

National Institute for Public Health and the Environment
Ministry of Health, Welfare and Sport

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Severity distributions & Disability Weights

Burden of Disease International Workshop

Brussels 18-19 September

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Severity Distributions (SD) & Disability Weights (DW)

Just to freshen up:

- YLD by disease = Prevalence by disease x **DW by disease**
- DW by disease = SUM(**DW by disease sequela** x **SD by disease sequela**)

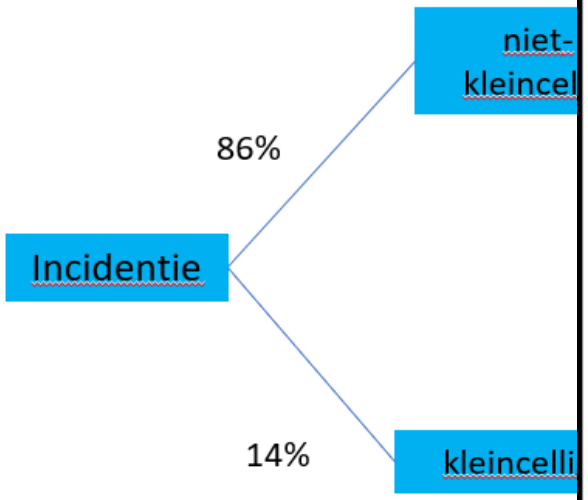
How to estimate sequela / disease states / health states?

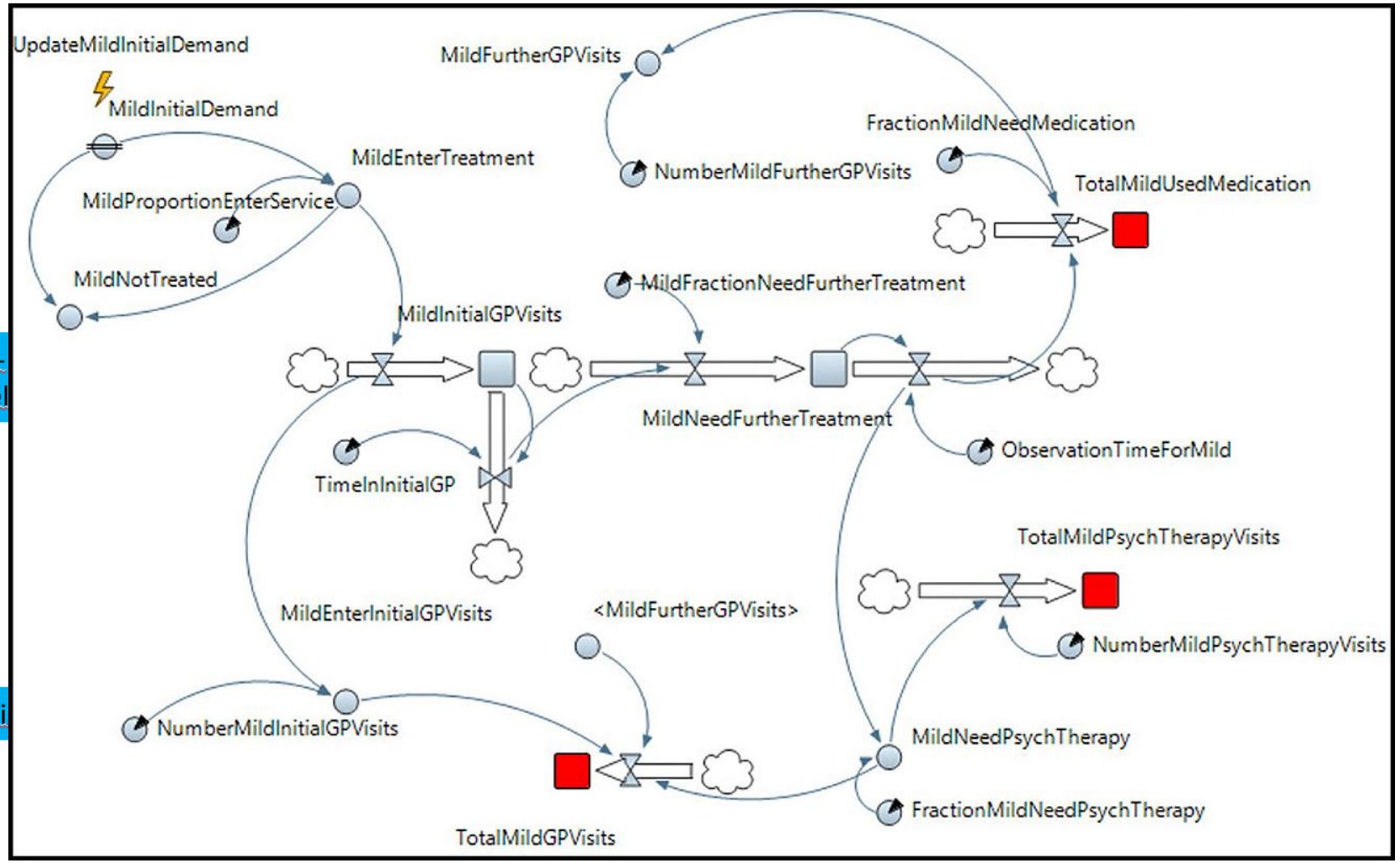
- Define which disease states
  - Relevance (mild-moderate-severe)
  - Data availability

- Data availability
  - Registration
  - Diseases modelling
  - Expert judgement
  - (or a combination)

Disease models

Longkanker





Update Dutch DALYs (2024)



- New disability weights
  - Old DWs from Dutch Disability Weight Study 1997
  - Newly added diseases
  - ~250 disability weights for sequelae
- Updated severity distributions
  - Changes in early detection, survival rates, treatments
- Substantial efforts needed (and a lot of data)

New Dutch DW study - methods

- Data collected in 2023
- Methods similiar to GBD & Euro DW study
- General population 18-75 years
- N=3994
- Number of health states = 210 -> 47 new
- Short lay descriptions without label
- Paired comparison method

Health states tailored to available epidemiological data

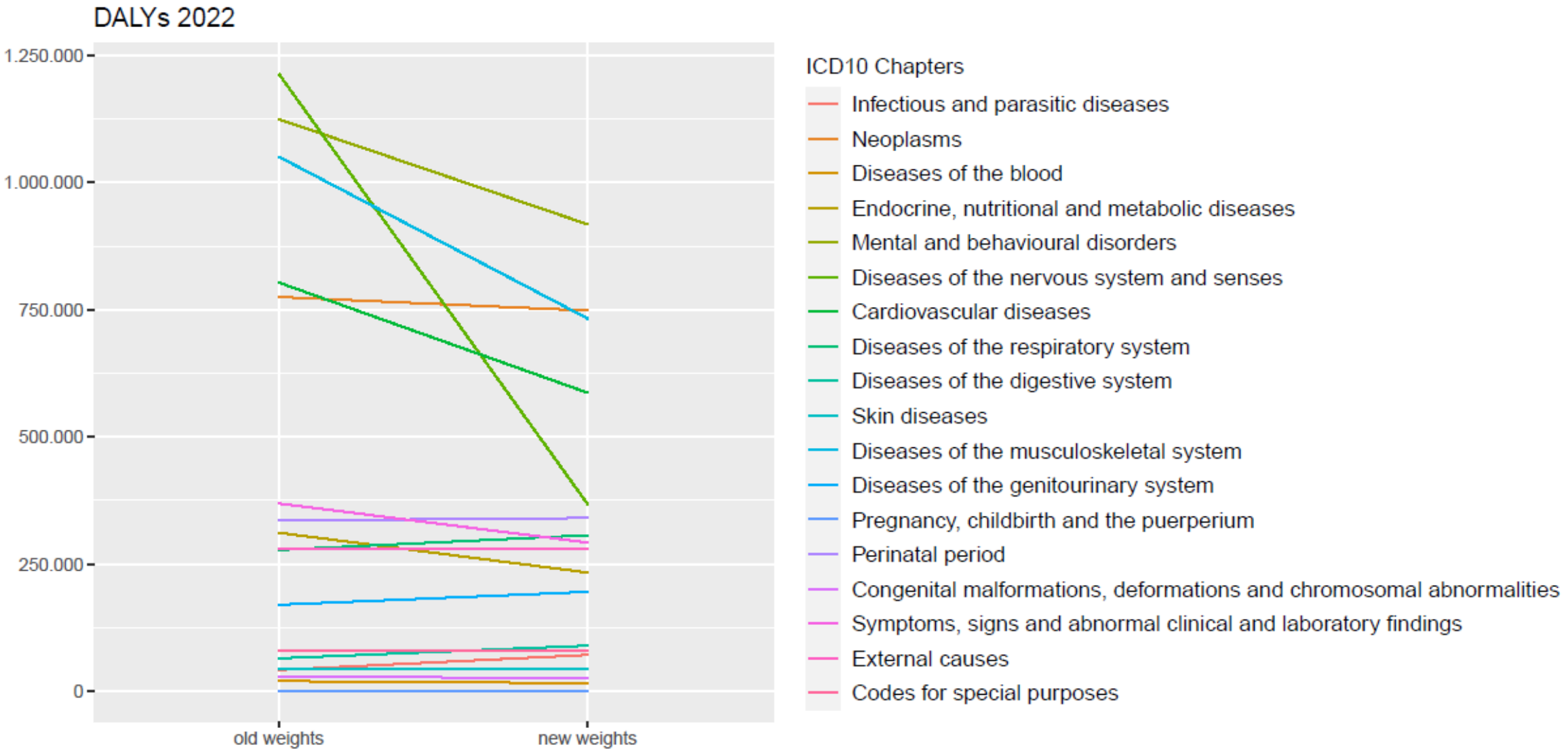


New Dutch DW study - results

- DWs ranged from 0.007 to 0.741
- Comparison of Dutch and Euro DWs showed high correlation (0.942)
- Socio-demographic characteristics no influence on health state valuations

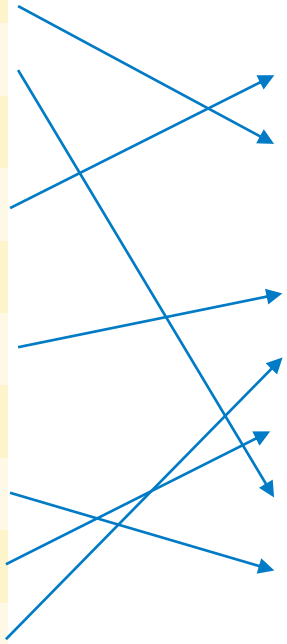
	Disability weight (95%UI)
Infectious disease	
Infectious disease: acute episode, mild	0.013 (0.007–0.020)
Infectious disease: acute episode, moderate	0.082 (0.056–0.115)
Infectious disease: acute episode, severe	0.213 (0.142–0.301)
Diarrhoea: with complications	0.436 (0.326–0.554)
Diarrhoea: without complications	0.145 (0.097–0.211)
HIV/AIDS: receiving antiretroviral treatment	0.106 (0.071–0.152)
AIDS: not receiving antiretroviral treatment	0.510 (0.404–0.622)
Tuberculosis: with HIV infection	0.391 (0.287–0.505)
Acute upper respiratory infections	0.015 (0.009–0.022)
Cancer	
Cancer, diagnosis and primary therapy	0.330 (0.241–0.430)
Cancer, metastatic	0.473 (0.362–0.595)
Mastectomy	0.064 (0.043–0.091)
Stoma	0.074 (0.049–0.104)
Terminal phase, with medication (for cancers, end-stage kidney/liver disease)	0.540 (0.432–0.663)
Terminal phase, without medication (for cancers, end-stage kidney/liver disease)	0.499 (0.389–0.617)
Cancer: residual stage, after treatment	0.181 (0.121–0.255)
Cardiovascular and circulatory disease	
Acute myocardial infarction: days 1–2	0.338 (0.238–0.444)
Cardiac conduction disorders and cardiac dysrhythmias	0.311 (0.221–0.414)
Heart failure: mild	0.087 (0.060–0.122)
Heart failure: moderate	0.139 (0.093–0.199)
Heart failure: severe	0.283 (0.196–0.380)
Stroke: long-term consequences, mild	0.013 (0.008–0.020)

Results: old versus new disability weights



Top 10 DALYs for causes 2018 vs 2022

Rank	Cause	DALY 2018
1	Coronary heart diseases	271.000
2	Stroke	248.000
3	Diabetes	201.000
4	COPD	188.000
5	Intellectual disabilities	167.000
6	Lung cancer	166.000
7	Osteoarthrosis	166.000
8	Personal, work and sports accidents	165.000
9	Dementia	164.000
10	Neck and back pain	163.000



Rank	Cause	DALY 2022
1	**Mood disorders**	271.000
2	COPD	192.000
3	Coronary heart diseases	169.000
4	**Anxiety disorders**	160.000
5	Lung cancer	156.000
6	Neck and back pain	147.000
7	Dementia	141.000
8	Stroke	135.000
9	Personal, work and sports accidents	127.000
10	Alcohol-related disorders	111.000

Findings Dutch DALYs

- Substantial changes: mental conditions ranked (much) higher, CVD lower
- As a result: changes in allocation to determinants (e.g. CVD)
- A lot of effort to communicate these results especially to policy makers



Points for discussion

Universality of DW

- Cultural and country-specific aspects (see EDW)

Changes over time

- Changes in how disease states are valued (e.g. mental health)
- Changes in distribution of SD (e.g. screening & early detection, better treatments)

Data, Data, Data (more synergy between countries)

How to communicate differences