Munich Cancer Registry

- Survival
- Selection Matrix
- Homepage
- *Deutsch*

ICD-10 C05.1, C05.2, C09-C14: Pharynx cancer

Incidence and Mortality

Year of diagnosis	1998-2016
Patients	4,300
Diseases	4,378
Creation date	08/21/2018
Export date	08/09/2018
Population	4.81 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/bC0914E-ICD-10-C05.1-C05.2-C09-C14-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, August 2018

[#] 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
C05.1	Soft palate
C05.2	Uvula
C09	Tonsil
C10	Oropharynx Excl.: Topography code C10.1 Anterior surface of epiglottis
C11	Nasopharynx
C12	Piriform sinus
C13	Hypopharynx
C14	Other and ill-defined sites in the lip, oral cavity and pharynx

INCIDENCE

Table 1

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

Year of diagnosis	All cases n	DCO cases n	Prop. DCO %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %
1998	147	7	4.8	9.5	13.4	89.1	99.3
1999	164	10	6.1	11.9	13.2	82.9	98.8
2000	144	6	4.2	11.9	13.1	84.7	97.2
2001	151	11	7.3	12.7	12.8	79.5	96.0
2002	233	20	8.6	13.6	12.7	81.5	98.3 #
2003	246	5	2.0	14.3	12.2	80.5	97.2
2004	218	8	3.7	14.4	11.9	77.5	99.1
2005	268	14	5.2	14.7	11.7	73.1	96.6
2006	242	5	2.1	14.6	11.0	69.8	95.5
2007	288	25	8.7	14.5	10.7	69.1	87.2 #
2008	310	12	3.9	14.8	10.3	70.3	85.8
2009	292	7	2.4	15.3	9.5	69.2	83.2
2010	293	13	4.4	15.5	8.8	59.0	78.2
2011	290	14	4.8	16.1	7.8	60.7	85.9
2012	283	19	6.7	16.3	7.7	60.1	81.6
2013	280	7	2.5	16.3	7.6	54.3	81.4
2014	260	11	4.2	16.6	6.5	51.9	89.2
2015	162	10	6.2	17.1	6.3	46.3	96.3
2016	107	13	12.1	17.4	3.0	28.0	64.5 ##
1998-2016	4378	217	5.0	17.4	13.4	67.6	89.6

4,378 cases diagnosed 1998-2016 are related to a total of 4,300 patients. Currently, in 1,290 (30.0 %) of these 4,300 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 990 / 224 / 76 (23.0 % / 5.2 % / 1.8 %) patients exist having 2 / 3 / 4+ malignancies.

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

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

How to interpret:
In 2014, a subgroup of 260 cases has been diagnosed, of which 16.6 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 6.5 % 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	127	86.4	5	3.9	9.4	13.5	90.6	99.2
1999	135	82.3	7	5.2	11.5	13.2	85.9	100.0
2000	115	79.9	4	3.5	11.1	13.1	86.1	98.3
2001	126	83.4	7	5.6	11.9	12.9	79.4	96.8
2002	199	85.4	18	9.0	13.1	12.7	84.4	98.5 #
2003	198	80.5	4	2.0	14.1	12.3	81.8	99.0
2004	185	84.9	7	3.8	14.5	12.0	76.8	99.5
2005	215	80.2	10	4.7	14.5	11.7	75.3	97.2
2006	184	76.0	3	1.6	14.3	11.2	72.8	95.1
2007	233	80.9	18	7.7	14.0	11.0	71.7	87.6 #
2008	239	77.1	9	3.8	14.3	10.6	70.7	84.9
2009	230	78.8	5	2.2	14.6	9.7	69.6	83.0
2010	239	81.6	10	4.2	14.8	9.1	60.7	79.5
2011	228	78.6	8	3.5	15.4	7.9	61.4	85.1
2012	219	77.4	11	5.0	15.4	7.8	59.4	80.8
2013	218	77.9	3	1.4	15.4	7.5	55.0	81.7
2014	216	83.1	9	4.2	15.8	6.1	53.7	88.9
2015	117	72.2	6	5.1	16.3	6.3	52.1	96.6
2016	81	75.7	9	11.1	16.6	2.6	28.4	69.1 ##
1998-2016	3504	80.0	153	4.4	16.6	13.5	69.3	90.0

3,504 cases diagnosed 1998-2016 are related to a total of 3,443 patients. Currently, in 1,018 (29.6 %) of these 3,443 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 777 / 180 / 61 (22.6 % / 5.2 % / 1.8 %) patients exist having 2 / 3 / 4+ malignancies.

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

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

How to interpret:
In 2014, a subgroup of 216 cases has been diagnosed, of which 15.8 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 6.1 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 1b

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

Year of diagnosis	Females n	Females %	DCO cases n	Prop. DCO %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %	
1998	20	13.6	2	10.0	10.0	13.1	80.0	100.0	
1999	29	17.7	3	10.3	14.3	13.1	69.0	93.1	
2000	29	20.1	2	6.9	15.4	13.0	79.3	93.1	
2001	25	16.6	4	16.0	16.5	12.6	80.0	92.0	
2002	34	14.6	2	5.9	16.1	12.5	64.7	97.1	#
2003	48	19.5	1	2.1	15.1	11.8	75.0	89.6	
2004	33	15.1	1	3.0	13.8	11.4	81.8	97.0	
2005	53	19.8	4	7.5	15.9	11.4	64.2	94.3	
2006	58	24.0	2	3.4	16.1	10.1	60.3	96.6	
2007	55	19.1	7	12.7	16.7	9.7	58.2	85.5	#
2008	71	22.9	3	4.2	16.9	9.5	69.0	88.7	
2009	62	21.2	2	3.2	18.4	8.9	67.7	83.9	
2010	54	18.4	3	5.6	18.0	7.8	51.9	72.2	
2011	62	21.4	6	9.7	19.1	7.5	58.1	88.7	
2012	64	22.6	8	12.5	20.1	7.3	62.5	84.4	
2013	62	22.1	4	6.5	19.9	8.2	51.6	80.6	
2014	44	16.9	2	4.5	20.3	8.2	43.2	90.9	
2015	45	27.8	4	8.9	20.4	6.1	31.1	95.6	
2016	26	24.3	4	15.4	20.6	4.2	26.9	50.0	##
1998-2016	874	20.0	64	7.3	20.6	13.1	60.9	87.8	

874 cases diagnosed 1998-2016 are related to a total of 857 patients. Currently, in 272 (31.7 %) of these 857 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 213 / 44 / 15 (24.9 % / 5.1 % / 1.8 %) patients exist having 2 / 3 / 4+ malignancies.

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

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

How to interpret:
In 2014, a subgroup of 44 cases has been diagnosed, of which 20.3 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 8.2 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 2

Incidence measures by year of diagnosis including DCO cases
(with respect to registry area expansion from 2.65 to 4.10 m as of 2002,
and from 4.10 to 4.81 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	127	20	11.5	1.7	7.8	0.9	10.3	1.4	11.1	1.5
1999	135	29	12.1	2.4	8.0	1.4	11.0	1.9	12.0	2.2
2000	115	29	10.1	2.4	6.7	1.5	9.3	2.1	10.3	2.2
2001	126	25	10.9	2.1	7.3	1.2	9.9	1.7	10.7	1.9
2002	199	34	10.7	1.7	7.0	1.0	9.6	1.4	10.3	1.6
2003	198	48	10.6	2.4	7.0	1.4	9.7	2.0	10.3	2.2
2004	185	33	9.8	1.7	6.5	0.9	8.8	1.3	9.6	1.5
2005	215	53	11.4	2.7	7.3	1.6	9.8	2.2	10.7	2.4
2006	184	58	9.6	2.9	6.2	1.9	8.5	2.5	9.3	2.7
2007	233	55	10.5	2.4	6.4	1.4	8.8	1.9	10.0	2.1
2008	239	71	10.7	3.1	6.7	1.6	9.2	2.2	10.3	2.5
2009	230	62	10.3	2.7	6.3	1.5	8.7	2.1	9.6	2.3
2010	239	54	10.6	2.3	6.5	1.4	8.9	1.9	9.8	2.0
2011	228	62	10.2	2.7	5.9	1.5	8.2	2.1	9.3	2.3
2012	219	64	9.6	2.7	5.7	1.4	7.8	2.0	8.8	2.3
2013	218	62	9.5	2.6	5.6	1.4	7.7	2.0	8.6	2.2
2014	216	44	9.3	1.8	5.5	1.0	7.5	1.4	8.5	1.6
2015	117	45	4.9	1.8	2.7	1.1	3.8	1.4	4.5	1.6
2016	81	26	3.4	1.1	1.9	0.5	2.7	0.8	3.1	0.9
1998-2016	3504	874	9.5	2.3	5.9	1.3	8.1	1.8	8.9	2.0

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	147	57.7	10.8	0.9	87.6	46.9	51.5	57.3	63.7	71.0
1999	164	59.3	10.9	32.7	91.7	48.1	51.3	57.7	65.1	75.2
2000	144	58.7	10.4	31.0	89.6	47.1	51.7	57.8	64.6	73.9
2001	151	59.2	10.4	29.2	94.7	48.0	52.6	58.2	65.5	72.9
2002	233	59.4	9.9	37.3	96.8	47.2	53.0	59.2	64.2	72.6
2003	246	59.8	9.6	38.9	87.5	47.3	53.6	58.7	65.9	73.7
2004	218	59.3	10.5	31.7	87.8	47.0	51.9	58.3	65.1	74.6
2005	268	60.5	10.5	12.8	103	47.7	53.5	61.0	66.1	71.6
2006	242	59.9	10.9	17.6	101	47.6	52.5	58.9	66.4	72.5
2007	288	62.1	10.9	30.1	91.6	48.7	53.1	62.1	68.8	76.6
2008	310	62.9	10.4	28.3	97.0	49.6	56.9	61.9	69.0	76.3
2009	292	62.5	10.7	40.8	95.5	49.6	54.8	61.8	69.6	75.7
2010	293	61.2	10.7	21.3	92.3	47.6	54.1	61.1	68.9	73.6
2011	290	63.3	10.9	24.5	92.0	49.8	55.2	63.0	70.7	75.7
2012	283	63.4	10.6	39.9	98.2	49.4	55.2	62.9	70.6	76.8
2013	280	63.3	9.9	33.2	92.9	52.1	55.5	62.5	69.7	76.2
2014	260	62.7	10.9	25.6	92.4	48.5	56.1	62.5	70.2	76.3
2015	162	65.7	10.4	39.9	95.0	52.4	58.4	65.5	72.9	79.2
2016	107	65.5	11.3	20.1	91.6	54.0	57.5	65.8	73.4	77.6
1998-2016	4378	61.5	10.7	0.9	103	48.6	54.0	61.1	68.3	75.5

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	127	56.9	10.3	0.9	87.6	46.2	51.0	57.2	63.2	68.9
1999	135	58.7	10.0	37.1	87.0	48.6	51.2	57.2	64.2	73.6
2000	115	59.4	9.8	40.6	89.6	49.1	51.8	58.0	65.8	73.6
2001	126	58.5	9.6	29.2	81.2	47.5	52.3	58.2	65.4	70.1
2002	199	59.1	9.5	38.0	96.8	47.2	52.9	59.0	63.9	71.3
2003	198	59.3	9.0	39.6	87.5	47.7	53.4	58.4	65.6	72.6
2004	185	58.3	10.0	31.7	85.5	46.2	51.8	57.3	64.0	72.4
2005	215	60.0	10.2	12.8	99.0	47.3	53.5	61.0	65.7	70.4
2006	184	60.0	10.2	17.6	86.7	47.6	52.6	59.0	66.4	72.7
2007	233	62.0	10.3	39.1	91.6	49.0	52.9	62.3	68.8	75.6
2008	239	61.8	9.9	28.3	87.0	49.3	55.1	61.1	68.3	74.3
2009	230	62.2	10.0	40.8	90.7	49.6	54.8	62.0	69.4	73.9
2010	239	61.2	10.5	21.3	92.3	47.3	54.1	60.9	69.1	74.5
2011	228	63.1	10.4	32.1	89.2	49.6	55.1	62.7	70.7	75.6
2012	219	62.5	10.1	39.9	91.7	49.3	54.8	61.8	70.2	76.5
2013	218	63.2	9.4	33.2	92.9	52.2	56.2	63.0	69.1	75.0
2014	216	62.5	10.5	25.6	89.6	48.4	55.8	62.5	70.0	76.0
2015	117	66.2	10.1	47.0	94.6	52.4	59.0	66.3	73.4	80.0
2016	81	65.0	10.9	20.1	91.6	54.5	57.5	65.8	73.4	76.6
1998-2016	3504	61.1	10.2	0.9	99.0	48.5	53.8	60.9	67.9	74.6

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	20	63.0	12.1	50.7	86.7	51.3	53.8	58.3	72.3	84.0
1999	29	62.3	14.4	32.7	91.7	41.9	52.1	60.8	73.4	82.4
2000	29	56.3	12.6	31.0	81.3	39.8	47.9	57.4	60.4	77.0
2001	25	62.6	13.6	41.3	94.7	49.3	53.8	59.2	73.0	84.8
2002	34	61.3	12.1	37.3	83.6	46.8	53.3	60.3	70.1	78.9
2003	48	61.6	11.8	38.9	84.2	44.7	54.8	59.0	69.9	80.7
2004	33	64.5	12.0	36.3	87.8	50.9	56.0	62.9	75.7	80.5
2005	53	62.3	11.6	44.7	103	49.0	53.3	61.1	66.6	77.5
2006	58	59.6	12.8	34.7	101	45.9	51.6	58.7	65.6	72.5
2007	55	62.6	13.1	30.1	89.4	47.8	53.6	60.9	68.6	83.5
2008	71	66.7	11.4	35.5	97.0	54.4	60.7	66.3	70.8	82.9
2009	62	63.6	12.8	41.0	95.5	49.6	54.7	61.1	71.1	83.1
2010	54	61.3	11.5	33.3	90.0	48.8	53.4	62.9	68.1	70.8
2011	62	63.9	12.4	24.5	92.0	51.9	57.0	63.9	70.6	77.4
2012	64	66.4	11.9	44.0	98.2	52.5	58.0	65.1	74.0	79.2
2013	62	63.3	11.6	43.0	91.4	50.5	54.1	61.6	71.6	78.5
2014	44	63.7	13.1	31.6	92.4	51.5	57.7	63.9	70.6	83.7
2015	45	64.1	11.0	39.9	95.0	49.7	57.5	64.1	67.6	77.8
2016	26	67.1	12.5	38.8	91.5	54.0	57.2	66.1	74.5	86.7
1998-2016	874	63.2	12.3	24.5	103	48.8	54.7	61.9	70.3	80.7

Table 4

Age distribution by 5-year age group and sex for period 2007-2016
(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	4	0.2	0.2	3	0.1	0.1	1	0.2	0.2
25-29	2	0.1	0.2	2	0.1	0.2			0.2
30-34	8	0.3	0.5	4	0.2	0.4	4	0.7	0.9
35-39	13	0.5	1.1	7	0.3	0.8	6	1.1	2.0
40-44	59	2.3	3.4	45	2.2	3.0	14	2.6	4.6
45-49	189	7.4	10.7	159	7.9	10.9	30	5.5	10.1
50-54	337	13.1	23.9	270	13.4	24.3	67	12.3	22.4
55-59	399	15.6	39.4	316	15.6	39.9	83	15.2	37.6
60-64	483	18.8	58.2	387	19.2	59.1	96	17.6	55.2
65-69	434	16.9	75.2	336	16.6	75.7	98	18.0	73.2
70-74	310	12.1	87.3	256	12.7	88.4	54	9.9	83.1
75-79	179	7.0	94.2	148	7.3	95.7	31	5.7	88.8
80-84	84	3.3	97.5	59	2.9	98.6	25	4.6	93.4
85+	64	2.5	100.0	28	1.4	100.0	36	6.6	100.0
All ages	2565	100.0		2020	100.0		545	100.0	

Table 5

Age-specific incidence, DCO rate and proportion of all cancers
for period 2007-2016

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males DCO rate n=87 %	Females DCO rate n=42 %	Males Prop.all cancers n=113978 %	Females Prop.all cancers n=112253 %
0- 4								
5- 9								
10-14								
15-19								
20-24	3	1	0.2	0.1			0.7	0.3
25-29	2		0.1				0.3	
30-34	4	4	0.3	0.3			0.4	0.3
35-39	7	6	0.4	0.4		16.7	0.5	0.2
40-44	43	14	2.3	0.8	2.3	7.1	2.0	0.3
45-49	154	29	7.8	1.5	1.3		3.9	0.4
50-54	268	64	15.5	3.7	2.2	3.1	4.4	0.7
55-59	313	83	22.1	5.6	2.9	2.4	3.4	0.9
60-64	383	95	31.3	7.1	2.3	5.3	2.9	0.8
65-69	333	94	28.1	7.2	4.2	2.1	1.8	0.7
70-74	251	54	22.7	4.3	7.6	5.6	1.2	0.4
75-79	147	31	18.4	3.1	6.1	6.5	0.9	0.2
80-84	59	24	12.8	3.4	10.2	33.3	0.5	0.2
85+	28	36	9.1	4.9	42.9	44.4	0.4	0.3
All ages	1995	535			4.4	7.9	1.8	0.5
Incidence								
Raw			8.7	2.3				
WS			5.2	1.3				
ES			7.1	1.7				
BRD-S			8.0	1.9				

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).

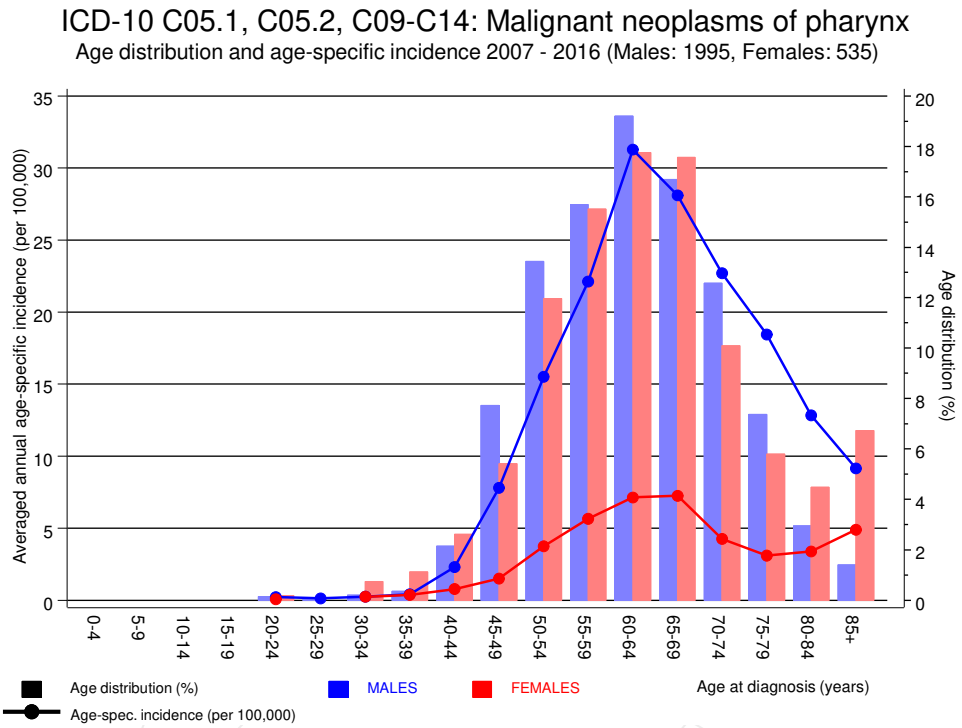


Figure 6. Age distribution (males: mean=62.7 yrs, median=62.3 yrs; females: mean=64.3 yrs, median=63.9 yrs) and age-specific incidence.

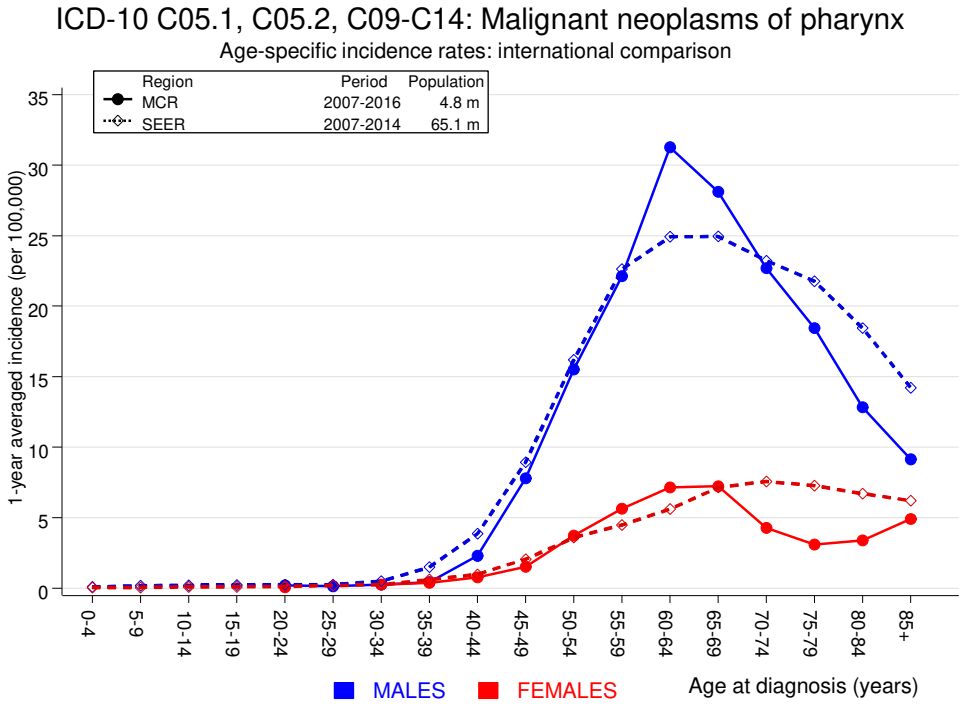


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:
Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence - SEER 18 Regs Research Data, released April 2014, based on the November 2013 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 1998-2016

MALES

Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C03-C06	Oral cavity	61	1.5	41.8	32.0	53.7	#	61.0	9.8
C09-C10	Oropharynx	46	1.9	24.1	17.7	32.2	#	45.1	
C11	Nasopharynx	3	0.1	24.8	5.1	72.4	#	2.9	
C12-C13	Hypopharynx	23	1.0	22.3	14.2	33.5	#	22.5	13.0
C14	ENT cancer	3	0.0	96.4	19.9	281.6	#	3.0	100.0
C15	Oesophagus	68	2.7	25.4	19.7	32.2	#	66.9	17.6
C16	Stomach	10	4.2	2.4	1.1	4.4	#	5.9	10.0
C18	Colon	22	10.2	2.2	1.4	3.3	#	12.1	
C19-C20	Rectum	8	6.8	1.2	0.5	2.3		1.2	
C21	Anus/canal	2	0.3	6.5	0.8	23.3		1.7	
C22	Liver	17	3.5	4.8	2.8	7.7	#	13.8	5.9
C25	Pancreas	13	4.2	3.1	1.6	5.3	#	9.0	23.1
C30-C31	Sinuses	2	0.2	8.3	1.0	30.0	#	1.8	
C32	Larynx	42	1.5	27.4	19.8	37.1	#	41.4	31.0
C33-C34	Lung	145	14.7	9.9	8.3	11.6	#	133.4	11.0
C43	Malign. melanoma	11	5.6	1.9	1.0	3.5		5.5	18.2
C61	Prostate	39	33.9	1.1	0.8	1.6		5.2	5.1
C64	Kidney	12	4.5	2.7	1.4	4.6	#	7.6	16.7
C65	Renal pelvis	2	0.4	4.5	0.5	16.3		1.6	
C67	Bladder	11	4.4	2.5	1.2	4.5	#	6.7	9.1
C70-C72	CNS cancer	2	1.7	1.2	0.1	4.2		0.3	
C73	Thyroid	6	1.1	5.4	2.0	11.8	#	5.0	16.7
C76-C79	CUP	4	1.9	2.1	0.6	5.4		2.2	
C82-C85	NHL	6	4.6	1.3	0.5	2.8		1.4	
C90	Mult. myeloma	2	1.4	1.4	0.2	5.1		0.6	
Others, specified		11	5.3	2.1	1.0	3.7	#	5.8	18.2
Not observed		0	2.6	0.0	0.0	1.4		-2.6	
All further malignancies		571	120.5	4.7	4.4	5.1	#	461.2	11.9

Patients	3276
Median age at next malignancy (years)	63.6
Person-years	9768
Mean observation time (years)	3.0
Median observation time (years)	1.6

The occurrence of further malignancy listed is statistically significant.

Observed further malignancies with count 1 are pooled in category “Others, specified”.

Table 7b

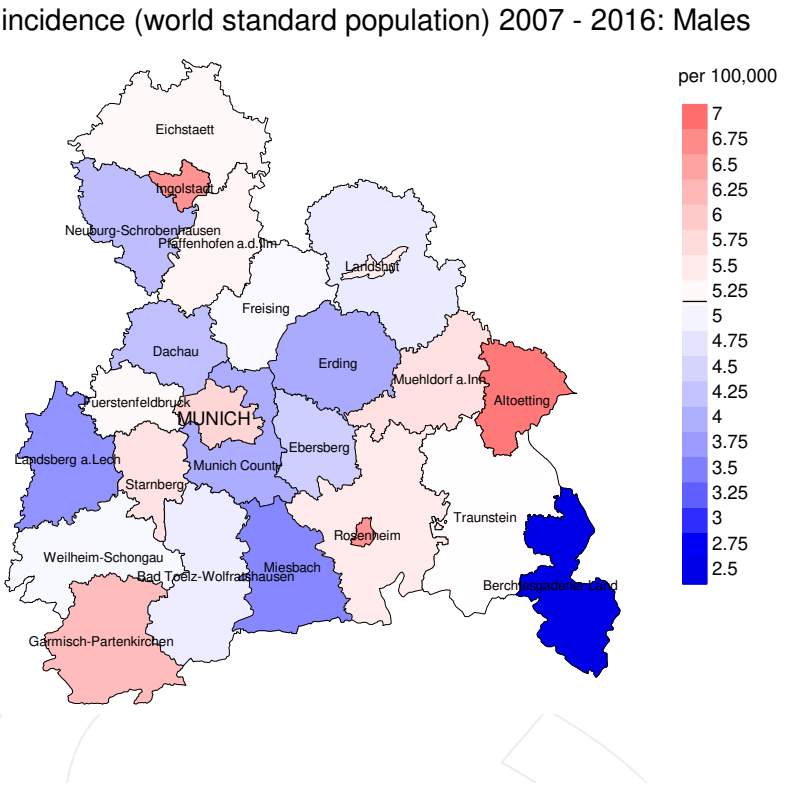
Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of further malignancies for period 1998–2016
FEMALES

Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C03–C06	Oral cavity	10	0.2	58.1	27.8	106.8	#	35.9	
C09–C10	Oropharynx	13	0.1	90.5	48.2	154.7	#	47.0	
C12–C13	Hypopharynx	6	0.0	151.5	55.6	329.7	#	21.8	
C15	Oesophagus	13	0.2	72.0	38.3	123.1	#	46.9	
C16	Stomach	3	0.7	4.1	0.9	12.1		8.3	
C18	Colon	9	2.1	4.3	2.0	8.2	#	25.3	
C22	Liver	3	0.3	10.6	2.2	30.9	#	9.9	33.3
C25	Pancreas	2	1.0	2.0	0.2	7.2		3.7	
C32	Larynx	9	0.1	157.6	72.0	299.1	#	32.7	
C33–C34	Lung	28	2.1	13.3	8.9	19.3	#	94.7	14.3
C50	Breast	11	8.8	1.2	0.6	2.2		8.0	
C51	Vulva	3	0.2	13.2	2.7	38.5	#	10.1	
C53	Cervix uteri	3	0.4	7.6	1.6	22.1	#	9.5	
C54	Corpus uteri	2	1.5	1.3	0.2	4.9		1.9	
C56	Ovary	3	1.0	2.9	0.6	8.4		7.1	33.3
C64	Kidney	2	0.6	3.5	0.4	12.5		5.2	
C70–C72	CNS cancer	2	0.3	5.7	0.7	20.8		6.0	50.0
C76–C79	CUP	2	0.4	5.1	0.6	18.4		5.9	
C82–C85	NHL	2	0.9	2.2	0.3	7.9		4.0	
C91–C96	Leukaemia	3	0.4	8.4	1.7	24.4	#	9.7	33.3
Others, specified		5	1.7	3.0	1.0	7.0		12.2	20.0
Not observed		0	3.0	0.0	0.0	1.2		-11.1	
All further malignancies		134	26.0	5.1	4.3	6.1	#	394.8	6.7

Patients	790
Median age at next malignancy (years)	64.9
Person-years	2735
Mean observation time (years)	3.5
Median observation time (years)	2.1

The occurrence of further malignancy listed is statistically significant.

Observed further malignancies with count 1 are pooled in category “Others, specified”.



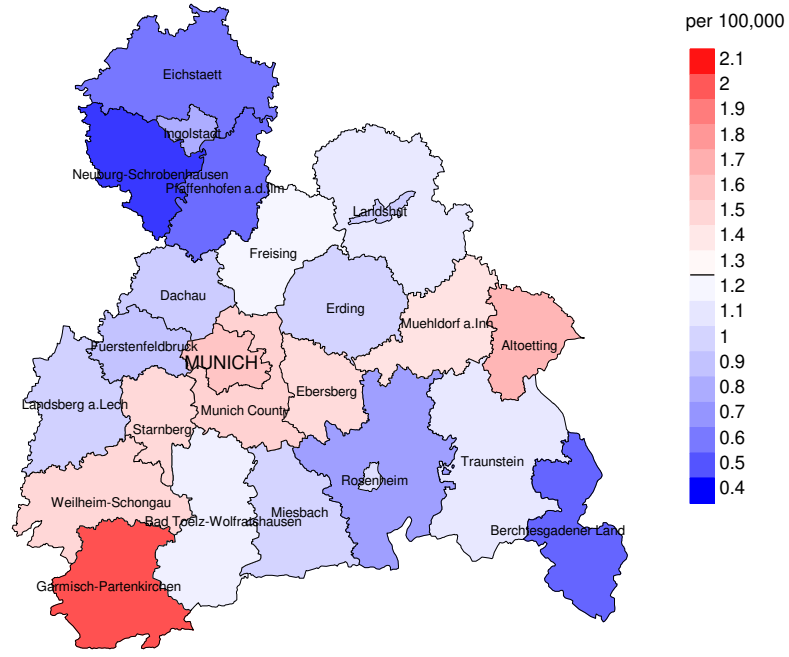
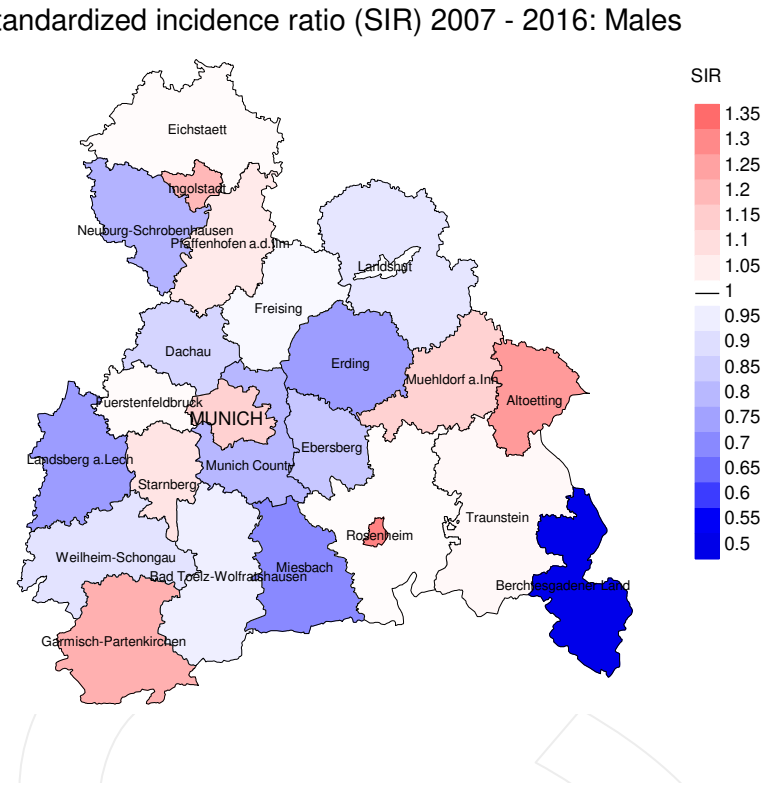


Figure 8a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 5.2/100,000 WS N=1,995, females 1.3/100,000 WS N=535).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 17 women were identified with newly diagnosed pharynx cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 1.5/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.7 and 2.9/100,000.



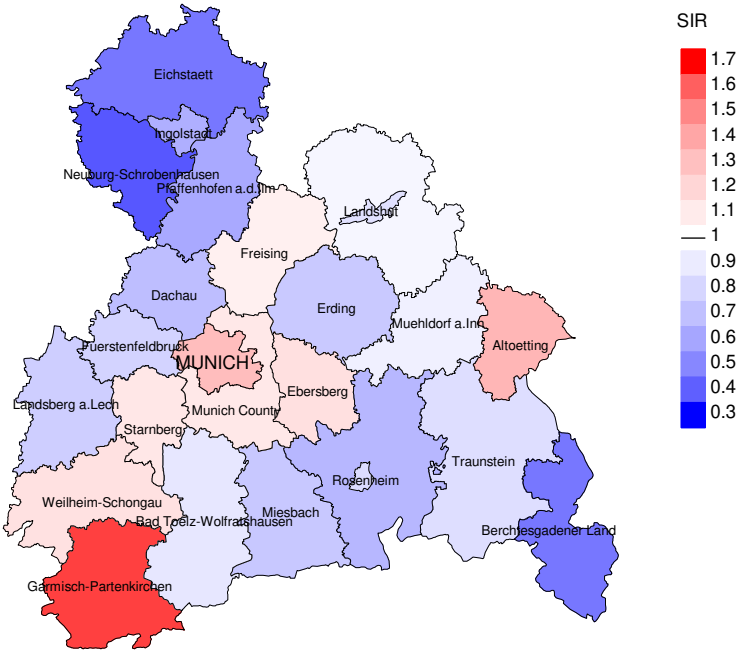


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=1,995, females N=535).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 17 women were identified with newly diagnosed pharynx cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.15. Though, the value of this parameter may vary with an underlying probability of 99% between 0.56 and 2.09, and is therefore not statistically striking.

MORTALITY

Table 9a

Annual cohorts: Incident cancers, follow-up status, proportion of DCO, deaths among the annual cohorts and proportion of available death certificates (with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.81 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	147	99.3	4.8	131	89.1	96.2
1999	164	98.8	6.1	136	82.9	91.2
2000	144	97.2	4.2	122	84.7	95.1
2001	151	96.0	7.3	120	79.5	97.5
2002	233	98.3	8.6	190	81.5	96.8
2003	246	97.2	2.0	198	80.5	97.0
2004	218	99.1	3.7	169	77.5	96.4
2005	268	96.6	5.2	196	73.1	98.0
2006	242	95.5	2.1	169	69.8	98.8
2007	288	87.2	8.7	199	69.1	95.5
2008	310	85.8	3.9	218	70.3	98.2
2009	292	83.2	2.4	202	69.2	98.5
2010	293	78.2	4.4	173	59.0	99.4
2011	290	85.9	4.8	176	60.7	94.3
2012	283	81.6	6.7	170	60.1	96.5
2013	280	81.4	2.5	152	54.3	98.0
2014	260	89.2	4.2	135	51.9	97.0
2015	162	96.3	6.2	75	46.3	94.7
2016	107	64.5	12.1	30	28.0	80.0
1998-2016	4378	89.6	5.0	2961	67.6	96.6

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 4.81 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	147	116	90.5	27	18.4
1999	164	127	87.4	36	22.0
2000	144	113	95.6	23	16.0
2001	151	112	92.9	30	19.9
2002	233	168	97.6	46	19.7
2003	246	173	96.5	41	16.7
2004	218	178	96.6	31	14.2
2005	268	167	95.8	47	17.5
2006	242	186	98.4	38	15.7
2007	288	230	97.8	58	20.1
2008	310	206	98.5	52	16.8
2009	292	195	99.0	45	15.4
2010	293	210	99.0	45	15.4
2011	290	208	98.1	59	20.3
2012	283	229	97.4	54	19.1
2013	280	232	97.8	44	15.7
2014	260	232	98.3	55	21.2
2015	162	243	98.8	52	32.1
2016	107	151	99.3	24	22.4
1998–2016	4378	3476	97.1	807	18.4

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 4.81 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer-related %	Prop. non-cancer-related %	Prop. cancer recorded on death certificate %
1998	116	77.6	22.4	94.3
1999	127	68.5	31.5	91.0
2000	113	85.0	15.0	93.5
2001	112	78.6	21.4	92.3
2002	168	81.0	19.0	91.5
2003	173	81.5	18.5	92.8
2004	178	82.6	17.4	91.3
2005	167	85.6	14.4	93.8
2006	186	84.9	15.1	91.3
2007	230	83.0	17.0	92.4
2008	206	82.0	18.0	89.2
2009	195	82.6	17.4	96.9
2010	210	83.3	16.7	92.3
2011	208	76.0	24.0	86.8
2012	229	82.5	17.5	91.5
2013	232	79.3	20.7	89.9
2014	232	78.9	21.1	90.8
2015	243	82.7	17.3	92.1
2016	151	72.8	27.2	86.7
1998-2016	3476	80.8	19.2	91.5

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	90	59.2	57.4	64.4	59.3
1999	101	60.5	58.8	62.9	59.0
2000	91	60.4	59.1	66.4	59.7
2001	92	60.1	59.1	65.1	60.3
2002	143	60.2	59.7	63.6	59.8
2003	149	62.3	61.8	67.6	61.8
2004	149	60.7	60.1	63.5	60.2
2005	141	62.1	62.0	64.0	62.4
2006	158	63.8	62.7	66.5	62.9
2007	191	63.4	62.0	69.1	63.0
2008	161	66.9	66.7	68.2	67.0
2009	155	64.3	64.1	67.0	64.3
2010	175	63.8	62.8	72.0	63.4
2011	174	66.4	64.1	70.9	65.4
2012	178	67.5	67.5	67.1	67.1
2013	182	66.3	64.5	69.1	65.1
2014	194	67.9	67.2	73.2	67.8
2015	186	65.6	65.7	65.5	65.6
2016	121	70.4	68.0	73.2	69.7
1998-2016	2831	64.0	63.1	68.4	63.6

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	26	71.5	69.6	77.9	71.5
1999	26	62.6	62.9	58.1	60.8
2000	22	55.9	55.9	64.2	55.9
2001	20	64.3	63.4	66.2	63.4
2002	25	66.2	64.9	73.8	66.8
2003	24	62.2	62.2	68.2	63.4
2004	29	73.8	73.8	72.0	74.2
2005	26	64.0	60.3	72.4	63.6
2006	28	67.3	66.9	75.1	67.3
2007	39	67.6	66.9	74.0	67.0
2008	45	66.9	66.9	64.7	66.9
2009	40	68.9	68.5	74.4	68.9
2010	35	64.5	63.6	71.1	64.1
2011	34	66.1	64.9	76.1	64.9
2012	51	71.5	71.5	77.0	70.6
2013	50	68.6	68.0	78.8	68.2
2014	38	73.2	71.7	77.6	72.0
2015	57	67.3	67.3	67.9	67.3
2016	30	70.7	71.1	70.0	70.7
1998-2016	645	67.8	67.3	72.6	67.7

By 2010, life expectancy at birth was 77.5 years for boys and 82.6 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	70	6.3	0.55	4.4	0.56	5.8	0.56	6.3	0.57
1999	74	6.6	0.55	4.2	0.53	5.9	0.54	6.7	0.56
2000	76	6.7	0.66	4.2	0.63	6.0	0.64	7.0	0.68
2001	73	6.3	0.59	4.1	0.58	5.7	0.59	6.4	0.61
2002	119	6.4	0.60	4.1	0.59	5.7	0.60	6.3	0.62
2003	123	6.6	0.63	4.1	0.59	5.7	0.60	6.4	0.62
2004	124	6.6	0.69	4.2	0.66	5.8	0.68	6.3	0.68
2005	122	6.4	0.57	3.9	0.54	5.5	0.56	6.1	0.57
2006	135	7.0	0.73	4.3	0.70	6.0	0.71	6.8	0.73
2007	158	7.1	0.68	4.3	0.68	6.1	0.70	6.9	0.69
2008	133	6.0	0.56	3.4	0.51	4.8	0.53	5.6	0.55
2009	131	5.9	0.57	3.4	0.55	4.8	0.56	5.6	0.58
2010	149	6.6	0.63	3.9	0.61	5.5	0.62	6.3	0.64
2011	134	6.0	0.60	3.4	0.59	4.8	0.59	5.5	0.60
2012	142	6.3	0.65	3.3	0.58	4.8	0.62	5.8	0.66
2013	145	6.3	0.67	3.4	0.61	4.9	0.64	5.7	0.67
2014	158	6.8	0.75	3.7	0.68	5.2	0.70	6.1	0.74
2015	153	6.4	1.33	3.5	1.32	5.0	1.33	5.9	1.32
2016	88	3.7	1.10	1.9	1.03	2.8	1.05	3.4	1.11
1998-2016	2307	6.3	0.67	3.7	0.63	5.2	0.65	5.9	0.67

Table 11b

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

Year of death	Deaths n	Mort. raw	MI-Index raw	Mort. WS	MI-Index WS	Mort. ES	MI-Index ES	Mort. BRD-S	MI-Index BRD-S
1998	20	1.7	1.00	0.8	0.86	1.2	0.88	1.5	1.00
1999	13	1.1	0.45	0.6	0.40	0.8	0.41	1.0	0.44
2000	20	1.7	0.69	1.0	0.65	1.4	0.67	1.5	0.70
2001	15	1.2	0.60	0.6	0.52	0.9	0.50	1.0	0.53
2002	17	0.9	0.50	0.5	0.46	0.7	0.48	0.8	0.48
2003	19	1.0	0.40	0.5	0.37	0.8	0.38	0.8	0.39
2004	23	1.2	0.70	0.5	0.61	0.8	0.61	1.0	0.67
2005	21	1.1	0.40	0.6	0.41	0.9	0.42	1.0	0.40
2006	23	1.1	0.40	0.6	0.30	0.8	0.33	1.0	0.36
2007	33	1.4	0.63	0.7	0.55	1.0	0.57	1.2	0.61
2008	36	1.6	0.51	0.8	0.53	1.2	0.54	1.3	0.51
2009	31	1.3	0.51	0.7	0.45	0.9	0.45	1.1	0.47
2010	26	1.1	0.50	0.6	0.47	0.9	0.48	1.0	0.52
2011	24	1.0	0.39	0.5	0.36	0.8	0.37	0.9	0.38
2012	47	2.0	0.73	0.9	0.61	1.3	0.64	1.5	0.67
2013	39	1.6	0.64	0.8	0.59	1.2	0.59	1.4	0.63
2014	26	1.1	0.59	0.5	0.44	0.7	0.48	0.8	0.52
2015	48	2.0	1.09	0.9	0.91	1.3	0.95	1.6	1.02
2016	22	0.9	0.85	0.4	0.68	0.5	0.72	0.7	0.81
1998-2016	503	1.3	0.58	0.7	0.51	0.9	0.53	1.1	0.56

Table 12

Age distribution of age at death (cancer-related) for period 2007-2016
(**incl. multiple malignancies**)

Age at death	Cases			Males			Females		
Years	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4									
5-9									
10-14									
15-19									
20-24									
25-29									
30-34	1	0.1	0.1			0.0	1	0.3	0.3
35-39	4	0.2	0.3	1	0.1	0.1	3	0.9	1.2
40-44	14	0.8	1.1	14	1.0	1.1			1.2
45-49	69	4.0	5.1	59	4.2	5.3	10	3.0	4.2
50-54	176	10.2	15.3	151	10.9	16.2	25	7.5	11.7
55-59	273	15.8	31.2	228	16.4	32.6	45	13.6	25.3
60-64	285	16.5	47.7	238	17.1	49.7	47	14.2	39.5
65-69	305	17.7	65.4	239	17.2	66.9	66	19.9	59.3
70-74	271	15.7	81.1	221	15.9	82.7	50	15.1	74.4
75-79	165	9.6	90.7	140	10.1	92.8	25	7.5	81.9
80-84	100	5.8	96.5	73	5.2	98.1	27	8.1	90.1
85+	60	3.5	100.0	27	1.9	100.0	33	9.9	100.0
All ages	1723	100.0		1391	100.0		332	100.0	

Table 13

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2016
(**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		1			0.1	0.25		0.8
35-39	1	3	0.1	0.14	0.2	0.50	0.5	1.1
40-44	14		0.8	0.33			2.8	
45-49	59	10	3.0	0.38	0.5	0.34	5.1	0.8
50-54	151	25	8.7	0.56	1.5	0.39	7.3	1.3
55-59	228	45	16.1	0.73	3.1	0.54	6.7	1.6
60-64	238	47	19.4	0.62	3.5	0.49	4.8	1.3
65-69	239	66	20.2	0.72	5.1	0.70	3.3	1.2
70-74	221	50	20.0	0.88	4.0	0.93	2.4	0.7
75-79	140	25	17.6	0.95	2.5	0.81	1.6	0.4
80-84	73	27	15.9	1.24	3.8	1.13	1.0	0.4
85+	27	33	8.8	0.96	4.5	0.92	0.4	0.4
All ages	1391	332					2.7	0.7
Mortality								
Raw			6.1	0.70	1.4	0.62		
WS			3.4	0.65	0.7	0.54		
ES			4.8	0.67	1.0	0.56		
BRD-S			5.6	0.70	1.1	0.59		
PYLL-70								
per 100,000			47.7		9.4			
ES			41.3		7.9			
AYLL-70			10.3		9.5			

Table 14a

Further malignancies in deaths in period 1998–2016
MALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03–C06	Oral cavity	127	12.1	52	40.9	17	13.4	58	45.7
C09–C10	Oropharynx	74	7.0			18	24.3	56	75.7
C12–C13	Hypopharynx	60	5.7			27	45.0	33	55.0
C15	Oesophagus	117	11.1	23	19.7	21	17.9	73	62.4
C16	Stomach	17	1.6	5	29.4	3	17.6	9	52.9
C18	Colon	35	3.3	17	48.6	1	2.9	17	48.6
C19–C20	Rectum	16	1.5	7	43.8	2	12.5	7	43.8
C22	Liver	23	2.2	1	4.3	3	13.0	19	82.6
C25	Pancreas	22	2.1	2	9.1	1	4.5	19	86.4
C32	Larynx	34	3.2			5	14.7	29	85.3
C33–C34	Lung	212	20.2	34	16.0	28	13.2	150	70.8
C43	Malign. melanoma	11	1.0	4	36.4	2	18.2	5	45.5
C44	Skin others	65	6.2	17	26.2	9	13.8	39	60.0
C61	Prostate	74	7.0	42	56.8	3	4.1	29	39.2
C64	Kidney	26	2.5	13	50.0	2	7.7	11	42.3
C67	Bladder	22	2.1	9	40.9			13	59.1
C76–C79	CUP	27	2.6	18	66.7	1	3.7	8	29.6
C82–C85	NHL	11	1.0	4	36.4	2	18.2	5	45.5
Others, specified		78	7.4	34	43.6	8	10.3	36	46.2
All further malignancies		1051	100.0	282	26.8	153	14.6	616	58.6

Further malignancies with number of cases 1 to 10 are pooled in category “Others, specified”.

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

Table 14b

Further malignancies in deaths in period 1998–2016
FEMALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03–C06 Oral cavity	33	12.1	21	63.6	5	15.2	7	21.2
C09–C10 Oropharynx	8	2.9			2	25.0	6	75.0
C12–C13 Hypopharynx	9	3.3			5	55.6	4	44.4
C15 Oesophagus	20	7.4	2	10.0	6	30.0	12	60.0
C16 Stomach	6	2.2	1	16.7	2	33.3	3	50.0
C18 Colon	12	4.4	6	50.0	2	16.7	4	33.3
C21 Anus/canal	3	1.1	2	66.7			1	33.3
C22 Liver	3	1.1			1	33.3	2	66.7
C30–C31 Sinuses	6	2.2	2	33.3			4	66.7
C32 Larynx	17	6.3	6	35.3	5	29.4	6	35.3
C33–C34 Lung	36	13.2	3	8.3	3	8.3	30	83.3
C44 Skin others	9	3.3	1	11.1			8	88.9
C50 Breast	43	15.8	32	74.4	3	7.0	8	18.6
C53 Cervix uteri	9	3.3	6	66.7			3	33.3
C54 Corpus uteri	6	2.2	4	66.7			2	33.3
C56 Ovary	3	1.1	2	66.7			1	33.3
C67 Bladder	4	1.5	3	75.0			1	25.0
C73 Thyroid	7	2.6	5	71.4	1	14.3	1	14.3
C76–C79 CUP	10	3.7	6	60.0			4	40.0
C82–C85 NHL	4	1.5	2	50.0			2	50.0
C91–C96 Leukaemia	4	1.5	1	25.0			3	75.0
Others, specified	20	7.4	5	25.0	5	25.0	10	50.0
All further malignancies	272	100.0	110	40.4	40	14.7	122	44.9

Further malignancies with number of cases 1 to 2 are pooled in category “Others, specified”.

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

Table 15

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2016
(**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		1			0.1	0.25		0.9
35-39		1			0.1	0.33		0.4
40-44	12		0.6	0.29			2.6	
45-49	45	9	2.3	0.35	0.5	0.36	4.3	0.8
50-54	129	20	7.5	0.54	1.2	0.38	7.1	1.2
55-59	187	35	13.2	0.74	2.4	0.56	6.4	1.5
60-64	183	31	14.9	0.60	2.3	0.42	4.4	1.0
65-69	179	55	15.1	0.72	4.2	0.79	3.1	1.3
70-74	175	33	15.8	0.95	2.6	0.87	2.4	0.6
75-79	99	14	12.4	1.00	1.4	0.70	1.5	0.3
80-84	49	18	10.7	1.29	2.5	1.06	0.9	0.3
85+	22	18	7.2	1.22	2.5	0.72	0.5	0.2
All ages	1080	235					2.6	0.6
Mortality								
Raw			4.7	0.69	1.0	0.58		
WS			2.7	0.64	0.5	0.52		
ES			3.8	0.66	0.7	0.53		
BRD-S			4.4	0.69	0.8	0.56		
PYLL-70								
per 100,000			38.4		7.2			
ES			33.3		6.0			
AYLL-70			10.6		9.4			

* See corresponding tables with multiple malignancies.

Table 16

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2016
(**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		1			0.1	0.25		1.0
35-39		1			0.1	0.33		0.4
40-44	11		0.6	0.31			2.4	
45-49	39	7	2.0	0.32	0.4	0.30	3.8	0.6
50-54	105	19	6.1	0.50	1.1	0.40	5.9	1.2
55-59	157	30	11.1	0.70	2.0	0.58	5.4	1.3
60-64	152	24	12.4	0.54	1.8	0.38	3.7	0.8
65-69	139	45	11.7	0.63	3.5	0.70	2.4	1.1
70-74	118	20	10.7	0.78	1.6	0.59	1.7	0.4
75-79	66	10	8.3	0.75	1.0	0.53	1.0	0.2
80-84	35	15	7.6	1.03	2.1	0.88	0.7	0.3
85+	15	15	4.9	0.94	2.0	0.63	0.3	0.2
All ages	837	187					2.1	0.5
Mortality								
Raw			3.7	0.60	0.8	0.51		
WS			2.1	0.57	0.4	0.47		
ES			3.0	0.58	0.6	0.48		
BRD-S			3.4	0.60	0.7	0.50		
PYLL-70								
per 100,000			32.0		6.1			
ES			27.8		5.2			
AYLL-70			10.7		9.7			

* See corresponding tables with multiple malignancies.

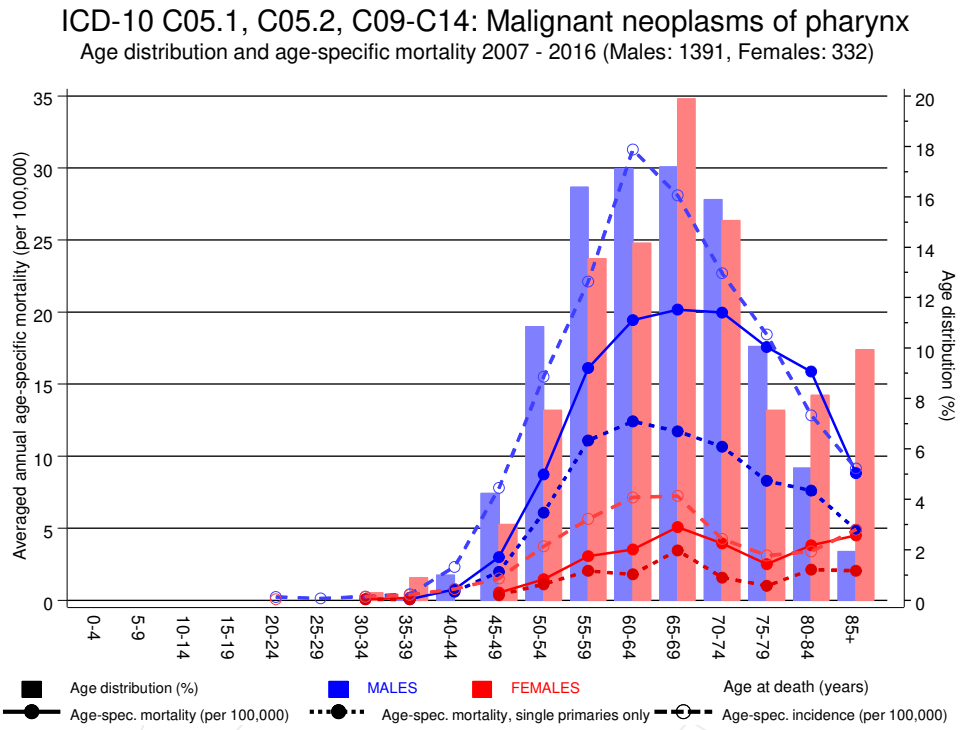


Figure 17. Distribution of age at death (bars; males: mean=61.9 yrs, median=61.6 yrs; females: mean=64.4 yrs, median=64.3 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

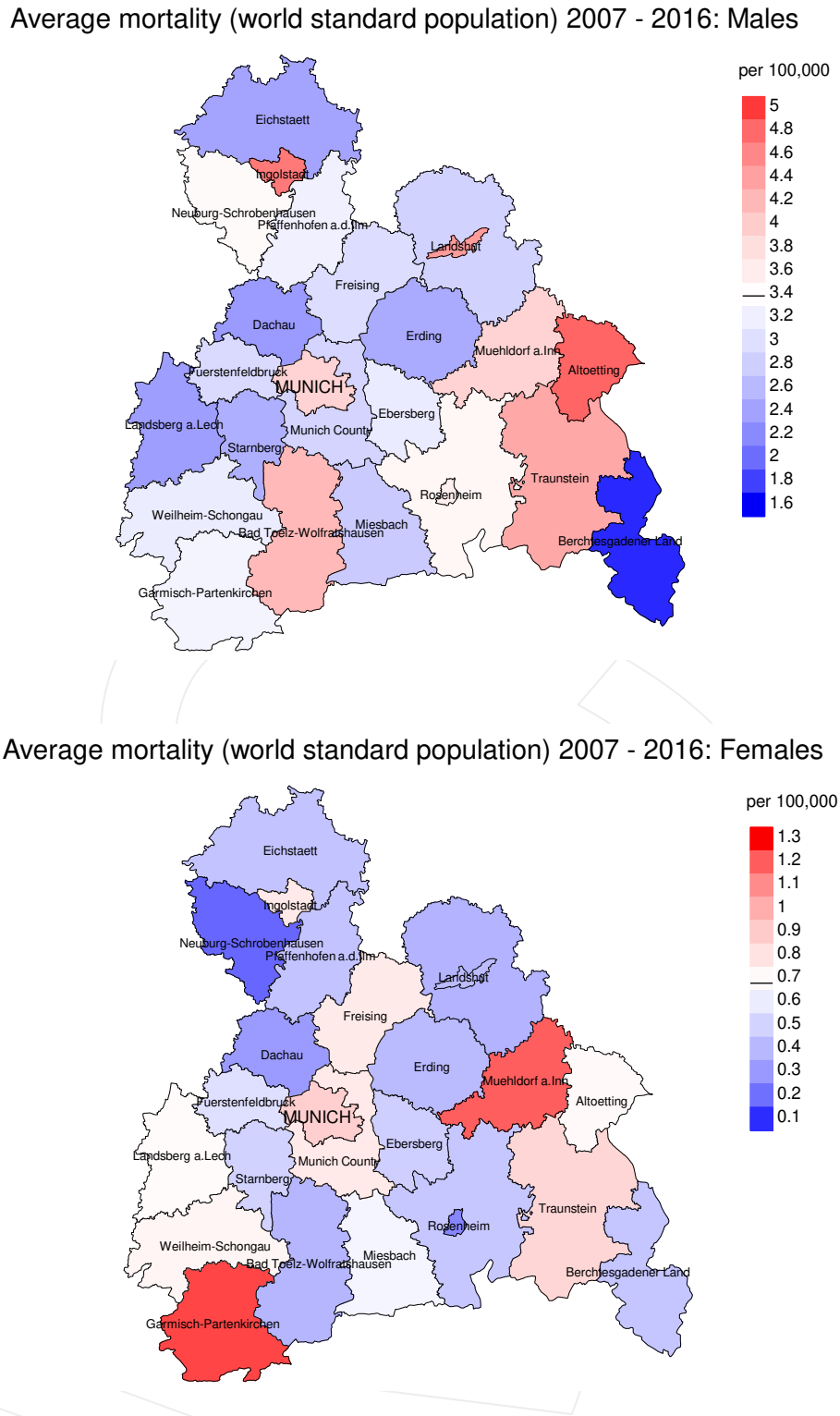
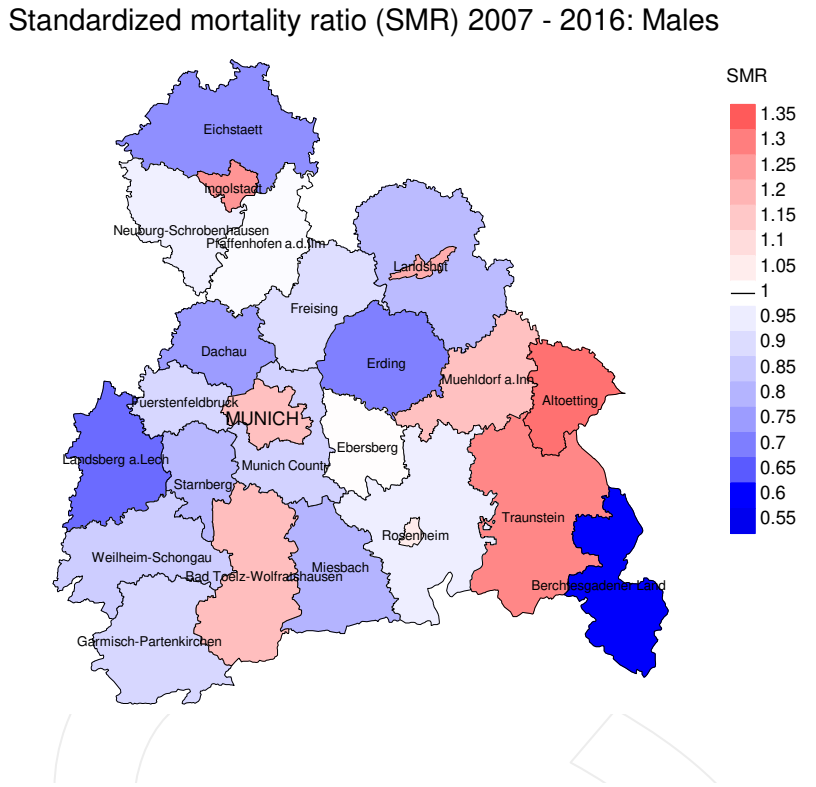


Figure 18a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2016. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 3.4/100,000 WS N=1,391, females 0.7/100,000 WS N=332).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 7 women died from pharynx cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.5/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.1 and 1.5/100,000.



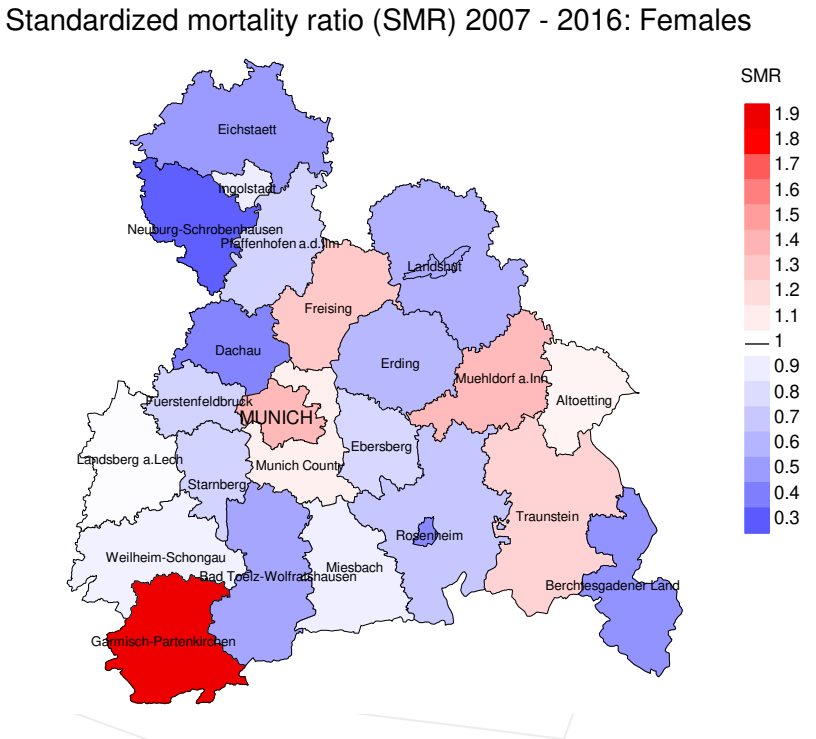


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=1,391, females N=332).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 7 women died from pharynx cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.78. Though, the value of this parameter may vary with an underlying probability of 99% between 0.23 and 1.90, 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 index from mortality and incidence (Mortality-Incidence ratio, **MI-index**) is a statistic 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 MI- index. 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 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 between mortality and incidence
FRG	Federal Republic of Germany

Recommended Citation

Munich Cancer Registry. ICD-10 C05.1, C05.2, C09-C14: Pharynx cancer - Incidence and Mortality [Internet]. 2018 [updated 2018 Aug 21; cited 2018 Oct 1]. Available from: https://www.tumorregister-muenchen.de/en/facts/base/bC0914E-ICD-10-C05.1-C05.2-C09-C14-Pharynx-cancer-incidence-and-mortality.pdf

Copyright

Disclaimer