Munich Cancer Registry

ICD-10 C54: Corpus cancer

Incidence and Mortality

Year of diagnosis	1998-2014
Patients	8,659
Diseases	8,660
Creation date	04/13/2016
Export date	12/23/2015
Population (females)	2.36 m

BERLIN

GERMANY

BAVARIA

MUNICH

Munich Cancer Registry at Munich Cancer Center
Marchioninistr. 15
Munich, 81377
Germany

http://www.tumorregister-muenchen.de/en

http://www.tumorregister-muenchen.de/en/facts/base/bC54__E-ICD-10-C54-Corpus-cancer-incidence-and-mortality.pdf

Global Statements about the statistics on the Internet −
Baseline Statistics (grey button ⬜), **Survival** (red button 🔴)

In these analyses, the clinics and physicians of Upper Bavaria and the city and county of Landshut[#], with a total of 4.64 million inhabitants, account for the frequency of cancer diseases[##] and the achieved long term results. Additionally, the long term survival evaluated by the Munich Cancer Registry (MCR) is compared with the results of the population-based registry in the USA (SEER), which is useful for checking the consistency of the data on an international level.

In comparing several tables, inconsistent figures may be detected. This is based on the fact that different patient cohorts are included in the base calculation, for example when proportions of multiple tumors or DCO-cases[###] are concerned. In other cases the individual tumor diagnosis is the basis for calculation, for example with incidence.

The foot notes describe the currentness of the data. The baseline statistics and survival data are updated annually. This yearly analysis comprises the Annual Report of the MCR.

Clinics and physicians have access to essentially more detailed data, with which they can check, compare and in the best case optimize their own data and results.

We would be pleased to receive corrections, critique and useful suggestions. Just send an e-mail to tumor@ibe.med.uni-muenchen.de.

Munich Cancer Registry, April 2016

[#]   Base data has been collected since 1998. An increase in new diseases is apparent, which is an effect of two extensions in the MCR catchment area (from a base population of 2.51 million to 3.96 in 2002, and to 4.52 million in 2007).

[##]   Due to the high frequency and good prognosis of non-malignant skin cancer (C44), no systematic ascertainment is performed for this diagnosis. C44 is not designated as a primary, but rather as a secondary tumor.

[###] DCO (death certificate only) identifies a cancer case that first becomes available to the MCR through the death certificate.

ICD-10 codes (ICD-10 2015) used for specifying cancer site

Code	Description
C54.-	Malignant neoplasm of corpus uteri
C54.0	Isthmus uteri
C54.1	Endometrium
C54.2	Myometrium
C54.3	Fundus uteri
C54.8	Overlapping lesion of corpus uteri
C54.9	Corpus uteri, unspecified

INCIDENCE

Table 1

All patients with invasive cancer by year of diagnosis,
proportions of DCO, multiple primaries, deaths, and active follow-up
(incl. DCO)

Year of diagnosis	Cases n	DCO cases n	Prop. DCO %	Prop. mult. primaries %	Prop. deaths %	Prop. actively followed %
1998	326	4	1.2	31.0	53.7	95.7
1999	323	4	1.2	26.6	53.3	97.2
2000	312	8	2.6	24.4	49.4	96.8
2001	347	17	4.9	27.4	53.9	95.1
2002	517	22	4.3	23.6	47.8	96.1 #
2003	511	12	2.3	27.0	42.3	94.1
2004	521	14	2.7	25.1	42.8	95.2
2005	541	10	1.8	24.8	39.7	93.7
2006	507	16	3.2	21.7	35.1	92.3
2007	619	31	5.0	26.0	41.2	75.0 #
2008	624	23	3.7	24.0	35.1	58.7
2009	612	16	2.6	23.5	31.2	59.0
2010	586	28	4.8	21.2	31.2	57.3
2011	624	15	2.4	23.9	27.4	60.4
2012	614	23	3.7	25.6	23.1	62.9
2013	630	22	3.5	20.8	18.3	99.0
2014	446	18	4.0	20.9	13.2	95.1 ##
1998–2014	8660	283	3.3	24.3	35.8	81.4

\#   The increases of incident cases in 2002 and 2007 reflect the expansion to additional registry areas.

\##   Please be aware that data of recent annual patient cohorts may not yet be fully processed. The years under evaluation can be found in the respective headings.

Table 2

Incidence measures by year of diagnosis including DCO cases
(with respect to registry area expansion from 2.51 to 3.96 m as of 2002,
and from 3.96 to 4.64 m as of 2007, respectively)

Year of diagnosis	Cases n	Incidence raw	Incidence WS	Incidence ES	Incidence BRD-S
1998	326	27.7	14.3	20.4	24.7
1999	323	27.2	13.5	19.5	23.7
2000	312	26.0	13.1	18.8	22.8
2001	347	28.5	14.2	20.5	24.9
2002	517	26.4	13.1	18.7	22.5
2003	511	25.9	12.9	18.5	22.2
2004	521	26.4	12.8	18.6	22.4
2005	541	27.2	13.4	19.0	22.6
2006	507	25.2	12.0	17.2	21.0
2007	619	26.8	13.0	18.8	22.5
2008	624	26.9	12.8	18.4	22.1
2009	612	26.3	12.9	18.3	21.8
2010	586	25.0	11.4	16.6	20.4
2011	624	26.4	12.4	17.8	21.6
2012	614	26.0	11.9	17.2	21.0
2013	630	26.7	12.3	17.8	21.9
2014	446	18.9	8.6	12.5	15.2
1998-2014	8660	25.9	12.4	17.9	21.6

The computation of the incidence measures includes all primaries, irrespective of first or subsequent malignancy.

Table 3

Age distribution parameters by year of diagnosis
(incl. DCO)

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	326	67.5	11.3	28.8	92.1	52.7	59.8	67.7	75.2	82.8
1999	323	68.4	11.3	32.1	96.9	54.5	60.3	68.5	76.8	83.5
2000	312	67.1	11.3	27.2	93.1	52.9	60.0	66.6	75.9	80.7
2001	347	68.2	11.9	26.3	95.5	53.4	60.6	68.5	76.2	83.2
2002	517	68.2	11.4	31.8	96.0	54.4	61.3	67.5	76.6	82.8
2003	511	68.0	11.3	31.2	93.4	53.4	60.2	67.3	76.1	83.0
2004	521	68.2	11.2	32.3	95.3	53.8	60.5	68.1	76.7	82.6
2005	541	67.9	11.4	30.2	98.0	53.1	61.7	67.7	74.9	83.4
2006	507	69.0	11.8	31.9	98.3	53.7	61.7	69.0	77.7	84.3
2007	619	68.1	11.5	36.5	99.2	53.0	60.4	68.2	76.6	82.9
2008	624	68.4	11.5	34.3	97.1	52.9	60.5	69.1	75.9	84.0
2009	612	68.0	11.8	38.1	102	52.6	60.8	68.6	75.1	83.3
2010	586	69.2	11.9	28.5	98.7	52.7	61.4	70.2	77.3	84.4
2011	624	68.4	12.0	29.5	95.5	52.4	60.3	69.4	76.8	83.9
2012	614	69.1	12.0	0.3	97.8	53.4	61.1	70.2	76.9	84.3
2013	630	68.9	12.4	30.6	99.7	53.4	60.4	70.3	77.7	84.6
2014	446	69.1	12.9	27.8	99.0	52.2	60.1	70.7	78.0	85.7
1998-2014	8660	68.4	11.7	0.3	102	53.1	60.6	68.8	76.6	83.6

Table 4

Age distribution by 5-year age group for period 2007-2014
(incl. DCO)

Age at diagnosis Years	Cases n	%	Cum.%
0-4	1	0.0	0.0
5-9	0	0.0	0.0
10-14	0	0.0	0.0
15-19	0	0.0	0.0
20-24	0	0.0	0.0
25-29	5	0.1	0.1
30-34	15	0.3	0.4
35-39	37	0.8	1.2
40-44	85	1.8	3.0
45-49	177	3.7	6.7
50-54	333	7.0	13.7
55-59	475	10.0	23.7
60-64	602	12.7	36.4
65-69	719	15.1	51.5
70-74	869	18.3	69.8
75-79	616	13.0	82.7
80-84	415	8.7	91.5
85+	406	8.5	100.0
All ages	4755	100.0	

Included in the statistics are 28.5% multiple primaries.

Table 5

Age-specific incidence, DCO rate and proportion of all cancers
for period 2007-2014

Age at diagnosis Years	Cases n	Age-spec. incidence	DCO rate n=176 %	Prop. all cancers n=89596 %
0- 4	1	0.1	100.0	0.7
5- 9		0.0		
10-14		0.0		
15-19		0.0		
20-24		0.0		
25-29	5	0.4		0.8
30-34	15	1.2		1.3
35-39	37	2.9		1.9
40-44	85	5.6	1.2	2.3
45-49	177	11.7	1.1	3.2
50-54	333	26.0	0.3	4.9
55-59	475	42.3	0.4	6.4
60-64	602	56.8	1.0	6.5
65-69	718	68.8	1.0	6.3
70-74	869	83.1	1.7	7.3
75-79	616	86.4	2.6	6.1
80-84	415	74.0	7.7	4.7
85+	406	70.3	22.9	4.0
All ages	4754		3.7	5.3
Incidence				
Raw		25.4		
WS		11.9		
ES		17.1		
BRD-S		20.8		

The age-specific incidence characterizes the disease risk in a particular age group. The age distribution depends on the patient population frequency in each age group and reflects the tangible clinical picture of everyday patients care (see following chart).
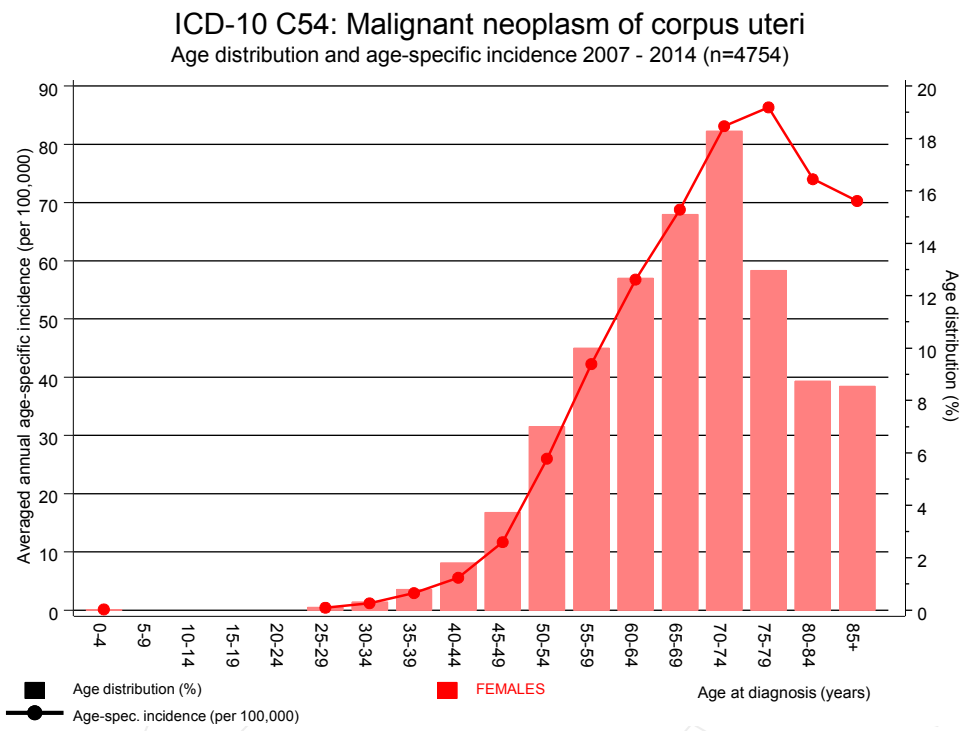
ICD-10 C54: Malignant neoplasm of corpus uteri
Age distribution and age-specific incidence 2007 - 2014 (n=4754)

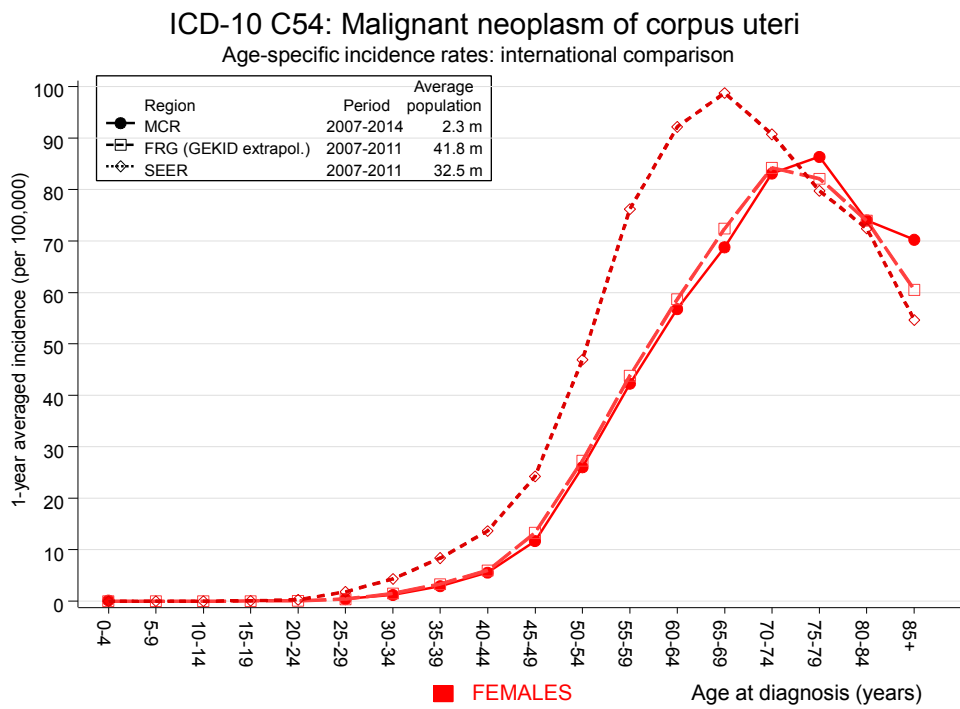**Figure 6.** Age distribution and age-specific incidence

Figure 6a. Age-specific incidence in MCR registry areas compared to Germany (FRG, GEKID extrapolation) and SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

Extrapolated age-specific patient population of Germany, data status middle of 2010. Association of Population-based Cancer Registries in Germany (GEKID e.V.). Berlin, 2014. http://www.gekid.de. Last access: 02/11/2015

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence - SEER 18 Regs Research Data, released April 2014, based on the November 2013 submission. http://www.seer.cancer.gov.
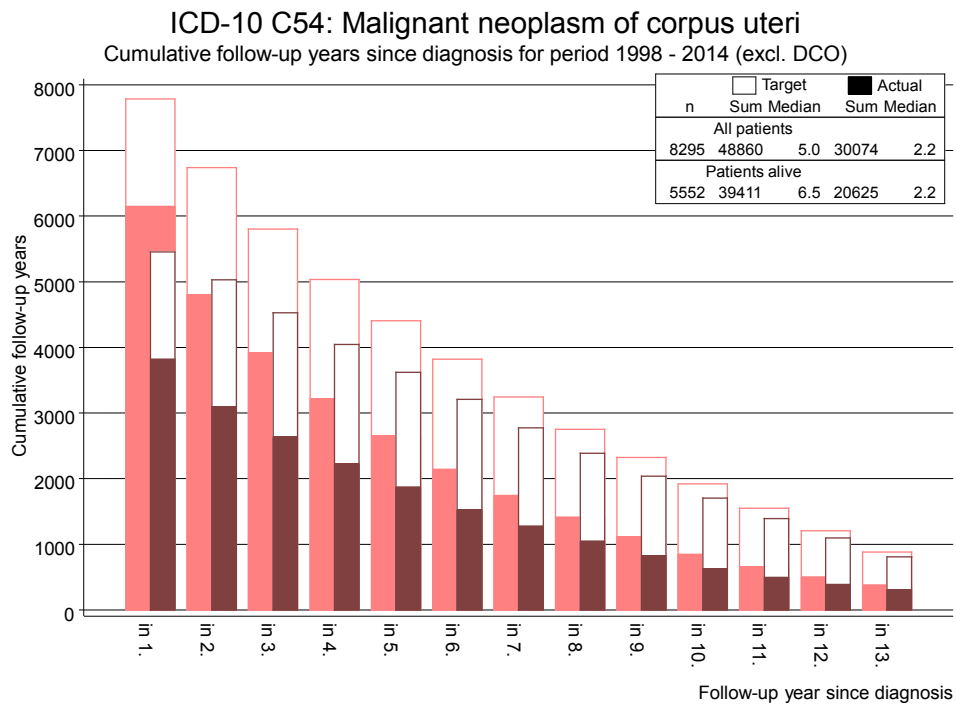
ICD-10 C54: Malignant neoplasm of corpus uteri

Cumulative follow-up years since diagnosis for period 1998 - 2014 (excl. DCO)

	n	Target Sum	Median	Actual Sum	Median
All patients	8295	48860	5.0	30074	2.2
Patients alive	5552	39411	6.5	20625	2.2

Figure 7. Cumulative follow-up years depending on time since diagnosis

The increase of the lost to follow-up rate can be interpreted as a consequence of a declining number of survivors over time.

Table 8

Standardized incidence ratio (SIR, with 95% confidence limits),
excess absolute risk (EAR) and DCO rate of second primaries
for period 1998-2014

Diagnosis	Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C03-C06 Oral cavity	3	2.1	1.4	0.3	4.1		0.3	
C09-C10 Oropharynx	2	1.4	1.4	0.2	5.2		0.2	
C15 Oesophagus	3	2.1	1.4	0.3	4.1		0.3	
C16 Stomach	20	13.2	1.5	0.9	2.3		2.3	20.0
C17 Small intestine	9	1.7	5.2	2.4	9.9	#	2.4	
C18 Colon	99	36.8	2.7	2.2	3.3	#	20.7	12.1
C19-C20 Rectum	27	15.7	1.7	1.1	2.5	#	3.7	11.1
C22 Liver	7	4.3	1.6	0.7	3.3		0.9	14.3
C23-C24 Bile	12	5.4	2.2	1.2	3.9	#	2.2	8.3
C25 Pancreas	37	16.4	2.3	1.6	3.1	#	6.9	24.3
C26 GI cancer	4	0.7	6.0	1.6	15.4	#	1.1	50.0
C33-C34 Lung	74	26.1	2.8	2.2	3.6	#	15.9	16.2
C38,C45 Mesothelioma	3	0.7	4.4	0.9	13.0		0.8	
C43 Malign. melanoma	23	12.7	1.8	1.1	2.7	#	3.4	
C46,C49 Soft tissue	9	2.0	4.4	2.0	8.4	#	2.3	
C48 Peritoneal	16	1.4	11.6	6.7	18.9	#	4.9	
C50 Breast	293	107.7	2.7	2.4	3.1	#	61.7	3.8
C51 Vulva	9	3.6	2.5	1.1	4.7	#	1.8	11.1
C52 Vagina	6	0.7	8.5	3.1	18.5	#	1.8	
C53 Cervix uteri	28	4.4	6.4	4.2	9.2	#	7.9	32.1
C55,C57 Fem. genitals un	2	0.8	2.4	0.3	8.5		0.4	100.0
C56 Ovary	208	15.0	13.9	12.0	15.9	#	64.2	10.6
C64 Kidney	22	9.3	2.4	1.5	3.6	#	4.2	9.1
C65 Renal pelvis	5	1.2	4.3	1.4	10.0	#	1.3	
C67 Bladder	16	7.0	2.3	1.3	3.7	#	3.0	12.5
C70-C72 CNS cancer	11	5.0	2.2	1.1	3.9	#	2.0	18.2
C73 Thyroid	12	5.7	2.1	1.1	3.7	#	2.1	
C74-C80 Cancer others	2	1.5	1.4	0.2	4.9		0.2	
C76-C79 CUP	14	6.5	2.1	1.2	3.6	#	2.5	7.1
C81 Hodgkin lymphoma	3	0.6	4.8	1.0	14.1		0.8	
C82-C85 NHL	27	14.2	1.9	1.3	2.8	#	4.3	3.7
C90 Mult. myeloma	5	4.6	1.1	0.4	2.6		0.1	20.0
C91-C96 Leukaemia	14	5.9	2.4	1.3	4.0	#	2.7	21.4
Other primaries	9	25.2	0.4	0.2	0.7	#	-5.4	
Not observed	0	2.0	0.0	0.0	1.8		-0.7	
All mult. primaries	1034	363.7	2.8	2.7	3.0	#	223.1	9.8

Patients	8364
Median age at second malignancy (years)	71.8
Person-years	30043
Mean observation time (years)	3.6
Median observation time (years)	2.2

The occurrence of second malignancy is statistically significant.

Observed second primaries with count 1 are pooled in category "Other primaries"

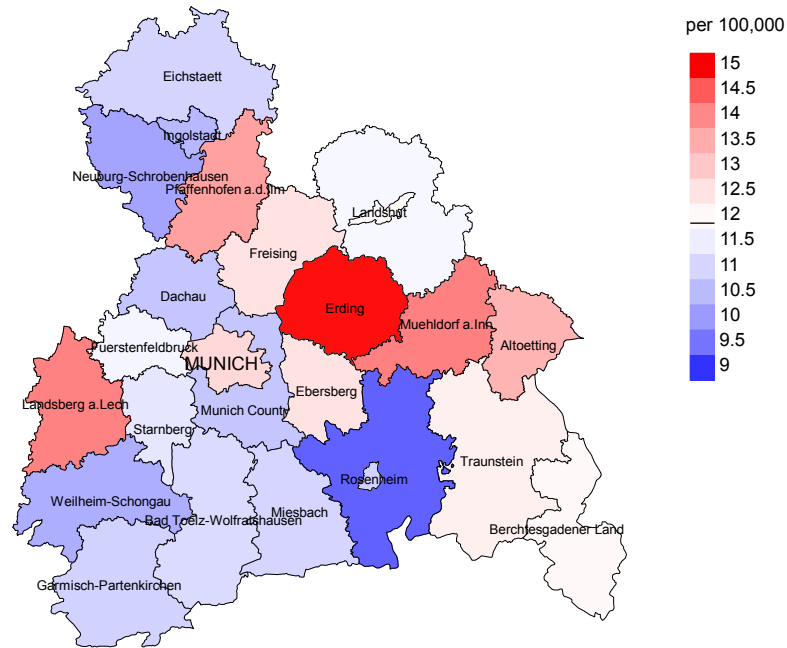Average incidence (world standard population) 2007 - 2014

Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2014. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (11.9/100,000 WS N=4,754).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 65,347 female residents (averaged) in the period from 2007 to 2014 a total of 133 women were identified with newly diagnosed corpus cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 12.5/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 9.7 and 15.9/100,000.

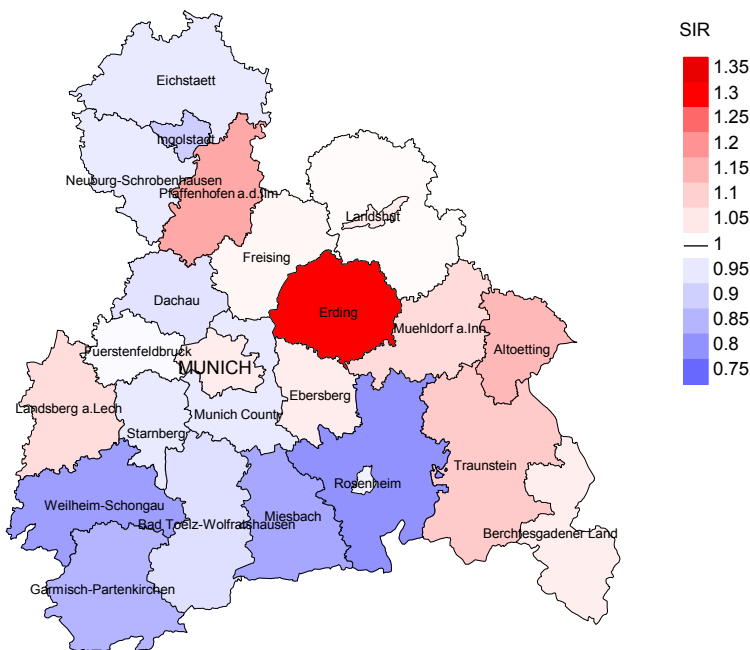## Standardized incidence ratio (SIR) 2007 - 2014

Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2014. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (N=4,754).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,924 female residents (averaged) in the period from 2007 to 2014 a total of 133 women were identified with newly diagnosed corpus cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.04. Though, the value of this parameter may vary with an underlying probability of 99% between 0.82 and 1.29, and is therefore not statistically striking.

MORTALITY

Table 10a

Patient cohorts of incident cancers by year of diagnosis, follow-up status,
proportion of DCO, deaths among the annual cohorts
and proportion of available death certificates
(with respect to registry area expansion from 2.51 to 3.96 m as of 2002,
and from 3.96 to 4.64 m as of 2007, respectively)

Year of diagnosis	Incident cases n	Prop. actively followed %	Prop. DCO %	Deaths n	Prop. deaths %	Prop. deaths with death certific. %
1998	326	95.7	1.2	175	53.7	92.6
1999	323	97.2	1.2	172	53.3	94.2
2000	312	96.8	2.6	154	49.4	94.8
2001	347	95.1	4.9	187	53.9	97.3
2002	517	96.1	4.3	247	47.8	98.0
2003	511	94.1	2.3	216	42.3	97.7
2004	521	95.2	2.7	223	42.8	97.3
2005	541	93.7	1.8	215	39.7	97.2
2006	507	92.3	3.2	178	35.1	99.4
2007	619	75.0	5.0	255	41.2	98.0
2008	624	58.7	3.7	219	35.1	99.5
2009	612	59.0	2.6	191	31.2	98.4
2010	586	57.3	4.8	183	31.2	98.9
2011	624	60.4	2.4	171	27.4	96.5
2012	614	62.9	3.7	142	23.1	99.3
2013	630	99.0	3.5	115	18.3	95.7
2014	446	95.1	4.0	59	13.2	83.1
1998-2014	8660	81.4	3.3	3102	35.8	97.0

Table 10b

Annual cohorts of incident cancers and deaths, proportion of death certificates
and cases deceased the same year of cancer diagnosis
(incl. DCO)
(with respect to registry area expansion from 2.51 to 3.96 m as of 2002,
and from 3.96 to 4.64 m as of 2007, respectively)

Year of diagnosis/ death	Incident cases n	Deaths n	Prop. deaths with death certific. %	Deaths in same year n	Prop. deaths in same year %
1998	326	130	90.8	21	6.4
1999	323	140	92.9	17	5.3
2000	312	167	92.8	27	8.7
2001	347	155	92.3	26	7.5
2002	517	253	96.4	43	8.3
2003	511	292	96.9	36	7.0
2004	521	254	96.9	36	6.9
2005	541	276	94.2	33	6.1
2006	507	273	96.7	35	6.9
2007	619	342	98.0	59	9.5
2008	624	319	99.1	43	6.9
2009	612	340	99.1	42	6.9
2010	586	354	98.9	50	8.5
2011	624	400	96.8	49	7.9
2012	614	381	99.2	59	9.6
2013	630	425	98.6	60	9.5
2014	446	386	99.2	44	9.9
1998−2014	8660	4887	97.2	680	7.9

Table 10c

Annual cohorts of deaths, proportion of cancer-related and non-cancer-related deaths, and cancer recorded on death certificates
(incl. DCO)
(with respect to registry area expansion from 2.51 to 3.96 m as of 2002, and from 3.96 to 4.64 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer-related %	Prop. non-cancer-related %	Prop. cancer recorded on death certificate %
1998	130	54.6	45.4	69.5
1999	140	56.4	43.6	66.2
2000	167	53.3	46.7	64.5
2001	155	43.9	56.1	65.7
2002	253	58.5	41.5	73.0
2003	292	59.9	40.1	71.4
2004	254	62.2	37.8	71.1
2005	276	58.7	41.3	68.5
2006	273	56.8	43.2	67.4
2007	342	58.2	41.8	68.1
2008	319	57.4	42.6	65.8
2009	340	55.9	44.1	63.5
2010	354	59.3	40.7	67.7
2011	400	57.5	42.5	68.5
2012	381	56.7	43.3	65.1
2013	425	56.9	43.1	64.4
2014	386	55.2	44.8	64.8
1998-2014	4887	57.0	43.0	67.2

Table 11

Medians of age at death according to the grouping in Table 10

Year of death	Deaths n	Age at death (all causes) Years	Age at death (cancer-related) Years	Age at death (non-cancer-related) Years	Age at death (according to death certificate) Years
1998	130	79.9	74.6	83.3	77.0
1999	140	81.2	77.6	84.8	78.9
2000	167	80.0	77.3	82.9	78.1
2001	155	81.3	77.4	82.3	79.7
2002	253	80.3	76.1	84.1	78.8
2003	292	78.7	75.1	83.6	76.1
2004	254	79.4	74.8	84.4	77.2
2005	276	81.7	76.3	84.3	77.8
2006	273	81.0	76.3	85.6	76.9
2007	342	82.8	78.4	86.1	80.3
2008	319	81.3	75.6	85.9	77.3
2009	340	82.0	75.5	86.0	77.0
2010	354	82.9	77.7	86.4	79.8
2011	400	81.9	76.5	85.9	78.0
2012	381	82.0	77.7	87.5	78.6
2013	425	82.7	77.9	87.1	78.7
2014	386	81.4	76.7	86.4	77.9
1998–2014	4887	81.3	76.7	85.5	78.0

By 2010, life expectancy at birth was 77.5 years for boys and 82.6 years for girls.

Deaths of patients are considered to be cancer-related, in case that fact was recorded on the death certificate, or patients had suffered from metastasis or recurrence.

Table 12

Mortality measures (cancer-related death) and mortality-incidence-index
by year of death

Year of death	Deaths n	Mort. raw	MI-Index raw	Mort. WS	MI-Index WS	Mort. ES	MI-Index ES	Mort. BRD-S	MI-Index BRD-S
1998	71	6.0	0.22	2.7	0.19	3.9	0.19	5.0	0.20
1999	79	6.7	0.24	2.5	0.19	3.9	0.20	5.5	0.23
2000	89	7.4	0.29	2.7	0.20	4.3	0.23	6.2	0.27
2001	68	5.6	0.20	2.1	0.15	3.3	0.16	4.6	0.18
2002	148	7.6	0.29	2.8	0.21	4.3	0.23	6.0	0.26
2003	175	8.9	0.34	3.3	0.26	5.3	0.28	7.2	0.32
2004	158	8.0	0.30	3.0	0.24	4.7	0.25	6.2	0.28
2005	162	8.1	0.30	2.9	0.22	4.5	0.24	6.0	0.27
2006	155	7.7	0.31	2.7	0.23	4.3	0.25	6.0	0.28
2007	199	8.6	0.32	2.9	0.22	4.6	0.24	6.3	0.28
2008	183	7.9	0.29	2.9	0.22	4.4	0.24	6.1	0.28
2009	190	8.2	0.31	2.9	0.22	4.4	0.24	6.0	0.28
2010	210	9.0	0.36	2.9	0.25	4.6	0.28	6.4	0.31
2011	230	9.7	0.37	3.3	0.26	5.1	0.29	7.0	0.32
2012	216	9.2	0.35	3.0	0.25	4.7	0.27	6.5	0.31
2013	242	10.3	0.38	3.2	0.26	5.2	0.29	7.3	0.33
2014	213	9.0	0.48	3.0	0.34	4.7	0.38	6.7	0.44
1998-2014	2788	8.3	0.32	2.9	0.23	4.6	0.26	6.3	0.29

Table 13

Age distribution of age at death (cancer-related) for period 2007-2014
(**incl. multiple primaries**)

Age at death Years	Cases n	%	Cum.%
30-34	3	0.2	0.2
35-39	1	0.1	0.2
40-44	10	0.6	0.8
45-49	23	1.4	2.2
50-54	35	2.1	4.3
55-59	57	3.4	7.7
60-64	107	6.4	14.0
65-69	197	11.7	25.7
70-74	288	17.1	42.8
75-79	288	17.1	60.0
80-84	285	16.9	76.9
85+	389	23.1	100.0
All ages	1683	100.0	

Included in the statistics are 28.5% multiple primaries.

Table 14

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007–2014
(**incl. multiple primaries**)

Age at death Years	Cases n	Age-spec. mortality	MI-index	Prop. all cancers %
0- 4		0.0		
5- 9		0.0		
10-14		0.0		
15-19		0.0		
20-24		0.0		
25-29		0.0		
30-34	3	0.2	0.20	2.7
35-39	1	0.1	0.03	0.4
40-44	10	0.7	0.12	1.6
45-49	23	1.5	0.13	1.9
50-54	35	2.7	0.11	2.0
55-59	57	5.1	0.12	2.2
60-64	107	10.1	0.18	3.0
65-69	197	18.9	0.27	3.8
70-74	288	27.5	0.33	4.4
75-79	288	40.4	0.47	4.6
80-84	285	50.8	0.69	4.3
85+	389	67.3	0.96	4.5
All ages	1683			3.9
Mortality				
Raw		9.0	0.35	
WS		3.0	0.25	
ES		4.7	0.28	
BRD-S		6.6	0.32	
PYLL-70				
per 100,000		22.5		
ES		18.6		
AYLL-70		8.2		

The rates underestimate the prognosis if other synchronous cancers are prognostic unfavorable.

Table 15

Multiple primaries in deaths in period 1998–2014

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C16 Stomach	47	3.1	4	8.5	3	6.4	40	85.1
C18 Colon	142	9.3	38	26.8	12	8.5	92	64.8
C19-C20 Rectum	81	5.3	29	35.8			52	64.2
C22 Liver	16	1.0	2	12.5	1	6.3	13	81.3
C23-C24 Bile	20	1.3	1	5.0			19	95.0
C25 Pancreas	65	4.3	1	1.5	2	3.1	62	95.4
C33-C34 Lung	120	7.9	7	5.8	3	2.5	110	91.7
C43 Malign. melanoma	33	2.2	21	63.6			12	36.4
C44 Skin others	55	3.6	29	52.7	4	7.3	22	40.0
C48 Peritoneal	11	0.7			6	54.5	5	45.5
C50 Breast	398	26.1	217	54.5	35	8.8	146	36.7
C51 Vulva	20	1.3			1	5.0	19	95.0
C52 Vagina	12	0.8	1	8.3	3	25.0	8	66.7
C53 Cervix uteri	37	2.4	21	56.8	5	13.5	11	29.7
C55,C57 Fem. genitals un	14	0.9	3	21.4	2	14.3	9	64.3
C56 Ovary	147	9.6	16	10.9	87	59.2	44	29.9
C64 Kidney	28	1.8	9	32.1	3	10.7	16	57.1
C67 Bladder	52	3.4	8	15.4	6	11.5	38	73.1
C70-C72 CNS cancer	32	2.1	8	25.0	1	3.1	23	71.9
C76-C79 CUP	25	1.6	4	16.0			21	84.0
C82-C85 NHL	28	1.8	6	21.4	2	7.1	20	71.4
C91-C96 Leukaemia	44	2.9	7	15.9	2	4.5	35	79.5
Other primaries	97	6.4	31	32.0	3	3.1	63	64.9
All mult. primaries	1524	100.0	463	30.4	181	11.9	880	57.7

Multiple primaries with number of cases 1 to 10 are pooled in category "Other primaries"

ICD-10 C44 (Other malignant neoplasms of skin) is not systematically recorded by MCR and therefore not considered for evaluation as a particular primary but at least as a multiple malignancy.

Table 16

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2014
(**First primaries only** *)

Age at death Years	Cases n	Age-spec. mortality	MI-index	Prop. all cancers %
0- 4		0.0		
5- 9		0.0		
10-14		0.0		
15-19		0.0		
20-24		0.0		
25-29		0.0		
30-34	1	0.1	0.07	1.1
35-39	1	0.1	0.03	0.4
40-44	8	0.5	0.11	1.4
45-49	17	1.1	0.12	1.7
50-54	27	2.1	0.09	1.8
55-59	48	4.3	0.11	2.2
60-64	87	8.2	0.17	3.1
65-69	154	14.8	0.25	3.8
70-74	231	22.1	0.33	4.6
75-79	223	31.3	0.46	4.6
80-84	221	39.4	0.68	4.4
85+	315	54.5	1.02	4.6
All ages	1333			3.9
Mortality				
Raw		7.1	0.34	
WS		2.4	0.24	
ES		3.8	0.26	
BRD-S		5.2	0.30	
PYLL-70				
per 100,000		17.6		
ES		14.5		
AYLL-70		8.1		

* See corresponding tables with multiple primaries.

Table 17

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007–2014
(**Single primaries only** *)

Age at death Years	Cases n	Age-spec. mortality	MI-index	Prop. all cancers %
0– 4		0.0		
5– 9		0.0		
10–14		0.0		
15–19		0.0		
20–24		0.0		
25–29		0.0		
30–34	1	0.1	0.07	1.2
35–39	1	0.1	0.03	0.5
40–44	7	0.5	0.09	1.4
45–49	15	1.0	0.10	1.6
50–54	25	2.0	0.10	1.9
55–59	38	3.4	0.09	2.0
60–64	71	6.7	0.14	2.9
65–69	111	10.6	0.20	3.3
70–74	159	15.2	0.25	3.8
75–79	154	21.6	0.35	3.9
80–84	129	23.0	0.42	3.2
85+	208	36.0	0.73	3.7
All ages	919			3.2
Mortality				
Raw		4.9	0.25	
WS		1.7	0.18	
ES		2.7	0.20	
BRD–S		3.6	0.22	
PYLL–70				
per 100,000		14.7		
ES		12.2		
AYLL–70		8.6		

* See corresponding tables with multiple primaries.

ICD-10 C54: Malignant neoplasm of corpus uteri
Age distribution and age-specific mortality 2007 - 2014 (n=1683)
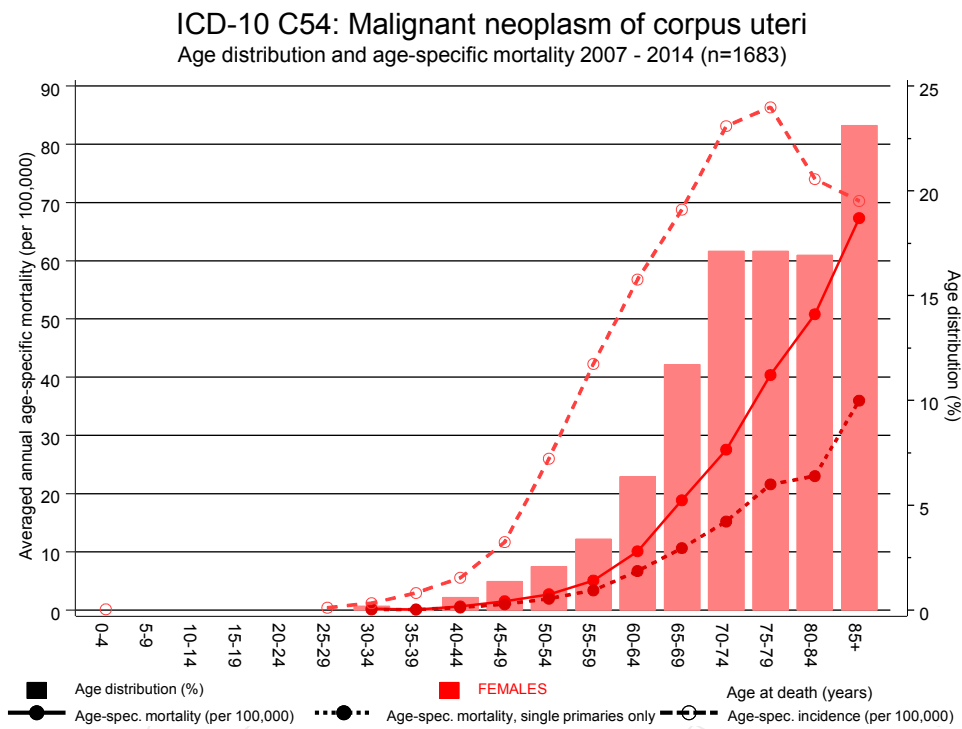
Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

The difference between age at diagnosis (Table 3) and age at corpus cancer-related death (see Table 10) should be considered.

Average mortality (world standard population) 2007 - 2014
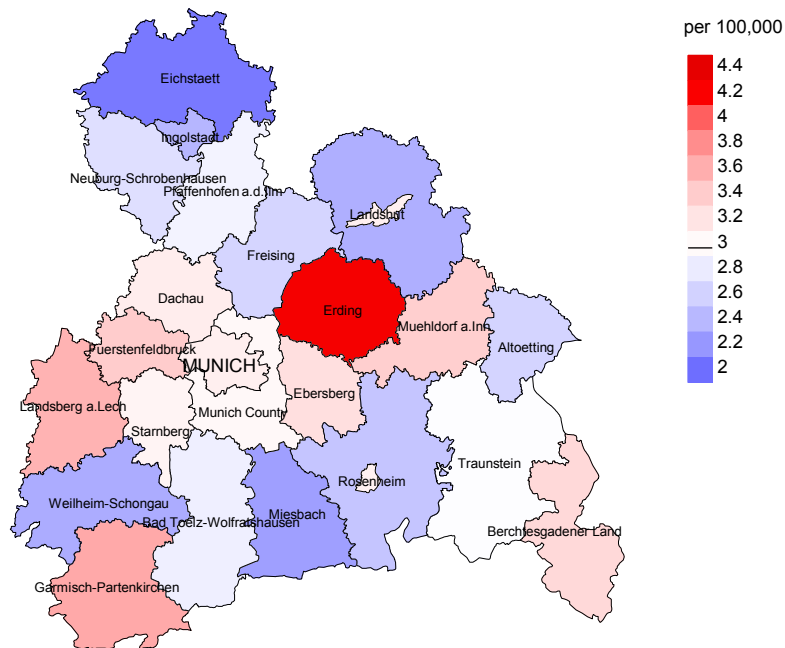
Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2014. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (3.0/100,000 WS N=1,676).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 65,347 female residents (averaged) in the period from 2007 to 2014 a total of 48 women died from corpus cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 3.2/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 2.1 and 4.9/100,000.

Standardized mortality ratio (SMR) 2007 - 2014
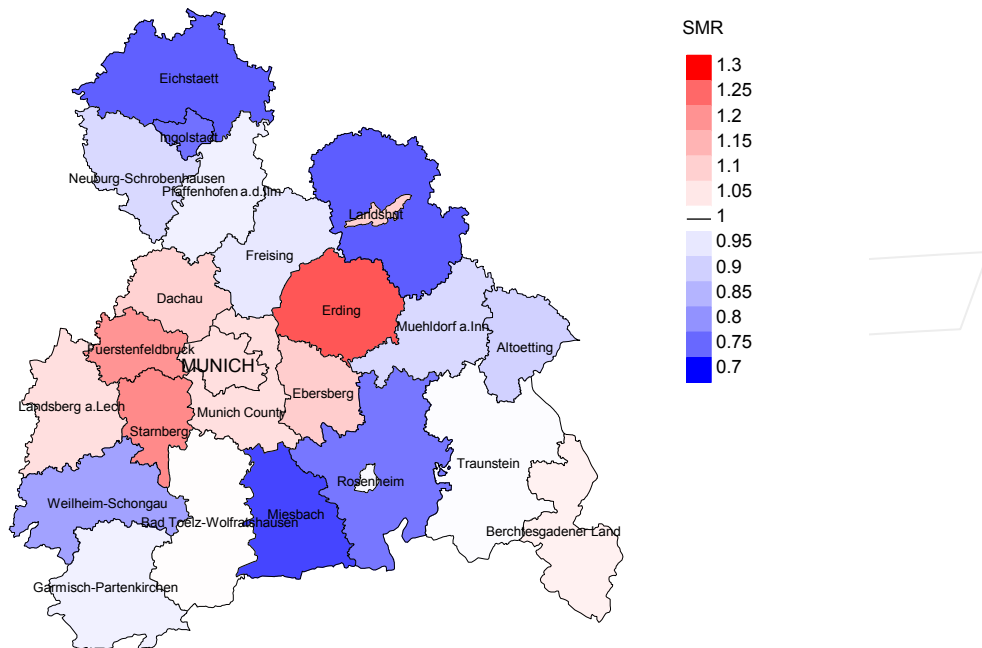
Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2014. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (N=1,676).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,924 female residents (averaged) in the period from 2007 to 2014 a total of 48 women died from corpus cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 1.10. Though, the value of this parameter may vary with an underlying probability of 99% between 0.74 and 1.59, and is therefore not statistically striking.

Statistical Notes

In all tables and figures the respective reference values should be carefully considered. The incidence rates include diagnoses (with multiple primary), and death certificate only (DCO) cases, where applicable. For mortality statistics patients, diagnoses and progressive course of disease are presented. In the calculations, all courses of disease are considered whereby progressions occurred and/or death certificate identified progressive cancers were ascertained. Additionally there are three groups of disease course to consider:

1. **All multiple primaries included**

   The mortality statistic describes the tumor-specific death, independent of any malignancy. The patient perspective, induced secondary malignancies, and the problem of multiple malignancies from the same primary tumor all have reasons for their inclusion.

2. **First singular primary** (no information about other prior or synchronous malignancy)

   The mortality statistic describes the cancer-related death for patients who have no therapeutic restrictions due to a previous or synchronous cancer. These statistics are comparable to studies that have exclusion criteria based on a second malignancy.

3. **Single primary** (no information about other prior, syn- or metachronous malignancy)

   The mortality statistic describes the tumor-specific death that occurs without any impact through secondary primaries, earlier, synchronous, later or induced. Precisely the difference between disease group 1 and 2 highlight the magnitude of the problem of secondary malignancies.

For this reason differences appear concerning official mono-causal mortality statistics. To judge the maximum deviation, 2 further tables are presented. In the first table the distribution of secondary malignancies before, at or after the described cancer are shown, that could be an alternative cause of death. In the second table, the age-specific mortality rates for all courses of disease, without designation of secondary malignancies are shown.

A previously minimally acknowledged statistic is the **age at death**, which allows for a good assessment of the quality of classification of the apparent tumor-specific death. For assumed tumor-independent deaths, the age of death should be estimated from the age of diagnosis and the normal life expectancy, whereas tumor-dependent deaths can be estimated from the age of diagnosis plus the average tumor-specific life expectancy. The comparison of different tumors demonstrates this association, if the causes of cancer and the competing cause of death are independent of each other (e.g. breast and colon versus head/neck and lung).

The index from mortality and incidence (Mortality-Incidence ratio, **MI-index**) is a statistic that allows for the evaluation of the quality of data. For diseases with poor prognoses, comparable values are obtained from all age groups, because to a large extent, the numerator and denominator contain the same cases. For tumors with a good prognosis, increasing and decreasing incidence and age-specific differences in prognosis can more strongly alter the MI- index. Additionally, attention should be paid to the confidence intervals where fewer cases are reported.

The complexity of problems identified here emphasizes the importance of relative survival data for the appropriate analysis of long term results.

As a measurement of the burden of disease, the number of potential life years loss due to premature deaths in a cohort can be calculated (**PYLL**, potential years of life lost, standardized per 100,000 persons or per European standard) as well as the average loss of life years per individual (**AYLL**, average years of life lost). Depending upon the analytic aim (health economy, prevention, health care research) different methods exist for the generation of these measurements. In the results presented here, the age for a premature death is considered to be before 70 years, according to the guidelines of the OECD and the WHO (as seen in the abbreviation PYLL-70 or AYLL-70).

Shortcuts

FRG　　　　Federal Republic of Germany
GEKID　　　Association of Population-based Cancer Registries in Germany
　　　　　　(Gesellschaft der epidemiologischen Krebsregister in Deutschland e.V.)
MCR　　　　Munich Cancer Registry (Tumorregister München)
SEER　　　Surveillance, Epidemiology, and End Results (USA)

AYLL-70　　Average years of life lost prior to age 70 given a person dies before that age
BRD-S　　　German standard population
DCO　　　　Death certificate only
EAR　　　　Excess absolute risk
　　　　　　 = excess cancer cases (O - E) per 10,000 person-years
ES　　　　　European standard population (old)
LCL　　　　Lower confidence limit
MI-index　　Ratio between mortality and incidence
PYLL-70　　Potential years of life lost prior to age 70 given a person dies before that age
SIR　　　　Standardized incidence ratio
SMR　　　　Standardized mortality ratio
UCL　　　　Upper confidence limit
WS　　　　 World standard population

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