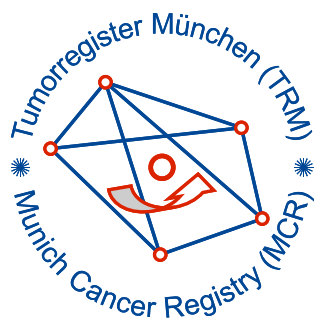


Munich Cancer Registry



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

ICD-10 C77-C80: Secondary and unknown sites

Incidence and Mortality

Year of diagnosis	1998-2019
Patients	8,097
Diseases	8,105
Creation date	01/26/2021
Database export	01/07/2021
Population	4.92 m





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

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

<https://www.tumorregister-muenchen.de/en/facts/base/bC7780E-ICD-10-C77-C80-Secondary-and-unknown-sites-incidence-and-mortality.pdf>

Index of figures and tables

Fig./Tbl.		Page
1	Annual cases, DCO, mult. malignancies, follow-up / yr	4
2	Incidence by year of diagnosis	7
3	Age distribution parameters by year of diagnosis	8
4	Age distribution by 5-year age group and sex	11
5	Age-specific incidence, DCO rate, proportion malignancies	12
6	Age distribution and age-specific incidence (chart)	13
7	Standardized incidence ratio of further malignancies	14
8a	Map of cancer incidence (BRD-S) by county (chart)	16
8b	Standardized incidence ratio (SIR) by county (chart)	17
9a	Pts incident cohorts and mortality / yr	18
9b	Incidence and mortality by year of diagnosis	19
9c	Cancer-related deaths, death certification available / yr	20
10	Medians of age at death / yr	21
11	Mortality by year of death	23
12	Distribution of age at death	25
13	Age-specific mortality	26
14	Further malignancies in deaths	27
15	Age-specific mortality (first primaries)	30
16	Age-specific mortality (single primaries)	31
17	Age distribution and age-specific mortality (chart)	32
18a	Map of cancer mortality (BRD-S) by county (chart)	33
18b	Standardized mortality ratio (SMR) by county (chart)	34

**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 2016) used for specifying cancer site

Code	Description
C77.-	Secondary and unspecified malignant neoplasm of lymph nodes
C78.-	Secondary malignant neoplasm of respiratory and digestive organs
C79.-	Secondary malignant neoplasm of other and unspecified sites
C80.-	Malignant neoplasm, without specification of site

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	352	145	41.2	6.0	6.4	98.3	99.4
1999	268	115	42.9	6.3	6.5	98.1	99.6
2000	256	116	45.3	6.4	6.6	97.3	99.6
2001	230	103	44.8	6.3	6.6	96.1	99.1
2002	443	209	47.2	7.2	6.6	97.7	100.0 #
2003	429	184	42.9	7.6	6.7	96.7	100.0
2004	434	141	32.5	8.2	6.7	93.1	98.2
2005	388	133	34.3	8.9	6.7	96.1	98.2
2006	369	121	32.8	9.5	6.5	91.6	98.9
2007	422	131	31.0	10.1	6.4	93.4	98.3 #
2008	436	134	30.7	10.6	6.3	92.0	99.8
2009	390	109	27.9	11.0	6.1	91.8	99.2
2010	407	131	32.2	11.2	5.5	89.9	99.0
2011	467	115	24.6	11.4	5.1	89.7	99.1
2012	445	114	25.6	11.8	4.7	88.1	99.1
2013	429	111	25.9	12.4	4.6	90.0	99.1
2014	408	106	26.0	12.7	4.5	88.5	98.3
2015	433	124	28.6	12.8	4.3	83.1	97.9
2016	390	128	32.8	13.2	3.9	89.7	99.5
2017	359	99	27.6	13.5	3.9	85.0	100.0
2018	208	23	11.1	13.9	2.6	71.2	100.0
2019	142	6	4.2	14.1	2.2	54.2	88.0 ##
1998-2019	8105	2598	32.1	14.1	6.4	90.8	98.9

8,105 cases diagnosed 1998-2019 are related to a total of 8,097 patients. Currently, in 1,663 (20.5 %) of these 8,097 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 1,316 / 267 / 80 (16.3 % / 3.3 % / 1.0 %) 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 retrieved from the respective headings.

How to interpret:

In 2017, a subgroup of 359 cases has been diagnosed, of which 13.5 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 3.9 % 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	164	46.6	60	36.6	4.9	7.1	98.8	100.0
1999	125	46.6	47	37.6	5.2	7.1	99.2	99.2
2000	121	47.3	56	46.3	5.4	7.2	97.5	100.0
2001	111	48.3	40	36.0	5.8	7.3	97.3	98.2
2002	215	48.5	92	42.8	7.3	7.2	96.7	100.0 #
2003	217	50.6	78	35.9	8.1	7.1	97.2	100.0
2004	216	49.8	53	24.5	9.2	7.2	92.6	99.1
2005	180	46.4	57	31.7	10.0	7.1	96.7	97.2
2006	198	53.7	61	30.8	11.0	7.0	91.4	99.0
2007	226	53.6	60	26.5	12.0	6.8	94.2	99.1 #
2008	246	56.4	59	24.0	12.6	6.5	89.8	99.6
2009	190	48.7	51	26.8	13.0	6.2	93.7	100.0
2010	201	49.4	48	23.9	13.4	5.3	88.6	99.0
2011	239	51.2	40	16.7	13.6	4.8	90.4	99.6
2012	225	50.6	39	17.3	13.7	4.2	82.7	98.2
2013	219	51.0	51	23.3	14.3	4.1	92.2	99.5
2014	198	48.5	43	21.7	14.6	3.9	87.9	98.5
2015	216	49.9	55	25.5	14.7	3.6	79.6	98.1
2016	197	50.5	62	31.5	15.1	3.0	88.8	99.0
2017	170	47.4	40	23.5	15.4	3.7	87.6	100.0
2018	106	51.0	11	10.4	15.8	2.8	70.8	100.0
2019	79	55.6	3	3.8	16.0	3.9	50.6	84.8 ##
1998–2019	4059	50.1	1106	27.2	16.0	7.1	90.3	98.9

4,059 cases diagnosed 1998-2019 are related to a total of 4,054 patients. Currently, in 932 (23.0 %) of these 4,054 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 718 / 158 / 56 (17.7 % / 3.9 % / 1.4 %) 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 retrieved from the respective headings.

How to interpret:

In 2017, a subgroup of 170 cases has been diagnosed, of which 15.4 % 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 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	188	53.4	85	45.2	6.9	5.7	97.9	98.9
1999	143	53.4	68	47.6	7.3	5.9	97.2	100.0
2000	135	52.7	60	44.4	7.3	5.9	97.0	99.3
2001	119	51.7	63	52.9	6.8	5.9	95.0	100.0
2002	228	51.5	117	51.3	7.0	5.9	98.7	100.0 #
2003	212	49.4	106	50.0	7.2	6.2	96.2	100.0
2004	218	50.2	88	40.4	7.2	6.2	93.6	97.2
2005	208	53.6	76	36.5	7.9	6.3	95.7	99.0
2006	171	46.3	60	35.1	8.1	6.1	91.8	98.8
2007	196	46.4	71	36.2	8.3	6.0	92.3	97.4 #
2008	190	43.6	75	39.5	8.6	6.1	94.7	100.0
2009	200	51.3	58	29.0	8.9	6.0	90.0	98.5
2010	206	50.6	83	40.3	8.9	5.8	91.3	99.0
2011	228	48.8	75	32.9	9.2	5.4	89.0	98.7
2012	220	49.4	75	34.1	9.9	5.3	93.6	100.0
2013	210	49.0	60	28.6	10.5	5.1	87.6	98.6
2014	210	51.5	63	30.0	10.8	5.0	89.0	98.1
2015	217	50.1	69	31.8	11.0	5.0	86.6	97.7
2016	193	49.5	66	34.2	11.3	4.8	90.7	100.0
2017	189	52.6	59	31.2	11.7	4.0	82.5	100.0
2018	102	49.0	12	11.8	12.0	2.5	71.6	100.0
2019	63	44.4	3	4.8	12.2	0.0	58.7	92.1 ##
1998-2019	4046	49.9	1492	36.9	12.2	5.7	91.3	98.9

4,046 cases diagnosed 1998-2019 are related to a total of 4,043 patients. Currently, in 731 (18.1 %) of these 4,043 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 598 / 109 / 24 (14.8 % / 2.7 % / 0.6 %) 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 189 cases has been diagnosed, of which 11.7 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 4.0 % 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 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	164	188	14.8	16.0	9.1	5.4	13.7	8.8	17.7	12.6
1999	125	143	11.2	12.1	6.5	4.7	10.1	7.2	13.3	9.6
2000	121	135	10.6	11.2	6.3	4.3	9.7	6.6	12.7	8.5
2001	111	119	9.6	9.8	5.5	3.8	8.6	5.8	11.6	7.6
2002	215	228	11.5	11.6	6.4	3.8	9.9	6.1	13.2	8.6
2003	217	212	11.6	10.8	6.2	3.8	9.8	6.0	13.2	8.2
2004	216	218	11.5	11.0	6.2	4.1	9.4	6.3	12.5	8.4
2005	180	208	9.5	10.5	5.2	3.7	7.7	6.0	9.9	7.9
2006	198	171	10.3	8.5	5.4	3.0	8.3	4.7	11.0	6.2
2007	226	196	10.2	8.5	5.4	3.0	8.1	4.7	10.4	6.5
2008	246	190	11.1	8.2	5.5	3.0	8.4	4.6	10.8	6.2
2009	190	200	8.5	8.6	4.1	3.3	6.4	5.1	8.5	6.4
2010	201	206	8.9	8.8	4.3	3.0	6.6	4.7	8.6	6.3
2011	239	228	10.7	9.8	5.1	3.3	7.7	5.1	10.0	6.8
2012	225	220	9.9	9.3	5.0	3.0	7.2	4.8	9.2	6.5
2013	219	210	9.5	8.8	4.5	3.2	6.7	4.8	8.9	6.4
2014	198	210	8.5	8.7	3.8	3.2	5.8	4.8	7.7	6.3
2015	216	217	9.1	8.9	4.2	2.9	6.4	4.5	8.2	6.1
2016	197	193	8.2	7.9	3.7	2.8	5.6	4.3	7.4	5.6
2017	170	189	7.0	7.7	3.0	2.5	4.7	3.9	6.2	5.2
2018	106	102	4.4	4.1	1.9	1.6	2.9	2.4	3.8	3.0
2019	79	63	3.2	2.5	1.4	1.1	2.1	1.6	2.9	1.9
1998-2019	4059	4046	9.2	8.8	4.6	3.1	6.9	4.8	9.0	6.4

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	Std.		Min.	Max.	Median				
		Mean	dev.			10%	25%	50%	75%	90%
1998	352	73.0	13.1	30.2	107	54.6	63.8	74.0	83.4	88.9
1999	268	72.9	12.7	23.4	95.8	56.2	64.1	73.1	84.4	89.1
2000	256	71.9	15.5	28.6	99.5	50.5	59.9	74.7	85.4	90.1
2001	230	72.1	14.2	0.5	97.6	54.0	61.8	74.6	82.4	88.5
2002	443	73.9	13.3	13.1	97.2	55.6	64.4	76.6	83.0	89.3
2003	429	73.5	13.6	21.5	101	55.5	64.6	75.3	83.4	89.8
2004	434	71.8	13.9	32.9	103	52.8	62.7	73.5	82.5	89.6
2005	388	72.2	13.4	22.5	101	55.4	63.5	74.0	82.3	88.9
2006	369	72.9	14.3	0.2	97.9	53.8	64.3	75.8	83.6	88.6
2007	422	72.5	13.3	16.5	99.2	54.3	63.5	74.1	83.2	87.5
2008	436	72.3	12.6	0.6	99.5	56.1	65.2	73.3	81.5	87.2
2009	390	72.6	13.1	31.6	98.0	53.8	63.8	74.4	83.3	88.3
2010	407	73.8	12.8	27.1	99.2	56.7	65.1	75.4	84.5	89.0
2011	467	73.6	13.0	8.1	99.9	57.3	66.0	74.2	83.4	88.7
2012	445	72.9	14.0	0.7	98.1	55.2	65.9	74.0	83.1	88.6
2013	429	72.7	12.7	13.4	96.9	55.7	65.3	74.2	82.3	88.4
2014	408	73.3	12.8	26.0	102	55.3	65.7	74.7	82.8	88.6
2015	433	73.8	13.4	27.0	102	55.5	64.7	75.6	83.4	90.3
2016	390	73.1	12.7	21.1	95.6	54.9	64.5	75.4	82.6	88.3
2017	359	75.0	12.2	22.5	99.3	58.2	67.4	76.7	83.1	90.2
2018	208	71.8	12.5	26.0	94.5	55.8	63.8	74.9	81.3	85.6
2019	142	71.2	12.2	35.8	95.5	52.8	63.2	73.1	79.6	84.7
1998-2019	8105	73.0	13.3	0.2	107	55.2	64.3	74.7	82.9	88.8

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	164	67.7	12.5	30.2	93.3	50.7	59.6	68.8	75.5	84.7
1999	125	70.0	12.7	23.4	94.9	54.4	60.3	69.7	77.9	87.3
2000	121	68.7	14.0	39.6	96.8	50.5	56.9	68.9	78.5	87.2
2001	111	69.4	12.1	36.8	97.6	53.9	59.8	69.6	78.9	83.7
2002	215	69.8	13.6	13.1	95.9	51.8	61.1	70.1	79.9	87.6
2003	217	70.9	13.5	27.7	97.9	54.7	62.0	71.9	81.1	88.9
2004	216	69.1	12.8	34.4	95.3	51.4	60.0	69.1	79.8	84.6
2005	180	67.8	13.3	22.5	97.0	50.3	60.0	68.4	76.9	84.1
2006	198	70.5	14.3	0.2	97.1	53.4	62.2	71.4	81.3	86.5
2007	226	69.7	12.9	16.5	95.2	52.8	62.2	69.1	79.8	85.9
2008	246	70.4	10.7	31.9	95.7	56.1	63.5	69.7	78.8	84.8
2009	190	71.5	12.2	37.4	92.4	54.8	63.6	72.5	81.6	86.7
2010	201	71.2	12.3	31.5	95.4	55.9	63.4	71.9	81.3	86.3
2011	239	71.0	11.8	18.0	96.8	57.3	64.9	71.4	79.4	85.4
2012	225	69.5	14.2	0.7	96.5	54.1	63.3	71.2	78.3	84.3
2013	219	71.0	11.9	26.0	93.9	55.6	63.6	71.9	80.0	84.8
2014	198	71.7	13.1	26.0	102	54.3	63.5	74.0	80.5	86.7
2015	216	70.6	12.7	27.6	97.2	54.7	61.2	71.9	79.6	85.7
2016	197	72.3	11.9	21.1	95.6	56.0	64.4	74.4	80.2	86.6
2017	170	73.4	11.3	39.4	97.5	58.2	64.6	74.9	81.4	88.0
2018	106	71.4	11.8	26.0	88.8	56.5	64.6	73.1	79.7	84.8
2019	79	72.2	10.2	49.1	92.8	58.5	64.3	73.1	79.4	84.5
1998-2019	4059	70.4	12.7	0.2	102	54.1	62.4	71.5	79.8	85.9

Table 3b

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

Year of diagnosis	Cases n	Std.		Min.	Max.	Median				
		Mean	dev.			10%	25%	50%	75%	90%
1998	188	77.6	11.9	43.7	107	59.4	70.8	78.8	85.9	91.3
1999	143	75.5	12.1	41.6	95.8	58.5	67.0	77.4	85.6	90.0
2000	135	74.9	16.2	28.6	99.5	52.1	63.9	78.4	87.8	92.5
2001	119	74.7	15.5	0.5	96.1	55.2	62.7	79.3	87.2	91.0
2002	228	77.8	11.7	38.9	97.2	61.2	71.3	80.7	86.5	90.3
2003	212	76.2	13.2	21.5	101	57.7	66.4	78.9	86.0	90.8
2004	218	74.5	14.4	32.9	103	53.8	65.7	78.4	84.4	90.9
2005	208	76.1	12.2	35.1	101	57.6	67.3	78.5	85.4	90.7
2006	171	75.5	13.8	23.8	97.9	54.8	67.6	79.7	85.7	90.4
2007	196	75.6	13.1	22.0	99.2	57.1	67.4	78.1	85.1	89.6
2008	190	74.8	14.4	0.6	99.5	55.9	68.7	77.5	85.2	88.2
2009	200	73.6	13.8	31.6	98.0	53.7	63.9	75.3	85.5	89.3
2010	206	76.3	12.7	27.1	99.2	57.6	67.0	80.1	86.8	89.9
2011	228	76.3	13.7	8.1	99.9	57.2	68.2	80.0	86.7	90.8
2012	220	76.3	12.9	37.3	98.1	56.3	69.9	78.7	86.2	90.8
2013	210	74.5	13.3	13.4	96.9	55.8	67.3	77.8	84.2	90.0
2014	210	74.8	12.3	34.2	95.1	56.7	67.8	76.3	83.8	89.4
2015	217	77.0	13.3	27.0	102	56.5	69.2	78.9	87.1	92.2
2016	193	74.0	13.4	33.4	95.1	53.4	64.7	76.0	84.6	89.7
2017	189	76.5	12.8	22.5	99.3	58.1	68.8	78.2	86.1	91.5
2018	102	72.3	13.2	33.3	94.5	55.3	63.4	75.6	82.8	86.4
2019	63	69.9	14.3	35.8	95.5	47.1	61.2	73.2	80.5	85.1
1998-2019	4046	75.5	13.4	0.5	107	56.3	67.2	78.1	85.5	90.4

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	4	0.1	0.1	3	0.1	0.1	1	0.0	0.0
5-9	1	0.0	0.1			0.1	1	0.0	0.1
10-14	2	0.0	0.1	1	0.0	0.2	1	0.0	0.1
15-19	2	0.0	0.2	2	0.1	0.2			0.1
20-24	4	0.1	0.3	1	0.0	0.3	3	0.1	0.2
25-29	10	0.2	0.5	8	0.3	0.6	2	0.1	0.3
30-34	10	0.2	0.7	5	0.2	0.8	5	0.2	0.5
35-39	25	0.5	1.2	16	0.6	1.4	9	0.4	0.9
40-44	58	1.2	2.4	21	0.8	2.3	37	1.5	2.4
45-49	129	2.6	5.0	66	2.6	4.9	63	2.6	5.0
50-54	209	4.2	9.2	112	4.5	9.4	97	4.0	9.0
55-59	338	6.8	16.0	208	8.3	17.6	130	5.4	14.4
60-64	444	9.0	25.0	269	10.7	28.3	175	7.2	21.6
65-69	571	11.6	36.6	364	14.5	42.8	207	8.5	30.2
70-74	692	14.0	50.6	410	16.3	59.2	282	11.6	41.8
75-79	786	15.9	66.6	403	16.0	75.2	383	15.8	57.6
80-84	726	14.7	81.3	331	13.2	88.4	395	16.3	73.9
85+	925	18.7	100.0	292	11.6	100.0	633	26.1	100.0
All ages	4936	100.0		2512	100.0		2424	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=560 %	Females DCO rate n=769 %	Males Prop.all cancers n=143063 %	Females Prop.all cancers n=144724 %
0- 4	3	1	0.2	0.1		100.0	1.4	0.6
5- 9		1		0.1				1.1
10-14	1	1	0.1	0.1			0.8	0.9
15-19	2		0.1				0.7	
20-24	1	3	0.1	0.2		33.3	0.2	0.6
25-29	8	2	0.4	0.1	12.5		0.9	0.2
30-34	5	5	0.2	0.2			0.4	0.3
35-39	16	9	0.7	0.4			0.9	0.3
40-44	21	37	0.9	1.6			0.8	0.6
45-49	66	63	2.6	2.6	4.5	6.3	1.4	0.7
50-54	112	97	4.8	4.2	7.1	3.1	1.4	0.8
55-59	208	130	10.7	6.5	5.3	6.9	1.8	1.1
60-64	269	175	16.5	10.0	9.7	10.3	1.6	1.2
65-69	364	207	23.9	12.3	14.8	12.6	1.6	1.2
70-74	410	282	29.3	17.6	19.3	19.9	1.6	1.5
75-79	403	383	36.4	27.8	23.3	26.4	1.8	2.1
80-84	331	395	50.4	40.6	34.1	42.0	2.3	2.8
85+	290	633	68.0	65.6	59.0	60.7	2.9	4.1
All ages	2510	2424			22.3	31.7	1.8	1.7
Incidence								
Raw			8.3	7.8				
WS			3.9	2.7				
ES			5.9	4.2				
BRD-S			7.7	5.6				

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).

CD-10 C77-C80: Malignant neoplasms of secondary and unspecified sites

Age distribution and age-specific incidence 2007 - 2019 (Males: 2510, Females: 2424)

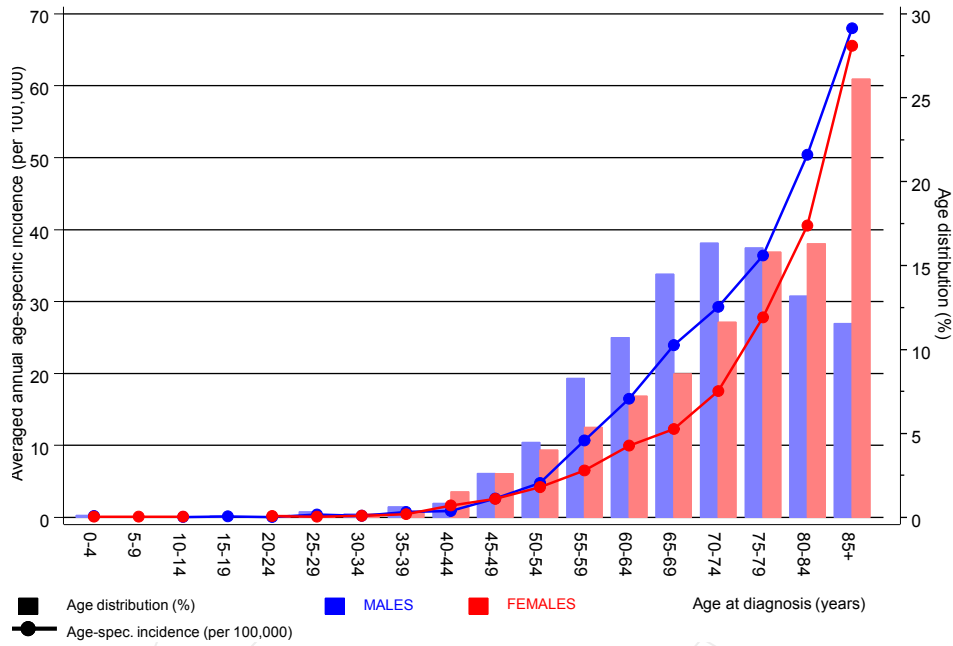


Figure 6. Age distribution (males: mean=71.1 yrs, median=72.2 yrs; females: mean=75.2 yrs, median=77.6 yrs) and age-specific incidence.

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 %
C03-C06 Oral cavity	9	0.6	16.1	7.4	30.6 #	20.6	
C07-C08 Salivary gland	3	0.1	22.0	4.5	64.3 #	7.0	
C09-C10 Oropharynx	21	0.7	30.3	18.8	46.3 #	49.6	
C12-C13 Hypopharynx	12	0.4	32.0	16.5	55.9 #	28.4	16.7
C15 Oesophagus	15	1.3	11.9	6.7	19.7 #	33.6	
C16 Stomach	10	2.5	4.1	2.0	7.5 #	18.4	20.0
C17 Small intestine	3	0.4	8.1	1.7	23.7 #	6.4	
C18 Colon	18	5.9	3.0	1.8	4.8 #	29.5	16.7
C19-C20 Rectum	7	3.3	2.1	0.8	4.3	9.0	14.3
C21 Anus/canal	2	0.1	13.3	1.6	48.2 #	4.5	
C22 Liver	11	1.8	6.1	3.0	10.9 #	22.5	45.5
C23-C24 Bile	10	0.6	15.6	7.5	28.7 #	22.9	30.0
C25 Pancreas	10	2.4	4.2	2.0	7.7 #	18.6	30.0
C26 GI cancer	5	0.1	74.6	24.2	174.0 #	12.1	60.0
C30-C31 Sinuses	3	0.1	26.4	5.4	77.0 #	7.1	
C32 Larynx	9	0.6	13.9	6.4	26.4 #	20.4	
C33-C34 Lung	73	7.4	9.8	7.7	12.3 #	160.2	26.0
C38,C45 Mesothelioma	4	0.4	9.6	2.6	24.5 #	8.8	
C43 Malign. melanoma	5	2.8	1.8	0.6	4.2	5.5	
C46,C49 Soft tissue	2	0.4	5.7	0.7	20.5	4.0	50.0
C48 Peritoneal	2	0.0	40.2	4.9	145.3 #	4.8	100.0
C50 Breast	2	0.2	12.0	1.5	43.3 #	4.5	
C61 Prostate	53	17.7	3.0	2.2	3.9 #	86.1	3.8
C64 Kidney	15	2.2	6.9	3.9	11.4 #	31.3	13.3
C65 Renal pelvis	3	0.3	11.1	2.3	32.4 #	6.7	33.3
C67 Bladder	9	2.8	3.2	1.5	6.1 #	15.1	
C70-C72 CNS cancer	4	0.8	5.0	1.4	12.8 #	7.8	25.0
C73 Thyroid	5	0.4	11.7	3.8	27.2 #	11.2	
C74-C80 Cancer others	3	0.1	20.3	4.2	59.4 #	7.0	66.7
C76-C79 CUP	3	1.1	2.8	0.6	8.3	4.7	33.3
C82-C85 NHL	9	2.6	3.5	1.6	6.6 #	15.6	11.1
C90 Mult. myeloma	2	0.8	2.5	0.3	8.9	2.9	50.0
C91-C96 Leukaemia	3	0.9	3.2	0.7	9.4	5.1	
Others, specified	7	0.6	10.9	4.4	22.4 #	15.5	14.3
Not observed	0	0.5	0.0	0.0	7.9	-1.1	
All further malignancies	352	63.0	5.6	5.0	6.2 #	706.1	15.9
Patients		3053					
Median age at next malignancy (years)		68.3					
Person-years		4093					
Mean observation time (years)		1.3					
Median observation time (years)		0.4					

The occurrence of further specified malignancy is statistically significant.

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

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

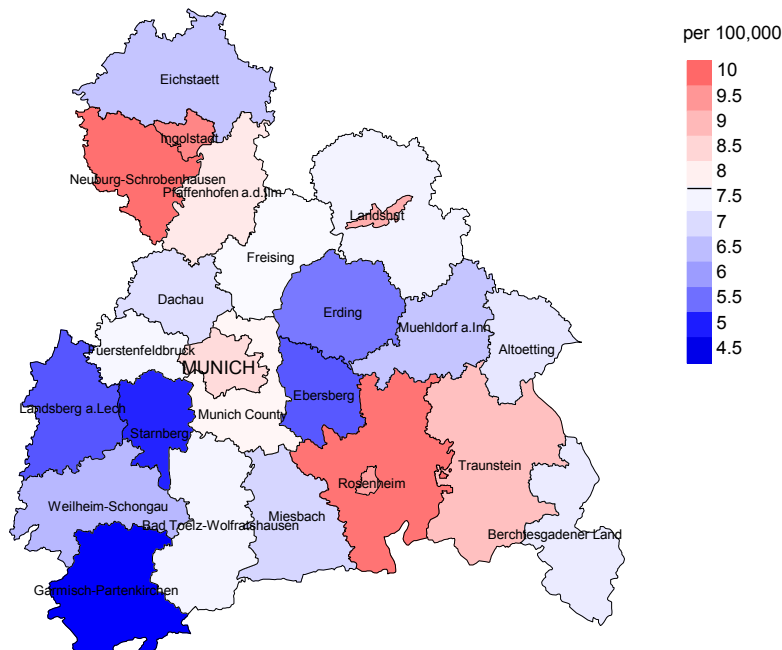
Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C03-C06 Oral cavity	5	0.2	21.9	7.1	51.1 #	13.5	
C07-C08 Salivary gland	2	0.1	30.3	3.7	109.6 #	5.5	
C09-C10 Oropharynx	9	0.2	55.6	25.4	105.5 #	25.0	
C15 Oesophagus	2	0.3	7.9	1.0	28.6	5.0	
C16 Stomach	11	1.5	7.6	3.8	13.5 #	27.0	18.2
C17 Small intestine	5	0.2	24.3	7.9	56.7 #	13.6	
C18 Colon	16	4.0	4.0	2.3	6.4 #	33.9	37.5
C19-C20 Rectum	3	1.6	1.8	0.4	5.4	3.9	
C22 Liver	5	0.5	10.1	3.3	23.5 #	12.8	60.0
C23-C24 Bile	8	0.6	13.6	5.9	26.8 #	21.0	62.5
C25 Pancreas	14	1.9	7.5	4.1	12.6 #	34.4	50.0
C26 GI cancer	2	0.1	24.3	2.9	87.8 #	5.4	100.0
C33-C34 Lung	40	3.0	13.5	9.7	18.4 #	105.0	22.5
C43 Malign. melanoma	8	1.4	5.5	2.4	10.9 #	18.6	25.0
C48 Peritoneal	3	0.2	19.9	4.1	58.2 #	8.1	
C50 Breast	66	12.0	5.5	4.2	7.0 #	152.9	9.1
C51 Vulva	3	0.4	7.0	1.5	20.6 #	7.3	
C53 Cervix uteri	4	0.5	7.7	2.1	19.6 #	9.9	
C54 Corpus uteri	6	2.2	2.8	1.0	6.0 #	10.9	
C56 Ovary	24	1.6	15.0	9.6	22.3 #	63.5	29.2
C64 Kidney	4	0.9	4.3	1.2	11.1 #	8.7	25.0
C67 Bladder	3	0.8	3.7	0.8	10.8	6.2	33.3
C70-C72 CNS cancer	3	0.5	5.9	1.2	17.2 #	7.1	33.3
C73 Thyroid	2	0.6	3.2	0.4	11.5	3.9	
C74-C80 Cancer others	2	0.2	11.4	1.4	41.2 #	5.2	100.0
C82-C85 NHL	10	1.6	6.5	3.1	11.9 #	23.9	20.0
C90 Mult. myeloma	3	0.5	6.1	1.3	18.0 #	7.1	
Others, specified	10	2.3	4.4	2.1	8.1 #	21.9	10.0
Not observed	0	0.4	0.0	0.0	8.2	-1.3	
All further malignancies	273	40.2	6.8	6.0	7.7 #	659.7	20.9

Patients	2708
Median age at next malignancy (years)	69.9
Person-years	3529
Mean observation time (years)	1.3
Median observation time (years)	0.4

The occurrence of further specified malignancy is statistically significant.

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

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



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

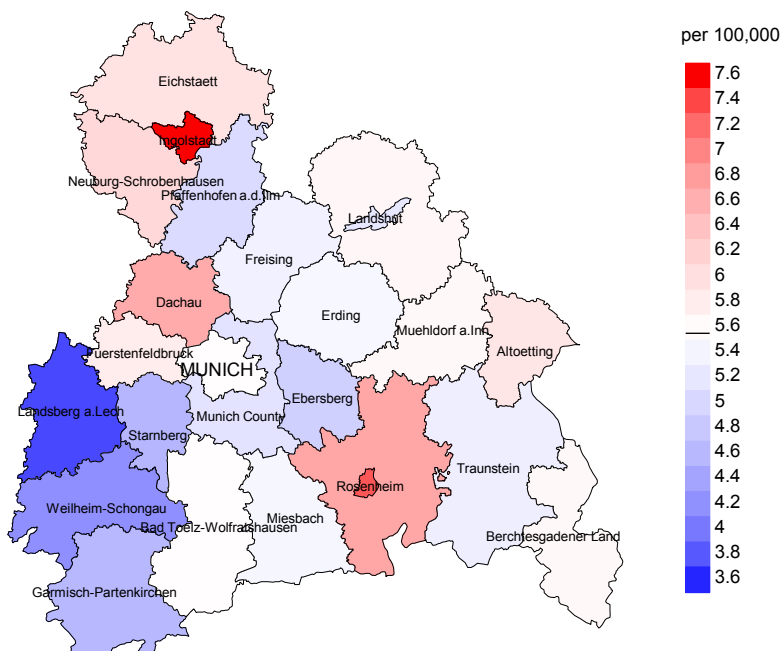
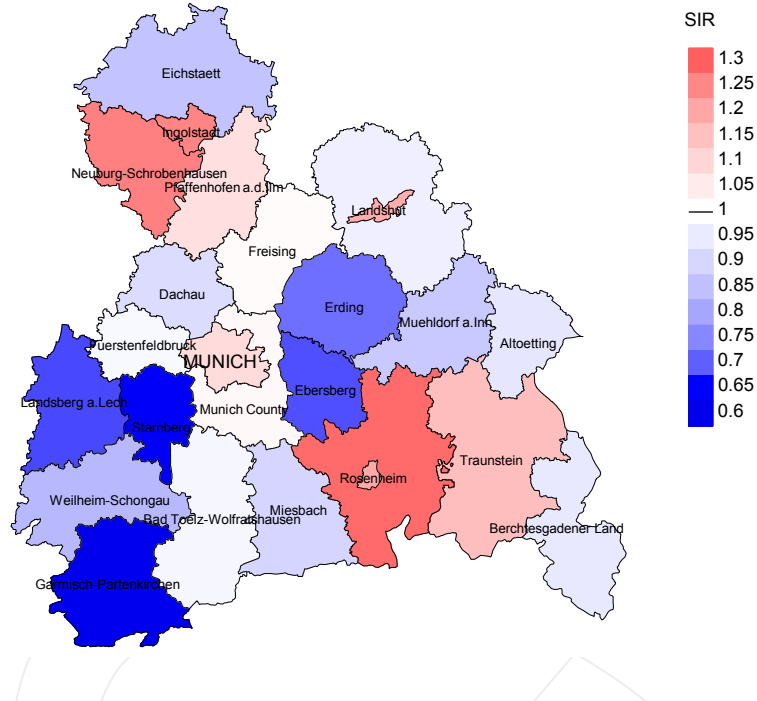


Figure 8a. Map of cancer incidence (german standard population, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 7.7/100,000 WS N=2,510, females 5.6/100,000 WS N=2,424).

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 59 women were identified with newly diagnosed secondary and unknown sites. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 4.9/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 3.4 and 6.9/100,000.

Standardized incidence ratio (SIR) 2007 - 2019: Males



Standardized incidence ratio (SIR) 2007 - 2019: Females

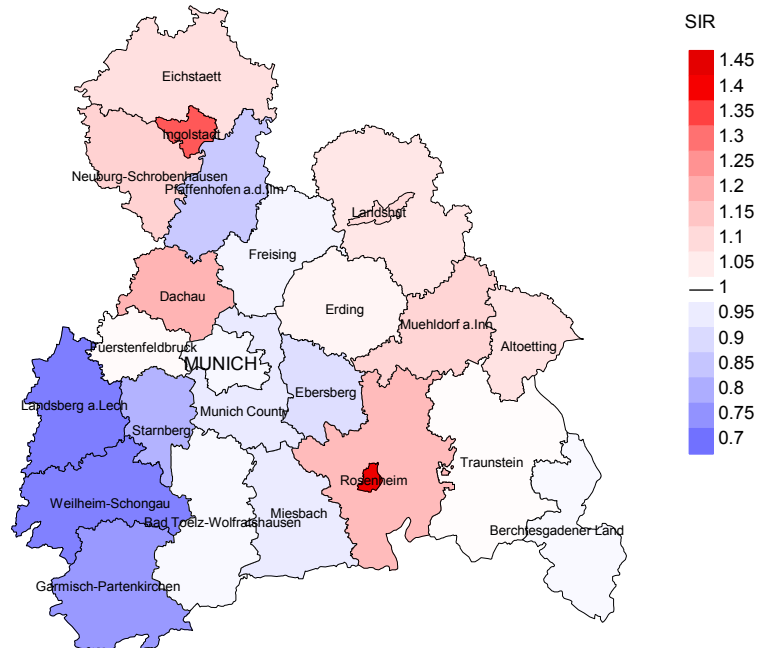


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=2,510, females N=2,424).

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 59 women were identified with newly diagnosed secondary and unknown sites. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.91. Though, the value of this parameter may vary with an underlying probability of 99% between 0.63 and 1.26, 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	352	99.4	41.2	346	98.3	95.7
1999	268	99.6	42.9	263	98.1	94.3
2000	256	99.6	45.3	249	97.3	96.8
2001	230	99.1	44.8	221	96.1	98.6
2002	443	100.0	47.2	433	97.7	98.2
2003	429	100.0	42.9	415	96.7	98.8
2004	434	98.2	32.5	404	93.1	98.8
2005	388	98.2	34.3	373	96.1	98.9
2006	369	98.9	32.8	338	91.6	98.8
2007	422	98.3	31.0	394	93.4	98.2
2008	436	99.8	30.7	401	92.0	98.3
2009	390	99.2	27.9	358	91.8	98.3
2010	407	99.0	32.2	366	89.9	97.5
2011	467	99.1	24.6	419	89.7	97.9
2012	445	99.1	25.6	392	88.1	98.5
2013	429	99.1	25.9	386	90.0	97.7
2014	408	98.3	26.0	361	88.5	96.7
2015	433	97.9	28.6	360	83.1	95.8
2016	390	99.5	32.8	350	89.7	97.1
2017	359	100.0	27.6	305	85.0	86.2
2018	208	100.0	11.1	148	71.2	38.5
2019	142	88.0	4.2	77	54.2	72.7
1998-2019	8105	98.9	32.1	7359	90.8	95.8

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	352	317	95.9	249	70.7
1999	268	263	94.3	183	68.3
2000	256	262	96.9	184	71.9
2001	230	207	97.1	152	66.1
2002	443	289	98.3	289	65.2
2003	429	321	97.8	275	64.1
2004	434	345	98.8	250	57.6
2005	388	306	98.0	226	58.2
2006	369	321	98.1	212	57.5
2007	422	319	99.1	245	58.1
2008	436	352	98.0	259	59.4
2009	390	311	99.4	216	55.4
2010	407	326	98.8	238	58.5
2011	467	355	98.6	281	60.2
2012	445	358	98.0	261	58.7
2013	429	317	98.7	250	58.3
2014	408	338	97.9	227	55.6
2015	433	357	99.2	245	56.6
2016	390	334	99.1	243	62.3
2017	359	336	99.4	221	61.6
2018	208	192	35.4	93	44.7
2019	142	165	49.7	51	35.9
1998–2019	8105	6691	95.2	4850	59.8

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	317	89.0	11.0	97.7
1999	263	95.4	4.6	97.6
2000	262	96.6	3.4	96.9
2001	207	97.1	2.9	96.5
2002	289	95.8	4.2	97.2
2003	321	98.4	1.6	96.8
2004	345	97.4	2.6	96.2
2005	306	98.4	1.6	96.0
2006	321	98.8	1.2	95.9
2007	319	99.4	0.6	96.2
2008	352	98.3	1.7	96.2
2009	311	98.7	1.3	96.8
2010	326	99.1	0.9	94.4
2011	355	99.2	0.8	94.6
2012	358	98.6	1.4	93.4
2013	317	99.1	0.9	93.6
2014	338	99.4	0.6	94.6
2015	357	99.7	0.3	95.5
2016	334	99.1	0.9	96.1
2017	336	99.1	0.9	93.4
2018	192	98.4	1.6	95.6
2019	165	98.8	1.2	96.3
1998–2019	6691	98.0	2.0	95.7

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	151	69.2	68.8	73.3	69.5
1999	127	70.8	70.4	86.3	70.6
2000	128	70.5	69.9	78.1	69.7
2001	90	71.5	71.5		72.0
2002	147	71.7	71.7	79.4	71.8
2003	158	71.1	71.0	89.2	71.0
2004	180	72.3	71.8	82.6	71.3
2005	155	68.1	68.1	76.1	68.4
2006	158	70.9	71.0	54.7	70.9
2007	172	70.6	70.6	85.6	71.1
2008	191	70.4	70.4	76.3	70.3
2009	172	72.7	72.7	84.2	72.7
2010	158	72.3	72.2	94.0	72.0
2011	188	72.5	72.5		72.2
2012	193	72.8	72.8	74.9	72.7
2013	159	71.9	71.8	78.8	71.8
2014	172	74.1	74.1		74.1
2015	170	73.2	73.2	70.3	72.5
2016	173	74.6	74.7	65.8	74.6
2017	161	74.0	74.0	79.5	74.0
2018	103	75.3	75.3	82.4	75.1
2019	93	75.0	75.0		76.5
1998-2019	3399	72.2	72.1	75.4	72.0

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	166	80.6	79.2	84.8	80.4
1999	136	79.0	78.7	85.1	79.1
2000	134	80.1	80.1	93.2	80.1
2001	117	80.4	80.3	81.0	80.7
2002	142	81.2	80.8	88.2	81.2
2003	163	78.5	78.5	81.7	78.8
2004	165	79.7	79.6	81.8	80.0
2005	151	79.2	78.8	91.0	79.2
2006	163	79.4	79.1	83.9	79.4
2007	147	77.4	77.3	101.7	77.2
2008	161	77.2	77.2	84.7	77.2
2009	139	76.5	76.9	73.6	76.5
2010	168	78.3	78.3	80.6	77.8
2011	167	79.6	79.2	86.1	79.3
2012	165	79.5	79.3	89.0	79.3
2013	158	78.4	78.3	85.1	78.2
2014	166	75.6	75.6	83.0	74.7
2015	187	78.8	78.8		78.7
2016	161	77.9	77.9	92.7	77.9
2017	175	78.5	78.5	94.0	77.8
2018	89	74.8	74.8	93.4	75.6
2019	72	75.8	75.0	89.3	74.7
1998-2019	3292	78.6	78.4	85.7	78.6

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	136	12.3	0.83	7.3	0.80	11.2	0.82	14.6	0.83
1999	123	11.0	0.98	6.6	1.01	10.2	1.01	13.3	1.00
2000	124	10.9	1.02	6.3	1.00	9.9	1.02	12.9	1.01
2001	90	7.8	0.81	4.5	0.81	7.0	0.82	9.6	0.83
2002	143	7.7	0.67	4.2	0.66	6.6	0.67	8.9	0.68
2003	156	8.3	0.72	4.4	0.70	6.9	0.70	9.4	0.71
2004	176	9.4	0.81	5.0	0.80	7.8	0.82	10.4	0.83
2005	153	8.1	0.85	4.4	0.85	6.5	0.85	8.3	0.85
2006	157	8.2	0.79	4.4	0.82	6.6	0.80	8.7	0.79
2007	171	7.7	0.76	4.0	0.73	6.0	0.74	8.0	0.76
2008	189	8.5	0.77	4.2	0.76	6.3	0.75	8.3	0.77
2009	170	7.6	0.89	3.7	0.90	5.8	0.90	7.6	0.90
2010	157	7.0	0.78	3.2	0.76	5.0	0.77	6.7	0.77
2011	188	8.4	0.79	3.8	0.75	5.9	0.78	8.0	0.80
2012	191	8.4	0.85	3.8	0.75	5.8	0.81	7.9	0.85
2013	157	6.8	0.72	3.3	0.73	4.9	0.73	6.3	0.71
2014	172	7.4	0.87	3.1	0.82	4.8	0.84	6.7	0.87
2015	169	7.1	0.78	3.3	0.78	5.0	0.78	6.5	0.79
2016	172	7.2	0.87	3.1	0.85	4.8	0.86	6.4	0.87
2017	159	6.6	0.94	2.8	0.96	4.4	0.95	5.8	0.94
2018	101	4.1	0.95	1.7	0.87	2.6	0.91	3.6	0.94
2019	93	3.8	1.18	1.6	1.16	2.5	1.18	3.3	1.17
1998-2019	3347	7.6	0.83	3.7	0.81	5.6	0.82	7.4	0.83

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	146	12.4	0.78	4.2	0.78	6.8	0.77	9.6	0.76
1999	128	10.8	0.90	3.9	0.83	6.2	0.85	8.5	0.88
2000	130	10.8	0.97	4.0	0.93	6.2	0.94	8.1	0.96
2001	111	9.1	0.93	3.1	0.81	5.0	0.87	6.9	0.92
2002	134	6.8	0.59	2.4	0.64	3.8	0.62	5.1	0.60
2003	160	8.1	0.75	3.0	0.77	4.7	0.77	6.3	0.77
2004	160	8.1	0.74	2.7	0.66	4.3	0.68	5.9	0.71
2005	148	7.4	0.71	2.6	0.70	4.1	0.69	5.5	0.70
2006	160	8.0	0.94	2.9	0.95	4.5	0.96	5.9	0.94
2007	146	6.3	0.74	2.2	0.73	3.5	0.73	4.7	0.72
2008	157	6.8	0.83	2.6	0.84	3.8	0.83	5.0	0.80
2009	137	5.9	0.68	2.2	0.65	3.4	0.66	4.5	0.71
2010	166	7.1	0.81	2.4	0.81	3.8	0.81	5.2	0.82
2011	164	7.0	0.72	2.3	0.69	3.6	0.71	5.0	0.74
2012	162	6.9	0.74	2.3	0.76	3.6	0.76	4.9	0.75
2013	157	6.6	0.75	2.1	0.68	3.4	0.70	4.7	0.73
2014	164	6.8	0.78	2.4	0.77	3.7	0.77	4.9	0.79
2015	187	7.7	0.86	2.5	0.86	3.9	0.86	5.2	0.86
2016	159	6.5	0.82	2.1	0.75	3.3	0.77	4.4	0.79
2017	174	7.1	0.92	2.3	0.91	3.5	0.91	4.7	0.91
2018	88	3.5	0.86	1.4	0.88	2.1	0.88	2.6	0.86
2019	70	2.8	1.11	1.2	1.05	1.7	1.06	2.2	1.11
1998-2019	3208	7.0	0.79	2.4	0.78	3.8	0.78	5.1	0.79

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	1	0.0	0.0			0.0	1	0.1	0.1
5-9	0	0.0	0.0			0.0			0.1
10-14	0	0.0	0.0			0.0			0.1
15-19	1	0.0	0.0	1	0.0	0.0			0.1
20-24	2	0.0	0.1	1	0.0	0.1	1	0.1	0.1
25-29	4	0.1	0.2	2	0.1	0.2	2	0.1	0.2
30-34	8	0.2	0.4	6	0.3	0.5	2	0.1	0.3
35-39	16	0.4	0.8	8	0.4	0.9	8	0.4	0.7
40-44	35	0.9	1.7	17	0.8	1.7	18	0.9	1.7
45-49	81	2.0	3.7	33	1.6	3.3	48	2.5	4.1
50-54	131	3.3	6.9	74	3.5	6.8	57	3.0	7.1
55-59	258	6.4	13.4	158	7.6	14.4	100	5.2	12.3
60-64	355	8.8	22.2	218	10.4	24.8	137	7.1	19.4
65-69	484	12.0	34.2	295	14.1	38.9	189	9.8	29.2
70-74	607	15.1	49.3	373	17.9	56.8	234	12.1	41.3
75-79	673	16.7	66.1	354	16.9	73.7	319	16.5	57.8
80-84	596	14.8	80.9	283	13.5	87.3	313	16.2	74.0
85+	768	19.1	100.0	266	12.7	100.0	502	26.0	100.0
All ages	4020	100.0		2089	100.0		1931	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 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		1			0.1	1.00		6.3
5- 9								
10-14								
15-19	1		0.1	0.50			2.1	
20-24	1	1	0.1	1.00	0.1	0.33	1.5	2.6
25-29	2	2	0.1	0.25	0.1	1.00	2.4	2.2
30-34	6	2	0.3	1.20	0.1	0.40	4.7	1.3
35-39	8	8	0.4	0.50	0.4	0.89	3.3	2.2
40-44	17	18	0.7	0.81	0.8	0.49	3.0	2.2
45-49	33	48	1.3	0.50	2.0	0.76	2.5	3.0
50-54	74	57	3.2	0.66	2.5	0.59	2.9	2.3
55-59	158	100	8.1	0.76	5.0	0.77	3.8	2.8
60-64	218	137	13.4	0.81	7.8	0.78	3.7	3.0
65-69	295	189	19.4	0.81	11.2	0.91	3.4	2.9
70-74	373	234	26.6	0.91	14.6	0.83	3.4	2.9
75-79	354	319	32.0	0.88	23.2	0.83	3.1	3.5
80-84	283	313	43.1	0.85	32.2	0.79	3.0	3.7
85+	266	502	62.4	0.92	52.0	0.79	3.2	4.6
All ages	2089	1931					3.3	3.4
Mortality								
Raw			6.9	0.83	6.2	0.80		
WS			3.2	0.80	2.1	0.78		
ES			4.8	0.82	3.3	0.79		
BRD-S			6.4	0.83	4.4	0.79		
PYLL-70								
per 100,000			28.3		22.4			
ES			24.4		18.7			
AYLL-70			9.3		10.4			

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	0.2	2	100.0				
C03-C06 Oral cavity	26	2.6	15	57.7			11	42.3
C07-C08 Salivary gland	4	0.4			2	50.0	2	50.0
C09-C10 Oropharynx	32	3.2	5	15.6	5	15.6	22	68.8
C11 Nasopharynx	2	0.2	1	50.0			1	50.0
C12-C13 Hypopharynx	20	2.0	4	20.0	2	10.0	14	70.0
C15 Oesophagus	24	2.4	7	29.2	7	29.2	10	41.7
C16 Stomach	22	2.2	9	40.9	2	9.1	11	50.0
C17 Small intestine	6	0.6	1	16.7	1	16.7	4	66.7
C18 Colon	61	6.1	38	62.3	11	18.0	12	19.7
C19-C20 Rectum	31	3.1	22	71.0	3	9.7	6	19.4
C21 Anus/canal	2	0.2	2	100.0				
C22 Liver	18	1.8	5	27.8	2	11.1	11	61.1
C23-C24 Bile	9	0.9			2	22.2	7	77.8
C25 Pancreas	11	1.1	2	18.2	1	9.1	8	72.7
C26 GI cancer	6	0.6			3	50.0	3	50.0
C30-C31 Sinuses	5	0.5	3	60.0	1	20.0	1	20.0
C32 Larynx	26	2.6	17	65.4	1	3.8	8	30.8
C33-C34 Lung	91	9.1	15	16.5	23	25.3	53	58.2
C38,C45 Mesothelioma	5	0.5	1	20.0			4	80.0
C43 Malign. melanoma	43	4.3	35	81.4	1	2.3	7	16.3
C44 Skin others	135	13.5	85	63.0	13	9.6	37	27.4
C46,C49 Soft tissue	4	0.4	2	50.0	2	50.0		
C48 Peritoneal	2	0.2					2	100.0
C61 Prostate	217	21.7	169	77.9	20	9.2	28	12.9
C62 Testis	9	0.9	9	100.0				
C64 Kidney	31	3.1	16	51.6	3	9.7	12	38.7
C65 Renal pelvis	8	0.8	2	25.0	1	12.5	5	62.5
C67 Bladder	51	5.1	38	74.5	4	7.8	9	17.6
C69 Eye melanoma	2	0.2	2	100.0				
C70-C72 CNS cancer	8	0.8	3	37.5			5	62.5
C73 Thyroid	16	1.6	12	75.0	1	6.3	3	18.8
C74-C80 Cancer others	4	0.4			3	75.0	1	25.0
C76-C79 CUP	3	0.3			1	33.3	2	66.7
C81 Hodgkin lymphoma	4	0.4	4	100.0				
C82-C85 NHL	42	4.2	30	71.4	6	14.3	6	14.3
C90 Mult. myeloma	6	0.6	4	66.7	1	16.7	1	16.7
C91-C96 Leukaemia	6	0.6	2	33.3	2	33.3	2	33.3
Others, specified	6	0.6	1	16.7	1	16.7	4	66.7

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 ←%
All further malignancies	1000	100.0	563	56.3	125	12.5	312	31.2

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	7	1.0	5	71.4			2	28.6
C07-C08 Salivary gland	2	0.3	1	50.0			1	50.0
C09-C10 Oropharynx	15	2.2	5	33.3			10	66.7
C15 Oesophagus	6	0.9	4	66.7	1	16.7	1	16.7
C16 Stomach	13	1.9	3	23.1	5	38.5	5	38.5
C17 Small intestine	5	0.7	1	20.0	1	20.0	3	60.0
C18 Colon	36	5.2	16	44.4	5	13.9	15	41.7
C19-C20 Rectum	13	1.9	6	46.2	6	46.2	1	7.7
C21 Anus/canal	3	0.4	2	66.7			1	33.3
C22 Liver	9	1.3	1	11.1	4	44.4	4	44.4
C23-C24 Bile	12	1.7	2	16.7	3	25.0	7	58.3
C25 Pancreas	18	2.6	2	11.1	6	33.3	10	55.6
C26 GI cancer	5	0.7	2	40.0	2	40.0	1	20.0
C32 Larynx	4	0.6	4	100.0				
C33-C34 Lung	53	7.6	14	26.4	10	18.9	29	54.7
C37 Thymus	2	0.3					2	100.0
C43 Malign. melanoma	25	3.6	17	68.0	5	20.0	3	12.0
C44 Skin others	39	5.6	28	71.8	7	17.9	4	10.3
C48 Peritoneal	2	0.3					2	100.0
C50 Breast	185	26.7	116	62.7	13	7.0	56	30.3
C51 Vulva	8	1.2	3	37.5	2	25.0	3	37.5
C53 Cervix uteri	19	2.7	13	68.4	3	15.8	3	15.8
C54 Corpus uteri	36	5.2	30	83.3	2	5.6	4	11.1
C55,C57 Fem. genitals un	9	1.3	7	77.8	2	22.2		
C56 Ovary	41	5.9	15	36.6	6	14.6	20	48.8
C64 Kidney	24	3.5	18	75.0	2	8.3	4	16.7
C65 Renal pelvis	2	0.3	1	50.0			1	50.0
C67 Bladder	22	3.2	17	77.3	2	9.1	3	13.6
C69 Eye melanoma	3	0.4	2	66.7	1	33.3		
C70-C72 CNS cancer	3	0.4			1	33.3	2	66.7
C73 Thyroid	18	2.6	17	94.4			1	5.6
C74-C80 Cancer others	3	0.4			1	33.3	2	66.7
C76-C79 CUP	3	0.4			2	66.7	1	33.3
C81 Hodgkin lymphoma	5	0.7	5	100.0				
C82-C85 NHL	26	3.7	16	61.5	3	11.5	7	26.9
C90 Mult. myeloma	6	0.9	2	33.3	1	16.7	3	50.0
C91-C96 Leukaemia	6	0.9	2	33.3	1	16.7	3	50.0
Others, specified	6	0.9	1	16.7	2	33.3	3	50.0
All further malignancies	694	100.0	378	54.5	99	14.3	217	31.3

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 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		1			0.1	1.00		6.7
5- 9								
10-14								
15-19	1		0.1	0.50			2.2	
20-24	1	1	0.1	1.00	0.1	0.33	1.7	2.7
25-29	2	2	0.1	0.25	0.1	1.00	2.6	2.3
30-34	5	1	0.2	1.00	0.0	0.25	4.0	0.7
35-39	7	8	0.3	0.54	0.4	0.89	3.1	2.4
40-44	14	18	0.6	0.70	0.8	0.56	2.7	2.6
45-49	24	34	1.0	0.48	1.4	0.69	2.0	2.5
50-54	64	46	2.7	0.64	2.0	0.58	2.9	2.2
55-59	136	85	7.0	0.79	4.3	0.79	3.8	2.9
60-64	178	111	10.9	0.84	6.3	0.83	3.6	2.9
65-69	229	150	15.1	0.79	8.9	0.91	3.3	2.9
70-74	283	190	20.2	0.89	11.8	0.83	3.3	3.0
75-79	266	244	24.0	0.86	17.7	0.83	3.2	3.5
80-84	192	269	29.2	0.81	27.6	0.78	2.8	4.1
85+	206	447	48.3	0.86	46.3	0.77	3.5	5.1
All ages	1608	1607					3.2	3.6
Mortality								
Raw			5.3	0.81	5.2	0.79		
WS			2.5	0.79	1.8	0.78		
ES			3.8	0.80	2.7	0.78		
BRD-S			4.9	0.81	3.6	0.79		
PYLL-70								
per 100,000			23.6		18.5			
ES			20.3		15.6			
AYLL-70			9.5		10.6			

* 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		1			0.1	1.00		6.7
5- 9								
10-14								
15-19	1		0.1	0.50			2.2	
20-24	1	1	0.1	1.00	0.1	0.33	1.7	2.8
25-29	2	2	0.1	0.25	0.1	1.00	2.6	2.4
30-34	5	1	0.2	1.00	0.0	0.33	4.1	0.7
35-39	7	8	0.3	0.54	0.4	1.00	3.1	2.5
40-44	13	17	0.6	0.76	0.8	0.59	2.5	2.4
45-49	24	29	1.0	0.51	1.2	0.66	2.0	2.2
50-54	58	39	2.5	0.62	1.7	0.57	2.7	1.9
55-59	129	75	6.6	0.82	3.8	0.77	3.6	2.6
60-64	153	99	9.4	0.78	5.6	0.84	3.1	2.7
65-69	209	126	13.7	0.79	7.5	0.87	3.1	2.5
70-74	248	176	17.7	0.84	11.0	0.81	3.0	2.9
75-79	237	228	21.4	0.80	16.6	0.82	3.0	3.4
80-84	183	251	27.9	0.79	25.8	0.75	2.9	4.0
85+	193	423	45.3	0.82	43.8	0.74	3.6	5.1
All ages	1463	1476					3.1	3.4
Mortality								
Raw			4.9	0.78	4.7	0.77		
WS			2.3	0.76	1.6	0.76		
ES			3.4	0.78	2.5	0.77		
BRD-S			4.5	0.78	3.3	0.77		
PYLL-70								
per 100,000			21.8		16.4			
ES			18.8		13.9			
AYLL-70			9.6		10.8			

* See corresponding tables with multiple malignancies.

CD-10 C77-C80: Malignant neoplasms of secondary and unspecified sites

Age distribution and age-specific mortality 2007 - 2019 (Males: 2089, Females: 1931)

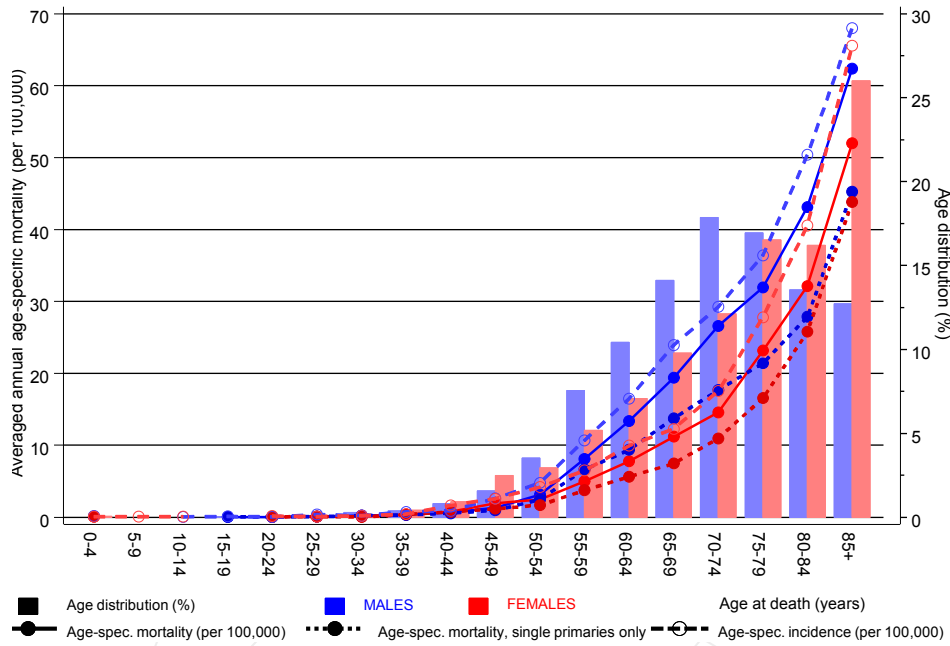
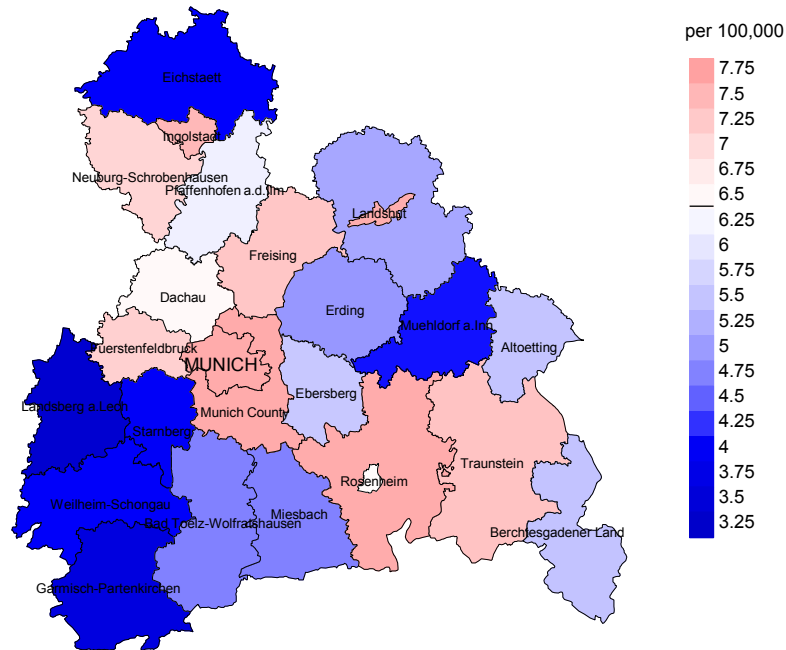


Figure 17. Distribution of age at death (bars; males: mean=70.8 yrs, median=71.6 yrs; females: mean=74.5 yrs, median=76.4 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

The difference between age at diagnosis (Table 3) and age at secondary and unknown sites-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

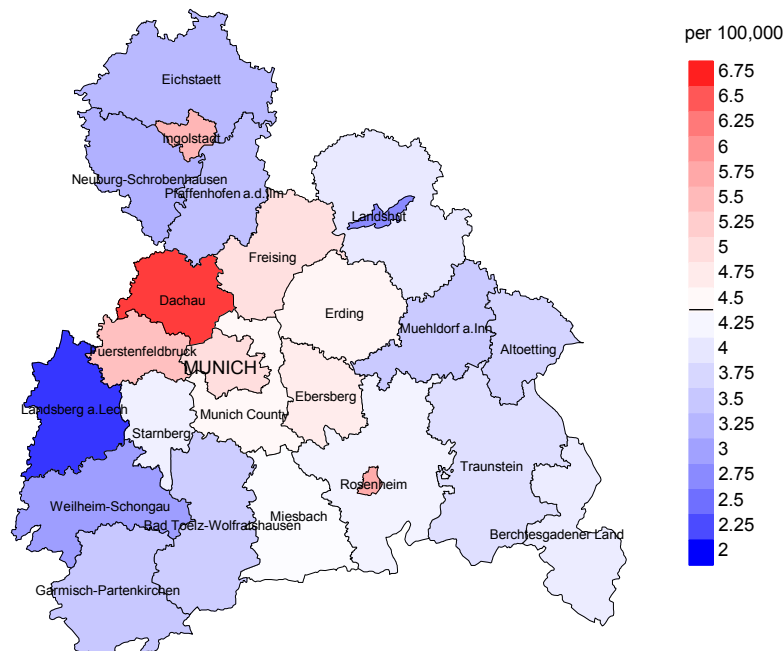
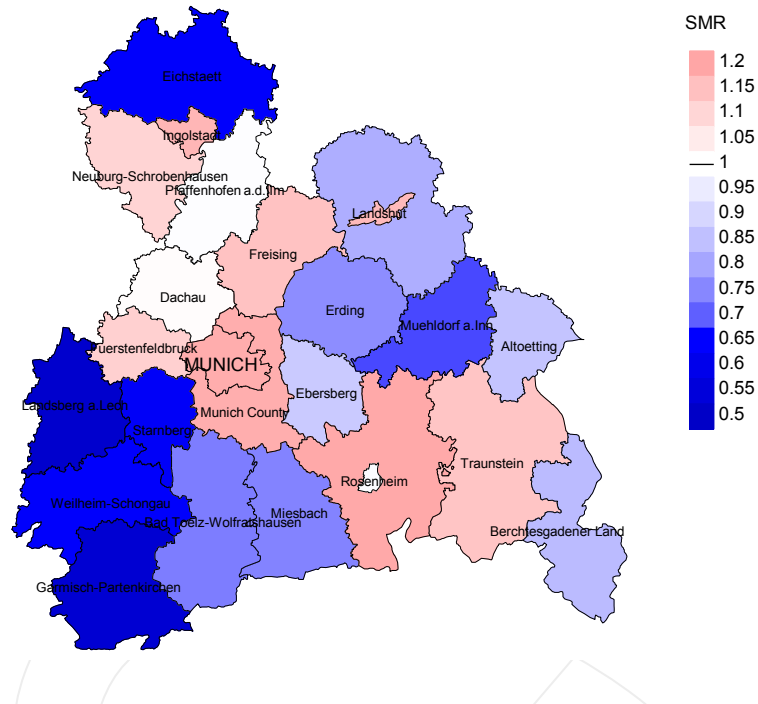


Figure 18a. Map of cancer mortality (german standard population) by county averaged for period 2007 to 2019. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 6.4/100,000 WS N=2,089, females 4.4/100,000 WS N=1,931).

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 58 women died from secondary and unknown sites. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 4.7/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 3.2 and 6.7/100,000.

Standardized mortality ratio (SMR) 2007 - 2019: Males



Standardized mortality ratio (SMR) 2007 - 2019: Females

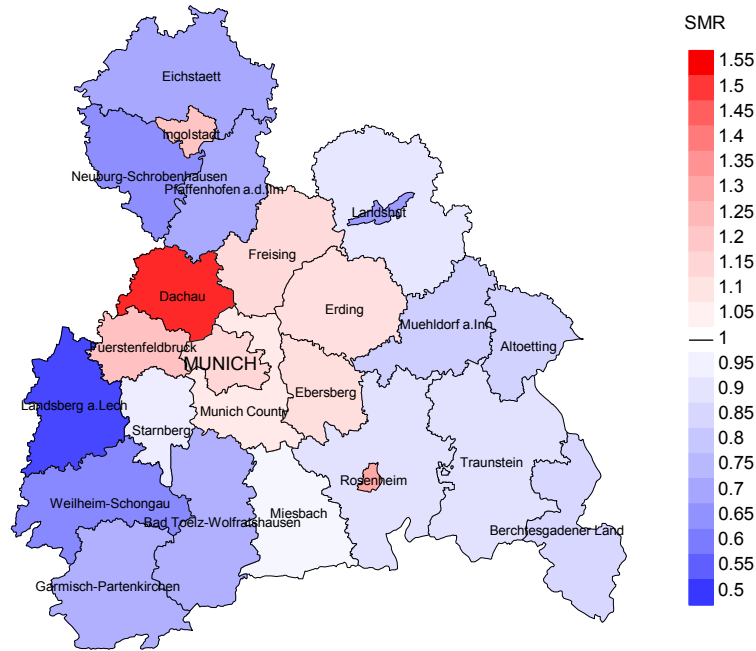


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=2,089, females N=1,931).

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 58 women died from secondary and unknown sites. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 1.12. Though, the value of this parameter may vary with an underlying probability of 99% between 0.78 and 1.56, 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 C77-C80: Secondary and unknown sites - Incidence and Mortality [Internet]. 2021 [updated 2021 Jan 26; cited 2021 Mar 1]. Available from: <https://www.tumorregister-muenchen.de/en/facts/base/bC7780E-ICD-10-C77-C80-Secondary-and-unknown-sites-incidence-and-mortality.pdf>

Copyright

The content of the public web site provided by the Munich Cancer Registry is available worldwide and free of charge. All documents are free to download, utilize, copy, print-out and distribute, providing that the MCR is referenced.

Disclaimer

The Munich Cancer Registry reserves the right to not be responsible for the topicality, correctness, completeness or quality of the information provided. Liability claims regarding damage caused by the use of any information provided, including any kind of information which is incomplete or incorrect, will therefore be rejected.