Munich Cancer Registry

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ICD-10 C02: Tongue excl. base of tongue

Incidence and Mortality

Year of diagnosis	1998-2014
Patients	1,117
Diseases	1,121
Creation date	04/13/2016
Export date	12/23/2015
Population	4.64 m

Munich Cancer Registry at Munich Cancer Center
Marchioninistr. 15
Munich, 81377
Germany

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

http://www.tumorregister-muenchen.de/en/facts/base/bC02__E-ICD-10-C02-Tongue-excl.-base-of-tongue-incidence-and-mortality.pdf

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 4.64 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, April 2016

[#] 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 2.51 million to 3.96 in 2002, and to 4.52 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
C02.-	Malignant neoplasm of other and unspecified parts of tongue
C02.0	Dorsal surface of tongue
C02.1	Border of tongue
C02.2	Ventral surface of tongue
C02.3	Anterior two-thirds of tongue, part unspecified
C02.4	Lingual tonsil
C02.8	Overlapping lesion of tongue
C02.9	Tongue, unspecified

INCIDENCE

Table 1

All patients with invasive cancer by year of diagnosis, proportions of DCO, multiple primaries, deaths, and active follow-up (incl. DCO)

Year of diagnosis	Cases n	DCO cases n	Prop. DCO %	Prop. mult. primaries %	Prop. deaths %	Prop. actively followed %	
1998	49	2	4.1	34.7	81.6	98.0	
1999	43			41.9	86.0	100.0	
2000	44	2	4.5	29.5	77.3	100.0	
2001	53			24.5	83.0	100.0	
2002	73			38.4	68.5	97.3	#
2003	64	2	3.1	32.8	70.3	98.4	
2004	64			23.4	73.4	100.0	
2005	64			21.9	67.2	95.3	
2006	71	2	2.8	23.9	64.8	91.5	
2007	89	4	4.5	27.0	60.7	78.7	#
2008	91			28.6	49.5	73.6	
2009	82	1	1.2	26.8	43.9	75.6	
2010	92	1	1.1	26.1	46.7	71.7	
2011	70	1	1.4	25.7	38.6	78.6	
2012	87	1	1.1	20.7	32.2	64.4	
2013	65			20.0	38.5	100.0	
2014	20	1	5.0	40.0	10.0	100.0	##
1998-2014	1121	17	1.5	27.6	57.6	86.8	

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 found in the respective headings.

Table 1a

All patients with invasive cancer
by year of diagnosis and gender
(incl. DCO)

Year of diagnosis	All n	Males n	Females n	Prop. males %
1998	49	32	17	65.3
1999	43	24	19	55.8
2000	44	33	11	75.0
2001	53	40	13	75.5
2002	73	46	27	63.0
2003	64	46	18	71.9
2004	64	44	20	68.8
2005	64	44	20	68.8
2006	71	46	25	64.8
2007	89	62	27	69.7
2008	91	55	36	60.4
2009	82	49	33	59.8
2010	92	59	33	64.1
2011	70	46	24	65.7
2012	87	56	31	64.4
2013	65	42	23	64.6
2014	20	11	9	55.0
1998-2014	1121	735	386	65.6

Table 2

Incidence measures by year of diagnosis including DCO cases
(with respect to registry area expansion from 2.51 to 3.96 m as of 2002,
and from 3.96 to 4.64 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	32	17	2.9	1.4	1.9	0.8	2.6	1.1	3.0	1.3
1999	24	19	2.1	1.6	1.5	0.9	2.0	1.3	2.2	1.5
2000	33	11	2.9	0.9	2.0	0.6	2.6	0.8	2.9	0.8
2001	40	13	3.5	1.1	2.2	0.6	3.0	0.8	3.4	1.0
2002	46	27	2.5	1.4	1.7	0.8	2.2	1.1	2.4	1.2
2003	46	18	2.5	0.9	1.7	0.4	2.3	0.6	2.4	0.7
2004	44	20	2.3	1.0	1.5	0.5	2.0	0.7	2.2	0.9
2005	44	20	2.3	1.0	1.5	0.7	1.9	0.9	2.1	0.9
2006	46	25	2.4	1.2	1.5	0.7	2.1	0.9	2.4	1.1
2007	62	27	2.8	1.2	1.7	0.7	2.4	0.9	2.6	1.1
2008	55	36	2.5	1.6	1.6	0.9	2.1	1.2	2.3	1.4
2009	49	33	2.2	1.4	1.4	0.7	1.9	1.0	2.1	1.2
2010	59	33	2.6	1.4	1.6	0.8	2.1	1.1	2.5	1.2
2011	46	24	2.0	1.0	1.3	0.6	1.7	0.8	1.9	0.9
2012	56	31	2.5	1.3	1.5	0.7	2.0	1.0	2.2	1.2
2013	42	23	1.8	1.0	1.1	0.4	1.5	0.6	1.7	0.8
2014	11	9	0.5	0.4	0.3	0.2	0.4	0.2	0.4	0.3
1998-2014	735	386	2.3	1.2	1.5	0.6	2.0	0.9	2.2	1.0

The computation of the incidence measures includes all primaries, 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	49	61.4	11.7	32.0	91.4	48.0	52.1	60.4	67.4	77.8
1999	43	59.2	14.5	25.6	90.8	42.2	49.9	57.9	68.6	77.7
2000	44	56.3	11.7	33.5	84.8	41.4	46.3	55.4	64.9	71.3
2001	53	59.6	12.3	33.7	90.0	44.0	50.6	60.2	65.4	76.0
2002	73	58.8	12.0	26.4	89.8	44.9	51.6	58.8	65.6	71.9
2003	64	60.3	14.0	28.1	98.2	45.6	52.1	57.8	67.6	81.2
2004	64	60.4	12.4	29.5	88.4	43.2	50.2	61.4	68.1	75.4
2005	64	58.4	11.2	33.0	92.0	43.3	49.8	60.4	65.0	69.8
2006	71	63.1	12.9	33.8	96.2	46.7	55.3	61.4	71.7	81.2
2007	89	60.4	12.5	26.0	101	44.2	52.5	60.6	67.9	76.7
2008	91	60.9	12.2	21.8	87.1	45.1	52.6	62.2	69.3	75.2
2009	82	62.0	12.7	30.2	88.9	47.3	53.6	62.2	71.3	79.9
2010	92	61.4	13.9	24.5	92.8	45.4	50.8	60.4	70.5	82.1
2011	70	61.3	14.5	29.2	92.8	41.8	53.1	62.2	69.7	79.7
2012	87	62.1	13.7	25.7	88.7	43.4	53.7	64.9	72.7	78.5
2013	65	63.9	14.8	28.1	95.5	44.5	55.5	64.6	74.1	81.8
2014	20	64.5	13.0	41.3	83.0	43.2	55.0	67.3	74.8	79.1
1998-2014	1121	60.8	13.0	21.8	101	44.5	52.1	60.7	69.5	78.2

Table 3a

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	32	59.5	9.2	44.0	81.3	48.0	52.0	59.5	65.2	71.0
1999	24	55.2	13.1	33.3	90.8	41.2	48.5	51.7	60.8	67.1
2000	33	57.3	10.3	35.8	75.4	45.1	48.3	56.2	64.8	71.3
2001	40	58.5	12.8	33.7	90.0	43.5	48.5	58.8	64.4	77.2
2002	46	56.2	11.1	26.4	79.9	40.5	48.9	56.6	62.3	69.5
2003	46	56.1	10.3	28.1	86.1	45.6	50.1	54.8	61.9	70.0
2004	44	58.5	11.2	38.4	88.4	43.2	49.3	59.0	65.2	70.7
2005	44	57.5	10.9	36.8	82.5	42.9	48.1	59.2	65.3	69.8
2006	46	62.3	12.2	33.8	92.0	46.0	55.3	59.8	71.7	76.4
2007	62	59.8	12.5	26.0	101	44.2	52.1	59.8	67.9	73.4
2008	55	59.8	11.4	21.8	87.1	45.1	52.5	60.0	69.2	74.3
2009	49	60.1	11.5	30.2	79.9	44.5	53.2	62.2	66.9	73.8
2010	59	60.9	14.7	24.5	92.8	45.2	49.0	59.7	70.3	84.0
2011	46	60.5	13.3	29.2	88.6	42.9	53.6	59.6	68.8	78.1
2012	56	62.2	12.2	25.7	85.9	45.1	54.3	63.4	72.1	75.3
2013	42	61.2	12.8	30.0	84.3	44.5	55.5	62.0	69.4	76.4
2014	11	60.1	11.9	41.3	75.8	42.9	51.1	62.7	72.4	74.4
1998-2014	735	59.4	12.1	21.8	101	44.4	51.3	59.4	67.3	74.7

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	17	65.0	15.0	32.0	91.4	49.5	55.2	64.8	75.8	84.4
1999	19	64.3	15.0	25.6	87.3	42.2	53.3	68.2	75.3	79.3
2000	11	53.3	15.4	33.5	84.8	37.8	39.8	53.2	66.3	67.5
2001	13	63.1	10.0	44.0	76.2	52.0	56.9	60.5	72.4	76.0
2002	27	63.2	12.3	44.9	89.8	47.0	53.5	61.2	68.0	82.9
2003	18	70.9	16.7	35.5	98.2	44.8	63.1	71.6	84.0	91.2
2004	20	64.7	13.9	29.5	82.9	44.4	57.6	67.2	74.9	80.0
2005	20	60.4	11.8	33.0	92.0	48.1	54.0	61.3	64.7	72.8
2006	25	64.4	14.2	37.9	96.2	47.5	54.9	62.3	71.7	82.5
2007	27	61.8	12.8	34.4	83.6	45.5	53.7	62.8	69.4	79.8
2008	36	62.5	13.3	26.7	86.9	43.9	54.7	63.4	72.6	78.7
2009	33	64.7	14.1	32.4	88.9	47.5	54.2	65.8	75.4	82.8
2010	33	62.2	12.5	43.2	88.5	46.3	50.9	61.1	71.8	78.4
2011	24	62.8	16.6	31.2	92.8	40.8	49.6	64.3	75.1	86.6
2012	31	61.9	16.2	28.5	88.7	34.5	49.1	64.9	73.3	79.6
2013	23	68.8	17.2	28.1	95.5	46.3	53.2	73.1	79.9	89.1
2014	9	69.9	12.8	43.4	83.0	43.4	68.6	74.4	78.4	83.0
1998-2014	386	63.7	14.3	25.6	98.2	45.5	53.9	64.2	74.4	82.2

Table 4

Age distribution by 5-year age group and gender for period 2007-2014
(incl. DCO)

Age at diagnosis Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
20-24	2	0.3	0.3	2	0.5	0.5			0.0
25-29	7	1.2	1.5	4	1.1	1.6	3	1.4	1.4
30-34	12	2.0	3.5	6	1.6	3.2	6	2.8	4.2
35-39	9	1.5	5.0	7	1.8	5.0	2	0.9	5.1
40-44	31	5.2	10.2	20	5.3	10.3	11	5.1	10.2
45-49	50	8.4	18.6	31	8.2	18.4	19	8.8	19.0
50-54	73	12.2	30.9	53	13.9	32.4	20	9.3	28.2
55-59	80	13.4	44.3	58	15.3	47.6	22	10.2	38.4
60-64	83	13.9	58.2	52	13.7	61.3	31	14.4	52.8
65-69	85	14.3	72.5	61	16.1	77.4	24	11.1	63.9
70-74	69	11.6	84.1	45	11.8	89.2	24	11.1	75.0
75-79	49	8.2	92.3	23	6.1	95.3	26	12.0	87.0
80-84	25	4.2	96.5	9	2.4	97.6	16	7.4	94.4
85+	21	3.5	100.0	9	2.4	100.0	12	5.6	100.0
All ages	596	100.0		380	100.0		216	100.0	

Included in the statistics are 34.5% multiple primaries in males and 31.2% in females.

Table 5

Age-specific incidence, DCO rate and proportion of all cancers
for period 2007-2014

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males DCO rate n=7 %	Females DCO rate n=2 %	Males Prop.all cancers n=91183 %	Females Prop.all cancers n=89596 %
0- 4			0.0	0.0				
5- 9			0.0	0.0				
10-14			0.0	0.0				
15-19			0.0	0.0				
20-24	2		0.2	0.0			0.5	
25-29	4	3	0.3	0.2			0.7	0.5
30-34	6	6	0.5	0.5			0.8	0.5
35-39	7	2	0.5	0.2			0.6	0.1
40-44	20	11	1.2	0.7			1.1	0.3
45-49	31	19	2.0	1.3			1.0	0.3
50-54	53	20	4.1	1.6			1.1	0.3
55-59	58	22	5.5	2.0		4.5	0.8	0.3
60-64	52	31	5.3	2.9			0.5	0.3
65-69	61	24	6.3	2.3	3.3		0.4	0.2
70-74	45	24	4.9	2.3	4.4		0.3	0.2
75-79	23	26	4.2	3.6			0.2	0.3
80-84	9	16	2.6	2.9			0.1	0.2
85+	9	12	3.9	2.1	33.3	8.3	0.1	0.1
All ages	380	216			1.8	0.9	0.4	0.2
Incidence								
Raw			2.1	1.2				
WS			1.3	0.6				
ES			1.8	0.9				
BRD-S			2.0	1.0				

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).

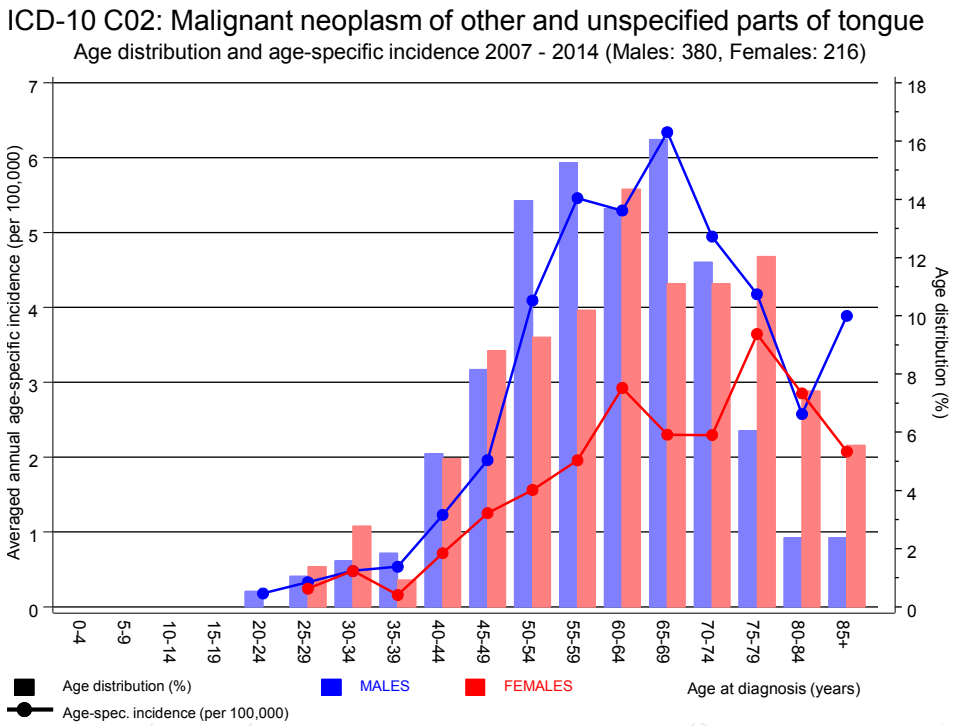


Figure 6. Age distribution and age-specific incidence

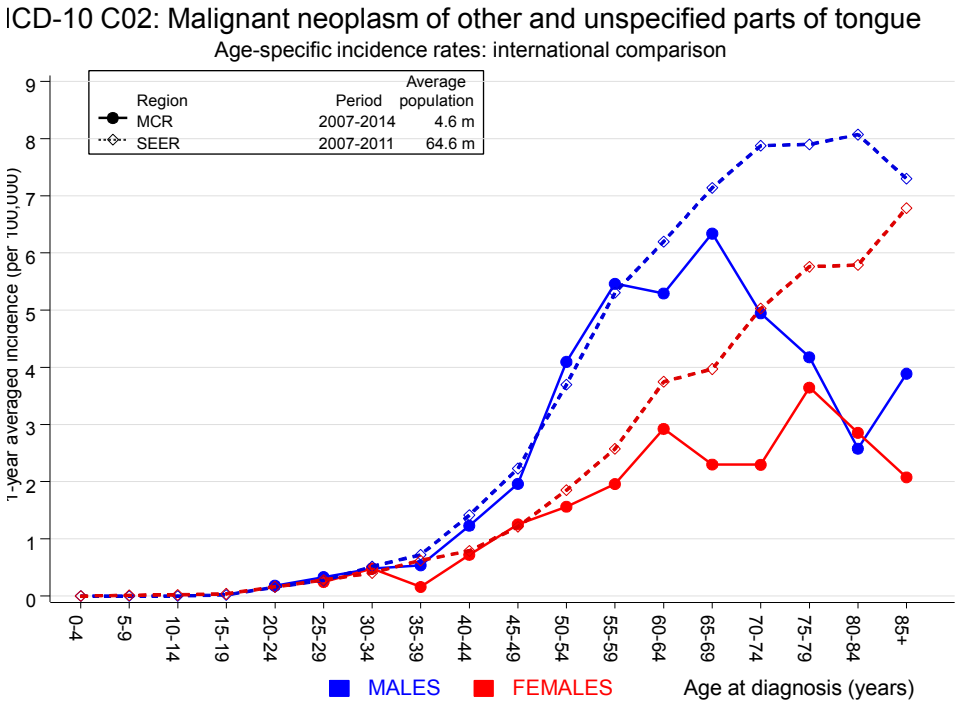


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

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.

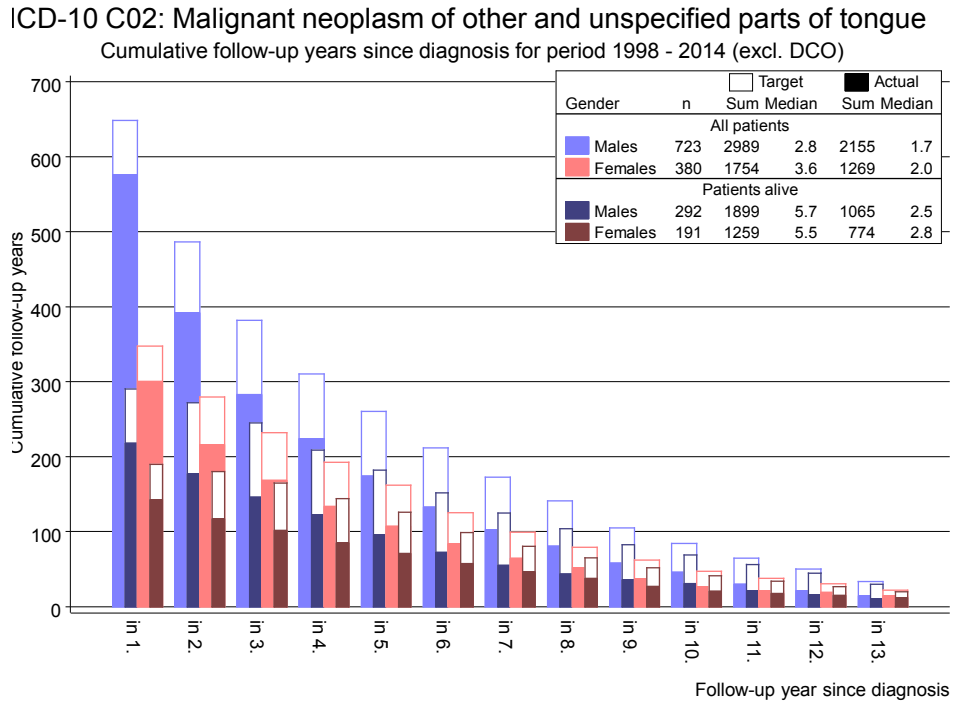


Figure 7. Cumulative follow-up years depending on time since diagnosis

The increase of the lost to follow-up rate can be interpreted as a consequence of a declining number of survivors over time.

Table 8a

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of second primaries for period 1998-2014
MALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C03-C06	Oral cavity	4	0.3	13.1	3.6	33.6	#	17.2	
C09-C10	Oropharynx	16	0.4	41.3	23.6	67.1	#	72.5	
C12-C13	Hypopharynx	15	0.2	70.5	39.4	116.2	#	68.7	26.7
C15	Oesophagus	13	0.5	25.1	13.3	42.9	#	58.0	
C18	Colon	5	2.1	2.3	0.8	5.5		13.3	20.0
C19-C20	Rectum	5	1.4	3.5	1.1	8.2	#	16.6	
C22	Liver	3	0.7	4.4	0.9	12.9		10.8	33.3
C32	Larynx	9	0.3	29.0	13.3	55.1	#	40.4	11.1
C33-C34	Lung	35	3.0	11.9	8.3	16.5	#	148.9	22.9
C43	Malign. melanoma	2	1.2	1.7	0.2	6.2		3.9	
C61	Prostate	7	7.0	1.0	0.4	2.1		-0.1	
C64	Kidney	3	0.9	3.2	0.7	9.5		9.6	
C67	Bladder	3	0.9	3.2	0.7	9.5		9.6	33.3
C73	Thyroid	2	0.2	8.7	1.1	31.5	#	8.2	
C82-C85	NHL	3	0.9	3.2	0.7	9.2		9.5	33.3
C91-C96	Leukaemia	2	0.4	5.7	0.7	20.5		7.7	
Other primaries		7	2.6	2.7	1.1	5.6	#	20.5	42.9
Not observed		0	1.7	0.0	0.0	2.1		-8.0	
All mult. primaries		134	24.8	5.4	4.5	6.4	#	507.3	14.9

Patients	722
Median age at second malignancy (years)	62.7
Person-years	2152
Mean observation time (years)	3.0
Median observation time (years)	1.7

The occurrence of second malignancy is statistically significant.

Observed second primaries with count 1 are pooled in category “Other primaries”

Table 8b

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of second primaries for period 1998–2014
FEMALES

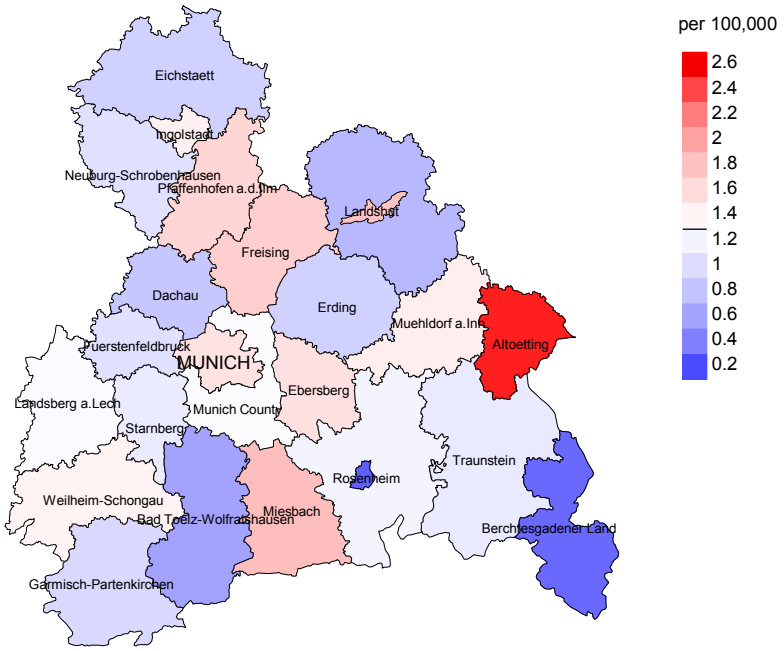
Diagnosis	Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C03–C06 Oral cavity	5	0.1	63.3	20.5	147.7	#	39.1	
C09–C10 Oropharynx	5	0.1	88.1	28.6	205.7	#	39.3	
C12–C13 Hypopharynx	4	0.0	265.9	72.5	680.9	#	31.7	50.0
C15 Oesophagus	4	0.1	52.4	14.3	134.2	#	31.2	
C19–C20 Rectum	2	0.5	3.9	0.5	14.2		11.8	
C22 Liver	2	0.1	14.5	1.8	52.3	#	14.8	50.0
C23–C24 Bile	3	0.2	18.4	3.8	53.8	#	22.5	
C32 Larynx	3	0.0	118.1	24.4	345.2	#	23.6	33.3
C33–C34 Lung	15	0.9	16.2	9.1	26.7	#	111.8	6.7
C50 Breast	4	4.0	1.0	0.3	2.6		0.0	
C67 Bladder	3	0.2	14.2	2.9	41.6	#	22.2	66.7
C73 Thyroid	2	0.3	8.0	1.0	28.8		13.9	
C82–C85 NHL	2	0.5	4.3	0.5	15.6		12.2	
Other primaries	10	4.6	2.2	1.0	4.0	#	42.9	10.0
Not observed	0	1.0	0.0	0.0	3.5		-8.3	
All mult. primaries	64	12.6	5.1	3.9	6.5	#	408.6	12.5

Patients	374
Median age at second malignancy (years)	68.0
Person-years	1259
Mean observation time (years)	3.4
Median observation time (years)	2.0

The occurrence of second malignancy is statistically significant.

Observed second primaries with count 1 are pooled in category “Other primaries”

Average incidence (world standard population) 2007 - 2014: Males



Average incidence (world standard population) 2007 - 2014: Females

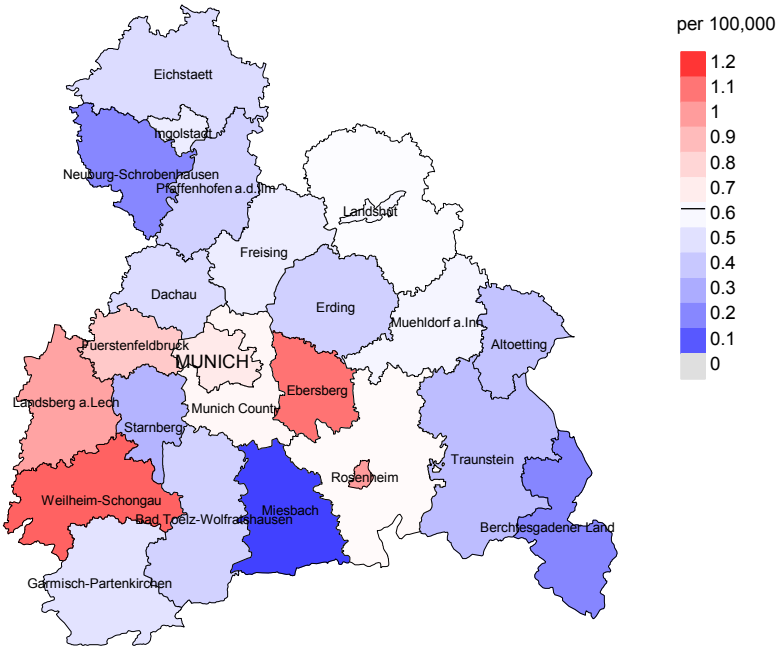
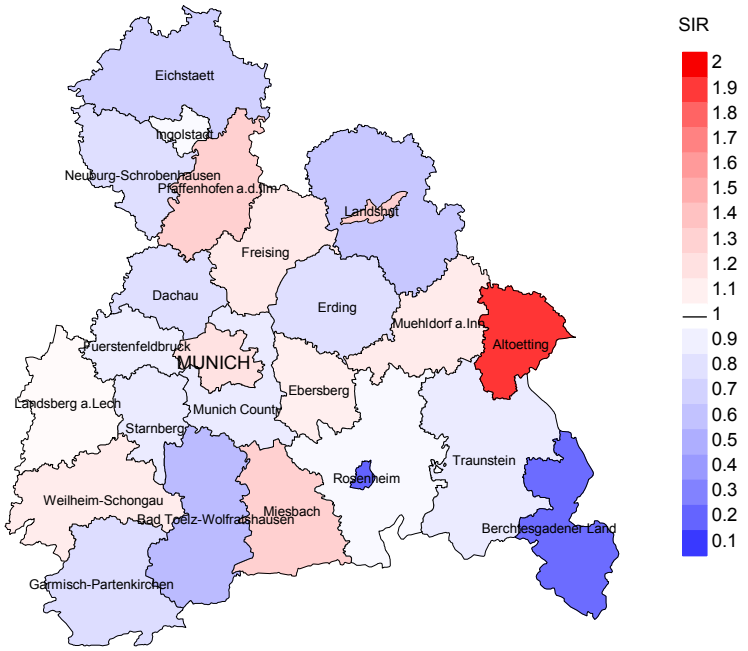


Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2014. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 1.3/100,000 WS N=380, females 0.6/100,000 WS N=216).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 65,347 female residents (averaged) in the period from 2007 to 2014 a total of 10 women were identified with newly diagnosed tongue excl. base of tongue. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 1.1/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.4 and 2.5/100,000.

Standardized incidence ratio (SIR) 2007 - 2014: Males



Standardized incidence ratio (SIR) 2007 - 2014: Females

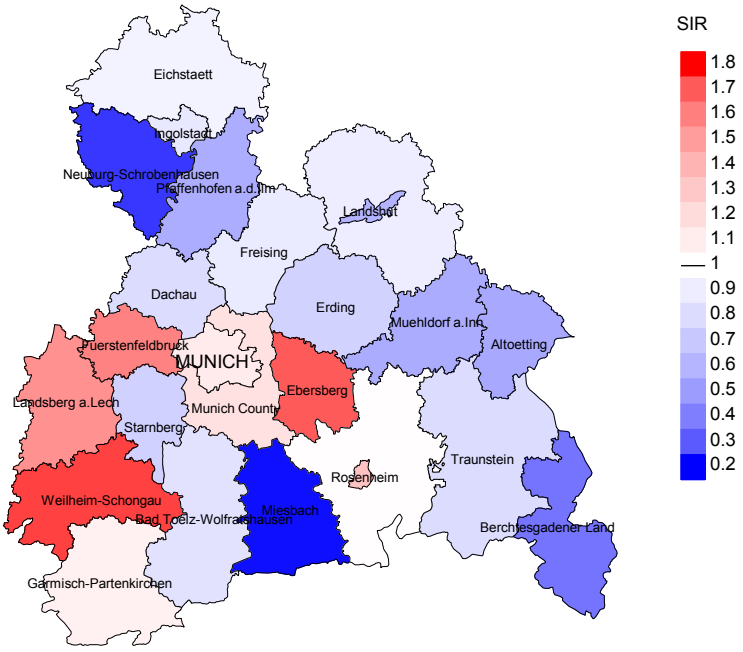


Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2014. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=380, females N=216).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,924 female residents (averaged) in the period from 2007 to 2014 a total of 10 women were identified with newly diagnosed tongue excl. base of tongue. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.70. Though, the value of this parameter may vary with an underlying probability of 99% between 0.63 and 3.64, and is therefore not statistically striking.

MORTALITY

Table 10a

Patient cohorts of incident cancers by year of diagnosis, follow-up status, proportion of DCO, deaths among the annual cohorts and proportion of available death certificates (with respect to registry area expansion from 2.51 to 3.96 m as of 2002, and from 3.96 to 4.64 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	49	98.0	4.1	40	81.6	95.0
1999	43	100.0		37	86.0	91.9
2000	44	100.0	4.5	34	77.3	97.1
2001	53	100.0		44	83.0	95.5
2002	73	97.3		50	68.5	98.0
2003	64	98.4	3.1	45	70.3	100.0
2004	64	100.0		47	73.4	95.7
2005	64	95.3		43	67.2	100.0
2006	71	91.5	2.8	46	64.8	100.0
2007	89	78.7	4.5	54	60.7	100.0
2008	91	73.6		45	49.5	100.0
2009	82	75.6	1.2	36	43.9	94.4
2010	92	71.7	1.1	43	46.7	95.3
2011	70	78.6	1.4	27	38.6	96.3
2012	87	64.4	1.1	28	32.2	96.4
2013	65	100.0		25	38.5	92.0
2014	20	100.0	5.0	2	10.0	100.0
1998-2014	1121	86.8	1.5	646	57.6	97.1

Table 10b

Annual cohorts of incident cancers and deaths, proportion of death certificates and cases deceased the same year of cancer diagnosis
(incl. DCO)
(with respect to registry area expansion from 2.51 to 3.96 m as of 2002, and from 3.96 to 4.64 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	49	30	90.0	4	8.2
1999	43	23	82.6	4	9.3
2000	44	33	84.8	6	13.6
2001	53	39	89.7	9	17.0
2002	73	50	98.0	9	12.3
2003	64	51	98.0	7	10.9
2004	64	54	100.0	10	15.6
2005	64	53	100.0	6	9.4
2006	71	62	93.5	10	14.1
2007	89	75	100.0	15	16.9
2008	91	57	96.5	6	6.6
2009	82	60	98.3	4	4.9
2010	92	63	100.0	6	6.5
2011	70	59	96.6	6	8.6
2012	87	63	95.2	12	13.8
2013	65	59	100.0	12	18.5
2014	20	45	97.8	2	10.0
1998-2014	1121	876	96.5	128	11.4

Table 10c

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 2.51 to 3.96 m as of 2002, and from 3.96 to 4.64 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer-related %	Prop. non-cancer-related %	Prop. cancer recorded on death certificate %
1998	30	56.7	43.3	85.2
1999	23	52.2	47.8	78.9
2000	33	69.7	30.3	96.4
2001	39	82.1	17.9	94.3
2002	50	74.0	26.0	91.8
2003	51	72.5	27.5	82.0
2004	54	81.5	18.5	90.7
2005	53	84.9	15.1	94.3
2006	62	67.7	32.3	81.0
2007	75	86.7	13.3	93.3
2008	57	78.9	21.1	90.9
2009	60	76.7	23.3	86.4
2010	63	82.5	17.5	92.1
2011	59	81.4	18.6	86.0
2012	63	76.2	23.8	90.0
2013	59	69.5	30.5	86.4
2014	45	77.8	22.2	90.9
1998-2014	876	76.4	23.6	89.1

Table 11a

Medians of age at death according to the grouping in Table 10
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	21	58.5	59.2	58.5	60.5
1999	17	58.7	58.7	59.0	58.7
2000	24	60.4	60.4	59.3	63.6
2001	28	58.9	58.9	63.2	58.4
2002	42	62.8	63.7	60.0	62.1
2003	32	64.9	63.4	76.9	63.5
2004	36	60.3	59.5	70.8	59.8
2005	30	62.7	60.9	69.5	62.4
2006	42	61.1	61.6	60.9	61.3
2007	56	61.4	60.8	65.0	60.8
2008	38	61.9	60.7	64.7	61.0
2009	35	67.0	62.6	69.4	65.2
2010	45	65.5	63.7	72.7	65.4
2011	45	68.8	66.2	74.4	65.8
2012	47	64.3	61.9	68.2	63.8
2013	33	62.8	59.6	75.4	61.4
2014	28	68.7	66.9	70.4	68.1
1998-2014	599	62.8	61.7	67.1	62.1

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 11b

Medians of age at death according to the grouping in Table 10
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	9	67.8	67.8	64.4	65.1
1999	6	76.5	81.0	72.0	81.0
2000	9	69.8	67.9	85.7	69.8
2001	11	67.9	69.4	47.3	67.9
2002	8	63.8	61.1	75.6	63.8
2003	19	74.2	70.8	76.5	74.8
2004	18	74.9	80.4	66.6	75.2
2005	23	67.5	66.8	80.8	67.5
2006	20	80.3	76.9	84.4	73.2
2007	19	77.9	77.9	82.3	78.3
2008	19	69.2	66.2	69.4	65.0
2009	25	77.7	63.2	81.8	66.8
2010	18	68.2	67.7	82.0	67.7
2011	14	73.0	69.8	73.3	69.8
2012	16	65.7	64.2	75.5	65.7
2013	26	77.8	74.0	79.4	74.0
2014	17	70.3	69.5	76.0	70.3
1998-2014	277	70.4	68.9	78.3	69.3

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 12a

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	12	1.1	0.38	0.6	0.32	0.9	0.34	1.1	0.37
1999	9	0.8	0.38	0.6	0.37	0.8	0.39	0.9	0.42
2000	16	1.4	0.48	0.9	0.47	1.3	0.49	1.5	0.53
2001	22	1.9	0.56	1.2	0.56	1.7	0.58	2.0	0.60
2002	31	1.7	0.67	1.0	0.60	1.4	0.65	1.7	0.72
2003	26	1.4	0.57	0.9	0.50	1.2	0.52	1.3	0.55
2004	29	1.5	0.66	1.0	0.68	1.4	0.69	1.4	0.65
2005	26	1.4	0.59	0.9	0.57	1.2	0.61	1.3	0.63
2006	29	1.5	0.63	0.9	0.65	1.3	0.61	1.4	0.58
2007	48	2.2	0.77	1.3	0.75	1.8	0.78	2.1	0.80
2008	33	1.5	0.60	0.9	0.57	1.3	0.60	1.5	0.65
2009	27	1.2	0.55	0.7	0.49	1.0	0.52	1.1	0.55
2010	35	1.6	0.59	0.9	0.57	1.3	0.60	1.4	0.58
2011	37	1.6	0.80	0.9	0.72	1.3	0.74	1.5	0.80
2012	36	1.6	0.64	0.9	0.64	1.3	0.64	1.4	0.64
2013	24	1.1	0.57	0.6	0.58	0.9	0.59	1.0	0.57
2014	21	0.9	1.91	0.5	1.73	0.7	1.81	0.9	2.07
1998-2014	461	1.4	0.63	0.9	0.60	1.2	0.62	1.4	0.64

Table 12b

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	5	0.4	0.29	0.2	0.33	0.3	0.32	0.4	0.30
1999	3	0.3	0.16	0.1	0.10	0.2	0.12	0.2	0.14
2000	7	0.6	0.64	0.3	0.55	0.5	0.58	0.5	0.61
2001	10	0.8	0.77	0.4	0.71	0.6	0.72	0.8	0.80
2002	6	0.3	0.22	0.2	0.23	0.3	0.25	0.3	0.24
2003	11	0.6	0.61	0.2	0.60	0.3	0.60	0.4	0.63
2004	15	0.8	0.75	0.3	0.54	0.4	0.58	0.6	0.63
2005	19	1.0	0.95	0.5	0.74	0.7	0.81	0.8	0.87
2006	13	0.6	0.52	0.2	0.35	0.4	0.40	0.5	0.45
2007	17	0.7	0.63	0.3	0.39	0.4	0.44	0.6	0.53
2008	12	0.5	0.33	0.3	0.32	0.4	0.32	0.5	0.35
2009	19	0.8	0.58	0.4	0.54	0.6	0.57	0.7	0.57
2010	17	0.7	0.52	0.4	0.50	0.5	0.51	0.6	0.51
2011	11	0.5	0.46	0.2	0.37	0.3	0.39	0.4	0.44
2012	12	0.5	0.39	0.3	0.40	0.4	0.40	0.4	0.38
2013	17	0.7	0.74	0.3	0.63	0.4	0.66	0.5	0.66
2014	14	0.6	1.56	0.3	1.77	0.4	1.65	0.5	1.55
1998-2014	208	0.6	0.54	0.3	0.46	0.4	0.48	0.5	0.51

Table 13

Age distribution of age at death (cancer-related) for period 2007-2014
(**incl. multiple primaries**)

Age at death Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
20-24	1	0.3	0.3	1	0.4	0.4			0.0
25-29	2	0.5	0.8	1	0.4	0.8	1	0.8	0.8
30-34	1	0.3	1.0			0.8	1	0.8	1.7
35-39	4	1.0	2.1	2	0.8	1.5	2	1.7	3.4
40-44	7	1.8	3.9	6	2.3	3.8	1	0.8	4.2
45-49	22	5.8	9.7	17	6.5	10.3	5	4.2	8.4
50-54	36	9.4	19.2	31	11.8	22.1	5	4.2	12.6
55-59	58	15.2	34.4	46	17.6	39.7	12	10.1	22.7
60-64	57	15.0	49.3	37	14.1	53.8	20	16.8	39.5
65-69	63	16.5	65.9	45	17.2	71.0	18	15.1	54.6
70-74	46	12.1	78.0	37	14.1	85.1	9	7.6	62.2
75-79	38	10.0	87.9	22	8.4	93.5	16	13.4	75.6
80-84	22	5.8	93.7	10	3.8	97.3	12	10.1	85.7
85+	24	6.3	100.0	7	2.7	100.0	17	14.3	100.0
All ages	381	100.0		262	100.0		119	100.0	

Included in the statistics are 34.5% multiple primaries in males and 31.2% in females.

Table 14

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2014
(**incl. multiple primaries**)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	MI-index	Females Age-spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4			0.0		0.0			
5- 9			0.0		0.0			
10-14			0.0		0.0			
15-19			0.0		0.0			
20-24	1		0.1	0.50	0.0		2.1	
25-29	1	1	0.1	0.25	0.1	0.33	1.6	1.6
30-34		1	0.0		0.1	0.17		0.9
35-39	2	2	0.2	0.29	0.2	1.00	1.1	0.8
40-44	6	1	0.4	0.30	0.1	0.09	1.3	0.2
45-49	17	5	1.1	0.55	0.3	0.26	1.7	0.4
50-54	31	5	2.4	0.58	0.4	0.25	1.7	0.3
55-59	46	12	4.3	0.79	1.1	0.55	1.5	0.5
60-64	37	20	3.8	0.71	1.9	0.65	0.8	0.6
65-69	45	18	4.7	0.74	1.7	0.75	0.6	0.3
70-74	37	9	4.1	0.82	0.9	0.38	0.4	0.1
75-79	22	16	4.0	0.96	2.2	0.62	0.3	0.3
80-84	10	12	2.9	1.11	2.1	0.75	0.1	0.2
85+	7	17	3.0	0.78	2.9	1.42	0.1	0.2
All ages	262	119					0.5	0.3
Mortality								
Raw			1.5	0.69	0.6	0.55		
WS			0.8	0.65	0.3	0.48		
ES			1.2	0.68	0.4	0.50		
BRD-S			1.4	0.70	0.5	0.52		
PYLL-70								
per 100,000			13.8		4.5			
ES			12.2		3.9			
AYLL-70			11.9		11.0			

The rates underestimate the prognosis if other synchronous cancers are prognostic unfavorable.

Table 15a

Multiple primaries in deaths in period 1998-2014
MALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03-C06 Oral cavity	26	10.7			2	7.7	24	92.3
C09-C10 Oropharynx	24	9.8			2	8.3	22	91.7
C12-C13 Hypopharynx	19	7.8	6	31.6	1	5.3	12	63.2
C15 Oesophagus	20	8.2	1	5.0	1	5.0	18	90.0
C16 Stomach	3	1.2					3	100.0
C18 Colon	3	1.2	1	33.3			2	66.7
C19-C20 Rectum	10	4.1	1	10.0			9	90.0
C22 Liver	4	1.6					4	100.0
C25 Pancreas	4	1.6					4	100.0
C32 Larynx	23	9.4	13	56.5	5	21.7	5	21.7
C33-C34 Lung	52	21.3	3	5.8	5	9.6	44	84.6
C43 Malign. melanoma	4	1.6	2	50.0			2	50.0
C44 Skin others	7	2.9	2	28.6			5	71.4
C61 Prostate	15	6.1	9	60.0			6	40.0
C67 Bladder	6	2.5	2	33.3	1	16.7	3	50.0
C76-C79 CUP	5	2.0	3	60.0			2	40.0
C82-C85 NHL	4	1.6	2	50.0	1	25.0	1	25.0
C91-C96 Leukaemia	4	1.6	2	50.0			2	50.0
Other primaries	11	4.5	6	54.5			5	45.5
All mult. primaries	244	100.0	53	21.7	18	7.4	173	70.9

Multiple primaries with number of cases 1 to 2 are pooled in category “Other primaries”

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 multiple malignancy.

Table 15b

Multiple primaries in deaths in period 1998-2014
FEMALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03-C06 Oral cavity	15	13.2					15	100.0
C09-C10 Oropharynx	10	8.8					10	100.0
C12-C13 Hypopharynx	5	4.4					5	100.0
C15 Oesophagus	7	6.1					7	100.0
C18 Colon	5	4.4	3	60.0			2	40.0
C19-C20 Rectum	2	1.8	1	50.0			1	50.0
C23-C24 Bile	2	1.8					2	100.0
C25 Pancreas	2	1.8	1	50.0			1	50.0
C32 Larynx	3	2.6	1	33.3			2	66.7
C33-C34 Lung	18	15.8	1	5.6			17	94.4
C43 Malign. melanoma	3	2.6	1	33.3			2	66.7
C44 Skin others	2	1.8					2	100.0
C50 Breast	18	15.8	11	61.1			7	38.9
C54 Corpus uteri	2	1.8	2	100.0				
C56 Ovary	3	2.6	2	66.7			1	33.3
C67 Bladder	3	2.6	1	33.3			2	66.7
C90 Mult. myeloma	2	1.8	1	50.0			1	50.0
Other primaries	12	10.5	5	41.7			7	58.3

Multiple primaries with number of cases 1 are pooled in category “Other primaries”

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 multiple malignancy.

Table 16

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2014
(**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			0.0		0.0			
5- 9			0.0		0.0			
10-14			0.0		0.0			
15-19			0.0		0.0			
20-24	1		0.1	0.50	0.0		2.3	
25-29	1	1	0.1	0.25	0.1	0.33	1.8	1.7
30-34		1	0.0		0.1	0.17		1.1
35-39	2	2	0.2	0.33	0.2	1.00	1.2	0.9
40-44	5	1	0.3	0.26	0.1	0.09	1.2	0.2
45-49	17	4	1.1	0.59	0.3	0.24	1.8	0.4
50-54	25	4	1.9	0.58	0.3	0.25	1.6	0.3
55-59	33	10	3.1	0.66	0.9	0.59	1.3	0.5
60-64	30	16	3.1	0.73	1.5	0.64	0.8	0.6
65-69	38	14	3.9	0.78	1.3	0.70	0.7	0.3
70-74	30	8	3.3	0.86	0.8	0.40	0.4	0.2
75-79	15	14	2.7	0.94	2.0	0.64	0.2	0.3
80-84	7	10	2.0	1.00	1.8	0.77	0.1	0.2
85+	7	14	3.0	0.88	2.4	1.75	0.2	0.2
All ages	211	99					0.5	0.3
Mortality								
Raw			1.2	0.67	0.5	0.55		
WS			0.7	0.63	0.2	0.47		
ES			1.0	0.65	0.4	0.49		
BRD-S			1.1	0.67	0.4	0.52		
PYLL-70								
per 100,000			11.5		3.9			
ES			10.1		3.3			
AYLL-70			12.1		11.6			

* See corresponding tables with multiple primaries.

Table 17

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2014
(**Single primaries only** *)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	MI-index	Females Age-spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4			0.0		0.0			
5- 9			0.0		0.0			
10-14			0.0		0.0			
15-19			0.0		0.0			
20-24	1		0.1	0.50	0.0		2.6	
25-29	1	1	0.1	0.25	0.1	0.33	2.0	1.8
30-34		1	0.0		0.1	0.20		1.2
35-39	2		0.2	0.33	0.0		1.3	
40-44	4	1	0.2	0.22	0.1	0.09	1.0	0.2
45-49	16	4	1.0	0.59	0.3	0.25	1.9	0.4
50-54	20	4	1.5	0.50	0.3	0.29	1.4	0.3
55-59	19	8	1.8	0.44	0.7	0.57	0.8	0.4
60-64	17	9	1.7	0.47	0.8	0.43	0.5	0.4
65-69	24	9	2.5	0.60	0.9	0.56	0.5	0.3
70-74	23	4	2.5	0.70	0.4	0.22	0.4	0.1
75-79	8	8	1.5	0.50	1.1	0.44	0.2	0.2
80-84	6	4	1.7	0.86	0.7	0.36	0.1	0.1
85+	6	11	2.6	0.75	1.9	1.38	0.2	0.2
All ages	147	64					0.5	0.2
Mortality								
Raw			0.8	0.51	0.3	0.41		
WS			0.5	0.49	0.2	0.36		
ES			0.7	0.50	0.2	0.38		
BRD-S			0.8	0.51	0.3	0.38		
PYLL-70								
per 100,000			8.7		2.9			
ES			7.6		2.5			
AYLL-70			13.5		12.4			

* See corresponding tables with multiple primaries.

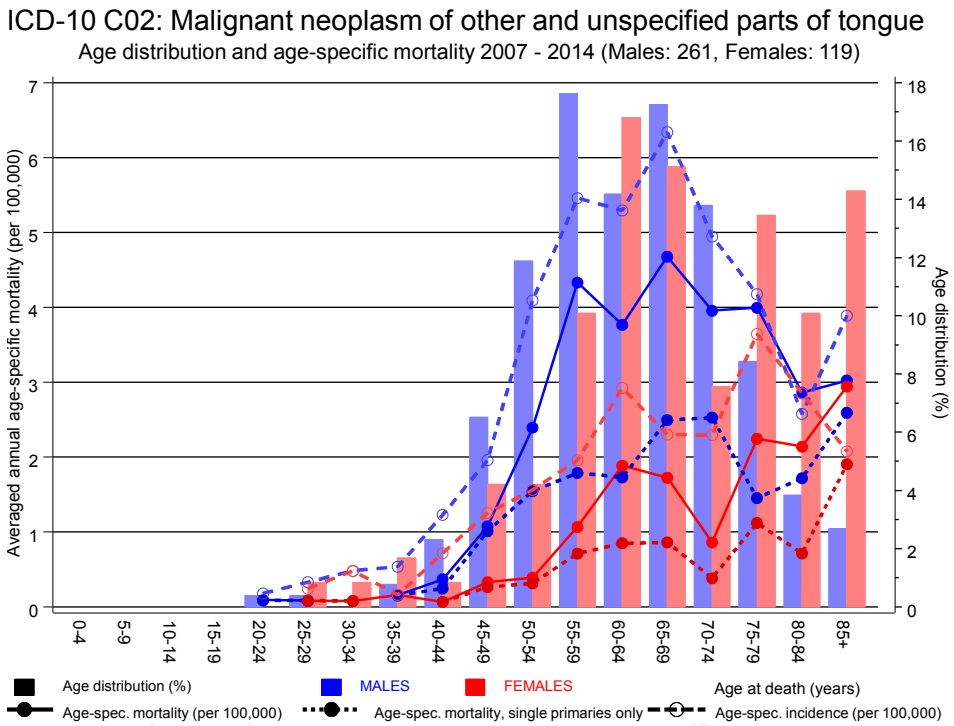
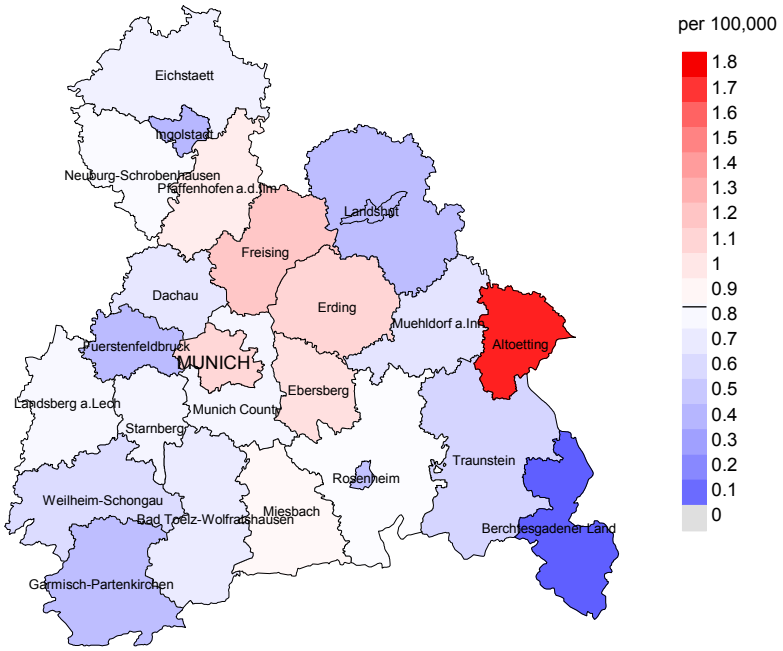


Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

The difference between age at diagnosis (Table 3) and age at tongue excl. base of tongue-related death (see Table 10) should be considered.

Average mortality (world standard population) 2007 - 2014: Males



Average mortality (world standard population) 2007 - 2014: Females

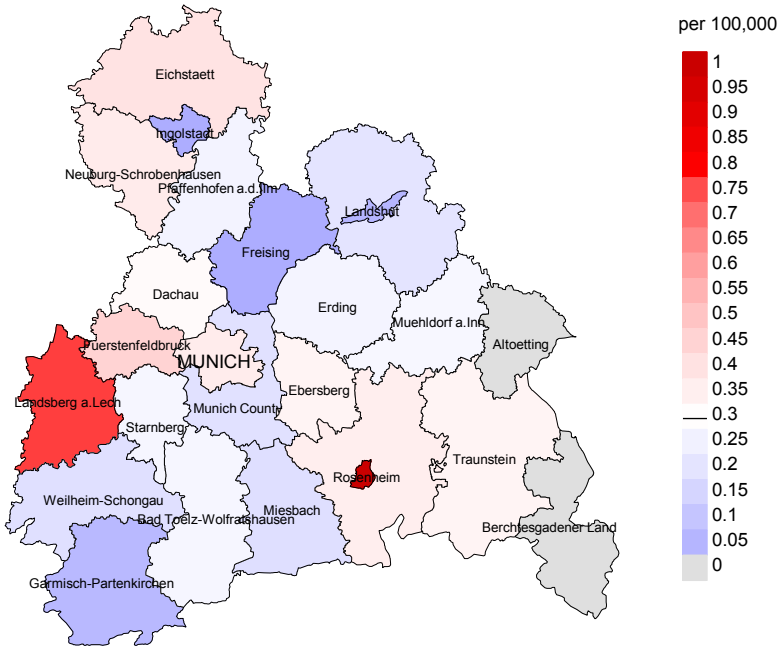
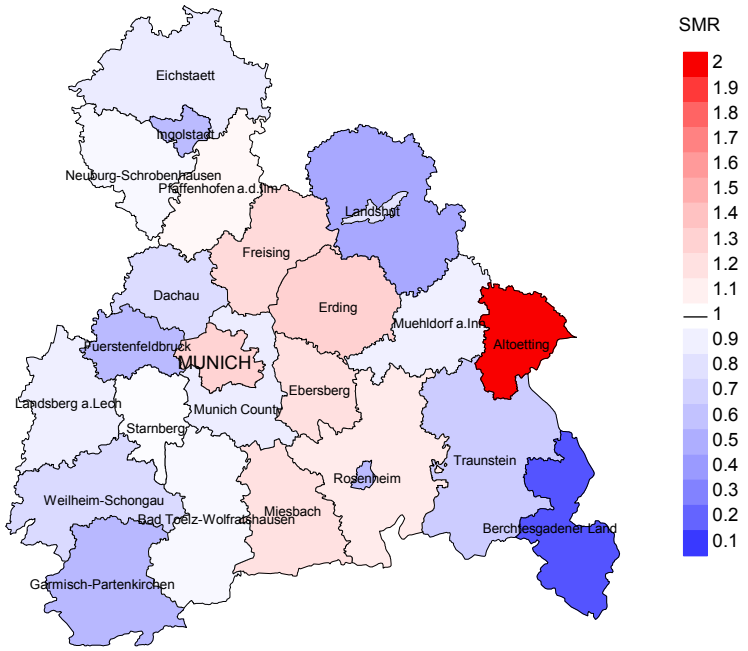


Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2014. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 0.8/100,000 WS N=260, females 0.3/100,000 WS N=118).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 65,347 female residents (averaged) in the period from 2007 to 2014 a total of 3 women died from tongue excl. base of tongue. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.3/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.0 and 1.3/100,000.

Standardized mortality ratio (SMR) 2007 - 2014: Males



Standardized mortality ratio (SMR) 2007 - 2014: Females

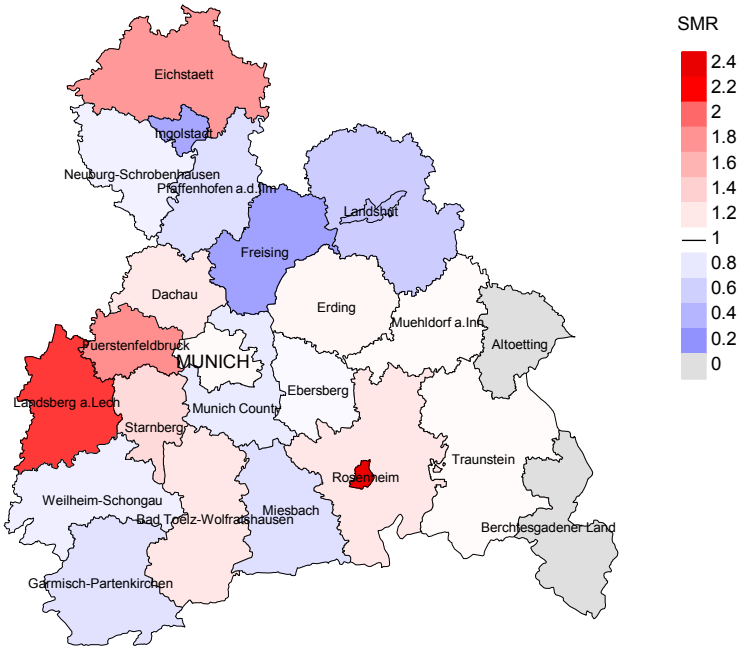


Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2014. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=260, females N=118).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,924 female residents (averaged) in the period from 2007 to 2014 a total of 3 women died from tongue excl. base of tongue. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.96. Though, the value of this parameter may vary with an underlying probability of 99% between 0.11 and 3.51, 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

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

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