Munich Cancer Registry

- Survival
- Selection Matrix
- Homepage

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

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

Cancer statistics: Baseline statistics

C00-C14,C30-C32: HN cancer

Year of diagnosis	1998-2012
Patients	10,139
Diseases	10,528
Creation date	03/20/2014
Export date	02/12/2014
Population	4.5 m

http://www.tumorregister-muenchen.de/en/facts/base/base_C0032E.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 4.5 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. The time-delayed acquisition of data and the occasionally high DCO-rates indicate optimizing reserves, among others, because of current financial and legal conditions that hinder the analyses.

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, March 2014

[#] 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). Death certificates from 2013 are incorporated into these analyses.

[##] 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. A high proportion of DCO cases (≥5%) in particular cancer types indicate insufficient participation of specific cancer specializations.

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 used for specifying cancer site

ICD-10	Description
C00	Lip
C01	Base of tongue
C02	Tongue other parts
C03	Gum
C04	Floor of mouth
C05	Palate
C06	Mouth other parts
C07	Parotid gland
C08	Major salivary glands
C09	Tonsil
C10	Oropharynx
C11	Nasopharynx
C12	Piriform sinus
C13	Hypopharynx
C14	Lip, oral cavity and pharynx other parts
C30	Nasal cavity
C31	Accessory sinuses
C32	Larynx

INCIDENCE

Table 1

Patient cohorts by year of diagnosis including DCO cases and multiple primaries, and with proportion of deaths and active follow-up

Year of diagnosis	Cases n	DCO cases n	Prop. DCO %	Prop. mult. primaries %	Prop. deaths %	Prop. actively followed %	
1998	479	23	4.8	30.1	76.4	97.7	
1999	501	19	3.8	32.5	74.3	97.2	
2000	457	20	4.4	30.9	75.1	97.8	
2001	455	24	5.3	31.6	72.5	97.4	
2002	760	53	7.0	33.8	69.7	98.3	#
2003	750	36	4.8	34.3	70.0	98.5	#
2004	704	38	5.4	31.8	68.2	97.9	#
2005	748	31	4.1	32.9	61.8	96.3	#
2006	720	20	2.8	29.9	61.1	96.7	#
2007	851	53	6.2	30.1	57.5	88.1	# ##
2008	902	35	3.9	29.5	53.2	78.0	
2009	880	24	2.7	29.7	51.7	80.6	
2010	890	42	4.7	29.6	45.3	79.6	
2011	807	39	4.8	27.6	36.8	77.9	
2012	624	43	6.9	27.6	25.3	97.1	###
1998-2012	10528	500	4.7	30.7	58.2	90.6	

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

Since 2007 the percentage of actively followed patients sharply declined compared to the previous years. This is a consequence of ambiguous data protection rules that currently forbid cancer registries in Bavaria to obtain the essential life status informations from competent registration offices.

Please be aware that data of recent annual patient cohorts may not yet be fully processed. Therefore, the presented figures and tables are potentially related to different time periods as pointed out in the respective headlines or legends.

Table 1a

Patient cohorts by year of diagnosis and gender
including DCO cases

Year of diagnosis	All n	Males n	Females n	Prop. males %
1998	479	375	104	78.3
1999	501	373	128	74.5
2000	457	354	103	77.5
2001	455	348	107	76.5
2002	760	578	182	76.1
2003	750	566	184	75.5
2004	704	553	151	78.6
2005	748	575	173	76.9
2006	720	521	199	72.4
2007	851	644	207	75.7
2008	902	681	221	75.5
2009	880	655	225	74.4
2010	890	669	221	75.2
2011	807	585	222	72.5
2012	624	445	179	71.3
1998-2012	10528	7922	2606	75.2

Table 2

Incidence measures by year of diagnosis and gender including DCO cases
(with respect to registry area expansion from 2.51 to 3.96 m as of 2002,
and from 3.96 to 4.52 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	375	104	33.8	8.8	22.4	4.8	30.5	6.7	34.5	7.9
1999	373	128	33.3	10.8	21.4	5.9	29.9	8.2	33.4	9.6
2000	354	103	31.1	8.6	20.4	5.1	28.3	6.9	32.2	7.8
2001	348	107	30.0	8.8	19.5	4.9	26.9	6.7	30.4	7.6
2002	578	182	31.0	9.3	19.8	4.8	27.3	6.8	30.3	8.1
2003	566	184	30.2	9.3	19.4	5.1	26.9	7.1	29.7	8.3
2004	553	151	29.4	7.6	18.4	4.0	25.4	5.5	28.9	6.6
2005	575	173	30.4	8.7	18.8	4.8	25.8	6.6	29.1	7.6
2006	521	199	27.2	9.9	17.0	5.8	23.6	7.8	26.8	8.9
2007	644	207	29.1	9.0	17.6	4.9	24.5	6.7	28.0	7.7
2008	681	221	30.6	9.5	18.3	5.1	25.6	7.1	29.3	8.1
2009	655	225	29.3	9.7	17.3	5.1	24.1	7.1	27.7	8.3
2010	669	221	29.7	9.4	17.5	4.9	24.3	6.8	27.7	7.8
2011	585	222	25.6	9.4	14.5	5.0	20.4	7.0	23.7	8.0
2012	445	179	19.5	7.6	11.3	4.0	15.6	5.5	18.2	6.4
1998-2012	7922	2606	28.9	9.1	17.7	4.9	24.5	6.8	27.8	7.8

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)
(incl. DCO)

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	479	60.1	12.3	0.9	97.4	47.2	52.6	58.8	67.5	76.3
1999	501	61.3	12.3	13.9	91.9	48.3	52.5	59.8	69.5	78.2
2000	457	60.6	12.3	19.7	91.9	46.0	52.1	59.1	68.4	78.6
2001	455	61.7	12.3	16.4	96.4	48.0	53.8	60.4	68.8	78.5
2002	760	62.0	11.6	26.4	99.0	47.9	54.7	61.2	68.5	78.5
2003	750	61.5	11.9	10.7	98.2	47.6	53.6	60.6	69.2	77.7
2004	704	62.2	12.2	24.7	97.9	46.4	54.4	62.1	70.1	78.9
2005	748	62.2	12.0	4.1	103	47.7	54.5	62.0	68.8	78.5
2006	720	61.9	12.2	17.6	101	47.5	54.0	61.7	69.5	77.9
2007	851	62.7	12.2	7.7	101	47.7	54.3	63.1	70.8	78.3
2008	902	63.9	11.9	14.1	100	49.6	56.0	63.9	70.4	79.6
2009	880	63.8	12.4	2.4	98.4	48.5	55.5	63.5	72.1	80.1
2010	890	63.6	12.7	16.6	103	48.1	54.8	64.4	71.8	79.0
2011	807	64.3	12.5	14.4	96.9	49.1	55.7	64.6	72.8	79.8
2012	624	64.0	11.9	18.6	100	49.0	55.9	64.4	72.2	78.5
1998-2012	10528	62.6	12.2	0.9	103	47.9	54.4	62.2	70.5	78.8

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	375	59.0	11.4	0.9	87.6	46.5	52.1	58.1	65.9	74.0
1999	373	60.2	11.3	32.0	90.8	48.1	52.3	58.8	66.6	75.2
2000	354	60.3	11.2	20.4	89.7	47.6	52.4	59.0	67.3	75.2
2001	348	60.5	11.1	28.7	94.9	47.8	53.3	59.9	66.2	75.4
2002	578	60.6	10.4	26.4	96.8	47.5	53.9	60.8	66.4	74.5
2003	566	60.5	10.3	28.1	94.5	47.8	53.6	60.1	67.5	74.2
2004	553	61.1	11.5	25.9	92.4	46.1	53.7	61.2	68.1	76.2
2005	575	61.5	11.2	4.1	99.0	47.3	54.2	61.8	68.2	76.5
2006	521	61.5	11.1	17.6	92.0	47.6	54.1	61.1	68.2	76.9
2007	644	62.2	11.4	15.7	101	48.0	54.3	62.7	70.1	76.7
2008	681	63.5	11.1	19.8	100	49.5	56.0	63.2	69.8	78.3
2009	655	63.3	11.4	2.4	90.7	49.1	55.7	63.2	70.8	78.0
2010	669	62.8	12.3	16.6	95.3	47.9	54.3	63.8	70.7	78.1
2011	585	64.1	12.0	14.4	95.5	49.2	55.4	64.0	72.6	79.5
2012	445	63.4	11.2	18.6	91.7	49.2	55.1	63.6	71.1	78.2
1998-2012	7922	61.9	11.4	0.9	101	48.0	54.0	61.6	69.4	76.8

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	104	64.2	14.5	9.5	97.4	49.9	55.1	63.4	75.8	82.2
1999	128	64.5	14.6	13.9	91.9	48.3	55.4	65.8	75.6	81.6
2000	103	61.6	15.6	19.7	91.9	42.8	51.1	59.7	73.5	84.2
2001	107	65.6	15.0	16.4	96.4	49.3	56.2	63.5	74.6	88.1
2002	182	66.3	13.7	31.4	99.0	48.7	55.9	64.8	77.7	82.9
2003	184	64.5	15.5	10.7	98.2	46.2	53.9	63.7	77.4	83.7
2004	151	65.8	14.1	24.7	97.9	48.9	57.0	66.7	76.2	82.9
2005	173	64.5	13.9	22.8	103	49.6	55.8	63.3	73.9	83.4
2006	199	63.0	14.6	19.0	101	46.0	53.8	62.6	71.7	83.2
2007	207	64.4	14.4	7.7	98.2	47.5	54.6	63.6	74.4	83.7
2008	221	65.4	14.0	14.1	98.4	49.7	56.2	65.6	73.4	83.6
2009	225	65.2	15.0	16.8	98.4	47.6	55.1	64.7	76.2	85.3
2010	221	65.8	13.8	21.9	103	48.8	56.2	66.7	74.4	85.2
2011	222	64.6	13.8	17.2	96.9	48.5	56.5	64.9	73.2	82.6
2012	179	65.6	13.3	21.5	100	48.4	58.1	65.4	73.8	81.6
1998-2012	2606	64.8	14.3	7.7	103	47.8	55.5	64.7	75.2	83.6

Table 4

Age distribution by 5-year age group and gender for period 1998-2012 (incl. DCO)

Age at diagnosis Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4	4	0.0	0.0	4	0.1	0.1			0.0
5-9	2	0.0	0.1			0.1	2	0.1	0.1
10-14	5	0.0	0.1	2	0.0	0.1	3	0.1	0.2
15-19	15	0.1	0.2	8	0.1	0.2	7	0.3	0.5
20-24	17	0.2	0.4	8	0.1	0.3	9	0.3	0.8
25-29	37	0.4	0.8	20	0.3	0.5	17	0.7	1.5
30-34	66	0.6	1.4	34	0.4	1.0	32	1.2	2.7
35-39	133	1.3	2.7	94	1.2	2.1	39	1.5	4.2
40-44	343	3.3	5.9	269	3.4	5.5	74	2.8	7.0
45-49	835	7.9	13.8	666	8.4	13.9	169	6.5	13.5
50-54	1364	13.0	26.8	1101	13.9	27.8	263	10.1	23.6
55-59	1651	15.7	42.5	1299	16.4	44.2	352	13.5	37.1
60-64	1782	16.9	59.4	1413	17.8	62.1	369	14.2	51.3
65-69	1500	14.2	73.7	1156	14.6	76.7	344	13.2	64.5
70-74	1110	10.5	84.2	846	10.7	87.4	264	10.1	74.6
75-79	776	7.4	91.6	523	6.6	94.0	253	9.7	84.3
80-84	497	4.7	96.3	291	3.7	97.6	206	7.9	92.2
85+	391	3.7	100.0	188	2.4	100.0	203	7.8	100.0
All ages	10528	100.0		7922	100.0		2606	100.0	

Included in the statistics are 36.7% multiple primaries in males and 32.5% in females.

Table 5

Age-specific incidence, DCO rate and proportion of all cancers
for period 1998-2012

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males DCO rate n=334 %	Females DCO rate n=151 %	Males Prop.all cancers n=146755 %	Females Prop.all cancers n=142297 %
0- 4	3		0.2	0.0	33.3		1.0	
5- 9		2	0.0	0.2				1.8
10-14	2	3	0.1	0.2			1.4	1.9
15-19	8	7	0.6	0.5			2.5	2.6
20-24	8	9	0.5	0.5			1.4	1.9
25-29	19	16	1.0	0.9			2.1	1.6
30-34	34	32	1.6	1.6		3.1	2.4	1.7
35-39	93	39	4.0	1.8	1.1	2.6	4.4	1.1
40-44	264	74	10.9	3.2	0.8	2.7	8.8	1.3
45-49	652	166	30.3	7.8	2.3	3.0	13.2	2.1
50-54	1079	254	58.4	13.4	2.2	2.0	13.4	2.5
55-59	1277	347	75.1	19.5	2.6	2.6	9.4	2.7
60-64	1382	363	83.9	20.9	3.2	2.5	6.8	2.2
65-69	1140	338	77.7	21.1	4.2	2.4	4.4	1.9
70-74	837	262	72.2	19.0	6.3	4.6	3.4	1.6
75-79	520	247	69.0	22.6	6.5	6.1	2.8	1.5
80-84	288	203	63.4	23.5	11.1	11.3	2.3	1.4
85+	185	200	59.7	24.4	25.4	30.5	2.0	1.2
All ages	7791	2562			4.3	5.9	5.3	1.8
Incidence								
Raw			28.4	8.9				
WS			17.4	4.8				
ES			24.1	6.7				
BRD-S			27.4	7.7				

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).

Table 6a

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of second primaries for period 1998-2012
MALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C00	Lip	3	0.3	11.5	2.4	33.6	#	1.4	
C03-C06	Oral cavity	58	2.9	20.2	15.4	26.1	#	28.8	10.3
C07-C08	Salivary gland	3	0.6	5.4	1.1	15.8	#	1.3	
C09-C10	Oropharynx	67	3.7	18.1	14.0	23.0	#	33.1	3.0
C11	Nasopharynx	4	0.2	17.7	4.8	45.3	#	2.0	
C12-C13	Hypopharynx	55	2.1	26.2	19.8	34.1	#	27.7	9.1
C15	Oesophagus	106	5.1	20.7	16.9	25.0	#	52.7	16.0
C16	Stomach	31	10.1	3.1	2.1	4.3	#	10.9	9.7
C17	Small intestine	7	1.3	5.4	2.2	11.2	#	3.0	28.6
C18	Colon	55	24.1	2.3	1.7	3.0	#	16.2	3.6
C19-C20	Rectum	33	15.2	2.2	1.5	3.0	#	9.3	6.1
C21	Anus/canal	6	0.6	10.3	3.8	22.4	#	2.8	
C22	Liver	39	7.1	5.5	3.9	7.5	#	16.7	15.4
C23-C24	Bile	5	2.4	2.1	0.7	4.9		1.4	40.0
C25	Pancreas	23	8.8	2.6	1.7	3.9	#	7.4	26.1
C30-C31	Sinuses	9	0.4	20.3	9.3	38.5	#	4.5	11.1
C32	Larynx	40	3.2	12.6	9.0	17.1	#	19.2	27.5
C33-C34	Lung	264	31.3	8.4	7.4	9.5	#	121.6	11.7
C38,C45	Mesothelioma	3	1.6	1.8	0.4	5.4		0.7	
C43	Malign. melanoma	17	10.7	1.6	0.9	2.5		3.3	11.8
C46,C49	Soft tissue	3	1.4	2.2	0.4	6.3		0.8	
C61	Prostate	76	76.8	1.0	0.8	1.2		-0.4	5.3
C62	Testis	2	1.0	2.0	0.2	7.4		0.5	
C64	Kidney	28	9.5	2.9	2.0	4.2	#	9.7	10.7
C65	Renal pelvis	5	0.9	5.3	1.7	12.4	#	2.1	
C67	Bladder	22	10.2	2.2	1.4	3.3	#	6.2	9.1
C70-C72	CNS cancer	2	3.7	0.5	0.1	2.0		-0.9	
C73	Thyroid	8	2.1	3.8	1.6	7.5	#	3.1	12.5
C76-C79	CUP	16	4.3	3.7	2.1	6.0	#	6.1	
C81	Hodgkin lymphoma	4	0.6	6.7	1.8	17.0	#	1.8	
C82-C85	NHL	25	10.0	2.5	1.6	3.7	#	7.9	12.0
C90	Mult. myeloma	2	3.1	0.6	0.1	2.3		-0.6	
C91-C96	Leukaemia	12	3.8	3.2	1.6	5.6	#	4.3	33.3
Other primaries		4	1.4	2.8	0.8	7.2		1.3	
Not observed		0	2.6	0.0	0.0	1.4		-1.4	
All mult. primaries		1037	263.1	3.9	3.7	4.2	#	404.6	11.1

Patients	5497
Mean age at second malignancy (years)	65.3
Person-years	19127
Mean observation time (years)	3.5
Median observation time (years)	2.3

The occurrence of second malignancy is statistically significant.

Observed second primaries with count 1 are pooled in category "Other primaries".

Table 6b

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of second primaries for period 1998-2012
FEMALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C03-C06	Oral cavity	12	0.5	26.5	13.7	46.2	#	16.7	
C07-C08	Salivary gland	3	0.1	25.8	5.3	75.3	#	4.2	
C09-C10	Oropharynx	25	0.3	75.6	49.0	111.7	#	35.7	
C11	Nasopharynx	2	0.0	77.0	9.3	278.0	#	2.9	50.0
C12-C13	Hypopharynx	11	0.1	124.3	62.0	222.4	#	15.8	18.2
C15	Oesophagus	23	0.4	56.1	35.6	84.2	#	32.7	
C16	Stomach	6	2.6	2.3	0.9	5.0		4.9	
C18	Colon	14	7.1	2.0	1.1	3.3	#	10.0	
C19-C20	Rectum	5	3.2	1.6	0.5	3.7		2.7	
C22	Liver	6	0.8	7.7	2.8	16.7	#	7.6	16.7
C23-C24	Bile	3	1.0	2.9	0.6	8.6		2.9	
C25	Pancreas	9	3.0	3.0	1.4	5.7	#	8.7	22.2
C30-C31	Sinuses	4	0.1	45.2	12.3	115.7	#	5.7	25.0
C32	Larynx	10	0.1	71.4	34.2	131.3	#	14.3	20.0
C33-C34	Lung	65	5.1	12.7	9.8	16.2	#	86.7	16.9
C43	Malign. melanoma	5	2.6	1.9	0.6	4.5		3.5	
C50	Breast	32	22.7	1.4	1.0	2.0		13.4	6.3
C51	Vulva	2	0.7	3.0	0.4	10.7		1.9	
C53	Cervix uteri	6	1.1	5.7	2.1	12.4	#	7.2	16.7
C54	Corpus uteri	5	4.0	1.2	0.4	2.9		1.4	
C56	Ovary	5	3.0	1.6	0.5	3.8		2.8	20.0
C64	Kidney	3	1.8	1.7	0.4	5.0		1.8	
C67	Bladder	2	1.3	1.5	0.2	5.6		1.0	100.0
C70-C72	CNS cancer	3	1.0	2.9	0.6	8.5		2.9	66.7
C73	Thyroid	7	1.4	4.8	1.9	10.0	#	8.0	42.9
C76-C79	CUP	4	1.2	3.2	0.9	8.3		4.0	
C82-C85	NHL	8	2.7	3.0	1.3	5.8	#	7.7	
C91-C96	Leukaemia	4	1.1	3.6	1.0	9.3		4.2	25.0
Other primaries		4	0.5	8.3	2.3	21.3	#	5.1	25.0
Not observed		0	3.4	0.0	0.0	1.1		-4.9	
All mult. primaries		288	73.0	3.9	3.5	4.4	#	311.3	11.5

Patients	1786
Mean age at second malignancy (years)	66.7
Person-years	6907
Mean observation time (years)	3.9
Median observation time (years)	2.8

The occurrence of second malignancy is statistically significant.

Observed second malignancies with count 1 are pooled in category "Other primaries".

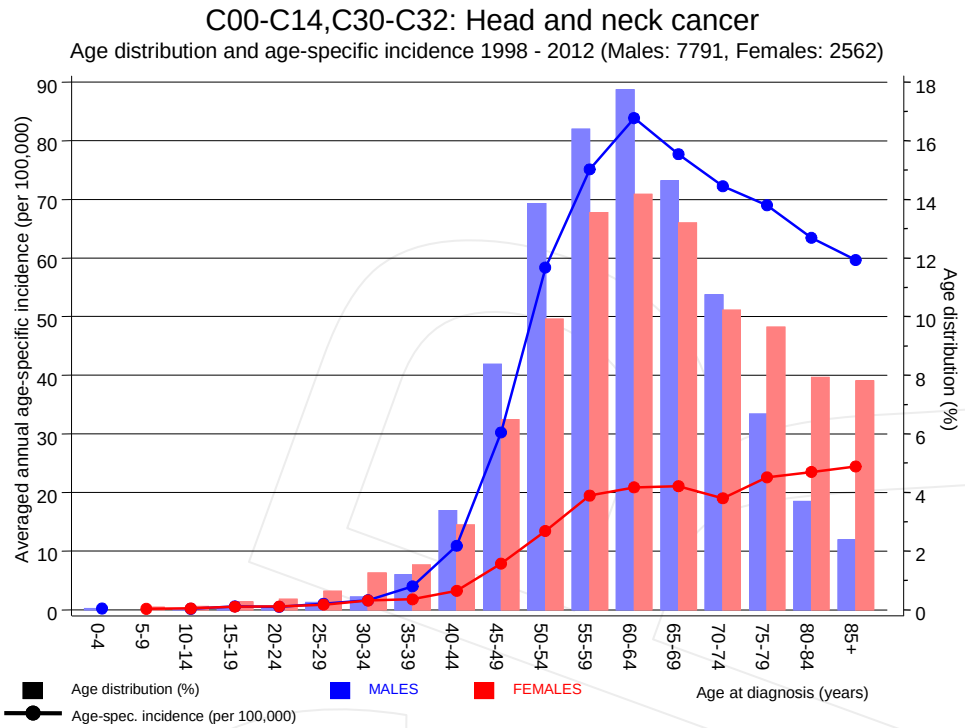


Figure 7. Age distribution and age-specific incidence

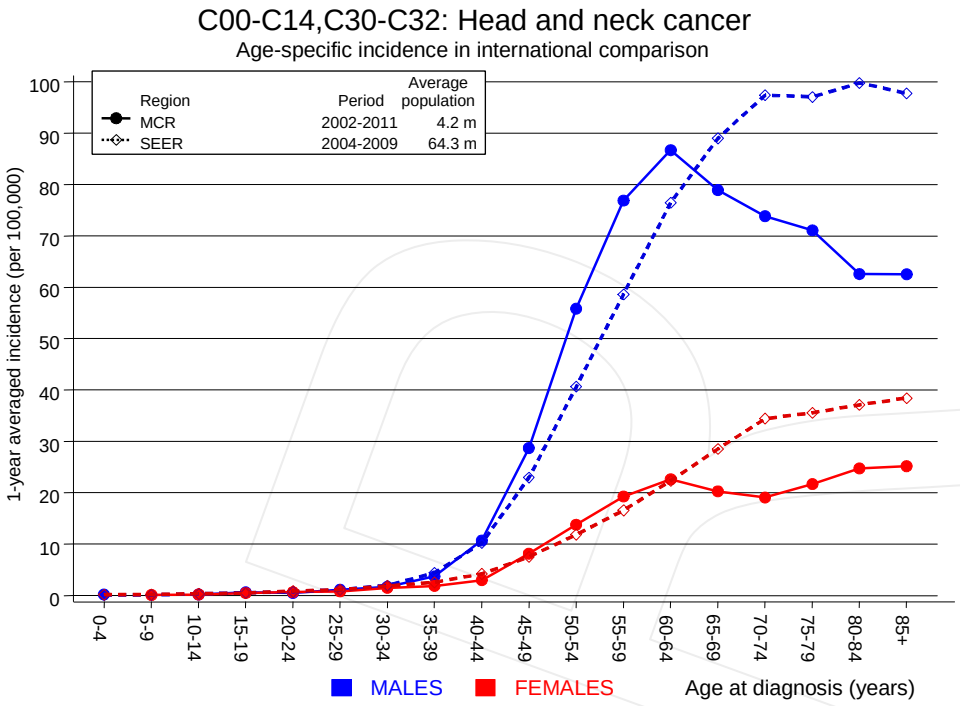


Figure 7a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence - SEER 18 Regs Research Data, released April 2012, based on the November 2011 submission. http://www.seer.cancer.gov.

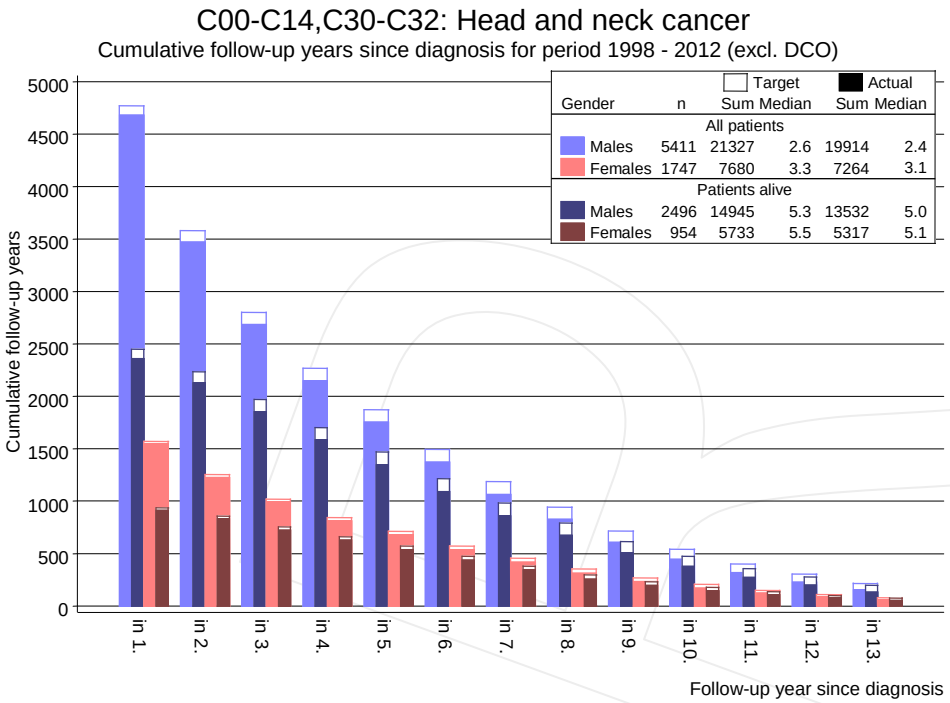
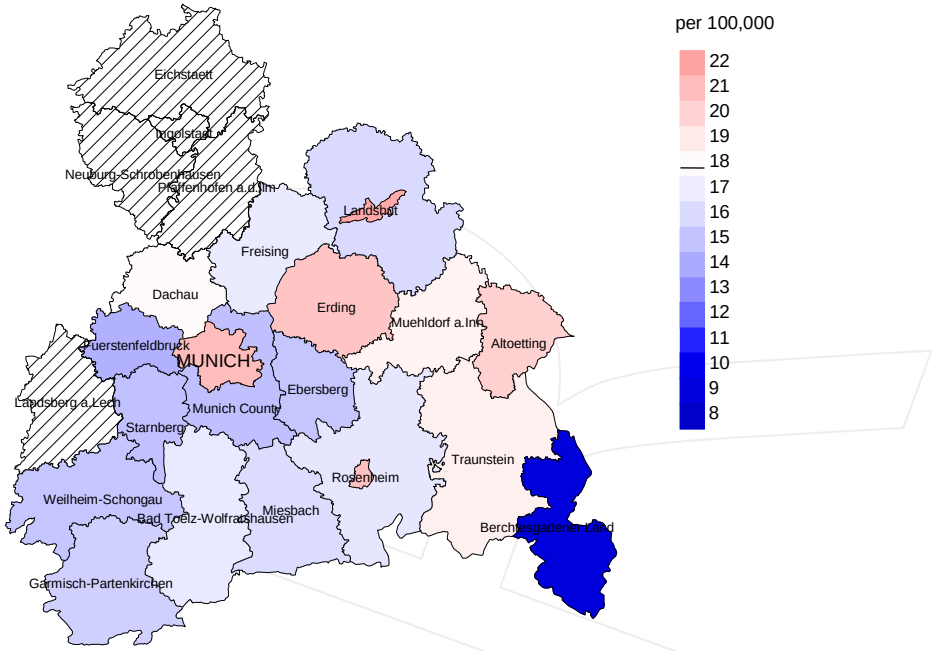


Figure 8. Cumulative follow-up years depending on time since diagnosis

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

Average incidence (world standard population) 2003 - 2008: Males



Average incidence (world standard population) 2003 - 2008: Females

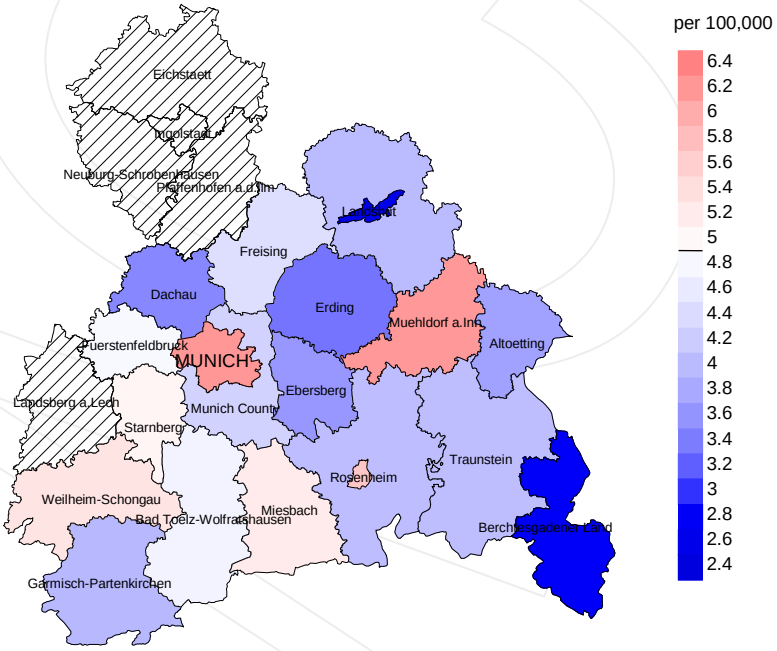
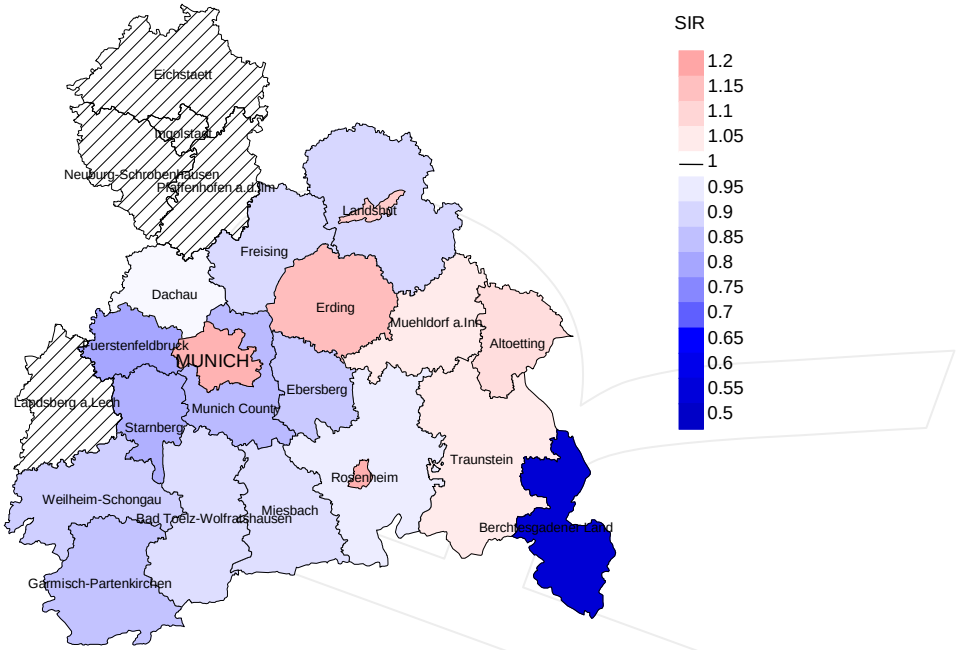


Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 17.9/100,000 WS N=3,310, females 4.9/100,000 WS N=1,083). Since cancer data are not available in some counties until 2007, the local incidence rates were not calculated, and the map tiles show as shaded.

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 63,131 female residents (averaged) in the period from 2003 to 2008 a total of 24 women were identified with newly diagnosed HN cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 3.6/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 1.9 and 6.3/100,000.

Standardized incidence ratio (SIR) 2003 - 2008: Males



Standardized incidence ratio (SIR) 2003 - 2008: Females

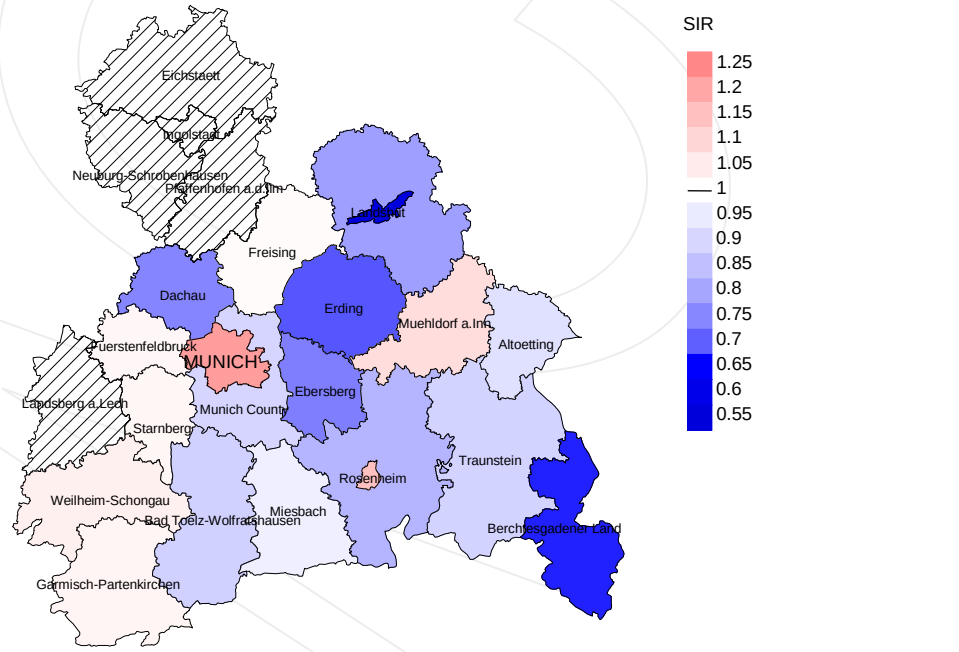


Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=3,310, females N=1,083). Since cancer data are not available in some counties until 2007, the local SIR values were not calculated, and the map tiles show as shaded.

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 63,131 female residents (averaged) in the period from 2003 to 2008 a total of 24 women were identified with newly diagnosed HN cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.74. Though, the value of this parameter may vary with an underlying probability of 99% between 0.41 and 1.22, 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 4.52 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	479	97.7	4.8	366	76.4	95.1
1999	501	97.2	3.8	372	74.3	91.1
2000	457	97.8	4.4	343	75.1	94.5
2001	455	97.4	5.3	330	72.5	94.2
2002	760	98.3	7.0	530	69.7	96.4
2003	750	98.5	4.8	525	70.0	97.0
2004	704	97.9	5.4	480	68.2	96.7
2005	748	96.3	4.1	462	61.8	98.9
2006	720	96.7	2.8	440	61.1	98.2
2007	851	88.1	6.2	489	57.5	98.4
2008	902	78.0	3.9	480	53.2	97.5
2009	880	80.6	2.7	455	51.7	98.7
2010	890	79.6	4.7	403	45.3	98.3
2011	807	77.9	4.8	297	36.8	97.6
2012	624	97.1	6.9	158	25.3	96.2
1998-2012	10528	90.6	4.7	6130	58.2	96.8

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 4.52 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	479	311	91.6	64	13.4
1999	501	334	88.3	69	13.8
2000	457	327	94.8	56	12.3
2001	455	352	90.3	73	16.0
2002	760	504	97.0	119	15.7
2003	750	515	96.9	112	14.9
2004	704	527	96.6	116	16.5
2005	748	490	96.7	108	14.4
2006	720	564	96.8	106	14.7
2007	851	609	97.7	131	15.4
2008	902	604	98.2	127	14.1
2009	880	625	98.4	115	13.1
2010	890	626	98.7	128	14.4
2011	807	606	98.3	118	14.6
2012	624	637	98.9	106	17.0
1998-2012	10528	7631	96.6	1548	14.7

Table 10c

Annual cohorts of deaths, proportion of cancer-related and not 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 4.52 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer-related %	Prop. not cancer-related %	Prop. cancer recorded on death certificate %
1998	311	70.4	29.6	88.8
1999	334	67.1	32.9	85.1
2000	327	74.9	25.1	87.4
2001	352	73.3	26.7	88.7
2002	504	74.8	25.2	87.3
2003	515	73.6	26.4	86.0
2004	527	76.7	23.3	88.8
2005	490	80.0	20.0	90.9
2006	564	74.6	25.4	84.8
2007	609	77.0	23.0	88.6
2008	604	76.8	23.2	87.0
2009	625	76.5	23.5	87.8
2010	626	78.1	21.9	88.5
2011	606	72.4	27.6	85.1
2012	637	73.3	26.7	85.2
1998-2012	7631	75.0	25.0	87.3

Table 11a

Means 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 (not cancer-related) Years	Age at death (according to death certificate) Years
1998	231	63.1	61.0	68.2	62.9
1999	263	63.2	62.0	66.1	61.4
2000	255	64.9	63.7	68.6	64.9
2001	278	62.9	61.3	67.5	62.4
2002	399	65.5	64.2	69.6	64.4
2003	401	65.5	64.1	69.5	64.4
2004	413	65.0	63.4	70.7	63.9
2005	363	66.4	64.9	72.8	65.5
2006	437	66.5	64.8	72.1	65.4
2007	490	66.2	64.8	71.3	65.4
2008	475	67.5	66.1	72.6	66.8
2009	482	67.9	66.3	73.3	66.9
2010	491	67.6	66.1	72.9	66.5
2011	474	68.7	67.3	72.4	67.8
2012	486	69.7	68.2	73.9	68.7
1998-2012	5938	66.4	65.0	71.1	65.5

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

Means 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 (not cancer-related) Years	Age at death (according to death certificate) Years
1998	80	71.1	68.7	76.3	70.2
1999	71	71.6	67.7	76.2	68.9
2000	72	67.0	64.3	75.8	66.2
2001	74	72.7	70.5	77.3	71.3
2002	105	71.6	69.9	75.5	70.6
2003	114	70.0	67.2	76.2	68.7
2004	114	72.3	72.2	72.5	71.8
2005	127	70.3	68.0	78.7	68.8
2006	127	74.3	72.4	78.8	72.7
2007	119	72.6	70.3	79.1	71.1
2008	129	71.0	68.0	77.3	68.9
2009	143	72.1	69.6	79.0	70.7
2010	135	71.4	69.0	78.5	69.4
2011	132	72.6	70.4	78.5	70.9
2012	151	73.7	71.4	80.4	71.9
1998-2012	1693	71.8	69.5	77.5	70.3

By 2010, life expectancy for a newborn male in Germany is 77.5 years compared with 82.6 years for his female counterpart.

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	164	14.8	0.44	9.6	0.44	13.3	0.44	15.5	0.45
1999	186	16.6	0.51	10.5	0.50	15.0	0.51	17.4	0.53
2000	191	16.8	0.54	10.4	0.51	15.0	0.53	18.1	0.57
2001	208	17.9	0.61	11.5	0.60	16.1	0.61	18.3	0.61
2002	304	16.3	0.53	9.9	0.51	14.3	0.53	16.9	0.56
2003	301	16.1	0.55	9.7	0.52	13.9	0.53	16.1	0.56
2004	319	17.0	0.59	10.3	0.57	14.6	0.58	17.0	0.60
2005	292	15.4	0.51	8.8	0.47	12.6	0.49	15.3	0.53
2006	333	17.4	0.65	10.2	0.61	14.4	0.62	17.1	0.65
2007	381	17.2	0.60	9.9	0.57	14.2	0.59	16.8	0.61
2008	376	16.9	0.56	9.5	0.52	13.6	0.54	16.3	0.56
2009	374	16.8	0.58	9.2	0.54	13.3	0.56	16.0	0.59
2010	389	17.3	0.59	9.5	0.56	13.8	0.58	16.3	0.60
2011	345	15.1	0.60	8.1	0.57	11.7	0.59	14.1	0.61
2012	355	15.5	0.81	8.0	0.71	11.7	0.76	14.6	0.81
1998-2012	4518	16.5	0.58	9.5	0.55	13.7	0.57	16.2	0.59

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	55	4.7	0.53	2.2	0.47	3.3	0.49	4.1	0.52
1999	38	3.2	0.31	1.6	0.28	2.3	0.29	2.9	0.31
2000	55	4.6	0.54	2.5	0.49	3.5	0.51	4.1	0.53
2001	50	4.1	0.48	1.9	0.39	2.7	0.41	3.4	0.46
2002	73	3.7	0.40	1.8	0.37	2.6	0.38	3.1	0.39
2003	79	4.0	0.43	2.1	0.41	3.0	0.42	3.5	0.43
2004	85	4.3	0.57	1.8	0.46	2.7	0.49	3.5	0.52
2005	100	5.0	0.58	2.5	0.53	3.6	0.56	4.3	0.57
2006	89	4.4	0.45	1.8	0.32	2.8	0.36	3.5	0.40
2007	88	3.8	0.44	1.8	0.37	2.6	0.39	3.1	0.42
2008	88	3.8	0.40	1.8	0.36	2.6	0.37	3.1	0.38
2009	105	4.5	0.48	2.1	0.42	3.1	0.44	3.6	0.45
2010	101	4.3	0.47	2.0	0.43	2.9	0.44	3.5	0.46
2011	95	4.0	0.44	1.8	0.37	2.6	0.38	3.1	0.39
2012	112	4.7	0.64	2.1	0.53	3.0	0.55	3.7	0.58
1998-2012	1213	4.2	0.47	2.0	0.41	2.9	0.43	3.5	0.45

Table 13

Age distribution of age at death (cancer-related) for period 1998-2012
(**incl. multiple primaries**)

Age at death Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4	2	0.0	0.0	2	0.0	0.0			0.0
5-9	0	0.0	0.0			0.0			0.0
10-14	0	0.0	0.0			0.0			0.0
15-19	1	0.0	0.0			0.0	1	0.1	0.1
20-24	4	0.1	0.1	4	0.1	0.1			0.1
25-29	4	0.1	0.2	2	0.0	0.2	2	0.2	0.2
30-34	4	0.1	0.2	2	0.0	0.2	2	0.2	0.4
35-39	34	0.6	0.8	26	0.5	0.7	8	0.6	1.0
40-44	105	1.7	2.5	88	1.8	2.6	17	1.3	2.3
45-49	318	5.2	7.7	266	5.5	8.0	52	4.0	6.3
50-54	633	10.3	18.0	541	11.1	19.2	92	7.1	13.4
55-59	913	14.8	32.8	767	15.8	35.0	146	11.3	24.7
60-64	1030	16.7	49.6	842	17.3	52.3	188	14.5	39.2
65-69	977	15.9	65.4	798	16.4	68.8	179	13.8	53.1
70-74	738	12.0	77.4	580	11.9	80.7	158	12.2	65.3
75-79	605	9.8	87.3	461	9.5	90.2	144	11.1	76.4
80-84	415	6.7	94.0	285	5.9	96.1	130	10.0	86.4
85+	367	6.0	100.0	191	3.9	100.0	176	13.6	100.0
All ages	6150	100.0		4855	100.0		1295	100.0	

Included in the statistics are 36.7% multiple primaries in males and 32.5% in females.

Table 14

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2012
(**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	2		0.1	0.50	0.0		6.5	
5- 9			0.0		0.0			
10-14			0.0		0.0			
15-19		1	0.0		0.1	0.14		2.9
20-24	4		0.2	0.50	0.0		4.8	
25-29	2	2	0.1	0.10	0.1	0.12	2.1	1.8
30-34	2	2	0.1	0.06	0.1	0.06	1.1	0.9
35-39	26	8	1.1	0.28	0.4	0.21	6.8	1.6
40-44	88	17	3.6	0.33	0.7	0.23	10.9	1.6
45-49	266	52	12.3	0.40	2.5	0.31	15.7	2.8
50-54	541	92	29.3	0.49	4.9	0.35	17.6	3.2
55-59	767	146	45.1	0.59	8.2	0.41	13.8	3.3
60-64	842	188	51.1	0.60	10.8	0.51	10.1	3.1
65-69	798	179	54.4	0.69	11.2	0.52	7.1	2.3
70-74	580	158	50.1	0.69	11.5	0.60	4.7	1.8
75-79	461	144	61.2	0.88	13.2	0.57	3.8	1.5
80-84	285	130	62.8	0.98	15.1	0.63	2.9	1.2
85+	191	176	61.6	1.02	21.5	0.87	2.4	1.4
All ages	4855	1295					6.6	1.9
Mortality								
Raw			17.7	0.61	4.5	0.50		
WS			10.3	0.58	2.1	0.43		
ES			14.7	0.60	3.1	0.45		
BRD-S			17.4	0.63	3.7	0.47		
PYLL-70								
per 100,000			149.8		30.2			
ES			134.9		26.1			
AYLL-70			11.1		10.8			

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

Table 15a

Multiple primaries in deaths in period 1998-2012
MALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03-C06 Oral cavity	102	4.5			6	5.9	96	94.1
C09-C10 Oropharynx	110	4.8			24	21.8	86	78.2
C12-C13 Hypopharynx	83	3.6			24	28.9	59	71.1
C15 Oesophagus	203	8.9	35	17.2	27	13.3	141	69.5
C16 Stomach	62	2.7	15	24.2	4	6.5	43	69.4
C18 Colon	111	4.9	38	34.2	5	4.5	68	61.3
C19-C20 Rectum	67	2.9	14	20.9	3	4.5	50	74.6
C22 Liver	58	2.5	2	3.4	9	15.5	47	81.0
C25 Pancreas	48	2.1	5	10.4	4	8.3	39	81.3
C32 Larynx	67	2.9			11	16.4	56	83.6
C33-C34 Lung	531	23.2	67	12.6	52	9.8	412	77.6
C43 Malign. melanoma	43	1.9	19	44.2	4	9.3	20	46.5
C44 Skin others	181	7.9	65	35.9	23	12.7	93	51.4
C61 Prostate	175	7.7	86	49.1	12	6.9	77	44.0
C64 Kidney	41	1.8	12	29.3	5	12.2	24	58.5
C67 Bladder	100	4.4	45	45.0	3	3.0	52	52.0
C76-C79 CUP	65	2.8	31	47.7	5	7.7	29	44.6
C82-C85 NHL	48	2.1	20	41.7	7	14.6	21	43.8
C91-C96 Leukaemia	27	1.2	6	22.2	1	3.7	20	74.1
Other primaries	164	7.2	59	36.0	11	6.7	94	57.3
All mult. primaries	2286	100.0	519	22.7	240	10.5	1527	66.8

Multiple primaries with number of cases n<20 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 1998-2012
FEMALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03-C06 Oral cavity	22	3.6			1	4.5	21	95.5
C09-C10 Oropharynx	28	4.6			5	17.9	23	82.1
C12-C13 Hypopharynx	17	2.8			3	17.6	14	82.4
C15 Oesophagus	42	7.0	4	9.5	6	14.3	32	76.2
C16 Stomach	16	2.6	4	25.0	3	18.8	9	56.3
C18 Colon	33	5.5	15	45.5	3	9.1	15	45.5
C19-C20 Rectum	8	1.3	2	25.0			6	75.0
C21 Anus/canal	6	1.0	2	33.3			4	66.7
C22 Liver	7	1.2			2	28.6	5	71.4
C25 Pancreas	10	1.7	1	10.0	1	10.0	8	80.0
C32 Larynx	13	2.2			1	7.7	12	92.3
C33-C34 Lung	102	16.9	7	6.9	9	8.8	86	84.3
C43 Malign. melanoma	7	1.2	1	14.3			6	85.7
C44 Skin others	33	5.5	9	27.3	4	12.1	20	60.6
C50 Breast	105	17.4	68	64.8	6	5.7	31	29.5
C51 Vulva	6	1.0	1	16.7			5	83.3
C53 Cervix uteri	18	3.0	13	72.2			5	27.8
C54 Corpus uteri	13	2.2	7	53.8	1	7.7	5	38.5
C56 Ovary	12	2.0	4	33.3			8	66.7
C67 Bladder	12	2.0	7	58.3			5	41.7
C70-C72 CNS cancer	13	2.2	2	15.4	2	15.4	9	69.2
C73 Thyroid	7	1.2	5	71.4	1	14.3	1	14.3
C76-C79 CUP	14	2.3	8	57.1			6	42.9
C82-C85 NHL	16	2.6	6	37.5	1	6.3	9	56.3
C91-C96 Leukaemia	10	1.7	3	30.0			7	70.0
Other primaries	34	5.6	7	20.6	5	14.7	22	64.7
All mult. primaries	604	100.0	176	29.1	54	8.9	374	61.9

Multiple primaries with number of cases n<6 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 1998-2012
(**Singular 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		1	0.0		0.1	0.14		3.2
20-24	4		0.2	0.50	0.0		5.1	
25-29	2	2	0.1	0.11	0.1	0.13	2.2	1.9
30-34	2	2	0.1	0.06	0.1	0.07	1.2	1.1
35-39	23	6	1.0	0.27	0.3	0.17	6.4	1.3
40-44	79	15	3.3	0.32	0.7	0.22	10.5	1.6
45-49	224	45	10.4	0.38	2.1	0.30	14.6	2.8
50-54	454	75	24.6	0.48	4.0	0.34	16.9	3.1
55-59	639	122	37.6	0.59	6.8	0.42	13.3	3.2
60-64	667	143	40.5	0.58	8.2	0.47	9.5	2.9
65-69	624	136	42.5	0.69	8.5	0.50	6.8	2.2
70-74	451	115	38.9	0.74	8.3	0.57	4.6	1.6
75-79	339	118	45.0	0.95	10.8	0.62	3.7	1.5
80-84	206	90	45.4	1.03	10.4	0.57	2.8	1.1
85+	136	137	43.9	1.20	16.7	0.87	2.2	1.3
All ages	3850	1007					6.5	1.9
Mortality								
Raw			14.0	0.61	3.5	0.48		
WS			8.2	0.57	1.7	0.41		
ES			11.7	0.59	2.4	0.43		
BRD-S			13.7	0.62	2.9	0.45		
PYLL-70								
per 100,000			124.4		24.8			
ES			111.8		21.5			
AYLL-70			11.3		11.1			

* See corresponding tables with multiple primaries.

Table 17

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2012
(**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	4		0.2	0.50	0.0		5.5	
25-29	2	2	0.1	0.11	0.1	0.15	2.4	2.1
30-34	2	1	0.1	0.07	0.0	0.04	1.2	0.6
35-39	23	3	1.0	0.29	0.1	0.09	6.7	0.7
40-44	74	13	3.1	0.34	0.6	0.23	10.4	1.5
45-49	194	31	9.0	0.38	1.5	0.23	13.5	2.1
50-54	362	66	19.6	0.44	3.5	0.33	14.8	3.0
55-59	480	93	28.2	0.53	5.2	0.39	11.0	2.8
60-64	476	101	28.9	0.49	5.8	0.38	7.7	2.3
65-69	414	94	28.2	0.54	5.9	0.41	5.3	1.8
70-74	281	77	24.3	0.56	5.6	0.42	3.4	1.3
75-79	207	78	27.5	0.65	7.1	0.48	2.8	1.2
80-84	128	64	28.2	0.71	7.4	0.47	2.2	0.9
85+	89	107	28.7	0.89	13.1	0.73	1.8	1.2
All ages	2736	730					5.4	1.6
Mortality								
Raw			10.0	0.50	2.5	0.40		
WS			6.0	0.48	1.2	0.34		
ES			8.4	0.49	1.8	0.36		
BRD-S			9.7	0.51	2.1	0.38		
PYLL-70								
per 100,000			98.6		18.7			
ES			88.7		16.2			
AYLL-70			12.0		11.3			

* See corresponding tables with multiple primaries.

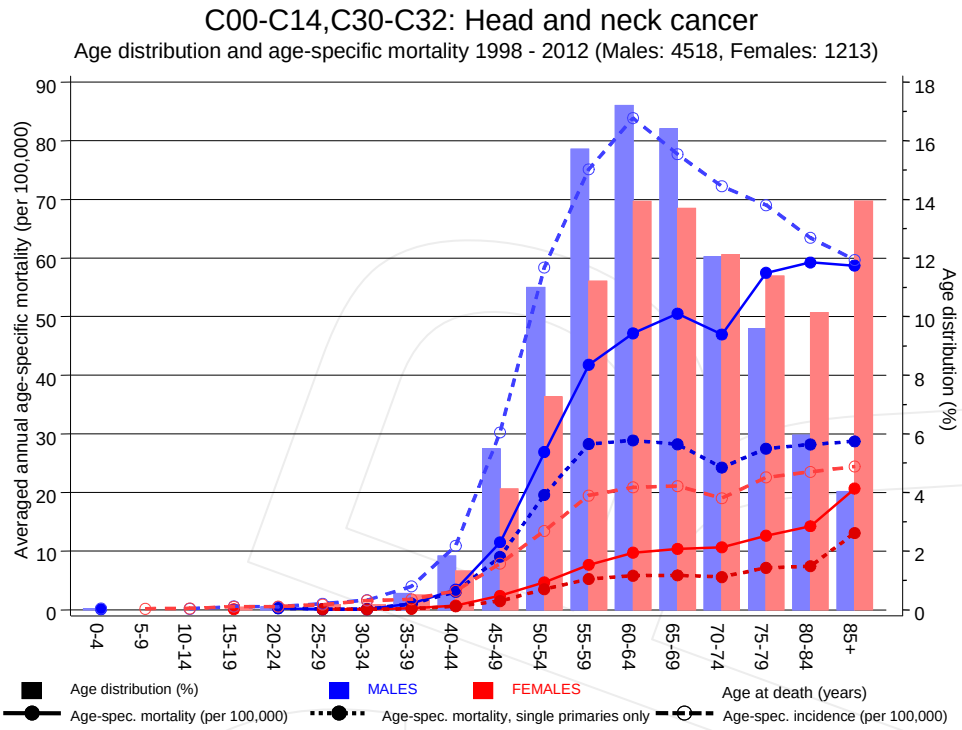
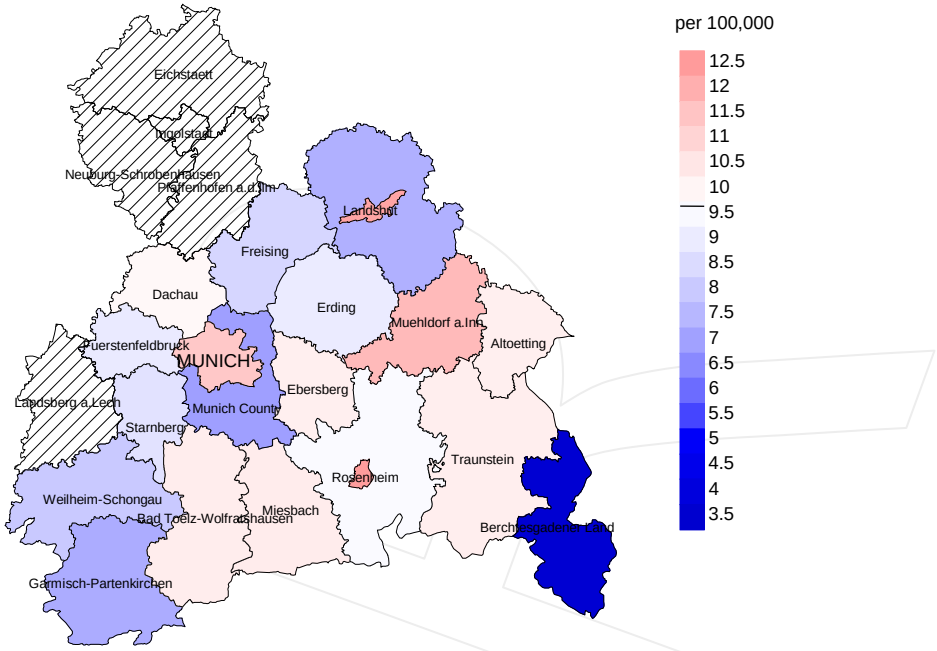


Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

Average mortality (world standard population) 2003 - 2008: Males



Average mortality (world standard population) 2003 - 2008: Females

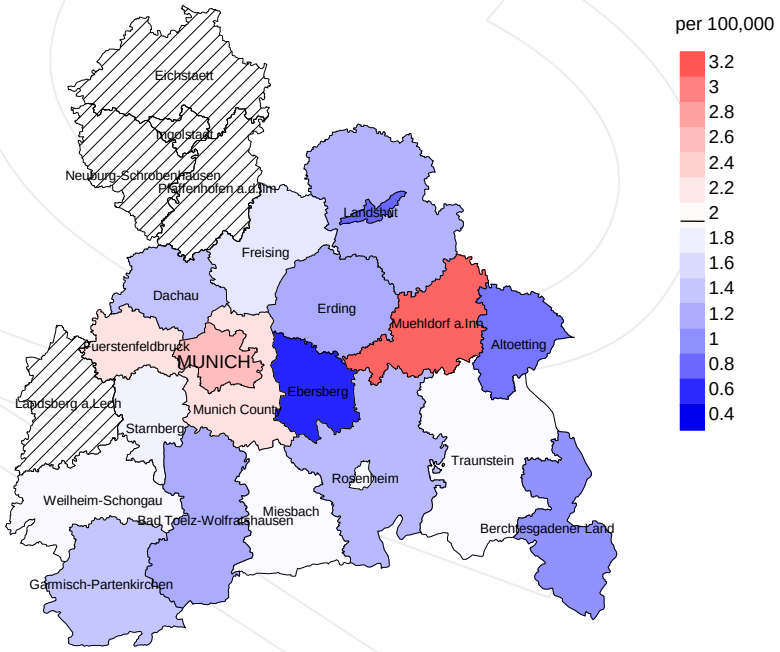
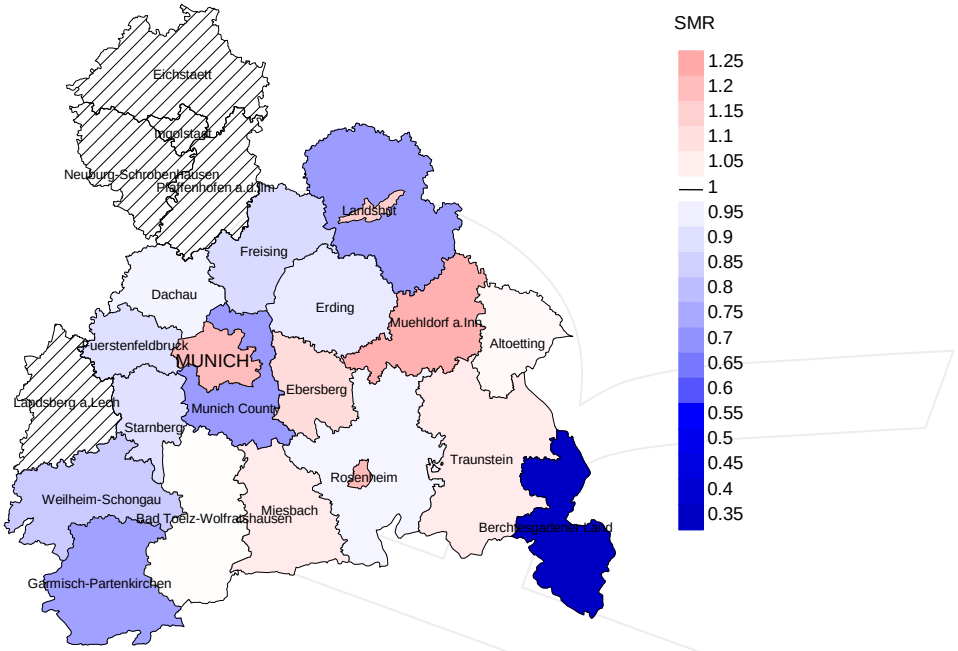


Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2003 to 2008. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 9.7/100,000 WS N=1,904, females 2.0/100,000 WS N=510). Since cancer data are not available in some counties until 2007, the local mortality rates were not calculated, and the map tiles show as shaded.

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 63,131 female residents (averaged) in the period from 2003 to 2008 a total of 5 women died from HN cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.6/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.1 and 1.9/100,000.

Standardized mortality ratio (SMR) 2003 - 2008: Males



Standardized mortality ratio (SMR) 2003 - 2008: Females

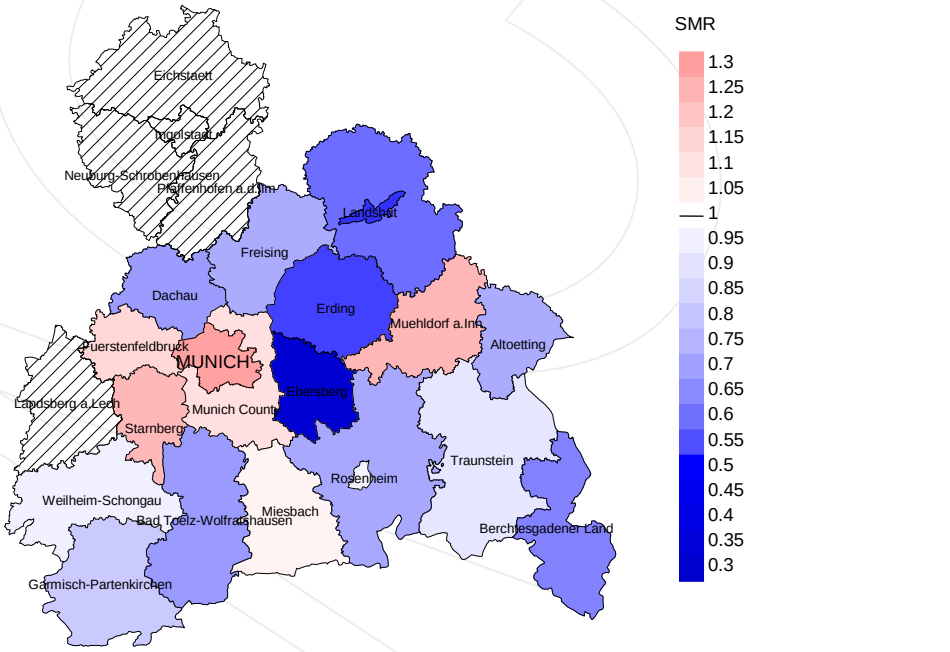


Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=1,904, females N=510). Since cancer data are not available in some counties until 2007, the local SMR values were not calculated, and the map tiles show as shaded.

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 63,131 female residents (averaged) in the period from 2003 to 2008 a total of 5 women died from HN cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.34. Though, the value of this parameter may vary with an underlying probability of 99% between 0.07 and 0.95.

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. 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 tumor-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

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)
FRG	Federal Republic of Germany
GEKID	Association of Population-based Cancer Registries in Germany (Gesellschaft der epidemiologischen Krebsregister in Deutschland e.V.)
LCL	Lower confidence limit
MI-index	Ratio between mortality and incidence
MCR	Munich Cancer Registry (Tumorregister München)
PYLL-70	Potential years of life lost prior to age 70 given a person dies before that age
SEER	Surveillance, Epidemiology, and End Results (USA)
SIR	Standardized incidence ratio
SMR	Standardized mortality ratio
UCL	Upper confidence limit
WS	World standard population

Recommended Citation

Munich Cancer Registry. Baseline statistics C00-C14,C30-C32: HN cancer [Internet]. 2014 [updated 2014 Mar 20; cited 2014 May 1]. Available from: http://www.tumorregister-muenchen.de/en/facts/base/base_C0032E.pdf

Copyright

Disclaimer

Index of figures and tables