Munich Cancer Registry

- Survival
- Selection Matrix
- Homepage
- *Deutsch*

ICD-10 C49: Soft tissue cancer

Incidence and Mortality

Year of diagnosis	1998-2020
Patients	2,863
Diseases	2,876
Creation date	12/21/2021
Database export	12/20/2021
Population	4.95 m

Munich Cancer Registry
Cancer Registry Bavaria - Upper Bavaria Regional Center
at Klinikum Grosshadern/IBE
Marchioninistr. 15
Munich, 81377
Germany

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

https://www.tumorregister-muenchen.de/en/facts/base/bC49__E-ICD-10-C49-Soft-tissue-cancer-incidence-and-mortality.pdf

Index of figures and tables

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, December 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
C49.-	Malignant neoplasm of other connective and soft tissue
C49.0	Connective and soft tissue of head, face and neck
C49.1	Connective and soft tissue of upper limb, including shoulder
C49.2	Connective and soft tissue of lower limb, including hip
C49.3	Connective and soft tissue of thorax
C49.4	Connective and soft tissue of abdomen
C49.5	Connective and soft tissue of pelvis
C49.6	Connective and soft tissue of trunk, unspecified
C49.8	Overlapping lesion of connective and soft tissue
C49.9	Connective and soft tissue, unspecified

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	82	8	9.8	14.6	10.6	84.1	97.6
1999	85	6	7.1	14.4	10.6	64.7	92.9
2000	90	9	10.0	14.0	10.2	63.3	96.7
2001	69	9	13.0	11.7	10.0	62.3	95.7
2002	112	9	8.0	11.9	10.0	70.5	97.3 #
2003	137	17	12.4	12.3	10.0	70.1	93.4
2004	119	12	10.1	12.4	9.9	63.9	98.3
2005	156	8	5.1	12.1	9.8	62.8	91.7
2006	107	9	8.4	13.3	9.5	61.7	94.4
2007	153	5	3.3	13.2	9.2	55.6	89.5 #
2008	157	6	3.8	13.1	8.9	59.9	99.4
2009	160	8	5.0	14.3	8.6	64.4	96.9
2010	147	5	3.4	14.7	8.3	54.4	95.9
2011	169	9	5.3	16.1	8.4	55.6	98.2
2012	135	10	7.4	16.3	7.7	48.9	99.3
2013	182	8	4.4	17.4	7.5	52.7	99.5
2014	167	5	3.0	17.9	7.1	57.5	97.6
2015	153	8	5.2	18.4	6.3	54.9	94.8
2016	110	7	6.4	19.0	4.9	61.8	100.0
2017	111	10	9.0	19.2	4.5	49.5	99.1
2018	112	3	2.7	19.3	3.7	37.5	100.0
2019	101			19.3	5.6	20.8	99.0
2020	62			19.3	4.9	29.0	100.0 ##
1998-2020	2876	171	5.9	19.3	10.6	57.1	96.7

2,876 cases diagnosed 1998-2020 are related to a total of 2,863 patients. Currently, in 812 (28.4 %) of these 2,863 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 613 / 135 / 64 (21.4 % / 4.7 % / 2.2 %) 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 retreived from the respective headings.

How to interpret:
In 2018, a subgroup of 112 cases has been diagnosed, of which 19.3 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 3.7 % 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	42	51.2	4	9.5	11.9	12.4	83.3	97.6
1999	48	56.5	4	8.3	10.0	12.4	77.1	97.9
2000	42	46.7	5	11.9	10.6	11.5	71.4	97.6
2001	31	44.9	5	16.1	9.2	11.6	61.3	96.8
2002	67	59.8	5	7.5	9.6	11.6	71.6	98.5 #
2003	61	44.5	6	9.8	10.0	11.8	63.9	95.1
2004	67	56.3	8	11.9	10.1	11.4	67.2	100.0
2005	81	51.9	3	3.7	10.3	11.7	61.7	92.6
2006	60	56.1	2	3.3	11.0	11.0	66.7	95.0
2007	74	48.4	3	4.1	10.6	10.8	63.5	89.2 #
2008	82	52.2	2	2.4	10.8	10.4	53.7	98.8
2009	85	53.1	4	4.7	12.6	9.9	67.1	96.5
2010	75	51.0	2	2.7	13.0	9.4	53.3	96.0
2011	88	52.1	3	3.4	14.7	9.4	59.1	98.9
2012	69	51.1	3	4.3	14.9	8.7	47.8	100.0
2013	109	59.9	4	3.7	16.1	8.5	48.6	99.1
2014	88	52.7	1	1.1	16.9	8.1	55.7	98.9
2015	83	54.2	5	6.0	17.3	7.5	61.4	98.8
2016	58	52.7	4	6.9	18.1	6.0	62.1	100.0
2017	64	57.7	5	7.8	18.6	4.8	51.6	98.4
2018	58	51.8	3	5.2	18.9	4.1	41.4	100.0
2019	55	54.5			18.8	5.7	16.4	100.0
2020	35	56.5			18.9	5.9	40.0	100.0 ##
1998-2020	1522	52.9	81	5.3	18.9	12.4	58.1	97.6

1,522 cases diagnosed 1998-2020 are related to a total of 1,513 patients. Currently, in 448 (29.6 %) of these 1,513 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 335 / 76 / 37 (22.1 % / 5.0 % / 2.4 %) 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 retreived from the respective headings.

How to interpret:
In 2018, a subgroup of 58 cases has been diagnosed, of which 18.9 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 4.1 % 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	40	48.8	4	10.0	17.5	8.7	85.0	97.5	
1999	37	43.5	2	5.4	19.5	8.6	48.6	86.5	
2000	48	53.3	4	8.3	17.6	8.6	56.3	95.8	
2001	38	55.1	4	10.5	14.1	8.2	63.2	94.7	
2002	45	40.2	4	8.9	14.4	8.2	68.9	95.6	#
2003	76	55.5	11	14.5	14.8	8.0	75.0	92.1	
2004	52	43.7	4	7.7	14.9	8.1	59.6	96.2	
2005	75	48.1	5	6.7	14.1	7.6	64.0	90.7	
2006	47	43.9	7	14.9	15.7	7.7	55.3	93.6	
2007	79	51.6	2	2.5	15.8	7.3	48.1	89.9	#
2008	75	47.8	4	5.3	15.5	7.1	66.7	100.0	
2009	75	46.9	4	5.3	16.2	7.2	61.3	97.3	
2010	72	49.0	3	4.2	16.6	7.0	55.6	95.8	
2011	81	47.9	6	7.4	17.6	7.3	51.9	97.5	
2012	66	48.9	7	10.6	17.8	6.5	50.0	98.5	
2013	73	40.1	4	5.5	18.8	6.3	58.9	100.0	
2014	79	47.3	4	5.1	19.1	5.9	59.5	96.2	
2015	70	45.8	3	4.3	19.7	4.8	47.1	90.0	
2016	52	47.3	3	5.8	20.0	3.6	61.5	100.0	
2017	47	42.3	5	10.6	19.9	4.0	46.8	100.0	
2018	54	48.2			19.8	3.2	33.3	100.0	
2019	46	45.5			19.7	5.6	26.1	97.8	
2020	27	43.5			19.7	3.7	14.8	100.0	##
1998-2020	1354	47.1	90	6.6	19.7	8.7	55.8	95.8	

1,354 cases diagnosed 1998-2020 are related to a total of 1,350 patients. Currently, in 364 (27.0 %) of these 1,350 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 278 / 59 / 27 (20.6 % / 4.4 % / 2.0 %) 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 retreived from the respective headings.

How to interpret:
In 2018, a subgroup of 54 cases has been diagnosed, of which 19.8 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 3.2 % 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 4.94 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	42	40	3.8	3.4	2.8	2.1	3.6	2.5	4.4	2.9
1999	48	37	4.3	3.1	3.0	2.1	3.9	2.6	4.5	2.9
2000	42	48	3.7	4.0	2.7	2.9	3.4	3.3	4.0	3.7
2001	31	38	2.7	3.1	2.1	2.0	2.6	2.6	3.1	2.9
2002	67	45	3.6	2.3	2.7	1.4	3.3	1.7	3.8	2.0
2003	61	76	3.3	3.9	2.4	2.0	3.0	2.7	3.5	3.3
2004	67	52	3.6	2.6	2.5	1.8	3.1	2.1	3.5	2.4
2005	81	75	4.3	3.8	3.7	2.4	4.0	2.9	4.1	3.4
2006	60	47	3.1	2.3	1.8	1.8	2.6	2.0	3.2	2.1
2007	74	79	3.3	3.4	2.1	2.1	2.7	2.6	3.3	2.9
2008	82	75	3.7	3.2	2.4	1.8	3.1	2.3	3.6	2.8
2009	85	75	3.8	3.2	2.1	1.8	3.0	2.4	3.7	2.9
2010	75	72	3.3	3.1	2.2	1.6	2.8	2.2	3.2	2.6
2011	88	81	3.9	3.5	2.2	1.9	3.1	2.4	3.7	2.8
2012	69	66	3.0	2.8	1.8	1.6	2.4	2.0	2.8	2.3
2013	109	73	4.7	3.1	3.0	1.5	3.9	1.9	4.5	2.4
2014	88	79	3.8	3.3	2.1	1.9	2.9	2.4	3.5	2.7
2015	83	70	3.5	2.9	1.9	1.4	2.6	1.9	3.2	2.4
2016	58	52	2.4	2.1	1.2	1.2	1.7	1.5	2.1	1.7
2017	64	47	2.7	1.9	1.5	0.9	2.0	1.2	2.4	1.5
2018	58	54	2.4	2.2	1.3	1.2	1.7	1.6	2.2	1.9
2019	55	46	2.3	1.9	1.2	1.2	1.6	1.4	2.1	1.6
2020	35	27	1.4	1.1	0.7	0.6	1.0	0.8	1.3	1.0
1998–2020	1522	1354	3.3	2.8	2.1	1.6	2.7	2.1	3.2	2.4

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	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	82	60.3	23.6	0.4	93.2	28.3	45.4	67.3	77.2	85.7
1999	85	59.7	16.8	3.5	97.4	38.5	50.1	61.9	71.9	78.4
2000	90	55.9	23.1	0.2	97.1	28.3	37.5	60.3	75.1	82.5
2001	69	58.8	18.2	11.8	95.4	37.6	47.3	58.8	72.9	82.0
2002	112	58.7	23.0	0.0	93.0	30.3	43.9	64.2	76.7	83.9
2003	137	61.8	21.0	5.3	92.5	26.6	52.2	66.2	77.7	84.0
2004	119	58.3	21.4	1.3	96.1	25.6	44.2	64.3	74.0	81.9
2005	156	56.1	23.0	0.2	92.0	22.3	43.5	61.6	72.8	81.9
2006	107	60.4	21.7	0.5	103	29.9	47.7	63.0	78.2	83.9
2007	153	61.6	19.7	0.2	96.4	35.9	52.0	66.1	74.2	81.7
2008	157	61.6	19.8	0.3	101	33.7	49.9	64.5	75.9	85.5
2009	160	65.3	17.7	5.2	94.3	39.8	57.6	68.7	78.1	84.6
2010	147	61.6	19.3	3.4	97.3	33.9	49.5	64.8	75.4	82.1
2011	169	63.7	19.2	0.0	96.8	38.6	51.0	68.0	77.9	86.7
2012	135	63.9	19.0	0.7	98.4	38.9	53.7	66.4	78.0	84.7
2013	182	63.9	20.6	0.0	96.7	34.8	52.4	68.8	78.3	86.7
2014	167	64.1	18.8	1.7	97.1	36.5	53.6	67.7	78.4	85.4
2015	153	66.8	17.6	1.6	96.2	43.8	57.9	69.8	79.8	86.4
2016	110	67.0	18.6	0.0	92.9	41.3	57.3	71.6	78.6	87.0
2017	111	66.7	18.4	15.4	101	42.6	57.1	72.6	79.8	86.4
2018	112	64.1	18.6	18.9	101	35.1	53.1	66.6	79.1	84.6
2019	101	61.8	18.7	4.4	98.2	33.4	47.9	65.6	78.5	80.8
2020	62	63.7	17.3	16.8	86.9	36.8	53.8	68.2	76.8	81.2
1998–2020	2876	62.2	20.0	0.0	103	34.1	51.1	66.3	77.0	84.4

Table 3a

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	42	57.5	22.9	0.4	90.8	28.3	40.9	64.0	75.1	84.4
1999	48	59.8	17.6	3.5	97.4	37.2	52.0	61.9	72.0	78.6
2000	42	56.6	23.1	0.2	88.5	28.9	40.2	60.0	71.6	84.3
2001	31	58.5	22.2	11.8	95.4	32.2	47.0	58.1	76.1	87.1
2002	67	56.2	23.6	0.1	92.4	24.5	40.1	62.4	73.6	81.3
2003	61	56.7	22.8	8.1	89.5	21.6	40.4	59.8	75.4	84.0
2004	67	57.8	20.2	1.3	85.8	32.1	44.6	64.3	72.6	78.7
2005	81	50.8	23.5	0.2	90.9	3.8	37.5	57.0	66.8	73.4
2006	60	63.0	17.0	15.9	86.9	37.9	54.4	63.8	77.7	82.6
2007	74	62.4	20.4	0.2	96.4	35.9	54.2	67.9	75.3	80.5
2008	82	59.1	19.4	0.3	95.2	33.7	46.4	61.8	73.2	79.8
2009	85	67.0	19.2	5.2	93.0	36.2	62.6	70.6	79.2	86.9
2010	75	58.9	20.9	3.4	92.7	31.9	47.4	60.0	74.5	82.8
2011	88	63.4	17.7	16.7	95.0	37.2	51.7	67.7	75.9	83.5
2012	69	63.1	18.3	1.3	95.5	32.9	51.5	66.4	75.2	84.4
2013	109	61.0	20.9	0.0	95.9	31.1	48.3	66.1	76.5	84.9
2014	88	64.7	17.5	2.3	87.9	39.4	54.5	67.5	78.6	84.5
2015	83	67.4	18.4	1.6	94.3	43.8	58.9	69.7	80.9	88.5
2016	58	69.4	14.8	29.9	92.9	48.8	59.9	71.4	79.4	87.4
2017	64	64.7	18.4	15.4	90.0	41.2	51.9	67.7	78.9	86.0
2018	58	65.6	18.3	26.6	92.8	33.3	57.3	68.6	79.9	88.7
2019	55	64.3	17.1	23.8	84.5	34.1	52.3	68.9	78.9	82.0
2020	35	66.9	15.5	16.8	86.9	53.6	56.5	69.3	79.4	83.4
1998–2020	1522	61.6	20.1	0.0	97.4	33.7	50.8	65.9	76.4	83.8

Table 3b

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	40	63.2	24.1	3.4	93.2	28.5	50.4	72.8	78.4	86.3
1999	37	59.6	15.9	17.4	87.7	38.5	49.5	63.2	69.9	78.3
2000	48	55.3	23.3	0.4	97.1	20.6	35.7	60.8	75.4	80.7
2001	38	59.1	14.5	26.1	85.9	39.8	48.6	60.0	70.1	81.0
2002	45	62.6	21.7	0.0	93.0	33.1	49.5	67.8	78.8	85.7
2003	76	65.8	18.6	5.3	92.5	38.2	58.5	68.3	78.9	84.0
2004	52	59.0	22.9	2.4	96.1	21.5	42.0	64.2	74.7	84.4
2005	75	61.8	21.2	1.9	92.0	28.7	52.5	67.3	78.8	82.6
2006	47	57.2	26.3	0.5	103	14.4	39.4	61.7	79.1	86.5
2007	79	60.7	19.1	0.3	88.2	35.5	48.9	65.5	74.1	82.6
2008	75	64.4	19.9	6.1	101	35.3	52.0	66.9	80.0	86.7
2009	75	63.5	15.8	24.9	94.3	41.1	55.8	64.4	75.0	81.9
2010	72	64.3	17.3	21.8	97.3	40.8	52.5	67.6	76.7	81.8
2011	81	64.0	20.7	0.0	96.8	39.7	49.9	68.3	78.6	87.3
2012	66	64.8	19.8	0.7	98.4	40.1	54.7	66.8	80.9	84.9
2013	73	68.3	19.5	0.0	96.7	43.6	63.6	71.9	81.6	88.7
2014	79	63.4	20.3	1.7	97.1	33.4	50.8	68.1	78.3	88.5
2015	70	66.1	16.8	22.0	96.2	42.9	53.9	70.1	79.7	84.7
2016	52	64.4	22.0	0.0	90.7	34.1	48.7	71.6	78.2	86.7
2017	47	69.6	18.2	18.3	101	44.9	60.2	74.1	80.1	87.7
2018	54	62.5	19.0	18.9	101	35.1	47.7	66.0	77.7	82.9
2019	46	58.8	20.3	4.4	98.2	28.3	45.3	60.8	75.7	80.6
2020	27	59.4	18.8	24.9	83.0	31.1	41.2	63.0	76.8	81.2
1998–2020	1354	63.0	20.0	0.0	103	34.5	51.6	66.8	77.9	85.0

Table 4

Age distribution by 5-year age group and sex for period 2007-2020 (incl. DCO)

Age at diagnosis Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4	19	1.0	1.0	10	1.0	1.0	9	1.0	1.0
5-9	5	0.3	1.3	3	0.3	1.3	2	0.2	1.2
10-14	9	0.5	1.7	6	0.6	1.9	3	0.3	1.6
15-19	20	1.0	2.8	12	1.2	3.0	8	0.9	2.5
20-24	29	1.5	4.3	14	1.4	4.4	15	1.7	4.1
25-29	28	1.5	5.7	11	1.1	5.5	17	1.9	6.0
30-34	64	3.3	9.1	37	3.6	9.1	27	3.0	9.0
35-39	70	3.6	12.7	42	4.1	13.2	28	3.1	12.2
40-44	78	4.1	16.8	35	3.4	16.6	43	4.8	17.0
45-49	89	4.6	21.4	41	4.0	20.6	48	5.4	22.3
50-54	117	6.1	27.5	70	6.8	27.5	47	5.2	27.6
55-59	145	7.6	35.1	76	7.4	34.9	69	7.7	35.3
60-64	160	8.3	43.4	82	8.0	42.9	78	8.7	44.0
65-69	222	11.6	55.0	128	12.5	55.4	94	10.5	54.5
70-74	247	12.9	67.8	134	13.1	68.5	113	12.6	67.1
75-79	242	12.6	80.5	134	13.1	81.6	108	12.1	79.1
80-84	185	9.6	90.1	96	9.4	91.0	89	9.9	89.1
85+	190	9.9	100.0	92	9.0	100.0	98	10.9	100.0
All ages	1919	100.0		1023	100.0		896	100.0	

Table 5

Age-specific incidence, DCO rate and proportion of all cancers
for period 2007–2020

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males DCO rate n=39 %	Females DCO rate n=45 %	Males Prop.all cancers n=153686 %	Females Prop.all cancers n=155051 %
0- 4	10	9	0.6	0.6		11.1	4.5	5.3
5- 9	3	2	0.2	0.1			2.6	2.0
10-14	6	3	0.4	0.2			4.4	2.3
15-19	12	8	0.7	0.5			3.8	3.0
20-24	14	15	0.7	0.8			2.2	2.9
25-29	11	17	0.5	0.8			1.2	1.4
30-34	37	27	1.6	1.2			2.9	1.3
35-39	42	28	1.8	1.2		3.6	2.3	0.8
40-44	35	43	1.4	1.8		2.3	1.3	0.7
45-49	41	48	1.5	1.8		2.1	0.8	0.5
50-54	70	47	2.7	1.9	2.9		0.8	0.4
55-59	75	69	3.5	3.2	1.3	1.4	0.6	0.5
60-64	81	78	4.6	4.1	2.5	1.3	0.5	0.5
65-69	127	94	7.8	5.2	3.1		0.5	0.5
70-74	134	113	8.9	6.6	4.5	5.3	0.5	0.6
75-79	134	107	11.1	7.1	5.2	2.8	0.6	0.5
80-84	96	89	13.3	8.4	8.3	6.7	0.6	0.6
85+	91	98	19.5	9.4	9.9	24.5	0.9	0.6
All ages	1019	895			3.8	5.0	0.7	0.6
Incidence								
Raw			3.1	2.7				
WS			1.8	1.5				
ES			2.4	1.9				
BRD-S			2.9	2.2				

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).

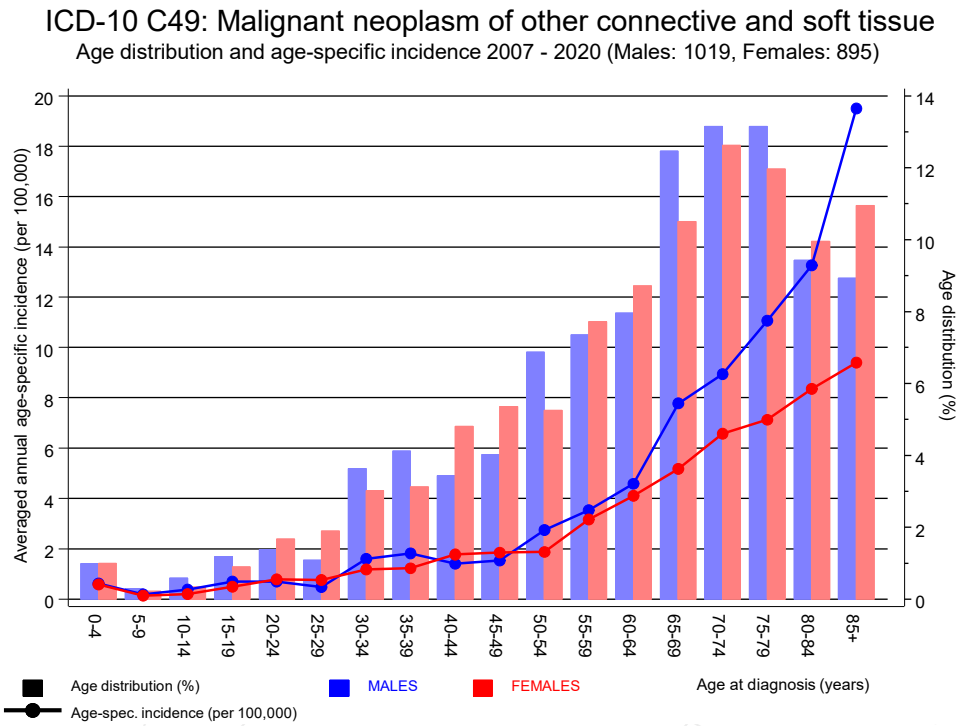


Figure 6. Age distribution (males: mean=63.8 yrs, median=67.9 yrs; females: mean=64.0 yrs, median=67.7 yrs) and age-specific incidence.

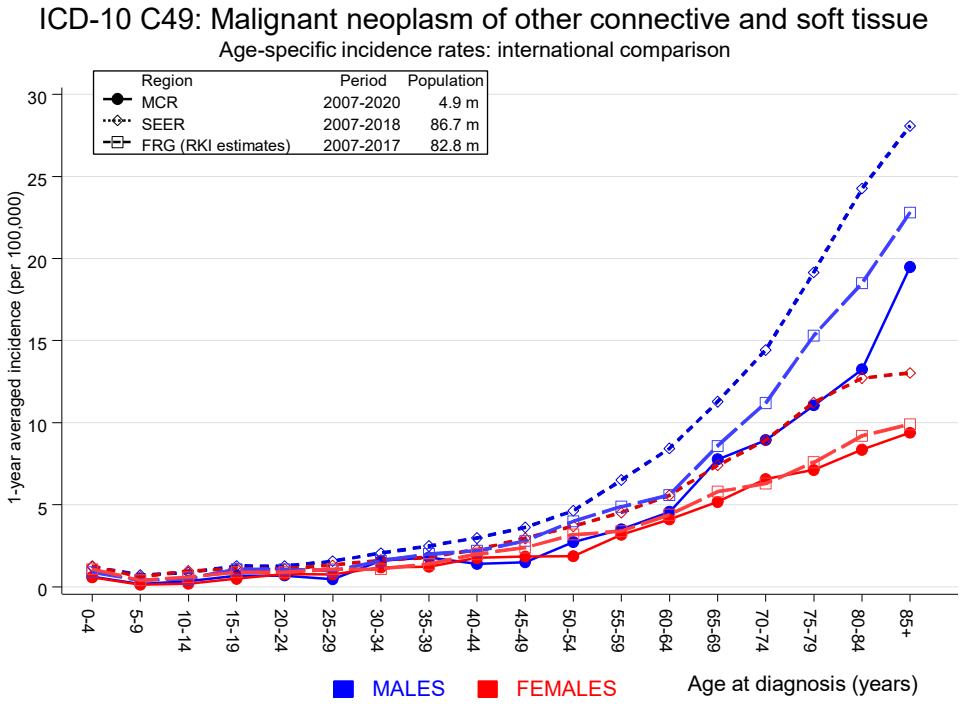


Figure 6a. Age-specific incidence in MCR registry areas compared to Germany (FRG, RKI estimates) and SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

Estimated age-specific patient population of Germany, latest update: 16 March 2021. German Centre for Cancer Registry Data, Robert Koch Institute (RKI), based on data of the population based cancer registries. http://www.krebsdaten.de. Last access: 08/17/2021
Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence - SEER 21 Regs Research Data, released April 2021, based on the November 2020 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 1998–2020

MALES

Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C03–C06	Oral cavity	2	0.6	3.6	0.4	12.9		2.7	
C09–C10	Oropharynx	2	0.7	3.0	0.4	10.7		2.5	
C15	Oesophagus	5	1.3	3.7	1.2	8.6	#	6.8	20.0
C16	Stomach	7	2.9	2.4	1.0	5.0		7.6	
C17	Small intestine	7	0.4	16.4	6.6	33.9	#	12.2	
C18	Colon	13	7.0	1.9	1.0	3.2		11.2	
C19–C20	Rectum	5	3.7	1.4	0.4	3.2		2.5	
C22	Liver	5	2.0	2.5	0.8	5.9		5.6	
C23–C24	Bile	2	0.8	2.6	0.3	9.5		2.3	
C25	Pancreas	2	2.8	0.7	0.1	2.6		−1.5	50.0
C30–C31	Sinuses	2	0.1	15.4	1.9	55.8	#	3.5	
C32	Larynx	1	0.7	1.5	0.0	8.4		0.6	
C33–C34	Lung	20	8.1	2.5	1.5	3.8	#	22.2	10.0
C38,C45	Mesothelioma	2	0.5	4.2	0.5	15.0		2.8	
C40–C41	Bone	1	0.1	15.7	0.4	87.7		1.7	
C43	Malign. melanoma	13	3.2	4.0	2.1	6.9	#	18.2	
C46,C49	Soft tissue	9	0.4	20.4	9.3	38.8	#	15.9	
C50	Breast	1	0.2	5.1	0.1	28.4		1.5	
C61	Prostate	37	19.3	1.9	1.3	2.6	#	32.8	5.4
C62	Testis	2	0.3	6.0	0.7	21.7		3.1	
C64	Kidney	14	2.4	5.9	3.2	9.9	#	21.6	
C65	Renal pelvis	1	0.3	3.2	0.1	17.6		1.3	
C66	Ureter	1	0.2	5.3	0.1	29.6		1.5	
C67	Bladder	10	3.5	2.9	1.4	5.3	#	12.1	10.0
C69	Eye melanoma	1	0.1	12.9	0.3	71.7		1.7	
C70–C72	CNS cancer	1	0.9	1.1	0.0	6.2		0.2	100.0
C73	Thyroid	2	0.5	4.3	0.5	15.5		2.8	
C74–C80	Cancer others	1	0.2	5.6	0.1	30.9		1.5	
C76–C79	CUP	2	1.2	1.6	0.2	5.9		1.4	
C82–C85	NHL	14	3.1	4.6	2.5	7.7	#	20.3	7.1
C90	Mult. myeloma	1	0.9	1.1	0.0	6.0		0.1	100.0
C91–C96	Leukaemia	9	1.1	7.8	3.6	14.9	#	14.6	
Not observed		0	1.7	0.0	0.0	2.2		−3.1	
All further malignancies		195	71.1	2.7	2.4	3.2	#	230.5	5.1

Patients	1436
Median age at next malignancy (years)	72.4
Person-years	5378
Mean observation time (years)	3.7
Median observation time (years)	1.9

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 1998–2020
FEMALES

Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C16	Stomach	1	1.6	0.6	0.0	3.6		-1.1	
C18	Colon	7	4.4	1.6	0.6	3.2		5.2	
C19–C20	Rectum	7	1.8	3.9	1.6	8.0	#	10.5	
C21	Anus/canal	1	0.3	3.9	0.1	21.6		1.5	
C23–C24	Bile	3	0.6	4.7	1.0	13.7		4.8	33.3
C25	Pancreas	4	2.1	1.9	0.5	4.8		3.8	25.0
C33–C34	Lung	9	3.5	2.6	1.2	4.9	#	11.2	
C40–C41	Bone	2	0.0	42.1	5.1	151.9	#	4.0	50.0
C43	Malign. melanoma	6	1.8	3.3	1.2	7.1	#	8.5	16.7
C46,C49	Soft tissue	4	0.3	14.6	4.0	37.4	#	7.6	
C48	Peritoneal	1	0.2	5.3	0.1	29.5		1.6	
C50	Breast	26	14.3	1.8	1.2	2.7	#	23.7	3.8
C52	Vagina	1	0.1	11.5	0.3	64.2		1.9	
C53	Cervix uteri	2	0.7	3.0	0.4	10.9		2.7	
C54	Corpus uteri	5	2.5	2.0	0.6	4.6		5.0	
C56	Ovary	1	1.8	0.5	0.0	3.0		-1.7	
C64	Kidney	6	1.1	5.7	2.1	12.4	#	10.0	16.7
C67	Bladder	4	0.9	4.4	1.2	11.3	#	6.3	25.0
C69	Eye melanoma	1	0.1	18.0	0.5	100.5		1.9	
C70–C72	CNS cancer	2	0.6	3.3	0.4	12.0		2.8	
C73	Thyroid	6	0.8	7.3	2.7	15.9	#	10.5	
C74–C80	Cancer others	1	0.2	5.9	0.2	33.0		1.7	
C82–C85	NHL	7	1.8	3.9	1.6	8.1	#	10.6	
C91–C96	Leukaemia	3	0.7	4.4	0.9	12.8		4.7	33.3
Not observed		0	4.5	0.0	0.0	0.8	#	-9.1	
All further malignancies		110	46.6	2.4	1.9	2.8	#	128.7	7.3

Patients	1255
Median age at next malignancy (years)	74.8
Person-years	4927
Mean observation time (years)	3.9
Median observation time (years)	2.2

The occurrence of further specified malignancy is statistically significant.

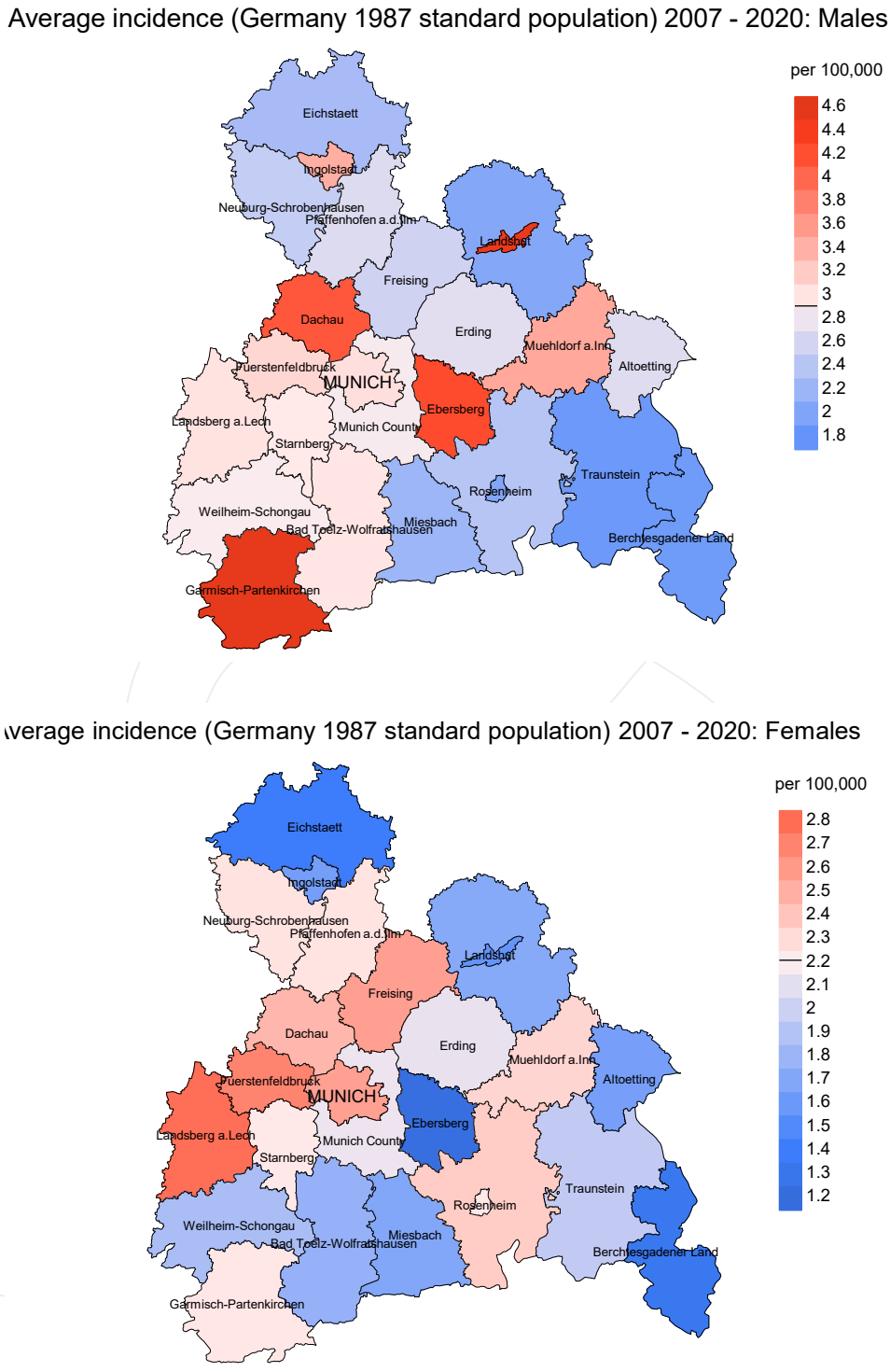


Figure 8a. Map of cancer incidence (german standard population, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 2.9/100,000 WS N=1,019, females 2.2/100,000 WS N=895).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,727 female residents (averaged) in the period from 2007 to 2020 a total of 14 women were identified with newly diagnosed soft tissue cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 1.2/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.5 and 2.4/100,000.

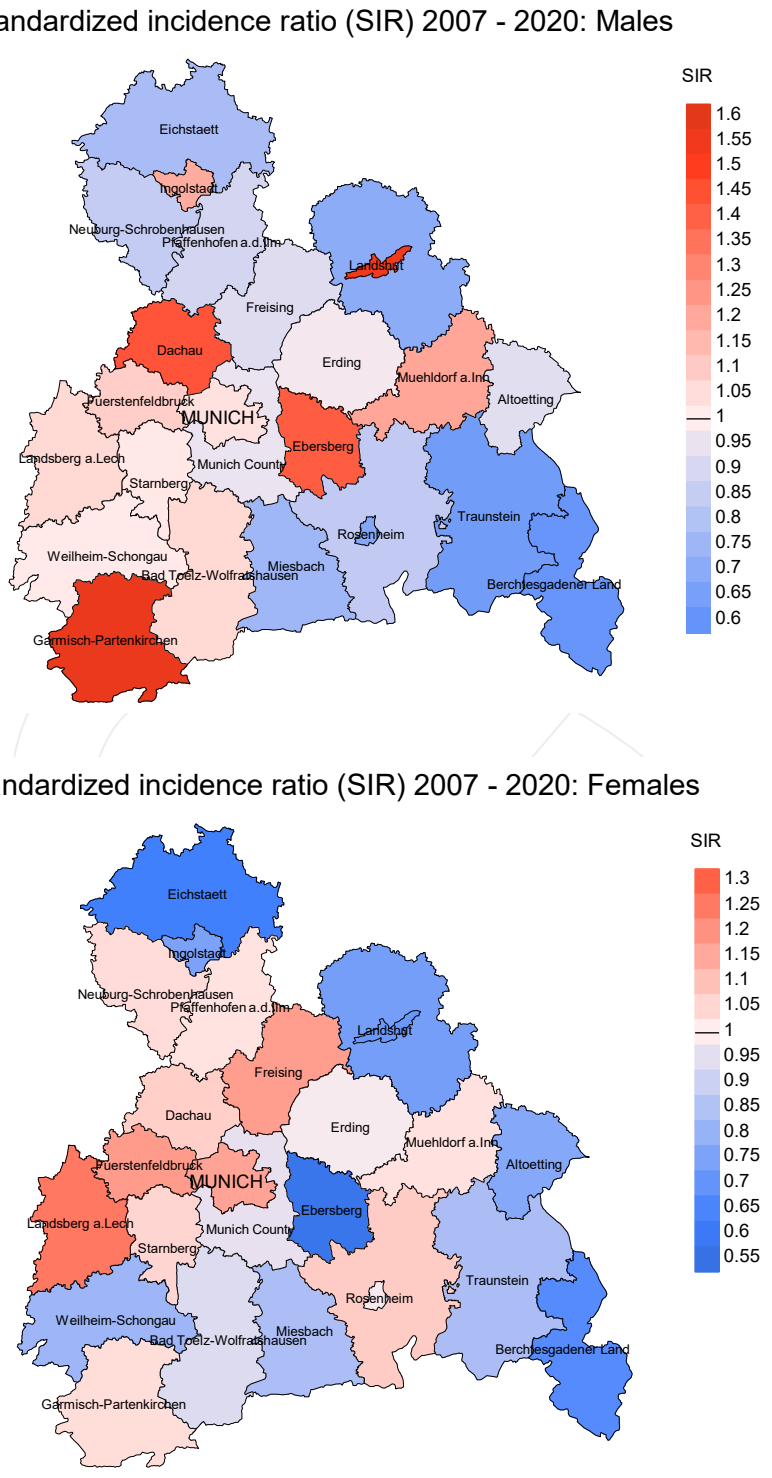


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=1,019, females N=895).

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 2020 a total of 14 women were identified with newly diagnosed soft tissue cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.57. Though, the value of this parameter may vary with an underlying probability of 99% between 0.25 and 1.09, 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 4.94 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	82	97.6	9.8	69	84.1	92.8
1999	85	92.9	7.1	55	64.7	89.1
2000	90	96.7	10.0	57	63.3	100.0
2001	69	95.7	13.0	43	62.3	95.3
2002	112	97.3	8.0	79	70.5	93.7
2003	137	93.4	12.4	96	70.1	96.9
2004	119	98.3	10.1	76	63.9	98.7
2005	156	91.7	5.1	98	62.8	96.9
2006	107	94.4	8.4	66	61.7	100.0
2007	153	89.5	3.3	85	55.6	92.9
2008	157	99.4	3.8	94	59.9	96.8
2009	160	96.9	5.0	103	64.4	95.1
2010	147	95.9	3.4	80	54.4	97.5
2011	169	98.2	5.3	94	55.6	93.6
2012	135	99.3	7.4	66	48.9	92.4
2013	182	99.5	4.4	96	52.7	94.8
2014	167	97.6	3.0	96	57.5	90.6
2015	153	94.8	5.2	84	54.9	90.5
2016	110	100.0	6.4	68	61.8	88.2
2017	111	99.1	9.0	55	49.5	76.4
2018	112	100.0	2.7	42	37.5	69.0
2019	101	99.0		21	20.8	95.2
2020	62	100.0		18	29.0	94.4
1998-2020	2876	96.7	5.9	1641	57.1	93.3

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 4.94 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	82	52	94.2	13	15.9
1999	85	48	91.7	12	14.1
2000	90	46	93.5	15	16.7
2001	69	38	97.4	12	17.4
2002	112	66	95.5	22	19.6
2003	137	68	95.6	31	22.6
2004	119	74	97.3	25	21.0
2005	156	82	98.8	21	13.5
2006	107	84	95.2	20	18.7
2007	153	84	98.8	20	13.1
2008	157	73	97.3	22	14.0
2009	160	106	98.1	30	18.8
2010	147	95	98.9	22	15.0
2011	169	94	98.9	31	18.3
2012	135	91	98.9	21	15.6
2013	182	95	98.9	30	16.5
2014	167	88	97.7	22	13.2
2015	153	123	100.0	31	20.3
2016	110	105	98.1	23	20.9
2017	111	115	97.4	23	20.7
2018	112	80	66.3	11	9.8
2019	101	87	42.5	6	5.9
2020	62	91	90.1	6	9.7
1998–2020	2876	1885	93.3	469	16.3

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 4.94 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer-related %	Prop. non-cancer-related %	Prop. cancer recorded on death certificate %
1998	52	73.1	26.9	91.8
1999	48	81.3	18.8	93.2
2000	46	78.3	21.7	93.0
2001	38	89.5	10.5	94.6
2002	66	77.3	22.7	85.7
2003	68	86.8	13.2	89.2
2004	74	79.7	20.3	87.5
2005	82	84.1	15.9	90.1
2006	84	78.6	21.4	82.5
2007	84	84.5	15.5	91.6
2008	73	79.5	20.5	81.7
2009	106	80.2	19.8	83.7
2010	95	81.1	18.9	84.0
2011	94	77.7	22.3	83.9
2012	91	76.9	23.1	88.9
2013	95	81.1	18.9	88.3
2014	88	69.3	30.7	70.9
2015	123	77.2	22.8	78.9
2016	105	71.4	28.6	80.6
2017	115	77.4	22.6	80.4
2018	80	65.0	35.0	69.8
2019	87	50.6	49.4	75.7
2020	91	58.2	41.8	81.7
1998-2020	1885	75.9	24.1	84.1

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	28	71.4	70.3	82.3	72.4
1999	27	64.8	56.9	71.8	64.8
2000	25	63.8	63.3	79.9	63.3
2001	21	62.4	51.6	80.4	61.8
2002	35	73.7	68.8	85.5	73.0
2003	28	74.1	68.4	90.7	68.4
2004	40	71.4	70.6	83.0	71.3
2005	47	67.7	67.3	69.6	67.7
2006	41	69.8	68.6	71.4	69.2
2007	52	70.4	68.5	81.8	68.7
2008	35	77.1	74.8	89.9	73.9
2009	59	74.5	74.0	87.1	74.2
2010	53	73.9	73.2	78.0	73.2
2011	45	75.9	75.0	84.8	75.0
2012	44	78.0	74.3	86.0	75.5
2013	54	74.6	72.6	86.1	72.9
2014	46	80.6	79.6	88.3	80.1
2015	69	76.1	73.3	87.3	74.0
2016	59	77.1	75.2	79.7	75.5
2017	55	76.2	75.0	87.6	76.2
2018	51	76.7	74.5	81.8	75.9
2019	49	81.0	74.9	84.2	78.9
2020	45	81.2	69.7	85.0	80.2
1998-2020	1008	74.7	71.4	83.2	72.8

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	24	70.5	65.2	85.4	69.0
1999	21	73.2	73.2	72.5	73.2
2000	21	77.2	76.8	77.2	76.3
2001	17	69.7	69.7		69.7
2002	31	70.5	62.9	81.3	70.5
2003	40	75.6	74.0	87.0	75.5
2004	34	75.0	72.4	84.3	73.2
2005	35	73.5	73.0	76.9	73.3
2006	43	77.9	74.1	83.4	74.9
2007	32	75.2	72.2	88.4	73.7
2008	38	81.6	73.9	89.3	76.7
2009	47	74.4	73.3	86.2	73.3
2010	42	74.9	69.9	87.7	69.9
2011	49	79.5	76.0	84.8	76.9
2012	47	79.0	74.0	85.6	78.1
2013	41	79.0	72.7	93.7	75.5
2014	42	82.9	78.4	86.5	77.4
2015	54	77.4	75.4	92.6	75.6
2016	46	79.9	76.8	84.7	77.2
2017	60	79.1	75.4	91.4	77.0
2018	29	78.7	69.3	85.8	78.1
2019	38	76.9	70.9	80.0	76.4
2020	46	78.7	73.6	81.9	75.7
1998–2020	877	76.8	73.7	85.5	75.2

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	20	1.8	0.48	1.2	0.44	1.7	0.47	2.1	0.48
1999	22	2.0	0.46	1.5	0.51	1.9	0.49	2.1	0.48
2000	20	1.8	0.48	1.2	0.46	1.6	0.47	1.8	0.46
2001	17	1.5	0.55	1.1	0.55	1.4	0.52	1.5	0.48
2002	25	1.3	0.37	0.8	0.30	1.2	0.35	1.5	0.40
2003	23	1.2	0.38	0.8	0.32	1.1	0.36	1.4	0.40
2004	32	1.7	0.48	1.1	0.42	1.4	0.46	1.9	0.54
2005	38	2.0	0.47	1.3	0.36	1.7	0.42	2.0	0.49
2006	32	1.7	0.53	1.1	0.59	1.4	0.55	1.7	0.52
2007	46	2.1	0.62	1.2	0.59	1.7	0.63	2.1	0.63
2008	28	1.3	0.34	0.6	0.26	1.0	0.31	1.3	0.37
2009	45	2.0	0.53	1.0	0.47	1.5	0.50	2.0	0.53
2010	40	1.8	0.53	0.8	0.37	1.2	0.44	1.7	0.52
2011	36	1.6	0.41	0.8	0.36	1.2	0.39	1.6	0.44
2012	36	1.6	0.52	0.8	0.44	1.2	0.49	1.6	0.55
2013	44	1.9	0.41	1.2	0.39	1.5	0.39	1.8	0.41
2014	34	1.5	0.39	0.6	0.30	1.0	0.34	1.4	0.40
2015	49	2.1	0.60	1.0	0.53	1.5	0.57	1.9	0.59
2016	41	1.7	0.71	0.8	0.69	1.2	0.68	1.5	0.73
2017	44	1.8	0.69	0.8	0.55	1.2	0.62	1.6	0.66
2018	35	1.4	0.60	0.7	0.59	1.0	0.58	1.3	0.60
2019	22	0.9	0.40	0.4	0.35	0.6	0.38	0.8	0.39
2020	25	1.0	0.71	0.6	0.76	0.7	0.73	1.0	0.74
1998-2020	754	1.6	0.50	0.9	0.44	1.2	0.47	1.6	0.50

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	18	1.5	0.45	1.0	0.48	1.2	0.49	1.4	0.48
1999	17	1.4	0.46	0.8	0.41	1.1	0.40	1.3	0.44
2000	16	1.3	0.33	0.5	0.18	0.8	0.24	1.1	0.30
2001	17	1.4	0.45	0.9	0.44	1.1	0.41	1.2	0.43
2002	26	1.3	0.58	0.9	0.62	1.0	0.60	1.2	0.59
2003	36	1.8	0.47	0.9	0.45	1.2	0.43	1.4	0.43
2004	27	1.4	0.52	0.7	0.36	0.9	0.43	1.2	0.49
2005	31	1.6	0.41	0.7	0.29	1.0	0.34	1.2	0.36
2006	34	1.7	0.72	0.8	0.43	1.1	0.55	1.4	0.66
2007	25	1.1	0.32	0.5	0.22	0.7	0.26	0.9	0.30
2008	30	1.3	0.41	0.6	0.31	0.8	0.33	1.0	0.35
2009	40	1.7	0.53	0.7	0.41	1.1	0.44	1.4	0.47
2010	37	1.6	0.51	0.8	0.52	1.1	0.52	1.4	0.53
2011	37	1.6	0.46	0.6	0.30	0.9	0.35	1.2	0.42
2012	34	1.4	0.52	0.6	0.40	0.9	0.44	1.1	0.46
2013	33	1.4	0.45	0.6	0.38	0.8	0.43	1.0	0.44
2014	27	1.1	0.34	0.4	0.20	0.6	0.24	0.7	0.27
2015	46	1.9	0.66	0.8	0.53	1.1	0.56	1.4	0.61
2016	34	1.4	0.65	0.7	0.57	0.8	0.57	1.0	0.58
2017	45	1.8	0.96	0.7	0.83	1.1	0.89	1.3	0.89
2018	17	0.7	0.31	0.3	0.24	0.4	0.27	0.5	0.27
2019	22	0.9	0.48	0.5	0.39	0.6	0.41	0.7	0.44
2020	28	1.1	1.04	0.5	0.77	0.7	0.85	0.9	0.89
1998-2020	677	1.4	0.50	0.6	0.40	0.9	0.43	1.1	0.46

Table 12

Age distribution of age at death (cancer-related) for period 2007-2020
(**incl. multiple malignancies**)

Age at death	Cases			Males			Females		
Years	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4	4	0.4	0.4	2	0.4	0.4	2	0.4	0.4
5-9	3	0.3	0.7	1	0.2	0.6	2	0.4	0.9
10-14	1	0.1	0.8			0.6	1	0.2	1.1
15-19	4	0.4	1.2	2	0.4	1.0	2	0.4	1.5
20-24	12	1.2	2.4	8	1.5	2.5	4	0.9	2.4
25-29	10	1.0	3.5	6	1.1	3.6	4	0.9	3.3
30-34	18	1.8	5.3	11	2.1	5.7	7	1.5	4.8
35-39	15	1.5	6.8	9	1.7	7.4	6	1.3	6.2
40-44	20	2.0	8.9	12	2.3	9.7	8	1.8	7.9
45-49	34	3.5	12.3	19	3.6	13.3	15	3.3	11.2
50-54	37	3.8	16.1	24	4.6	17.9	13	2.9	14.1
55-59	48	4.9	21.0	23	4.4	22.3	25	5.5	19.6
60-64	81	8.3	29.3	46	8.8	31.0	35	7.7	27.3
65-69	107	10.9	40.2	54	10.3	41.3	53	11.6	38.9
70-74	128	13.1	53.3	74	14.1	55.4	54	11.9	50.8
75-79	145	14.8	68.1	75	14.3	69.7	70	15.4	66.2
80-84	135	13.8	81.8	77	14.7	84.4	58	12.7	78.9
85+	178	18.2	100.0	82	15.6	100.0	96	21.1	100.0
All ages	980	100.0		525	100.0		455	100.0	

Table 13

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2020
(**incl. multiple malignancies**)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	MI-index	Females Age-spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4	2	2	0.1	0.20	0.1	0.22	10.5	12.5
5- 9	1	2	0.1	0.33	0.1	1.00	3.6	8.0
10-14		1			0.1	0.33		4.3
15-19	2	2	0.1	0.17	0.1	0.25	4.2	8.0
20-24	8	4	0.4	0.57	0.2	0.27	11.0	9.3
25-29	6	4	0.3	0.55	0.2	0.24	6.5	4.0
30-34	11	7	0.5	0.30	0.3	0.26	7.7	3.9
35-39	9	6	0.4	0.21	0.3	0.21	3.4	1.5
40-44	12	8	0.5	0.34	0.3	0.19	2.0	0.9
45-49	19	15	0.7	0.46	0.6	0.31	1.3	0.9
50-54	24	13	0.9	0.34	0.5	0.28	0.9	0.5
55-59	23	25	1.1	0.31	1.1	0.36	0.5	0.7
60-64	46	35	2.6	0.57	1.8	0.45	0.7	0.7
65-69	54	53	3.3	0.43	2.9	0.56	0.6	0.8
70-74	74	54	4.9	0.55	3.1	0.48	0.6	0.6
75-79	75	70	6.2	0.56	4.7	0.65	0.6	0.7
80-84	77	58	10.6	0.80	5.4	0.65	0.7	0.6
85+	82	96	17.6	0.90	9.2	0.98	0.9	0.8
All ages	525	455					0.8	0.7
Mortality								
Raw			1.6	0.52	1.4	0.51		
WS			0.8	0.44	0.6	0.40		
ES			1.2	0.48	0.8	0.43		
BRD-S			1.5	0.52	1.0	0.46		
PYLL-70								
per 100,000			12.5		9.7			
ES			11.7		9.3			
AYLL-70			16.5		15.4			

Table 14a

Further malignancies in deaths in period 1998–2020
MALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C00	Lip	2	0.6					2	100.0
C03–C06	Oral cavity	4	1.2	2	50.0			2	50.0
C07–C08	Salivary gland	2	0.6	2	100.0				
C09–C10	Oropharynx	4	1.2	1	25.0			3	75.0
C12–C13	Hypopharynx	2	0.6	1	50.0			1	50.0
C15	Oesophagus	7	2.1	1	14.3			6	85.7
C16	Stomach	5	1.5	1	20.0	1	20.0	3	60.0
C17	Small intestine	3	0.9	2	66.7			1	33.3
C18	Colon	20	6.0	13	65.0	1	5.0	6	30.0
C19–C20	Rectum	11	3.3	10	90.9			1	9.1
C21	Anus/canal	1	0.3	1	100.0				
C22	Liver	4	1.2			1	25.0	3	75.0
C23–C24	Bile	2	0.6					2	100.0
C25	Pancreas	6	1.8	2	33.3	1	16.7	3	50.0
C30–C31	Sinuses	3	0.9	2	66.7			1	33.3
C32	Larynx	2	0.6	1	50.0			1	50.0
C33–C34	Lung	23	6.9	5	21.7	3	13.0	15	65.2
C38,C45	Mesothelioma	2	0.6					2	100.0
C40–C41	Bone	4	1.2	1	25.0			3	75.0
C43	Malign. melanoma	30	9.0	21	70.0	3	10.0	6	20.0
C44	Skin others	44	13.3	22	50.0	2	4.5	20	45.5
C46,C49	Soft tissue	7	2.1			2	28.6	5	71.4
C50	Breast	1	0.3	1	100.0				
C61	Prostate	48	14.5	33	68.8	1	2.1	14	29.2
C62	Testis	8	2.4	6	75.0			2	25.0
C64	Kidney	20	6.0	12	60.0	1	5.0	7	35.0
C65	Renal pelvis	1	0.3	1	100.0				
C66	Ureter	2	0.6					2	100.0
C67	Bladder	11	3.3	5	45.5	1	9.1	5	45.5
C69	Eye sarcoma	2	0.6	2	100.0				
C70–C72	CNS cancer	4	1.2	2	50.0			2	50.0
C73	Thyroid	6	1.8	4	66.7	1	16.7	1	16.7
C74–C80	Cancer others	1	0.3			1	100.0		
C76–C79	CUP	4	1.2			2	50.0	2	50.0
C81	Hodgkin lymphoma	1	0.3	1	100.0				
C82–C85	NHL	23	6.9	11	47.8	2	8.7	10	43.5
C90	Mult. myeloma	3	0.9	2	66.7	1	33.3		
C91–C96	Leukaemia	9	2.7	4	44.4	1	11.1	4	44.4
All further malignancies		332	100.0	172	51.8	25	7.5	135	40.7

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 1998–2020
FEMALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03–C06	Oral cavity	1	0.4	1	100.0				
C16	Stomach	3	1.1	1	33.3			2	66.7
C17	Small intestine	1	0.4			1	100.0		
C18	Colon	13	4.9	4	30.8			9	69.2
C19–C20	Rectum	6	2.3	2	33.3	2	33.3	2	33.3
C21	Anus/canal	1	0.4	1	100.0				
C23–C24	Bile	4	1.5					4	100.0
C25	Pancreas	3	1.1					3	100.0
C33–C34	Lung	12	4.5	2	16.7	2	16.7	8	66.7
C38,C45	Mesothelioma	1	0.4	1	100.0				
C40–C41	Bone	2	0.8	1	50.0			1	50.0
C43	Malign. melanoma	18	6.8	13	72.2	2	11.1	3	16.7
C44	Skin others	12	4.5	5	41.7	1	8.3	6	50.0
C46,C49	Soft tissue	5	1.9					5	100.0
C48	Peritoneal	2	0.8			1	50.0	1	50.0
C50	Breast	105	39.5	81	77.1			24	22.9
C51	Vulva	4	1.5	2	50.0	1	25.0	1	25.0
C53	Cervix uteri	9	3.4	8	88.9			1	11.1
C54	Corpus uteri	12	4.5	8	66.7	1	8.3	3	25.0
C55,C57	Fem. genitals un	2	0.8	2	100.0				
C56	Ovary	6	2.3	4	66.7	1	16.7	1	16.7
C64	Kidney	8	3.0	4	50.0	1	12.5	3	37.5
C65	Renal pelvis	2	0.8	2	100.0				
C67	Bladder	4	1.5	1	25.0	1	25.0	2	50.0
C69	Eye melanoma	1	0.4					1	100.0
C70–C72	CNS cancer	6	2.3	3	50.0			3	50.0
C73	Thyroid	6	2.3	4	66.7			2	33.3
C74–C80	Cancer others	2	0.8	1	50.0	1	50.0		
C76–C79	CUP	1	0.4	1	100.0				
C82–C85	NHL	8	3.0	5	62.5	2	25.0	1	12.5
C90	Mult. myeloma	2	0.8	2	100.0				
C91–C96	Leukaemia	4	1.5	2	50.0			2	50.0
All further malignancies		266	100.0	161	60.5	17	6.4	88	33.1

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 2007-2020
(**First primaries only** *)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	Males MI-index	Females Age-spec. mortal.	Females MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4	2	1	0.1	0.20	0.1	0.13	10.5	6.7
5- 9	1	2	0.1	0.33	0.1	1.00	3.7	8.0
10-14								
15-19	2	2	0.1	0.17	0.1	0.25	4.3	8.7
20-24	7	4	0.3	0.54	0.2	0.27	10.6	9.8
25-29	6	4	0.3	0.60	0.2	0.25	7.1	4.4
30-34	9	6	0.4	0.25	0.3	0.23	6.5	3.8
35-39	8	5	0.3	0.21	0.2	0.20	3.2	1.4
40-44	12	7	0.5	0.40	0.3	0.19	2.1	0.9
45-49	18	13	0.7	0.50	0.5	0.31	1.4	0.9
50-54	17	11	0.7	0.29	0.4	0.33	0.7	0.5
55-59	20	16	0.9	0.32	0.7	0.29	0.5	0.5
60-64	35	25	2.0	0.56	1.3	0.40	0.7	0.6
65-69	40	38	2.5	0.43	2.1	0.54	0.5	0.7
70-74	54	41	3.6	0.56	2.4	0.48	0.6	0.6
75-79	51	48	4.2	0.62	3.2	0.72	0.6	0.6
80-84	51	42	7.0	0.75	3.9	0.69	0.7	0.6
85+	59	71	12.6	1.02	6.8	0.91	0.9	0.8
All ages	392	336					0.7	0.7
Mortality								
Raw			1.2	0.51	1.0	0.48		
WS			0.6	0.43	0.4	0.37		
ES			0.9	0.46	0.6	0.40		
BRD-S			1.1	0.50	0.8	0.44		
PYLL-70								
per 100,000			10.9		7.8			
ES			10.3		7.5			
AYLL-70			17.7		16.5			

* See corresponding tables with multiple malignancies.

Table 16

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2020
(**Single primaries only** *)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	MI-index	Females Age-spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4	2	1	0.1	0.20	0.1	0.14	10.5	6.7
5- 9	1	2	0.1	0.33	0.1	1.00	3.7	8.0
10-14								
15-19	2	2	0.1	0.17	0.1	0.25	4.3	9.1
20-24	6	3	0.3	0.46	0.2	0.20	9.1	7.5
25-29	6	4	0.3	0.67	0.2	0.25	7.1	4.5
30-34	9	6	0.4	0.26	0.3	0.25	6.6	3.8
35-39	7	5	0.3	0.18	0.2	0.22	2.8	1.4
40-44	12	6	0.5	0.44	0.2	0.19	2.2	0.8
45-49	15	12	0.6	0.44	0.5	0.29	1.2	0.8
50-54	16	11	0.6	0.31	0.4	0.35	0.7	0.5
55-59	15	15	0.7	0.27	0.7	0.30	0.4	0.5
60-64	33	22	1.9	0.59	1.2	0.39	0.6	0.6
65-69	36	32	2.2	0.46	1.8	0.49	0.5	0.6
70-74	42	33	2.8	0.51	1.9	0.42	0.5	0.5
75-79	40	43	3.3	0.53	2.9	0.72	0.5	0.6
80-84	41	35	5.7	0.64	3.3	0.60	0.6	0.5
85+	44	62	9.4	0.88	5.9	0.84	0.7	0.7
All ages	327	294					0.6	0.6
Mortality								
Raw			1.0	0.47	0.9	0.46		
WS			0.5	0.40	0.4	0.35		
ES			0.8	0.43	0.5	0.38		
BRD-S			0.9	0.46	0.7	0.41		
PYLL-70								
per 100,000			10.0		7.3			
ES			9.6		7.0			
AYLL-70			18.0		17.0			

* See corresponding tables with multiple malignancies.

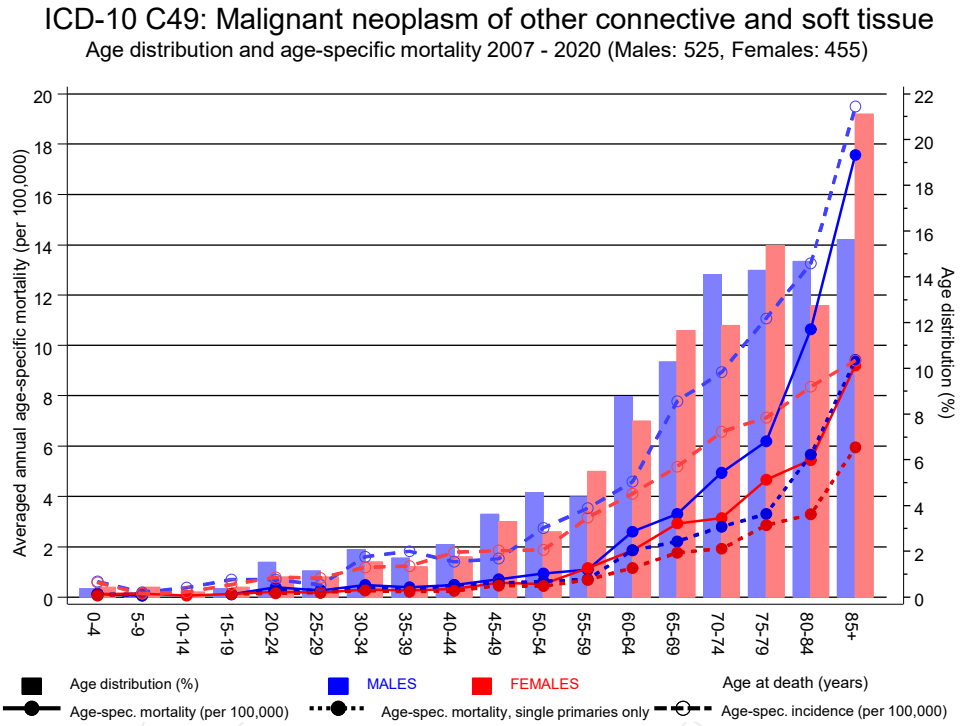


Figure 17. Distribution of age at death (bars; males: mean=65.4 yrs, median=69.3 yrs; females: mean=67.0 yrs, median=69.9 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

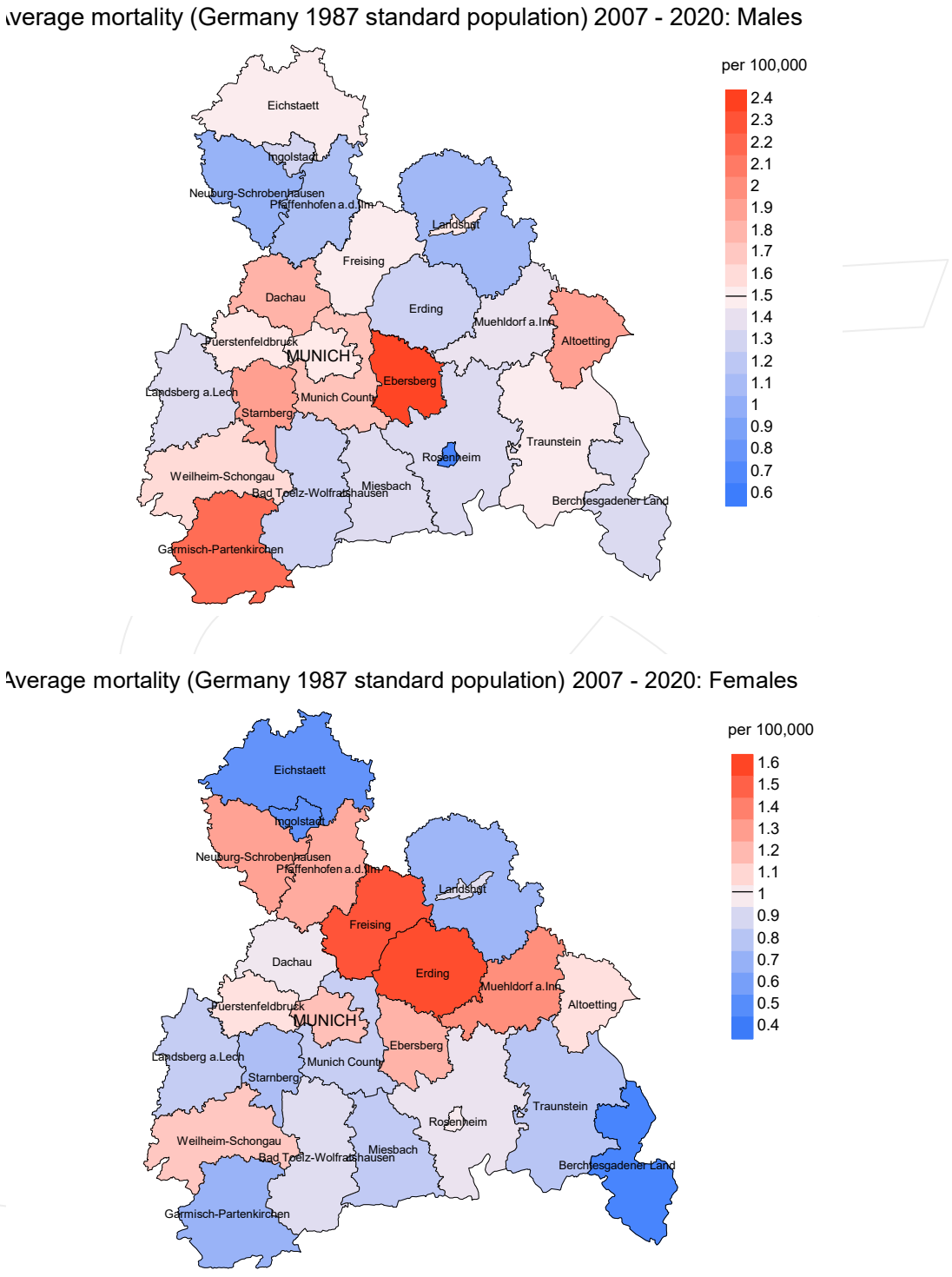
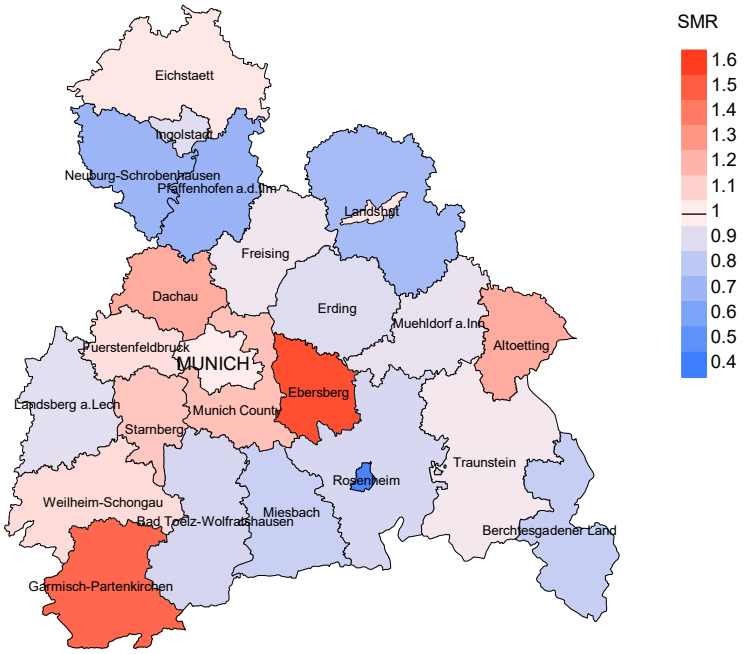


Figure 18a. Map of cancer mortality (german standard population) by county averaged for period 2007 to 2020. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 1.5/100,000 WS N=525, females 1.0/100,000 WS N=455).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,727 female residents (averaged) in the period from 2007 to 2020 a total of 13 women died from soft tissue cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 1.2/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.5 and 2.5/100,000.

Standardized mortality ratio (SMR) 2007 - 2020: Males



Standardized mortality ratio (SMR) 2007 - 2020: Females

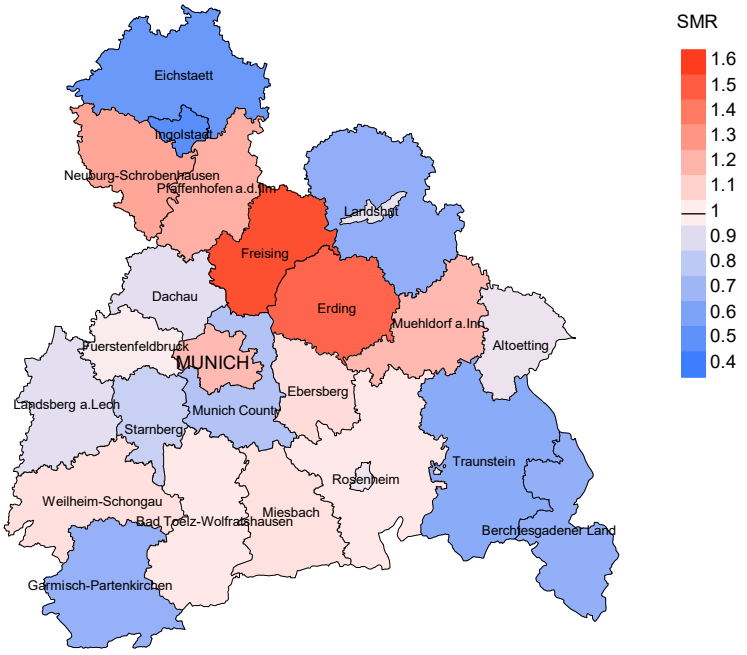


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=525, females N=455).

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 2020 a total of 13 women died from soft tissue cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 1.06. Though, the value of this parameter may vary with an underlying probability of 99% between 0.46 and 2.08, 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 C49: Soft tissue cancer - Incidence and Mortality [Internet]. 2021 [updated 2021 Dec 21; cited 2022 Feb 1]. Available from: https://www.tumorregister-muenchen.de/en/facts/base/bC49__E-ICD-10-C49-Soft-tissue-cancer-incidence-and-mortality.pdf

Copyright

Disclaimer