Data inputs and assumptions in calculating the fatal burden in burden of disease studies

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Years of life lost due to death

$$DALY = \boxed{YLL} + YLD$$

$$\sum_{i=1}^{n} d_i * l_i$$

i = each age (group) from 1 to n
d = number of deaths in each age (group) i
l = standard life expectancy at age of death i (in years)

-> number of deaths for certain cause, age, sex and region
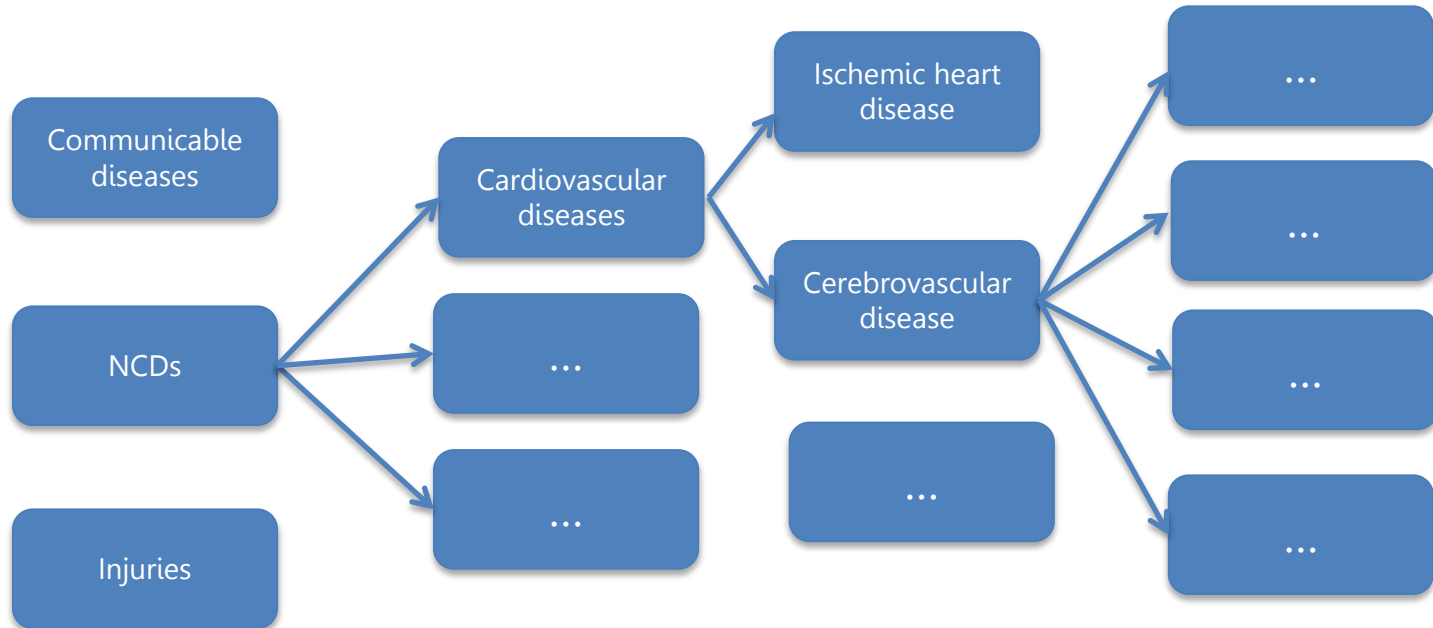
-> life expectancy at age of death

Causes of death statistics

- Information on causes of death (ICD coding)
- age/sex/region/year

- Possible data sources:
  - mortality registers / vital registration
  - Census / surveys
  - Disease registries
  - Verbal autopsy
  - Surveillance, etc.

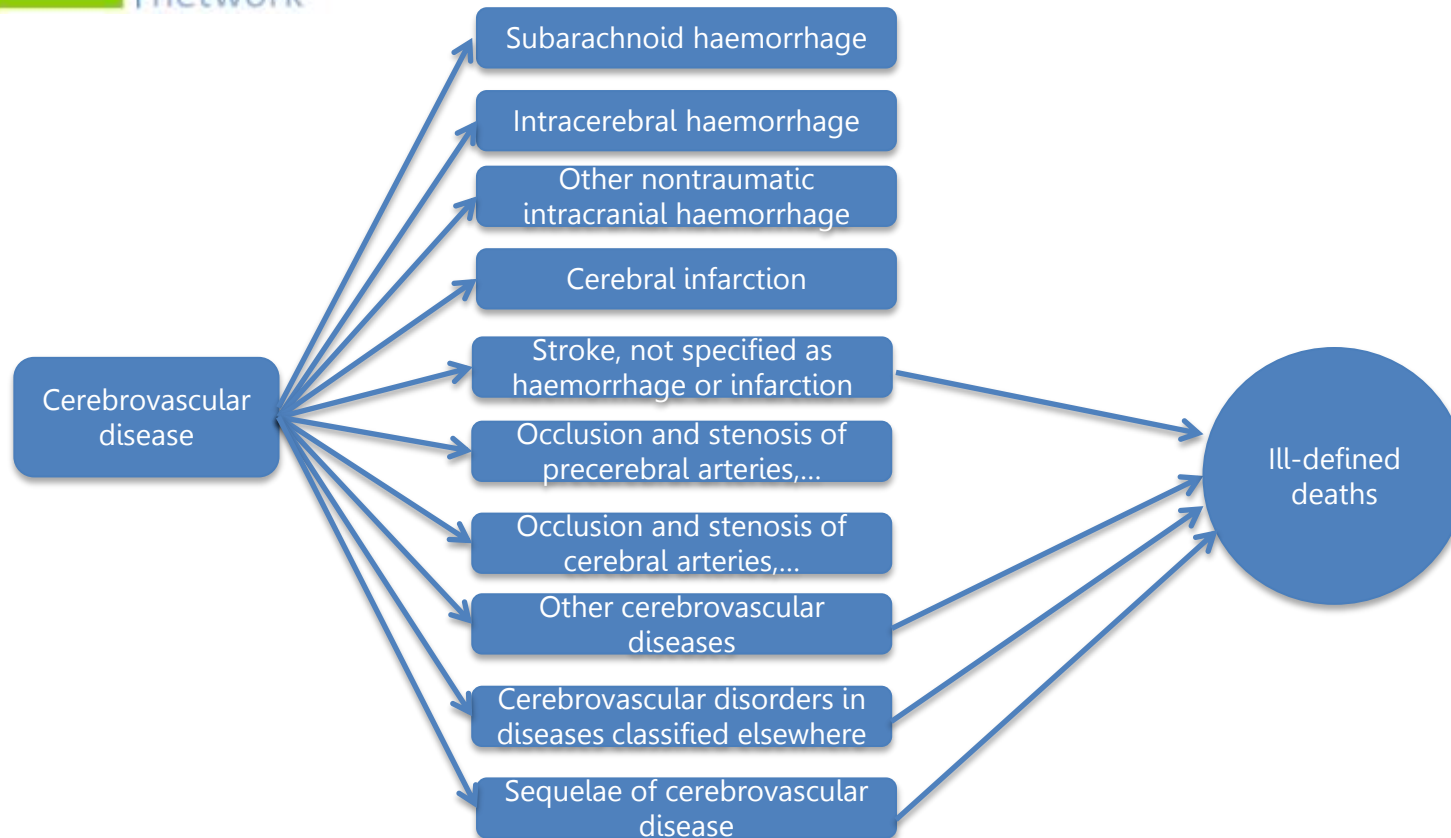# Definition of ill-defined deaths

- Types of IDDs
  - Impossible causes
  - Unspecified causes
  - Symptoms
  - Intermediate causes
  - Unknown, etc.

- Definitions:
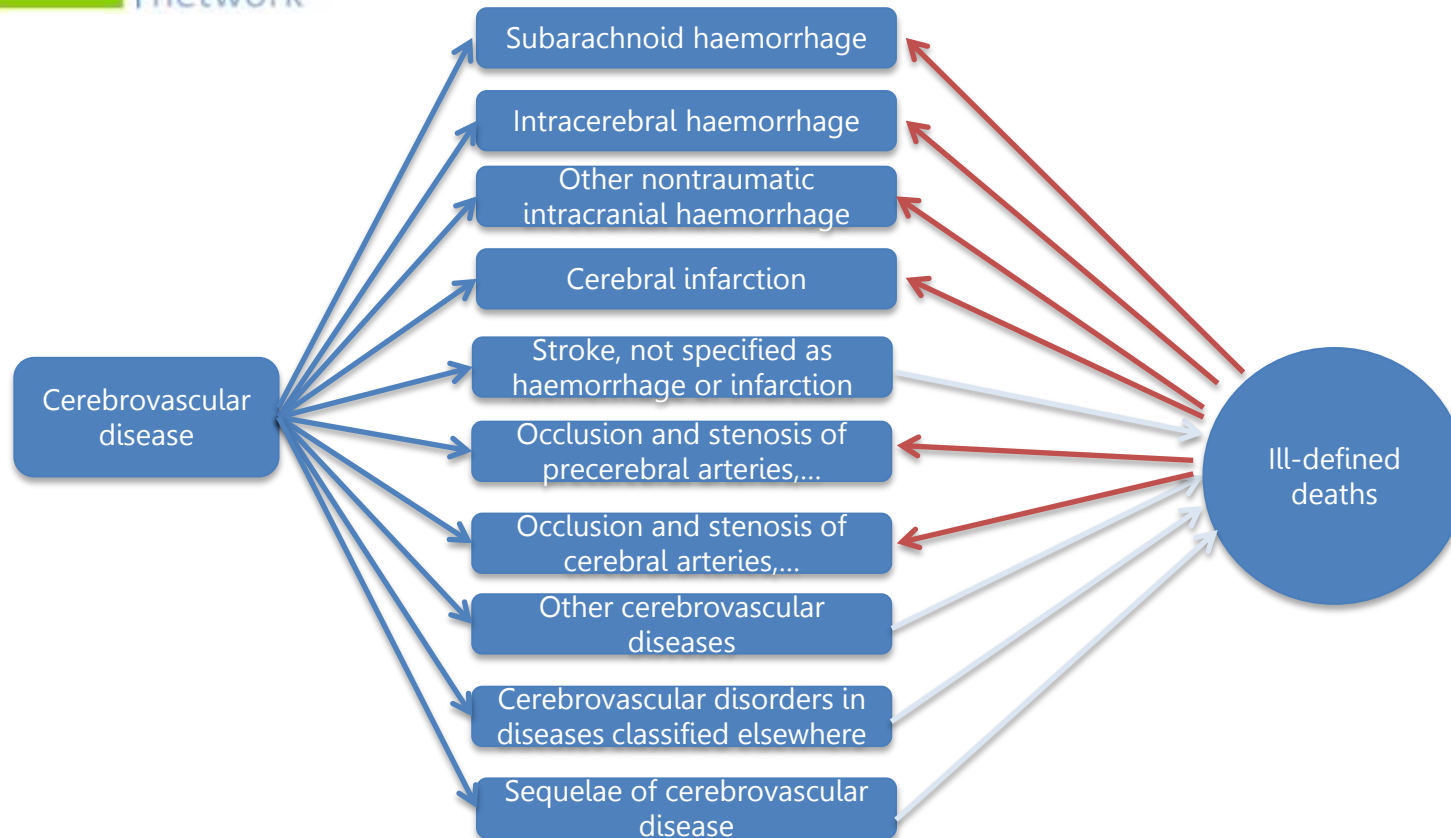 - GBD
  - WHO
  - National

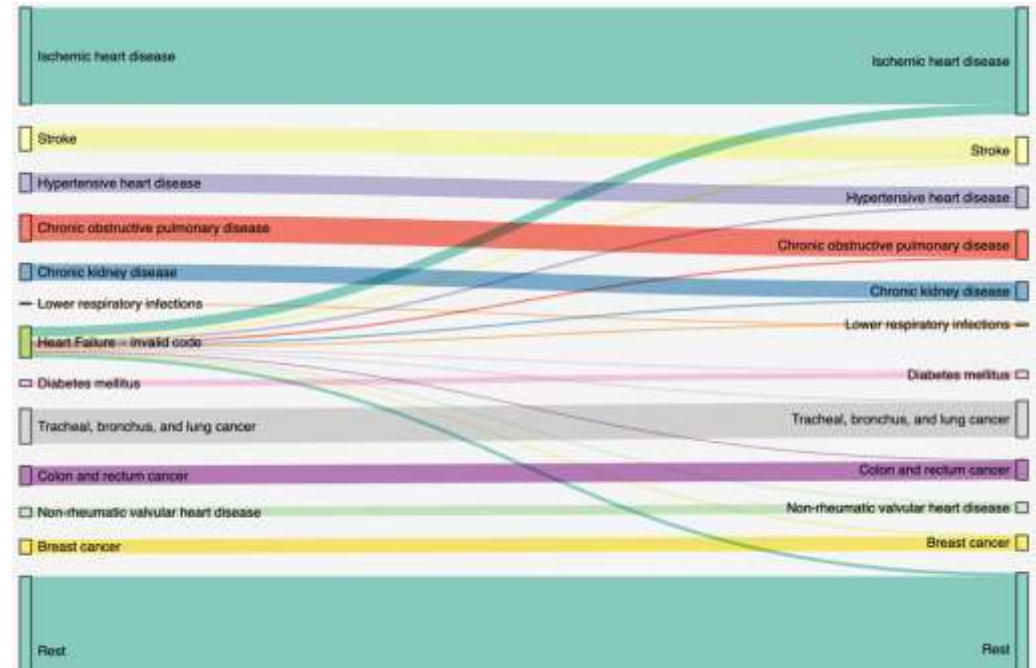# Structure of data

Example of IDDs

IDDs and target codes

Target codes

Groups of plausible codes to which the IDDs are redistributed
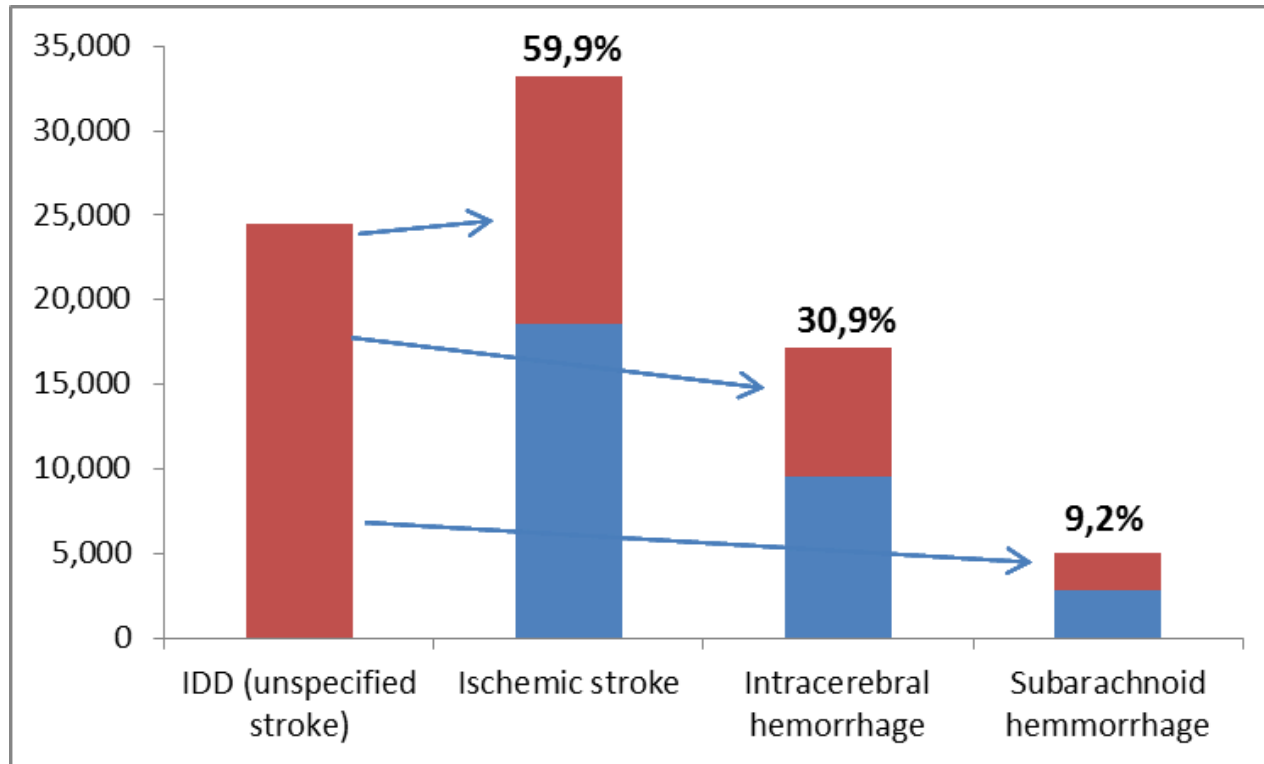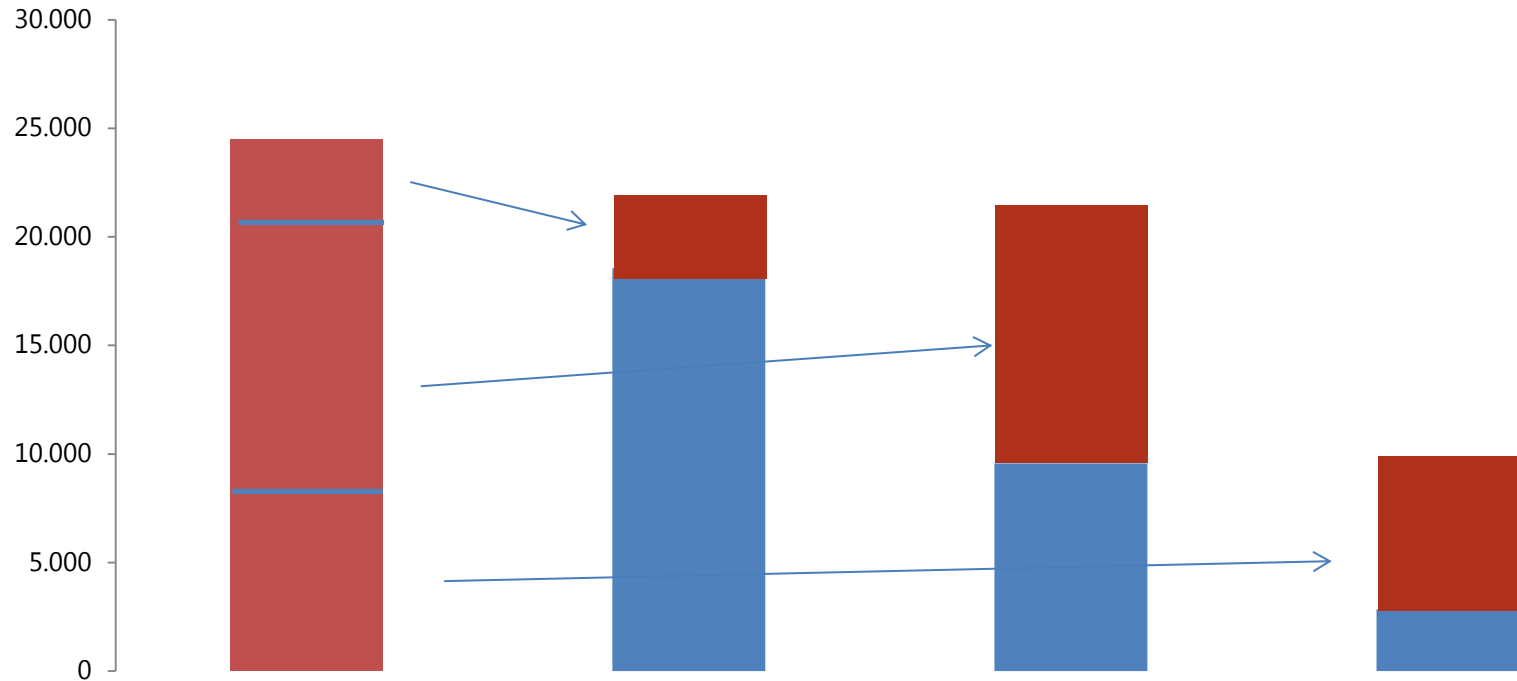
Methods of redistribution of ill-defined deaths

- Proportopnal redistribution
- Fixed proportions
- Regression models
- Experts' opinion
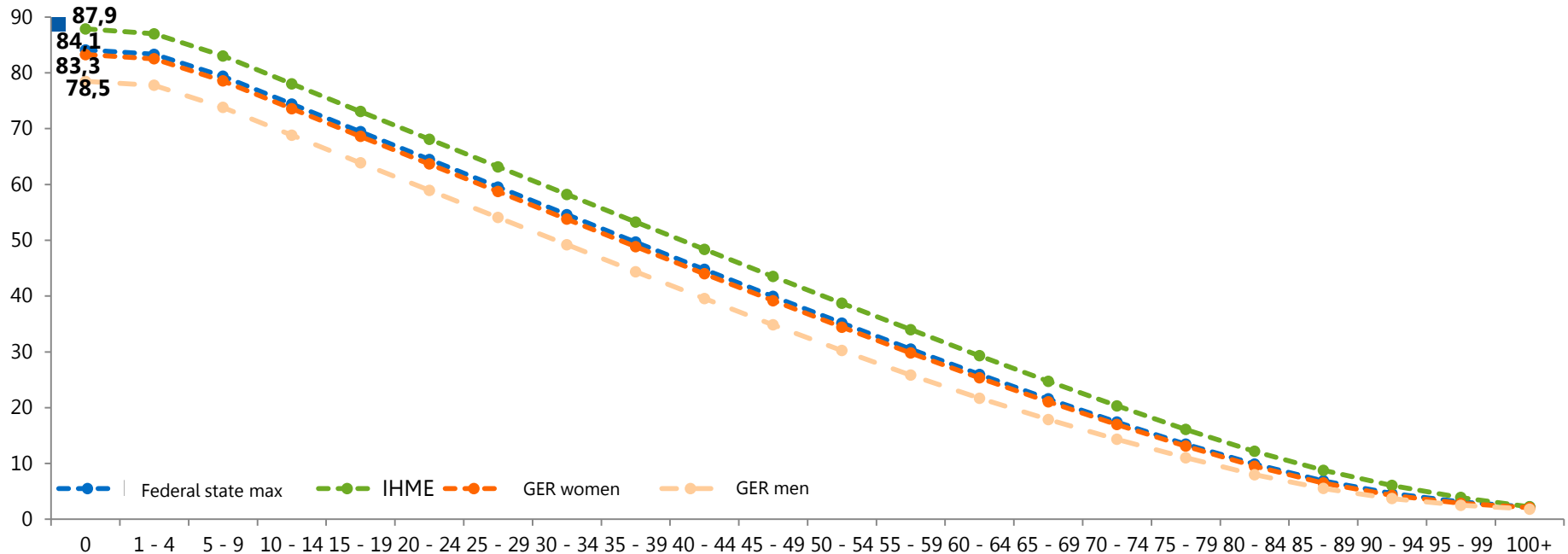- etc

Proportional redistribution

Fixed Proportions

The use of life tables

- number of deaths for each cause are determined

- Methods to determine the number of remaining life years at a given age of death
  - Use of aspirational life table
  - Use of observed or national life tables
  - Using a fixed value (YLL)

Life expectancy

Discussion/conclusion

- Number of deaths for cause/age/sex/year
  - IDDs identification
  - IDDs redistribution (underestimation of the other causes)

- Choice of life expectancy
  - The higher the LE, the higher the YLL
  - Ranking of causes should not be influenced by the LE

Questions or comments?