Munich Cancer Registry

- Survival
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- *Deutsch*

ICD-10 C12, C13: Hypopharynx cancer

Incidence and Mortality

Year of diagnosis	1998-2020
Patients	1,719
Diseases	1,721
Creation date	12/20/2021
Database export	12/20/2021
Population	4.95 m

Munich Cancer Registry
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https://www.tumorregister-muenchen.de/en

https://www.tumorregister-muenchen.de/en/facts/base/bC1213E-ICD-10-C12-C13-Hypopharynx-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
C12	Malignant neoplasm of piriform sinus
C13.-	Malignant neoplasm of hypopharynx
C13.0	Postcricoid region
C13.1	Aryepiglottic fold, hypopharyngeal aspect
C13.2	Posterior wall of hypopharynx
C13.8	Overlapping lesion of hypopharynx
C13.9	Hypopharynx, unspecified

INCIDENCE

Table 1

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

Year of diagnosis	All cases n	DCO cases n	Prop. DCO %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %
1998	51			9.8	14.4	92.2	98.0
1999	57	5	8.8	13.9	14.2	87.7	96.5
2000	62	2	3.2	11.2	14.1	90.3	96.8
2001	53	4	7.5	13.9	14.0	84.9	96.2
2002	78	4	5.1	13.0	14.2	94.9	98.7 #
2003	86	1	1.2	16.0	13.9	91.9	97.7
2004	73	3	4.1	16.3	13.8	93.2	100.0
2005	107	7	6.5	16.4	13.6	88.8	99.1
2006	85	3	3.5	15.8	12.6	90.6	100.0
2007	103	6	5.8	16.6	12.4	88.3	99.0 #
2008	113	7	6.2	16.9	12.3	88.5	100.0
2009	113	5	4.4	16.8	11.5	83.2	98.2
2010	97	7	7.2	17.3	11.2	83.5	97.9
2011	98	5	5.1	17.9	10.9	84.7	99.0
2012	75	7	9.3	18.0	10.5	82.7	100.0
2013	84	1	1.2	18.0	11.1	75.0	97.6
2014	71	1	1.4	18.6	10.5	80.3	97.2
2015	80	3	3.8	19.1	9.5	78.8	100.0
2016	85	7	8.2	19.3	10.1	76.5	100.0
2017	57	3	5.3	20.1	10.1	63.2	98.2
2018	38	1	2.6	20.5	8.3	60.5	100.0
2019	26			20.6	8.2	42.3	100.0
2020	29			20.9	3.8	44.8	100.0 ##
1998-2020	1721	82	4.8	20.9	14.4	83.3	98.7

1,721 cases diagnosed 1998-2020 are related to a total of 1,719 patients. Currently, in 609 (35.4 %) of these 1,719 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 443 / 121 / 45 (25.8 % / 7.0 % / 2.6 %) patients exist having 2 / 3 / 4+ malignancies.

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

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

How to interpret:
In 2018, a subgroup of 38 cases has been diagnosed, of which 20.5 % 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	46	90.2			8.7	14.5	91.3	97.8
1999	52	91.2	5	9.6	13.3	14.4	90.4	98.1
2000	54	87.1	2	3.7	10.5	14.3	90.7	98.1
2001	46	86.8	3	6.5	13.6	14.3	84.8	97.8
2002	71	91.0	4	5.6	11.9	14.5	94.4	98.6 #
2003	81	94.2	1	1.2	15.7	14.3	93.8	100.0
2004	64	87.7	3	4.7	16.4	14.3	92.2	100.0
2005	92	86.0	5	5.4	16.2	14.0	89.1	98.9
2006	73	85.9	3	4.1	15.4	13.4	91.8	100.0
2007	87	84.5	5	5.7	15.9	13.2	92.0	100.0 #
2008	96	85.0	6	6.3	16.3	13.0	87.5	100.0
2009	96	85.0	4	4.2	16.0	12.2	83.3	99.0
2010	87	89.7	5	5.7	16.5	11.8	83.9	98.9
2011	85	86.7	3	3.5	17.1	11.4	83.5	98.8
2012	64	85.3	5	7.8	16.9	10.9	82.8	100.0
2013	72	85.7			17.0	11.3	75.0	97.2
2014	58	81.7	1	1.7	17.6	10.6	84.5	96.6
2015	65	81.3	1	1.5	18.2	8.8	78.5	100.0
2016	72	84.7	5	6.9	18.3	10.2	77.8	100.0
2017	50	87.7	3	6.0	19.0	10.7	64.0	98.0
2018	32	84.2	1	3.1	19.4	8.3	56.3	100.0
2019	20	76.9			19.7	9.5	45.0	100.0
2020	25	86.2			20.0	4.3	48.0	100.0 ##
1998-2020	1488	86.5	65	4.4	20.0	14.5	84.0	99.1

1,488 cases diagnosed 1998-2020 are related to a total of 1,486 patients. Currently, in 515 (34.7 %) of these 1,486 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 372 / 106 / 37 (25.0 % / 7.1 % / 2.5 %) 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 19.4 % 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	5	9.8			20.0	13.1	100.0	100.0	
1999	5	8.8			20.0	13.0	60.0	80.0	
2000	8	12.9			16.7	12.8	87.5	87.5	
2001	7	13.2	1	14.3	16.0	12.3	85.7	85.7	
2002	7	9.0			21.9	11.7	100.0	100.0	#
2003	5	5.8			18.9	11.5	60.0	60.0	
2004	9	12.3			15.2	11.3	100.0	100.0	
2005	15	14.0	2	13.3	18.0	11.3	86.7	100.0	
2006	12	14.1			19.2	8.0	83.3	100.0	
2007	16	15.5	1	6.3	21.3	7.8	68.8	93.8	#
2008	17	15.0	1	5.9	21.7	8.0	94.1	100.0	
2009	17	15.0	1	5.9	22.8	7.4	82.4	94.1	
2010	10	10.3	2	20.0	22.6	7.7	80.0	90.0	
2011	13	13.3	2	15.4	24.0	8.5	92.3	100.0	
2012	11	14.7	2	18.2	25.5	8.6	81.8	100.0	
2013	12	14.3	1	8.3	24.9	10.0	75.0	100.0	
2014	13	18.3			25.3	10.2	61.5	100.0	
2015	15	18.8	2	13.3	25.4	13.0	80.0	100.0	
2016	13	15.3	2	15.4	25.7	9.7	69.2	100.0	
2017	7	12.3			27.2	5.6	57.1	100.0	
2018	6	15.8			27.4	8.3	83.3	100.0	
2019	6	23.1			26.6	0.0	33.3	100.0	
2020	4	13.8			26.6	0.0	25.0	100.0	##
1998-2020	233	13.5	17	7.3	26.6	13.1	78.5	96.6	

233 cases diagnosed 1998-2020 are related to a total of 233 patients. Currently, in 94 (40.3 %) of these 233 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 71 / 15 / 8 (30.5 % / 6.4 % / 3.4 %) patients exist having 2 / 3 / 4+ malignancies.

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

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

How to interpret:
In 2018, a subgroup of 6 cases has been diagnosed, of which 27.4 % 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 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	46	5	4.2	0.4	2.6	0.2	3.6	0.2	3.9	0.3
1999	52	5	4.6	0.4	3.1	0.3	4.3	0.3	4.6	0.4
2000	54	8	4.7	0.7	3.2	0.4	4.5	0.5	4.9	0.6
2001	46	7	4.0	0.6	2.7	0.4	3.5	0.6	3.9	0.6
2002	71	7	3.8	0.4	2.5	0.2	3.4	0.3	3.6	0.3
2003	81	5	4.3	0.3	2.9	0.2	4.0	0.2	4.3	0.2
2004	64	9	3.4	0.5	2.2	0.2	3.0	0.3	3.3	0.4
2005	92	15	4.9	0.8	3.1	0.4	4.2	0.6	4.7	0.7
2006	73	12	3.8	0.6	2.5	0.4	3.4	0.5	3.7	0.5
2007	87	16	3.9	0.7	2.3	0.5	3.3	0.6	3.7	0.6
2008	96	17	4.3	0.7	2.7	0.4	3.7	0.5	4.1	0.6
2009	96	17	4.3	0.7	2.6	0.4	3.5	0.6	3.9	0.6
2010	87	10	3.9	0.4	2.4	0.3	3.3	0.3	3.5	0.4
2011	85	13	3.8	0.6	2.1	0.3	3.0	0.4	3.5	0.5
2012	64	11	2.8	0.5	1.6	0.3	2.2	0.4	2.5	0.4
2013	72	12	3.1	0.5	1.7	0.3	2.4	0.4	2.8	0.4
2014	58	13	2.5	0.5	1.5	0.3	2.0	0.4	2.3	0.5
2015	65	15	2.7	0.6	1.6	0.3	2.2	0.4	2.5	0.5
2016	72	13	3.0	0.5	1.7	0.3	2.4	0.4	2.7	0.4
2017	50	7	2.1	0.3	1.0	0.1	1.5	0.1	1.9	0.2
2018	32	6	1.3	0.2	0.7	0.2	1.0	0.2	1.2	0.2
2019	20	6	0.8	0.2	0.4	0.1	0.6	0.2	0.7	0.2
2020	25	4	1.0	0.2	0.5	0.1	0.8	0.1	0.9	0.1
1998–2020	1488	233	3.2	0.5	1.9	0.3	2.7	0.4	3.0	0.4

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

Table 3

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	51	60.0	9.7	37.3	86.7	47.6	54.8	58.6	65.3	71.0
1999	57	58.6	9.7	44.2	87.0	49.6	51.2	56.3	62.6	73.6
2000	62	58.6	10.5	43.1	88.6	47.1	51.2	56.7	62.6	78.8
2001	53	58.9	9.2	29.2	80.9	48.0	53.3	57.8	65.8	70.1
2002	78	58.6	8.1	39.2	77.5	46.7	53.0	59.2	64.3	68.5
2003	86	59.2	9.0	39.6	81.2	49.8	52.8	57.5	65.6	72.6
2004	73	59.3	9.9	38.5	87.8	47.0	53.1	59.4	64.0	71.4
2005	107	61.4	9.6	45.8	84.8	47.8	53.5	62.7	67.6	72.5
2006	85	60.1	9.4	30.6	86.2	50.5	54.6	58.8	65.5	71.5
2007	103	61.5	10.1	30.1	86.0	49.0	53.2	62.6	67.4	74.7
2008	113	62.8	10.1	35.5	91.4	48.6	57.6	62.1	68.6	74.1
2009	113	62.4	9.8	42.7	87.9	49.6	54.7	62.1	70.1	72.9
2010	97	60.4	11.0	35.1	92.3	45.3	52.5	60.4	68.4	73.6
2011	98	63.7	10.1	40.6	91.6	49.3	56.6	63.7	70.8	75.5
2012	75	65.0	11.1	39.9	91.7	49.2	57.5	64.5	73.2	78.2
2013	84	64.9	9.2	44.9	86.3	52.2	58.7	65.1	72.6	76.6
2014	71	64.7	9.1	44.6	84.8	51.5	58.8	65.1	70.5	74.3
2015	80	65.2	10.2	45.2	95.0	53.0	58.8	64.1	71.5	77.4
2016	85	65.4	10.5	38.8	92.1	54.5	58.1	64.8	72.7	77.1
2017	57	70.3	9.0	45.8	87.0	58.2	62.5	71.5	77.0	80.9
2018	38	64.0	9.5	44.6	82.6	50.8	57.5	64.0	71.0	77.9
2019	26	66.4	9.8	47.7	85.6	55.1	59.4	65.6	71.9	80.5
2020	29	69.6	8.8	52.2	85.2	57.3	64.0	68.1	77.8	82.3
1998–2020	1721	62.3	10.2	29.2	95.0	49.4	54.9	62.0	69.0	75.7

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	46	58.5	8.2	37.3	76.7	46.9	54.4	57.8	63.7	70.2
1999	52	58.3	9.8	44.2	87.0	49.6	50.9	55.9	62.2	71.3
2000	54	58.2	10.0	45.2	88.6	49.3	51.2	55.6	62.0	70.2
2001	46	59.5	9.7	29.2	80.9	48.0	53.0	60.1	65.9	70.6
2002	71	58.1	7.8	39.2	77.5	47.0	52.4	57.7	63.9	67.2
2003	81	59.2	8.7	39.6	81.2	50.0	52.9	57.4	64.8	71.4
2004	64	58.2	9.5	38.5	83.9	46.2	52.4	58.9	63.8	68.8
2005	92	61.0	9.6	45.8	84.8	47.7	53.4	62.3	67.5	70.5
2006	73	59.6	9.3	30.6	85.0	50.0	54.6	58.6	64.8	70.2
2007	87	62.1	10.1	41.0	86.0	49.1	52.8	64.3	68.1	76.6
2008	96	61.9	9.0	40.7	84.5	48.6	56.4	61.6	68.0	71.8
2009	96	62.2	9.8	42.7	87.9	49.6	54.1	61.7	69.6	72.9
2010	87	60.5	10.6	38.7	92.3	45.3	52.8	60.4	68.4	73.6
2011	85	63.4	10.2	40.6	86.3	49.2	55.2	64.0	70.8	75.4
2012	64	65.1	11.3	39.9	91.7	47.7	57.7	65.6	74.0	78.2
2013	72	65.2	9.2	47.5	86.3	52.2	58.7	65.2	72.8	76.6
2014	58	65.0	9.0	44.6	84.8	49.0	59.8	65.1	70.5	74.8
2015	65	64.5	10.0	45.2	94.6	51.9	58.7	62.7	70.8	77.1
2016	72	65.5	9.7	41.3	91.6	55.1	58.4	65.2	72.3	76.7
2017	50	69.5	9.2	45.8	87.0	57.9	62.3	71.3	76.0	80.9
2018	32	65.4	9.0	47.2	82.6	56.2	58.1	64.6	71.5	77.9
2019	20	67.4	9.9	51.2	85.6	55.7	59.6	65.8	75.6	82.2
2020	25	69.1	9.1	52.2	85.2	57.3	64.0	68.1	75.8	82.3
1998–2020	1488	62.1	10.0	29.2	94.6	49.3	54.7	61.9	68.9	75.4

Table 3b

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	Median 10%	25%	50%	75%	90%
1998	5	73.4	12.9	59.4	86.7	59.4	60.7	75.4	84.9	86.7
1999	5	61.0	9.5	51.2	75.6	51.2	54.2	61.5	62.6	75.6
2000	8	61.7	14.0	43.1	81.3	43.1	51.5	59.7	73.3	81.3
2001	7	55.0	4.1	47.3	60.0	47.3	53.8	55.1	57.5	60.0
2002	7	63.9	9.4	45.5	73.0	45.5	60.5	66.0	71.6	73.0
2003	5	59.6	14.0	43.6	79.8	43.6	50.2	59.0	65.6	79.8
2004	9	66.8	10.1	56.5	87.8	56.5	60.3	62.9	71.4	87.8
2005	15	64.0	9.6	47.8	81.5	51.5	57.6	64.3	68.5	77.5
2006	12	62.8	10.3	51.6	86.2	52.7	54.4	60.8	70.7	71.5
2007	16	57.8	10.1	30.1	68.0	44.6	53.6	60.3	65.0	67.6
2008	17	67.7	14.1	35.5	91.4	46.4	61.1	67.2	74.1	87.7
2009	17	63.7	9.6	46.5	79.9	49.3	57.7	64.7	70.7	74.4
2010	10	59.5	14.4	35.1	82.4	41.9	49.3	60.3	69.0	77.1
2011	13	65.7	10.0	54.5	91.6	57.2	58.6	62.8	67.7	75.7
2012	11	64.3	10.3	52.5	90.6	54.4	57.5	63.1	67.4	71.3
2013	12	63.1	9.4	44.9	78.5	53.4	56.7	64.4	68.8	73.2
2014	13	63.5	10.0	48.3	84.1	51.5	57.5	64.5	69.3	74.1
2015	15	68.1	11.2	51.6	95.0	55.1	61.4	66.9	73.9	84.4
2016	13	65.0	14.9	38.8	92.1	45.7	56.3	63.7	73.3	82.9
2017	7	75.7	5.1	64.5	78.9	64.5	75.5	77.1	78.7	78.9
2018	6	56.7	9.8	44.6	68.6	44.6	50.1	55.1	67.0	68.6
2019	6	63.3	9.4	47.7	73.3	47.7	59.4	64.0	71.6	73.3
2020	4	73.2	5.9	68.1	78.8	68.1	68.1	73.0	78.3	78.8
1998–2020	233	64.0	11.2	30.1	95.0	49.8	57.3	63.7	70.9	78.7

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									
15-19									
20-24									
25-29									
30-34	1	0.1	0.1			0.0	1	0.6	0.6
35-39	6	0.6	0.7	3	0.3	0.3	3	1.9	2.5
40-44	25	2.3	3.0	22	2.4	2.8	3	1.9	4.4
45-49	69	6.5	9.4	58	6.4	9.1	11	6.9	11.3
50-54	110	10.3	19.7	95	10.5	19.6	15	9.4	20.6
55-59	157	14.7	34.4	139	15.3	34.9	18	11.3	31.9
60-64	199	18.6	53.0	169	18.6	53.5	30	18.8	50.6
65-69	198	18.5	71.6	164	18.0	71.5	34	21.3	71.9
70-74	152	14.2	85.8	131	14.4	85.9	21	13.1	85.0
75-79	93	8.7	94.5	80	8.8	94.7	13	8.1	93.1
80-84	39	3.6	98.1	35	3.9	98.6	4	2.5	95.6
85+	20	1.9	100.0	13	1.4	100.0	7	4.4	100.0
All ages	1069	100.0		909	100.0		160	100.0	

Table 5

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

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males DCO rate n=39 %	Females DCO rate n=14 %	Males Prop.all cancers n=153686 %	Females Prop.all cancers n=155051 %
0- 4								
5- 9								
10-14								
15-19								
20-24								
25-29								
30-34		1		0.0				0.0
35-39	3	3	0.1	0.1		33.3	0.2	0.1
40-44	22	3	0.9	0.1	4.5		0.8	0.0
45-49	58	11	2.2	0.4	3.4		1.1	0.1
50-54	95	15	3.7	0.6	4.2		1.1	0.1
55-59	139	18	6.5	0.8	4.3	5.6	1.1	0.1
60-64	169	30	9.6	1.6	0.6	10.0	1.0	0.2
65-69	163	34	10.0	1.9	1.8	5.9	0.7	0.2
70-74	131	21	8.7	1.2	6.1	9.5	0.5	0.1
75-79	80	13	6.6	0.9	5.0		0.3	0.1
80-84	35	4	4.8	0.4	8.6	50.0	0.2	0.0
85+	13	7	2.8	0.7	53.8	42.9	0.1	0.0
All ages	908	160			4.3	8.8	0.6	0.1
Incidence								
Raw			2.8	0.5				
WS			1.6	0.3				
ES			2.2	0.4				
BRD-S			2.5	0.4				

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).

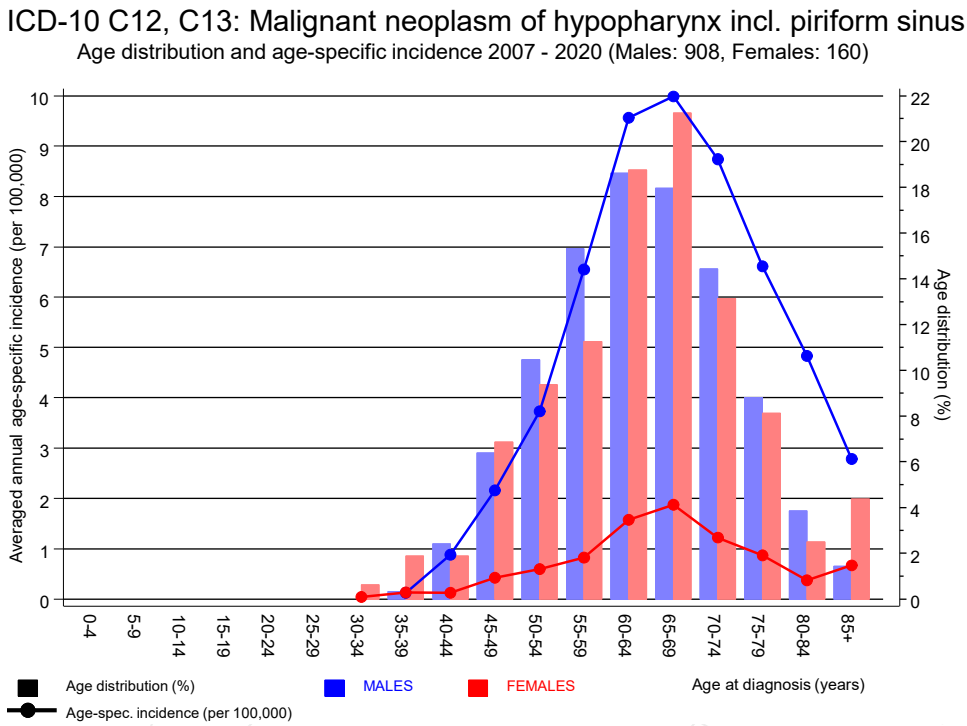


Figure 6. Age distribution (males: mean=64.0 yrs, median=64.0 yrs; females: mean=64.4 yrs, median=64.7 yrs) and age-specific incidence.

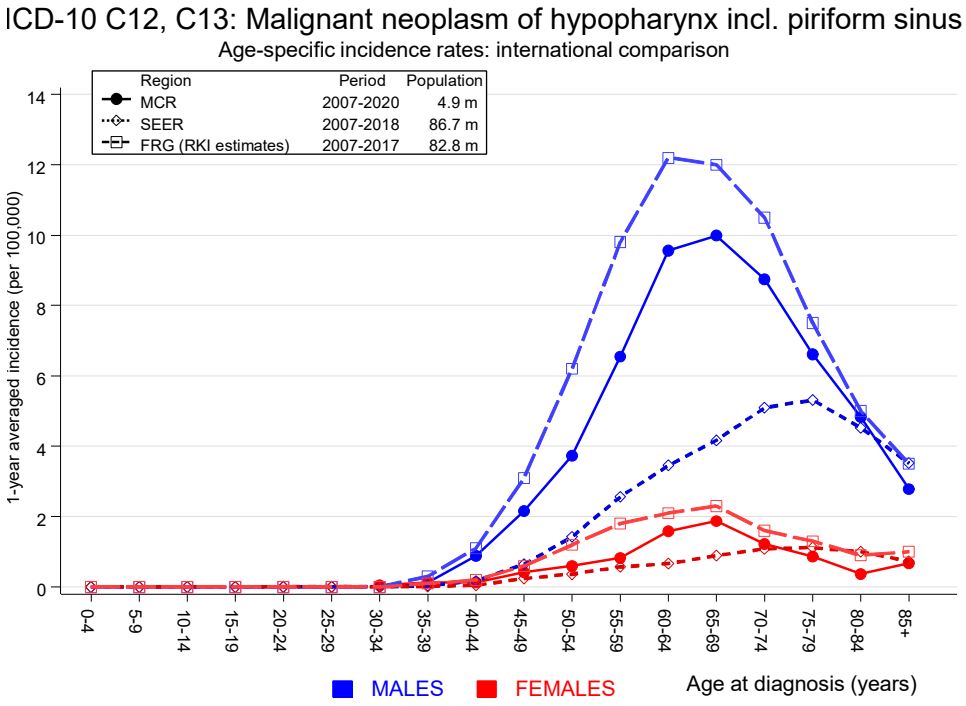


Figure 6a. Age-specific incidence in MCR registry areas compared to Germany (FRG, RKI estimates) and SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

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

Table 7a

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

MALES

Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C00	Lip	1	0.0	20.4	0.5	113.5		2.2	
C03–C06	Oral cavity	24	0.6	39.4	25.2	58.6	#	55.1	12.5
C09–C10	Oropharynx	36	0.8	45.5	31.8	62.9	#	83.0	
C11	Nasopharynx	1	0.1	19.5	0.5	108.5		2.2	
C12–C13	Hypopharynx	1	0.4	2.3	0.1	13.1		1.4	
C14	ENT cancer	2	0.0	160.4	19.4	579.3	#	4.7	100.0
C15	Oesophagus	50	1.2	41.0	30.4	54.0	#	115.0	8.0
C16	Stomach	6	1.8	3.3	1.2	7.2	#	9.9	
C17	Small intestine	1	0.3	3.0	0.1	16.8		1.6	100.0
C18	Colon	9	4.5	2.0	0.9	3.8		10.6	11.1
C19–C20	Rectum	7	2.9	2.4	1.0	4.9		9.6	
C21	Anus/canal	1	0.1	7.0	0.2	39.1		2.0	
C22	Liver	10	1.6	6.4	3.1	11.8	#	19.9	
C25	Pancreas	7	1.9	3.7	1.5	7.5	#	12.0	28.6
C26	GI cancer	1	0.0	27.8	0.7	154.9		2.3	
C32	Larynx	8	0.6	12.6	5.4	24.8	#	17.4	
C33–C34	Lung	74	6.4	11.6	9.1	14.6	#	159.4	10.8
C43	Malign. melanoma	5	2.5	2.0	0.6	4.6		5.9	40.0
C46,C49	Soft tissue	1	0.3	3.4	0.1	19.1		1.7	
C60	Penis	1	0.1	7.9	0.2	43.8		2.1	
C61	Prostate	18	14.9	1.2	0.7	1.9		7.4	5.6
C64	Kidney	5	1.9	2.6	0.8	6.0		7.2	40.0
C65	Renal pelvis	1	0.2	4.9	0.1	27.1		1.9	
C67	Bladder	9	2.0	4.5	2.0	8.5	#	16.5	11.1
C73	Thyroid	3	0.5	6.5	1.3	19.1	#	6.0	33.3
C76–C79	CUP	5	0.8	6.1	2.0	14.3	#	9.9	
C82–C85	NHL	3	2.1	1.4	0.3	4.2		2.2	
Not observed		0	4.1	0.0	0.0	0.9	#	-9.7	
All further malignancies		290	52.9	5.5	4.9	6.2	#	558.9	9.7

Patients	1451
Median age at next malignancy (years)	66.4
Person-years	4243
Mean observation time (years)	2.9
Median observation time (years)	1.5

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	4	0.0	94.4	25.7	241.8	#	58.4	
C09–C10	Oropharynx	11	0.0	285.4	142.5	510.6	#	161.7	
C11	Nasopharynx	1	0.0	412.5	10.4	2298	#	14.7	
C15	Oesophagus	8	0.0	170.4	73.6	335.8	#	117.3	12.5
C18	Colon	1	0.5	2.2	0.1	12.0		7.9	
C22	Liver	2	0.1	29.4	3.6	106.3	#	28.5	
C25	Pancreas	1	0.2	4.4	0.1	24.7		11.4	
C33–C34	Lung	9	0.5	16.8	7.7	32.0	#	124.9	22.2
C50	Breast	7	2.2	3.1	1.3	6.5	#	70.4	
C51	Vulva	2	0.1	38.3	4.6	138.3	#	28.7	
C52	Vagina	1	0.0	102.7	2.6	572.4	#	14.6	
C53	Cervix uteri	1	0.1	10.4	0.3	58.2		13.3	
C70–C72	CNS cancer	1	0.1	12.3	0.3	68.5		13.6	100.0
C73	Thyroid	1	0.1	7.2	0.2	39.9		12.7	
C91–C96	Leukaemia	2	0.1	27.0	3.3	97.6	#	28.4	50.0
Not observed		0	2.2	0.0	0.0	1.7		−32.4	
All further malignancies		52	6.3	8.2	6.2	10.8	#	674.1	9.6

Patients	224
Median age at next malignancy (years)	67.2
Person-years	678
Mean observation time (years)	3.0
Median observation time (years)	1.1

The occurrence of further specified malignancy is statistically significant.

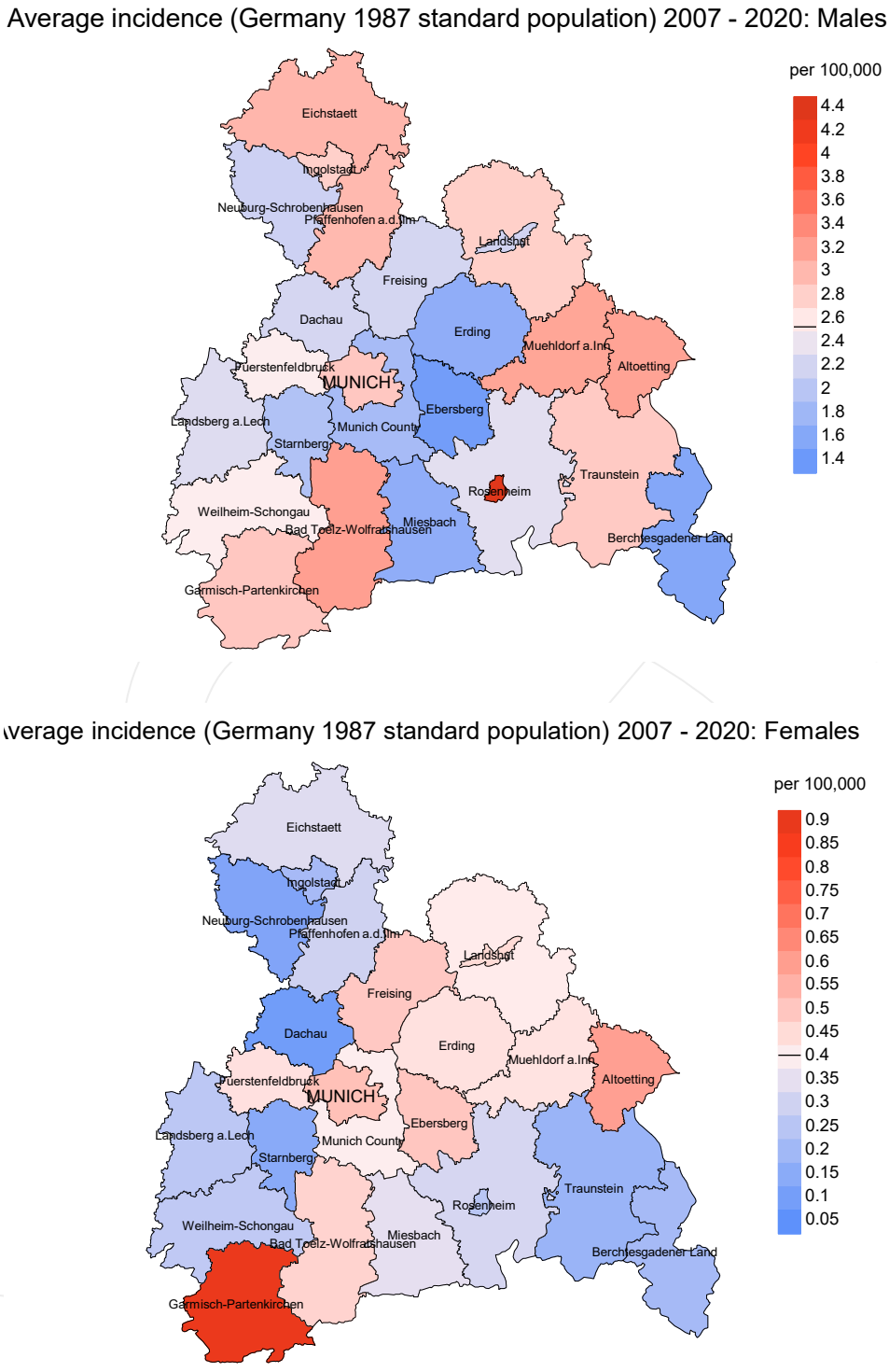
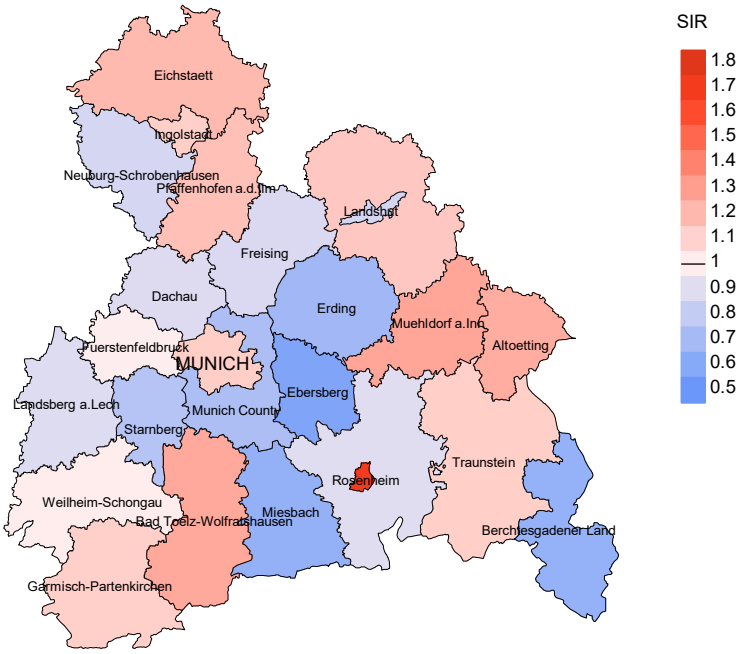


Figure 8a. Map of cancer incidence (german standard population, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 2.5/100,000 WS N=908, females 0.4/100,000 WS N=160).

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 6 women were identified with newly diagnosed hypopharynx 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

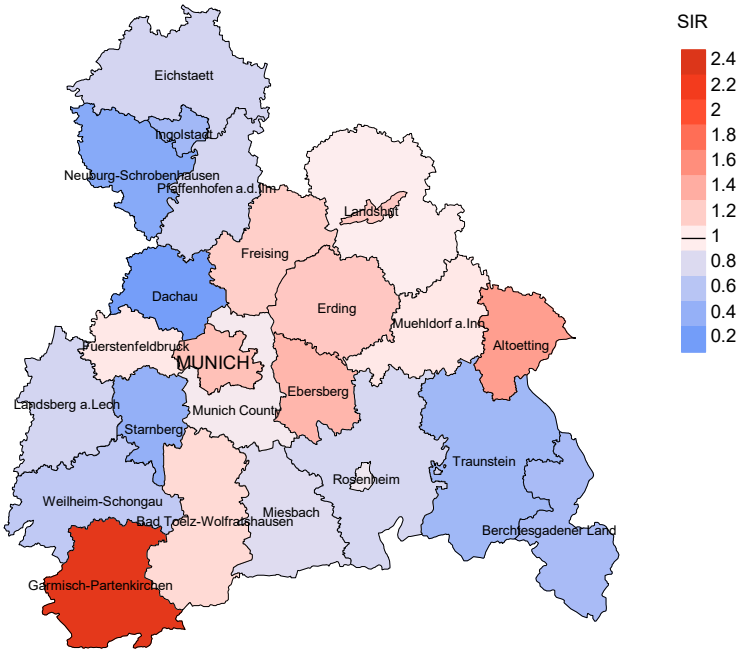


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=908, females N=160).

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 6 women were identified with newly diagnosed hypopharynx cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.35. Though, the value of this parameter may vary with an underlying probability of 99% between 0.35 and 3.52, 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	51	98.0		47	92.2	97.9
1999	57	96.5	8.8	50	87.7	96.0
2000	62	96.8	3.2	56	90.3	89.3
2001	53	96.2	7.5	45	84.9	97.8
2002	78	98.7	5.1	74	94.9	93.2
2003	86	97.7	1.2	79	91.9	96.2
2004	73	100.0	4.1	68	93.2	91.2
2005	107	99.1	6.5	95	88.8	95.8
2006	85	100.0	3.5	77	90.6	92.2
2007	103	99.0	5.8	91	88.3	95.6
2008	113	100.0	6.2	100	88.5	96.0
2009	113	98.2	4.4	94	83.2	95.7
2010	97	97.9	7.2	81	83.5	98.8
2011	98	99.0	5.1	83	84.7	92.8
2012	75	100.0	9.3	62	82.7	95.2
2013	84	97.6	1.2	63	75.0	95.2
2014	71	97.2	1.4	57	80.3	93.0
2015	80	100.0	3.8	63	78.8	88.9
2016	85	100.0	8.2	65	76.5	81.5
2017	57	98.2	5.3	36	63.2	80.6
2018	38	100.0	2.6	23	60.5	65.2
2019	26	100.0		11	42.3	90.9
2020	29	100.0		13	44.8	100.0
1998–2020	1721	98.7	4.8	1433	83.3	93.2

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	51	40	87.5	12	23.5
1999	57	49	89.8	14	24.6
2000	62	46	95.7	9	14.5
2001	53	50	88.0	10	18.9
2002	78	54	98.1	14	17.9
2003	86	67	95.5	10	11.6
2004	73	71	94.4	16	21.9
2005	107	54	94.4	19	17.8
2006	85	84	97.6	22	25.9
2007	103	106	99.1	26	25.2
2008	113	82	97.6	24	21.2
2009	113	84	98.8	19	16.8
2010	97	91	98.9	22	22.7
2011	98	83	96.4	21	21.4
2012	75	96	95.8	22	29.3
2013	84	74	98.6	15	17.9
2014	71	80	97.5	16	22.5
2015	80	75	97.3	17	21.3
2016	85	71	98.6	24	28.2
2017	57	71	97.2	11	19.3
2018	38	56	64.3	6	15.8
2019	26	61	39.3	5	19.2
2020	29	49	93.9	5	17.2
1998–2020	1721	1594	93.0	359	20.9

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	94.3
1999	49	79.6	20.4	97.7
2000	46	80.4	19.6	93.2
2001	50	82.0	18.0	90.9
2002	54	85.2	14.8	98.1
2003	67	86.6	13.4	96.9
2004	71	81.7	18.3	92.5
2005	54	90.7	9.3	94.1
2006	84	88.1	11.9	95.1
2007	106	85.8	14.2	93.3
2008	82	92.7	7.3	97.5
2009	84	82.1	17.9	96.4
2010	91	87.9	12.1	94.4
2011	83	80.7	19.3	86.3
2012	96	85.4	14.6	94.6
2013	74	86.5	13.5	93.2
2014	80	80.0	20.0	89.7
2015	75	82.7	17.3	93.2
2016	71	78.9	21.1	90.0
2017	71	83.1	16.9	91.3
2018	56	55.4	44.6	80.6
2019	61	34.4	65.6	91.7
2020	49	51.0	49.0	87.0
1998-2020	1594	80.3	19.7	93.0

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	35	57.2	56.2	63.2	57.9
1999	43	58.9	58.3	59.0	58.3
2000	43	59.1	58.8	64.0	59.1
2001	42	57.0	54.8	68.9	56.5
2002	49	58.7	58.5	59.2	58.7
2003	60	63.8	63.7	66.8	63.7
2004	64	60.2	59.9	62.7	60.1
2005	52	62.2	62.7	54.1	62.7
2006	74	62.7	61.9	66.8	62.6
2007	89	63.3	62.7	64.4	63.1
2008	69	62.8	62.8	63.7	63.5
2009	69	64.5	65.0	60.9	64.8
2010	84	62.9	61.3	72.3	62.3
2011	73	65.4	65.0	68.2	65.4
2012	87	66.0	65.8	71.4	65.8
2013	61	67.2	67.2	69.2	67.2
2014	70	67.9	67.0	69.9	67.6
2015	60	66.5	66.7	63.9	66.5
2016	60	67.9	67.2	70.4	68.0
2017	63	70.6	70.5	75.8	71.0
2018	47	69.2	67.0	72.8	67.5
2019	49	68.5	72.9	68.2	66.8
2020	44	70.0	70.3	68.4	70.0
1998–2020	1387	64.2	63.4	67.1	63.9

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	5	67.9	62.2	85.2	67.9
1999	6	62.6	62.9	52.5	62.9
2000	3	60.2	60.3	60.2	60.3
2001	8	61.5	60.9	63.2	61.4
2002	5	71.0	68.6	73.8	71.0
2003	7	59.9	59.9		59.9
2004	7	74.7	75.7	63.2	76.6
2005	2	60.0	60.0		69.3
2006	10	65.6	65.6		65.9
2007	17	67.0	63.1	71.0	67.0
2008	13	68.0	68.0		68.0
2009	15	68.7	68.6	70.2	69.5
2010	7	62.0	61.2	81.5	62.0
2011	10	62.1	62.1	65.3	60.9
2012	9	69.0	69.0		69.0
2013	13	68.1	68.1	71.4	68.1
2014	10	68.9	70.5	61.2	69.5
2015	15	65.8	65.8	65.8	66.6
2016	11	75.4	75.4	75.0	75.4
2017	8	65.7	67.4	63.1	67.4
2018	9	73.6	74.3	73.6	74.3
2019	12	69.2	66.6	69.7	69.2
2020	5	67.9	69.0	67.9	72.8
1998–2020	207	67.8	67.6	68.3	68.0

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	27	2.4	0.59	1.5	0.57	2.1	0.59	2.4	0.61
1999	34	3.0	0.65	1.9	0.63	2.7	0.63	3.0	0.65
2000	35	3.1	0.65	2.0	0.62	2.9	0.64	3.4	0.68
2001	35	3.0	0.76	2.1	0.78	2.9	0.81	3.1	0.79
2002	42	2.3	0.59	1.5	0.58	2.0	0.59	2.2	0.61
2003	51	2.7	0.63	1.7	0.57	2.3	0.57	2.6	0.60
2004	52	2.8	0.81	1.8	0.80	2.5	0.82	2.6	0.80
2005	47	2.5	0.51	1.5	0.49	2.1	0.50	2.4	0.51
2006	64	3.3	0.88	2.1	0.85	2.9	0.86	3.3	0.88
2007	76	3.4	0.87	2.1	0.88	2.9	0.89	3.2	0.88
2008	63	2.8	0.66	1.7	0.62	2.3	0.64	2.7	0.66
2009	59	2.6	0.61	1.5	0.59	2.1	0.60	2.5	0.64
2010	74	3.3	0.85	2.0	0.83	2.8	0.85	3.1	0.87
2011	59	2.6	0.69	1.5	0.70	2.1	0.70	2.4	0.68
2012	73	3.2	1.14	1.7	1.10	2.5	1.13	3.0	1.16
2013	53	2.3	0.74	1.2	0.70	1.7	0.71	2.0	0.72
2014	58	2.5	1.00	1.3	0.92	1.9	0.95	2.3	1.00
2015	50	2.1	0.77	1.1	0.72	1.6	0.73	1.9	0.77
2016	47	2.0	0.66	1.1	0.67	1.6	0.66	1.8	0.67
2017	52	2.2	1.04	1.0	1.05	1.5	1.05	1.9	1.04
2018	27	1.1	0.84	0.6	0.86	0.9	0.85	1.0	0.87
2019	18	0.7	0.90	0.3	0.79	0.5	0.84	0.6	0.89
2020	23	0.9	0.92	0.5	0.95	0.7	0.95	0.9	0.95
1998-2020	1119	2.4	0.75	1.4	0.72	2.0	0.74	2.2	0.76

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	4	0.3	0.80	0.2	1.05	0.2	0.98	0.3	0.75
1999	5	0.4	1.00	0.2	0.75	0.3	0.80	0.4	0.93
2000	2	0.2	0.25	0.1	0.23	0.1	0.23	0.1	0.24
2001	6	0.5	0.86	0.3	0.63	0.3	0.62	0.4	0.79
2002	4	0.2	0.57	0.1	0.53	0.2	0.58	0.2	0.58
2003	7	0.4	1.40	0.2	1.41	0.3	1.45	0.3	1.45
2004	6	0.3	0.67	0.1	0.57	0.2	0.58	0.2	0.65
2005	2	0.1	0.13	0.1	0.15	0.1	0.15	0.1	0.13
2006	10	0.5	0.83	0.3	0.69	0.4	0.68	0.4	0.72
2007	15	0.6	0.94	0.4	0.79	0.5	0.85	0.6	0.93
2008	13	0.6	0.76	0.3	0.81	0.4	0.80	0.4	0.78
2009	10	0.4	0.59	0.2	0.47	0.3	0.48	0.3	0.50
2010	6	0.3	0.60	0.2	0.70	0.2	0.70	0.2	0.65
2011	8	0.3	0.62	0.2	0.68	0.3	0.66	0.3	0.64
2012	9	0.4	0.82	0.2	0.65	0.3	0.70	0.3	0.71
2013	11	0.5	0.92	0.3	0.91	0.4	0.91	0.4	0.92
2014	6	0.2	0.46	0.1	0.36	0.2	0.38	0.2	0.42
2015	12	0.5	0.80	0.2	0.75	0.3	0.76	0.4	0.76
2016	9	0.4	0.69	0.1	0.48	0.2	0.54	0.3	0.62
2017	7	0.3	1.00	0.1	1.81	0.2	1.52	0.2	1.10
2018	4	0.2	0.67	0.1	0.39	0.1	0.45	0.1	0.63
2019	3	0.1	0.50	0.1	0.41	0.1	0.42	0.1	0.46
2020	2	0.1	0.50	0.0	0.50	0.0	0.51	0.0	0.39
1998-2020	161	0.3	0.69	0.2	0.63	0.2	0.65	0.3	0.66

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									
25-29									
30-34									
35-39	3	0.4	0.4	1	0.1	0.1	2	1.7	1.7
40-44	8	0.9	1.3	8	1.1	1.2			1.7
45-49	37	4.4	5.7	36	4.9	6.1	1	0.9	2.6
50-54	76	9.0	14.6	67	9.2	15.3	9	7.8	10.4
55-59	125	14.8	29.4	112	15.3	30.6	13	11.3	21.7
60-64	148	17.5	46.9	126	17.2	47.8	22	19.1	40.9
65-69	159	18.8	65.6	130	17.8	65.6	29	25.2	66.1
70-74	137	16.2	81.8	122	16.7	82.2	15	13.0	79.1
75-79	90	10.6	92.4	80	10.9	93.2	10	8.7	87.8
80-84	41	4.8	97.3	36	4.9	98.1	5	4.3	92.2
85+	23	2.7	100.0	14	1.9	100.0	9	7.8	100.0
All ages	847	100.0		732	100.0		115	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								
25-29								
30-34								
35-39	1	2	0.0	0.33	0.1	0.67	0.4	0.5
40-44	8		0.3	0.36			1.3	
45-49	36	1	1.3	0.62	0.0	0.09	2.5	0.1
50-54	67	9	2.6	0.71	0.4	0.60	2.5	0.3
55-59	112	13	5.3	0.81	0.6	0.72	2.5	0.3
60-64	126	22	7.1	0.75	1.2	0.73	2.0	0.4
65-69	130	29	8.0	0.80	1.6	0.85	1.4	0.4
70-74	122	15	8.1	0.93	0.9	0.71	1.0	0.2
75-79	80	10	6.6	1.00	0.7	0.77	0.6	0.1
80-84	36	5	5.0	1.03	0.5	1.25	0.3	0.1
85+	14	9	3.0	1.08	0.9	1.29	0.2	0.1
All ages	732	115					1.1	0.2
Mortality								
Raw			2.2	0.81	0.3	0.72		
WS			1.2	0.77	0.2	0.66		
ES			1.8	0.79	0.2	0.68		
BRD-S			2.1	0.81	0.3	0.69		
PYLL-70								
per 100,000			17.1		2.3			
ES			14.5		1.9			
AYLL-70			10.2		8.5			

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	0.2					1	100.0
C03–C06	Oral cavity	72	13.2	39	54.2	9	12.5	24	33.3
C07–C08	Salivary gland	1	0.2					1	100.0
C09–C10	Oropharynx	61	11.2	16	26.2	25	41.0	20	32.8
C11	Nasopharynx	2	0.4	2	100.0				
C12–C13	Hypopharynx	2	0.4			1	50.0	1	50.0
C14	ENT cancer	1	0.2			1	100.0		
C15	Oesophagus	66	12.1	13	19.7	13	19.7	40	60.6
C16	Stomach	7	1.3	1	14.3			6	85.7
C17	Small intestine	3	0.6	3	100.0				
C18	Colon	16	2.9	10	62.5	1	6.3	5	31.3
C19–C20	Rectum	11	2.0	6	54.5	2	18.2	3	27.3
C21	Anus/canal	1	0.2	1	100.0				
C22	Liver	15	2.8	1	6.7	2	13.3	12	80.0
C23–C24	Bile	1	0.2	1	100.0				
C25	Pancreas	7	1.3	1	14.3	1	14.3	5	71.4
C26	GI cancer	1	0.2			1	100.0		
C30–C31	Sinuses	2	0.4	1	50.0			1	50.0
C32	Larynx	33	6.1	25	75.8	5	15.2	3	9.1
C33–C34	Lung	98	18.0	12	12.2	17	17.3	69	70.4
C38,C45	Mesothelioma	1	0.2					1	100.0
C43	Malign. melanoma	7	1.3	3	42.9	1	14.3	3	42.9
C44	Skin others	33	6.1	12	36.4	3	9.1	18	54.5
C46,C49	Soft tissue	2	0.4	1	50.0			1	50.0
C50	Breast	1	0.2	1	100.0				
C61	Prostate	37	6.8	24	64.9	2	5.4	11	29.7
C62	Testis	2	0.4	2	100.0				
C64	Kidney	10	1.8	5	50.0	1	10.0	4	40.0
C65	Renal pelvis	2	0.4					2	100.0
C66	Ureter	2	0.4	1	50.0			1	50.0
C67	Bladder	15	2.8	5	33.3			10	66.7
C73	Thyroid	3	0.6			2	66.7	1	33.3
C76–C79	CUP	18	3.3	12	66.7	1	5.6	5	27.8
C81	Hodgkin lymphoma	1	0.2	1	100.0				
C82–C85	NHL	5	0.9	3	60.0	2	40.0		
C90	Mult. myeloma	1	0.2	1	100.0				
C91–C96	Leukaemia	3	0.6	2	66.7			1	33.3
All further malignancies		544	100.0	205	37.7	90	16.5	249	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 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	11	11.7	10	90.9	1	9.1		
C07–C08 Salivary gland	1	1.1	1	100.0				
C09–C10 Oropharynx	11	11.7	4	36.4	5	45.5	2	18.2
C11 Nasopharynx	1	1.1			1	100.0		
C15 Oesophagus	9	9.6			4	44.4	5	55.6
C16 Stomach	3	3.2	1	33.3	1	33.3	1	33.3
C18 Colon	2	2.1	1	50.0			1	50.0
C19–C20 Rectum	1	1.1					1	100.0
C22 Liver	1	1.1			1	100.0		
C30–C31 Sinuses	1	1.1					1	100.0
C32 Larynx	3	3.2	2	66.7	1	33.3		
C33–C34 Lung	14	14.9			2	14.3	12	85.7
C44 Skin others	4	4.3					4	100.0
C50 Breast	15	16.0	9	60.0	3	20.0	3	20.0
C51 Vulva	2	2.1					2	100.0
C53 Cervix uteri	3	3.2	2	66.7			1	33.3
C54 Corpus uteri	4	4.3	2	50.0			2	50.0
C56 Ovary	1	1.1	1	100.0				
C64 Kidney	1	1.1	1	100.0				
C70–C72 CNS cancer	1	1.1			1	100.0		
C73 Thyroid	2	2.1	1	50.0			1	50.0
C82–C85 NHL	1	1.1	1	100.0				
C91–C96 Leukaemia	2	2.1					2	100.0
All further malignancies	94	100.0	36	38.3	20	21.3	38	40.4

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.	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								
25-29								
30-34								
35-39								
40-44	8		0.3	0.40			1.4	
45-49	28	1	1.0	0.64	0.0	0.11	2.2	0.1
50-54	56	6	2.2	0.70	0.2	0.50	2.4	0.3
55-59	91	12	4.3	0.87	0.6	0.75	2.4	0.4
60-64	96	12	5.4	0.73	0.6	0.63	1.8	0.3
65-69	96	23	5.9	0.86	1.3	0.92	1.3	0.4
70-74	91	10	6.1	1.00	0.6	0.77	1.0	0.1
75-79	54	5	4.5	1.02	0.3	1.67	0.6	0.1
80-84	23	4	3.2	1.28	0.4	1.33	0.3	0.1
85+	12	6	2.6	1.33	0.6	1.50	0.2	0.1
All ages	555	79					1.0	0.2
Mortality								
Raw			1.7	0.83	0.2	0.74		
WS			1.0	0.79	0.1	0.65		
ES			1.3	0.81	0.2	0.68		
BRD-S			1.6	0.83	0.2	0.70		
PYLL-70								
per 100,000			13.7		1.5			
ES			11.6		1.2			
AYLL-70			10.5		7.9			

* 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.	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								
25-29								
30-34								
35-39								
40-44	6		0.2	0.43			1.1	
45-49	24		0.9	0.60			1.9	
50-54	48	5	1.9	0.69	0.2	0.50	2.1	0.2
55-59	79	12	3.7	0.82	0.6	0.86	2.1	0.4
60-64	80	10	4.5	0.70	0.5	0.53	1.5	0.3
65-69	71	18	4.3	0.75	1.0	0.75	1.0	0.3
70-74	63	8	4.2	0.88	0.5	0.67	0.7	0.1
75-79	35	2	2.9	0.80	0.1	0.67	0.4	0.0
80-84	17	4	2.3	0.94	0.4	1.33	0.2	0.1
85+	9	5	1.9	1.00	0.5	1.25	0.2	0.1
All ages	432	64					0.8	0.1
Mortality								
Raw			1.3	0.75	0.2	0.65		
WS			0.8	0.73	0.1	0.58		
ES			1.1	0.74	0.1	0.60		
BRD-S			1.2	0.75	0.2	0.61		
PYLL-70								
per 100,000			11.5		1.3			
ES			9.8		1.0			
AYLL-70			10.7		7.9			

* See corresponding tables with multiple malignancies.

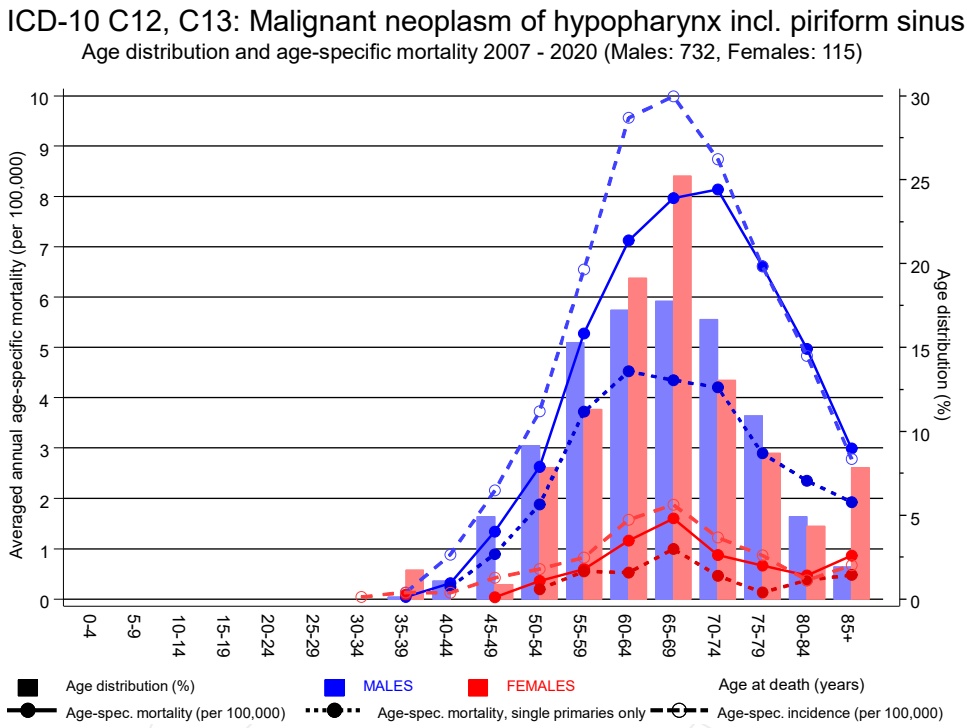


Figure 17. Distribution of age at death (bars; males: mean=62.3 yrs, median=62.0 yrs; females: mean=64.7 yrs, median=64.5 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

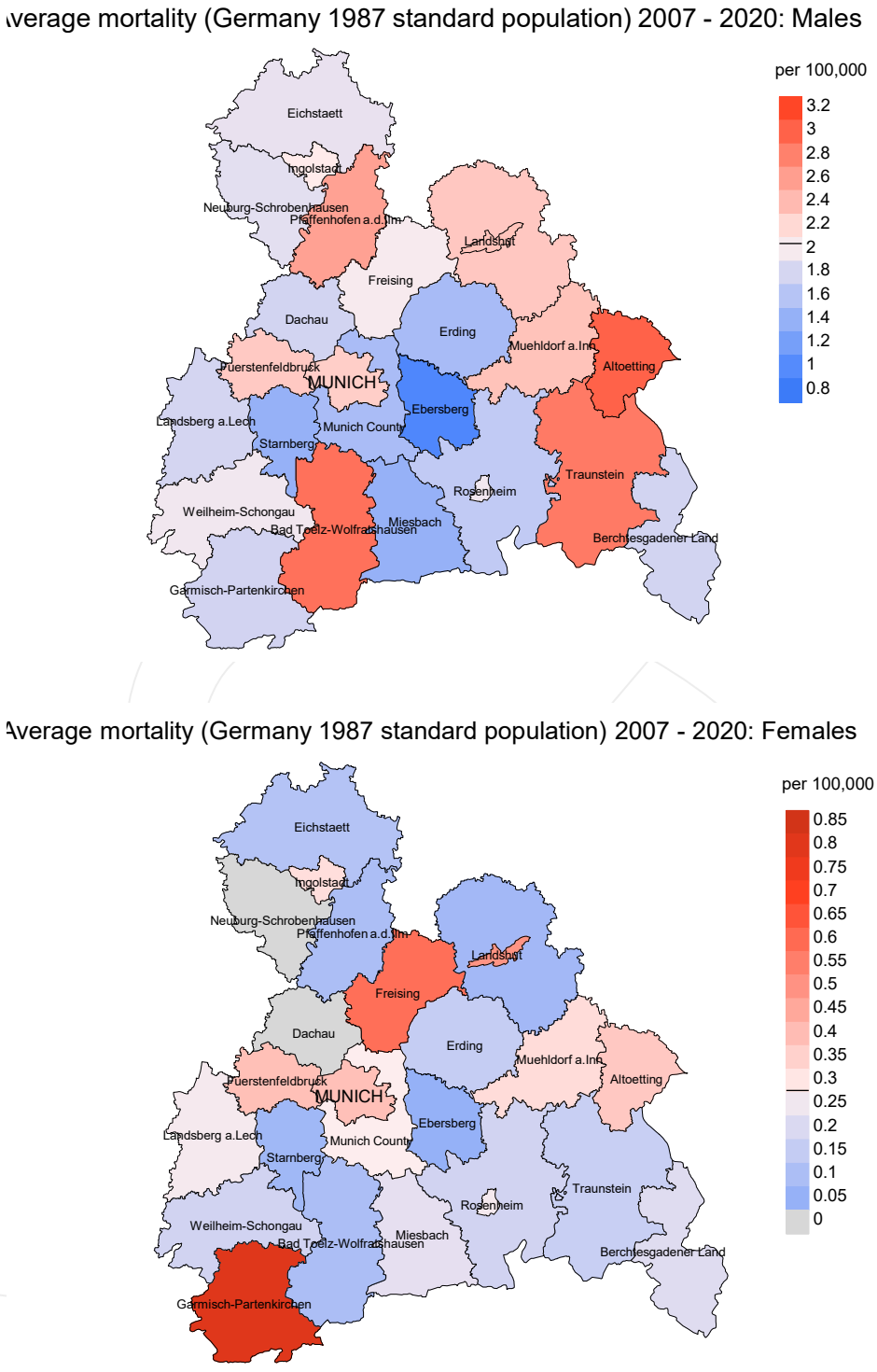
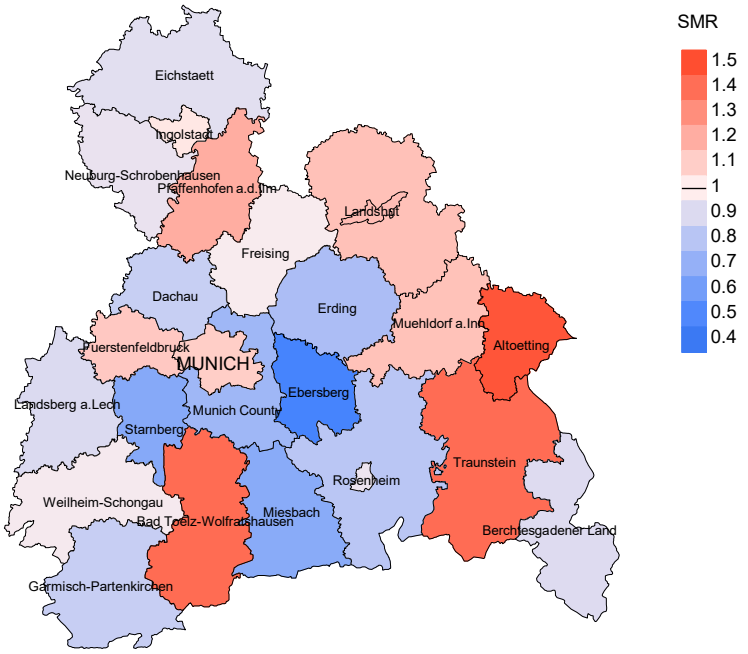


Figure 18a. Map of cancer mortality (german standard population) by county averaged for period 2007 to 2020. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 2.1/100,000 WS N=732, females 0.3/100,000 WS N=115).

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 1 women died from hypopharynx cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.0/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.0 and 0.6/100,000.

Standardized mortality ratio (SMR) 2007 - 2020: Males



Standardized mortality ratio (SMR) 2007 - 2020: Females

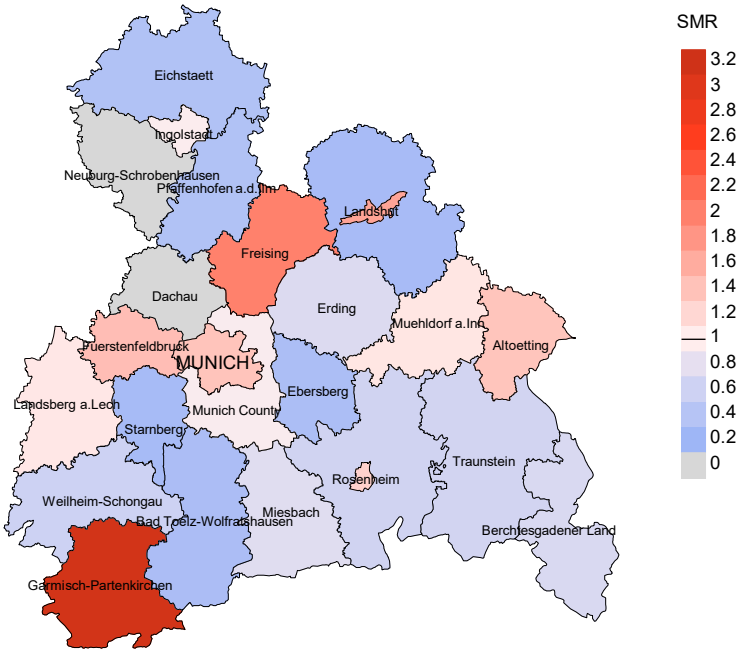


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=732, females N=115).

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 1 women died from hypopharynx cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.32. Though, the value of this parameter may vary with an underlying probability of 99% between 0.00 and 2.36, and is therefore not statistically striking.

Statistical Notes

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

1. **All multiple primaries included**

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

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

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

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

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

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

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

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

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

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

Shortcuts

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

Recommended Citation

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