Munich Cancer Registry

- Survival
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- *Deutsch*

ICD-10 C14: Other oral and pharynx cancer

Incidence and Mortality

Year of diagnosis	1998-2020
Patients	1,511
Diseases	1,517
Creation date	12/20/2021
Database export	12/20/2021
Population	4.95 m

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

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

https://www.tumorregister-muenchen.de/en/facts/base/bC14__E-ICD-10-C14-Other-oral-and-pharynx-cancer-incidence-and-mortality.pdf

Index of figures and tables

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

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

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

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

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

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

Munich Cancer Registry, December 2021

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

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

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

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 2015) used for specifying cancer site

Code	Description
C14.-	Malignant neoplasm of other and ill-defined sites in the lip, oral cavity and pharynx
C14.0	Pharynx, unspecified
C14.2	Waldeyer ring
C14.8	Overlapping lesion of 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	59	4	6.8	3.4	15.9	94.9	100.0
1999	75	4	5.3	8.2	15.9	94.7	98.7
2000	60	4	6.7	10.3	15.9	95.0	98.3
2001	64	5	7.8	11.2	15.7	92.2	100.0
2002	69	7	10.1	11.3	15.5	87.0	100.0 #
2003	71	1	1.4	11.6	15.0	80.3	100.0
2004	64	2	3.1	11.3	14.4	87.5	100.0
2005	71	1	1.4	11.3	14.1	77.5	100.0
2006	75	2	2.7	11.0	13.2	84.0	98.7
2007	91	6	6.6	10.7	13.3	81.3	95.6 #
2008	82	4	4.9	10.8	12.6	81.7	100.0
2009	69	1	1.4	10.4	11.5	82.6	98.6
2010	91	3	3.3	10.2	10.5	68.1	96.7
2011	64	6	9.4	10.5	10.2	68.8	98.4
2012	79	6	7.6	11.2	10.0	69.6	96.2
2013	75	2	2.7	11.0	9.4	66.7	97.3
2014	71	3	4.2	11.4	8.2	67.6	93.0
2015	76	3	3.9	11.6	8.4	51.3	97.4
2016	79	1	1.3	12.1	7.5	58.2	97.5
2017	45	1	2.2	12.4	4.9	64.4	97.8
2018	47	1	2.1	13.0	3.7	31.9	97.9
2019	23			13.3	2.7	30.4	100.0
2020	17			13.4	0.0	29.4	100.0 ##
1998-2020	1517	67	4.4	13.4	15.9	74.6	98.2

1,517 cases diagnosed 1998-2020 are related to a total of 1,511 patients. Currently, in 441 (29.2 %) of these 1,511 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 334 / 75 / 32 (22.1 % / 5.0 % / 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 retreived from the respective headings.

How to interpret:
In 2018, a subgroup of 47 cases has been diagnosed, of which 13.0 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 3.7 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 1a

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

Year of diagnosis	Males n	Males %	DCO cases n	Prop. DCO %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %	
1998	49	83.1	3	6.1	2.0	15.9	93.9	100.0	
1999	60	80.0	1	1.7	6.4	16.1	95.0	100.0	
2000	51	85.0	2	3.9	9.4	16.1	94.1	98.0	
2001	50	78.1	3	6.0	10.0	15.9	90.0	100.0	
2002	53	76.8	5	9.4	9.9	15.6	84.9	100.0	#
2003	56	78.9	1	1.8	10.3	15.3	82.1	100.0	
2004	54	84.4	2	3.7	10.2	14.7	87.0	100.0	
2005	61	85.9	1	1.6	10.1	14.5	75.4	100.0	
2006	55	73.3			10.4	13.2	94.5	100.0	
2007	73	80.2	4	5.5	10.0	13.1	83.6	97.3	#
2008	66	80.5	4	6.1	10.0	12.3	83.3	100.0	
2009	55	79.7			9.8	11.3	81.8	98.2	
2010	69	75.8	2	2.9	9.7	9.8	68.1	97.1	
2011	48	75.0	4	8.3	10.1	9.4	68.8	97.9	
2012	56	70.9	3	5.4	10.5	9.5	69.6	96.4	
2013	56	74.7			10.2	8.2	64.3	96.4	
2014	63	88.7	3	4.8	10.6	7.1	66.7	92.1	
2015	50	65.8	2	4.0	10.8	7.3	46.0	98.0	
2016	56	70.9	1	1.8	11.4	6.2	58.9	98.2	
2017	27	60.0			11.6	4.0	66.7	96.3	
2018	32	68.1			12.2	0.0	37.5	96.9	
2019	11	47.8			12.3	0.0	27.3	100.0	
2020	12	70.6			12.2	0.0	16.7	100.0	##
1998-2020	1163	76.7	41	3.5	12.2	15.9	75.8	98.3	

1,163 cases diagnosed 1998-2020 are related to a total of 1,160 patients. Currently, in 329 (28.4 %) of these 1,160 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 247 / 57 / 25 (21.3 % / 4.9 % / 2.2 %) patients exist having 2 / 3 / 4+ malignancies.

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

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

How to interpret:
In 2018, a subgroup of 32 cases has been diagnosed, of which 12.2 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 0.0 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 1b

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

Year of diagnosis	Females n	Females %	DCO cases n	Prop. DCO %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %	
1998	10	16.9	1	10.0	10.0	15.8	100.0	100.0	
1999	15	20.0	3	20.0	16.0	15.4	93.3	93.3	
2000	9	15.0	2	22.2	14.7	15.5	100.0	100.0	
2001	14	21.9	2	14.3	16.7	15.2	100.0	100.0	
2002	16	23.2	2	12.5	17.2	15.2	93.8	100.0	#
2003	15	21.1			16.5	14.3	73.3	100.0	
2004	10	15.6			15.7	13.6	90.0	100.0	
2005	10	14.1			16.2	12.9	90.0	100.0	
2006	20	26.7	2	10.0	13.4	13.1	55.0	95.0	
2007	18	19.8	2	11.1	13.9	13.7	72.2	88.9	#
2008	16	19.5			13.7	13.3	75.0	100.0	
2009	14	20.3	1	7.1	12.6	11.9	85.7	100.0	
2010	22	24.2	1	4.5	12.2	12.2	68.2	95.5	
2011	16	25.0	2	12.5	12.2	12.0	68.8	100.0	
2012	23	29.1	3	13.0	13.6	11.3	69.6	95.7	
2013	19	25.3	2	10.5	14.2	12.4	73.7	100.0	
2014	8	11.3			14.5	10.8	75.0	100.0	
2015	26	34.2	1	3.8	14.2	10.6	61.5	96.2	
2016	23	29.1			14.8	10.0	56.5	95.7	
2017	18	40.0	1	5.6	15.5	6.4	61.1	100.0	
2018	15	31.9	1	6.7	15.7	9.7	20.0	100.0	
2019	12	52.2			16.9	6.3	33.3	100.0	
2020	5	29.4			17.2	0.0	60.0	100.0	##
1998-2020	354	23.3	26	7.3	17.2	15.8	70.9	97.7	

354 cases diagnosed 1998-2020 are related to a total of 351 patients. Currently, in 112 (31.9 %) of these 351 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 87 / 18 / 7 (24.8 % / 5.1 % / 2.0 %) patients exist having 2 / 3 / 4+ malignancies.

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

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

How to interpret:
In 2018, a subgroup of 15 cases has been diagnosed, of which 15.7 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 9.7 % 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 2

Incidence measures by year of diagnosis including DCO cases
(with respect to registry area expansion from 2.65 to 4.10 m as of 2002,
and from 4.10 to 4.94 m as of 2007, respectively)

Year of diagnosis	Males n	Females n	Males Inc. raw	Fem. Inc. raw	Males Inc. WS	Fem. Inc. WS	Males Inc. ES	Fem. Inc. ES	Males Inc. BRD-S	Fem. Inc. BRD-S
1998	49	10	4.4	0.9	3.0	0.4	4.0	0.6	4.4	0.7
1999	60	15	5.4	1.3	3.6	0.8	4.9	1.1	5.5	1.2
2000	51	9	4.5	0.7	3.0	0.5	4.1	0.6	4.4	0.7
2001	50	14	4.3	1.2	2.9	0.6	3.9	0.8	4.2	0.9
2002	53	16	2.8	0.8	1.8	0.5	2.6	0.7	2.8	0.7
2003	56	15	3.0	0.8	1.9	0.6	2.7	0.7	2.9	0.7
2004	54	10	2.9	0.5	1.8	0.3	2.5	0.4	2.8	0.5
2005	61	10	3.2	0.5	2.1	0.3	2.8	0.4	3.0	0.5
2006	55	20	2.9	1.0	1.8	0.6	2.5	0.8	2.8	0.9
2007	73	18	3.3	0.8	2.1	0.4	2.9	0.6	3.2	0.7
2008	66	16	3.0	0.7	1.9	0.4	2.6	0.6	2.8	0.6
2009	55	14	2.5	0.6	1.5	0.3	2.1	0.4	2.3	0.5
2010	69	22	3.1	0.9	1.8	0.6	2.5	0.8	2.7	0.8
2011	48	16	2.1	0.7	1.3	0.4	1.8	0.5	2.0	0.6
2012	56	23	2.5	1.0	1.4	0.6	2.0	0.7	2.3	0.9
2013	56	19	2.4	0.8	1.5	0.4	2.0	0.6	2.2	0.6
2014	63	8	2.7	0.3	1.6	0.2	2.2	0.3	2.5	0.3
2015	50	26	2.1	1.1	1.2	0.6	1.7	0.8	1.9	0.9
2016	56	23	2.3	0.9	1.5	0.4	2.0	0.6	2.2	0.7
2017	27	18	1.1	0.7	0.6	0.4	0.9	0.5	1.0	0.6
2018	32	15	1.3	0.6	0.7	0.4	1.0	0.5	1.2	0.5
2019	11	12	0.5	0.5	0.3	0.2	0.4	0.3	0.4	0.4
2020	12	5	0.5	0.2	0.3	0.1	0.4	0.1	0.4	0.1
1998-2020	1163	354	2.5	0.7	1.5	0.4	2.1	0.6	2.3	0.6

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

Table 3

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	59	59.9	9.4	42.2	87.6	49.8	52.8	58.0	65.1	71.8
1999	75	58.2	11.8	37.2	86.5	46.6	49.9	56.5	63.4	78.7
2000	60	56.7	9.9	35.6	81.1	44.5	49.3	56.3	61.7	70.7
2001	64	60.5	12.0	28.7	96.4	47.0	52.7	59.5	66.5	72.9
2002	69	59.5	11.0	36.7	91.1	44.7	53.4	58.3	64.2	76.4
2003	71	57.6	11.6	10.7	85.3	44.2	52.7	56.9	64.1	71.9
2004	64	60.8	10.9	38.9	84.5	47.7	52.9	60.1	66.8	77.8
2005	71	59.1	11.6	22.8	99.0	46.6	50.2	59.2	65.6	72.3
2006	75	60.3	11.7	34.7	101	45.7	52.9	58.6	67.7	75.5
2007	91	61.3	10.2	37.1	87.7	50.5	54.7	60.4	66.3	75.3
2008	82	62.3	9.2	41.8	87.8	51.4	56.2	61.6	67.8	73.7
2009	69	61.0	10.7	26.7	84.4	48.0	54.9	61.1	68.7	73.3
2010	91	61.0	10.0	35.2	90.0	47.9	52.8	60.9	69.1	73.0
2011	64	63.7	10.7	43.5	92.0	50.6	56.3	62.9	71.1	77.5
2012	79	63.1	12.4	21.5	98.2	49.3	53.6	62.9	70.2	78.7
2013	75	63.0	9.9	44.2	90.1	51.2	55.3	64.1	69.1	74.2
2014	71	63.0	10.5	33.5	85.5	49.8	55.1	62.5	69.3	78.7
2015	76	62.9	10.1	39.9	86.7	51.0	54.2	61.7	69.5	77.7
2016	79	65.5	11.4	15.0	90.0	55.2	60.2	65.8	71.3	80.9
2017	45	63.0	11.5	32.9	86.0	50.7	53.6	60.5	70.0	80.3
2018	47	66.0	9.3	44.4	85.3	54.1	57.5	65.5	72.8	79.0
2019	23	66.1	7.1	52.1	80.9	58.3	59.3	66.3	71.3	74.1
2020	17	64.5	11.1	41.0	83.1	54.7	58.1	62.0	69.8	82.7
1998-2020	1517	61.4	10.9	10.7	101	48.4	54.2	60.5	68.3	76.2

Table 3a

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	49	59.2	8.9	42.2	87.6	49.6	52.7	57.6	64.7	70.8
1999	60	57.8	11.5	37.2	86.5	46.5	50.0	56.7	62.3	76.6
2000	51	56.7	8.9	35.6	81.1	45.7	51.5	56.4	61.5	67.2
2001	50	58.0	10.7	28.7	87.4	45.1	51.7	58.2	63.2	72.5
2002	53	59.0	11.0	36.7	91.1	44.7	53.4	56.8	63.7	72.9
2003	56	58.1	10.4	38.2	83.0	44.0	52.0	56.5	65.0	72.7
2004	54	60.1	10.6	38.9	84.5	47.7	52.6	60.0	66.2	73.8
2005	61	58.7	10.2	40.9	99.0	46.7	51.3	59.1	65.3	68.3
2006	55	60.1	9.7	45.0	80.9	45.7	53.2	58.1	67.7	74.7
2007	73	60.5	9.2	40.2	87.7	50.5	54.7	60.3	65.3	72.7
2008	66	61.6	8.9	41.8	86.5	49.5	55.5	61.4	67.8	71.4
2009	55	60.6	9.9	26.7	84.1	50.1	54.9	61.1	68.6	71.4
2010	69	60.6	10.1	35.2	76.6	47.3	51.8	60.4	69.3	73.1
2011	48	62.2	10.4	43.5	86.3	46.7	55.1	61.8	70.4	76.4
2012	56	62.2	10.6	44.9	88.0	49.3	53.2	61.4	70.0	78.5
2013	56	61.5	9.2	44.2	83.1	50.6	54.7	60.1	67.8	74.1
2014	63	63.1	10.3	45.5	85.5	49.8	54.9	62.4	69.3	78.9
2015	50	63.3	10.1	46.6	86.7	50.9	54.1	62.9	71.2	77.2
2016	56	63.3	11.2	15.0	90.0	55.1	59.0	63.5	69.6	75.3
2017	27	62.8	11.7	32.9	86.0	51.9	54.9	60.5	69.5	80.3
2018	32	67.9	10.2	44.4	85.3	54.1	60.4	71.4	74.4	79.1
2019	11	64.7	8.2	52.1	80.9	56.5	58.7	64.0	69.9	73.5
2020	12	62.8	5.7	56.9	76.8	57.9	58.4	61.6	64.5	69.8
1998-2020	1163	60.7	10.3	15.0	99.0	48.3	53.7	60.0	67.6	74.2

Table 3b

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	10	63.7	11.3	51.5	81.8	53.1	55.1	58.5	77.3	79.6
1999	15	59.7	13.3	41.4	86.4	48.7	49.4	56.1	73.4	79.3
2000	9	56.4	15.0	38.5	79.7	38.5	44.5	49.3	71.4	79.7
2001	14	69.5	12.6	51.7	96.4	56.9	62.0	68.8	72.7	94.7
2002	16	60.9	11.5	42.8	81.9	45.0	54.1	60.7	65.9	81.7
2003	15	55.8	15.6	10.7	85.3	44.7	52.7	57.1	63.5	69.0
2004	10	64.4	12.4	47.2	82.3	48.0	55.7	63.8	76.9	80.0
2005	10	61.3	18.6	22.8	81.0	34.1	50.2	62.0	77.4	80.5
2006	20	60.6	16.3	34.7	101	39.8	48.6	60.1	69.0	81.3
2007	18	64.6	13.0	37.1	87.4	47.8	55.7	63.2	76.2	86.6
2008	16	65.2	10.2	54.1	87.8	54.3	57.3	62.3	70.5	83.1
2009	14	62.7	13.5	40.9	84.4	47.6	49.8	63.1	70.0	81.4
2010	22	62.4	9.8	47.4	90.0	50.7	54.8	63.3	67.4	70.2
2011	16	68.3	10.6	58.1	92.0	58.1	59.7	65.0	72.1	85.9
2012	23	65.4	16.1	21.5	98.2	49.9	57.8	64.6	74.8	83.6
2013	19	67.4	10.7	52.0	90.1	54.4	56.7	65.8	71.7	87.7
2014	8	62.4	13.0	33.5	74.9	33.5	58.7	67.5	69.4	74.9
2015	26	62.1	10.3	39.9	84.1	53.3	54.7	59.6	67.3	78.4
2016	23	71.0	10.1	42.4	86.2	61.2	65.4	70.5	80.6	81.5
2017	18	63.4	11.5	48.6	85.0	49.5	52.9	62.4	70.1	83.3
2018	15	62.1	5.6	53.1	70.8	55.3	55.9	62.9	65.5	69.9
2019	12	67.3	6.0	58.3	75.1	58.7	62.2	67.5	72.3	74.1
2020	5	68.3	19.4	41.0	83.1	41.0	54.7	80.2	82.7	83.1
1998-2020	354	63.8	12.6	10.7	101	49.4	55.7	63.7	71.1	81.1

Table 4

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

Age at diagnosis Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4									
5-9									
10-14	1	0.1	0.1	1	0.1	0.1			0.0
15-19	0	0.0	0.1			0.1			0.0
20-24	1	0.1	0.2			0.1	1	0.4	0.4
25-29	1	0.1	0.3	1	0.1	0.3			0.4
30-34	3	0.3	0.7	2	0.3	0.6	1	0.4	0.9
35-39	3	0.3	1.0	1	0.1	0.7	2	0.9	1.7
40-44	17	1.9	2.9	14	2.1	2.8	3	1.3	3.0
45-49	58	6.4	9.2	48	7.1	9.9	10	4.3	7.2
50-54	122	13.4	22.7	100	14.8	24.8	22	9.4	16.6
55-59	159	17.5	40.2	119	17.7	42.4	40	17.0	33.6
60-64	163	17.9	58.1	121	18.0	60.4	42	17.9	51.5
65-69	172	18.9	77.0	125	18.5	78.9	47	20.0	71.5
70-74	96	10.6	87.6	70	10.4	89.3	26	11.1	82.6
75-79	58	6.4	93.9	46	6.8	96.1	12	5.1	87.7
80-84	35	3.9	97.8	17	2.5	98.7	18	7.7	95.3
85+	20	2.2	100.0	9	1.3	100.0	11	4.7	100.0
All ages	909	100.0		674	100.0		235	100.0	

Table 5

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

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males DCO rate n=23 %	Females DCO rate n=14 %	Males Prop.all cancers n=153686 %	Females Prop.all cancers n=155051 %
0– 4								
5– 9								
10–14	1		0.1				0.7	
15–19								
20–24		1		0.1				0.2
25–29	1		0.0				0.1	
30–34	2	1	0.1	0.0			0.2	0.0
35–39	1	2	0.0	0.1			0.1	0.1
40–44	14	3	0.6	0.1			0.5	0.0
45–49	48	10	1.8	0.4	2.1		1.0	0.1
50–54	100	22	3.9	0.9	1.0		1.2	0.2
55–59	119	40	5.6	1.8		5.0	0.9	0.3
60–64	121	41	6.8	2.2	3.3	2.4	0.7	0.3
65–69	125	47	7.7	2.6	3.2		0.5	0.2
70–74	70	26	4.7	1.5	10.0		0.3	0.1
75–79	46	12	3.8	0.8	4.3		0.2	0.1
80–84	17	18	2.3	1.7	11.8	22.2	0.1	0.1
85+	9	11	1.9	1.1	22.2	63.6	0.1	0.1
All ages	674	234			3.4	6.0	0.4	0.2
Incidence								
Raw			2.1	0.7				
WS			1.2	0.4				
ES			1.7	0.5				
BRD-S			1.9	0.6				

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).

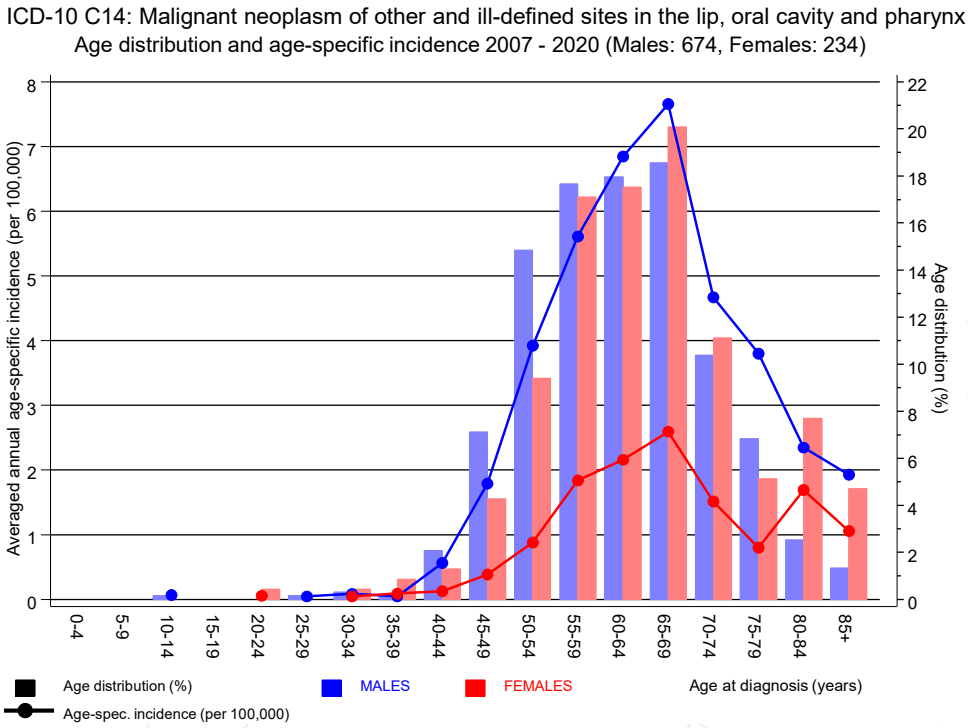


Figure 6. Age distribution (males: mean=62.2 yrs, median=61.8 yrs; females: mean=65.1 yrs, median=64.9 yrs) and age-specific incidence.

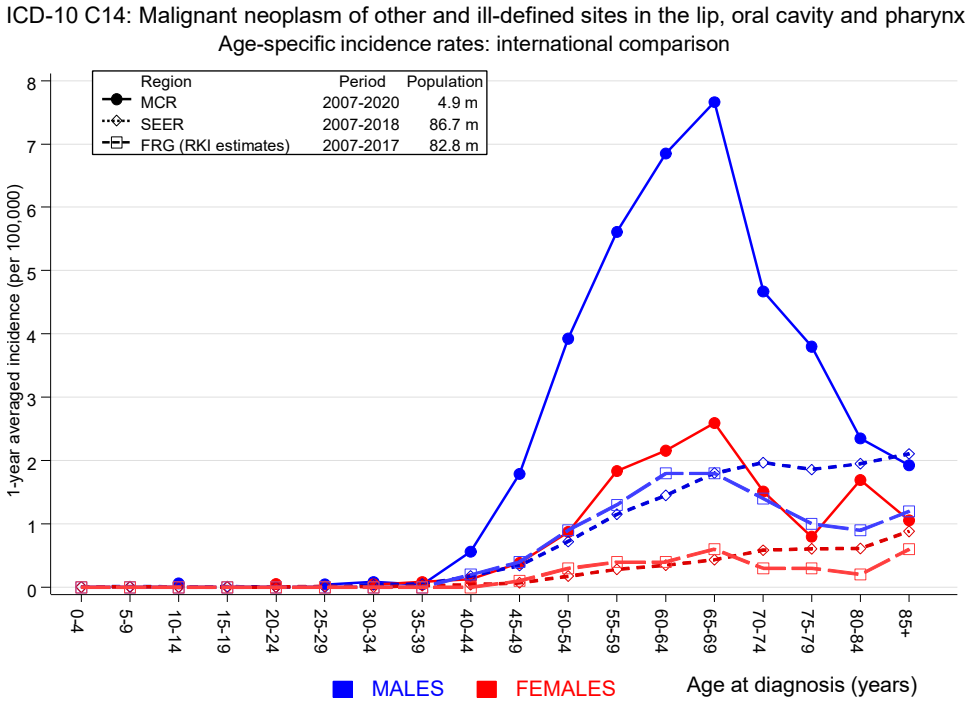


Figure 6a. Age-specific incidence in MCR registry areas compared to Germany (FRG, RKI estimates) and SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

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

Table 7a

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of further malignancies for period 1998-2020

MALES

Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C03-C06	Oral cavity	19	0.6	33.6	20.2	52.4	#	47.4	
C07-C08	Salivary gland	1	0.1	10.7	0.3	59.7		2.3	
C09-C10	Oropharynx	13	0.7	17.6	9.4	30.1	#	31.5	
C12-C13	Hypopharynx	20	0.4	51.0	31.2	78.8	#	50.4	10.0
C15	Oesophagus	29	1.1	27.3	18.3	39.2	#	71.8	17.2
C16	Stomach	6	1.6	3.8	1.4	8.4	#	11.4	16.7
C18	Colon	14	3.8	3.7	2.0	6.2	#	26.2	14.3
C19-C20	Rectum	9	2.5	3.5	1.6	6.7	#	16.6	
C21	Anus/canal	3	0.1	23.7	4.9	69.1	#	7.4	
C22	Liver	6	1.3	4.5	1.7	9.9	#	12.0	16.7
C25	Pancreas	4	1.6	2.5	0.7	6.3		6.1	25.0
C32	Larynx	17	0.6	29.9	17.4	47.9	#	42.3	23.5
C33-C34	Lung	60	5.5	11.0	8.4	14.1	#	140.2	8.3
C43	Malign. melanoma	2	2.2	0.9	0.1	3.3		-0.4	
C60	Penis	1	0.1	9.0	0.2	50.1		2.3	
C61	Prostate	10	12.5	0.8	0.4	1.5		-6.5	
C64	Kidney	5	1.7	3.0	1.0	7.0		8.5	
C65	Renal pelvis	1	0.2	5.9	0.1	32.6		2.1	
C66	Ureter	1	0.1	10.0	0.3	56.0		2.3	
C67	Bladder	6	1.7	3.5	1.3	7.7	#	11.1	16.7
C68	Urethra	1	0.0	25.2	0.6	140.2		2.5	
C82-C85	NHL	4	1.8	2.2	0.6	5.7		5.7	
C90	Mult. myeloma	1	0.5	1.9	0.0	10.4		1.2	
C91-C96	Leukaemia	1	0.6	1.7	0.0	9.6		1.1	
Not observed		0	4.0	0.0	0.0	0.9	#	-10.3	
All further malignancies		234	45.2	5.2	4.5	5.9	#	485.4	9.4

Patients	1132
Median age at next malignancy (years)	63.0
Person-years	3888
Mean observation time (years)	3.4
Median observation time (years)	1.8

The occurrence of further specified malignancy is statistically significant.

Table 7b

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of further malignancies for period 1998–2020

FEMALES

Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C03–C06	Oral cavity	2	0.1	26.6	3.2	96.0	#	16.0	
C09–C10	Oropharynx	6	0.1	95.0	34.9	206.7	#	49.4	
C12–C13	Hypopharynx	5	0.0	310.4	100.8	724.4	#	41.4	
C14	ENT cancer	1	0.0	640.5	16.2	3569	#	8.3	
C15	Oesophagus	10	0.1	116.4	55.8	214.0	#	82.4	
C18	Colon	3	1.0	3.0	0.6	8.8		16.7	
C19–C20	Rectum	2	0.4	4.6	0.6	16.6		13.0	
C22	Liver	3	0.1	21.8	4.5	63.6	#	23.8	33.3
C32	Larynx	3	0.0	123.7	25.5	361.5	#	24.7	33.3
C33–C34	Lung	9	1.0	9.1	4.1	17.2	#	66.6	11.1
C43	Malign. melanoma	2	0.5	4.2	0.5	15.3		12.7	50.0
C50	Breast	3	3.9	0.8	0.2	2.2		-7.8	
C51	Vulva	2	0.1	17.5	2.1	63.2	#	15.7	
C56	Ovary	1	0.5	2.1	0.1	11.7		4.4	
C64	Kidney	1	0.3	3.8	0.1	21.4		6.1	
C73	Thyroid	1	0.2	4.5	0.1	25.2		6.5	
C90	Mult. myeloma	1	0.1	7.7	0.2	42.7		7.2	100.0
Not observed		0	3.5	0.0	0.0	1.1		-28.9	
All further malignancies		55	11.9	4.6	3.5	6.0	#	358.1	9.1

Patients	334
Median age at next malignancy (years)	64.3
Person-years	1203
Mean observation time (years)	3.6
Median observation time (years)	2.3

The occurrence of further specified malignancy is statistically significant.

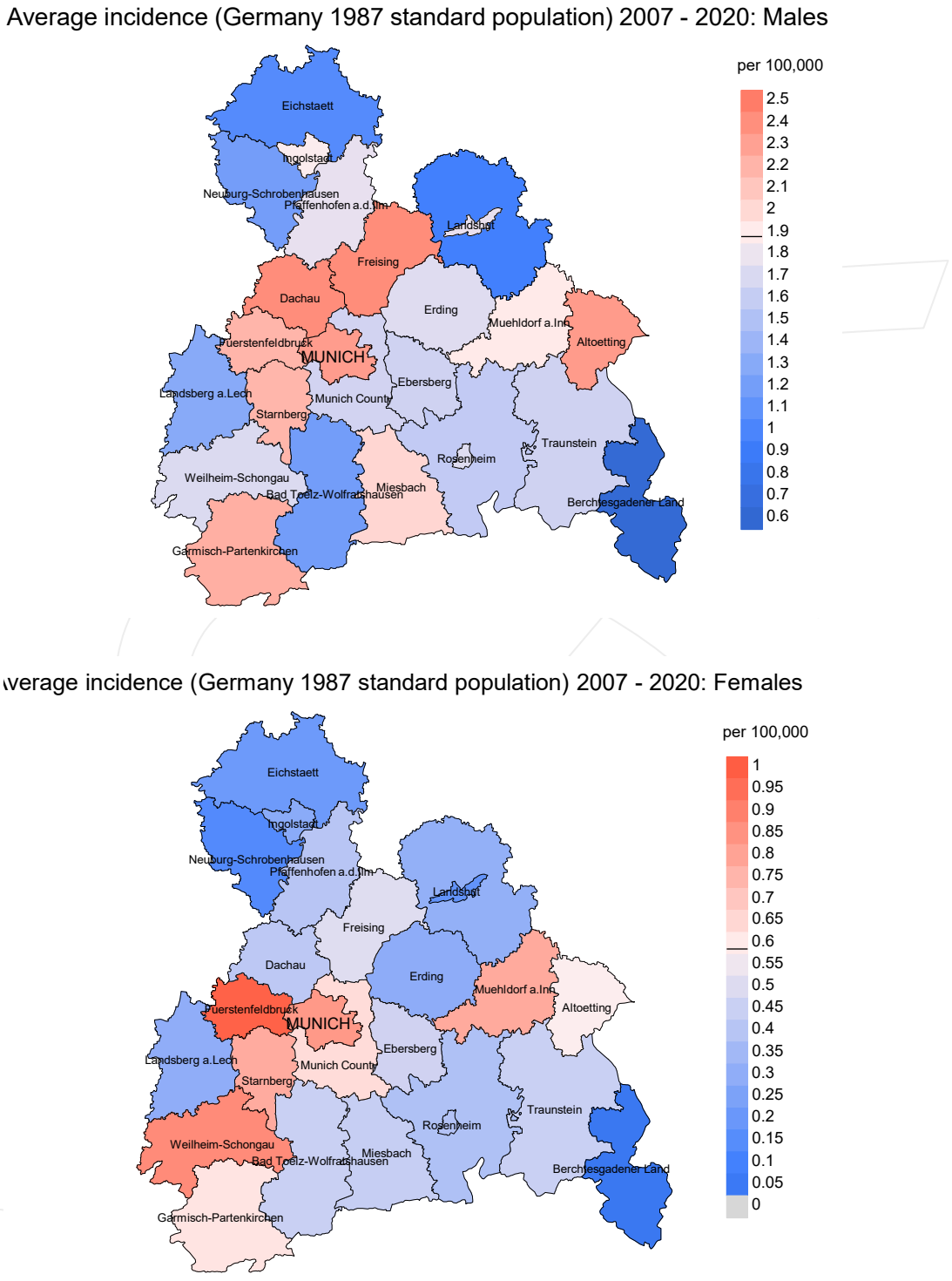
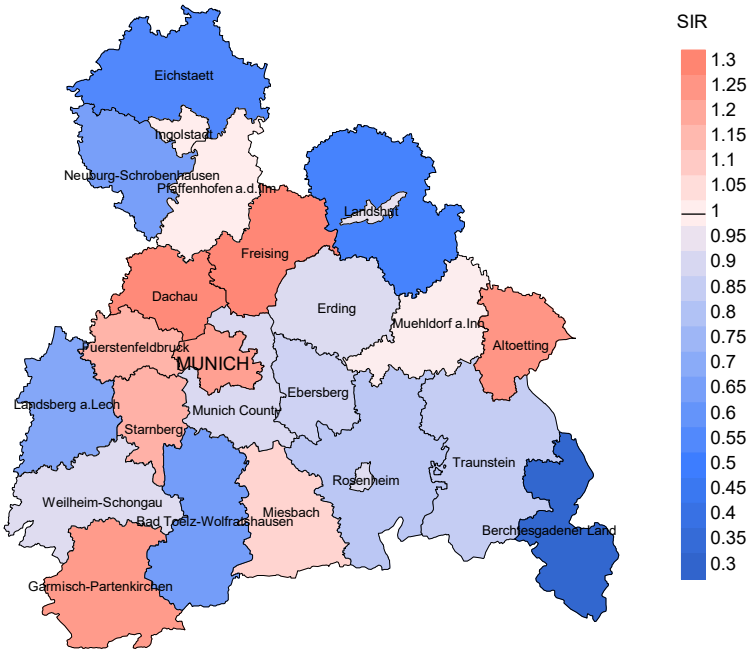


Figure 8a. Map of cancer incidence (german standard population, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 1.9/100,000 WS N=674, females 0.6/100,000 WS N=234).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,727 female residents (averaged) in the period from 2007 to 2020 a total of 5 women were identified with newly diagnosed other oral and pharynx cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 0.5/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.1 and 1.4/100,000.

Standardized incidence ratio (SIR) 2007 - 2020: Males



Standardized incidence ratio (SIR) 2007 - 2020: Females

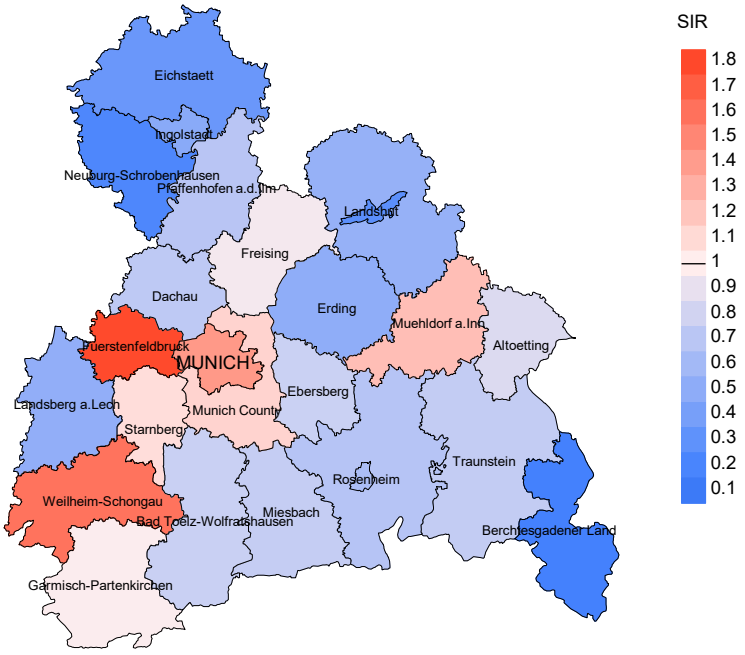


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=674, females N=234).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,153 female residents (averaged) in the period from 2007 to 2020 a total of 5 women were identified with newly diagnosed other oral and pharynx cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.77. Though, the value of this parameter may vary with an underlying probability of 99% between 0.17 and 2.19, and is therefore not statistically striking.

MORTALITY

Table 9a

Annual cohorts: Incident cancers, follow-up status, proportion of DCO, deaths among the annual cohorts and proportion of available death certificates (with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.94 m as of 2007, respectively)

Year of diagnosis	Incident cases n	Prop. actively followed %	Prop. DCO %	Deaths n	Prop. deaths %	Prop. deaths with death certific. %
1998	59	100.0	6.8	56	94.9	94.6
1999	75	98.7	5.3	71	94.7	87.3
2000	60	98.3	6.7	57	95.0	94.7
2001	64	100.0	7.8	59	92.2	94.9
2002	69	100.0	10.1	60	87.0	98.3
2003	71	100.0	1.4	57	80.3	94.7
2004	64	100.0	3.1	56	87.5	96.4
2005	71	100.0	1.4	55	77.5	98.2
2006	75	98.7	2.7	63	84.0	93.7
2007	91	95.6	6.6	74	81.3	94.6
2008	82	100.0	4.9	67	81.7	95.5
2009	69	98.6	1.4	57	82.6	94.7
2010	91	96.7	3.3	62	68.1	93.5
2011	64	98.4	9.4	44	68.8	95.5
2012	79	96.2	7.6	55	69.6	90.9
2013	75	97.3	2.7	50	66.7	94.0
2014	71	93.0	4.2	48	67.6	89.6
2015	76	97.4	3.9	39	51.3	92.3
2016	79	97.5	1.3	46	58.2	84.8
2017	45	97.8	2.2	29	64.4	72.4
2018	47	97.9	2.1	15	31.9	53.3
2019	23	100.0		7	30.4	85.7
2020	17	100.0		5	29.4	100.0
1998-2020	1517	98.2	4.4	1132	74.6	92.6

Table 9b

Annual cohorts of incident cancers and deaths, proportion of death certificates and cases deceased within the same year of being diagnosed with cancer (incl. DCO)
(with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.94 m as of 2007, respectively)

Year of diagnosis/ death	Incident cases n	Deaths n	Prop. deaths with death certific. %	Deaths in same year n	Prop. deaths in same year %
1998	59	40	92.5	10	16.9
1999	75	48	91.7	14	18.7
2000	60	53	90.6	12	20.0
2001	64	51	88.2	9	14.1
2002	69	65	98.5	13	18.8
2003	71	56	96.4	8	11.3
2004	64	59	98.3	12	18.8
2005	71	61	96.7	9	12.7
2006	75	59	96.6	11	14.7
2007	91	76	97.4	16	17.6
2008	82	73	100.0	16	19.5
2009	69	54	98.1	7	10.1
2010	91	61	100.0	12	13.2
2011	64	60	98.3	11	17.2
2012	79	66	97.0	15	19.0
2013	75	63	100.0	10	13.3
2014	71	56	96.4	11	15.5
2015	76	74	98.6	10	13.2
2016	79	62	95.2	15	19.0
2017	45	57	94.7	7	15.6
2018	47	47	59.6	4	8.5
2019	23	47	44.7	4	17.4
2020	17	38	94.7	1	5.9
1998–2020	1517	1326	93.4	237	15.6

Table 9c

Annual cohorts of deaths, proportion of cancer-related and non-cancer-related deaths, and cancer recorded on death certificates (incl. DCO)
(with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.94 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer-related %	Prop. non-cancer-related %	Prop. cancer recorded on death certificate %
1998	40	77.5	22.5	89.2
1999	48	70.8	29.2	93.2
2000	53	79.2	20.8	93.8
2001	51	70.6	29.4	86.7
2002	65	84.6	15.4	95.3
2003	56	85.7	14.3	92.6
2004	59	86.4	13.6	94.8
2005	61	82.0	18.0	94.9
2006	59	86.4	13.6	93.0
2007	76	78.9	21.1	87.8
2008	73	80.8	19.2	89.0
2009	54	88.9	11.1	98.1
2010	61	83.6	16.4	96.7
2011	60	76.7	23.3	88.1
2012	66	75.8	24.2	84.4
2013	63	81.0	19.0	92.1
2014	56	80.4	19.6	88.9
2015	74	71.6	28.4	90.4
2016	62	72.6	27.4	91.5
2017	57	75.4	24.6	85.2
2018	47	42.6	57.4	75.0
2019	47	36.2	63.8	90.5
2020	38	52.6	47.4	88.9
1998-2020	1326	75.9	24.1	90.8

Table 10a

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

Year of death	Deaths n	Age at death (all causes) Years	Age at death (cancer-related) Years	Age at death (non-cancer-related) Years	Age at death (according to death certificate) Years
1998	30	60.6	60.6	60.1	61.0
1999	40	56.4	56.4	58.7	55.5
2000	42	58.2	57.8	67.4	58.5
2001	43	60.4	60.4	56.2	60.4
2002	52	60.6	60.6	61.0	60.6
2003	39	58.0	57.9	67.0	57.9
2004	48	59.2	58.2	62.3	58.0
2005	46	64.3	63.0	78.5	63.2
2006	49	62.4	62.6	59.7	62.4
2007	66	61.8	60.6	68.7	61.3
2008	61	63.0	61.6	65.2	63.2
2009	41	64.4	64.0	69.1	64.0
2010	53	63.2	61.9	65.4	61.9
2011	48	68.6	67.1	70.4	68.3
2012	51	64.8	65.6	64.0	65.1
2013	45	63.4	63.0	71.4	63.3
2014	45	66.7	66.7	67.9	66.8
2015	51	65.0	65.7	64.5	65.0
2016	47	71.7	66.8	74.3	69.4
2017	42	66.1	64.0	76.0	64.0
2018	34	70.9	62.8	72.4	65.2
2019	35	68.5	64.0	69.4	71.2
2020	26	69.8	66.0	74.1	69.7
1998-2020	1034	63.5	62.4	68.6	63.2

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	10	67.5	67.4	67.6	67.6
1999	8	52.6	52.5	54.0	53.3
2000	11	56.8	55.5	80.8	56.8
2001	8	70.6	70.6	70.0	70.6
2002	13	63.0	63.0	71.5	63.0
2003	17	72.4	71.8	73.3	73.1
2004	11	64.7	62.9	66.7	63.8
2005	15	64.2	64.2	65.6	64.2
2006	10	71.8	66.6	85.5	71.8
2007	10	65.6	63.9	84.8	65.6
2008	12	62.7	61.8	63.4	62.5
2009	13	55.3	56.5	51.0	56.5
2010	8	67.1	67.1		67.1
2011	12	68.4	65.9	72.7	68.4
2012	15	69.7	68.7	87.9	68.7
2013	18	69.5	67.3	75.5	67.0
2014	11	66.4	64.0	85.6	66.1
2015	23	71.7	71.3	72.1	71.3
2016	15	69.5	70.8	69.3	69.5
2017	15	71.8	71.8	75.8	71.8
2018	13	71.3	74.6	63.4	71.0
2019	12	64.4	57.9	71.1	61.4
2020	12	72.2	71.3	74.4	72.1
1998-2020	292	67.4	66.6	72.1	67.2

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

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

Table 11a

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

Year of death	Deaths n	Mort. raw	MI-Index raw	Mort. WS	MI-Index WS	Mort. ES	MI-Index ES	Mort. BRD-S	MI-Index BRD-S
1998	22	2.0	0.45	1.3	0.43	1.8	0.44	2.0	0.45
1999	30	2.7	0.50	1.8	0.50	2.4	0.50	2.6	0.47
2000	32	2.8	0.63	1.7	0.57	2.5	0.61	2.7	0.62
2001	30	2.6	0.60	1.6	0.56	2.3	0.59	2.6	0.62
2002	46	2.5	0.87	1.5	0.84	2.2	0.85	2.4	0.87
2003	34	1.8	0.61	1.2	0.61	1.7	0.62	1.8	0.63
2004	42	2.2	0.78	1.4	0.78	2.0	0.79	2.2	0.78
2005	39	2.1	0.64	1.2	0.57	1.7	0.60	2.0	0.66
2006	42	2.2	0.76	1.3	0.75	1.9	0.76	2.1	0.75
2007	51	2.3	0.70	1.4	0.67	2.0	0.67	2.2	0.70
2008	51	2.3	0.77	1.4	0.75	2.0	0.77	2.2	0.80
2009	36	1.6	0.65	1.0	0.63	1.3	0.64	1.5	0.66
2010	43	1.9	0.62	1.2	0.64	1.6	0.64	1.7	0.62
2011	37	1.7	0.77	0.9	0.72	1.3	0.73	1.5	0.75
2012	36	1.6	0.64	0.9	0.61	1.2	0.62	1.4	0.62
2013	38	1.7	0.68	1.0	0.67	1.4	0.67	1.6	0.71
2014	39	1.7	0.62	0.9	0.59	1.3	0.60	1.5	0.62
2015	36	1.5	0.72	0.8	0.66	1.2	0.69	1.4	0.72
2016	33	1.4	0.59	0.7	0.48	1.0	0.52	1.3	0.58
2017	33	1.4	1.22	0.7	1.20	1.1	1.20	1.2	1.25
2018	14	0.6	0.44	0.3	0.43	0.4	0.43	0.5	0.42
2019	12	0.5	1.09	0.3	0.96	0.4	1.01	0.4	1.08
2020	14	0.6	1.17	0.3	1.06	0.4	1.10	0.5	1.15
1998-2020	790	1.7	0.68	1.0	0.65	1.4	0.66	1.6	0.68

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	9	0.8	0.90	0.4	0.94	0.5	0.86	0.7	0.98
1999	4	0.3	0.27	0.2	0.28	0.3	0.28	0.3	0.26
2000	10	0.8	1.25	0.6	1.37	0.8	1.36	0.8	1.22
2001	6	0.5	0.43	0.2	0.38	0.4	0.42	0.4	0.45
2002	9	0.5	0.56	0.3	0.52	0.4	0.54	0.4	0.56
2003	14	0.7	0.93	0.3	0.61	0.5	0.68	0.6	0.86
2004	9	0.5	0.90	0.3	0.95	0.3	0.89	0.4	0.83
2005	11	0.6	1.10	0.3	0.98	0.4	1.06	0.5	0.95
2006	9	0.4	0.45	0.2	0.32	0.3	0.34	0.4	0.41
2007	9	0.4	0.50	0.2	0.49	0.3	0.47	0.3	0.47
2008	8	0.3	0.50	0.2	0.48	0.3	0.51	0.3	0.56
2009	12	0.5	0.86	0.3	0.93	0.4	0.97	0.4	0.83
2010	8	0.3	0.36	0.2	0.31	0.2	0.30	0.3	0.36
2011	9	0.4	0.56	0.2	0.56	0.3	0.56	0.3	0.57
2012	14	0.6	0.61	0.3	0.48	0.4	0.50	0.5	0.52
2013	13	0.5	0.68	0.3	0.71	0.4	0.69	0.5	0.70
2014	6	0.2	0.75	0.2	0.96	0.2	0.84	0.3	0.86
2015	17	0.7	0.65	0.3	0.50	0.4	0.51	0.5	0.59
2016	12	0.5	0.52	0.2	0.55	0.3	0.56	0.4	0.54
2017	10	0.4	0.59	0.2	0.47	0.2	0.49	0.3	0.51
2018	6	0.2	0.40	0.1	0.23	0.1	0.27	0.2	0.34
2019	5	0.2	0.42	0.1	0.46	0.2	0.46	0.2	0.42
2020	6	0.2	1.20	0.1	1.53	0.2	1.51	0.2	1.35
1998-2020	216	0.4	0.61	0.2	0.56	0.3	0.57	0.4	0.59

Table 12

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

Age at death Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4									
5-9									
10-14									
15-19									
20-24	2	0.3	0.3	1	0.2	0.2	1	0.7	0.7
25-29	0	0.0	0.3			0.2			0.7
30-34	1	0.2	0.5			0.2	1	0.7	1.5
35-39	3	0.5	1.0	1	0.2	0.4	2	1.5	3.0
40-44	6	1.0	2.0	4	0.8	1.3	2	1.5	4.4
45-49	29	4.8	6.7	24	5.1	6.3	5	3.7	8.1
50-54	59	9.7	16.4	50	10.6	16.9	9	6.7	14.8
55-59	101	16.6	33.1	88	18.6	35.5	13	9.6	24.4
60-64	106	17.4	50.5	84	17.8	53.3	22	16.3	40.7
65-69	116	19.1	69.6	92	19.5	72.7	24	17.8	58.5
70-74	78	12.8	82.4	58	12.3	85.0	20	14.8	73.3
75-79	54	8.9	91.3	41	8.7	93.7	13	9.6	83.0
80-84	32	5.3	96.5	23	4.9	98.5	9	6.7	89.6
85+	21	3.5	100.0	7	1.5	100.0	14	10.4	100.0
All ages	608	100.0		473	100.0		135	100.0	

Table 13

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

Age at death Years	Males n	Females n	Males Age-spec. mortal.	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	0.0	1.00	0.1	1.00	1.4	2.3
25-29								
30-34		1			0.0	1.00		0.6
35-39	1	2	0.0	1.00	0.1	1.00	0.4	0.5
40-44	4	2	0.2	0.29	0.1	0.67	0.7	0.2
45-49	24	5	0.9	0.50	0.2	0.50	1.7	0.3
50-54	50	9	2.0	0.50	0.4	0.41	1.9	0.3
55-59	88	13	4.1	0.74	0.6	0.33	2.0	0.3
60-64	84	22	4.8	0.69	1.2	0.54	1.3	0.4
65-69	92	24	5.6	0.74	1.3	0.51	1.0	0.3
70-74	58	20	3.9	0.83	1.2	0.77	0.5	0.2
75-79	41	13	3.4	0.89	0.9	1.08	0.3	0.1
80-84	23	9	3.2	1.35	0.8	0.50	0.2	0.1
85+	7	14	1.5	0.78	1.3	1.27	0.1	0.1
All ages	473	135					0.7	0.2
Mortality								
Raw			1.5	0.70	0.4	0.58		
WS			0.8	0.67	0.2	0.53		
ES			1.2	0.68	0.3	0.53		
BRD-S			1.3	0.71	0.3	0.55		
PYLL-70								
per 100,000			12.4		3.1			
ES			10.6		2.6			
AYLL-70			10.4		10.9			

Table 14a

Further malignancies in deaths in period 1998–2020
MALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C00	Lip	1	0.3					1	100.0
C03–C06	Oral cavity	36	10.7	11	30.6	4	11.1	21	58.3
C07–C08	Salivary gland	1	0.3			1	100.0		
C09–C10	Oropharynx	24	7.1	5	20.8	2	8.3	17	70.8
C12–C13	Hypopharynx	19	5.7			8	42.1	11	57.9
C15	Oesophagus	36	10.7	4	11.1	4	11.1	28	77.8
C16	Stomach	6	1.8	3	50.0			3	50.0
C18	Colon	12	3.6	4	33.3			8	66.7
C19–C20	Rectum	16	4.8	4	25.0	1	6.3	11	68.8
C21	Anus/canal	1	0.3			1	100.0		
C22	Liver	7	2.1	1	14.3			6	85.7
C23–C24	Bile	1	0.3	1	100.0				
C25	Pancreas	6	1.8	1	16.7			5	83.3
C30–C31	Sinuses	3	0.9	1	33.3	1	33.3	1	33.3
C32	Larynx	17	5.1	5	29.4	5	29.4	7	41.2
C33–C34	Lung	72	21.4	10	13.9	4	5.6	58	80.6
C43	Malign. melanoma	3	0.9	2	66.7			1	33.3
C44	Skin others	22	6.5	4	18.2	3	13.6	15	68.2
C61	Prostate	17	5.1	11	64.7			6	35.3
C62	Testis	1	0.3	1	100.0				
C64	Kidney	6	1.8	3	50.0	1	16.7	2	33.3
C65	Renal pelvis	3	0.9	1	33.3			2	66.7
C66	Ureter	1	0.3					1	100.0
C67	Bladder	8	2.4	2	25.0			6	75.0
C68	Urethra	1	0.3					1	100.0
C68	Urinary org.	1	0.3					1	100.0
C76–C79	CUP	3	0.9	3	100.0				
C81	Hodgkin lymphoma	1	0.3	1	100.0				
C82–C85	NHL	8	2.4	3	37.5	3	37.5	2	25.0
C90	Mult. myeloma	1	0.3					1	100.0
C91–C96	Leukaemia	2	0.6	2	100.0				
All further malignancies		336	100.0	83	24.7	38	11.3	215	64.0

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

Table 14b

Further malignancies in deaths in period 1998–2020
FEMALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03–C06	Oral cavity	19	17.8	15	78.9	2	10.5	2	10.5
C09–C10	Oropharynx	8	7.5	3	37.5	2	25.0	3	37.5
C11	Nasopharynx	1	0.9			1	100.0		
C12–C13	Hypopharynx	4	3.7			1	25.0	3	75.0
C15	Oesophagus	8	7.5					8	100.0
C18	Colon	5	4.7	1	20.0			4	80.0
C19–C20	Rectum	1	0.9					1	100.0
C22	Liver	1	0.9					1	100.0
C26	GI cancer	1	0.9					1	100.0
C30–C31	Sinuses	2	1.9	1	50.0			1	50.0
C32	Larynx	7	6.5	3	42.9			4	57.1
C33–C34	Lung	12	11.2	1	8.3			11	91.7
C43	Malign. melanoma	1	0.9					1	100.0
C44	Skin others	6	5.6	1	16.7			5	83.3
C50	Breast	16	15.0	13	81.3			3	18.8
C51	Vulva	1	0.9					1	100.0
C53	Cervix uteri	2	1.9	1	50.0			1	50.0
C54	Corpus uteri	2	1.9	2	100.0				
C56	Ovary	1	0.9					1	100.0
C65	Renal pelvis	1	0.9					1	100.0
C67	Bladder	1	0.9	1	100.0				
C68	Urethra	1	0.9	1	100.0				
C73	Thyroid	1	0.9	1	100.0				
C76–C79	CUP	1	0.9	1	100.0				
C82–C85	NHL	2	1.9					2	100.0
C90	Mult. myeloma	2	1.9	1	50.0			1	50.0
All further malignancies		107	100.0	46	43.0	6	5.6	55	51.4

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

Table 15

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

Age at death Years	Males n	Females n	Males Age-spec. mortal.	MI-index	Females Age-spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4								
5- 9								
10-14								
15-19								
20-24	1	1	0.0	1.00	0.1	1.00	1.5	2.4
25-29								
30-34		1			0.0	1.00		0.6
35-39		2			0.1	1.00		0.5
40-44	4	2	0.2	0.31	0.1	0.67	0.7	0.3
45-49	21	4	0.8	0.53	0.2	0.57	1.6	0.3
50-54	44	8	1.7	0.47	0.3	0.40	1.9	0.4
55-59	79	12	3.7	0.74	0.6	0.35	2.0	0.4
60-64	76	13	4.3	0.75	0.7	0.42	1.4	0.3
65-69	77	24	4.7	0.77	1.3	0.62	1.0	0.4
70-74	47	15	3.1	0.90	0.9	1.07	0.5	0.2
75-79	36	7	3.0	1.03	0.5	0.88	0.4	0.1
80-84	14	7	1.9	1.27	0.7	0.47	0.2	0.1
85+	3	13	0.6	0.75	1.2	1.44	0.0	0.1
All ages	402	109					0.8	0.2
Mortality								
Raw			1.2	0.72	0.3	0.59		
WS			0.7	0.69	0.2	0.54		
ES			1.0	0.70	0.2	0.55		
BRD-S			1.1	0.72	0.3	0.56		
PYLL-70								
per 100,000			11.0		2.6			
ES			9.3		2.2			
AYLL-70			10.4		11.1			

* See corresponding tables with multiple malignancies.

Table 16

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

Age at death Years	Males n	Females n	Males Age-spec. mortal.	MI-index	Females Age-spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4								
5- 9								
10-14								
15-19								
20-24	1	1	0.0	1.00	0.1	1.00	1.5	2.5
25-29								
30-34		1			0.0	1.00		0.6
35-39		2			0.1	1.00		0.5
40-44	4	2	0.2	0.31	0.1	0.67	0.7	0.3
45-49	20	4	0.7	0.56	0.2	0.57	1.6	0.3
50-54	36	7	1.4	0.42	0.3	0.41	1.6	0.3
55-59	65	10	3.1	0.72	0.5	0.37	1.7	0.3
60-64	52	6	2.9	0.60	0.3	0.23	1.0	0.2
65-69	59	19	3.6	0.69	1.0	0.56	0.8	0.4
70-74	29	10	1.9	0.66	0.6	0.91	0.3	0.2
75-79	24	5	2.0	0.80	0.3	0.63	0.3	0.1
80-84	11	6	1.5	1.10	0.6	0.43	0.2	0.1
85+	3	9	0.6	1.00	0.9	1.00	0.1	0.1
All ages	304	82					0.6	0.2
Mortality								
Raw			0.9	0.62	0.2	0.51		
WS			0.5	0.60	0.1	0.48		
ES			0.8	0.61	0.2	0.48		
BRD-S			0.9	0.63	0.2	0.49		
PYLL-70								
per 100,000			9.0		2.2			
ES			7.7		1.9			
AYLL-70			10.9		12.2			

* See corresponding tables with multiple malignancies.

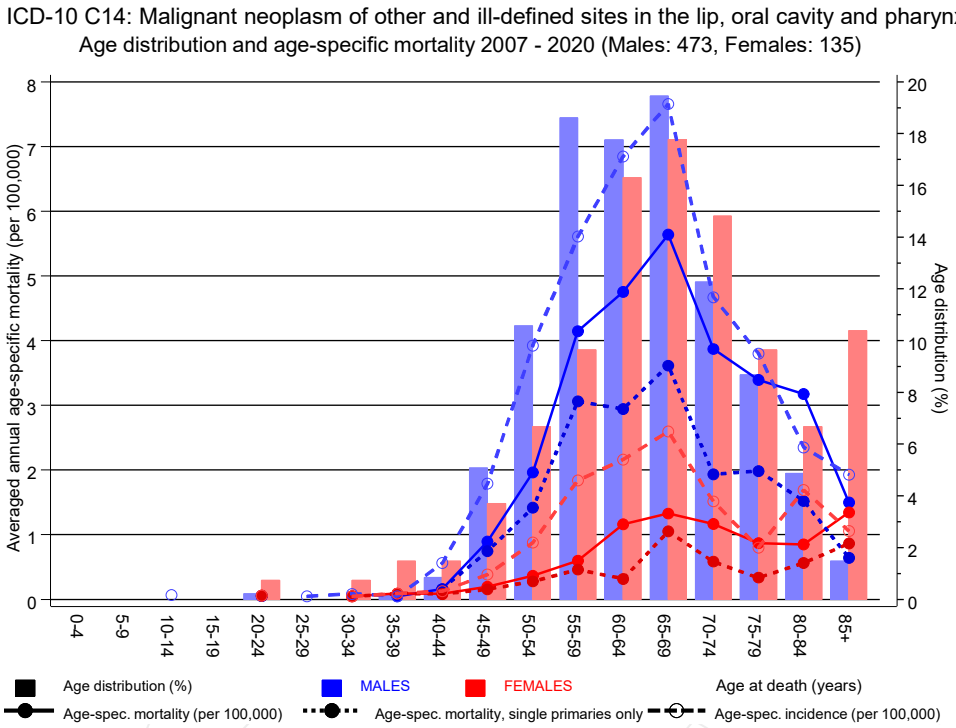


Figure 17. Distribution of age at death (bars; males: mean=60.6 yrs, median=59.8 yrs; females: mean=63.8 yrs, median=64.5 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

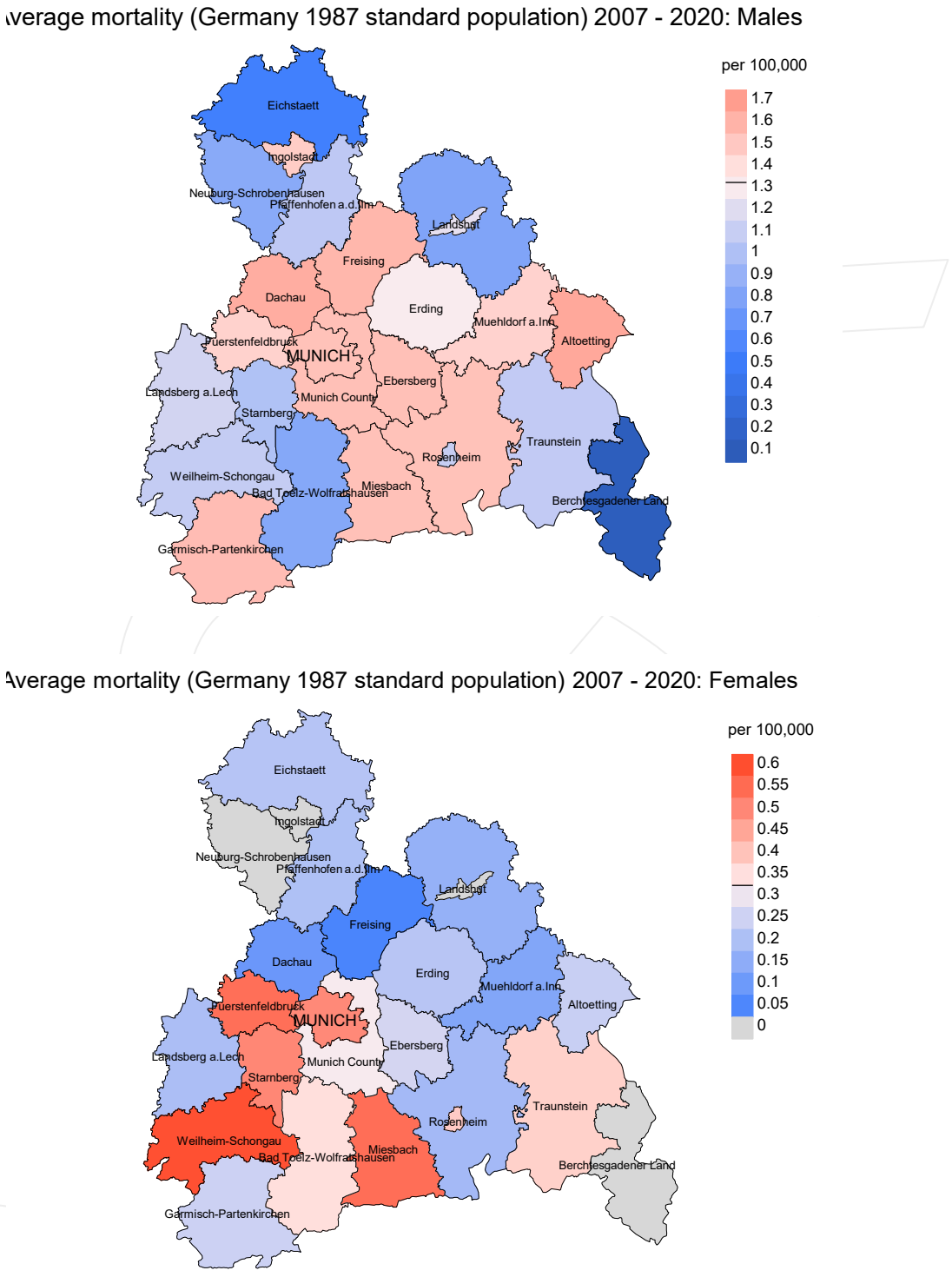
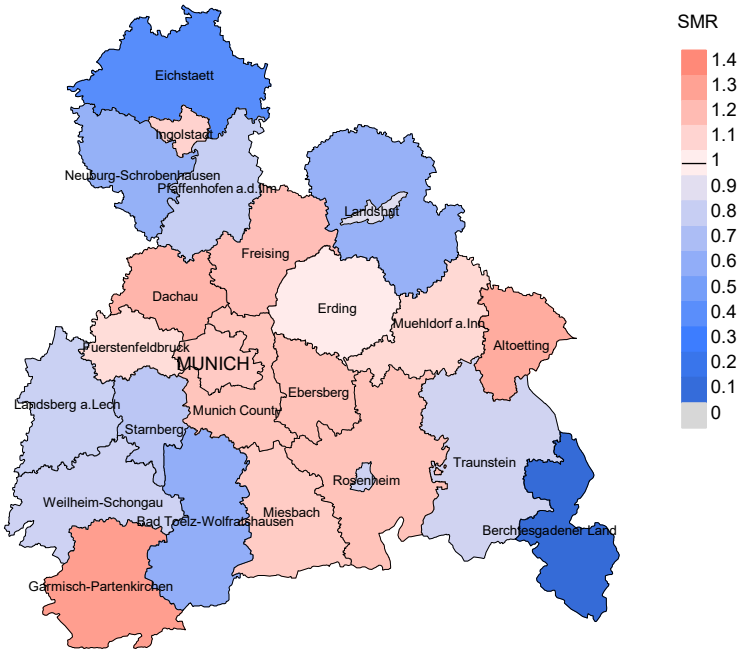


Figure 18a. Map of cancer mortality (german standard population) by county averaged for period 2007 to 2020. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 1.3/100,000 WS N=473, females 0.3/100,000 WS N=135).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,727 female residents (averaged) in the period from 2007 to 2020 a total of 3 women died from other oral and pharynx cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.3/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.0 and 1.0/100,000.

Standardized mortality ratio (SMR) 2007 - 2020: Males



Standardized mortality ratio (SMR) 2007 - 2020: Females

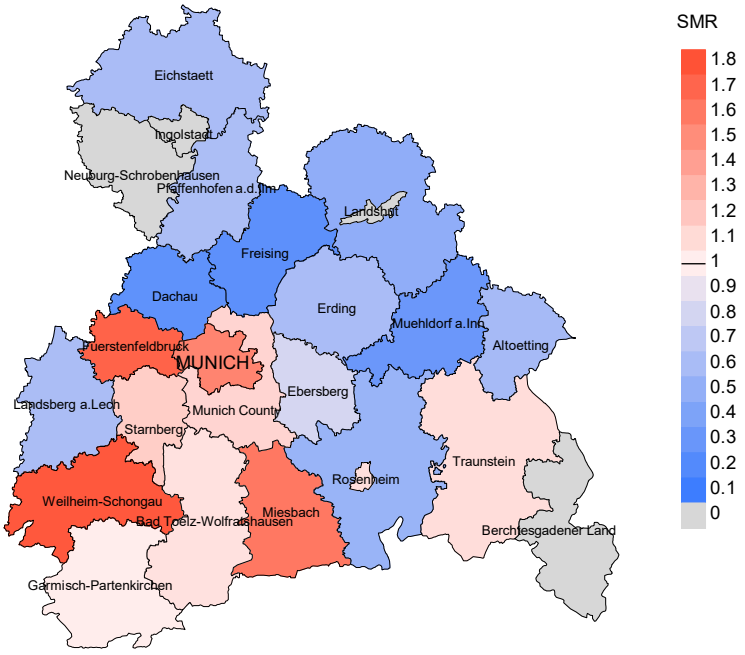


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=473, females N=135).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,153 female residents (averaged) in the period from 2007 to 2020 a total of 3 women died from other oral and pharynx cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.81. Though, the value of this parameter may vary with an underlying probability of 99% between 0.09 and 2.97, 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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