Calculating Years of Life Lost

Results from the German Burden of Disease Study BURDEN 2020

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Burden of disease indicators
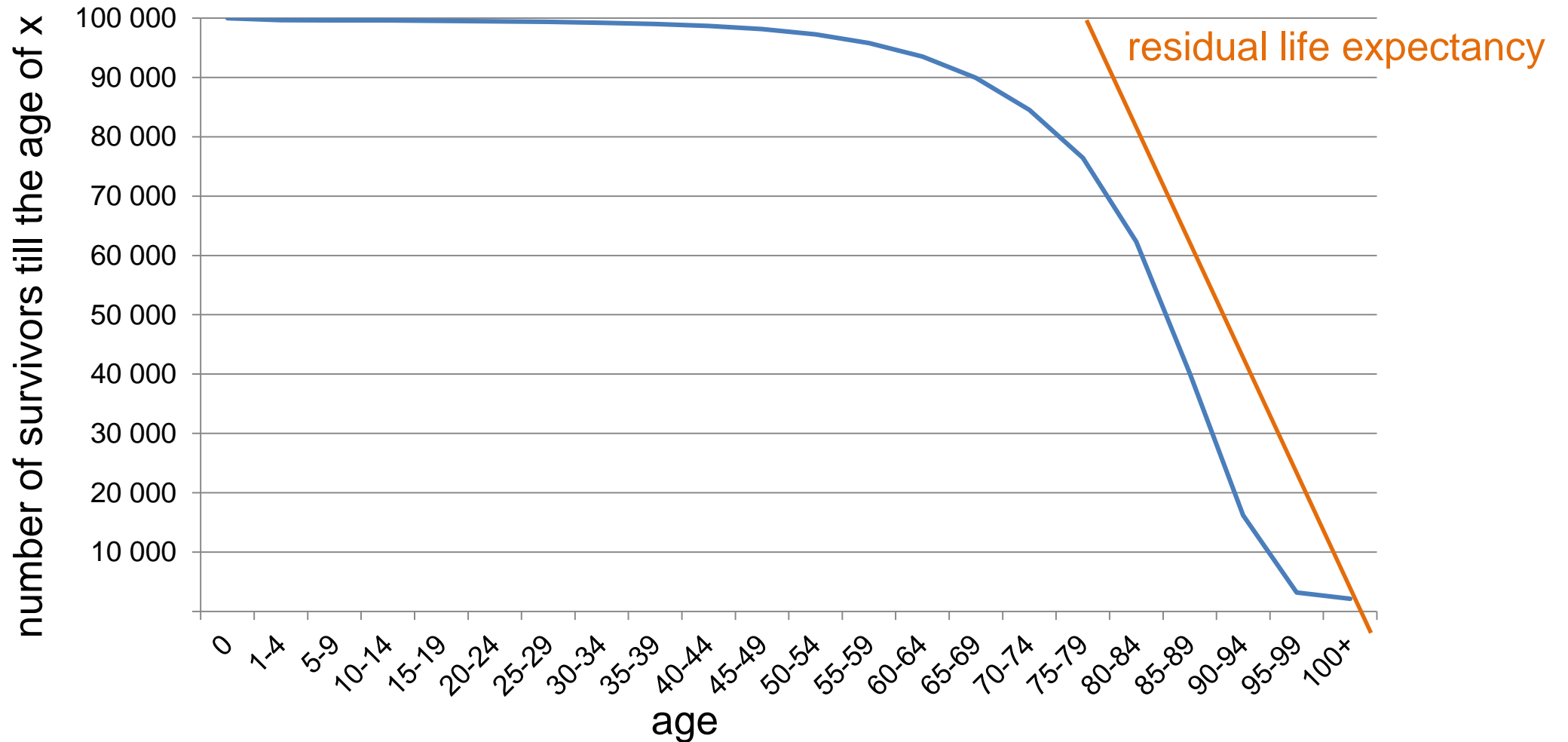
YLD

Years lived with disability
(syn. Years of healthy **life lost due to disability**)
prevalence / incidence ▪ severtiy distribution ▪ duration ▪ disability weights

+

YLL

Years of life lost due to mortality
Age at death * remaining life expectancy

=

DALY

Disability-adjusted life years

Data

- German causes of death statistics *(Todesursachenstatistik)*, 2017

- „Monocausal" registration of underlying cause of death (ICD-10-Code)

- Deaths with non-informative ICD-codes (25.8%) are redistributed (results in UI: uncertainty intervals)

- ICD-Codes are assembled in cause groups
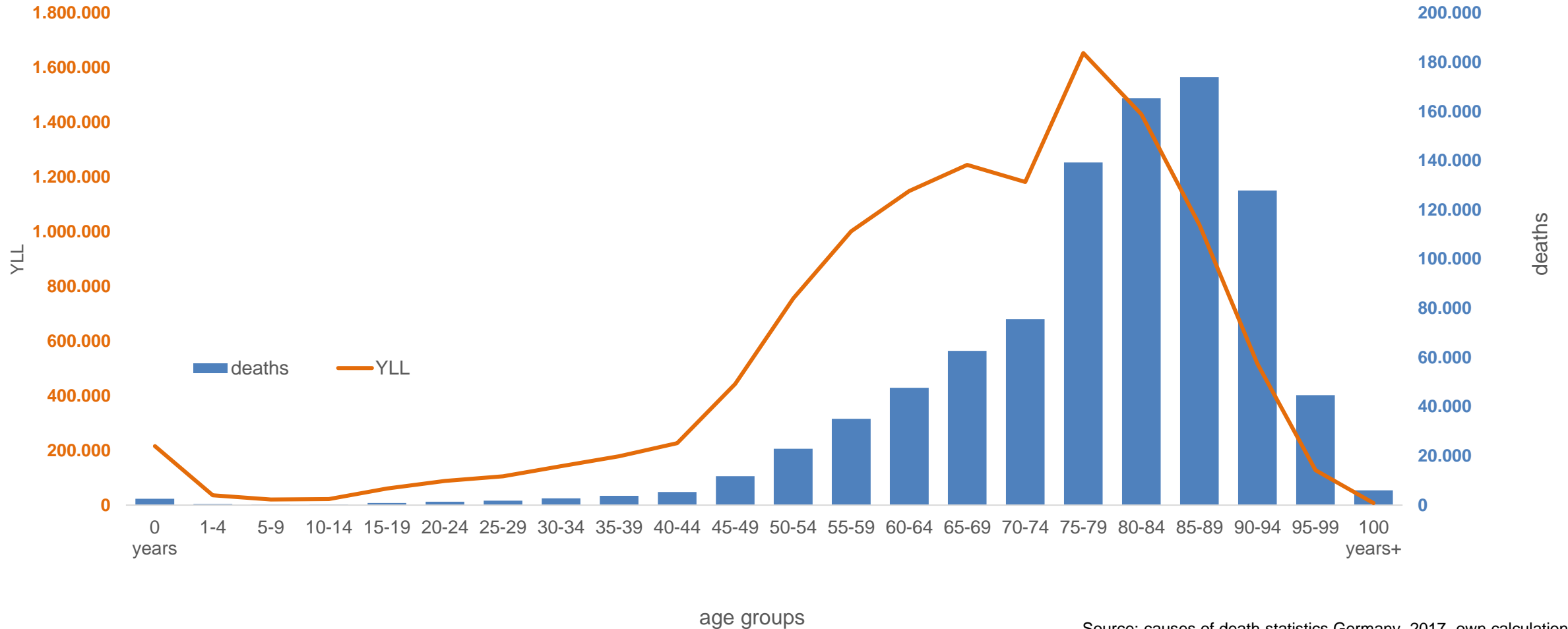
Calculation of YLL

YLL

YLL represent the remaining average life expectancy of a person at the time of death.

They can be calculated by: - sex,
- age,
- region,
- for specific **causes of death**

Results

Deaths and YLL by age groups

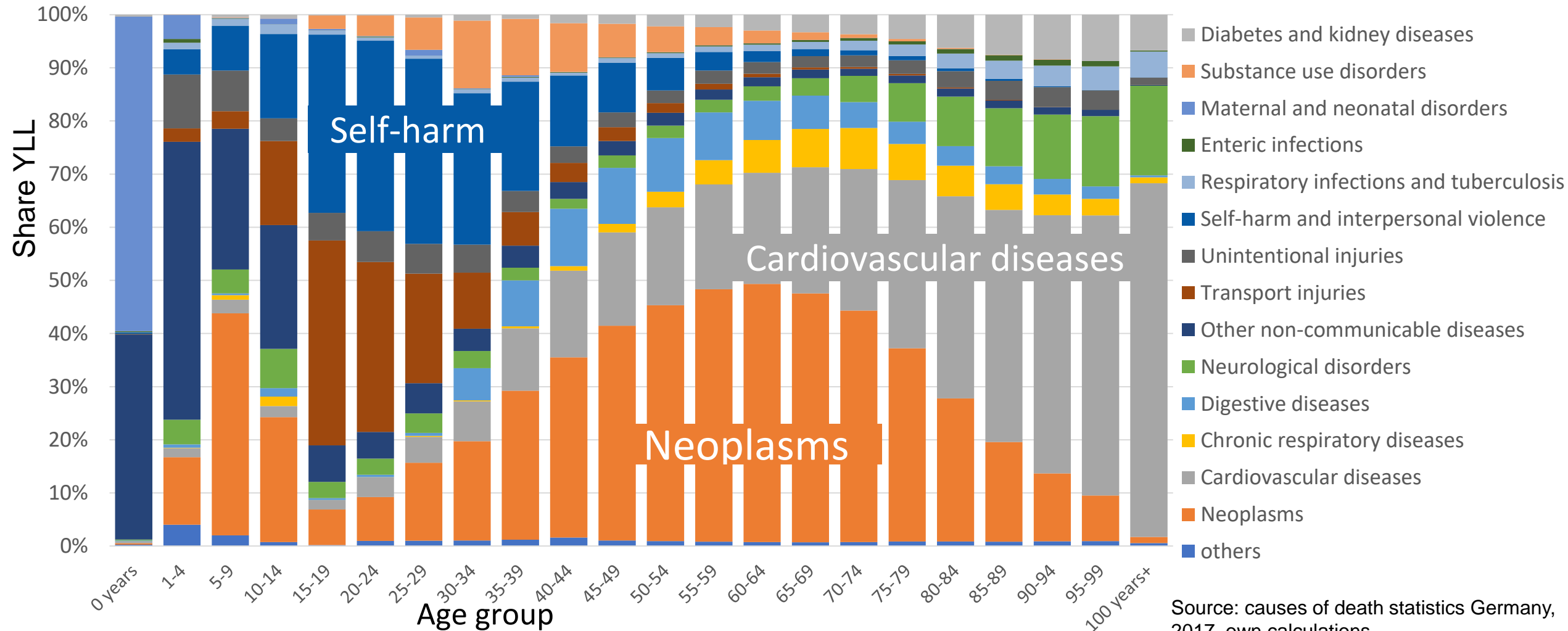Source: causes of death statistics Germany, 2017, own calculations

FIGURE 3

The top 20 causes of death in terms of years of life lost (YLL) and numbers of deaths (level 3)*

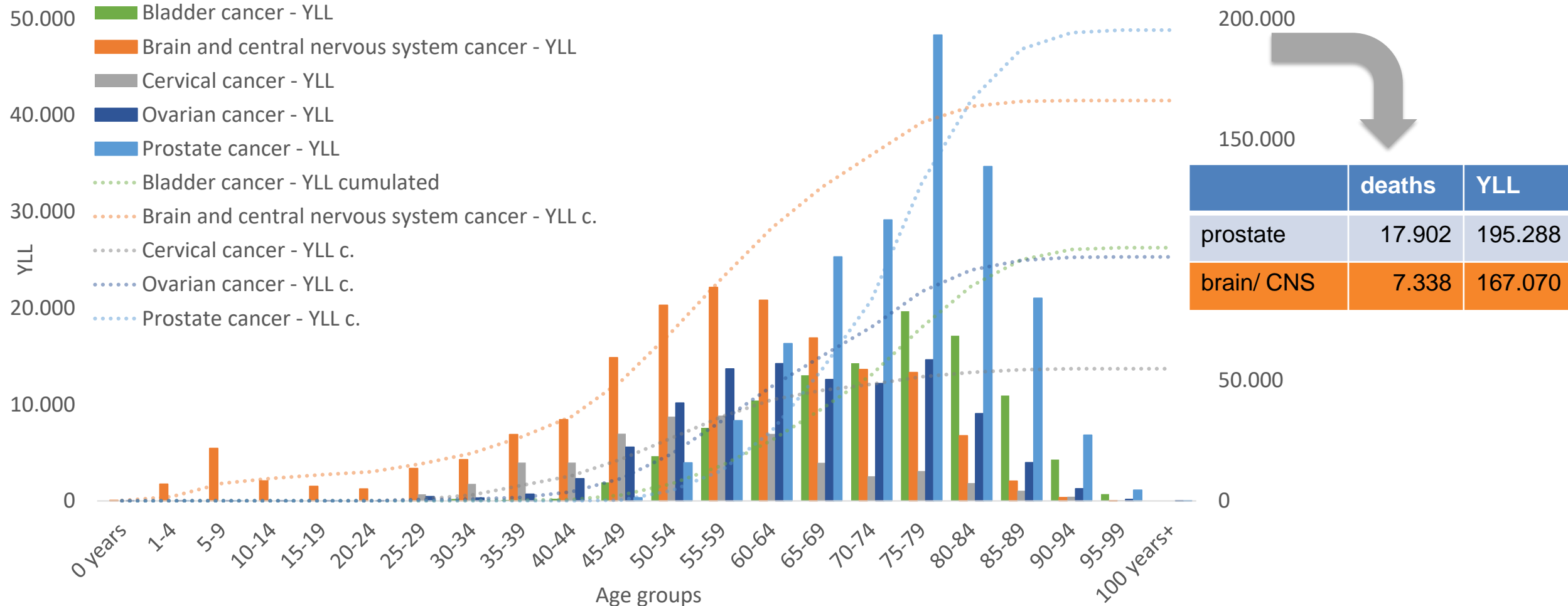| Rank	Cause of death	Deaths	UI		Rank	Cause of death	YLL	UI
1	Ischemic heart disease	169 349	(168 885–169 898)		1	Ischemic heart disease	1 710 791	(1 697 948–1 721 272)
2	Stroke	65 218	(64 938–65 525)		2	Lung cancer	945 651	(937 383–953 606)
3	Dementia	56 100	(55 943–56 278)		3	Stroke	628 518	(622 067–633 506)
4	Lung cancer	55 032	(54 710–55 302)		4	Chronic obstructive pulmonary disease	524 237	(520 999–527 792)
5	Chronic obstructive pulmonary disease	43 538	(43 279–43 787)		5	Colon cancer	457 692	(453 468–462 557)
6	Colon cancer	34 156	(33 856–34 421)		6	Chronic liver disease	418 522	(413 186–423 501)
7	Hypertensive heart disease	32 227	(31 904–32 567)		7	Dementia	392 045	(385 648–396 716)
8	Chronic kidney disease	27 741	(27 538–28 017)		8	Breast cancer	362 538	(358 700–366 134)
9	Diabetes mellitus	25 720	(25 566–25 883)		9	Self-harm	350 986	(346 687–355 683)
10	Lower respiratory infections	24 611	(24 423–24 808)		10	Pancreatic cancer	326 491	(323 011–329 954)
11	Breast cancer	22 792	(22 576–22 993)		11	Diabetes mellitus	271 310	(268 758–273 640)
12	Atrial fibrillation and flutter	22 238	(22 136–22 355)		12	Lower respiratory infections	219 500	(216 472–222 014)
13	Pancreatic cancer	21 963	(21 760–22 133)		13	Hypertensive heart disease	217 412	(211 542–221 626)
14	Falls	21 502	(21 312–21 687)		14	Alcohol use disorders	209 627	(206 333–214 067)
15	Chronic liver disease	19 531	(19 345–19 690)		15	Chronic kidney disease	208 191	(204 094–211 222)
16	Prostate cancer	17 848	(17 671–18 007)		16	Falls	204 703	(201 025–207 932)
17	Non-rheumatic valvular heart disease	14 495	(14 341–14 645)		17	Prostate cancer	194 526	(192 199–197 092)
18	Stomach cancer	11 905	(11 761–12 042)		18	Stomach cancer	178 297	(175 620–180 752)
19	Self-harm	11 770	(11 663–11 911)		19	Atrial fibrillation and flutter	162 839	(160 127–164 974)
20	Parkinson's disease	11 170	(11 141–11 201)		20	Brain and central nervous system cancer	161 293	(158 448–164 462)
27	Alcohol use disorders	7587	(7491–7687)		25	Non-rheumatic valvular heart disease	118 797	(116 369–121 011)
28	Brain and central nervous system cancer	7169	(7070–7270)		33	Parkinson's disease	101 293	(100 875–101 716)

*See eFigure 7 for women and eFigure 4 for men

Source: BURDEN 2020 project, cause of death statistics 2017 (our own calculations); UI, uncertainty interval

Source: Wengler et al. 2021

May 5th, 2023   WCPH - Burden of Disease in Germany - YLL

Causes of deaths (by YLL-share and age group)

Source: causes of death statistics Germany, 2017, own calculations

YLL for specific cancers by age groups

	deaths	YLL
prostate	17.902	195.288
brain/ CNS	7.338	167.070

Legend:
- Bladder cancer - YLL
- Brain and central nervous system cancer - YLL
- Cervical cancer - YLL
- Ovarian cancer - YLL
- Prostate cancer - YLL
- Bladder cancer - YLL cumulated
- Brain and central nervous system cancer - YLL c.
- Cervical cancer - YLL c.
- Ovarian cancer - YLL c.
- Prostate cancer - YLL c.

Y-axis (left): YLL — 0, 10.000, 20.000, 30.000, 40.000, 50.000
Y-axis (right): 0, 50.000, 100.000, 150.000, 200.000
X-axis (Age groups): 0 years, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85-89, 90-94, 95-99, 100 years+

Limitations

- Coding of causes of death influences results

  & share of non-informative ICD-codes varies across region

- Redistribution of non-informative codes influences results

- Looking at one year (so far) prone to outliers

  especially in younger age-groups and for rare causes of death

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