Workshop on estimating burden of disease metrics

Experiences from the German Burden of Disease Study

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Main aim

How do governments, professionals or the public decide which diseases or health risks are most important? ⇨ **prioritization**

Back pain

Coronary Heart disease

Common cold

Source: adapted from European Burden of Disease Network (burden-EU)
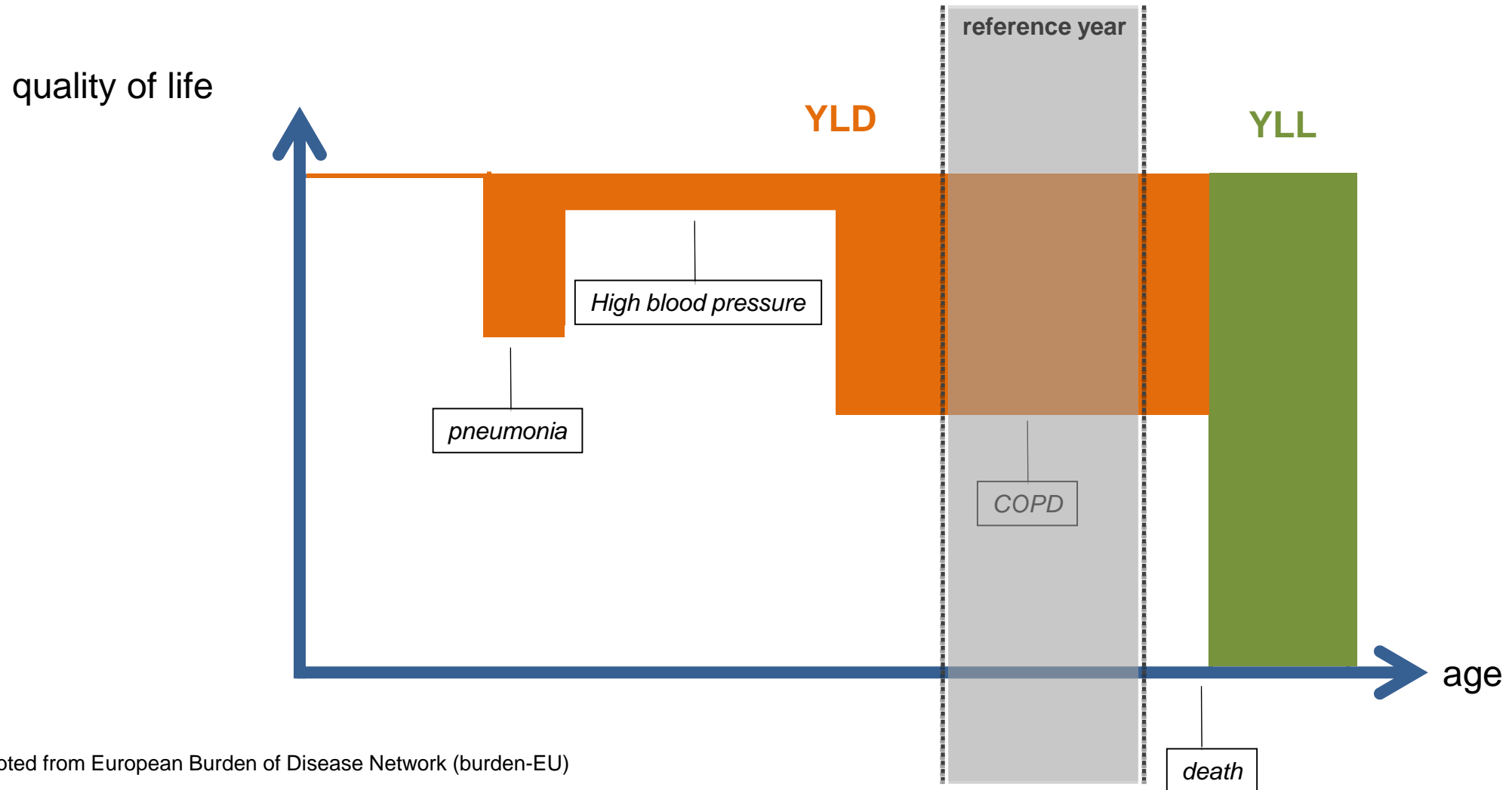
BURDEN OF DISEASE

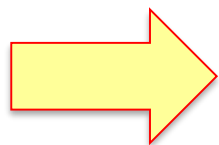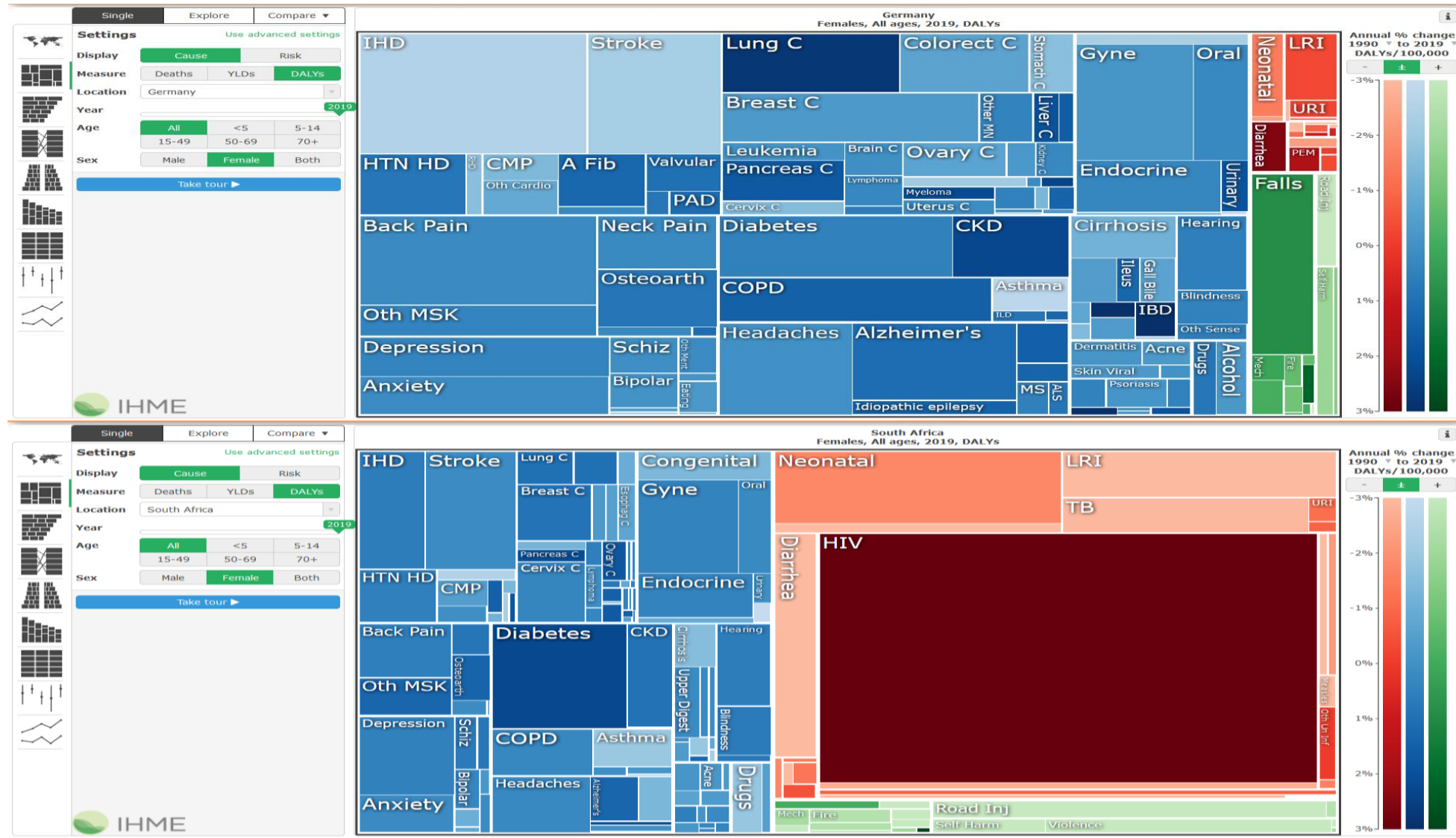|		
MORBIDITY:	prevalence / incidence	severities, sequelae, duration, quality of life
MORTALITY:	deaths	age at death, remaining life expectany

Concept

Source: adapted from European Burden of Disease Network (burden-EU)

Indicators

DALY
Disability adjusted life years
Years of life lost to disease and death

Overall disease burden

YLD
Years lived with disability
Years of life lost to disease
prevalence ■ duration ■ severity ■ disability weight

Morbidity

YLL
Years of life lost to death
Years of life lost to death
age at death ■ remaining life expectancy

Mortality

=

+

Disease and death can be compared on the basis of a uniform measure: years of life lost

GBD Study

GBD2001

GBD2004

WHO Global Health Estimates

World Health Organization

GBD1990

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1996 > 2006 > 2007 > 2008 > 2012 > 2015 > 2016 > 2017 > 2018 > 2020
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IHME

THE GLOBAL BURDEN OF DISEASE

GBD2010

GBD2013

GBD2015

GBD2016

GBD2017

GBD2019

THE LANCET

THE GLOBAL BURDEN OF DISEASE: GENERATING EVIDENCE, GUIDING POLICY

INSTITUTE FOR HEALTH METRICS AND EVALUATION   UNIVERSITY OF WASHINGTON

THE LANCET

THE LANCET

THE LANCET

All causes
Both sexes, Age-standardized, 2019, DALYs per 100,000

| Lesotho (90,772 DALY/100,000) | Central African Republic (88,071 DALY/100,000) | Singapore (15,045 DALY/100,000) | Japan (15,886 DALY/100,000) |

15k   20k   30k   40k   50k   60k   70k   80k   91k

Set scale   Reset

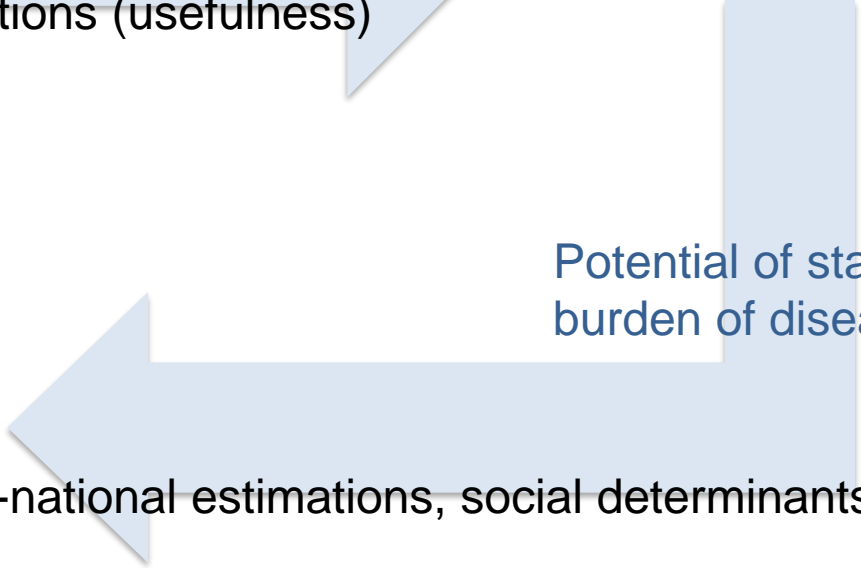Source: European Burden of Disease Network (burden-EU)

GBD Study

GBD Study

- Data (completeness)

- Methods (transparency)
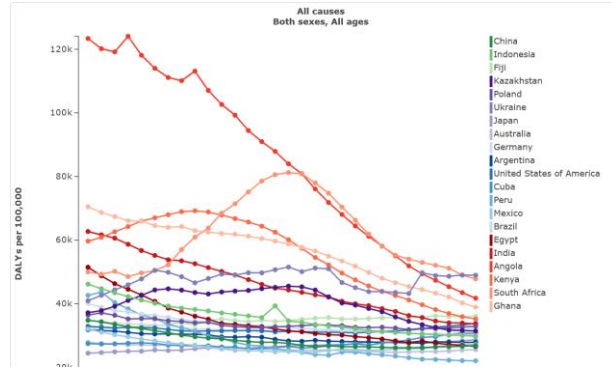
- Lack of sub-national estimations (usefulness)

Low acceptance at the national level

Potential of stand-alone burden of disease studies

- Improved data quality

- Transparency of calculations

- Specific extensions (e.g. sub-national estimations, social determinants)

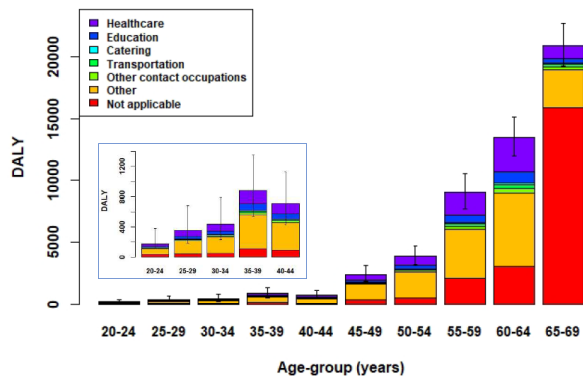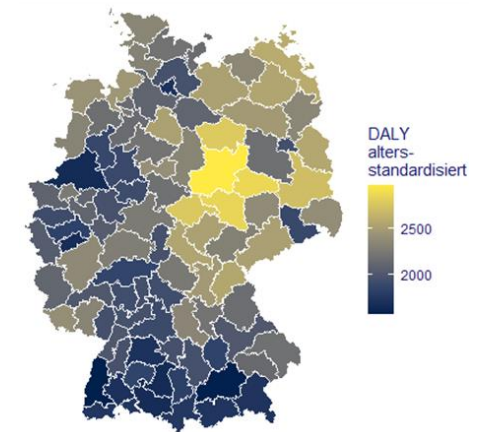- More reliable information base for policy makers

Comparisons

Time trends
How has the burden of diabetes developed over the last 10 years? Have our programs had an impact?
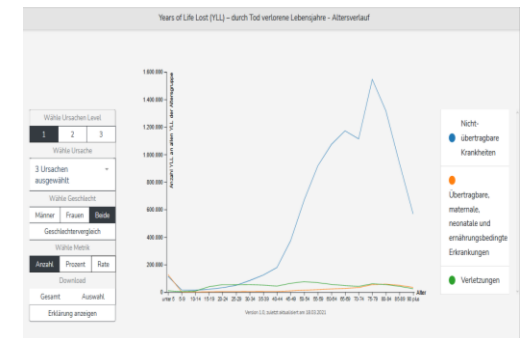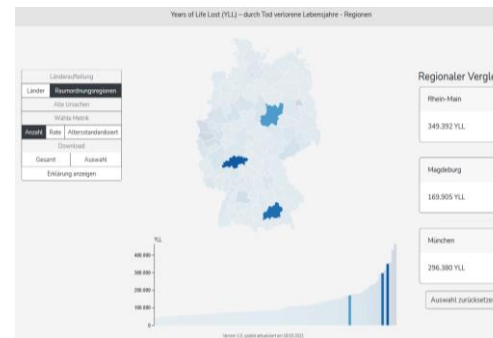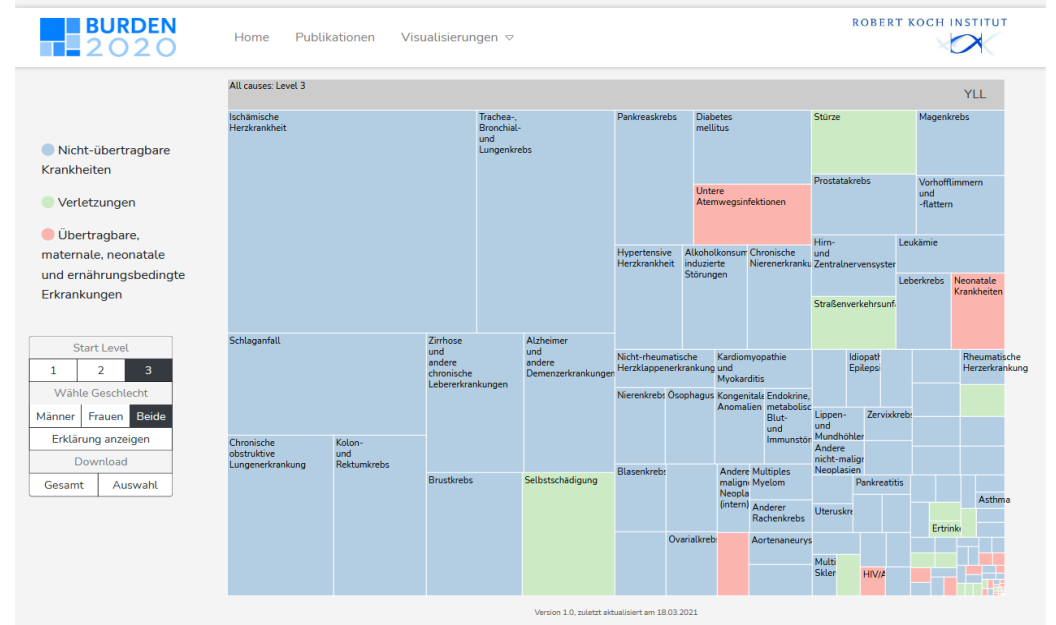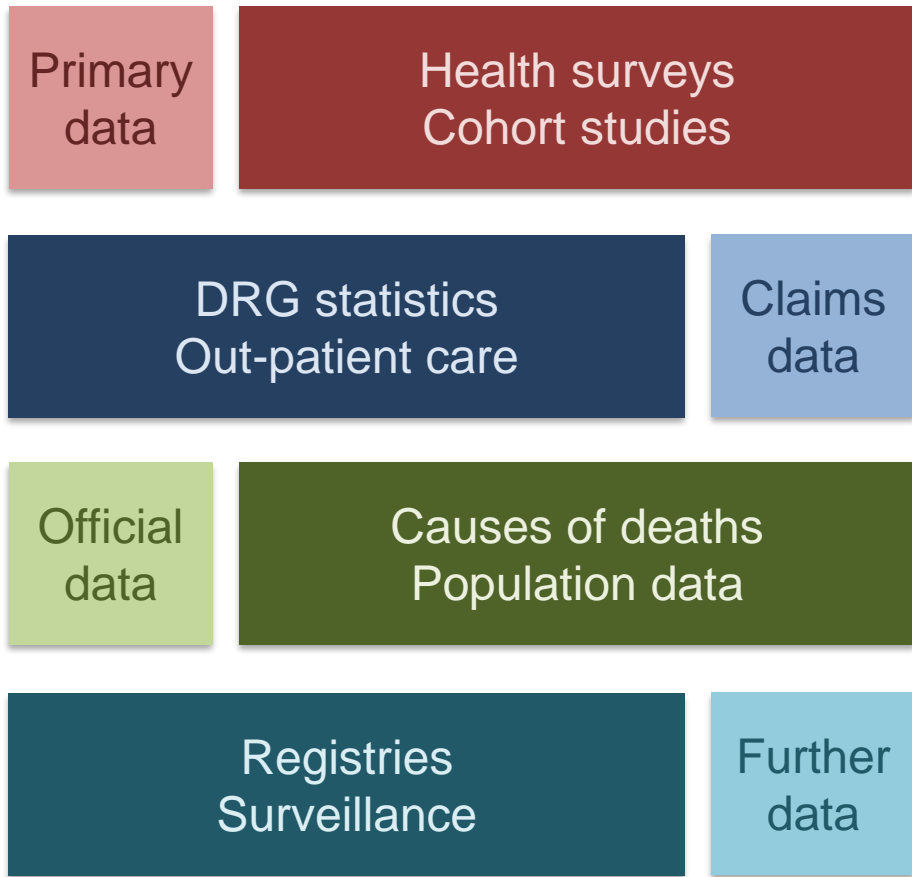
Subnational differences
Does the disease burden of diabetes vary across the country? In which regions do we need to intervene?

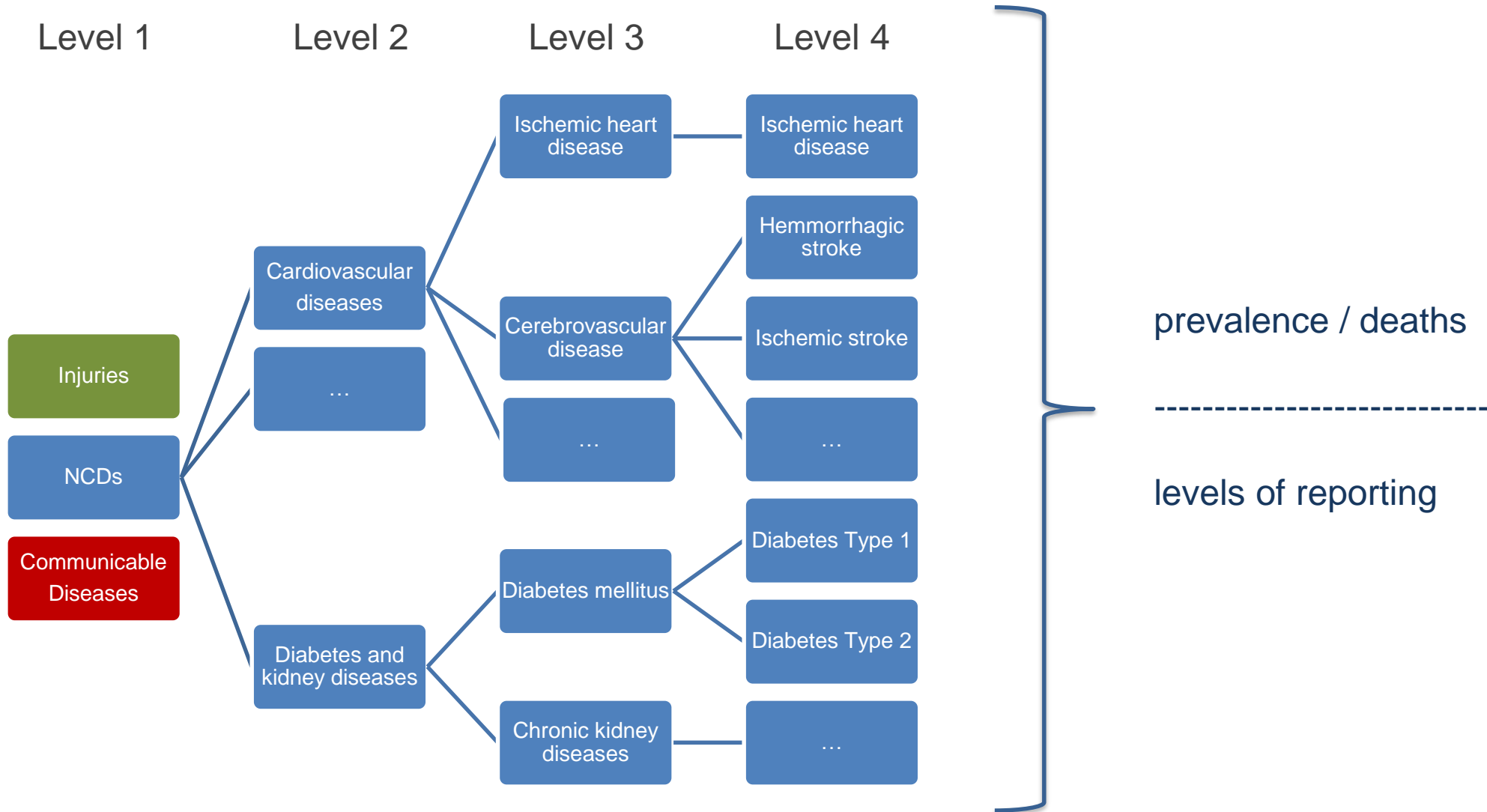**Social determinants**
Which occupational, educational, ethnic groups, etc. account for most of the burden of diabetes?

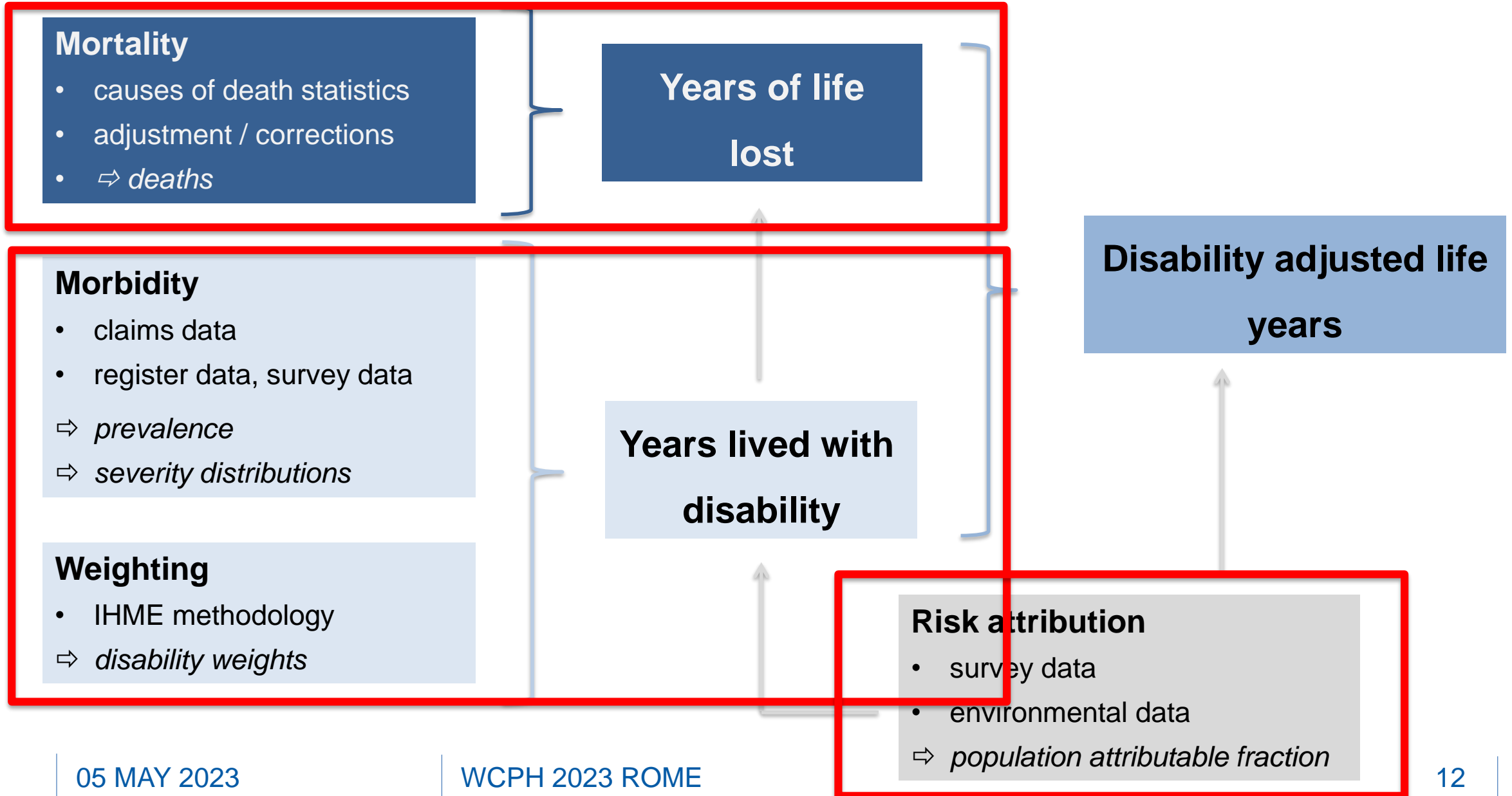# Data & information

Primary data

Health surveys
Cohort studies

DRG statistics
Out-patient care

Claims data

Official data

Causes of deaths
Population data

Registries
Surveillance

Further data

https://www.daly.rki.de/en

Levels of reporting

Severities

Severity grade	Case definition	Disability weight
Uncomplicated	Absence of sequelae	0.133
Neuropathy	Diabetes with neurological complications (ICD .4-Codes); diabetic mononeuropathy (G59.0) and diabetic polyneuropathy (G63.2)	a
Diabetic foot	Diabetic foot syndrome (ICD .74 and .75-Codes) and treatment (outpatient sector) of diabetic foot (EBM-number 02311)	a
Amputation (with treatment)	Amputation and disarticulation of the lower extremities (OPS 5-864.3 – 5-864.y) and revision of an amputation area (OPS 5-866.3, 5-866.4); must: combination with a Diabetes-Code	a
Amputation (without treatment)	not relevant for Germany	-
Moderate vision impairment	Diabetic rhetinopathy (H36.0) + at mininum one eye with moderate vision impairment (H54.2; H54.6)	0.031
Severe vision impairment	Diabetic rhetinopathy (H36.0) + at mininum one eye with severe vision impairment (H54.1; H54.5)	0.184
Blindness	Diabetic rhetinopathy (H36.0) + blindness of both eyes (H54.0, H54.4)	0.187

Diabetes mellitus

* EBM and OPS are codes that are specific to German claims data
a - Combined weight according to multiplicative formula

BURDEN 2020

ROBERT KOCH INSTITUT

Mortality
- causes of death statistics
- adjustment / corrections
- ⇨ *deaths*

Years of life lost

Morbidity
- claims data
- register data, survey data
- ⇨ *prevalence*
- ⇨ *severity distributions*

Years lived with disability

Disability adjusted life years

Weighting
- IHME methodology
- ⇨ *disability weights*

Risk attribution
- survey data
- environmental data
- ⇨ *population attributable fraction*

DANKE
MERCI GRAZIE
¡GRACIAS
THANKS