

Munich Cancer Registry



- ▶ Survival
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ICD-10 C53-C55: Uterine cancer

Incidence and Mortality

Year of diagnosis	1998-2019
Patients	16,846
Diseases	16,925
Creation date	01/25/2021
Database export	01/07/2021
Population (females)	2.48 m





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<https://www.tumorregister-muenchen.de/en>

<https://www.tumorregister-muenchen.de/en/facts/base/bC5355E-ICD-10-C53-C55-Uterine-cancer-incidence-and-mortality.pdf>

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**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 4.69 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, January 2021

[#] 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 2.65 million to 4.10 in 2002, and to 4.69 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
C53.-	Malignant neoplasm of cervix uteri
C53.0	Endocervix
C53.1	Exocervix
C53.8	Overlapping lesion of cervix uteri
C53.9	Cervix uteri, unspecified
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
C55	Malignant neoplasm of uterus, part unspecified

INCIDENCE

Table 1

Cases with invasive cancer by year of diagnosis, proportions of DCO, further malignancies, deaths, and active follow-up (incl. DCO)

Year of diagnosis	All cases n	DCO cases n	Prop. DCO %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %
1998	488	24	4.9	9.0	10.1	59.6	93.0
1999	509	27	5.3	9.7	9.9	55.0	92.7
2000	475	24	5.1	10.3	9.6	54.3	94.7
2001	507	27	5.3	10.4	9.4	55.6	92.7
2002	767	48	6.3	10.2	9.2	54.4	94.9 #
2003	767	53	6.9	9.9	8.9	54.8	94.0
2004	763	49	6.4	10.1	8.4	54.1	94.6
2005	801	36	4.5	10.2	8.1	49.6	92.9
2006	754	26	3.4	10.0	7.8	44.7	90.6
2007	882	45	5.1	10.1	7.6	48.2	90.1 #
2008	914	36	3.9	10.2	7.0	43.1	97.7
2009	894	29	3.2	10.4	6.6	43.7	95.5
2010	838	44	5.3	10.6	6.2	42.2	97.3
2011	866	25	2.9	10.8	5.8	38.2	95.7
2012	876	45	5.1	11.3	5.4	41.4	97.3
2013	907	37	4.1	11.5	4.8	39.6	97.1
2014	894	27	3.0	11.7	4.3	33.3	96.0
2015	821	35	4.3	11.8	3.7	29.8	93.8
2016	835	21	2.5	12.2	3.3	26.2	99.2
2017	872	30	3.4	12.3	2.8	20.6	99.0
2018	810	10	1.2	12.4	2.9	16.2	99.0
2019	685			12.5	1.8	10.1	67.9 ##
1998-2019	16925	698	4.1	12.5	10.1	40.5	94.2

16,925 cases diagnosed 1998-2019 are related to a total of 16,846 patients. Currently, in 3,924 (23.3 %) of these 16,846 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 3,211 / 580 / 133 (19.1 % / 3.4 % / 0.8 %) patients exist having 2 / 3 / 4+ malignancies.

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 retrieved from the respective headings.

How to interpret:

In 2017, a subgroup of 872 cases has been diagnosed, of which 12.3 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 2.8 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 2

Incidence measures by year of diagnosis including DCO cases
(with respect to registry area expansion from 2.65 to 4.10 m as of 2002,
and from 4.10 to 4.92 m as of 2007, respectively)

Year of diagnosis	Cases n	Incidence raw	Incidence WS	Incidence ES	Incidence BRD-S
1998	488	41.5	23.0	31.6	37.1
1999	509	42.9	23.5	32.1	37.6
2000	475	39.5	21.7	29.8	35.1
2001	507	41.7	22.7	31.2	36.5
2002	767	39.2	21.0	28.8	33.9
2003	767	38.9	20.5	28.5	33.3
2004	763	38.6	20.2	28.1	33.0
2005	801	40.3	21.6	29.4	34.0
2006	754	37.5	20.0	27.4	31.8
2007	882	38.2	20.4	28.0	32.4
2008	914	39.4	21.0	28.7	33.1
2009	894	38.4	20.8	28.4	32.6
2010	838	35.8	18.4	25.5	30.0
2011	866	37.0	19.5	26.7	31.0
2012	876	37.1	18.8	26.0	30.5
2013	907	38.0	19.7	27.1	31.7
2014	894	37.1	19.3	26.4	30.8
2015	821	33.7	17.7	24.3	27.9
2016	835	34.0	18.3	24.8	28.4
2017	872	35.4	19.0	25.9	29.6
2018	810	32.6	17.4	23.7	27.2
2019	685	27.6	14.5	19.9	22.9
1998-2019	16925	37.0	19.6	26.8	31.2

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

Table 3

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

Year of diagnosis	Cases n	Std.		Median						
		Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	488	63.5	14.7	23.8	95.5	41.7	53.5	64.4	74.5	82.7
1999	509	63.4	15.9	24.4	99.9	39.5	52.8	64.3	75.5	83.7
2000	475	63.0	15.0	23.9	93.1	40.4	53.7	63.6	75.2	80.8
2001	507	64.0	15.2	22.9	96.0	41.1	54.0	64.3	75.0	82.7
2002	767	64.2	15.1	25.9	96.1	41.1	54.6	65.6	75.8	82.3
2003	767	65.2	14.7	27.3	99.4	43.6	56.0	65.3	76.3	83.8
2004	763	64.9	14.7	21.0	99.8	43.1	55.5	65.7	76.1	83.1
2005	801	64.3	15.0	24.0	100	41.6	54.9	66.0	73.9	83.5
2006	754	64.3	15.2	22.9	99.4	42.2	53.9	65.3	75.3	83.4
2007	882	64.0	15.0	22.0	99.2	42.1	54.4	66.0	74.8	82.6
2008	914	64.0	14.5	24.0	97.1	43.6	53.7	66.4	73.8	82.6
2009	894	64.1	14.9	23.1	102	42.3	54.2	65.0	74.2	83.0
2010	838	65.1	15.0	25.1	98.7	43.4	54.9	67.1	76.1	84.1
2011	866	64.0	15.2	25.7	95.6	42.0	53.3	66.5	74.9	83.3
2012	876	65.5	14.8	0.3	97.8	44.3	55.6	67.8	76.0	83.9
2013	907	64.7	15.2	22.1	99.7	43.7	54.6	65.5	76.3	83.5
2014	894	64.2	15.6	22.0	99.0	40.3	53.3	66.1	76.0	83.0
2015	821	64.5	14.8	27.2	102	44.3	54.1	65.7	75.5	83.0
2016	835	63.5	15.1	22.4	96.7	42.0	53.7	64.7	75.5	82.2
2017	872	63.7	14.4	28.3	96.6	43.9	54.6	64.5	74.8	81.0
2018	810	63.6	14.4	22.0	93.2	43.2	53.6	64.4	75.5	81.5
2019	685	63.7	14.6	22.5	94.4	42.2	54.3	64.5	75.8	81.1
1998-2019	16925	64.2	14.9	0.3	102	42.6	54.3	65.5	75.3	82.9

Table 4

Age distribution by 5-year age group for period 2007-2019
(incl. DCO)

Age at diagnosis Years	Cases		Cum.%
	n	%	
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	11	0.1	0.1
25-29	110	1.0	1.1
30-34	279	2.5	3.6
35-39	390	3.5	7.1
40-44	584	5.3	12.4
45-49	667	6.0	18.4
50-54	913	8.2	26.6
55-59	1175	10.6	37.2
60-64	1246	11.2	48.5
65-69	1371	12.4	60.8
70-74	1492	13.4	74.3
75-79	1265	11.4	85.7
80-84	818	7.4	93.0
85+	772	7.0	100.0
All ages	11094	100.0	

Table 5

Age-specific incidence, DCO rate and proportion of all cancers
for period 2007-2019

Age at diagnosis Years	Cases n	Age-spec. incidence	DCO rate n=379 %	Prop. all cancers n=144724 %
0- 4	1	0.1	100.0	0.6
5- 9		0.0		
10-14		0.0		
15-19		0.0		
20-24	11	0.6		2.3
25-29	109	5.3		9.8
30-34	279	13.2		14.1
35-39	390	18.5	0.3	11.9
40-44	582	25.7	0.2	10.1
45-49	663	27.3	0.6	7.5
50-54	913	39.5	0.4	7.9
55-59	1174	58.7	0.7	9.5
60-64	1243	70.8	0.8	8.6
65-69	1367	81.1	1.7	7.7
70-74	1488	92.6	1.8	8.0
75-79	1262	91.6	2.9	7.0
80-84	817	83.9	8.7	5.8
85+	769	79.7	25.0	5.0
All ages	11068		3.4	7.6
Incidence				
Raw		35.6		
WS		18.7		
ES		25.7		
BRD-S		29.7		

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 C53-C55: Malignant neoplasm of uterus
Age distribution and age-specific incidence 2007 - 2019 (n=11068)

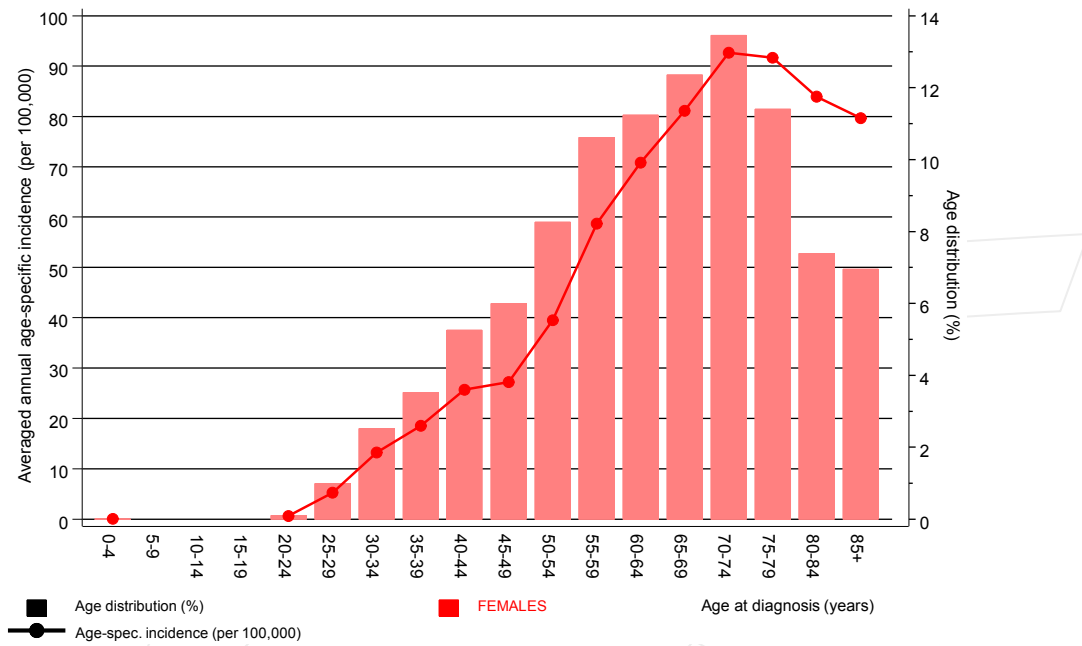


Figure 6. Age distribution (mean=64.2 yrs, median=65.8 yrs) and age-specific incidence.

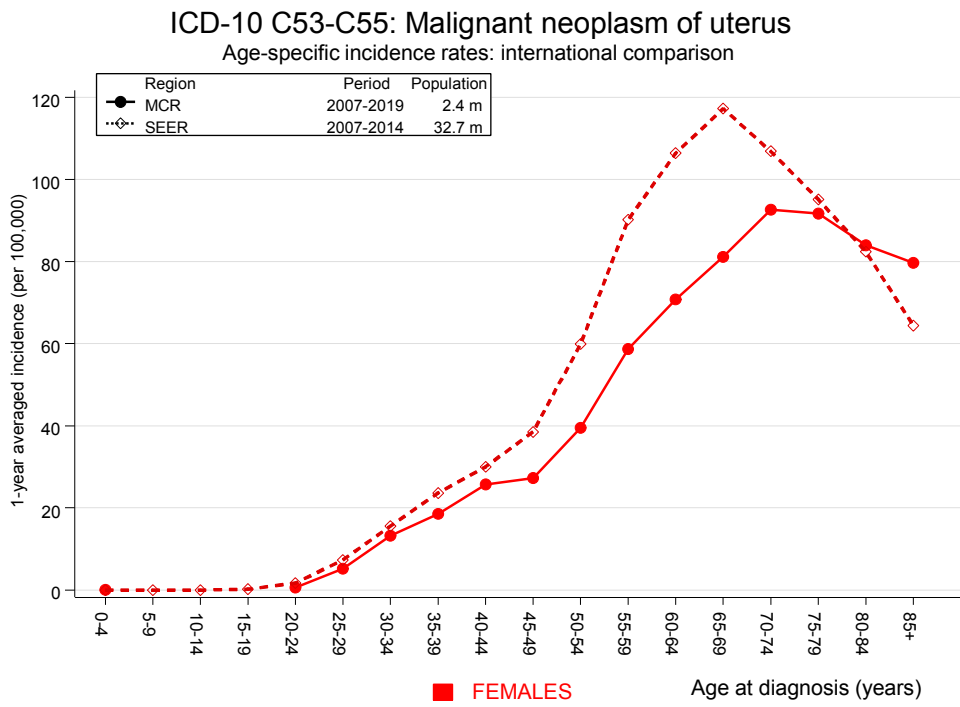


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence - SEER 18 Regs Research Data, released April 2019, based on the November 2018 submission. <http://www.seer.cancer.gov>.

Table 7

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of further malignancies for period 1998–2019

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C03-C06 Oral cavity	5	3.7	1.4	0.4	3.2	0.2	
C09-C10 Oropharynx	6	2.6	2.3	0.8	4.9	0.6	
C15 Oesophagus	9	4.0	2.2	1.0	4.2 #	0.8	
C16 Stomach	39	21.5	1.8	1.3	2.5 #	2.9	17.9
C17 Small intestine	13	3.3	3.9	2.1	6.7 #	1.6	
C18 Colon	166	60.9	2.7	2.3	3.2 #	17.3	9.6
C19-C20 Rectum	56	25.4	2.2	1.7	2.9 #	5.0	10.7
C21 Anus/canal	9	3.5	2.6	1.2	4.9 #	0.9	11.1
C22 Liver	16	7.7	2.1	1.2	3.4 #	1.4	6.3
C23-C24 Bile	24	8.9	2.7	1.7	4.0 #	2.5	12.5
C25 Pancreas	67	28.8	2.3	1.8	3.0 #	6.3	25.4
C26 GI cancer	4	1.1	3.8	1.0	9.6 #	0.5	50.0
C33-C34 Lung	166	47.5	3.5	3.0	4.1 #	19.5	10.8
C40-C41 Bone	4	0.6	6.9	1.9	17.6 #	0.6	
C43 Malign. melanoma	45	24.4	1.8	1.3	2.5 #	3.4	
C46,C49 Soft tissue	15	3.6	4.2	2.3	6.8 #	1.9	
C48 Peritoneal	23	2.5	9.1	5.8	13.7 #	3.4	
C50 Breast	529	196.9	2.7	2.5	2.9 #	54.8	2.8
C51 Vulva	22	6.6	3.4	2.1	5.1 #	2.5	4.5
C52 Vagina	18	1.2	15.3	9.1	24.2 #	2.8	
C53 Cervix uteri	33	8.8	3.7	2.6	5.3 #	4.0	36.4
C54 Corpus uteri	36	35.5	1.0	0.7	1.4	0.1	36.1
C55,C57 Fem. genitals un	10	1.3	7.4	3.6	13.7 #	1.4	80.0
C56 Ovary	318	25.7	12.4	11.1	13.8 #	48.2	12.6
C64 Kidney	38	15.0	2.5	1.8	3.5 #	3.8	10.5
C65 Renal pelvis	8	2.0	4.1	1.8	8.0 #	1.0	
C66 Ureter	6	1.0	5.8	2.1	12.7 #	0.8	
C67 Bladder	39	12.1	3.2	2.3	4.4 #	4.4	7.7
C70-C72 CNS cancer	15	8.4	1.8	1.0	2.9	1.1	26.7
C73 Thyroid	29	11.1	2.6	1.7	3.7 #	2.9	
C76-C79 CUP	28	11.4	2.5	1.6	3.6 #	2.7	3.6
C81 Hodgkin lymphoma	5	1.2	4.1	1.3	9.6 #	0.6	
C82-C85 NHL	49	24.9	2.0	1.5	2.6 #	4.0	2.0
C90 Mult. myeloma	9	7.9	1.1	0.5	2.2	0.2	11.1
C91-C96 Leukaemia	31	9.2	3.4	2.3	4.8 #	3.6	16.1
Others, specified	22	8.8	2.5	1.6	3.8 #	2.2	
Not observed	0	1.4	0.0	0.0	2.6	-0.2	
All further malignancies	1912	640.4	3.0	2.9	3.1 #	209.7	9.4

Patients	15840
Median age at next malignancy (years)	71.0
Person-years	60648
Mean observation time (years)	3.8
Median observation time (years)	2.0

The occurrence of further specified malignancy is statistically significant.

Further observed malignancies with count 1 to 3 are pooled in category "Others, specified".

Average incidence (Germany 1987 standard population) 2007 - 2019

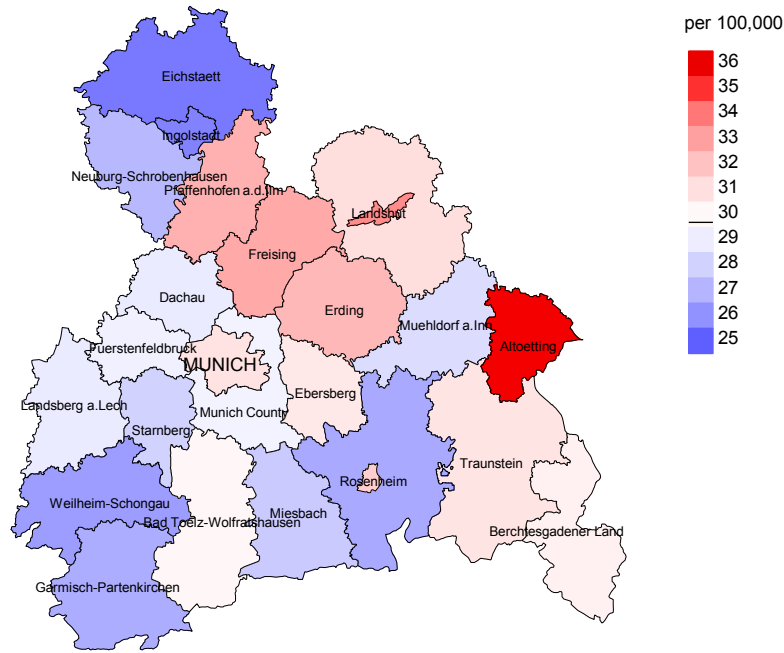


Figure 8a. Map of cancer incidence (german standard population, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (29.7/100,000 WS N=11,068).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,462 female residents (averaged) in the period from 2007 to 2019 a total of 319 women were identified with newly diagnosed uterine cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 30.6/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 26.3 and 35.4/100,000.

Standardized incidence ratio (SIR) 2007 - 2019

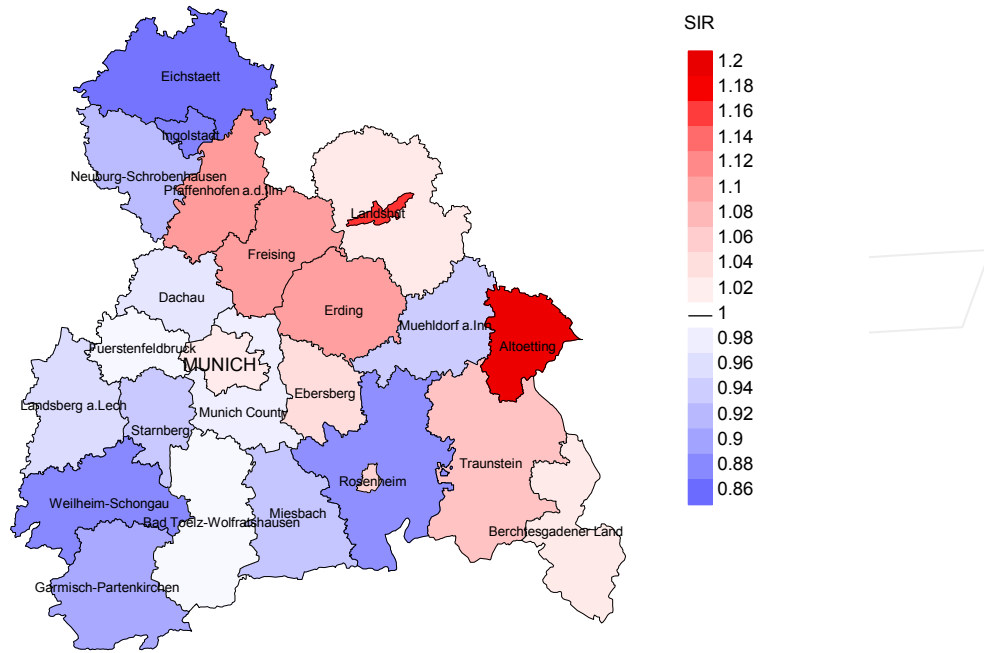


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (N=11,068).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,153 female residents (averaged) in the period from 2007 to 2019 a total of 319 women were identified with newly diagnosed uterine 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 0.90 and 1.20, and is therefore not statistically striking.

MORTALITY

Table 9a

Annual cohorts: Incident cancers, follow-up status, proportion of DCO, deaths among the annual cohorts and proportion of available death certificates (with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.92 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	488	93.0	4.9	291	59.6	89.3
1999	509	92.7	5.3	280	55.0	93.2
2000	475	94.7	5.1	258	54.3	94.6
2001	507	92.7	5.3	282	55.6	94.7
2002	767	94.9	6.3	417	54.4	95.0
2003	767	94.0	6.9	420	54.8	95.2
2004	763	94.6	6.4	413	54.1	93.7
2005	801	92.9	4.5	397	49.6	92.4
2006	754	90.6	3.4	337	44.7	94.7
2007	882	90.1	5.1	425	48.2	93.4
2008	914	97.7	3.9	394	43.1	95.4
2009	894	95.5	3.2	391	43.7	93.4
2010	838	97.3	5.3	354	42.2	94.1
2011	866	95.7	2.9	331	38.2	94.6
2012	876	97.3	5.1	363	41.4	94.5
2013	907	97.1	4.1	359	39.6	88.0
2014	894	96.0	3.0	298	33.3	90.6
2015	821	93.8	4.3	245	29.8	87.8
2016	835	99.2	2.5	219	26.2	76.7
2017	872	99.0	3.4	180	20.6	73.9
2018	810	99.0	1.2	131	16.2	53.4
2019	685	67.9		69	10.1	81.2
1998-2019	16925	94.2	4.1	6854	40.5	91.3

Table 9b

Annual cohorts of incident cancers and deaths, proportion of death certificates and cases deceased within the same year of being diagnosed with cancer (incl. DCO)

(with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.92 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	488	239	89.5	48	9.8
1999	509	256	91.4	51	10.0
2000	475	266	92.9	51	10.7
2001	507	229	91.7	44	8.7
2002	767	387	95.6	82	10.7
2003	767	467	96.4	93	12.1
2004	763	423	96.9	82	10.7
2005	801	438	95.0	71	8.9
2006	754	415	96.1	55	7.3
2007	882	491	96.9	93	10.5
2008	914	489	98.8	72	7.9
2009	894	516	99.0	70	7.8
2010	838	526	98.7	80	9.5
2011	866	579	97.4	80	9.2
2012	876	531	98.3	99	11.3
2013	907	596	97.8	90	9.9
2014	894	570	98.2	80	8.9
2015	821	553	97.6	63	7.7
2016	835	561	98.4	63	7.5
2017	872	617	96.3	77	8.8
2018	810	412	27.9	44	5.4
2019	685	367	50.7	33	4.8
1998–2019	16925	9928	92.2	1521	9.0

Table 9c

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 2.65 to 4.10 m as of 2002,
and from 4.10 to 4.92 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer- related %	Prop. non-cancer- related %	Prop. cancer recorded on death certificate %
1998	239	57.7	42.3	77.1
1999	256	60.9	39.1	75.2
2000	266	59.0	41.0	72.1
2001	229	50.7	49.3	72.9
2002	387	62.8	37.2	76.5
2003	467	64.5	35.5	77.1
2004	423	63.6	36.4	73.9
2005	438	63.9	36.1	74.8
2006	415	59.5	40.5	71.7
2007	491	62.3	37.7	70.6
2008	489	62.2	37.8	69.6
2009	516	59.3	40.7	67.3
2010	526	63.7	36.3	72.1
2011	579	61.3	38.7	70.2
2012	531	59.7	40.3	69.0
2013	596	60.4	39.6	68.1
2014	570	60.2	39.8	70.7
2015	553	56.8	43.2	63.3
2016	561	59.9	40.1	68.8
2017	617	55.4	44.6	62.1
2018	412	38.6	61.4	55.7
2019	367	42.8	57.2	69.9
1998–2019	9928	58.8	41.2	70.2

Table 10

Medians of age at death according to the grouping in Table 9

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	239	77.6	71.7	82.2	76.2
1999	256	79.3	76.2	84.4	78.9
2000	266	79.8	77.1	83.1	78.0
2001	229	79.9	75.3	82.3	77.6
2002	387	79.3	73.8	84.6	75.8
2003	467	78.6	74.2	83.7	76.4
2004	423	78.6	73.4	84.5	75.2
2005	438	80.1	74.2	84.2	76.8
2006	415	79.8	74.3	85.5	76.2
2007	491	81.3	74.7	86.0	77.5
2008	489	79.9	72.6	85.8	74.9
2009	516	80.1	73.8	86.0	75.1
2010	526	79.8	73.9	85.4	75.6
2011	579	79.5	74.1	85.6	75.3
2012	531	80.5	76.4	87.0	77.0
2013	596	79.5	74.6	86.5	76.0
2014	570	78.7	75.1	85.2	76.1
2015	553	80.8	76.1	86.5	76.8
2016	561	79.5	76.0	85.6	76.8
2017	617	80.6	75.6	86.6	76.6
2018	412	79.4	70.8	83.8	75.6
2019	367	79.8	73.8	83.1	76.6
1998-2019	9928	79.7	74.7	85.1	76.4

By 2018, Bavarians' life expectancy at birth is estimated at 79.3 years for boys and 83.8 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 11

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	138	11.7	0.29	5.4	0.24	7.8	0.25	10.0	0.27
1999	156	13.1	0.31	5.4	0.23	8.1	0.25	11.0	0.29
2000	157	13.1	0.33	5.1	0.23	7.9	0.27	10.8	0.31
2001	116	9.5	0.23	4.0	0.18	6.0	0.19	7.9	0.22
2002	243	12.4	0.32	5.3	0.25	7.9	0.27	10.2	0.30
2003	301	15.3	0.39	6.4	0.31	9.7	0.34	12.5	0.38
2004	269	13.6	0.35	5.8	0.29	8.6	0.31	11.0	0.34
2005	280	14.1	0.35	5.6	0.26	8.4	0.29	10.8	0.32
2006	247	12.3	0.33	4.9	0.24	7.4	0.27	9.6	0.30
2007	306	13.3	0.35	5.2	0.26	7.8	0.28	10.0	0.31
2008	304	13.1	0.33	5.4	0.26	8.0	0.28	10.2	0.31
2009	306	13.2	0.34	5.3	0.26	7.9	0.28	10.1	0.31
2010	335	14.3	0.40	5.7	0.31	8.5	0.33	10.8	0.36
2011	355	15.2	0.41	5.9	0.30	8.8	0.33	11.3	0.37
2012	317	13.4	0.36	4.9	0.26	7.5	0.29	9.9	0.33
2013	361	15.1	0.40	5.8	0.30	8.7	0.32	11.3	0.36
2014	343	14.2	0.38	5.3	0.28	8.0	0.30	10.6	0.34
2015	314	12.9	0.38	4.7	0.27	7.2	0.30	9.4	0.34
2016	336	13.7	0.40	5.1	0.28	7.7	0.31	10.0	0.35
2017	342	13.9	0.39	5.2	0.27	7.7	0.30	10.1	0.34
2018	159	6.4	0.20	2.8	0.16	4.1	0.17	5.0	0.18
2019	157	6.3	0.23	2.5	0.17	3.7	0.19	4.7	0.21
1998-2019	5842	12.8	0.35	5.0	0.26	7.6	0.28	9.8	0.31

Table 12

Age distribution of age at death (cancer-related) for period 2007-2019
(incl. multiple malignancies)

Age at death Years	Cases		Cum.%
	n	%	
0-4			
5-9			
10-14			
15-19			
20-24	1	0.0	0.0
25-29	5	0.1	0.2
30-34	16	0.4	0.6
35-39	50	1.3	1.8
40-44	95	2.4	4.2
45-49	125	3.2	7.4
50-54	181	4.6	12.0
55-59	247	6.3	18.3
60-64	283	7.2	25.5
65-69	449	11.4	36.9
70-74	539	13.7	50.6
75-79	654	16.6	67.2
80-84	572	14.5	81.8
85+	718	18.2	100.0
All ages	3935	100.0	

Table 13

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2019
(incl. multiple malignancies)

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	1	0.1	0.09	2.6
25-29	5	0.2	0.05	5.4
30-34	16	0.8	0.06	10.0
35-39	50	2.4	0.13	13.7
40-44	95	4.2	0.16	11.9
45-49	125	5.1	0.19	7.9
50-54	181	7.8	0.20	7.4
55-59	247	12.4	0.21	7.0
60-64	283	16.1	0.23	6.1
65-69	449	26.7	0.33	6.9
70-74	539	33.6	0.36	6.6
75-79	654	47.5	0.52	7.3
80-84	572	58.8	0.70	6.7
85+	718	74.4	0.93	6.5
All ages	3935			6.9
Mortality				
Raw		12.7	0.36	
WS		4.9	0.26	
ES		7.3	0.29	
BRD-S		9.5	0.32	
PYLL-70				
per 100,000		66.5		
ES		56.0		
AYLL-70		12.0		

Table 14

Further malignancies in deaths in period 1998-2019

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn- chron ±30d n	Syn- chron ±30d ←%	Post n	Post ←%
C03-C06 Oral cavity	17	0.6	4	23.5			13	76.5
C09-C10 Oropharynx	16	0.6	6	37.5			10	62.5
C15 Oesophagus	15	0.5	1	6.7			14	93.3
C16 Stomach	71	2.5	7	9.9	3	4.2	61	85.9
C17 Small intestine	12	0.4	3	25.0	2	16.7	7	58.3
C18 Colon	256	8.9	61	23.8	21	8.2	174	68.0
C19-C20 Rectum	150	5.2	48	32.0	2	1.3	100	66.7
C21 Anus/canal	31	1.1	10	32.3			21	67.7
C22 Liver	25	0.9	2	8.0	1	4.0	22	88.0
C23-C24 Bile	41	1.4	5	12.2			36	87.8
C25 Pancreas	120	4.2	2	1.7	4	3.3	114	95.0
C33-C34 Lung	288	10.0	18	6.3	14	4.9	256	88.9
C43 Malign. melanoma	74	2.6	41	55.4	2	2.7	31	41.9
C44 Skin others	107	3.7	47	43.9	5	4.7	55	51.4
C46,C49 Soft tissue	20	0.7	6	30.0	1	5.0	13	65.0
C48 Peritoneal	21	0.7	1	4.8	8	38.1	12	57.1
C50 Breast	704	24.4	334	47.4	66	9.4	304	43.2
C51 Vulva	43	1.5	6	14.0	8	18.6	29	67.4
C52 Vagina	27	0.9	3	11.1	8	29.6	16	59.3
C53 Cervix uteri	52	1.8	27	51.9	4	7.7	21	40.4
C54 Corpus uteri	33	1.1	18	54.5	4	12.1	11	33.3
C55,C57 Fem. genitals un	13	0.5	3	23.1	3	23.1	7	53.8
C56 Ovary	260	9.0	24	9.2	130	50.0	106	40.8
C64 Kidney	51	1.8	15	29.4	4	7.8	32	62.7
C65 Renal pelvis	12	0.4	2	16.7			10	83.3
C66 Ureter	10	0.3					10	100.0
C67 Bladder	118	4.1	10	8.5	15	12.7	93	78.8
C69 Eye melanoma	9	0.3	6	66.7			3	33.3
C70-C72 CNS cancer	34	1.2	6	17.6			28	82.4
C73 Thyroid	25	0.9	10	40.0			15	60.0
C76-C79 CUP	51	1.8	7	13.7	4	7.8	40	78.4
C82-C85 NHL	61	2.1	19	31.1	4	6.6	38	62.3
C90 Mult. myeloma	16	0.6	2	12.5			14	87.5
C91-C96 Leukaemia	51	1.8	9	17.6	4	7.8	38	74.5
Others, specified	54	1.9	16	29.6	1	1.9	37	68.5
All further malignancies	2888	100.0	779	27.0	318	11.0	1791	62.0

Further malignancies with number of cases 1 to 8 are pooled in category "Others, specified".

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 further malignancy.

Table 15

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2019
(**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	1	0.1	0.11	2.7
25-29	5	0.2	0.05	5.8
30-34	13	0.6	0.05	9.4
35-39	48	2.3	0.13	14.5
40-44	88	3.9	0.16	12.5
45-49	107	4.4	0.19	7.9
50-54	155	6.7	0.19	7.5
55-59	212	10.6	0.20	7.2
60-64	236	13.4	0.22	6.3
65-69	357	21.2	0.31	6.9
70-74	431	26.8	0.36	6.8
75-79	521	37.8	0.52	7.5
80-84	447	45.9	0.73	6.8
85+	583	60.4	1.01	6.7
All ages	3204			7.1
Mortality				
Raw		10.3	0.35	
WS		4.1	0.25	
ES		6.1	0.28	
BRD-S		7.7	0.31	
PYLL-70				
per 100,000		57.9		
ES		48.9		
AYLL-70		12.4		

* See corresponding tables with multiple malignancies.

Table 16

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2019
(**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	1	0.1	0.13	2.8
25-29	5	0.2	0.05	6.0
30-34	13	0.6	0.05	9.5
35-39	47	2.2	0.13	14.4
40-44	79	3.5	0.15	11.3
45-49	92	3.8	0.17	6.9
50-54	130	5.6	0.18	6.4
55-59	165	8.3	0.17	5.7
60-64	186	10.6	0.19	5.0
65-69	257	15.3	0.25	5.1
70-74	284	17.7	0.27	4.6
75-79	355	25.8	0.40	5.3
80-84	275	28.3	0.48	4.4
85+	378	39.2	0.71	4.5
All ages	2267			5.2
Mortality				
Raw		7.3	0.26	
WS		3.1	0.20	
ES		4.5	0.22	
BRD-S		5.6	0.24	
PYLL-70				
per 100,000		49.2		
ES		41.8		
AYLL-70		13.2		

* See corresponding tables with multiple malignancies.

ICD-10 C53-C55: Malignant neoplasm of uterus
Age distribution and age-specific mortality 2007 - 2019 (n=3935)

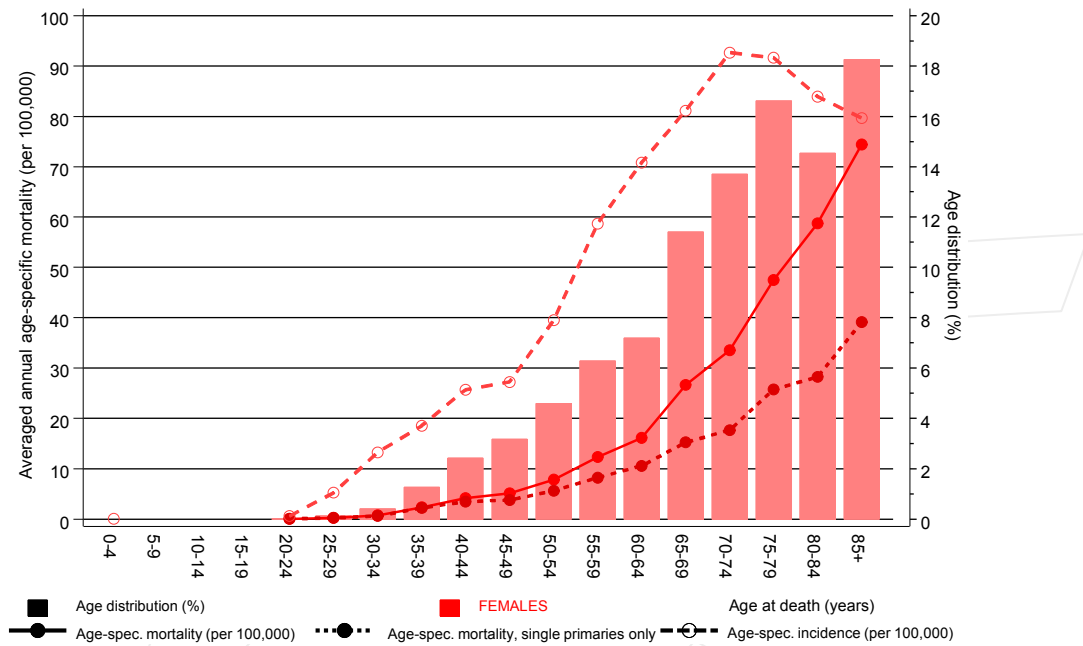


Figure 17. Distribution of age at death (bars; n=mean=65.6 yrs, median=67.6 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

Average mortality (Germany 1987 standard population) 2007 - 2019

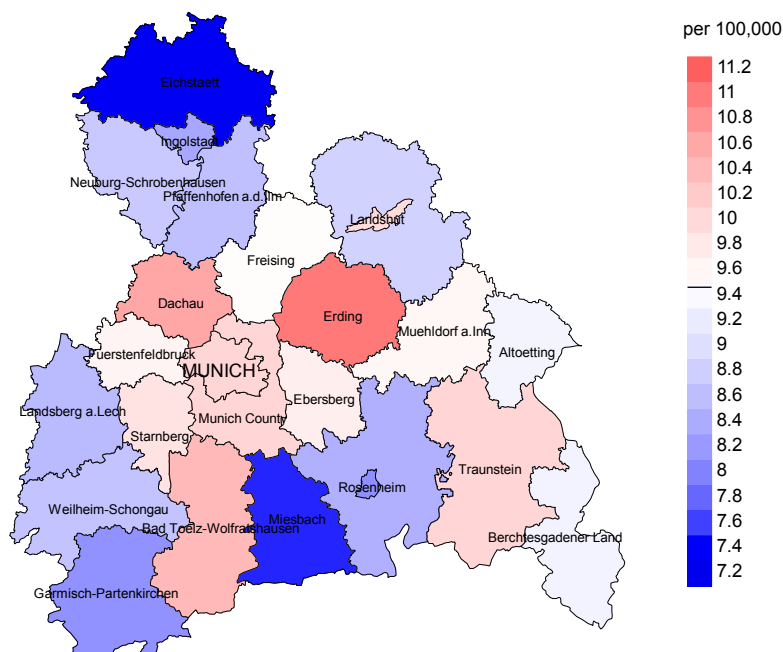


Figure 18a. Map of cancer mortality (German standard population) by county averaged for period 2007 to 2019. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (9.5/100,000 WS N=3,935).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,462 female residents (averaged) in the period from 2007 to 2019 a total of 112 women died from uterine cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 9.7/100,000 (German standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 7.5 and 12.4/100,000.

Standardized mortality ratio (SMR) 2007 - 2019

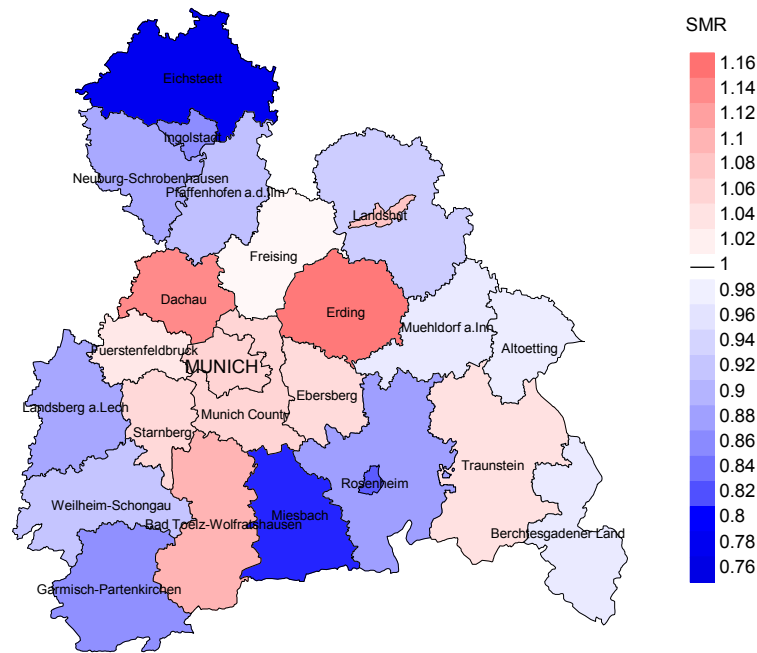


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (N=3,935).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,153 female residents (averaged) in the period from 2007 to 2019 a total of 112 women died from uterine cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 1.05. Though, the value of this parameter may vary with an underlying probability of 99% between 0.81 and 1.34, 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 ratio of mortality and incidence (mortality-to-incidence ratio, **MIR, MI-Index**) is a statistical index 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 MIR. 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

MCR	Munich Cancer Registry (Tumorregister München)
GEKID	Association of Population-based Cancer Registries in Germany (Gesellschaft der epidemiologischen Krebsregister in Deutschland e.V.)
SEER	Surveillance, Epidemiology, and End Results (USA)
DCO	Death certificate only
BRD-S	German (FRG) standard population
ES	European standard population (old)
WS	World standard population
SIR	Standardized incidence ratio
CI	Confidence interval
EAR	Excess absolute risk = excess cancer cases (O - E) per 10,000 person-years
PYLL-70	Potential years of life lost prior to age 70 given a person dies before that age
AYLL-70	Average years of life lost prior to age 70 given a person dies before that age
SMR	Standardized mortality ratio
MI-index	Ratio of mortality to incidence, MIR
FRG	Federal Republic of Germany

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