

Munich Cancer Registry



- ▶ Survival
- ▶ Selection Matrix
- ▶ Homepage
- ▶ *Deutsch*

ICD-10 C45-C49: Mesoth. and soft tissue ca.

Incidence and Mortality

Year of diagnosis	1998-2019
Patients	5,729
Diseases	5,751
Creation date	01/25/2021
Database export	01/07/2021
Population	4.92 m





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

<https://www.tumorregister-muenchen.de/en/facts/base/bC4549E-ICD-10-C45-C49-Mesoth.-and-soft-tissue-ca.-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
C45.-	Mesothelioma
C46.-	Kaposi sarcoma
C47.-	Malignant neoplasm of peripheral nerves and autonomic nervous system
C48.-	Malignant neoplasm of retroperitoneum and peritoneum
C49.-	Malignant neoplasm of other connective and soft tissue

INCIDENCE

Table 1

Cases with invasive cancer by year of diagnosis, proportions of DCO, further malignancies, deaths, and active follow-up (ALL PATIENTS) (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	154	29	18.8	11.7	8.6	86.4	97.4
1999	151	19	12.6	13.1	8.6	77.5	95.4
2000	163	38	23.3	13.5	8.4	73.0	96.3
2001	144	26	18.1	11.8	8.3	76.4	96.5
2002	227	35	15.4	12.0	8.3	80.6	98.2 #
2003	248	35	14.1	12.6	8.3	79.4	96.0
2004	262	30	11.5	12.7	8.4	72.1	98.1
2005	269	18	6.7	12.5	8.4	73.6	93.7
2006	243	21	8.6	13.4	8.2	72.0	95.9
2007	338	16	4.7	13.6	8.0	69.8	94.1 #
2008	333	17	5.1	13.7	7.6	74.8	99.7
2009	320	14	4.4	14.4	7.4	70.9	97.8
2010	344	19	5.5	15.1	6.9	67.2	96.8
2011	366	16	4.4	16.0	6.7	64.5	97.5
2012	325	17	5.2	16.3	6.0	68.0	99.4
2013	352	18	5.1	17.0	5.9	62.8	99.1
2014	331	19	5.7	17.4	4.9	64.7	96.7
2015	337	13	3.9	18.0	4.5	67.1	96.4
2016	240	12	5.0	18.4	3.6	70.0	99.6
2017	228	21	9.2	18.6	2.7	61.4	99.6
2018	212	5	2.4	19.0	1.9	44.3	99.5
2019	164			19.1	3.1	27.4	79.3 ##
1998-2019	5751	438	7.6	19.1	8.6	68.3	96.9

5,751 cases diagnosed 1998-2019 are related to a total of 5,729 patients. Currently, in 1,551 (27.1 %) of these 5,729 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 1,222 / 237 / 92 (21.3 % / 4.1 % / 1.6 %) 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 228 cases has been diagnosed, of which 18.6 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 2.7 % 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 1a

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

Year of diagnosis	Males n	Males %	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	88	57.1	19	21.6	10.2	8.6	88.6	97.7
1999	87	57.6	11	12.6	10.9	8.6	86.2	98.9
2000	92	56.4	24	26.1	11.2	8.1	79.3	95.7
2001	71	49.3	14	19.7	10.4	8.1	77.5	95.8
2002	129	56.8	21	16.3	11.3	8.1	82.2	99.2 #
2003	125	50.4	17	13.6	11.8	8.1	80.0	97.6
2004	165	63.0	21	12.7	11.6	8.0	78.2	98.8
2005	151	56.1	9	6.0	11.7	8.1	73.5	93.4
2006	141	58.0	11	7.8	12.4	7.8	75.9	95.7
2007	184	54.4	9	4.9	12.2	7.5	73.9	94.0 #
2008	188	56.5	9	4.8	12.6	7.1	75.0	99.5
2009	175	54.7	8	4.6	13.5	6.8	74.3	98.3
2010	183	53.2	14	7.7	14.3	6.4	68.9	97.3
2011	195	53.3	7	3.6	15.2	6.1	68.7	97.4
2012	178	54.8	8	4.5	15.7	5.6	69.7	99.4
2013	208	59.1	12	5.8	16.1	5.5	62.0	99.0
2014	177	53.5	9	5.1	16.8	4.8	64.4	97.7
2015	197	58.5	8	4.1	17.5	4.9	75.1	99.0
2016	127	52.9	6	4.7	18.2	4.0	70.1	99.2
2017	127	55.7	10	7.9	18.5	3.0	62.2	99.2
2018	103	48.6	5	4.9	18.8	1.7	51.5	100.0
2019	76	46.3			19.0	2.7	34.2	78.9 ##
1998-2019	3167	55.1	252	8.0	19.0	8.6	71.5	97.3

3,167 cases diagnosed 1998-2019 are related to a total of 3,152 patients. Currently, in 839 (26.6 %) of these 3,152 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 666 / 123 / 50 (21.1 % / 3.9 % / 1.6 %) 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 127 cases has been diagnosed, of which 18.5 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 3.0 % 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 1b

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

Year of diagnosis	Females n	Females %	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	66	42.9	10	15.2	13.6	8.7	83.3	97.0
1999	64	42.4	8	12.5	16.2	8.7	65.6	90.6
2000	71	43.6	14	19.7	16.4	8.7	64.8	97.2
2001	73	50.7	12	16.4	13.5	8.6	75.3	97.3
2002	98	43.2	14	14.3	12.9	8.6	78.6	96.9 #
2003	123	49.6	18	14.6	13.5	8.6	78.9	94.3
2004	97	37.0	9	9.3	14.0	8.8	61.9	96.9
2005	118	43.9	9	7.6	13.7	8.7	73.7	94.1
2006	102	42.0	10	9.8	14.7	8.7	66.7	96.1
2007	154	45.6	7	4.5	15.4	8.6	64.9	94.2 #
2008	145	43.5	8	5.5	15.0	8.2	74.5	100.0
2009	145	45.3	6	4.1	15.6	8.3	66.9	97.2
2010	161	46.8	5	3.1	16.2	7.6	65.2	96.3
2011	171	46.7	9	5.3	16.9	7.4	59.6	97.7
2012	147	45.2	9	6.1	17.1	6.5	66.0	99.3
2013	144	40.9	6	4.2	18.0	6.3	63.9	99.3
2014	154	46.5	10	6.5	18.2	4.9	64.9	95.5
2015	140	41.5	5	3.6	18.5	4.1	55.7	92.9
2016	113	47.1	6	5.3	18.8	3.3	69.9	100.0
2017	101	44.3	11	10.9	18.8	2.4	60.4	100.0
2018	109	51.4			19.2	2.1	37.6	99.1
2019	88	53.7			19.3	3.4	21.6	79.5 ##
1998-2019	2584	44.9	186	7.2	19.3	8.7	64.5	96.2

2,584 cases diagnosed 1998-2019 are related to a total of 2,577 patients. Currently, in 712 (27.6 %) of these 2,577 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 556 / 114 / 42 (21.6 % / 4.4 % / 1.6 %) 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 101 cases has been diagnosed, of which 18.8 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 2.4 % 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	Males n	Females n	Males Inc. raw	Fem. Inc. raw	Males Inc. WS	Fem. Inc. WS	Males Inc. ES	Fem. Inc. ES	Males Inc. BRD-S	Fem. Inc. BRD-S
1998	88	66	7.9	5.6	5.5	3.3	7.3	4.2	8.6	5.0
1999	87	64	7.8	5.4	5.2	3.4	7.0	4.3	8.4	4.9
2000	92	71	8.1	5.9	5.6	3.6	7.3	4.4	8.6	5.2
2001	71	73	6.1	6.0	4.2	3.6	5.7	4.7	6.8	5.4
2002	129	98	6.9	5.0	4.8	3.0	6.2	3.8	7.4	4.4
2003	125	123	6.7	6.2	4.4	3.5	5.8	4.5	7.0	5.4
2004	165	97	8.8	4.9	5.6	3.1	7.3	3.8	8.6	4.3
2005	151	118	8.0	5.9	5.7	3.7	7.0	4.5	7.8	5.3
2006	141	102	7.4	5.1	4.5	3.3	6.0	4.0	7.6	4.6
2007	184	154	8.3	6.7	5.1	3.6	6.7	4.8	8.1	5.6
2008	188	145	8.4	6.2	5.0	3.3	6.7	4.4	8.0	5.3
2009	175	145	7.8	6.2	4.3	3.3	6.0	4.5	7.7	5.4
2010	183	161	8.1	6.9	5.0	3.6	6.5	4.7	7.7	5.8
2011	195	171	8.7	7.3	4.8	3.7	6.6	5.0	8.3	5.9
2012	178	147	7.8	6.2	4.3	3.3	5.8	4.3	7.3	5.0
2013	208	144	9.0	6.0	5.4	3.0	7.0	4.0	8.5	4.8
2014	177	154	7.6	6.4	3.9	3.5	5.5	4.4	6.9	5.3
2015	197	140	8.3	5.8	4.1	2.8	5.8	3.8	7.5	4.7
2016	127	113	5.3	4.6	2.3	2.2	3.5	3.0	4.7	3.6
2017	127	101	5.3	4.1	2.5	1.9	3.6	2.7	4.7	3.2
2018	103	109	4.2	4.4	2.0	2.2	2.9	3.0	3.8	3.6
2019	76	88	3.1	3.5	1.3	1.7	1.9	2.3	2.7	2.8
1998-2019	3167	2584	7.2	5.6	4.2	3.1	5.7	4.0	7.0	4.7

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

Table 3

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

Year of diagnosis	Cases n	Std.		Median						
		Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	154	61.3	20.0	0.4	93.2	33.1	53.1	64.9	75.4	85.0
1999	151	61.7	16.1	2.4	97.4	40.1	52.4	64.2	73.0	78.6
2000	163	60.5	21.8	0.2	97.1	29.2	51.2	62.8	78.0	85.6
2001	144	61.2	16.3	11.8	95.4	39.8	50.9	62.4	72.9	81.9
2002	227	61.4	19.9	0.0	93.0	32.8	51.6	65.3	75.5	82.9
2003	248	63.1	19.3	2.6	92.5	32.4	56.3	67.2	77.0	83.4
2004	262	62.0	18.9	0.0	96.1	36.0	54.6	66.5	74.0	81.9
2005	269	60.1	20.9	0.2	92.0	30.7	50.9	65.0	73.8	82.0
2006	243	62.3	19.7	0.3	103	35.7	54.5	65.9	77.2	82.5
2007	338	63.8	17.7	0.1	96.4	40.9	58.2	67.7	75.3	81.1
2008	333	65.0	17.5	0.0	101	39.9	57.1	68.9	75.9	84.0
2009	320	66.1	16.5	0.2	97.3	42.8	58.8	68.7	77.7	83.6
2010	344	64.0	18.6	0.1	97.3	36.5	55.8	68.8	76.4	82.8
2011	366	66.1	17.3	0.0	96.8	41.9	58.3	70.2	77.9	84.0
2012	325	66.7	18.0	0.4	98.4	43.1	59.9	71.0	78.3	84.7
2013	352	65.2	18.8	0.0	96.7	38.2	56.5	69.9	77.1	84.9
2014	331	66.4	18.3	0.2	97.1	40.8	58.8	71.6	78.4	84.5
2015	337	68.6	16.4	0.9	96.2	47.0	61.0	72.5	78.8	85.4
2016	240	69.2	15.6	0.0	92.9	49.2	61.0	73.2	79.3	85.4
2017	228	68.3	16.1	4.1	101	44.9	58.8	73.8	79.4	84.3
2018	212	68.0	14.6	18.9	92.8	47.7	60.9	71.6	78.1	84.9
2019	164	69.4	14.0	29.9	98.2	47.1	61.3	73.0	80.6	83.6
1998-2019	5751	64.8	18.1	0.0	103	39.6	56.9	68.8	77.2	83.5

Table 3a

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

Year of diagnosis	Cases n	Std.		Median						
		Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	88	59.8	19.0	0.4	90.8	33.0	51.6	63.5	71.7	82.5
1999	87	61.8	15.5	3.5	97.4	39.9	54.5	62.6	72.1	78.4
2000	92	60.1	21.0	0.2	92.9	31.2	52.8	61.7	77.3	85.3
2001	71	61.6	16.9	11.8	95.4	40.7	51.5	63.7	73.6	79.6
2002	129	60.3	20.8	0.1	92.4	30.5	49.2	65.0	74.7	82.8
2003	125	61.4	19.4	7.6	90.3	31.0	55.4	66.2	74.8	82.7
2004	165	62.5	17.5	0.0	90.7	39.6	56.0	66.8	72.7	79.5
2005	151	58.2	21.1	0.2	90.9	34.7	48.6	63.9	71.7	80.7
2006	141	63.4	18.0	0.3	90.3	38.9	56.2	67.3	76.8	81.9
2007	184	63.3	18.5	0.1	96.4	38.0	58.2	68.1	74.5	79.5
2008	188	64.9	17.0	0.0	95.2	41.8	59.8	68.5	74.6	82.3
2009	175	66.7	17.7	0.2	97.3	41.4	60.3	69.6	79.2	83.8
2010	183	62.7	19.3	0.1	92.7	35.1	53.7	67.6	75.6	82.5
2011	195	65.8	17.3	0.0	95.3	38.6	57.7	70.5	76.7	83.7
2012	178	66.7	17.5	0.4	95.5	44.8	62.4	71.3	76.5	84.1
2013	208	64.0	19.4	0.0	95.9	35.0	55.1	69.3	77.2	82.8
2014	177	67.3	16.8	0.2	88.0	49.8	59.4	72.4	77.9	84.3
2015	197	69.6	16.5	0.9	94.3	46.9	65.2	73.5	78.8	86.4
2016	127	71.5	13.1	29.9	92.9	52.7	64.9	74.6	80.5	85.5
2017	127	68.7	16.3	15.4	92.6	43.8	59.4	74.0	79.9	83.9
2018	103	70.1	15.1	23.9	92.8	45.2	62.4	73.6	80.4	86.0
2019	76	71.0	14.3	29.9	87.8	51.8	62.9	77.2	81.9	83.4
1998-2019	3167	64.8	18.1	0.0	97.4	39.3	57.3	68.8	76.8	83.2

Table 3b

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

Year of diagnosis	Cases n	Std.		Median						
		Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	66	63.3	21.3	3.4	93.2	33.1	54.3	68.2	78.0	85.2
1999	64	61.6	17.1	2.4	88.4	40.1	50.2	65.1	74.3	80.3
2000	71	61.1	23.0	0.4	97.1	28.5	46.9	65.2	78.9	86.3
2001	73	60.8	15.7	21.1	85.9	39.8	50.1	61.3	72.9	82.3
2002	98	63.0	18.7	0.0	93.0	39.0	53.8	66.4	75.9	83.4
2003	123	64.9	19.1	2.6	92.5	38.2	57.3	67.7	78.7	83.6
2004	97	61.2	21.1	0.2	96.1	30.8	53.1	65.7	76.2	84.4
2005	118	62.5	20.6	1.1	92.0	29.0	52.8	68.0	77.6	82.4
2006	102	60.8	21.7	0.5	103	32.5	50.3	63.8	78.1	83.5
2007	154	64.5	16.9	0.3	89.4	42.6	58.0	67.5	76.7	82.1
2008	145	65.1	18.2	6.1	101	36.3	55.0	69.4	78.8	86.2
2009	145	65.4	15.1	2.2	94.3	45.8	57.9	67.5	76.7	83.2
2010	161	65.4	17.8	0.9	97.3	40.1	56.4	70.1	77.3	83.0
2011	171	66.6	17.3	0.0	96.8	42.6	59.0	69.9	78.6	84.6
2012	147	66.5	18.8	0.4	98.4	42.6	59.3	70.8	80.5	85.6
2013	144	66.8	17.8	0.0	96.7	44.1	57.5	70.9	77.0	86.9
2014	154	65.3	19.8	1.7	97.1	37.6	55.3	70.4	78.8	85.3
2015	140	67.2	16.0	4.7	96.2	47.2	58.3	71.4	78.4	84.6
2016	113	66.7	17.7	0.0	91.3	42.3	56.5	71.5	78.0	85.3
2017	101	67.8	16.0	4.1	101	49.3	58.6	71.1	78.4	84.8
2018	109	66.1	13.8	18.9	88.5	49.9	58.7	68.2	75.5	80.1
2019	88	68.1	13.7	31.6	98.2	46.8	61.2	70.0	79.0	84.3
1998-2019	2584	64.9	18.1	0.0	103	40.1	56.4	68.7	77.7	84.0

Table 4

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

Age at diagnosis Years	Cases			Males			Females		
	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4	47	1.2	1.2	30	1.4	1.4	17	1.0	1.0
5-9	9	0.2	1.4	5	0.2	1.7	4	0.2	1.2
10-14	13	0.3	1.8	9	0.4	2.1	4	0.2	1.4
15-19	23	0.6	2.4	13	0.6	2.7	10	0.6	2.0
20-24	30	0.8	3.1	14	0.7	3.4	16	0.9	2.9
25-29	45	1.2	4.3	22	1.0	4.4	23	1.3	4.2
30-34	72	1.9	6.1	42	2.0	6.4	30	1.7	5.9
35-39	94	2.4	8.6	55	2.6	9.0	39	2.2	8.1
40-44	116	3.0	11.5	54	2.5	11.5	62	3.5	11.6
45-49	133	3.4	15.0	62	2.9	14.4	71	4.0	15.6
50-54	197	5.1	20.0	102	4.8	19.3	95	5.4	20.9
55-59	278	7.1	27.2	131	6.2	25.4	147	8.3	29.2
60-64	326	8.4	35.6	168	7.9	33.4	158	8.9	38.1
65-69	525	13.5	49.0	300	14.2	47.5	225	12.7	50.8
70-74	652	16.8	65.8	374	17.7	65.2	278	15.7	66.5
75-79	577	14.8	80.6	330	15.6	80.8	247	13.9	80.5
80-84	425	10.9	91.6	238	11.2	92.0	187	10.6	91.0
85+	328	8.4	100.0	169	8.0	100.0	159	9.0	100.0
All ages	3890	100.0		2118	100.0		1772	100.0	

Table 5

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

Age at diagnosis Years	Males n	Females n	Males Age- spec. incid.	Females Age- spec. incid.	Males DCO rate n=105 %	Females DCO rate n=81 %	Males	Females
							Prop.all cancers n=143063 %	Prop.all cancers n=144724 %
0- 4	30	17	2.0	1.2		5.9	14.2	10.6
5- 9	5	4	0.3	0.3			4.4	4.3
10-14	9	4	0.6	0.3			6.8	3.4
15-19	13	10	0.8	0.7			4.3	4.0
20-24	14	16	0.8	0.9			2.4	3.4
25-29	22	23	1.0	1.1			2.5	2.1
30-34	42	30	2.0	1.4			3.5	1.5
35-39	55	39	2.6	1.9	1.8	2.6	3.2	1.2
40-44	54	62	2.3	2.7		3.2	2.1	1.1
45-49	62	71	2.5	2.9	1.6	1.4	1.3	0.8
50-54	102	95	4.4	4.1	2.9		1.3	0.8
55-59	130	147	6.7	7.4	0.8	0.7	1.1	1.2
60-64	167	158	10.2	9.0	3.0	1.3	1.0	1.1
65-69	299	225	19.7	13.4	3.3	0.4	1.3	1.3
70-74	373	277	26.6	17.2	4.6	3.6	1.4	1.5
75-79	330	246	29.8	17.9	5.5	2.4	1.5	1.4
80-84	238	187	36.3	19.2	10.5	8.6	1.7	1.3
85+	167	159	39.2	16.5	14.4	25.2	1.7	1.0
All ages	2112	1770			5.0	4.6	1.5	1.2
Incidence								
Raw			7.0	5.7				
WS			3.8	2.9				
ES			5.2	3.9				
BRD-S			6.5	4.7				

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 C45-C49: Mesothelial and soft tissue cancers
 Age distribution and age-specific incidence 2007 - 2019 (Males: 2112, Females: 1770)

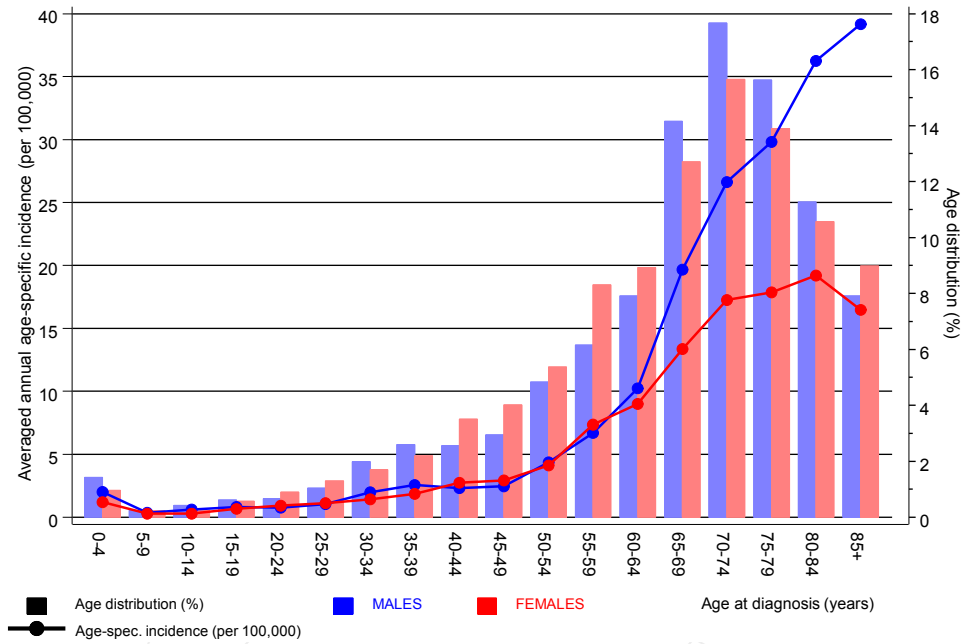


Figure 6. Age distribution (males: mean=66.6 yrs, median=70.9 yrs; females: mean=66.1 yrs, median=69.7 yrs) and age-specific incidence.

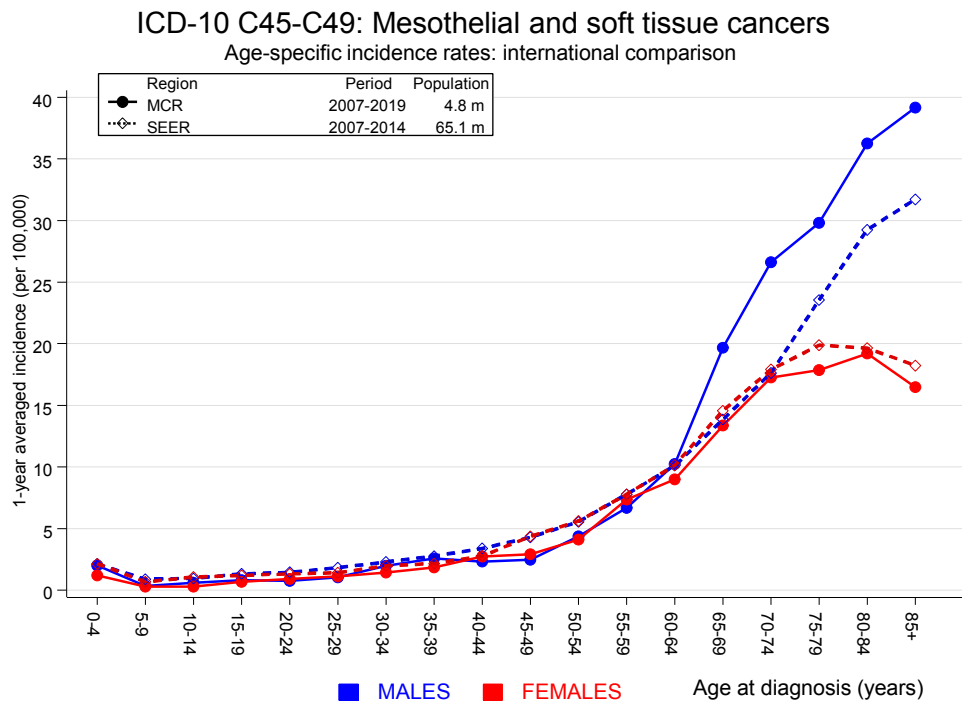


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

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 7a

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

MALES

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C00 Lip	1	0.1	8.1	0.2	45.2	1.1	
C03-C06 Oral cavity	4	0.9	4.5	1.2	11.5 #	3.9	
C09-C10 Oropharynx	2	1.1	1.8	0.2	6.7	1.2	
C15 Oesophagus	5	2.1	2.4	0.8	5.6	3.7	20.0
C16 Stomach	9	4.4	2.0	0.9	3.9	5.8	11.1
C17 Small intestine	7	0.6	10.8	4.4	22.3 #	8.0	
C18 Colon	16	10.7	1.5	0.9	2.4	6.7	
C19-C20 Rectum	9	5.8	1.6	0.7	3.0	4.1	
C21 Anus/canal	1	0.3	3.9	0.1	21.5	0.9	
C22 Liver	6	3.1	1.9	0.7	4.1	3.6	33.3
C23-C24 Bile	2	1.2	1.7	0.2	6.2	1.1	
C25 Pancreas	5	4.3	1.2	0.4	2.7	0.9	60.0
C30-C31 Sinuses	2	0.2	10.0	1.2	36.2 #	2.3	
C32 Larynx	1	1.1	0.9	0.0	5.2	-0.1	
C33-C34 Lung	40	12.8	3.1	2.2	4.3 #	34.4	32.5
C38,C45 Mesothelioma	4	0.8	5.2	1.4	13.4 #	4.1	
C40-C41 Bone	1	0.1	10.7	0.3	59.4	1.1	
C43 Malign. melanoma	19	4.9	3.9	2.3	6.0 #	17.8	5.3
C46,C49 Soft tissue	10	0.6	15.6	7.5	28.6 #	11.8	
C50 Breast	1	0.3	3.3	0.1	18.5	0.9	
C60 Penis	1	0.3	3.6	0.1	19.9	0.9	
C61 Prostate	47	30.9	1.5	1.1	2.0 #	20.4	6.4
C62 Testis	6	0.5	13.3	4.9	28.9 #	7.0	16.7
C64 Kidney	19	3.8	5.0	3.0	7.9 #	19.3	5.3
C65 Renal pelvis	1	0.5	2.0	0.1	11.4	0.6	
C66 Ureter	1	0.3	3.5	0.1	19.6	0.9	
C67 Bladder	11	5.2	2.1	1.1	3.8 #	7.3	9.1
C69 Eye melanoma	1	0.1	8.3	0.2	46.5	1.1	
C70-C72 CNS cancer	2	1.4	1.4	0.2	5.1	0.7	50.0
C73 Thyroid	4	0.7	5.5	1.5	14.1 #	4.1	25.0
C74-C80 Cancer others	1	0.3	3.7	0.1	20.8	0.9	
C76-C79 CUP	2	1.9	1.1	0.1	3.9	0.2	
C81 Hodgkin lymphoma	1	0.3	3.5	0.1	19.8	0.9	
C82-C85 NHL	21	4.7	4.5	2.8	6.8 #	20.6	14.3
C90 Mult. myeloma	2	1.5	1.4	0.2	5.0	0.7	50.0
C91-C96 Leukaemia	13	1.7	7.5	4.0	12.8 #	14.2	7.7
Not observed	0	1.6	0.0	0.0	2.3	-2.0	
All further malignancies	278	110.9	2.5	2.2	2.8 #	211.4	12.2

Patients 2914
 Median age at next malignancy (years) 72.0
 Person-years 7906
 Mean observation time (years) 2.7
 Median observation time (years) 1.3

The occurrence of further specified malignancy is statistically significant.

Table 7b

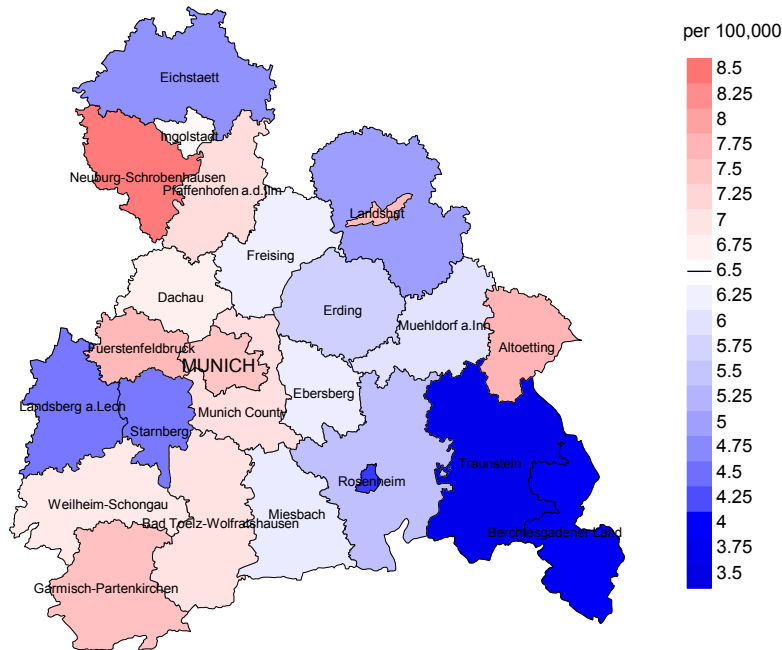
Standardized incidence ratio (SIR, with 95% confidence limits),
excess absolute risk (EAR) and DCO rate of further malignancies
for period 1998-2019

FEMALES

Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C15	Oesophagus	1	0.5	2.2	0.1	12.3	0.7	
C16	Stomach	5	2.3	2.2	0.7	5.1	3.7	20.0
C17	Small intestine	3	0.4	7.9	1.6	23.2 #	3.6	
C18	Colon	12	6.5	1.8	1.0	3.2	7.5	16.7
C19-C20	Rectum	6	2.7	2.2	0.8	4.8	4.5	
C21	Anus/canal	1	0.4	2.6	0.1	14.4	0.8	
C22	Liver	1	0.8	1.2	0.0	6.6	0.2	
C23-C24	Bile	3	1.0	3.2	0.7	9.2	2.8	33.3
C25	Pancreas	6	3.2	1.9	0.7	4.1	3.9	50.0
C26	GI cancer	1	0.1	9.1	0.2	50.5	1.2	100.0
C33-C34	Lung	13	5.3	2.4	1.3	4.2 #	10.5	15.4
C40-C41	Bone	3	0.1	44.0	9.1	128.7 #	4.0	33.3
C43	Malign. melanoma	7	2.7	2.6	1.0	5.3 #	5.9	14.3
C46,C49	Soft tissue	6	0.4	15.0	5.5	32.6 #	7.7	16.7
C48	Peritoneal	1	0.3	3.4	0.1	19.2	1.0	
C50	Breast	41	21.8	1.9	1.3	2.5 #	26.3	7.3
C51	Vulva	1	0.7	1.4	0.0	7.7	0.4	
C52	Vagina	1	0.1	7.7	0.2	43.2	1.2	
C53	Cervix uteri	5	1.0	5.0	1.6	11.8 #	5.5	
C54	Corpus uteri	15	3.9	3.9	2.2	6.4 #	15.2	
C56	Ovary	66	2.8	23.5	18.2	29.9 #	86.6	78.8
C64	Kidney	8	1.6	5.0	2.1	9.8 #	8.8	12.5
C67	Bladder	3	1.3	2.3	0.5	6.7	2.3	33.3
C69	Eye melanoma	1	0.1	11.8	0.3	65.7	1.3	
C70-C72	CNS cancer	2	0.9	2.2	0.3	7.9	1.5	
C73	Thyroid	5	1.3	4.0	1.3	9.2 #	5.1	
C74-C80	Cancer others	2	0.2	8.5	1.0	30.8 #	2.4	
C82-C85	NHL	12	2.7	4.5	2.3	7.8 #	12.8	
C90	Mult. myeloma	2	0.8	2.4	0.3	8.6	1.6	
C91-C96	Leukaemia	6	1.0	5.9	2.2	12.9 #	6.8	16.7
Not observed		0	3.3	0.0	0.0	1.1	-4.5	
All further malignancies		239	70.2	3.4	3.0	3.9 #	231.3	29.7
Patients		2374						
Median age at next malignancy (years)		73.7						
Person-years		7296						
Mean observation time (years)		3.1						
Median observation time (years)		1.6						

The occurrence of further specified malignancy is statistically significant.

Average incidence (Germany 1987 standard population) 2007 - 2019: Males



Average incidence (Germany 1987 standard population) 2007 - 2019: Females

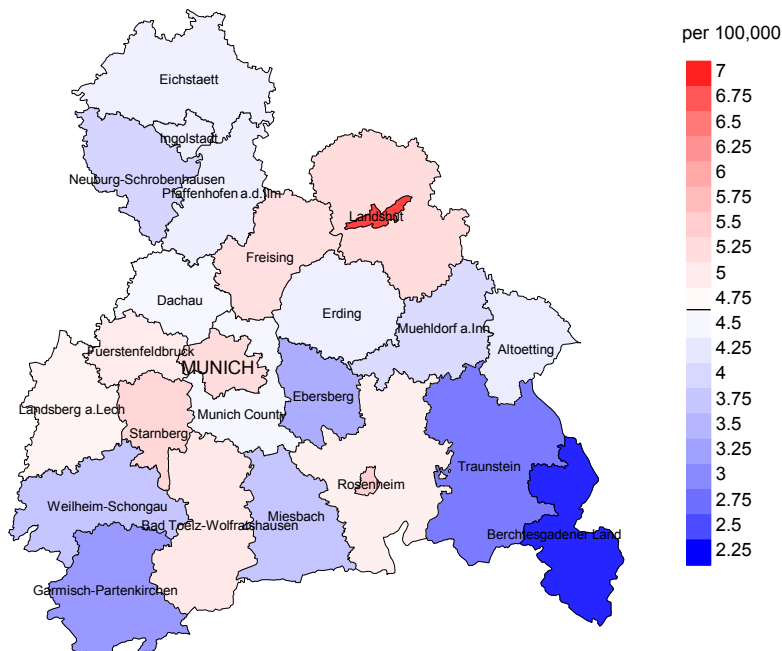
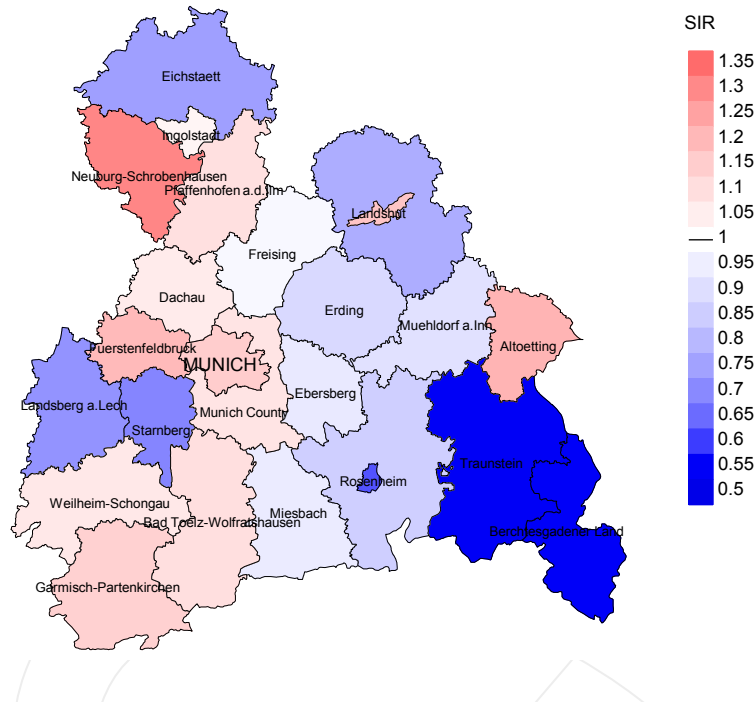


Figure 8a. Map of cancer incidence (german standard population, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 6.5/100,000 WS N=2,112, females 4.7/100,000 WS N=1,770).

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 36 women were identified with newly diagnosed mesoth. and soft tissue ca.. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 3.4/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 2.1 and 5.2/100,000.

Standardized incidence ratio (SIR) 2007 - 2019: Males



Standardized incidence ratio (SIR) 2007 - 2019: Females

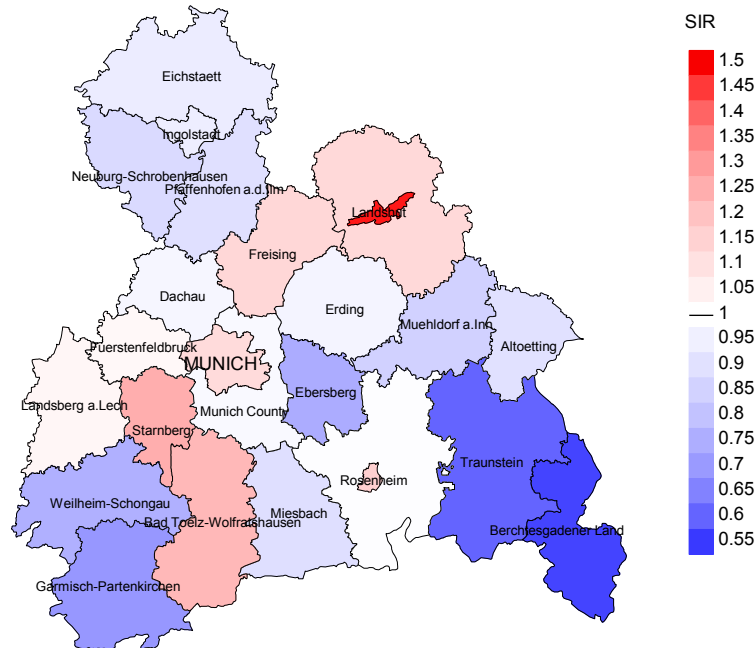


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=2,112, females N=1,770).

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 36 women were identified with newly diagnosed mesoth. and soft tissue ca.. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.74. Though, the value of this parameter may vary with an underlying probability of 99% between 0.46 and 1.12, 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	154	97.4	18.8	133	86.4	94.0
1999	151	95.4	12.6	117	77.5	90.6
2000	163	96.3	23.3	119	73.0	97.5
2001	144	96.5	18.1	110	76.4	95.5
2002	227	98.2	15.4	183	80.6	94.0
2003	248	96.0	14.1	197	79.4	95.4
2004	262	98.1	11.5	189	72.1	97.9
2005	269	93.7	6.7	198	73.6	96.5
2006	243	95.9	8.6	175	72.0	97.7
2007	338	94.1	4.7	236	69.8	97.5
2008	333	99.7	5.1	249	74.8	96.8
2009	320	97.8	4.4	227	70.9	95.6
2010	344	96.8	5.5	231	67.2	97.0
2011	366	97.5	4.4	236	64.5	96.2
2012	325	99.4	5.2	221	68.0	95.0
2013	352	99.1	5.1	221	62.8	95.0
2014	331	96.7	5.7	214	64.7	92.5
2015	337	96.4	3.9	226	67.1	86.3
2016	240	99.6	5.0	168	70.0	79.8
2017	228	99.6	9.2	140	61.4	75.7
2018	212	99.5	2.4	94	44.3	51.1
2019	164	79.3		45	27.4	88.9
1998-2019	5751	96.9	7.6	3929	68.3	92.6

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	154	109	94.5	46	29.9
1999	151	94	90.4	33	21.9
2000	163	109	94.5	42	25.8
2001	144	102	94.1	41	28.5
2002	227	147	96.6	65	28.6
2003	248	133	93.2	63	25.4
2004	262	167	96.4	59	22.5
2005	269	177	97.7	55	20.4
2006	243	178	96.6	50	20.6
2007	338	196	97.4	59	17.5
2008	333	200	98.5	67	20.1
2009	320	230	97.8	61	19.1
2010	344	236	98.3	63	18.3
2011	366	243	98.8	77	21.0
2012	325	247	99.2	65	20.0
2013	352	242	97.5	72	20.5
2014	331	242	97.9	65	19.6
2015	337	252	99.2	71	21.1
2016	240	250	98.8	54	22.5
2017	228	272	98.5	67	29.4
2018	212	175	33.1	30	14.2
2019	164	173	48.0	23	14.0
1998–2019	5751	4174	92.7	1228	21.4

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	109	77.1	22.9	94.2
1999	94	84.0	16.0	96.5
2000	109	87.2	12.8	97.1
2001	102	90.2	9.8	97.9
2002	147	85.7	14.3	93.7
2003	133	88.7	11.3	91.9
2004	167	87.4	12.6	93.2
2005	177	90.4	9.6	93.1
2006	178	88.2	11.8	91.3
2007	196	88.3	11.7	95.3
2008	200	90.5	9.5	92.9
2009	230	86.5	13.5	90.2
2010	236	88.6	11.4	91.4
2011	243	87.2	12.8	91.7
2012	247	86.6	13.4	92.7
2013	242	89.7	10.3	94.5
2014	242	83.9	16.1	86.9
2015	252	86.1	13.9	88.0
2016	250	84.4	15.6	90.3
2017	272	87.9	12.1	90.3
2018	175	57.1	42.9	81.0
2019	173	60.1	39.9	89.2
1998–2019	4174	84.7	15.3	91.8

Table 10a

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

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	66	68.6	69.1	67.5	69.1
1999	60	68.2	66.5	74.0	68.1
2000	63	66.8	66.3	78.8	66.3
2001	55	65.6	65.1	77.7	65.7
2002	87	68.3	68.3	70.7	67.7
2003	73	69.7	67.4	88.3	68.0
2004	97	70.7	69.9	82.2	70.7
2005	108	69.1	69.1	69.6	69.1
2006	101	71.4	71.9	71.1	72.2
2007	130	69.6	69.2	72.7	69.4
2008	121	71.6	71.3	79.7	71.1
2009	134	71.9	71.1	79.1	71.4
2010	136	74.2	73.5	76.6	73.9
2011	139	75.0	74.3	80.7	74.4
2012	138	74.2	73.5	80.4	73.6
2013	137	74.0	73.4	85.0	73.6
2014	133	74.9	73.9	83.8	74.4
2015	140	76.1	75.4	86.1	75.6
2016	149	76.5	75.9	79.7	76.0
2017	140	76.2	75.9	83.3	76.2
2018	97	76.9	76.6	78.9	78.0
2019	86	80.2	75.0	82.7	78.9
1998-2019	2390	73.2	72.3	80.2	72.5

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 10b

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

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	43	74.5	70.4	85.4	74.3
1999	34	68.9	67.7	70.2	70.6
2000	46	77.7	78.5	76.2	78.1
2001	47	70.1	70.3	60.9	70.5
2002	60	68.1	66.0	80.3	67.8
2003	60	74.0	70.9	82.5	72.5
2004	70	73.2	71.9	84.1	72.4
2005	69	73.0	71.9	76.9	72.5
2006	77	75.1	74.2	83.0	75.0
2007	66	74.6	73.9	79.0	73.9
2008	79	75.9	71.7	89.3	71.9
2009	96	74.0	72.9	86.2	73.7
2010	100	74.9	74.2	88.9	74.2
2011	104	77.3	75.8	84.9	76.0
2012	109	77.4	75.5	85.6	75.8
2013	105	75.2	73.2	93.3	73.7
2014	109	74.9	74.4	86.1	74.4
2015	112	75.4	73.7	91.5	73.9
2016	101	77.2	76.3	84.6	76.7
2017	132	75.7	74.2	91.0	74.4
2018	78	76.7	75.2	78.8	75.7
2019	87	74.7	72.5	79.4	74.6
1998-2019	1784	75.2	73.7	84.4	74.4

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 11a

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

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	51	4.6	0.58	3.0	0.54	4.2	0.58	5.0	0.58
1999	52	4.6	0.60	3.2	0.61	4.3	0.61	5.2	0.62
2000	55	4.8	0.60	3.1	0.55	4.3	0.59	5.2	0.60
2001	48	4.1	0.68	2.7	0.65	3.6	0.64	4.4	0.64
2002	73	3.9	0.57	2.3	0.47	3.3	0.54	4.2	0.57
2003	64	3.4	0.51	2.0	0.46	2.8	0.49	3.7	0.52
2004	84	4.5	0.51	2.7	0.48	3.7	0.50	4.8	0.55
2005	97	5.1	0.64	3.0	0.52	4.1	0.59	5.2	0.66
2006	90	4.7	0.64	2.5	0.56	3.6	0.60	4.8	0.64
2007	117	5.3	0.64	2.9	0.57	4.2	0.62	5.3	0.65
2008	110	4.9	0.59	2.5	0.50	3.7	0.56	4.9	0.61
2009	112	5.0	0.64	2.4	0.56	3.6	0.60	4.7	0.61
2010	116	5.1	0.63	2.3	0.47	3.6	0.55	5.0	0.64
2011	121	5.4	0.62	2.5	0.53	3.8	0.58	5.3	0.64
2012	122	5.4	0.69	2.5	0.59	3.8	0.65	5.1	0.70
2013	122	5.3	0.59	2.6	0.49	3.7	0.54	4.9	0.58
2014	114	4.9	0.64	2.3	0.57	3.3	0.61	4.5	0.65
2015	117	4.9	0.60	2.2	0.54	3.3	0.56	4.4	0.59
2016	125	5.2	0.98	2.4	1.03	3.5	0.98	4.7	1.00
2017	125	5.2	0.98	2.1	0.83	3.3	0.90	4.6	0.96
2018	52	2.1	0.51	0.8	0.42	1.3	0.46	1.9	0.50
2019	51	2.1	0.67	0.8	0.67	1.3	0.68	1.8	0.67
1998-2019	2018	4.6	0.64	2.3	0.56	3.4	0.60	4.5	0.65

Table 11b

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

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	33	2.8	0.50	1.6	0.47	2.1	0.49	2.6	0.52
1999	27	2.3	0.42	1.4	0.41	1.7	0.39	2.0	0.42
2000	40	3.3	0.56	1.3	0.35	2.0	0.44	2.7	0.52
2001	44	3.6	0.60	1.9	0.53	2.5	0.54	3.1	0.58
2002	53	2.7	0.54	1.6	0.53	2.0	0.53	2.4	0.54
2003	54	2.7	0.44	1.4	0.42	1.8	0.40	2.2	0.41
2004	62	3.1	0.64	1.5	0.47	2.1	0.56	2.7	0.63
2005	63	3.2	0.53	1.4	0.38	2.0	0.45	2.6	0.49
2006	67	3.3	0.66	1.5	0.46	2.1	0.53	2.8	0.61
2007	56	2.4	0.36	0.9	0.26	1.4	0.30	2.0	0.35
2008	71	3.1	0.49	1.3	0.38	1.8	0.41	2.3	0.45
2009	87	3.7	0.60	1.6	0.48	2.3	0.51	3.0	0.55
2010	93	4.0	0.58	1.7	0.48	2.5	0.52	3.2	0.56
2011	91	3.9	0.53	1.4	0.38	2.2	0.44	3.0	0.50
2012	92	3.9	0.63	1.6	0.48	2.3	0.54	3.0	0.61
2013	95	4.0	0.66	1.6	0.53	2.4	0.59	3.0	0.62
2014	89	3.7	0.58	1.4	0.41	2.1	0.48	2.7	0.51
2015	100	4.1	0.71	1.7	0.60	2.4	0.64	3.2	0.68
2016	86	3.5	0.76	1.4	0.63	2.0	0.65	2.6	0.71
2017	114	4.6	1.13	1.8	0.94	2.7	1.01	3.5	1.08
2018	48	1.9	0.44	0.8	0.36	1.2	0.38	1.5	0.41
2019	53	2.1	0.60	1.0	0.58	1.3	0.57	1.7	0.60
1998-2019	1518	3.3	0.59	1.4	0.47	2.0	0.51	2.6	0.56

Table 12

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

Age at death Years	Cases			Males			Females		
	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4	6	0.2	0.2	4	0.3	0.3	2	0.2	0.2
5-9	5	0.2	0.4	3	0.2	0.5	2	0.2	0.4
10-14	1	0.0	0.5			0.5	1	0.1	0.5
15-19	9	0.4	0.8	5	0.4	0.9	4	0.4	0.8
20-24	13	0.5	1.4	8	0.6	1.4	5	0.5	1.3
25-29	14	0.6	1.9	8	0.6	2.0	6	0.6	1.9
30-34	18	0.7	2.7	12	0.9	2.8	6	0.6	2.4
35-39	17	0.7	3.3	10	0.7	3.6	7	0.7	3.1
40-44	32	1.3	4.6	15	1.1	4.6	17	1.6	4.7
45-49	59	2.4	7.0	35	2.5	7.1	24	2.2	6.9
50-54	80	3.2	10.2	45	3.2	10.3	35	3.3	10.1
55-59	128	5.2	15.4	64	4.6	14.9	64	6.0	16.1
60-64	183	7.4	22.8	102	7.3	22.2	81	7.5	23.6
65-69	333	13.4	36.2	203	14.5	36.6	130	12.1	35.7
70-74	451	18.2	54.4	271	19.3	55.9	180	16.7	52.5
75-79	463	18.7	73.1	256	18.2	74.1	207	19.3	71.7
80-84	368	14.8	87.9	213	15.2	89.3	155	14.4	86.1
85+	299	12.1	100.0	150	10.7	100.0	149	13.9	100.0
All ages	2479	100.0		1404	100.0		1075	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	Males		Males		Females		Females	
	n	n	Age- spec. mortal.	MI-index	Age- spec. mortal.	MI-index	Prop.all cancers %	Prop.all cancers %
0- 4	4	2	0.3	0.13	0.1	0.12	21.1	12.5
5- 9	3	2	0.2	0.60	0.1	0.50	12.0	8.7
10-14		1			0.1	0.25		4.3
15-19	5	4	0.3	0.38	0.3	0.40	10.6	16.0
20-24	8	5	0.4	0.57	0.3	0.31	11.9	12.8
25-29	8	6	0.4	0.36	0.3	0.26	9.4	6.5
30-34	12	6	0.6	0.29	0.3	0.20	9.4	3.8
35-39	10	7	0.5	0.18	0.3	0.18	4.1	1.9
40-44	15	17	0.6	0.28	0.8	0.27	2.6	2.1
45-49	35	24	1.4	0.56	1.0	0.34	2.6	1.5
50-54	45	35	1.9	0.44	1.5	0.37	1.8	1.4
55-59	64	64	3.3	0.49	3.2	0.44	1.6	1.8
60-64	102	81	6.3	0.61	4.6	0.51	1.7	1.8
65-69	203	130	13.3	0.68	7.7	0.58	2.4	2.0
70-74	271	180	19.3	0.73	11.2	0.65	2.4	2.2
75-79	256	207	23.1	0.78	15.0	0.84	2.2	2.3
80-84	213	155	32.4	0.89	15.9	0.83	2.3	1.8
85+	150	149	35.2	0.90	15.4	0.94	1.8	1.4
All ages	1404	1075					2.2	1.9
Mortality								
Raw			4.7	0.66	3.5	0.61		
WS			2.2	0.57	1.4	0.48		
ES			3.2	0.62	2.0	0.52		
BRD-S			4.3	0.67	2.7	0.57		
PYLL-70								
per 100,000			23.6		18.4			
ES			22.1		16.9			
AYLL-70			12.2		12.6			

Table 14a

Further malignancies in deaths in period 1998-2019
MALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn- chron ±30d n	Syn- chron ±30d ←%	Post n	Post ←%
C00 Lip	2	0.3					2	100.0
C03-C06 Oral cavity	6	0.9	3	50.0			3	50.0
C07-C08 Salivary gland	4	0.6	3	75.0			1	25.0
C09-C10 Oropharynx	6	0.9	3	50.0			3	50.0
C12-C13 Hypopharynx	3	0.5	2	66.7			1	33.3
C15 Oesophagus	8	1.2	2	25.0			6	75.0
C16 Stomach	16	2.4	9	56.3	1	6.3	6	37.5
C17 Small intestine	5	0.8	3	60.0			2	40.0
C18 Colon	46	7.0	32	69.6	5	10.9	9	19.6
C19-C20 Rectum	29	4.4	22	75.9	2	6.9	5	17.2
C22 Liver	8	1.2	1	12.5	4	50.0	3	37.5
C23-C24 Bile	4	0.6	1	25.0	1	25.0	2	50.0
C25 Pancreas	11	1.7	2	18.2	4	36.4	5	45.5
C30-C31 Sinuses	4	0.6	3	75.0			1	25.0
C32 Larynx	3	0.5	2	66.7			1	33.3
C33-C34 Lung	47	7.2	10	21.3	10	21.3	27	57.4
C38,C45 Mesothelioma	5	0.8	1	20.0	1	20.0	3	60.0
C40-C41 Bone	4	0.6	1	25.0			3	75.0
C43 Malign. melanoma	45	6.9	32	71.1	3	6.7	10	22.2
C44 Skin others	75	11.5	46	61.3	4	5.3	25	33.3
C46,C49 Soft tissue	9	1.4	2	22.2	2	22.2	5	55.6
C60 Penis	2	0.3	2	100.0				
C61 Prostate	142	21.7	117	82.4	6	4.2	19	13.4
C62 Testis	11	1.7	8	72.7	1	9.1	2	18.2
C64 Kidney	36	5.5	23	63.9	3	8.3	10	27.8
C66 Ureter	2	0.3					2	100.0
C67 Bladder	21	3.2	12	57.1	2	9.5	7	33.3
C69 Eye sarcoma	2	0.3	2	100.0				
C70-C72 CNS cancer	9	1.4	2	22.2			7	77.8
C73 Thyroid	6	0.9	4	66.7			2	33.3
C76-C79 CUP	9	1.4	4	44.4	2	22.2	3	33.3
C81 Hodgkin lymphoma	2	0.3	2	100.0				
C82-C85 NHL	48	7.3	24	50.0	7	14.6	17	35.4
C90 Mult. myeloma	5	0.8	4	80.0	1	20.0		
C91-C96 Leukaemia	15	2.3	5	33.3	2	13.3	8	53.3
Others, specified	4	0.6	3	75.0			1	25.0
All further malignancies	654	100.0	392	59.9	61	9.3	201	30.7

Further malignancies with number of cases 1 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 14b

Further malignancies in deaths in period 1998-2019
FEMALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn- chron ±30d n	Syn- chron ±30d ←%	Post n	Post ←%
C03-C06 Oral cavity	1	0.2	1	100.0				
C15 Oesophagus	1	0.2					1	100.0
C16 Stomach	9	1.6	4	44.4	1	11.1	4	44.4
C17 Small intestine	3	0.5			2	66.7	1	33.3
C18 Colon	34	6.0	16	47.1	7	20.6	11	32.4
C19-C20 Rectum	8	1.4	4	50.0	2	25.0	2	25.0
C21 Anus/canal	2	0.4	2	100.0				
C22 Liver	2	0.4			1	50.0	1	50.0
C23-C24 Bile	5	0.9					5	100.0
C25 Pancreas	8	1.4			1	12.5	7	87.5
C26 GI cancer	1	0.2					1	100.0
C33-C34 Lung	19	3.4	4	21.1	3	15.8	12	63.2
C40-C41 Bone	2	0.4	1	50.0			1	50.0
C43 Malign. melanoma	28	5.0	22	78.6	2	7.1	4	14.3
C44 Skin others	29	5.2	16	55.2	4	13.8	9	31.0
C46,C49 Soft tissue	7	1.2	2	28.6			5	71.4
C48 Peritoneal	2	0.4			1	50.0	1	50.0
C50 Breast	160	28.5	123	76.9	6	3.8	31	19.4
C51 Vulva	5	0.9	2	40.0	1	20.0	2	40.0
C52 Vagina	1	0.2					1	100.0
C53 Cervix uteri	16	2.8	14	87.5	1	6.3	1	6.3
C54 Corpus uteri	37	6.6	23	62.2	8	21.6	6	16.2
C55,C57 Fem. genitals un	2	0.4	2	100.0				
C56 Ovary	92	16.4	17	18.5	13	14.1	62	67.4
C64 Kidney	11	2.0	5	45.5	2	18.2	4	36.4
C65 Renal pelvis	2	0.4	2	100.0				
C66 Ureter	1	0.2					1	100.0
C67 Bladder	8	1.4	4	50.0	1	12.5	3	37.5
C69 Eye melanoma	1	0.2					1	100.0
C70-C72 CNS cancer	8	1.4	4	50.0	1	12.5	3	37.5
C73 Thyroid	13	2.3	12	92.3			1	7.7
C74-C80 Cancer others	2	0.4	1	50.0	1	50.0		
C76-C79 CUP	5	0.9	3	60.0	2	40.0		
C81 Hodgkin lymphoma	3	0.5	3	100.0				
C82-C85 NHL	20	3.6	11	55.0	6	30.0	3	15.0
C90 Mult. myeloma	8	1.4	5	62.5	1	12.5	2	25.0
C91-C96 Leukaemia	6	1.1	2	33.3			4	66.7
All further malignancies	562	100.0	305	54.3	67	11.9	190	33.8

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	Males		Males		Females		Females	
	n	n	Age- spec. mortal.	MI-index	Age- spec. mortal.	MI-index	Prop.all cancers %	Prop.all cancers %
0- 4	4	1	0.3	0.14	0.1	0.07	21.1	6.7
5- 9	3	2	0.2	0.60	0.1	0.50	12.5	8.7
10-14								
15-19	5	3	0.3	0.38	0.2	0.33	11.1	13.0
20-24	7	4	0.4	0.54	0.2	0.27	11.7	10.8
25-29	7	6	0.3	0.39	0.3	0.26	9.1	7.0
30-34	10	5	0.5	0.26	0.2	0.19	8.1	3.6
35-39	9	5	0.4	0.17	0.2	0.15	4.0	1.5
40-44	14	14	0.6	0.29	0.6	0.27	2.7	2.0
45-49	33	22	1.3	0.59	0.9	0.38	2.7	1.6
50-54	38	30	1.6	0.45	1.3	0.40	1.7	1.4
55-59	59	46	3.0	0.50	2.3	0.40	1.6	1.6
60-64	83	65	5.1	0.61	3.7	0.54	1.7	1.7
65-69	168	95	11.0	0.73	5.6	0.56	2.4	1.8
70-74	205	142	14.6	0.74	8.8	0.68	2.4	2.2
75-79	177	152	16.0	0.80	11.0	0.91	2.1	2.2
80-84	153	114	23.3	0.93	11.7	0.83	2.3	1.7
85+	104	117	24.4	0.95	12.1	0.91	1.8	1.3
All ages	1079	823					2.2	1.8
Mortality								
Raw			3.6	0.67	2.6	0.61		
WS			1.7	0.56	1.1	0.47		
ES			2.5	0.61	1.6	0.51		
BRD-S			3.3	0.66	2.0	0.57		
PYLL-70								
per 100,000			21.1		14.7			
ES			19.8		13.4			
AYLL-70			12.7		12.9			

* 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	Males		Males		Females		Females	
	n	n	Age- spec. mortal.	MI-index	Age- spec. mortal.	MI-index	Prop.all cancers %	Prop.all cancers %
0- 4	4	1	0.3	0.14	0.1	0.07	21.1	6.7
5- 9	3	2	0.2	0.60	0.1	0.50	12.5	8.7
10-14								
15-19	5	3	0.3	0.38	0.2	0.33	11.1	13.6
20-24	6	4	0.3	0.46	0.2	0.27	10.0	11.1
25-29	7	6	0.3	0.44	0.3	0.26	9.1	7.1
30-34	10	5	0.5	0.27	0.2	0.20	8.1	3.6
35-39	8	5	0.4	0.16	0.2	0.16	3.6	1.5
40-44	13	12	0.6	0.32	0.5	0.26	2.5	1.7
45-49	29	20	1.2	0.57	0.8	0.36	2.4	1.5
50-54	36	27	1.5	0.47	1.2	0.40	1.6	1.3
55-59	51	41	2.6	0.46	2.1	0.39	1.4	1.4
60-64	81	59	5.0	0.65	3.4	0.55	1.7	1.6
65-69	154	76	10.1	0.73	4.5	0.51	2.3	1.5
70-74	182	117	13.0	0.71	7.3	0.65	2.2	1.9
75-79	160	133	14.5	0.77	9.7	0.86	2.0	2.0
80-84	137	97	20.9	0.87	10.0	0.78	2.2	1.5
85+	86	104	20.2	0.86	10.8	0.83	1.6	1.3
All ages	972	712					2.0	1.6
Mortality								
Raw			3.2	0.64	2.3	0.57		
WS			1.6	0.55	0.9	0.44		
ES			2.3	0.60	1.4	0.49		
BRD-S			3.0	0.64	1.8	0.54		
PYLL-70								
per 100,000			19.6		13.5			
ES			18.6		12.4			
AYLL-70			12.8		13.6			

* See corresponding tables with multiple malignancies.

ICD-10 C45-C49: Mesothelial and soft tissue cancers
 Age distribution and age-specific mortality 2007 - 2019 (Males: 1404, Females: 1075)

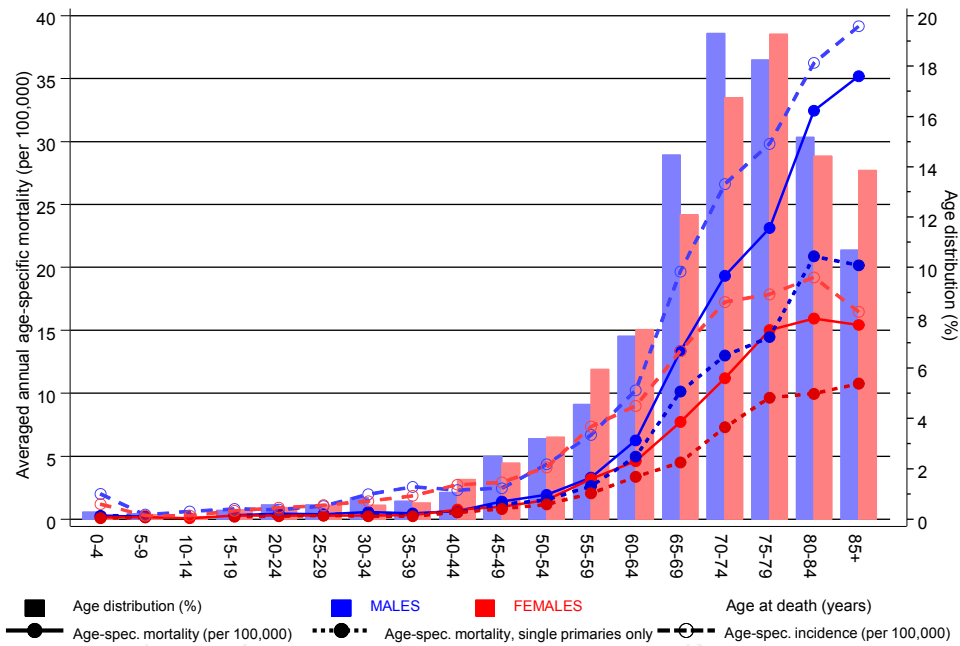
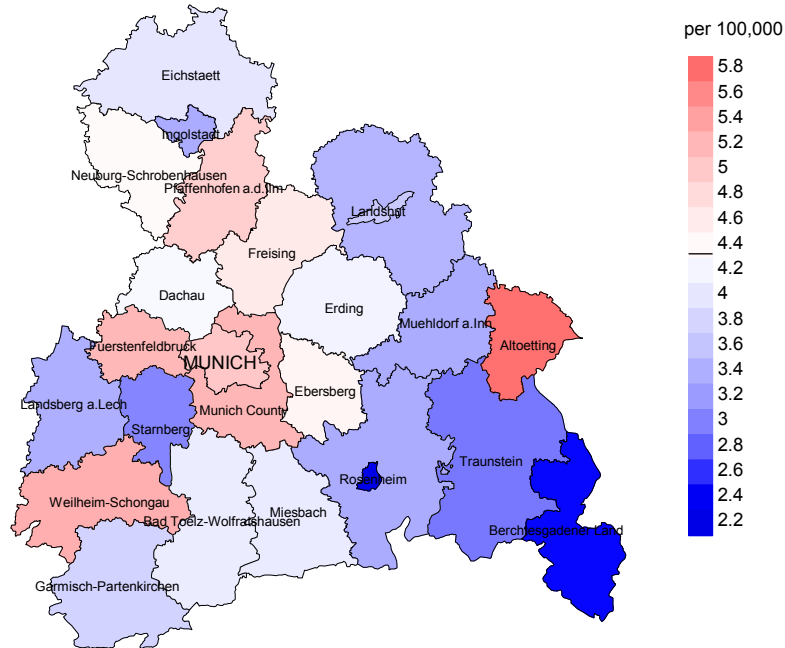


Figure 17. Distribution of age at death (bars; males: mean=68.7 yrs, median=71.4 yrs; females: mean=68.9 yrs, median=71.2 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

The difference between age at diagnosis (Table 3) and age at mesoth. and soft tissue ca.-related death (see Table 10) should be considered.

Average mortality (Germany 1987 standard population) 2007 - 2019: Males



Average mortality (Germany 1987 standard population) 2007 - 2019: Females

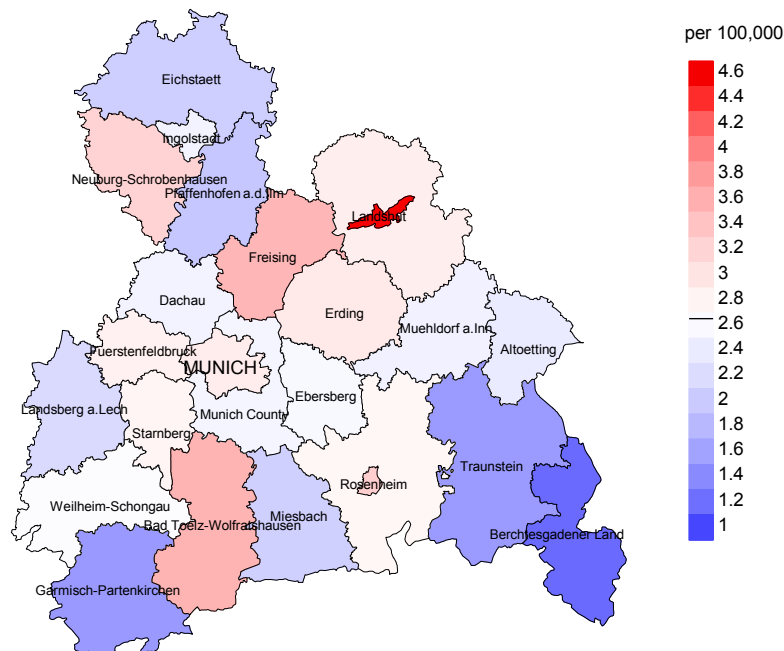
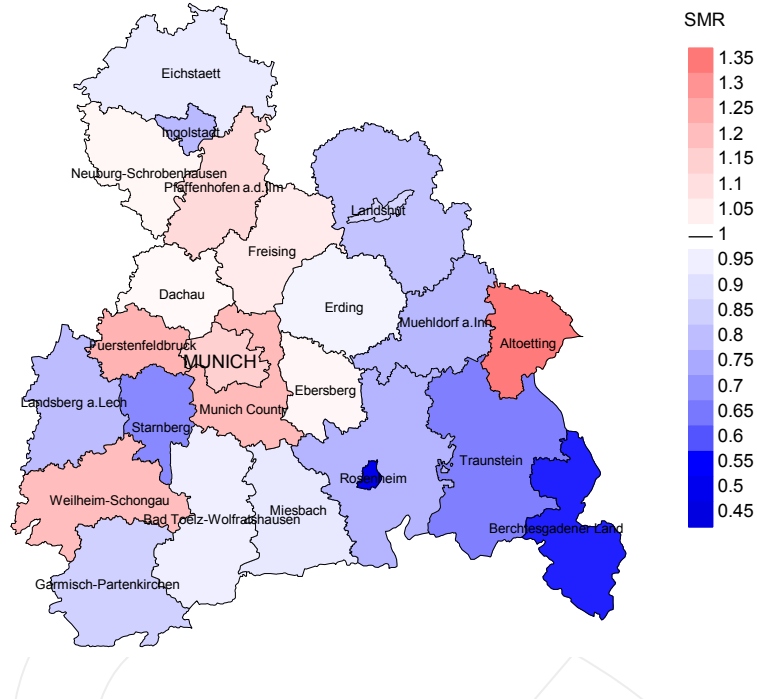


Figure 18a. Map of cancer mortality (german standard population) by county averaged for period 2007 to 2019. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 4.3/100,000 WS N=1,404, females 2.7/100,000 WS N=1,075).

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 26 women died from mesoth. and soft tissue ca.. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 2.6/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 1.4 and 4.3/100,000.

Standardized mortality ratio (SMR) 2007 - 2019: Males



Standardized mortality ratio (SMR) 2007 - 2019: Females

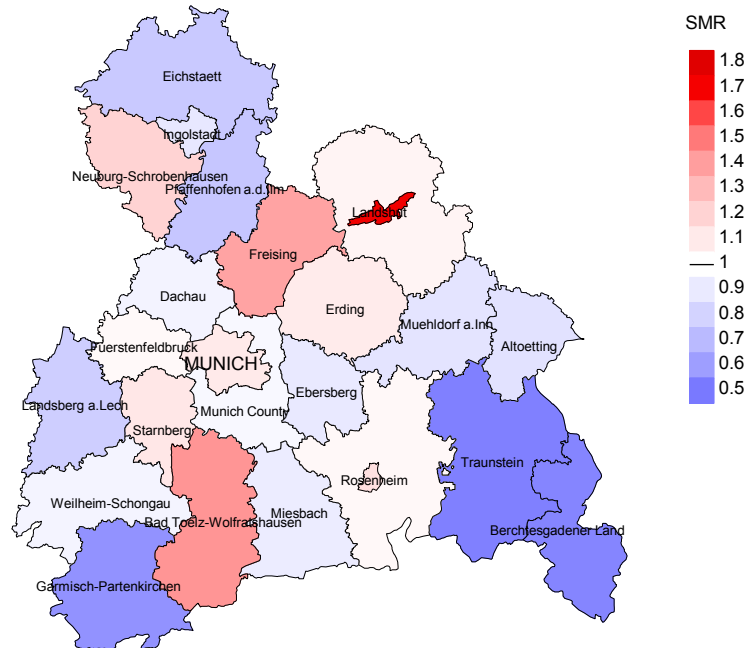


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=1,404, females N=1,075).

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 26 women died from mesoth. and soft tissue ca.. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.89. Though, the value of this parameter may vary with an underlying probability of 99% between 0.51 and 1.45, 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

Recommended Citation

Munich Cancer Registry. ICD-10 C45-C49: Mesoth. and soft tissue ca. - Incidence and Mortality [Internet]. 2021 [updated 2021 Jan 25; cited 2021 Mar 1]. Available from: <https://www.tumorregister-muenchen.de/en/facts/base/bC4549E-ICD-10-C45-C49-Mesoth.-and-soft-tissue-ca.-incidence-and-mortality.pdf>

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