Munich Cancer Registry



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ICD-10 C09: Tonsil cancer

Incidence and Mortality

Year of diagnosis	1998-2014
Patients	1,408
Diseases	1,418
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/bC09__E-ICD-10-C09-Tonsil-cancer-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
C09 C09.0	Malignant neoplasm of tonsil Tonsillar fossa
C09.1	Tonsillar pillar (anterior)(posterior)
C09.8 C09.9	Overlapping lesion of tonsil Tonsil, 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)

				Prop.		Prop.
		DCO	Prop.	mult.	Prop.	actively
Year of	Cases	cases	DCO	primaries	deaths	followed
diagnosis	n	n	%	- %	용	왕
1998	52	3	5.8	25.0	82.7	100.0
1999	56			19.6	76.8	100.0
2000	44			25.0	77.3	100.0
2001	49	1	2.0	36.7	75.5	91.8
2002	87			33.3	66.7	98.9 #
2003	104	1	1.0	28.8	72.1	96.2
2004	91	1	1.1	29.7	65.9	97.8
2005	94	3	3.2	33.0	59.6	96.8
2006	96			26.0	60.4	92.7
2007	97	9	9.3	27.8	47.4	81.4 #
2008	112	1	0.9	29.5	54.5	78.6
2009	100	\ 1	1.0	36.0	51.0	79.0
2010	112	1	0.9	23.2	43.8	72.3
2011	94			29.8	35.1	79.8
2012	118	4	3.4	20.3	34.7	80.5
2013	91	2	2.2	29.7	30.8	100.0
2014	21	1	4.8	42.9	28.6	100.0 ##
1998-2014	1418	28	2.0	28.6	54.9	88.9

[#] 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)

		(11101.	2007		
Year of	All	Males	Females	Prop. males	
diagnosis	n	n	n	%	
1998	52	40	12	76.9	
1999	/56	4 4	12 /	78.6	
2000	44	33	11/	75.0	
2001	49	40	9	81.6	
2002	87	72	1/5	82.8	
2003	104	72	32	69.2	
2004	91	77	14	84.6	
2005	94	68	26	72.3	
2006	96	69	27	71.9	
2007	97	77	20	79.4	
2008	112	75	37	67.0	
2009	100	73	27	73.0	
2010	112	85	27	75.9	
2011	94	71	23	75.5	
2012	118	90	28	76.3	
2013	91	67	24	73.6	
2014	21	13	8	61.9	
1998-2014	1418	1066	352	75.2	
				(- (- (- (- (- (- (- (- (- (-	

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)

			Males	Fem.	Males	Fem.	Males	Fem.	Males	Fem.
Year of	Males	Females	Inc.	Inc.	Inc.	Inc.	Inc.	Inc.	Inc.	Inc.
diagnosis	n	n	raw	raw	WS	WS	ES	ES	BRD-S	BRD-S
1998	40	12	3.6	1.0	2.6	0.6	3.3	0.9	3.4	0.9
1999	44	12 /	3.9	1.0	2.7	0.5	3.6	0.7	3.9	0.9
2000	33	11 /	2.9	0.9	1.8	0.5	2.6	0.8	3.0	0.8
2001	40	9 🗸	3.5	0.7	2.2	0.5	3.1	0.7	3.4	0.7
2002	72	15	3.9	0.8	2.5	0.5	3.5	0.6	3.7	0.7
2003	72	32	3.8	1.6	2.5	0.9	3.5	1.3	3.8	1.5
2004	77	14	4.1	0.7	2.7	0.4	3.6	0.5	4.0	0.6
2005	68	26	3.6	1.3	2.3	0.8	3.2	1.1	3.3	1.2
2006	69	27	3.6	1.3	2.3	0.9	3.2	1.2	3.5	1.3
2007	77	20	3.5	0.9	2.2	0.5	3.0	0.7	3.3	0.8
2008	75	37	3.4	1.6	2.0	0.8	2.9	1.1	3.3	1.3
2009	73	27	3.3	1.2	2.0	0.7	2.8	0.9	3.1	1.0
2010	85	27	3.8	1.2	2.3	0.7	3.1	1.0	3.5	1.0
2011	71	23	3.1	1.0	1.9	0.6	2.6	0.8	2.9	0.9
2012	90	28	3.9	1.2	2.4	0.7	3.3	0.9	3.7	1.0
2013	67	24	2.9	1.0	1.8	0.6	2.5	0.8	2.7	0.9
2014	13	8	0.6	0.3	0.3	0.2	0.5	0.3	0.5	0.3
1998-2014	1066	352	3.3	1.1	2.1	0.6	2.9	0.8	3.2	0.9

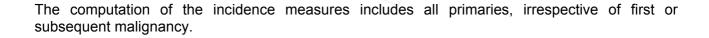


Table 3 Age distribution parameters by year of diagnosis (All patients) (incl. DCO)

Year of	Cases		Std.					Median		
diagnosis	n	Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	52	54.8	12.6	0.9	83.1	41.3	49.3	55.2	60.2	69.2
1999	56	60.2	11.4	37.1	91.7	47.1	52.3	59.1	65.8	75.2
2000	44	62.2	9.7	49.0	89.6	51.6	55.5	59.5	69.4	75.5
2001	49	59.3	10.0	41.3	88.3	46.7	53.0	57.9	64.8	74.5
2002	87	59.2	/10.1	37.3	96.8	46.8	52.9	59.2	62.9	74.5
2003	104	60.7	9.9	41.4	87.5	49.7	53.8	58.7	66.0	75.0
2004	91	59.4	10.5	38.3	85.1	47.0	51.8	58.3	65.0	74.9
2005	94	61.0	9.6	41.9	103	50.6	54.0	60.9	65.7	71.2
2006	96	60.3	10.4	41.2	90.3	47.2	52.6	59.2	66.1	72.7
2007	97	61.2	11.5	39.1	91.6	47.7	52.4	61.0	68.7	77.6
2008	112	63.8	10.2	45.2	91.8	50.1	57.5	62.4	69.2	77.1
2009	100	63.0	11.4	40.8	95.5	50.0	54.2	61.8	69.6	79.7
2010	112	62.1	9.0	37.1	85.1	50.5	55.1	62.1	68.5	73.1
2011	94	61.8	10.2	44.9	91.7	49.9	53.6	60.1	68.8	75.2
2012	118	62.0	9.7	42.3	91.1	49.3	54.8	61.6	68.4	75.8
2013	91	62.2	10.0	33.2	92.9	51.7	54.9	61.6	67.9	74.8
2014	21	63.1	9.4	49.8	86.9	52.4	56.4	61.2	70.2	73.7
1998-2014	1418	61.1	10.4	0.9	103	48.9	53.7	60.3	67.4	75.1

Table 3a Age distribution parameters by year of diagnosis (MALES) (incl. DCO)

_										
Year of	Cases		Std.					Median		
diagnosis	n	Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	40	53.8	13.3	0.9	81.1	40.6	47.8	55.2	61.3	69.8
1999	44	57.6	10.3	37.1	85.7	46.4	50.4	55.6	63.9	68.2
2000	33	62.8	10.1	49.0	89.6	51.6	55.8	61.9	69.6	75.5
2001	40	59.1	8.6	42.0	81.2	48.8	53.8	58.1	64.7	70.0
2002	72	59.1	9.3	41.7	96.8	47.4	53.5	59.2	62.9	69.5
2003	72	59.5	9.3	41.4	87.5	49.3	53.6	58.4	64.8	73.5
2004	77	58.4	10.0	38.3	85.1	45.4	51.2	57.2	64.3	73.0
2005	68	60.7	7.6	41.9	79.5	51.6	55.8	61.2	65.4	70.4
2006	69	60.7	10.0	42.5	86.7	47.6	52.7	59.1	67.7	74.7
2007	77	60.8	11.2	39.1	91.6	47.2	52.4	61.0	68.7	75.7
2008	75	62.5	9.8	45.2	87.0	49.9	56.4	61.1	68.8	76.3
2009	73	63.0	10.4	40.8	90.7	50.9	54.8	62.9	69.4	75.7
2010	85	62.7	8.8	43.5	81.9	51.4	56.0	62.6	69.0	73.6
2011	71	61.9	10.4	44.9	89.2	49.7	53.3	61.1	69.4	75.2
2012	90	61.0	9.2	42.3	81.5	49.3	54.3	61.1	66.0	73.4
2013	67	62.0	9.6	33.2	92.9	52.3	56.0	61.6	67.4	73.5
2014	13	62.7	8.3	49.8	74.1	51.0	56.4	62.0	70.8	73.7
1998-2014	1066	60.6	10.0	0.9	96.8	48.7	53.6	60.1	66.8	73.9

Table 3b

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

Year of	Cases		Std.					Median		
diagnosis	n	Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	12	58.0	9.4	50.7	83.1	50.8	52.3	55.0	58.3	69.2
1999	12	69.4	11.2	52.1	91.7	57.2	60.1	69.9	74.9	82.4
2000	11	60.4	8.7	51.1	77.0	51.6	53.4	58.0	65.0	74.9
2001	9	59.9	15.3	41.3	88.3	41.3	49.6	53.6	73.0	88.3
2002	15	59.5	/13.7	37.3	80.8	46.8	48.1	56.1	77.7	78.9
2003	32	63.4	10.8	43.7	84.2	52.6	56.4	61.3	72.0	81.3
2004	14	64.9	11.6	44.7	82.5	50.9	56.0	64.3	75.7	80.5
2005	26	61.9	13.7	44.9	103	48.0	52.6	59.3	67.0	81.2
2006	27	59.4	11.3	41.2	90.3	45.4	51.8	59.4	62.6	72.5
2007	20	63.0	13.1	44.2	89.4	48.2	52.5	60.8	69.9	84.2
2008	37	66.3	10.6	45.9	91.8	52.6	61.2	66.3	70.3	81.4
2009	27	62.9	14.2	43.2	95.5	47.6	53.8	58.7	71.1	85.9
2010	27	60.3	9.6	37.1	85.1	49.5	53.4	59.6	67.4	69.6
2011	23 /	61.4	9.6	49.9	91.7	51.9	54.7	58.6	64.9	70.9
2012	28	65.0	10.7	44.0	91.1	51.5	57.4	64.7	70.6	78.7
2013	24	62.7	11.1	44.7	85.7	50.5	53.6	63.0	70.6	78.4
2014	8	63.7	11.6	52.4	86.9	52.4	55.0	59.9	70.2	86.9
1998-2014	352	62.7	11.6	37.1	103	49.6	53.9	61.1	69.5	79.6

Table 4

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

Age at									
diagnosis	Cases			Males			Females		
Years	n	olo	Cum.%	n	90	Cum.%	n	olo	Cum.%
30-34	1	0.1	0.1	/ 1	0.2	0.2			0.0
35-39	2	0.3	0.4	1	0.2	0.4	1	0.5	0.5
40 - 44	15	2.0	2.4/	9	1.6	2.0	6	3.1	3.6
45-49	64	8.6	11.0	52	9.4	11.4	12	6.2	9.8
50-54	120	16.1	27.1	89	16.2	27.6	31	16.0	25.8
55-59	114	15.3	42.4	82	14.9	42.5	32	16.5	42.3
60-64	149	20.0	62.4	117	21.2	63.7	32	16.5	58.8
65-69	120	16.1	78.5	84	15.2	78.9	36	18.6	77.3
70-74	75	10.1	88.6	61	11.1	90.0	14	7.2	84.5
75-79	43	5.8	94.4	32	5.8	95.8	11	5.7	90.2
80-84	24	3.2	97.6	16	2.9	98.7	8	4.1	94.3
85+	18	2.4	100.0	7	1.3	100.0	11	5.7	100.0
All ages	745	100.0		551	100.0		194	100.0	

Included in the statistics are 38.6% multiple primaries in males and 31.4% in females.



Table 5

Age-specific incidence, DCO rate and proportion of all cancers for period_2007-2014

							Males	Females
			Males	Females	Males	Females	Prop.all	Prop.all
Age at			Age-	Age-	DCO rate	DCO rate	cancers	cancers
diagnosis	Males	Females	spec.	spec.	n=14	n=5	n=91183	n=89596
Years	n	n	incid.	incid.	%	%	용	%
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			0.0	0.0				
25-29			0.0	0.0				
30-34	1		0.1	0.0			0.1	
35-39	1	1	0.1	0.1			0.1	0.1
40 - 44	9	6	0.6	0.4		16.7	0.5	0.2
45-49	52	/11	3.3	0.7			1.6	0.2
50-54	89	30	6.9	2.3			1.8	0.4
55-59	81	32 /	7.6	2.8			1.1	0.4
60-64	116	31/	11.8	2.9	1.7	3.2	1.1	0.3
65-69	83	36	8.6	3.4	4.8		0.5	0.3
70-74	61	14	6.7	1.3	1.6		0.4	0.1
75-79	32	11\	5.8	1.5	12.5		0.3	0.1
80-84	16	8	4.6	1.4	12.5	12.5	0.2	0.1
85+	7	11	3.0	1.9	14.3	18.2	0.1	0.1
All ages	548	191			2.6	2.6	0.6	0.2
Incidence								
Raw			3.0	1.0				
WS /			1.9	0.6				
ES			2.5	0.8				
BRD-S			2.8	0.9				

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).



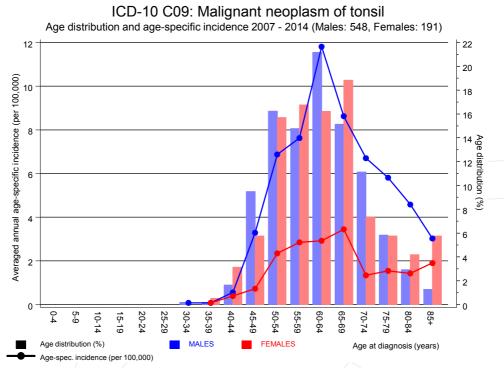


Figure 6. Age distribution and age-specific incidence



ICD-10 C09: Malignant neoplasm of tonsil Age-specific incidence rates: international comparison Average 14 Region MCR Period population 2007-2014 4.6 m SEER 2007-2011 64.6 m 12 1-year averaged incidence (per 100,000) 2 0 35-39 85+

Age at diagnosis (years)

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

MALES



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.

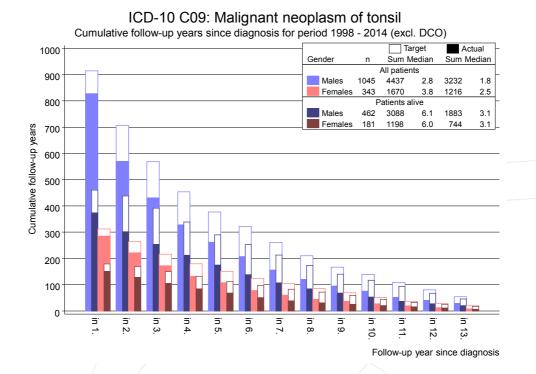


Figure 7. Cumulative follow-up years depending on time since diagnosis

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

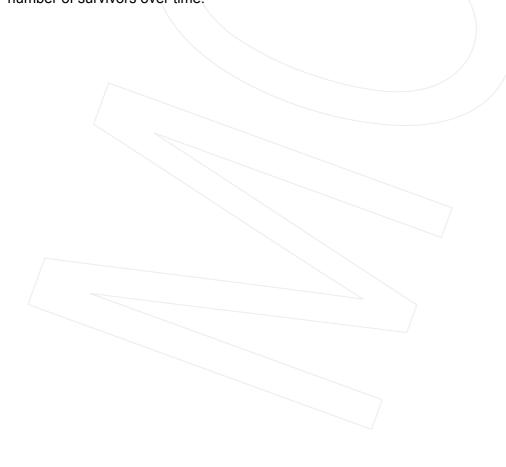


Table 8a

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

MALES

	Observed	Expected		LCL	UCL		DCO
Diagnosis	/ n /	n	SIR	95%	95%	EAR	%
-							
C03-C06 Oral cavity	18	0.5	37.4	22.1	59.1	# 54.7	5.6
C09-C10 Oropharynx	10	0.6	15.9	7.6	29.2	# 29.2	
C11 Nasopharynx	2	0.0	51.3	6.2	185.2	# 6.1	
C12-C13 Hypopharynx	13	0.3	38.6	20.5	65.9	# 39.5	
C15 Oesophagus	15	0.9	17.6	9.9	29.1	# 44.2	13.3
C16 Stomach	4	1.4	2.9	0.8	7.4	8.1	25.0
C18 Colon	6	3.4	1.8	0.7	3.9	8.2	
C22 Liver	8	1.1	7.3	3.1	14.4	# 21.5	12.5
C25 Pancreas	4	1.3	3.0	0.8	7.6	8.3	25.0
C32 Larynx	17	0.5	33.9	19.7	54.2	# 51.5	23.5
C33-C34 Lung	46	4.8	9.7	7.1	12.9	# 128.7	6.5
C43 Malign. melanoma	4	1.8	2.2	0.6	5.6	6.8	
C61 Prostate	11	11.3	1.0	0.5	1.7	-1.0	
C64 Kidney	5	1.5	3.4	1.1	7.9	# 11.0	
C67 Bladder	2	1.4	1.4	0.2	5.0	1.7	50.0
C73 Thyroid	3	0.4	8.3	1.7	24.2	# 8.2	
C76-C79 CUP	2	0.6	3.2	0.4	11.6	4.3	
Other primaries	7	3.3	2.1	0.9	4.4	11.6	14.3
Not observed	0	4.3	0.0	0.0	0.8	# -13.6	
All mult. primaries	177	39.5	4.5	3.8	5.2	# 429.1	8.5
Patients		10	35				
Median age at second maligr	nancy (yea	ars) 62	2.1				
Person-years		32	204				

3.1

Median observation time (years) 1.8

Mean observation time (years)

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

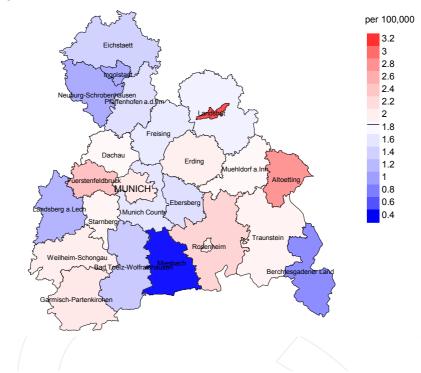
FEMALES

	Observed	Expected		LCL	UCL		DCO
Diagnosis	n /	/ n	SIR	95%	95%	EAR	90
C03-C06 Oral cavity	7	0.1	87.7	35.3	180.7 #	57.7	
C09-C10 Oropharynx	6	0.1	93.5	34.3	203.4 #	49.5	
C12-C13 Hypopharynx	3	0.0	174.7	36.0	510.4 #	24.9	
C15 Oesophagus	3	0.1	39.2	8.1	114.4 #	24.4	
C18 Colon	6	1.0	6.0	2.2	13.1 #	41.7	
C32 Larynx	3	0.0	114.0	23.5	333.1 #	24.8	
C33-C34 Lung	10	0.9	11.0	5.3	20.3 #	75.8	10.0
C50 Breast	3	4.0	0.8	0.2	2.2	-8.1	
C53 Cervix uteri	2	0.2	11.3	1.4	40.7 #	15.2	
C56 Ovary	2	0.5	4.2	0.5	15.2	12.7	50.0
Other primaries	6	1.7	3.5	1.3	7.7 #	35.9	16.7
Not observed	0	3.3	0.0	0.0	1.1	-27.6	
All mult. primaries	51	11.8	4.3	3.2	5.7 #	326.8	5.9
Patients			342				
Median age at second m	nalignancy	(years)	62.6				
Person-years			1200				
Mean observation time	(years)		3.5				
Median observation tim	ne (years)		2.4				

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

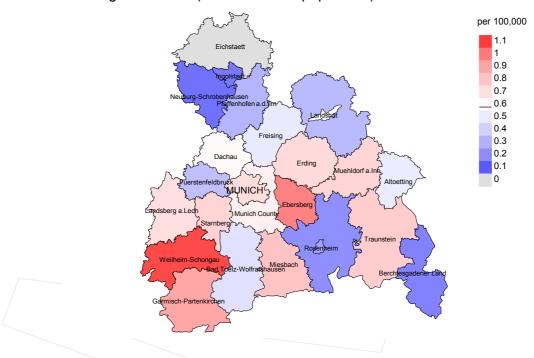
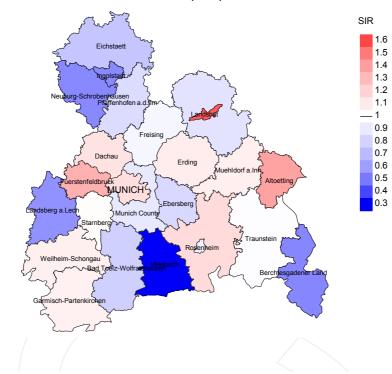


Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2014. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 1.9/100,000 WS N=548, females 0.6/100,000 WS N=191).

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 8 women were identified with newly diagnosed tonsil cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 1.0/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.3 and 2.4/100,000.

Standardized incidence ratio (SIR) 2007 - 2014: Males



Standardized incidence ratio (SIR) 2007 - 2014: Females

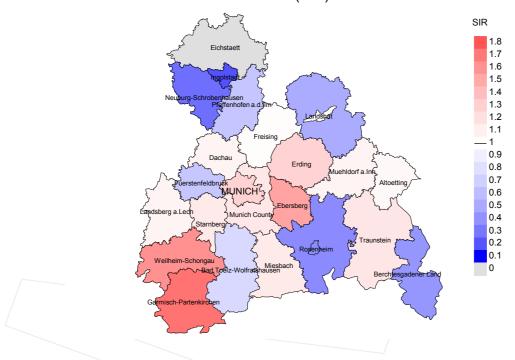


Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2014. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=548, females N=191).

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 8 women were identified with newly diagnosed tonsil cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.52. Though, the value of this parameter may vary with an underlying probability of 99% between 0.49 and 3.54, 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)

		Prop.				Prop. deaths
	Incident	actively	Prop.		Prop.	with death
Year of	cases	followed	DCO	Deaths	deaths	certific.
diagnosis	n	90	%	n	%	%
1998	52	100.0	5.8	43	82.7	97.7
1999	56	100.0		43	76.8	76.7
2000	44	100.0		34	77.3	100.0
2001	49	91.8	2.0	37	75.5	94.6
2002	87	98.9		58	66.7	96.6
2003	104	96.2	1.0	75	72.1	97.3
2004	91	97.8	1.1	60	65.9	98.3
2005	94	96.8	3.2	56	59.6	98.2
2006	96	92.7		58	60.4	98.3
2007	97	81.4	9.3	46	47.4	97.8
2008	112	78.6	0.9	61	54.5	96.7
2009	100	79.0	1.0	51	51.0	100.0
2010	112	72.3	0.9	49	43.8	100.0
2011	94	79.8		33	35.1	90.9
2012	118	80.5	3.4	41	34.7	95.1
2013	91	100.0	2.2	28	30.8	96.4
2014	21	100.0	4.8	6	28.6	66.7
1998-2014	1418	88.9	2.0	779	54.9	96.0

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)

			D		
			Prop. deaths		Drop
V	Tmaidamt			Daatha in	Prop.
Year of	Incident	/ _ /,	with death	Deaths in	deaths in
diagnosis/	cases	Deaths	certific.	same year	same year
death	n	'n	90	n	90
1998	52	42	90.5	10	19.2
1999	56	38	78.9	10	17.9
2000	44	31	93.5	4	9.1
2001	49	33	97.0	12	24.5
2002	87	54	96.3	8	9.2
2003	104	60	96.7	16	15.4
2004	/91	70	97.1	8	8.8
2005	94	66	95.5	15	16.0
2006	96	59	96.6	10	10.4
2007	97	71	98.6	16	16.5
2008	112	66	100.0	11	9.8
2009	100	63	98.4	14	14.0
2010	112	64	98.4	10	8.9
2011	94	64	98.4	1\1	11.7
2012	118	72	97.2	12	10.2
2013	91	84	97.6	11	12.1
2014	21	62	96.8	/3 /	14.3
1998-2014	1418	999	96.4	181	12.8

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)

				Prop.
				cancer
		Prop.	Prop.	recorded
		cancer-	non-cancer-	on death
Year of	Deaths	related	related	certificate
death	n	%	90	%
1998	42	73.8	26.2	89.5
1999	38	55.3	44.7	83.3
2000	31	83.9	16.1	93.1
2001	33	78.8	21.2	93.8
2002	54	72.2	27.8	80.8
2003	60	76.7	23.3	93.1
2004	70	84.3	15.7	92.6
2005	66	89.4	10.6	95.2
2006	59	78.0	22.0	86.0
2007	71	81.7	18.3	88.6
2008	66	68.2	31.8	77.3
2009	63	81.0	19.0	98.4
2010	64	75.0	25.0	88.9
2011	64	70.3	29.7	82.5
2012	72	84.7	15.3	88.6
2013	84	70.2	29.8	82.9
2014	62	67.7	32.3	90.0
1998-2014	999	76.3	23.7	88.3

 $$\operatorname{\textsc{Table 11a}}$$ Medians of age at death according to the grouping in Table 10 $$\operatorname{\textsc{MALES}}$$

					Age at
		Age at	Age at	Age at	death
		death	death	death	(according
		(all	(cancer-	(non-cancer-	to death
Year of	Deaths	causes)	related)	related)	certificate)
death	n	Years	Years	Years	Years
1998	33	60.0	57.7	75.3	57.9
1999	28	62.9	59.9	70.6	59.9
2000	22	59.8	59.8	60.9	59.8
2001	26	62.7	62.2	67.6	64.2
2002	46	62.1	60.8	71.8	60.8
2003	48	61.9	61.6	62.3	61.4
2004	55	60.1	59.8	60.7	59.9
2005	54	62.3	61.8	63.9	61.9
2006	46	64.5	64.9	63.7	64.9
2007	63	65.4	60.7	77.3	62.5
2008	46	68.1	67.8	69.2	67.8
2009	49	61.7	60.2	67.2	61.7
2010	47	63.9	63.8	70.8	63.8
2011	51	68.3	62.4	73.0	64.1
2012	50	68.6	68.7	67.1	67.6
2013	62	65.8	62.8	68.1	64.4
2014	46	69.4	66.6	74.6	69.0
1998-2014	772	63.8	62.4	69.1	62.9

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.

 $\begin{array}{c} \text{Table 11b} \\ \text{Medians of age at death according to the grouping in Table 10} \\ \text{FEMALES} \end{array}$

					Age at
		Age at	Age at	Age at	death
		death	death	death	(according
		(all	(cancer-	(non-cancer-	to death
Year of	Deaths	causes)	related)	related)	certificate)
death	n	Years	Years	Years	Years
1998	9	72.7	71.3	77.9	72.7
1999	10	58.9	58.4	78.0	55.9
2000	9	70.7	65.1	74.0	70.7
2001	7	66.2	63.4	69.4	64.8
2002	8	66.0	66.0	65.6	73.4
2003	12	61.2	59.9	75.6	61.7
2004	15	73.8	73.8	67.3	71.5
2005	12	61.8	60.3	65.9	60.3
2006	13/	72.8	70.5	75.1	72.8
2007	8	63.6	65.9	58.2	63.6
2008	20	67.6	67.4	79.1	67.4
2009	14	69.5	69.5	72.0	69.0
2010	17	64.5	61.9	71.1	64.1
2011	13	67.4	65.3	82.4	65.3
2012	22	70.6	65.9	77.6	65.9
2013	22	71.1	68.4	74.1	69.9
2014	16	80.4	71.7	86.5	72.0
1998-2014	227	68.4	66.9	76.0	67.4

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.

Year of	Deaths	Mort.	MI-Index	k Mort.	MI-Index	Mort.	MI-Index	Mort.	MI-Index
death	n	raw	raw	WS	WS	ES	ES	BRD-S	BRD-S
1998	26	2.3	0.65	1.7	0.67	2.2	0.67	2.3	0.66
1999	18	1.6	0,41	1.0	0.38	1.4	0.39	1.7	0.43
2000	18	1.6	0.55	1.0	0.53	1.4	0.53	1.6	0.52
2001	21	1.8	0.53	1.2	0.52	1.6	0.51	1.9	0.55
2002	35	1.9	0.49	1.2	0.47	1.7	0.48	1.9	0.53
2003	39	2.1	0.54	1.3	0.51	1,8	0.52	2.1	0.55
2004	46	2.4	0.61	1.6	0.60	2/.2	0.61	2.4	0.61
2005	48	2.5	0.72	1.6	0.69	2.2	0.69	2.4	0.73
2006	38	2.0	0.55	1.2	0.52	1.7	0.52	1.8	0.53
2007	51	2.3	0.66	1.4	0.65	2.0	0.66	2.2	0.66
2008	32	1.4	0.43	0.8	0.40	1.2	0.40	1.3	0.41
2009	42	1.9	0.58	1.2	0.59	1.6	0.59	1.8	0.58
2010	38	/1.7	0.45	1.0	0.43	1.4	0.45	1.6	0.47
2011	37	1.6	0.54	0.9	0.50	1.3	0.53	1.5	0.56
2012	42	1.8	0.47	1.0	0.40	1.4	0.44	1.8	0.49
2013	44	1.9	0.67	1.1	0.59	1.6	0.63	1.7	0.64
2014	33	1.4	2.54	0.8	2.37	1.1	2.45	1.3	2.54
1998-2014	608	1.9	0.57	1.1	0.55	1.6	0.56	1.8	0.58

Table 12b

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

Year of	Deaths	Mort.	MI-Index	Mort.	MI-Index	Mort.	MI-Index	Mort.	MI-Index
death	n	raw	raw	WS	WS	ES	ES	BRD-S	BRD-S
1998	5	0.4	0.42	0.2	0.29	0.3	0.31	0.4	0.41
1999	3	0.3	0.25	0.2	0.33	0.2	0.30	0.2	0.27
2000	8	0.7	0.73	0.4	0.67	0.5	0.67	0.6	0.77
2001	5	0.4	0.56	0.2	0.47	0.3	0.47	0.3	0.45
2002	4	0.2	0.27	0.1	0.22	0.2	0.25	0.2	0.23
2003	7	0.4	0.22	0.2	0.21	0.3	0.22	0.3	0.22
2004	13	0.7	0.93	0.3	0.80	0.4	0.81	0.6	0.91
2005	11	0.6	0.42	0.3	0.44	0.5	0.44	0.5	0.43
2006	8	0.4	0.30	0.2	0.21	0.3	0.23	0.3	0.27
2007	7	0.3	0.37	0.1	0.31	0.2	0.32	0.3	0.35
2008	13	0.6	0.35	0.3	0.32	0.4	0.33	0.4	0.32
2009	10	0.4	0.37	0.2	0.31	0.3	0.31	0.3	0.32
2010	10	0.4	0.38	0.2	0.35	0.3	0.37	0.4	0.39
2011	8	0.3	0.36	0.2	0.30	0.2	0.31	0.3	0.33
2012	19	0.8	0.68	0.4	0.60	0.6	0.62	0.6	0.62
2013	15	0.6	0.63	0.3	0.50	0.4	0.52	0.5	0.58
2014	9	0.4	1.13	0.2	0.87	0.2	0.92	0.3	0.97
1998-2014	155	0.5	0.44	0.2	0.39	0.3	0.40	0.4	0.42

Table 13

Age distribution of age at death (cancer-related) for period 2007-2014

(incl. multiple primaries)

Age at									
death	Cases			Males			Females		
Years	n	양	Cum.%	n	90	Cum.%	n	olo	Cum.%
40 - 44	3	0.7	0.7	/ 3	0.9	0.9			0.0
45-49	13	3.1	3.9	10	3.1	4.0	3	3.3	3.3
50-54	54	13.0	16.9	46	14.2	18.3	8	8.8	12.1
55-59	79	19.1 /	36.0	63	19.5	37.8	16	17.6	29.7
60-64	63	15.2	51.2	52	16.1	53.9	11	12.1	41.8
65-69	66	15.9	67.1	50	15.5	69.3	16	17.6	59.3
70-74	65	15.7	82.9	49	15.2	84.5	16	17.6	76.9
75-79	31	7.5	90.3	27	8.4	92.9	4	4.4	81.3
80-84	20	4.8	95.2	15	4.6	97.5	5	5.5	86.8
85+	20	4.8	100.0	8	2.5	100.0	12	13.2	100.0
All ages	414	100.0		323	100.0		91	100.0	

Included in the statistics are 38.6% multiple primaries in males and 31.4% in females.



Table 14

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

			Males		Females		Males	Females
Age at			Age-		Age-		Prop.all	Prop.all
death	Males Fe		spec.		spec.		cancers	cancers
Years	n	n	mortal.	${\tt MI-index}$	mortal.	MI-index	%	%
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			0.0		0.0			
25-29			0.0		0.0			
30-34			0.0		0.0			
35-39			0.0		0.0			
40 - 44	3		0.2	0.33	0.0		0.7	
45-49	10	3	0.6	0.19	0.2	0.25	1.0	0.2
50-54	46	8	3.6	0.52	0.6	0.26	2.5	0.4
55-59	63	16	5.9	0.77	1.4	0.50	2.0	0.6
60-64	52	11	5.3	0.44	1.0	0.34	1.1	0.3
65-69	50	16	5.2	0.60	1.5	0.44	0.7	0.3
70-74	49	16	5.4	0.80	1.5	1.14	0.5	0.2
75-79	27	4	4.9	0.84	0.6	0.36	0.3	0.1
80-84	15	5	4.3	0.94	0.9	0.63	0.2	0.1
85+	8	12	3.5	1.14	2.1	1.09	0.1	0.1
All ages	323	91					0.6	0.2
- 5								
Mortality /								
Raw			1.8	0.59	0.5	0.47		
WS			1.0	0.55	0.2	0.40		
ES			1.5	0.57	0.3	0.42		
BRD-S			1.7	0.59	0.4	0.43		
210 0				3.33	0.1	0.10		
PYLL-70								
per 100,000			15.1		3.3			
ES			13.6		2.9			
AYLL-70			10.8		9.8			
,,			10.0		5.0			

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

Table 15a $\begin{tabular}{ll} Multiple primaries in deaths in period 1998-2014 \\ \hline MALES \end{tabular}$

					Syn-	Syn-		
					chron	chron		
	Total	Total	Pre	Pre	±30d	±30d	Post	Post
Diagnosis	n	% ↓	n	← %	n	←%	n	← %
C03-C06 Oral cavity	40	12.7	16	40.0	6	15.0	18	45.0
C09-C10 Oropharynx	/ 21 /	6.7			9	42.9	12	57.1
C12-C13 Hypopharynx	27	8.6	9	33.3	14	51.9	4	14.8
C15 Oesophagus	31	9.8	7	22.6	4	12.9	20	64.5
C16 Stomach	7	2.2	2	28.6	2	28.6	3	42.9
C18 Colon	9	2.9	4	44.4	1	11.1	4	44.4
C22 Liver	11	3.5			2	18.2	9	81.8
C25 Pancreas	7	2.2					7	100.0
C32 Larynx	29	9.2	10	34.5	8	27.6	11	37.9
C33-C34 Lung	56	17.8	10	17.9	9	16.1	37	66.1
C43 Malign. melanoma	4	1.3	1	25.0			/ 3	75.0
C44 Skin others	15	4.8	3	20.0	_ 2	13.3	10	66.7
C61 Prostate	16	5.1	9	56.3	1	6.3	6	37.5
C64 Kidney	6	1.9	3	50.0	1	16.7	2	33.3
C67 Bladder	6	1.9	4	66.7			2	33.3
C76-C79 CUP	4	1.3	2	50.0			2	50.0
C91-C96 Leukaemia	4	1.3	2	50.0			2	50.0
Other primaries	22	7.0	8	36.4	1	4.5	13	59.1
All mult. primaries	315	100.0	90	28.6	60	19.0	165	52.4

Multiple primaries with number of cases 1 to 3 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

					Syn-	Syn-		
					chron	chron		
	Total	Total	Pre	Pre	±30d	±30d	Post	Post
Diagnosis	n /	%↓	n	← %	n	←%	n	← %
C03-C06 Oral cavity	13	15.3	6	46.2	1	7.7	6	46.2
C09-C10 Oropharynx	/ 3	3.5			1	33.3	2	66.7
C12-C13 Hypopharynx	/ 1	1.2					1	100.0
C14 ENT cancer	1	1.2					1	100.0
C15 Oesophagus	4	4.7	1	25.0	/ 1	25.0	2	50.0
C18 Colon	5	5.9	3	60.0	/ 1	20.0	1	20.0
C21 Anus/canal	2	2.4	1	50.0			1	50.0
C22 Liver	1	1.2					1	100.0
C26 GI cancer	1	1.2					_ 1	100.0
C30-C31 Sinuses	1	1.2					1	100.0
C32 Larynx	4	4.7	1	25.0			3 /	75.0
C33-C34 Lung	10	11.8	1	10.0			9	90.0
C44 Skin others	4	4.7					4	100.0
C50 Breast	11	12.9	9	81.8			2	18.2
C53 Cervix uteri	6	7.1	4	66.7			2	33.3
C54 Corpus uteri	2	2.4	2	100.0				
C56 Ovary	\ 1	1.2					1	100.0
C67 Bladder	1	1.2					1	100.0
C68 Urethra	1	1.2	1	100.0				
C70-C72 CNS cancer	2	2.4	1	50.0			1	50.0
C73 Thyroid	1	1.2	1	100.0				
C76-C79 CUP	7	8.2	4	57.1			3	42.9
C82-C85 NHL	2	2.4	1	50.0			1	50.0
C91-C96 Leukaemia	1	1.2					1	100.0
All mult. primaries	85	100.0	36	42.4	4	4.7	45	52.9

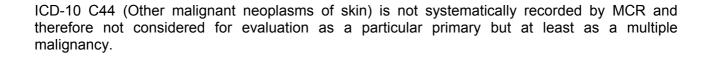


Table 16

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

(First primaries only *)

			Males		Females		Males	Females
Age at	M-1 TI	7	Age-		Age-		=	Prop.all
	Males Fe		spec.	MT indox	spec.	MT indox	cancers %	cancers
Years	n	n	mortal.	MI-Index	mortal.	MI-index	6	%
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			0.0		0.0			
25-29			0.0		0.0			
30-34			0.0		0.0			
35-39			0.0		0.0			
40 - 44	1		0.1	0.14	0.0		0.2	
45-49	7 /	3	0.4	0.15	0.2	0.33	0.8	0.3
50-54	34	7	2.6	0.45	0.5	0.28	2.1	0.5
55-59	50	12	4.7	0.75	1.1	0.50	1.9	0.6
60-64	34	10	3.5	0.39	0.9	0.37	0.9	0.4
65-69	33	13	3.4	0.52	1.2	0.45	0.6	0.3
70-74	40	11	4.4	0.98	1.1	1.10	0.6	0.2
75-79	17	\1	3.1	0.81	0.1	0.14	0.3	0.0
80-84	12	2	3.4	1.09	0.4	0.29	0.2	0.0
85+	6	8	2.6	1.00	1.4	0.89	0.1	0.1
All ages	234	67					0.6	0.2
Mortality						/		
Raw			1.3		0.4			
WS			0.7	0.50	0.2	0.40		
ES			1.1	0.53	0.3			
BRD-S			1.2	0.55	0.3	0.41		
PYLL-70								
per 100,000			10.9		2.8			
ES ES			9.9		2.4			
AYLL-70			11.0		9.9			
111111 / /			11.0		3.3			

^{*} 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 Female:	/ = /	Females Age- spec. x mortal. 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 45-49 50-54 55-59 60-64 65-69	1 5 2 24 7 39 9 27 6 24 12	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.3 0.6 1.7 1.7 0.8 0.5	0.2 0.5 0.5 0.2
70-74 75-79 80-84 85+	25 6 13 1 7 2 2 6	2.7 0.71 2.4 0.68 2.0 0.70 0.9 0.40	0.6 0.60 0.1 0.14 0.4 0.29 1.0 0.75	0.4 0.3 0.2 0.1	0.1 0.0 0.0 0.1
All ages Mortality Raw WS ES BRD-S	167 51	0.9 0.42 0.5 0.40 0.8 0.42 0.9 0.43	0.3 0.36 0.1 0.33 0.2 0.34 0.2 0.34	0.5	0.2
PYLL-70 per 100,000 ES AYLL-70		8.2 7.4 10.9	2.2 1.9 9.9		

^{*} See corresponding tables with multiple primaries.

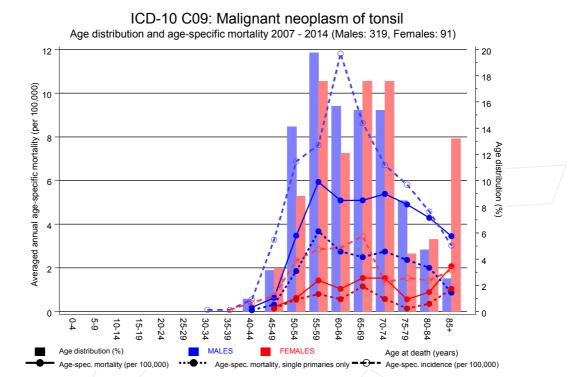
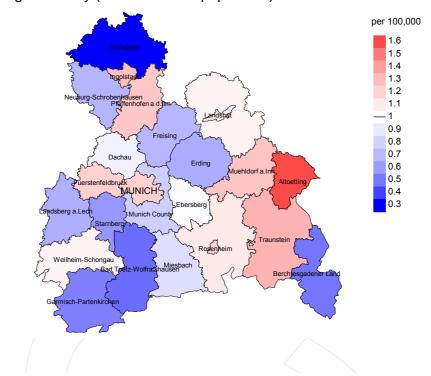


Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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



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



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

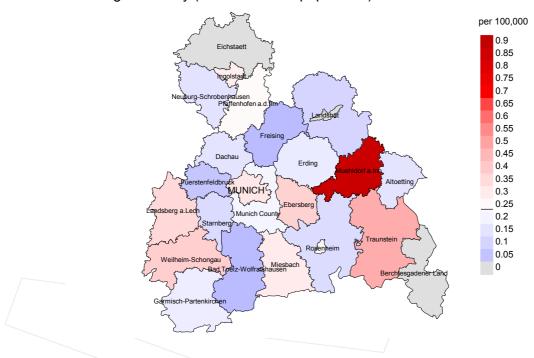
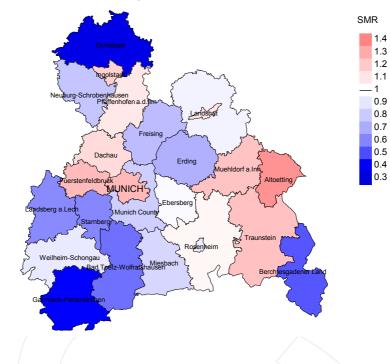


Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2014. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 1.0/100,000 WS N=317, females 0.2/100,000 WS N=91).

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 4 women died from tonsil cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.4/100,000 (world 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 mortality ratio (SMR) 2007 - 2014: Males



Standardized mortality ratio (SMR) 2007 - 2014: Females

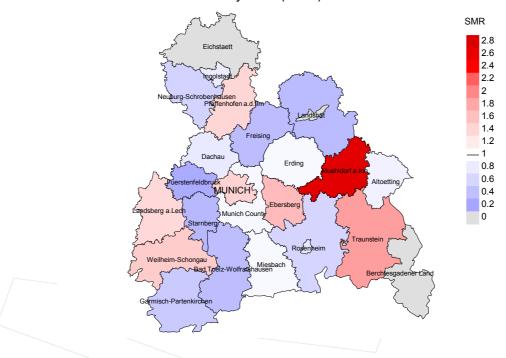


Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2014. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=317, females N=91).

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 4 women died from tonsil cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 1.64. Though, the value of this parameter may vary with an underlying probability of 99% between 0.27 and 5.15, 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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