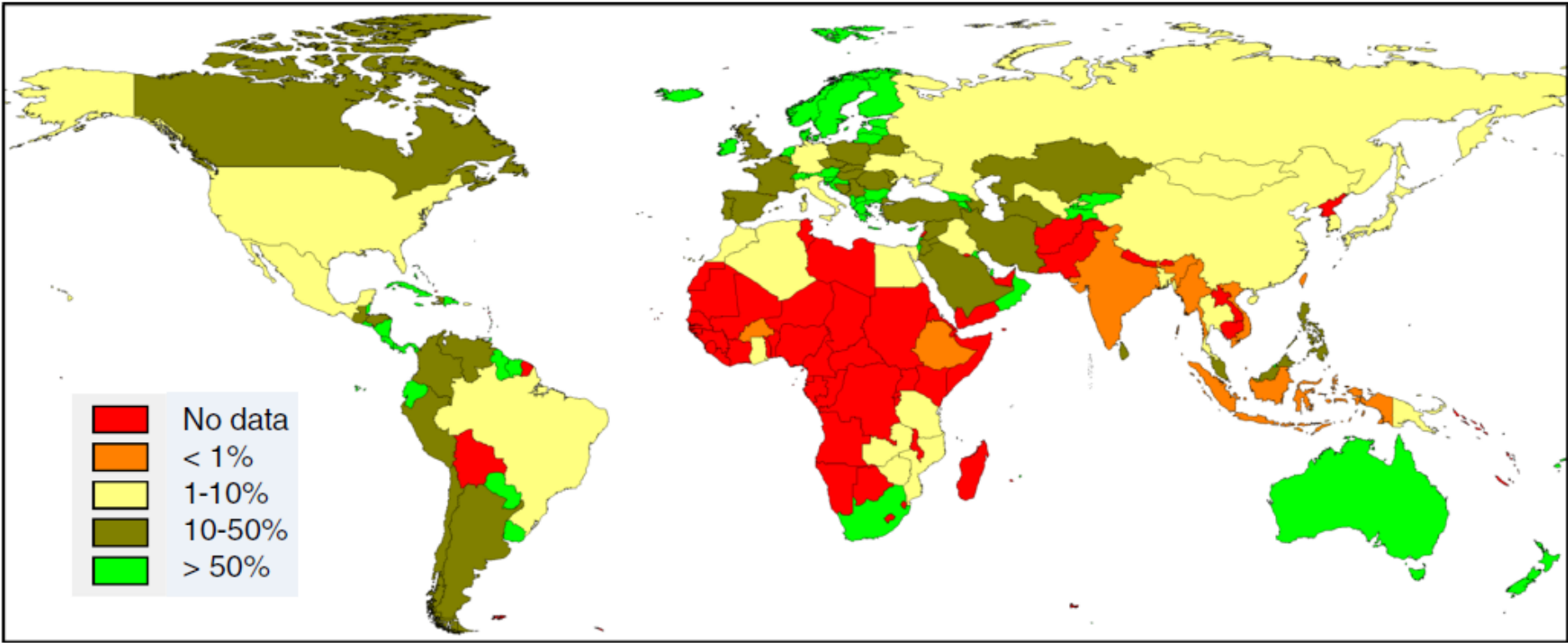
# **Learning from mortality: Pragmatic approaches to verbal autopsy for better health**

**Prof. Peter Byass**

## Learning from mortality:

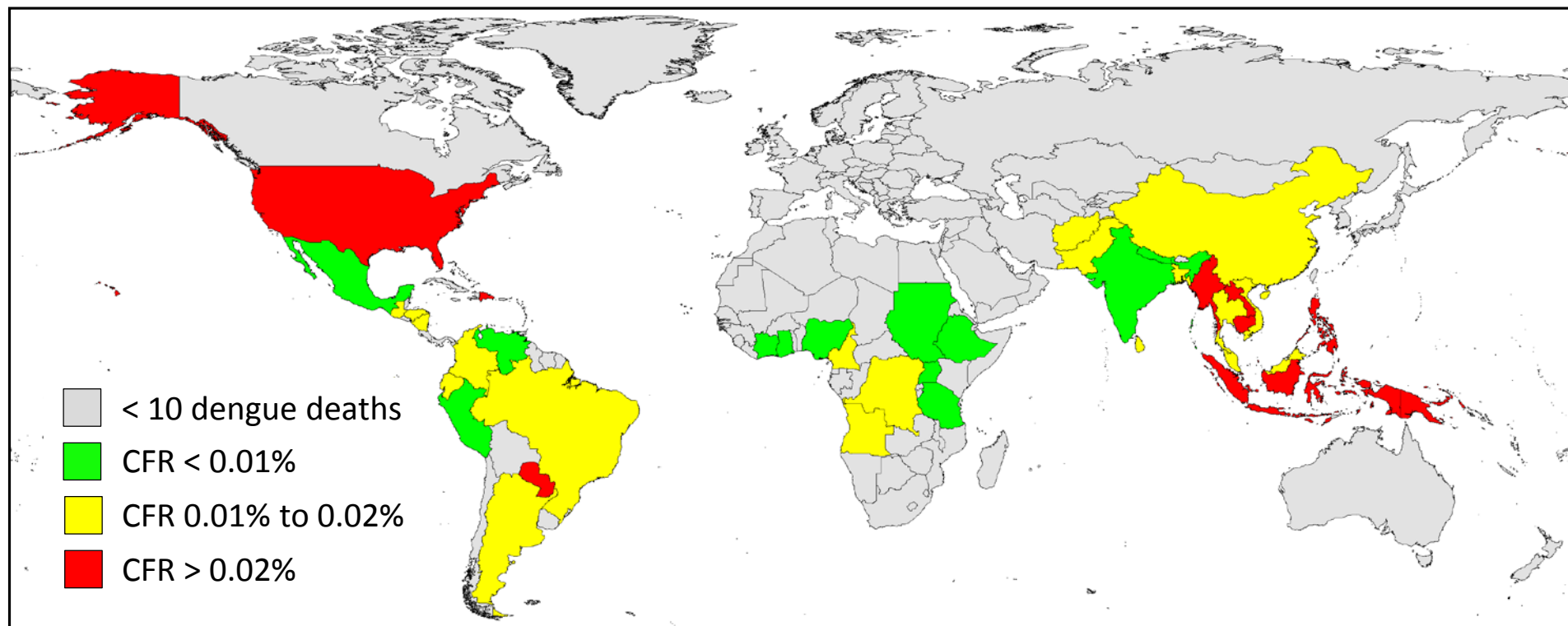
- London city led the way in the 1670s, producing John Graunt's "*Bills of Mortality*"
- In the absence of other health data, it rapidly became evident that tabulating causes of all deaths, by age, sex, area, etc., provided huge insights for public health
- But 350 years later, we still don't have the global equivalent of these data – 2/3<sup>rds</sup> of deaths are not adequately registered or reported





Ratio of input observations to estimated numbers of cirrhosis deaths (Global Burden of Disease)

BMC Medicine 2014, 12:159



Unexpected consequences of using estimation methods for dengue case fatality (GBD)

Lancet Inf Dis 2016, 16:629-31

post-  
mortems

minimally  
invasive  
autopsies

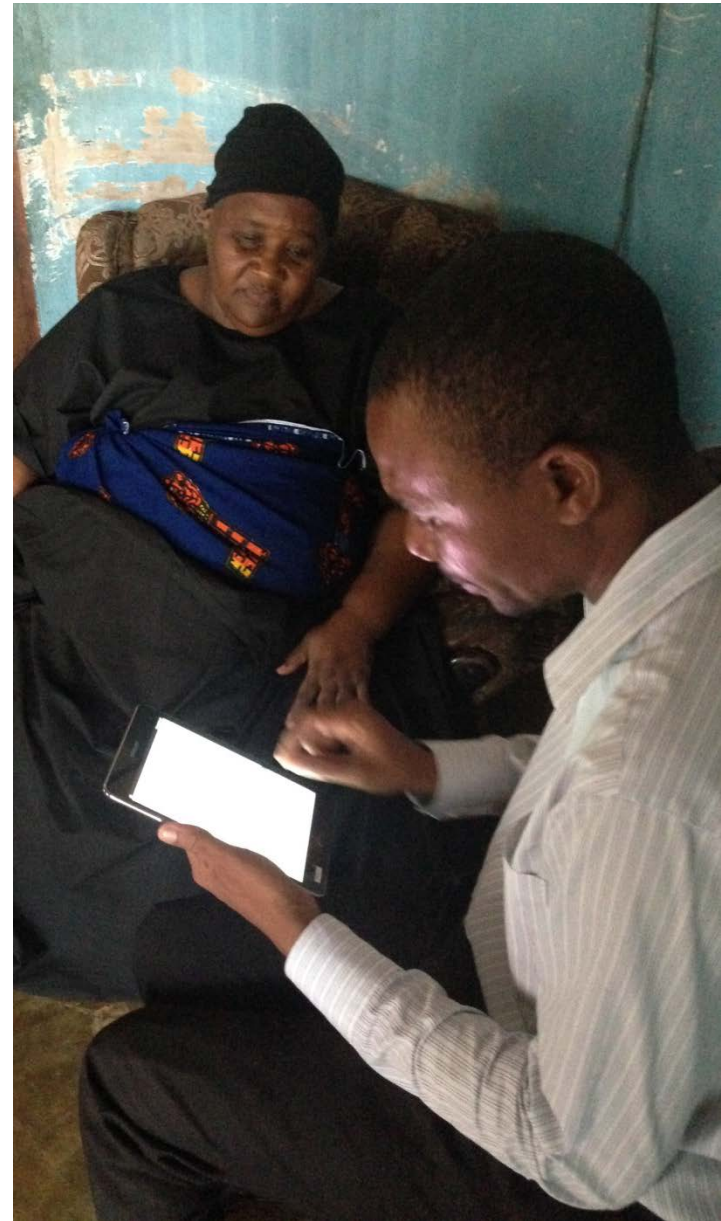
hospital  
records

physician  
certificates

verbal  
autopsy

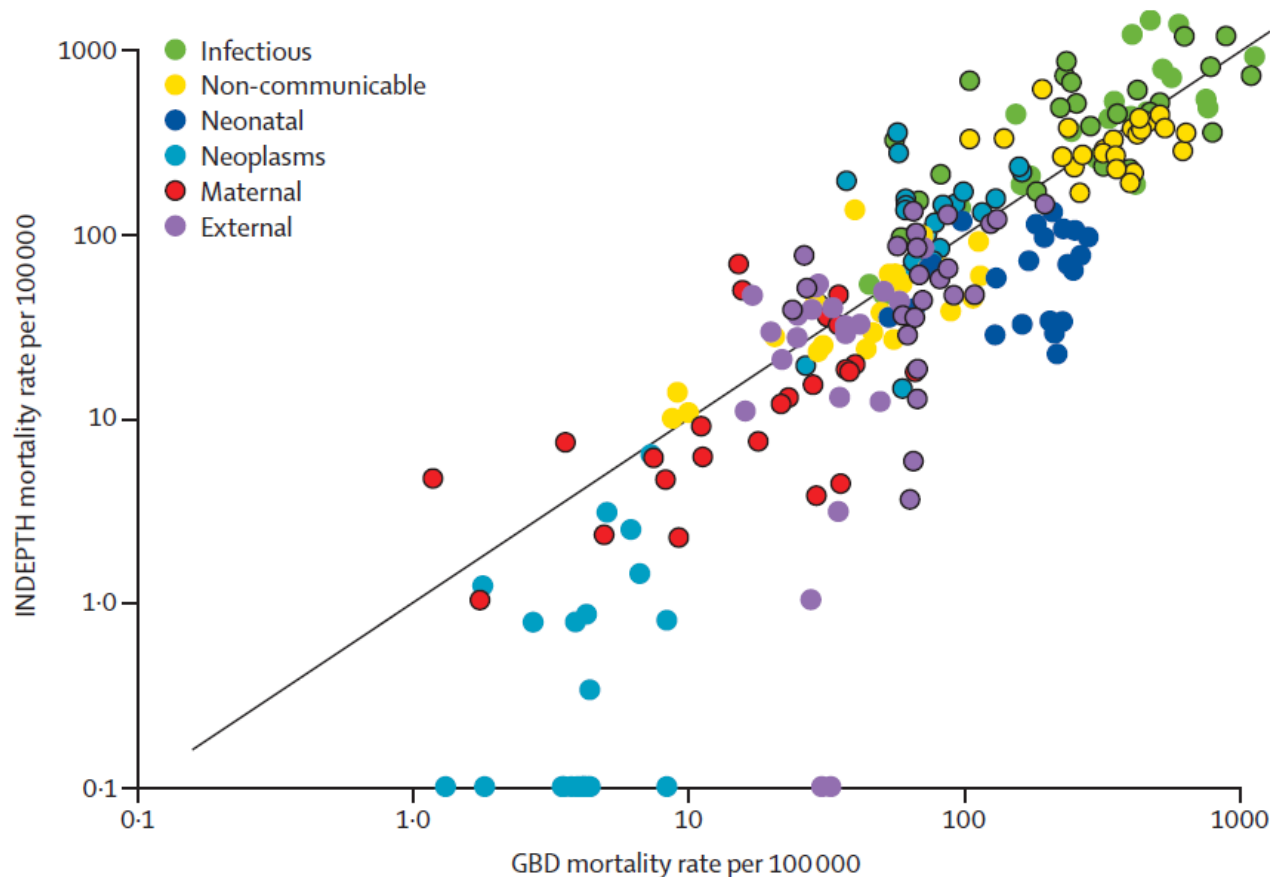
## Verbal autopsy as the most pragmatic solution:

- Verbal autopsy (VA) interviews can be carried out by school leavers with some training
- WHO recently updated international standards for VA to the WHO 2016 version – using a tablet, interviews take around 15-20 minutes per case
- Interview findings can be processed automatically using computer models – a cheap and rapid process
- What is needed to make this happen on a large scale?



# Effectiveness of verbal autopsy:

- Routine VAs automatically processed with the InterVA model achieve high co-validity with Global Burden of Disease cause-specific estimates for low- and middle-income countries



**Concordance correlation between GBD and INDEPTH cause-specific mortality findings in 13 low-income and middle-income countries, by six major cause of death categories.** Each point represents one country, cause category, age group, and 5-year period.

*Lancet Global Health 2016*

## Taking verbal autopsy to scale:

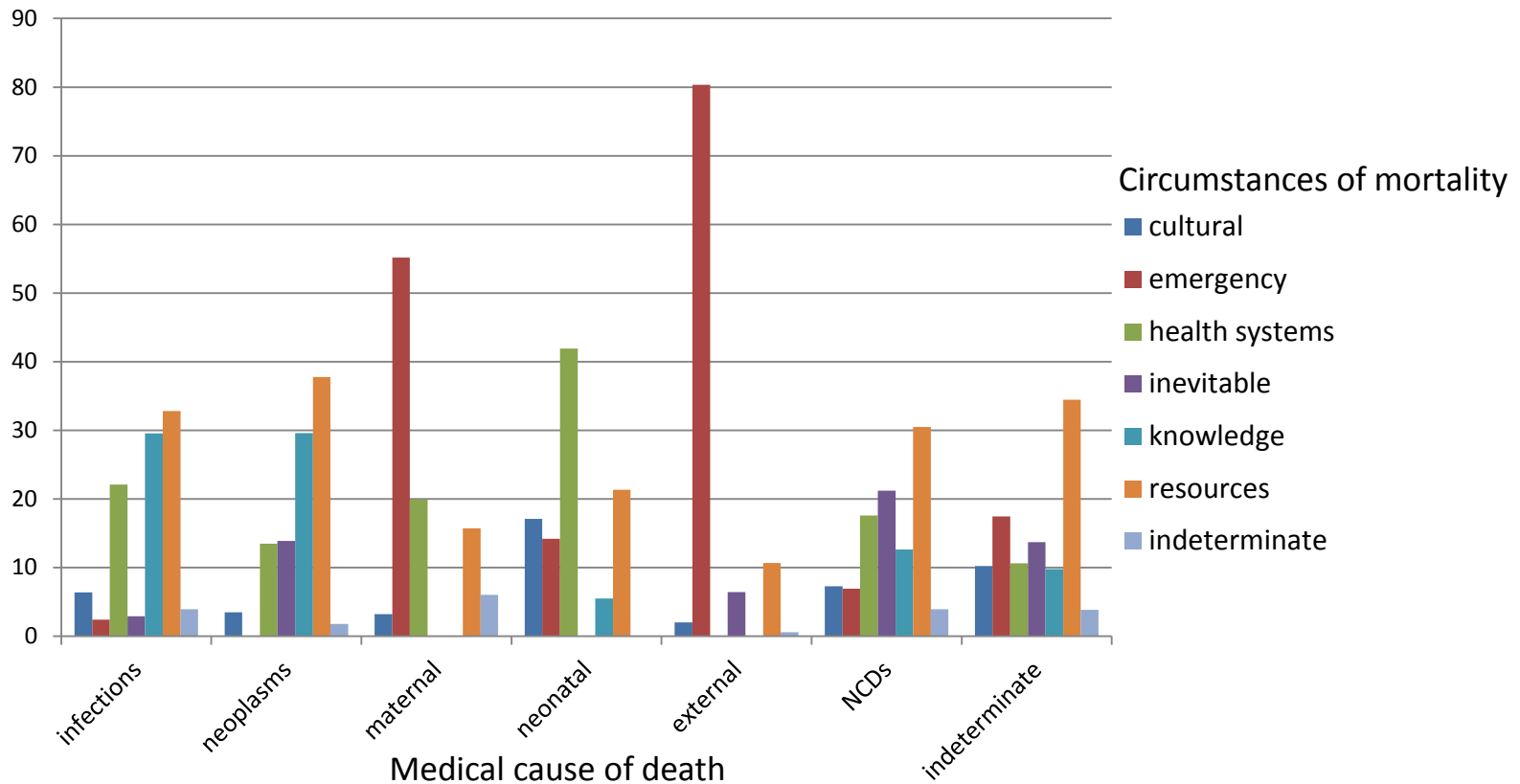
- 37 million deaths annually not adequately registered or reported
- The InterVA-5 model, running on a laptop, processes about 100 VAs per minute, and uses about 4 kB storage per case
- Thus a single laptop running 24/7, with 256 GB storage, could in principle process and store 50 million VAs in a year, i.e. global VA deaths in real-time
- Therefore processing VAs is no longer the limiting factor in closing the global mortality data gap – but need to do VAs!





# Adding value to verbal autopsy

- Apart from assigning medical causes of death, it is important to also understand factors around a death that may have influenced the situation



Global Health Research and Policy 2016;1:2

## **In conclusion:**

- There is still a major gap in global mortality data, predominantly in low- and middle-income countries
- VA is a potential approach to closing this gap; it may not be perfect, but standardised interviews and automatic processing help considerably
- The main outstanding obstacle is actually getting VAs done reliably in-country, in conjunction with registering deaths
- The circumstances of mortality concept adds value to the basic VA cause-of-death concept, and is welcomed by health planners