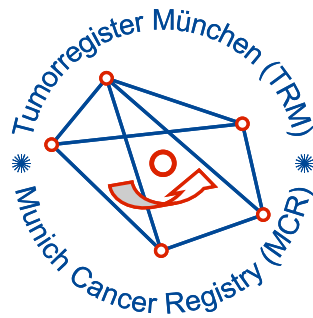


Munich Cancer Registry



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

ICD-10 C09-C14: Pharynx cancer

Incidence and Mortality

Year of diagnosis	1998-2019
Patients	5,645
Diseases	5,767
Creation date	01/25/2021
Database export	01/07/2021
Population	4.92 m




Munich Cancer Registry
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Marchioninstr. 15
Munich, 81377
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<https://www.tumorregister-muenchen.de/en>

<https://www.tumorregister-muenchen.de/en/facts/base/bC0914E-ICD-10-C09-C14-Pharynx-cancer-incidence-and-mortality.pdf>

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

In these analyses, the clinics and physicians of Upper Bavaria and the city and county of Landshut[#], with a total of 4.69 million inhabitants, account for the frequency of cancer diseases^{##} and the achieved long term results. Additionally, the long term survival evaluated by the Munich Cancer Registry (MCR) is compared with the results of the population-based registry in the USA (SEER), which is useful for checking the consistency of the data on an international level.

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

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

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

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

Munich Cancer Registry, January 2021

[#] Base data has been collected since 1998. An increase in new diseases is apparent, which is an effect of two extensions in the MCR catchment area (from a base population of 2.65 million to 4.10 in 2002, and to 4.69 million in 2007).

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

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

Some remarks regarding this cancer type

As a general rule, these few results from the TRM form the basis of sophisticated analyses. For head and neck tumors this is not the case. Therefore the results for head and neck tumors should be interpreted with caution. In part this is due to problems of classification because of limited specific details of locality. Additionally, with advanced tumors in a close topographic location it is often not possible to determine the exact ICD localization of a tumor.

ICD-10 codes (ICD-10 2016) used for specifying cancer site

Code	Description
C09.-	Malignant neoplasm of tonsil
C10.-	Malignant neoplasm of oropharynx
C11.-	Malignant neoplasm of nasopharynx
C12	Malignant neoplasm of piriform sinus
C13.-	Malignant neoplasm of hypopharynx
C14.-	Malignant neoplasm of other and ill-defined sites in the lip, oral cavity and pharynx

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	185	8	4.3	8.1	15.0	90.8	99.5
1999	210	10	4.8	10.6	14.9	87.1	98.1
2000	188	8	4.3	11.0	14.8	88.8	97.3
2001	192	12	6.3	12.0	14.5	83.3	96.9
2002	269	20	7.4	13.0	14.4	85.5	98.1 #
2003	295	6	2.0	13.9	13.9	82.7	98.0
2004	259	10	3.9	13.8	13.5	83.0	99.2
2005	320	15	4.7	14.1	13.3	77.5	97.5
2006	287	6	2.1	14.0	12.6	77.7	96.2
2007	336	26	7.7	13.8	12.5	76.2	97.0 #
2008	354	13	3.7	14.1	12.0	74.9	99.7
2009	345	9	2.6	14.5	11.2	75.1	97.4
2010	347	14	4.0	14.6	10.5	66.6	97.7
2011	320	18	5.6	15.2	9.8	67.5	98.4
2012	316	21	6.6	15.5	9.6	68.7	98.4
2013	317	8	2.5	15.4	9.3	60.9	97.8
2014	291	12	4.1	15.8	8.4	65.6	96.2
2015	297	10	3.4	16.1	8.3	53.5	99.3
2016	258	14	5.4	16.5	8.0	54.7	99.2
2017	182	10	5.5	17.0	8.3	45.6	100.0
2018	113	5	4.4	17.2	5.9	34.5	99.1
2019	86			17.4	2.4	19.8	77.9 ##
1998-2019	5767	255	4.4	17.4	15.0	71.2	97.8

5,767 cases diagnosed 1998-2019 are related to a total of 5,645 patients. Currently, in 1,760 (31.2 %) of these 5,645 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 1,337 / 309 / 114 (23.7 % / 5.5 % / 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 retrieved from the respective headings.

How to interpret:

In 2017, a subgroup of 182 cases has been diagnosed, of which 17.0 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 8.3 % 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	156	84.3	6	3.8	7.7	14.9	91.0	99.4
1999	171	81.4	7	4.1	9.8	14.7	89.5	99.4
2000	152	80.9	5	3.3	10.2	14.6	89.5	98.0
2001	155	80.7	8	5.2	11.2	14.5	82.6	97.4
2002	222	82.5	18	8.1	12.4	14.3	87.4	98.6 #
2003	236	80.0	5	2.1	13.6	13.9	84.7	99.2
2004	219	84.6	8	3.7	13.7	13.5	83.1	99.1
2005	256	80.0	11	4.3	13.7	13.3	78.5	98.0
2006	216	75.3	4	1.9	13.6	12.6	81.9	96.3
2007	270	80.4	18	6.7	13.3	12.6	80.0	98.1 #
2008	274	77.4	10	3.6	13.6	12.0	74.5	99.6
2009	274	79.4	6	2.2	13.8	11.1	75.5	97.1
2010	278	80.1	10	3.6	14.0	10.3	67.6	98.2
2011	247	77.2	11	4.5	14.6	9.5	68.0	98.4
2012	242	76.6	12	5.0	14.6	9.2	69.4	98.8
2013	241	76.0	3	1.2	14.6	8.8	61.8	97.9
2014	243	83.5	10	4.1	15.0	7.6	67.1	96.3
2015	211	71.0	6	2.8	15.4	7.5	57.8	100.0
2016	197	76.4	10	5.1	15.7	7.3	55.8	99.5
2017	143	78.6	8	5.6	16.2	8.3	47.6	100.0
2018	79	69.9	3	3.8	16.3	4.7	38.0	98.7
2019	58	67.4			16.5	3.6	25.9	77.6 ##
1998-2019	4540	78.7	179	3.9	16.5	14.9	73.1	98.1

4,540 cases diagnosed 1998-2019 are related to a total of 4,450 patients. Currently, in 1,364 (30.7 %) of these 4,450 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 1,028 / 244 / 92 (23.1 % / 5.5 % / 2.1 %) 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 143 cases has been diagnosed, of which 16.2 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 8.3 % 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	29	15.7	2	6.9	10.3	15.4	89.7	100.0
1999	39	18.6	3	7.7	14.7	15.3	76.9	92.3
2000	36	19.1	3	8.3	14.4	15.3	86.1	94.4
2001	37	19.3	4	10.8	15.6	14.8	86.5	94.6
2002	47	17.5	2	4.3	16.0	14.8	76.6	95.7 #
2003	59	20.0	1	1.7	15.4	14.0	74.6	93.2
2004	40	15.4	2	5.0	14.3	13.6	82.5	100.0
2005	64	20.0	4	6.3	16.0	13.6	73.4	95.3
2006	71	24.7	2	2.8	15.6	12.5	64.8	95.8
2007	66	19.6	8	12.1	16.0	12.3	60.6	92.4 #
2008	80	22.6	3	3.8	16.2	12.1	76.3	100.0
2009	71	20.6	3	4.2	17.2	11.6	73.2	98.6
2010	69	19.9	4	5.8	16.9	11.2	62.3	95.7
2011	73	22.8	7	9.6	17.7	10.9	65.8	98.6
2012	74	23.4	9	12.2	18.7	10.9	66.2	97.3
2013	76	24.0	5	6.6	18.6	10.8	57.9	97.4
2014	48	16.5	2	4.2	18.9	10.8	58.3	95.8
2015	86	29.0	4	4.7	18.8	10.5	43.0	97.7
2016	61	23.6	4	6.6	19.4	10.3	50.8	98.4
2017	39	21.4	2	5.1	20.2	8.4	38.5	100.0
2018	34	30.1	2	5.9	20.4	8.5	26.5	100.0
2019	28	32.6			20.5	0.0	7.1	78.6 ##
1998–2019	1227	21.3	76	6.2	20.5	15.4	63.9	96.4

1,227 cases diagnosed 1998-2019 are related to a total of 1,195 patients. Currently, in 396 (33.1 %) of these 1,195 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 309 / 65 / 22 (25.9 % / 5.4 % / 1.8 %) patients exist having 2 / 3 / 4+ malignancies.

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

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

How to interpret:

In 2017, a subgroup of 39 cases has been diagnosed, of which 20.2 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 8.4 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 2

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

Year of diagnosis	Males n	Females n	Males Inc. raw	Fem. Inc. raw	Males Inc. WS	Fem. Inc. WS	Males Inc. ES	Fem. Inc. ES	Males Inc. BRD-S	Fem. Inc. BRD-S
1998	156	29	14.1	2.5	9.5	1.3	12.7	2.0	13.6	2.2
1999	171	39	15.3	3.3	10.1	1.9	13.9	2.6	15.3	3.0
2000	152	36	13.3	3.0	8.9	1.9	12.3	2.5	13.5	2.7
2001	155	37	13.4	3.0	9.0	1.8	12.1	2.5	13.2	2.7
2002	222	47	11.9	2.4	7.8	1.5	10.7	1.9	11.4	2.2
2003	236	59	12.6	3.0	8.3	1.8	11.5	2.5	12.3	2.7
2004	219	40	11.6	2.0	7.6	1.1	10.3	1.5	11.3	1.8
2005	256	64	13.5	3.2	8.8	1.9	11.8	2.6	12.7	3.0
2006	216	71	11.3	3.5	7.2	2.2	10.0	3.0	11.0	3.2
2007	270	66	12.2	2.9	7.5	1.7	10.3	2.3	11.6	2.5
2008	274	80	12.3	3.4	7.7	1.8	10.5	2.5	11.7	2.9
2009	274	71	12.3	3.1	7.5	1.7	10.4	2.4	11.4	2.7
2010	278	69	12.3	2.9	7.5	1.8	10.2	2.4	11.3	2.6
2011	247	73	11.0	3.1	6.4	1.8	8.9	2.5	10.1	2.7
2012	242	74	10.7	3.1	6.3	1.8	8.7	2.4	9.8	2.7
2013	241	76	10.5	3.2	6.2	1.7	8.6	2.4	9.5	2.7
2014	243	48	10.4	2.0	6.1	1.1	8.4	1.5	9.5	1.7
2015	211	86	8.9	3.5	5.1	2.0	7.1	2.8	8.1	3.1
2016	197	61	8.2	2.5	4.8	1.3	6.6	1.7	7.5	2.0
2017	143	39	5.9	1.6	3.1	0.8	4.5	1.1	5.3	1.3
2018	79	34	3.2	1.4	1.7	0.8	2.4	1.1	2.9	1.2
2019	58	28	2.4	1.1	1.3	0.6	1.9	0.8	2.1	0.9
1998-2019	4540	1227	10.3	2.7	6.3	1.5	8.6	2.1	9.6	2.3

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	185	58.1	10.4	0.9	87.6	47.6	52.0	57.3	63.7	70.8
1999	210	58.8	11.1	32.7	91.7	47.9	51.0	57.1	64.4	75.3
2000	188	58.3	10.5	31.0	89.6	45.8	51.5	57.3	64.1	73.6
2001	192	59.2	10.9	28.7	96.4	47.0	52.1	58.5	65.5	72.9
2002	269	59.2	9.7	36.7	96.8	47.0	53.2	59.1	63.8	72.1
2003	295	59.6	10.2	10.7	87.5	47.1	53.1	58.5	65.9	73.8
2004	259	59.8	10.6	31.7	87.8	47.0	52.8	59.3	66.1	75.7
2005	320	60.1	10.6	12.8	103	47.1	53.4	60.7	65.8	71.9
2006	287	60.0	10.8	17.6	101	47.2	52.5	58.9	66.4	74.7
2007	336	61.6	10.6	30.1	91.6	48.4	53.6	61.7	68.1	76.0
2008	354	62.8	10.3	28.3	97.0	49.3	56.5	62.1	68.7	76.3
2009	345	62.2	10.7	26.7	95.5	49.6	54.8	61.7	69.6	75.4
2010	347	61.1	10.5	21.3	92.3	47.6	54.0	61.2	68.9	73.4
2011	320	63.0	10.7	24.5	92.0	49.8	55.1	62.7	70.5	75.6
2012	316	63.0	10.7	21.5	98.2	49.4	55.0	62.5	70.2	76.5
2013	317	63.3	10.2	33.2	92.9	51.5	55.6	63.0	70.0	77.1
2014	291	63.0	10.9	25.6	92.4	48.8	55.9	62.8	70.2	76.6
2015	297	63.5	10.4	32.7	95.0	50.1	56.0	63.1	69.8	77.8
2016	258	65.2	11.6	15.0	92.1	52.9	58.4	65.9	71.8	77.8
2017	182	66.5	10.7	32.9	92.7	53.2	58.3	66.6	74.8	79.6
2018	113	65.2	10.4	42.2	85.3	52.2	58.3	64.5	74.1	80.1
2019	86	64.7	11.1	32.9	88.3	52.8	58.6	65.1	71.6	79.4
1998-2019	5767	61.7	10.8	0.9	103	48.4	54.3	61.2	68.6	75.9

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	156	57.3	10.0	0.9	87.6	46.9	51.6	57.2	63.3	70.2
1999	171	58.2	10.3	37.1	87.0	48.1	50.9	56.5	63.6	72.6
2000	152	58.6	9.8	35.6	89.6	48.0	51.8	57.2	64.1	71.9
2001	155	58.0	10.1	28.7	87.4	46.0	51.7	57.9	64.3	70.6
2002	222	58.9	9.2	36.7	96.8	47.4	53.2	58.8	63.5	70.4
2003	236	59.3	9.4	38.2	87.5	47.3	53.0	58.4	65.9	72.7
2004	219	59.0	10.1	31.7	85.5	46.2	51.9	58.7	64.8	72.7
2005	256	59.6	10.0	12.8	99.0	47.0	53.5	60.5	65.6	70.3
2006	216	59.9	10.1	17.6	86.7	47.6	52.8	58.8	66.4	74.3
2007	270	61.5	10.1	39.1	91.6	48.7	53.0	61.5	68.1	74.7
2008	274	61.8	9.9	28.3	87.0	48.6	55.1	61.2	68.0	74.2
2009	274	61.9	10.0	26.7	90.7	49.6	54.9	61.7	69.0	73.6
2010	278	61.1	10.5	21.3	92.3	47.4	54.1	61.0	69.1	73.6
2011	247	62.7	10.4	32.1	89.2	49.2	54.1	62.6	70.5	75.4
2012	242	62.5	10.0	39.9	91.7	49.3	54.8	62.0	70.1	76.5
2013	241	62.9	9.7	33.2	92.9	51.5	55.8	62.4	69.1	75.0
2014	243	62.8	10.5	25.6	89.6	48.7	55.4	62.5	70.3	76.5
2015	211	63.6	10.5	32.7	94.6	50.1	55.9	63.1	70.4	77.8
2016	197	64.4	11.0	15.0	91.6	52.7	58.0	64.9	71.2	76.5
2017	143	66.6	10.8	32.9	92.7	53.2	58.2	66.7	74.8	80.3
2018	79	66.1	10.5	43.6	85.3	53.4	58.3	64.5	74.8	80.4
2019	58	64.2	12.0	32.9	87.0	51.2	56.5	64.6	71.6	80.5
1998-2019	4540	61.3	10.4	0.9	99.0	48.4	54.1	61.0	68.1	74.9

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	29	62.8	11.5	50.7	86.7	51.5	54.5	58.0	69.2	83.1
1999	39	61.2	13.8	32.7	91.7	41.9	51.2	59.5	73.4	79.3
2000	36	56.9	13.0	31.0	81.3	39.8	47.4	57.7	63.2	77.0
2001	37	64.2	12.9	41.3	96.4	49.6	54.8	62.0	72.7	84.8
2002	47	60.9	11.5	37.3	83.6	46.8	53.3	60.4	68.8	78.9
2003	59	60.7	13.2	10.7	85.3	44.7	53.9	58.7	68.0	80.7
2004	40	64.3	12.1	36.3	87.8	49.4	55.9	61.9	75.7	81.4
2005	64	61.9	12.8	22.8	103	47.8	52.8	61.0	67.8	77.5
2006	71	60.3	12.7	34.7	101	46.3	51.6	59.4	67.9	74.8
2007	66	62.1	12.5	30.1	89.4	47.8	53.8	62.1	68.0	82.6
2008	80	66.3	11.1	35.5	97.0	54.3	59.9	65.5	70.6	82.2
2009	71	63.4	12.8	40.9	95.5	49.3	53.9	61.4	71.1	81.4
2010	69	60.9	10.9	33.3	90.0	48.8	53.4	62.0	67.9	70.8
2011	73	64.0	11.8	24.5	92.0	53.4	57.3	63.3	70.3	77.4
2012	74	64.6	12.6	21.5	98.2	51.5	56.6	64.2	71.7	78.7
2013	76	64.8	11.6	43.0	91.4	51.7	55.1	64.8	71.8	79.5
2014	48	63.8	12.6	31.6	92.4	51.5	57.7	64.1	70.2	83.7
2015	86	63.1	10.3	39.9	95.0	50.1	56.0	62.7	67.6	77.0
2016	61	67.9	13.2	22.6	92.1	54.0	61.1	68.9	74.5	83.4
2017	39	66.1	10.4	41.1	85.0	51.5	58.3	66.0	75.5	78.1
2018	34	63.0	10.0	42.2	81.4	50.1	57.7	63.5	69.9	76.6
2019	28	65.8	8.9	47.7	88.3	54.6	59.2	66.3	72.3	75.1
1998-2019	1227	63.2	12.1	10.7	103	49.0	55.1	62.6	70.5	79.5

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									
5-9									
10-14	1	0.0	0.0	1	0.0	0.0			0.0
15-19	0	0.0	0.0			0.0			0.0
20-24	7	0.2	0.2	4	0.1	0.2	3	0.4	0.4
25-29	3	0.1	0.3	3	0.1	0.3			0.4
30-34	13	0.4	0.7	9	0.3	0.6	4	0.5	0.9
35-39	17	0.5	1.2	10	0.4	1.0	7	0.9	1.7
40-44	86	2.4	3.6	66	2.4	3.4	20	2.5	4.2
45-49	248	7.0	10.5	205	7.4	10.8	43	5.3	9.6
50-54	443	12.4	23.0	352	12.8	23.6	91	11.3	20.9
55-59	574	16.1	39.1	445	16.1	39.7	129	16.0	36.9
60-64	656	18.4	57.5	511	18.5	58.3	145	18.0	54.9
65-69	616	17.3	74.8	472	17.1	75.4	144	17.9	72.8
70-74	425	11.9	86.7	338	12.3	87.6	87	10.8	83.6
75-79	264	7.4	94.1	209	7.6	95.2	55	6.8	90.4
80-84	127	3.6	97.7	92	3.3	98.5	35	4.3	94.8
85+	82	2.3	100.0	40	1.5	100.0	42	5.2	100.0
All ages	3562	100.0		2757	100.0		805	100.0	

Table 5

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

Age at diagnosis Years	Males n	Females n	Males Age- spec. incid.	Females Age- spec. incid.	Males DCO rate n=105 %	Females DCO rate n=52 %	Males	Females
							Prop.all cancers n=143063 %	Prop.all cancers n=144724 %
0- 4								
5- 9								
10-14	1		0.1				0.8	
15-19								
20-24	4	3	0.2	0.2			0.7	0.6
25-29	3		0.1				0.3	
30-34	9	4	0.4	0.2			0.8	0.2
35-39	10	7	0.5	0.3		14.3	0.6	0.2
40-44	64	20	2.7	0.9	3.1	5.0	2.5	0.3
45-49	199	42	7.9	1.7	1.5		4.2	0.5
50-54	350	88	14.9	3.8	2.3	2.3	4.5	0.8
55-59	440	127	22.6	6.4	3.0	2.4	3.7	1.0
60-64	507	143	31.1	8.1	2.2	3.5	3.1	1.0
65-69	465	140	30.6	8.3	2.8	2.1	2.0	0.8
70-74	333	86	23.8	5.4	6.3	7.0	1.3	0.5
75-79	208	54	18.8	3.9	5.3	5.6	0.9	0.3
80-84	92	34	14.0	3.5	8.7	26.5	0.7	0.2
85+	40	42	9.4	4.4	37.5	45.2	0.4	0.3
All ages	2725	790			3.9	6.6	1.9	0.5
Incidence								
Raw			9.0	2.5				
WS			5.3	1.4				
ES			7.3	1.9				
BRD-S			8.3	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).

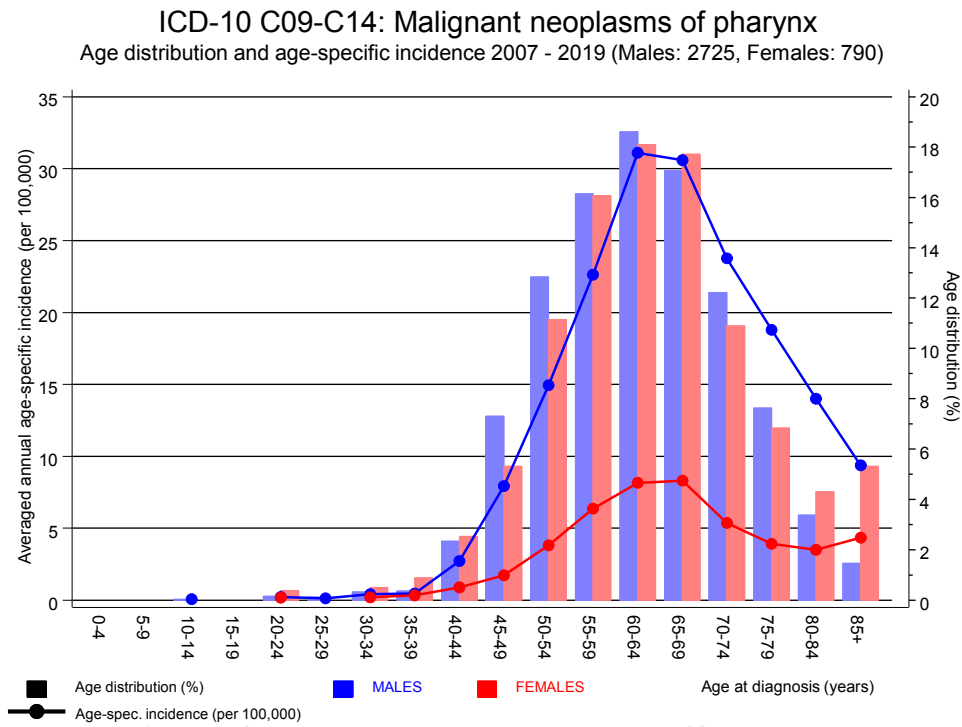


Figure 6. Age distribution (males: mean=62.8 yrs, median=62.6 yrs; females: mean=64.2 yrs, median=64.0 yrs) and age-specific incidence.

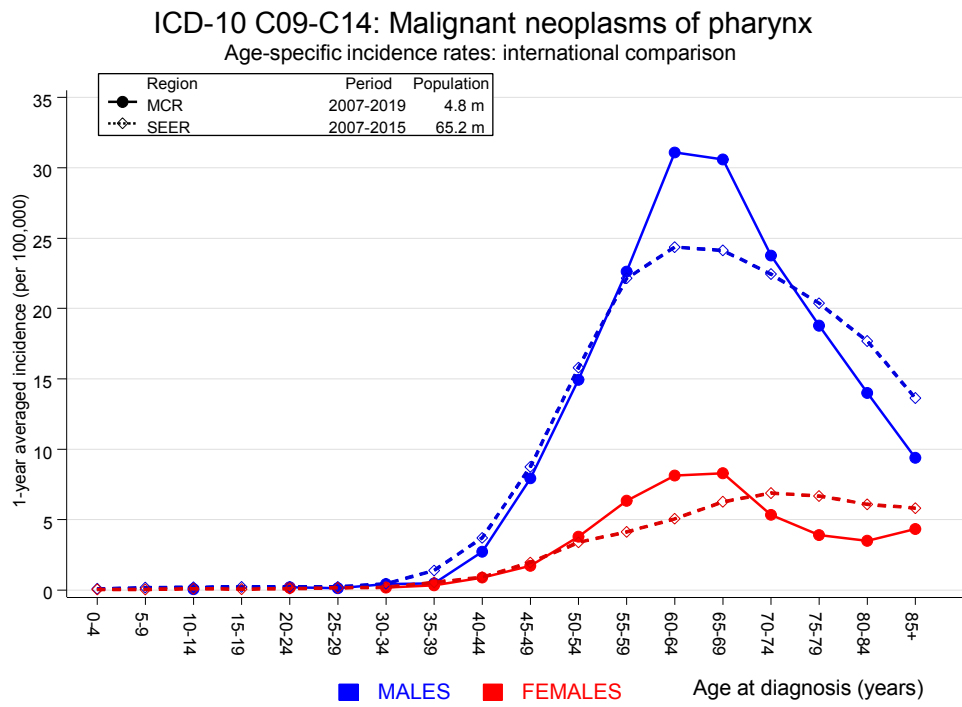


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

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

Table 7a

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

MALES

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C03–C06 Oral cavity	78	2.0	38.8	30.7	48.4 #	54.9	7.7
C07–C08 Salivary gland	2	0.3	5.9	0.7	21.4	1.2	
C09–C10 Oropharynx	55	2.6	21.0	15.8	27.3 #	37.9	
C11 Nasopharynx	4	0.2	23.8	6.5	60.9 #	2.8	
C12–C13 Hypopharynx	40	1.4	28.5	20.4	38.9 #	27.9	12.5
C14 ENT cancer	3	0.0	72.1	14.9	210.6 #	2.1	100.0
C15 Oesophagus	105	3.9	27.2	22.2	32.9 #	73.1	15.2
C16 Stomach	17	5.9	2.9	1.7	4.6 #	8.0	17.6
C18 Colon	42	14.3	2.9	2.1	4.0 #	20.0	7.1
C19–C20 Rectum	18	9.5	1.9	1.1	3.0 #	6.2	
C21 Anus/canal	5	0.5	10.9	3.5	25.5 #	3.3	
C22 Liver	29	5.0	5.8	3.9	8.4 #	17.4	10.3
C23–C24 Bile	2	1.6	1.3	0.2	4.6	0.3	
C25 Pancreas	20	6.1	3.3	2.0	5.1 #	10.1	25.0
C30–C31 Sinuses	3	0.3	8.8	1.8	25.8 #	1.9	
C32 Larynx	56	2.1	27.0	20.4	35.1 #	39.0	32.1
C33–C34 Lung	208	20.5	10.1	8.8	11.6 #	135.5	10.1
C43 Malign. melanoma	14	7.9	1.8	1.0	3.0	4.4	14.3
C60 Penis	2	0.4	4.9	0.6	17.6	1.1	
C61 Prostate	50	47.2	1.1	0.8	1.4	2.0	2.0
C64 Kidney	18	6.3	2.9	1.7	4.5 #	8.5	11.1
C65 Renal pelvis	2	0.6	3.1	0.4	11.2	1.0	
C67 Bladder	18	6.4	2.8	1.7	4.5 #	8.4	11.1
C70–C72 CNS cancer	2	2.4	0.8	0.1	3.1	-0.3	
C73 Thyroid	6	1.5	4.0	1.5	8.6 #	3.2	16.7
C76–C79 CUP	8	2.7	3.0	1.3	5.9 #	3.9	
C81 Hodgkin lymphoma	2	0.4	4.5	0.5	16.1	1.1	
C82–C85 NHL	10	6.7	1.5	0.7	2.7	2.4	
C90 Mult. myeloma	2	2.0	1.0	0.1	3.6	-0.0	
C91–C96 Leukaemia	2	2.2	0.9	0.1	3.3	-0.1	50.0
Others, specified	9	4.0	2.2	1.0	4.3 #	3.6	11.1
Not observed	0	2.2	0.0	0.0	1.7	-1.6	
All further malignancies	832	169.0	4.9	4.6	5.3 #	479.3	11.2
Patients		4307					
Median age at next malignancy (years)		64.4					
Person-years		13833					
Mean observation time (years)		3.2					
Median observation time (years)		1.7					

The occurrence of further specified malignancy is statistically significant.

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

Table 7b

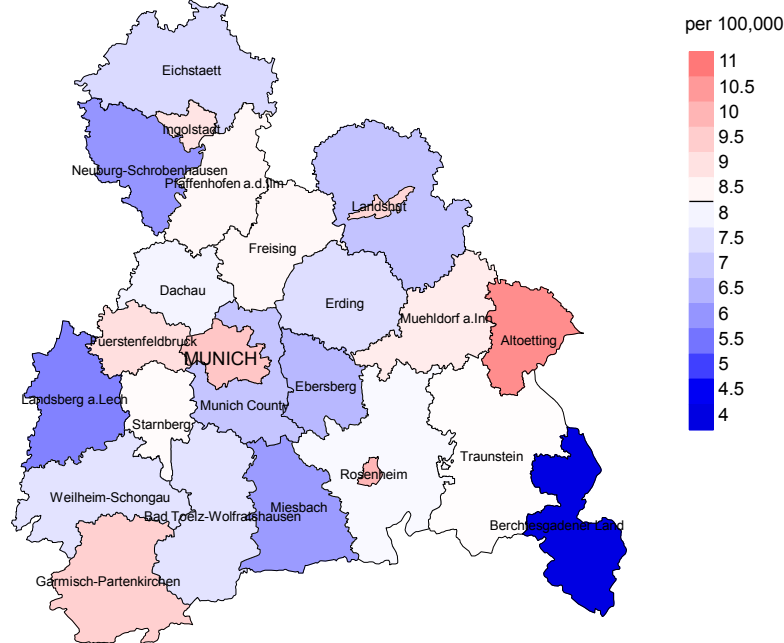
Standardized incidence ratio (SIR, with 95% confidence limits),
excess absolute risk (EAR) and DCO rate of further malignancies
for period 1998-2019

FEMALES

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C03-C06 Oral cavity	13	0.3	50.1	26.7	85.6 #	31.0	
C09-C10 Oropharynx	23	0.2	103.9	65.9	155.9 #	55.5	
C11 Nasopharynx	1	0.0	71.6	1.8	398.8 #	2.4	
C12-C13 Hypopharynx	9	0.1	154.4	70.6	293.1 #	21.8	
C14 ENT cancer	2	0.0	451.8	54.7	1632 #	4.9	50.0
C15 Oesophagus	28	0.3	100.6	66.9	145.4 #	67.5	3.6
C16 Stomach	3	1.1	2.7	0.6	8.0	4.6	
C18 Colon	11	3.2	3.5	1.7	6.2 #	19.1	
C19-C20 Rectum	2	1.4	1.4	0.2	5.0	1.4	
C22 Liver	6	0.4	13.7	5.0	29.8 #	13.5	16.7
C25 Pancreas	3	1.5	2.0	0.4	5.7	3.6	
C30 Middle/inner ear	1	0.0	631.3	16.0	3517 #	2.4	
C32 Larynx	12	0.1	141.9	73.3	247.9 #	29.0	8.3
C33-C34 Lung	39	3.2	12.0	8.5	16.4 #	87.1	12.8
C43 Malign. melanoma	3	1.6	1.9	0.4	5.5	3.4	33.3
C50 Breast	21	13.4	1.6	1.0	2.4	18.5	
C51 Vulva	4	0.4	11.2	3.0	28.7 #	8.9	
C53 Cervix uteri	5	0.6	8.4	2.7	19.7 #	10.7	20.0
C54 Corpus uteri	3	2.3	1.3	0.3	3.8	1.7	
C56 Ovary	5	1.6	3.2	1.0	7.4 #	8.3	20.0
C64 Kidney	3	0.9	3.5	0.7	10.3	5.2	
C70-C72 CNS cancer	2	0.5	3.9	0.5	14.1	3.6	50.0
C73 Thyroid	2	0.8	2.4	0.3	8.8	2.9	
C76-C79 CUP	1	0.6	1.7	0.0	9.4	1.0	
C82-C85 NHL	2	1.4	1.4	0.2	5.1	1.4	
C90 Mult. myeloma	1	0.4	2.3	0.1	13.0	1.4	100.0
C91-C96 Leukaemia	4	0.5	8.0	2.2	20.4 #	8.5	25.0
Not observed	0	2.8	0.0	0.0	1.3	-6.7	
All further malignancies	209	39.5	5.3	4.6	6.1 #	412.8	7.2
Patients		1132					
Median age at next malignancy (years)		64.3					
Person-years		4105					
Mean observation time (years)		3.6					
Median observation time (years)		2.2					

The occurrence of further specified malignancy is statistically significant.

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



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

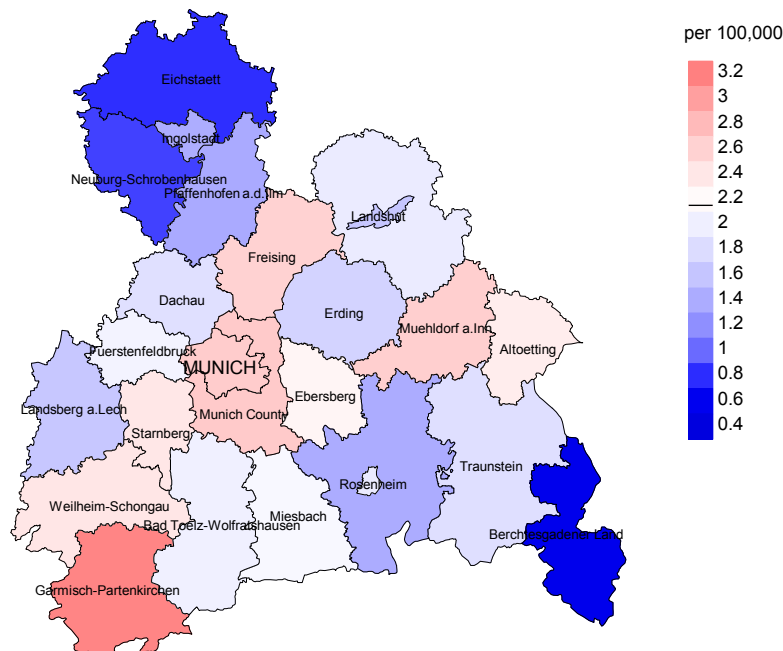
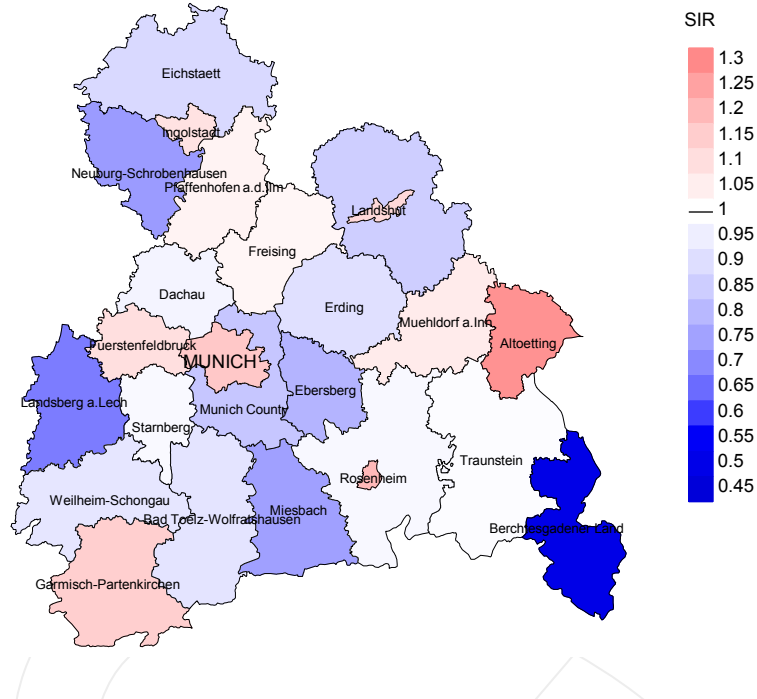


Figure 8a. Map of cancer incidence (german standard population, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 8.3/100,000 WS N=2,725, females 2.2/100,000 WS N=790).

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 23 women were identified with newly diagnosed pharynx cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 2.3/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 1.2 and 3.8/100,000.

Standardized incidence ratio (SIR) 2007 - 2019: Males



Standardized incidence ratio (SIR) 2007 - 2019: Females

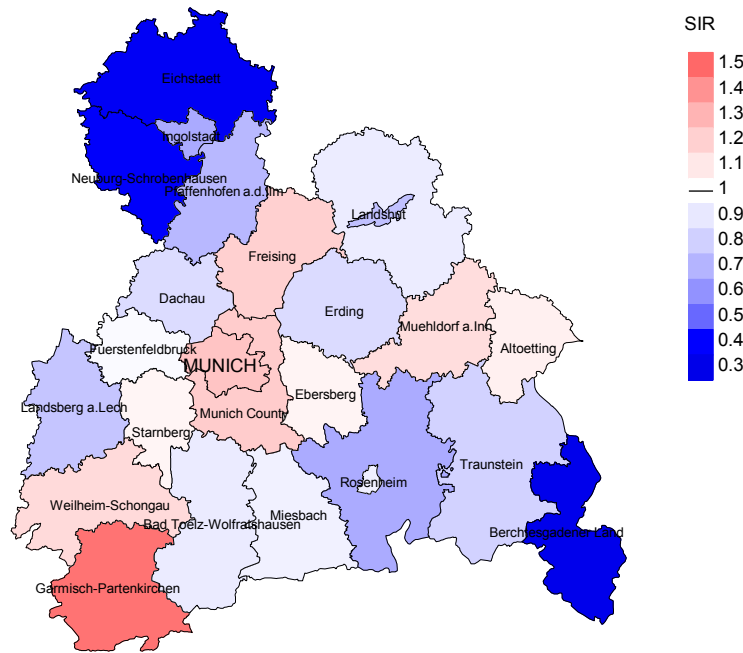


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=2,725, females N=790).

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 23 women were identified with newly diagnosed pharynx cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.05. Though, the value of this parameter may vary with an underlying probability of 99% between 0.57 and 1.76, 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	185	99.5	4.3	168	90.8	95.8
1999	210	98.1	4.8	183	87.1	90.2
2000	188	97.3	4.3	167	88.8	94.0
2001	192	96.9	6.3	160	83.3	95.6
2002	269	98.1	7.4	230	85.5	97.0
2003	295	98.0	2.0	244	82.7	96.7
2004	259	99.2	3.9	215	83.0	94.4
2005	320	97.5	4.7	248	77.5	97.2
2006	287	96.2	2.1	223	77.7	94.2
2007	336	97.0	7.7	256	76.2	94.5
2008	354	99.7	3.7	265	74.9	94.7
2009	345	97.4	2.6	259	75.1	95.4
2010	347	97.7	4.0	231	66.6	95.2
2011	320	98.4	5.6	216	67.5	93.1
2012	316	98.4	6.6	217	68.7	92.2
2013	317	97.8	2.5	193	60.9	94.3
2014	291	96.2	4.1	191	65.6	93.2
2015	297	99.3	3.4	159	53.5	91.2
2016	258	99.2	5.4	141	54.7	78.7
2017	182	100.0	5.5	83	45.6	59.0
2018	113	99.1	4.4	39	34.5	59.0
2019	86	77.9		17	19.8	76.5
1998-2019	5767	97.8	4.4	4105	71.2	92.8

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	185	142	90.8	32	17.3
1999	210	154	87.7	43	20.5
2000	188	151	93.4	29	15.4
2001	192	150	91.3	34	17.7
2002	269	202	98.0	48	17.8
2003	295	215	96.3	46	15.6
2004	259	215	97.2	40	15.4
2005	320	207	96.1	54	16.9
2006	287	223	97.8	46	16.0
2007	336	283	97.5	66	19.6
2008	354	246	99.2	57	16.1
2009	345	233	98.7	50	14.5
2010	347	252	99.2	51	14.7
2011	320	242	97.9	61	19.1
2012	316	263	97.7	58	18.4
2013	317	266	98.1	48	15.1
2014	291	248	98.0	59	20.3
2015	297	269	98.9	53	17.8
2016	258	236	98.3	60	23.3
2017	182	197	94.9	31	17.0
2018	113	157	32.5	16	14.2
2019	86	144	50.7	13	15.1
1998–2019	5767	4695	93.3	995	17.3

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 4.92 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer- related %	Prop. non-cancer- related %	Prop. cancer recorded on death certificate %
1998	142	77.5	22.5	92.2
1999	154	69.5	30.5	91.1
2000	151	82.8	17.2	92.9
2001	150	76.0	24.0	90.5
2002	202	79.7	20.3	91.4
2003	215	82.8	17.2	92.8
2004	215	83.3	16.7	92.3
2005	207	85.5	14.5	93.5
2006	223	85.2	14.8	92.2
2007	283	82.3	17.7	91.3
2008	246	82.9	17.1	89.3
2009	233	83.7	16.3	97.0
2010	252	83.7	16.3	93.6
2011	242	76.9	23.1	87.3
2012	263	81.0	19.0	89.9
2013	266	78.6	21.4	89.3
2014	248	79.0	21.0	90.9
2015	269	82.2	17.8	92.5
2016	236	77.5	22.5	88.8
2017	197	73.6	26.4	86.6
2018	157	42.0	58.0	82.4
2019	144	33.3	66.7	87.7
1998–2019	4695	77.8	22.2	91.1

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	112	59.2	57.5	63.7	59.0
1999	126	58.7	57.6	62.8	57.7
2000	120	59.4	58.8	66.1	59.7
2001	124	59.1	59.1	61.6	59.8
2002	169	60.3	59.7	62.7	60.0
2003	173	62.1	61.5	67.6	61.5
2004	177	60.6	60.1	63.5	60.2
2005	171	62.8	62.1	65.0	62.7
2006	187	63.1	62.7	65.0	62.8
2007	235	63.5	61.9	68.7	62.8
2008	194	65.8	64.8	67.7	65.7
2009	182	64.3	64.1	67.2	64.3
2010	212	63.8	63.1	70.5	63.5
2011	200	66.6	64.4	70.4	65.6
2012	208	66.2	67.3	65.6	66.1
2013	202	66.0	64.5	69.7	64.9
2014	202	67.9	67.1	73.4	67.6
2015	204	66.0	66.0	65.5	66.0
2016	184	68.1	66.7	73.0	67.6
2017	160	70.5	69.0	74.5	70.0
2018	128	71.7	67.0	72.5	72.6
2019	108	69.7	70.4	69.5	68.9
1998-2019	3778	64.4	63.2	69.0	63.7

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	30	69.6	67.9	72.7	71.3
1999	28	60.8	62.2	58.1	58.9
2000	31	56.9	56.8	67.1	56.8
2001	26	64.3	63.4	66.2	63.4
2002	33	63.0	62.8	73.7	63.9
2003	42	64.3	64.1	73.3	64.8
2004	38	66.7	65.2	67.7	65.8
2005	36	63.8	61.3	67.5	62.3
2006	36	67.3	66.8	78.5	67.7
2007	48	67.1	65.9	74.3	66.9
2008	52	66.7	66.9	64.7	65.8
2009	51	68.5	68.2	72.3	68.5
2010	40	64.3	64.1	71.1	64.1
2011	42	66.8	65.1	69.8	65.5
2012	55	71.5	69.7	77.6	69.7
2013	64	69.2	68.1	75.8	68.2
2014	46	72.0	71.4	83.2	71.7
2015	65	69.2	68.4	72.0	67.8
2016	52	70.5	70.5	69.3	70.5
2017	37	71.8	68.4	76.6	70.0
2018	29	73.3	72.8	73.3	77.9
2019	36	70.3	67.3	72.1	68.6
1998-2019	917	67.8	66.9	72.7	67.4

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

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

Table 11a

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

Year of death	Deaths n	Mort. raw	MI-Index raw	Mort. WS	MI-Index WS	Mort. ES	MI-Index ES	Mort. BRD-S	MI-Index BRD-S
1998	87	7.9	0.56	5.3	0.56	7.1	0.56	7.8	0.57
1999	92	8.2	0.54	5.3	0.53	7.4	0.53	8.2	0.54
2000	98	8.6	0.64	5.4	0.61	7.7	0.63	8.9	0.66
2001	95	8.2	0.63	5.4	0.61	7.5	0.64	8.3	0.65
2002	140	7.5	0.63	4.8	0.62	6.7	0.63	7.4	0.65
2003	145	7.7	0.63	4.9	0.60	6.8	0.61	7.6	0.63
2004	148	7.9	0.69	5.0	0.67	6.9	0.69	7.6	0.68
2005	148	7.8	0.58	4.7	0.54	6.6	0.56	7.5	0.59
2006	160	8.4	0.74	5.1	0.71	7.2	0.72	8.0	0.74
2007	192	8.7	0.72	5.2	0.71	7.4	0.72	8.3	0.73
2008	162	7.3	0.60	4.2	0.56	6.0	0.57	6.9	0.59
2009	155	6.9	0.57	4.1	0.55	5.7	0.56	6.6	0.58
2010	180	8.0	0.66	4.7	0.64	6.6	0.66	7.5	0.67
2011	156	7.0	0.64	3.9	0.63	5.5	0.63	6.4	0.65
2012	163	7.2	0.68	3.8	0.61	5.5	0.64	6.6	0.68
2013	161	7.0	0.68	3.8	0.62	5.4	0.64	6.3	0.67
2014	167	7.2	0.70	3.9	0.64	5.5	0.66	6.5	0.69
2015	167	7.0	0.80	3.7	0.74	5.4	0.77	6.4	0.80
2016	140	5.8	0.72	3.2	0.66	4.5	0.68	5.3	0.72
2017	117	4.8	0.82	2.4	0.78	3.5	0.80	4.3	0.82
2018	58	2.4	0.73	1.2	0.70	1.7	0.72	2.1	0.73
2019	35	1.4	0.60	0.7	0.52	1.0	0.54	1.3	0.60
1998-2019	2966	6.7	0.66	3.9	0.63	5.5	0.64	6.3	0.67

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	23	2.0	0.79	0.9	0.70	1.4	0.70	1.7	0.80
1999	15	1.3	0.38	0.7	0.36	1.0	0.37	1.1	0.38
2000	27	2.2	0.77	1.4	0.76	1.9	0.77	2.1	0.78
2001	19	1.6	0.51	0.8	0.45	1.1	0.46	1.3	0.48
2002	22	1.1	0.47	0.6	0.44	0.9	0.46	1.0	0.46
2003	34	1.7	0.59	0.9	0.50	1.3	0.53	1.5	0.57
2004	31	1.6	0.78	0.8	0.70	1.1	0.69	1.3	0.73
2005	29	1.5	0.46	0.8	0.45	1.2	0.46	1.3	0.45
2006	30	1.5	0.43	0.7	0.32	1.0	0.35	1.2	0.39
2007	41	1.8	0.65	0.9	0.57	1.3	0.59	1.5	0.62
2008	42	1.8	0.53	1.0	0.53	1.4	0.54	1.5	0.54
2009	41	1.8	0.59	0.9	0.55	1.3	0.56	1.5	0.55
2010	31	1.3	0.46	0.8	0.43	1.0	0.44	1.2	0.47
2011	31	1.3	0.43	0.7	0.39	1.0	0.40	1.1	0.41
2012	50	2.1	0.68	1.0	0.55	1.4	0.58	1.6	0.61
2013	48	2.0	0.64	1.0	0.60	1.4	0.60	1.7	0.64
2014	30	1.2	0.63	0.6	0.52	0.8	0.53	1.0	0.58
2015	54	2.2	0.64	1.0	0.53	1.5	0.56	1.8	0.59
2016	43	1.8	0.70	0.8	0.61	1.1	0.65	1.4	0.68
2017	28	1.1	0.76	0.5	0.71	0.7	0.70	0.9	0.73
2018	8	0.3	0.24	0.1	0.17	0.2	0.19	0.2	0.21
2019	13	0.5	0.48	0.3	0.44	0.4	0.45	0.4	0.46
1998-2019	690	1.5	0.57	0.8	0.51	1.1	0.52	1.2	0.55

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									
5-9									
10-14									
15-19									
20-24	2	0.1	0.1	1	0.1	0.1	1	0.2	0.2
25-29	0	0.0	0.1			0.1			0.2
30-34	1	0.0	0.1			0.1	1	0.2	0.4
35-39	5	0.2	0.3	1	0.1	0.1	4	0.9	1.3
40-44	19	0.8	1.2	18	1.0	1.1	1	0.2	1.5
45-49	95	4.1	5.3	81	4.4	5.5	14	3.0	4.6
50-54	222	9.6	14.9	192	10.4	15.8	30	6.5	11.1
55-59	370	16.0	30.9	308	16.6	32.4	62	13.5	24.6
60-64	379	16.4	47.3	307	16.6	49.0	72	15.7	40.2
65-69	413	17.9	65.1	321	17.3	66.3	92	20.0	60.2
70-74	351	15.2	80.3	287	15.5	81.8	64	13.9	74.1
75-79	239	10.3	90.6	197	10.6	92.4	42	9.1	83.3
80-84	131	5.7	96.3	100	5.4	97.8	31	6.7	90.0
85+	86	3.7	100.0	40	2.2	100.0	46	10.0	100.0
All ages	2313	100.0		1853	100.0		460	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								
5- 9								
10-14								
15-19								
20-24	1	1	0.1	0.25	0.1	0.33	1.5	2.6
25-29								
30-34		1			0.0	0.25		0.6
35-39	1	4	0.0	0.10	0.2	0.57	0.4	1.1
40-44	18	1	0.8	0.28	0.0	0.05	3.1	0.1
45-49	81	14	3.2	0.41	0.6	0.33	6.0	0.9
50-54	192	30	8.2	0.55	1.3	0.34	7.6	1.2
55-59	308	62	15.8	0.70	3.1	0.49	7.5	1.8
60-64	307	72	18.8	0.61	4.1	0.50	5.1	1.6
65-69	321	92	21.1	0.69	5.5	0.66	3.7	1.4
70-74	287	64	20.5	0.86	4.0	0.74	2.6	0.8
75-79	197	42	17.8	0.95	3.1	0.78	1.7	0.5
80-84	100	31	15.2	1.09	3.2	0.91	1.1	0.4
85+	40	46	9.4	1.00	4.8	1.10	0.5	0.4
All ages	1853	460					2.9	0.8
Mortality								
Raw			6.1	0.68	1.5	0.58		
WS			3.4	0.64	0.7	0.51		
ES			4.8	0.66	1.0	0.53		
BRD-S			5.6	0.68	1.2	0.55		
PYLL-70								
per 100,000			47.9		10.0			
ES			40.8		8.3			
AYLL-70			10.3		9.5			

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	0.1					2	100.0
C03-C06 Oral cavity	161	11.8	66	41.0	22	13.7	73	45.3
C07-C08 Salivary gland	5	0.4			1	20.0	4	80.0
C09-C10 Oropharynx	82	6.0	22	26.8	31	37.8	29	35.4
C11 Nasopharynx	3	0.2	3	100.0				
C12-C13 Hypopharynx	32	2.3	20	62.5	9	28.1	3	9.4
C15 Oesophagus	149	10.9	29	19.5	26	17.4	94	63.1
C16 Stomach	23	1.7	7	30.4	3	13.0	13	56.5
C17 Small intestine	3	0.2	3	100.0				
C18 Colon	46	3.4	20	43.5	1	2.2	25	54.3
C19-C20 Rectum	31	2.3	11	35.5	4	12.9	16	51.6
C21 Anus/canal	5	0.4	3	60.0	1	20.0	1	20.0
C22 Liver	35	2.6	3	8.6	3	8.6	29	82.9
C25 Pancreas	29	2.1	3	10.3	1	3.4	25	86.2
C30-C31 Sinuses	8	0.6	2	25.0	2	25.0	4	50.0
C32 Larynx	105	7.7	48	45.7	23	21.9	34	32.4
C33-C34 Lung	282	20.6	46	16.3	37	13.1	199	70.6
C38,C45 Mesothelioma	2	0.1					2	100.0
C43 Malign. melanoma	14	1.0	5	35.7	1	7.1	8	57.1
C44 Skin others	89	6.5	22	24.7	16	18.0	51	57.3
C46,C49 Soft tissue	4	0.3	2	50.0			2	50.0
C50 Breast	3	0.2	2	66.7			1	33.3
C61 Prostate	89	6.5	55	61.8	3	3.4	31	34.8
C62 Testis	4	0.3	3	75.0			1	25.0
C64 Kidney	32	2.3	16	50.0	3	9.4	13	40.6
C65 Renal pelvis	7	0.5	2	28.6			5	71.4
C66 Ureter	3	0.2	1	33.3			2	66.7
C67 Bladder	29	2.1	10	34.5			19	65.5
C68 Urinary org.	2	0.1					2	100.0
C69 Eye melanoma	2	0.1	2	100.0				
C70-C72 CNS cancer	2	0.1					2	100.0
C73 Thyroid	9	0.7	4	44.4	2	22.2	3	33.3
C76-C79 CUP	34	2.5	21	61.8	3	8.8	10	29.4
C81 Hodgkin lymphoma	7	0.5	4	57.1			3	42.9
C82-C85 NHL	19	1.4	9	47.4	5	26.3	5	26.3
C90 Mult. myeloma	2	0.1	1	50.0			1	50.0
C91-C96 Leukaemia	8	0.6	5	62.5			3	37.5
Others, specified	5	0.4	4	80.0	1	20.0		
All further malignancies	1367	100.0	454	33.2	198	14.5	715	52.3

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 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	44	11.9	31	70.5	5	11.4	8	18.2
C07-C08 Salivary gland	1	0.3	1	100.0				
C09-C10 Oropharynx	23	6.2	7	30.4	11	47.8	5	21.7
C11 Nasopharynx	1	0.3	1	100.0				
C12-C13 Hypopharynx	3	0.8	1	33.3	1	33.3	1	33.3
C15 Oesophagus	30	8.1	2	6.7	7	23.3	21	70.0
C16 Stomach	6	1.6	1	16.7	2	33.3	3	50.0
C18 Colon	17	4.6	7	41.2	2	11.8	8	47.1
C19-C20 Rectum	4	1.1	2	50.0			2	50.0
C21 Anus/canal	3	0.8	2	66.7			1	33.3
C22 Liver	4	1.1			2	50.0	2	50.0
C25 Pancreas	3	0.8					3	100.0
C26 GI cancer	2	0.5					2	100.0
C30 Middle/inner ear	1	0.3					1	100.0
C30-C31 Sinuses	6	1.6	2	33.3			4	66.7
C32 Larynx	23	6.2	8	34.8	5	21.7	10	43.5
C33-C34 Lung	51	13.7	4	7.8	3	5.9	44	86.3
C43 Malign. melanoma	2	0.5	1	50.0			1	50.0
C44 Skin others	15	4.0	3	20.0			12	80.0
C50 Breast	60	16.2	43	71.7	4	6.7	13	21.7
C51 Vulva	3	0.8					3	100.0
C52 Vagina	1	0.3					1	100.0
C53 Cervix uteri	13	3.5	7	53.8			6	46.2
C54 Corpus uteri	9	2.4	7	77.8			2	22.2
C56 Ovary	4	1.1	2	50.0			2	50.0
C64 Kidney	3	0.8	2	66.7	1	33.3		
C65 Renal pelvis	1	0.3					1	100.0
C67 Bladder	4	1.1	3	75.0			1	25.0
C68 Urethra	1	0.3	1	100.0				
C70-C72 CNS cancer	2	0.5			1	50.0	1	50.0
C73 Thyroid	7	1.9	5	71.4	1	14.3	1	14.3
C76-C79 CUP	10	2.7	6	60.0			4	40.0
C82-C85 NHL	7	1.9	4	57.1			3	42.9
C90 Mult. myeloma	3	0.8	2	66.7			1	33.3
C91-C96 Leukaemia	4	1.1	1	25.0			3	75.0
All further malignancies	371	100.0	156	42.0	45	12.1	170	45.8

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

Table 15

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2019
(First primaries only *)

Age at death Years	Males 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								
5- 9								
10-14								
15-19								
20-24	1	1	0.1	0.25	0.1	0.33	1.7	2.7
25-29								
30-34		1			0.0	0.25		0.7
35-39		2			0.1	0.50		0.6
40-44	16	1	0.7	0.26	0.0	0.05	3.0	0.1
45-49	65	12	2.6	0.38	0.5	0.34	5.3	0.9
50-54	164	25	7.0	0.53	1.1	0.33	7.4	1.2
55-59	256	50	13.2	0.71	2.5	0.50	7.1	1.7
60-64	241	49	14.8	0.60	2.8	0.46	4.8	1.3
65-69	248	77	16.3	0.70	4.6	0.70	3.6	1.5
70-74	223	44	15.9	0.94	2.7	0.83	2.6	0.7
75-79	141	23	12.7	1.01	1.7	0.70	1.7	0.3
80-84	64	21	9.7	1.14	2.2	0.81	0.9	0.3
85+	28	30	6.6	1.27	3.1	0.97	0.5	0.3
All ages	1447	336					2.9	0.7
Mortality								
Raw			4.8	0.68	1.1	0.56		
WS			2.7	0.63	0.5	0.50		
ES			3.8	0.65	0.8	0.51		
BRD-S			4.4	0.68	0.9	0.53		
PYLL-70								
per 100,000			39.4		7.9			
ES			33.5		6.6			
AYLL-70			10.5		9.5			

* 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 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								
5- 9								
10-14								
15-19								
20-24	1	1	0.1	0.25	0.1	0.33	1.7	2.8
25-29								
30-34		1			0.0	0.25		0.7
35-39		2			0.1	0.50		0.6
40-44	15	1	0.6	0.29	0.0	0.06	2.9	0.1
45-49	57	11	2.3	0.37	0.5	0.33	4.7	0.8
50-54	137	23	5.8	0.49	1.0	0.35	6.3	1.1
55-59	213	43	11.0	0.67	2.2	0.54	6.0	1.5
60-64	195	33	12.0	0.56	1.9	0.37	4.0	0.9
65-69	193	59	12.7	0.64	3.5	0.61	2.9	1.2
70-74	146	27	10.4	0.75	1.7	0.59	1.8	0.4
75-79	96	16	8.7	0.81	1.2	0.50	1.2	0.2
80-84	46	16	7.0	0.90	1.6	0.64	0.7	0.3
85+	21	23	4.9	1.05	2.4	0.77	0.4	0.3
All ages	1120	256					2.4	0.6
Mortality								
Raw			3.7	0.60	0.8	0.49		
WS			2.1	0.57	0.4	0.45		
ES			3.0	0.58	0.6	0.46		
BRD-S			3.4	0.60	0.7	0.47		
PYLL-70								
per 100,000			33.0		6.7			
ES			28.1		5.6			
AYLL-70			10.8		10.1			

* See corresponding tables with multiple malignancies.

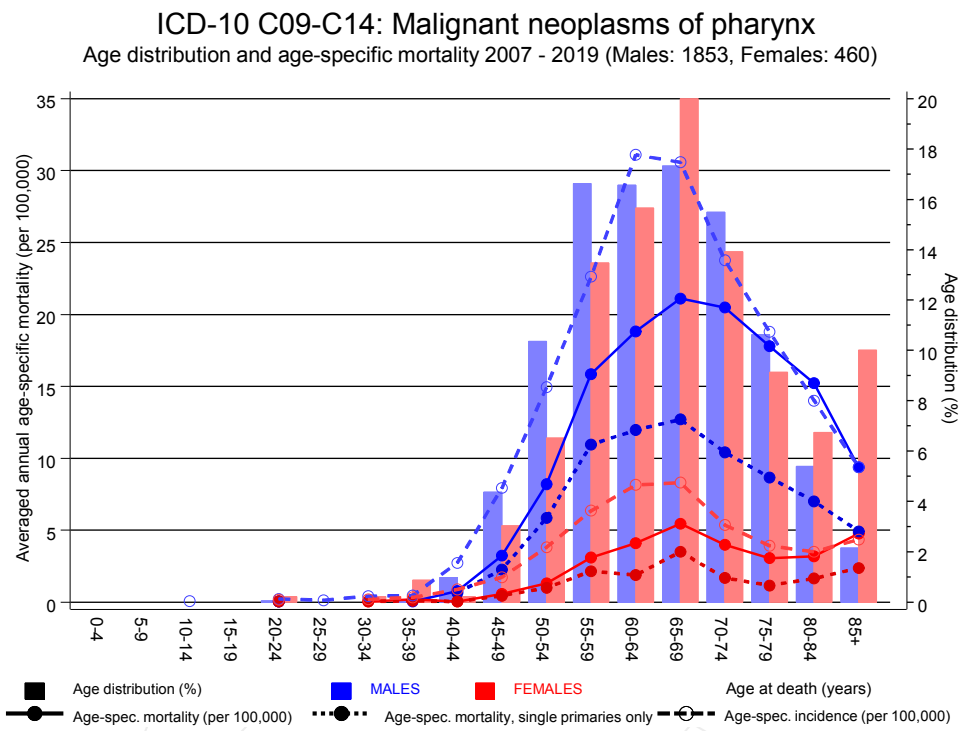
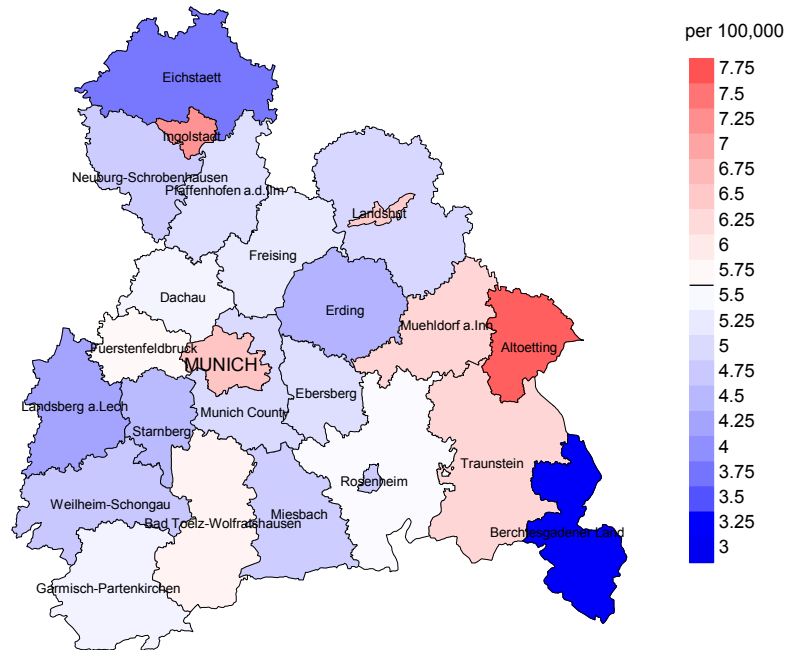


Figure 17. Distribution of age at death (bars; males: mean=62.0 yrs, median=61.6 yrs; females: mean=64.2 yrs, median=64.0 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

The difference between age at diagnosis (Table 3) and age at pharynx cancer-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

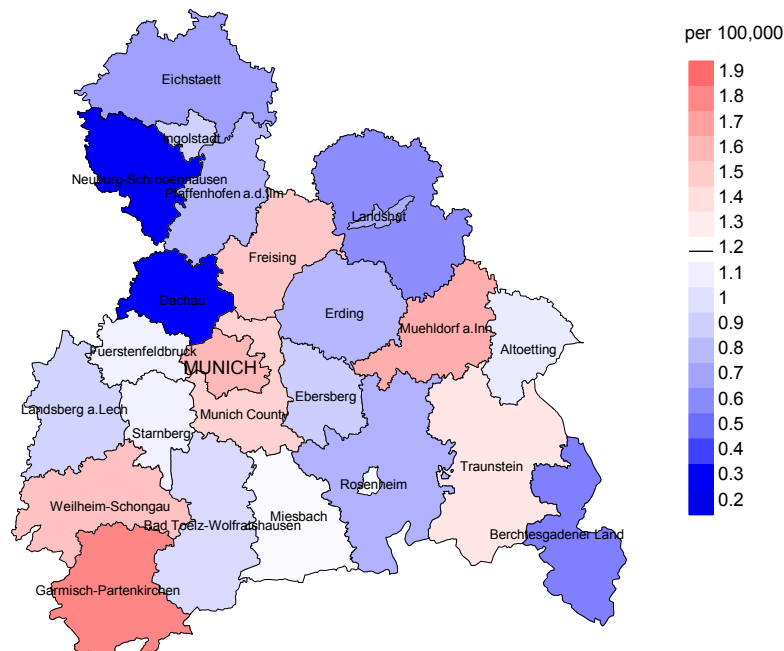
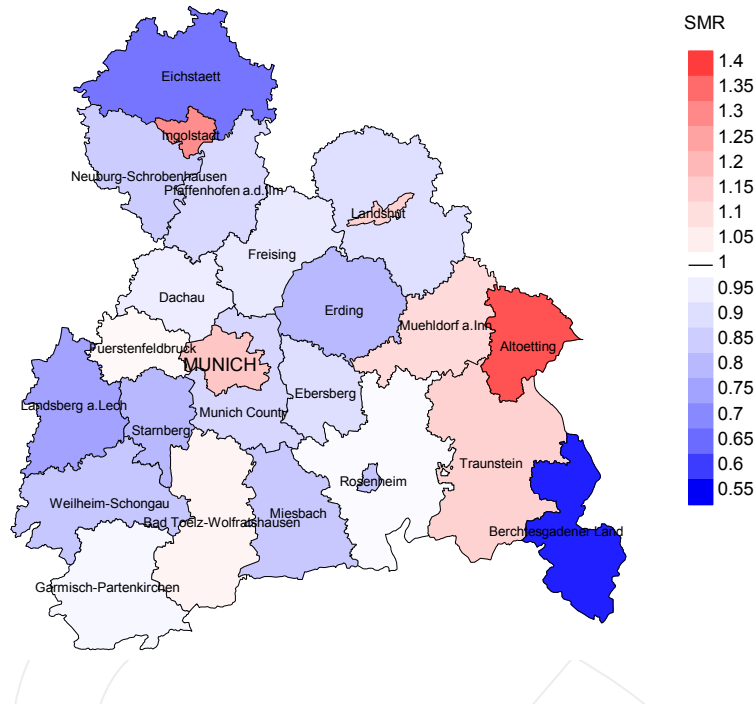


Figure 18a. Map of cancer mortality (german standard population) by county averaged for period 2007 to 2019. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 5.6/100,000 WS N=1,853, females 1.2/100,000 WS N=460).

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 10 women died from pharynx cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.9/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.3 and 2.0/100,000.

Standardized mortality ratio (SMR) 2007 - 2019: Males



Standardized mortality ratio (SMR) 2007 - 2019: Females

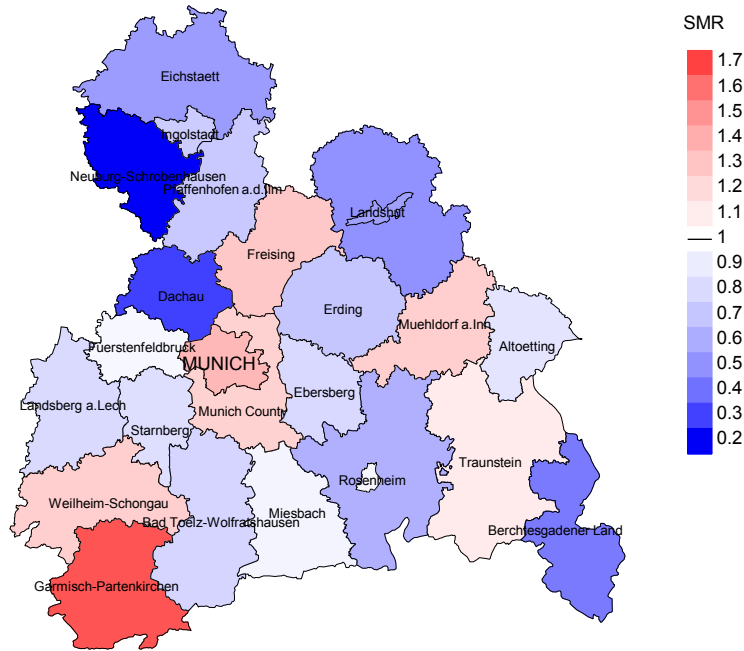


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=1,853, females N=460).

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 10 women died from pharynx cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.80. Though, the value of this parameter may vary with an underlying probability of 99% between 0.30 and 1.70, and is therefore not statistically striking.

Statistical Notes

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

1. All multiple primaries included

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

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

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

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

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

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

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

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

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

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

Shortcuts

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

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