Munich Cancer Registry



- ▶ Survival
- ▶ Selection Matrix
- ▶ Homepage
- ▶ Deutsch

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	1998-2013
Patients	10,859
Diseases	11,296
Creation date	05/19/2015
Export date	12/30/2014
Population	4.64 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 4.64 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. 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, May 2015

- 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 2014 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 (ICD-10 2015) used for specifying cancer site

Code	Description
C00	Lip
C01	Base of tongue
C02	Other and unspecified parts of tongue
C03	Gum
C04	Floor of mouth
C05	Palate
C06	Other and unspecified parts of mouth
C07	Parotid gland
C08	Other and unspecified major salivary glands
C09	Tonsil
C10	Oropharynx
C11	Nasopharynx
C12	Piriform sinus
C13	Hypopharynx
C14	Other and ill-defined sites in the lip, oral cavity and pharynx
C30	Nasal cavity and middle ear
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

				Prop.		Prop.
		DCO	Prop.	mult.	Prop.	actively
Year of	Cases	cases	DCO	primaries	deaths	followed
diagnosis	n	n	%	8	%	%
1998	480	23	4.8	30.2	77.5	97.7
1999	502	19	3.8	32.9	75.9	97.0
2000	458	20	4.4	31.2	75.3	97.8
2001	456	24	5.3	32.2	73.9	97.1
2002	759	53	7.0	35.0	71.1	98.2 #
2003	756	37	4.9	34.8	71.7	98.5
2004	709	38	5.4	32.2	68.7	97.9
2005	750	31	4.1	33.6	63.7	96.1
2006	723	20	2.8	30.6	62.7	96.5
2007	857	52	6.1	30.9	59.6	88.0 # ##
2008	917	35	3.8	31.1	55.9	76.4
2009	897	24	2.7	31.1	54.3	79.6
2010	935	39	4.2	30.4	46.5	74.9
2011	854	37	4.3	29.4	43.1	73.8
2012	822	38	4.6	26.8	31.8	74.2
2013	421	33	7.8	28.7	32.5	98.8 ###
1998-2013	11296	523	4.6	31.3	58.8	88.3

[#] 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	All	Males	Females	Prop. males
diagnosis	n /	n	n	%
1998	480	376	104	78.3
1999	502	374	128	74.5
2000	458	354	104	77.3
2001	456	349	107	76.5
2002	759	577	182	76.0
2003	756	571	185	75.5
2004	709	556	153	78.4
2005	750	577	173	76.9
2006	723	524	199	72.5
2007	857	647	210	75.5
2008	917	694	223	75.7
2009	897	670	227	74.7
2010	935	708	227	75.7
2011	854	620	234	72.6
2012	822	598	224	72.7
2013	421	302	119	71.7
1998-2013	11296	8497	2799	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 4.64 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	376	104	33.9	8.8	22.4	4.8	30.6	6.7	34.5	7.9
1999	374	128	33.4	10.8	21.5	5.9	30.0	8.2	33.5	9.6
2000	354	104	31.1	8.7	20.4	5.1	28.3	6.9	32.2	7.8
2001	349	107	30.1	8.8	19.6	4.9	27.0	6.7	30.5	7.6
2002	577	182	31.0	9.3	19.8	4.8	27.3	6.8	30.3	8.1
2003	571	185	30.5	9.4	19.6	5.1	27.1	7.1	29.9	8.4
2004	556	153	29.6	7.7	18.5	4.0	25.6	5.6	29.1	6.7
2005	577	173	30.5	8.7	18.9	4.8	25.9	6.6	29.2	7.6
2006	524	199	27.4	9.9	17.1	5.8	23.8	7.8	27.0	8.9
2007	647	210	29.2	9.1	17.7	5.0	24.6	6.9	28.1	7.9
2008	694	223	31.2	9.6	18.8	5.2	26.2	7.2	29.9	8.1
2009	670	227	30.0	9.8	17.6	5.2	24.6	7.2	28.3	8.3
2010	708	227	31.4	9.7	18.6	5.1	25.8	7.0	29.3	8.0
2011	620	234	27.1	9.9	15.3	5.4	21.6	7.4	25.0	8.5
2012	598	224	26.2	9.5	15.2	5.1	21.1	7.0	24.3	8.1
2013	302	119	13.2	5.0	7.7	2.6	10.7	3.7	12.4	4.1
1998-2013	8497	2799	28.6	9.0	17.4	4.9	24.2	6.7	27.5	7.8

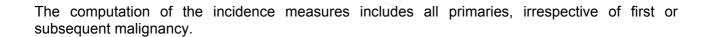


Table 3

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

Year of	Cases		Std.					Median		
diagnosis	n	Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	480	60.1	12.3	0.9	97.4	47.2	52.6	58.7	67.4	76.2
1999	502	61.2	12.4	13.9	91.9	48.1	52.5	59.8	69.5	78.2
2000	458	60.6	12.3	19.7	91.9	46.0	52.1	59.1	68.5	78.7
2001	456	61.7	12.3	16.4	96.4	48.0	53.8	60.4	68.8	78.5
2002	759	62.0	11.6	26.4	99.0	47.9	54.7	61.2	68.5	78.5
2003	756	61.5	11.9	10.7	98.2	47.5	53.6	60.4	69.2	77.9
2004	709	62.2	12.2	24.7	97.9	46.4	54.5	62.1	70.1	78.9
2005	750	62.2	12.0	4.1	103	47.6	54.4	62.0	68.8	78.3
2006	723	62.0	12.2	17.6	101	47.5	54.0	61.7	69.6	77.8
2007	857	62.6	12.2	7.7	101	47.7	54.3	62.9	70.7	78.3
2008	917	63.8	11.9	14.1	100	49.4	55.8	63.7	70.3	79.5
2009	897	63.8	12.4	2.4	98.4	48.5	55.6	63.6	72.1	80.1
2010	935	63.2	12.8	16.6	103	47.7	54.3	64.0	71.5	78.7
2011	854	64.2	12.5	14.4	96.9	49.1	55.6	64.6	72.7	79.7
2012	822	64.0	11.8	18.6	100	49.2	55.7	63.9	72.3	78.7
2013	421	64.7	11.9	19.0	93.6	50.6	56.6	65.5	72.7	79.4
1998-2013	11296	62.7	12.2	0.9	103	48.0	54.4	62.2	70.6	78.8

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	376	58.9	11.4	0.9	87.6	46.5	52.2	58.1	65.9	74.0
1999	374	60.1	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	349	60.5	11.1	28.7	94.9	47.8	53.3	59.9	66.2	75.4
2002	577	60.7	10.5	26.4	96.8	47.5	53.9	60.8	66.4	74.5
2003	571	60.5	10.3	28.1	94.5	47.8	53.5	60.0	67.5	74.0
2004	556	61.1	11.5	25.9	92.4	46.1	53.7	61.2	68.1	76.2
2005	577	61.5	11.3	4.1	99.0	47.2	54.2	61.8	68.2	76.5
2006	524	61.6	11.1	17.6	92.0	47.6	54.1	61.2	68.2	76.9
2007	647	62.1	11.4	15.7	101	47.7	54.3	62.6	70.1	76.7
2008	694	63.3	11.1	19.8	100	49.4	55.7	63.1	69.7	78.3
2009	670	63.4	11.4	2.4	90.7	49.1	55.7	63.4	70.8	78.1
2010	708	62.5	12.3	16.6	95.3	47.5	54.1	63.3	70.6	77.5
2011	620	64.1	11.9	14.4	95.5	49.2	55.4	64.4	72.4	79.3
2012	598	63.5	11.3	18.6	94.9	49.3	55.2	63.4	71.4	78.3
2013	302	64.3	10.9	19.0	88.1	51.3	57.5	64.6	71.7	77.6
1998-2013	8497	61.9	11.4	0.9	101	48.0	54.1	61.7	69.5	76.8

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	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	104	61.8	15.7	19.7	91.9	42.8	51.2	59.9	73.7	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	185	64.6	15.4	10.7	98.2	46,2	53.9	63.8	77.4	83.7
2004	153	65.9	14.0	24.7	97.9	48.9	57.0	66.7	75.7	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	210	64.2	14.3	7.7	98.2	47.4	54.6	63.6	74.1	83.7
2008	223	65.2	14.1	14.1	98.4	49.7	55.8	65.3	73.4	83.6
2009	227	65.2	15.0	16.8	98.4	47.6	55.1	64.7	76.2	85.3
2010	227	65.4	14.0	21.9	103	48.1	55.3	66.4	74.4	85.2
2011	234	64.4	14.0	17.2	96.9	47.7	56.3	64.9	73.2	82.9
2012	224	65.4	13.2	21.5	100	48.5	58.1	65.0	73.3	82.1
2013	119	65.9	14.0	34.5	93.6	47.2	55.0	66.9	75.6	86.5
1998-2013	2799	64.8	14.3	7.7	103	47.7	55.4	64.6	75.2	83.7

Table 4

Age distribution by 5-year age group and gender for period 1998-2013 (incl. DCO)

Age at									
diagnosis	Cases			Males			Females		
Years	n	%	Cum.%	'n	%	Cum.%	n	%	Cum.%
0-4	4	0.0	0.0	4	0.0	0.0			0.0
5-9	2	0.0	0.1			0.0	2	0.1	0.1
10-14	5	0.0	0.1	2	0.0	0.1	3	0.1	0.2
15-19	16	0.1	0.2	9	0.1	0.2	7	0.3	0.4
20-24	17	0.2	0.4	8	0.1	0.3	9	0.3	0.8
25-29	42	0.4	0.8	24	0.3	0.6	18	0.6	1.4
30-34	74	0.7	1.4	38	0.4	1.0	36	1.3	2.7
35-39	142	1.3	2.7	100	1.2	2, 2	42	1.5	4.2
40-44	361	3.2	5.9	278	3.3	5.4	83	3.0	7.1
45-49	883	7.8	13.7	705	8.3	13.7	178	6.4	13.5
50-54	1463	13.0	26.6	1175	13.8	27.6	288	10.3	23.8
55-59	1760	15.6	42.2	1387	16.3	43.9	373	13.3	37.1
60-64	1900	16.8	59.0	1502	17.7	61.6	398	14.2	51.3
65-69	1625	14.4	73.4	1252	14.7	76.3	373	13.3	64.7
70-74	1211	10.7	84.1	931	11.0	87.3	280	10.0	74.7
75-79	838	7.4	91.6	567	6.7	93.9	271	9.7	84.4
80-84	530	4.7	96.3	315	3.7	97.6	215	7.7	92.0
85+	423	3.7	100.0	200	2.4	100.0	223	8.0	100.0
All ages	11296	100.0		8497	100.0		2799	100.0	

Included in the statistics are 37.8% multiple primaries in males and 33.3% in females.

Table 5

Age-specific incidence, DCO rate and proportion of all cancers for period 1998-2013

							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=346	n=162	n=158258	n=153136
Years	n	n	incid.	incid.	%	%	%	%
0- 4	3		0.2	0.0	33.3		0.9	
5- 9		2	0.0	0.1				1.6
10-14	2	3 /	0.1	0.2			1.2	1.8
15-19	9	7	0.6	0.5			2.5	2.4
20-24	8	9	0.5	0.5			1.3	1.7
25-29	23	17	1.1	0.8			2.4	1.5
30-34	38	36	1.7	1.6		2.8	2.5	1.7
35-39	99	42	4.0	1.8	1.0	2.4	4.4	1.1
40-44	273	83	10.4	3.3	0.7	2.4	8.5	1.3
45-49	689	174	29.2	7.5	2.0	3.4	12.9	2.0
50-54	1151	280	57.0	13.6	2.2	2.5	13.3	2.5
55-59	1361	368	74.2	19.1	2.4	2.2	9.4	2.7
60-64	1470	392	82.9	20.9	2.9	2.6	6.8	2.3
65-69	1234	366	78.2	21.2	4.3	2.5	4.5	1.9
70-74	920	278	71.8	18.3	6.0	4.3	3.4	1.5
75-79	565	265	68.4	22.3	6.4	6.0	2.7	1.5
80-84	312	212	62.4	22.7	11.2	10.8	2.3	1.3
85+	197	220	57.8	24.6	24.9	30.5	2.0	1.3
All ages	8354	2754			4.1	5.9	5.3	1.8
Incidence								
Raw			28.1	8.9				
WS			17.1	4.8				
ES			23.8	6.6				
BRD-S			27.0	7.6				

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 1998-2013

		MALES					
	Observed	Expected		LCL	UCL		DCO
Diagnosis	n	n	SIR	95%	95%	EAR	%
_							
C00 Lip	3	0.3	9.6	2.0	28.2	# 1.3	
C03-C06 Oral cavity	61	3.1	19.5	14.9	25.0	# 28.0	8.2
C07-C08 Salivary gland	4	0.6	6.7		17.2		
C09-C10 Oropharynx	74	4.0	18.6			# 33.9	2.7
C11 Nasopharynx	4	0.2	16.2		41.4	# 1.8	
C12-C13 Hypopharynx	57	2.2	25.7	19.5	33.3	# 26.5	8.8
C15 Oesophagus	113	5.6	20.2	16.6	24.2	# 51.9	15.0
C16 Stomach	32	10.9	2.9	2.0	4.1	# 10.2	9.4
C17 Small intestine	9	1.4	6.2	2.9	11.9	# 3.7	22.2
C18 Colon	58	26.1	2.2	1.7	2.9	# 15.4	3.4
C19-C20 Rectum	36	16.3	2.2	1.5	3.0	# 9.5	5.6
C21 Anus/canal	6	0.6	9.4	3.4	20.4	# 2.6	
C22 Liver	41	7.8	5.3	_3.8	7.2	# 16.1	14.6
C23-C24 Bile	5	2.6	1.9	0.6	4.5	1.2	40.0
C25 Pancreas	25	9.7	2.6	1.7	3.8	# 7.4	24.0
C30-C31 Sinuses	10	0.5	20.1	9.6	36.9	# 4.6	10.0
C32 Larynx	43	3.4	12.5	9.1	16.9	# 19.1	30.2
C33-C34 Lung	288	33.9	8.5	7.5	9.5	# 122.9	11.5
C38,C45 Mesothelioma	3	1.8	1.7	0.3	4.9	0.6	
C43 Malign. melanoma	19	11.9	1.6	1.0	2.5	3.4	15.8
C46,C49 Soft tissue	4	1.5	2.6	0.7	6.8	1.2	
C61 Prostate	85	83.6	1.0	0.8	1.3	0.7	5.9
C64 Kidney	31	10.4	3.0	2.0	4.2	# 10.0	9.7
C65 Renal pelvis	5	1.1	4.7	1.5	11.1	# 1.9	
C67 Bladder	25	11.2	2.2	1.4	3.3	# 6.7	8.0
C70-C72 CNS cancer	2	4.0	0.5	0.1	1.8	-1.0	
C73 Thyroid	8	2.3	3.5	1.5	6.8	# 2.8	12.5
C76-C79 CUP	18	4.7	3.9	2.3	6.1	# 6.5	
C81 Hodgkin lymphoma	4	0.7	6.0	1.6	15.5	# 1.6	
C82-C85 NHL	25	10.9	2.3	1.5	3.4	# 6.8	12.0
C90 Mult. myeloma	4	3.4	1.2	0.3	3.0	0.3	
C91-C96 Leukaemia	12	4.1	2.9	1,5	5.1	# 3.8	33.3
Other primaries	6	2.8	2.2	0.8	4.7	1.6	
Not observed	0	2.8	0.0	0.0	1.3	-1.3	

Patients	5652
Median age at second malignancy (years)	65.3
Person-years	20677
Mean observation time (years)	3.7
Median observation time (years)	2.4

All mult. primaries 1120

The occurrence of second malignancy is statistically significant.

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

286.4 3.9 3.7 4.1 # 403.2 10.7

Table 6b

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of second primaries for period 1998-2013

TO T	:M	λТ	177	$\overline{}$
гг	'IAT	ΔT	ுங	◌

	Observed	Expected		LCL	UCL		DCO
Diagnosis	/ n /	n	SIR	95%	95%	EAR	%
C03-C06 Oral cavity	/ 13/	0.5	26.1	13.9		‡ 16.6	
C07-C08 Salivary gland	3	0.1	23.9	4.9	69.9		
C09-C10 Oropharynx	25	0.4	70.4	45.6	104.0	32.6	
C11 Nasopharynx	/ 3	0.0	101.1	20.9	295.5	\$ 3.9	33.3
C12-C13 Hypopharynx	11	0.1	114.0	56.9	203.9	14.4	27.3
C14 ENT cancer	2	0.0	136.2	16.5	492.1	2.6	100.0
C15 Oesophagus	26	0.5	56.1	36.6	82.2	33.8	3.8
C16 Stomach	6	2.8	2.1	0.8	4.7	4.2	
C18 Colon	17	7.7	2.2	1.3	3.5	12.3	
C19-C20 Rectum	5	3.4	1.5	0.5	3.4	2.1	
C22 Liver	9	0.9	10.2	4.7	19.5	10.8	22.2
C23-C24 Bile	3	1.1	2.7	0.6	7.9	2.5	
C25 Pancreas	10	3.3	3.0	1.4	5.5	\$ 8.9	30.0
C30-C31 Sinuses	4	0.1	41.8		107.0	•	25.0
C32 Larynx	10	0.2	63.8	30.6	117.4	± 13.0	20.0
C33-C34 Lung	66	5.7	11.6	9.0	14.8	± 79.9	16.7
C43 Malign. melanoma	. 7	2.9	2.4	1.0	5.0	5.5	14.3
C50 Breast	34	24.9	1.4	0.9	1.9	12.1	5.9
C51 Vulva	2	0.7	2.7	0.3	9.7	1.7	
C53 Cervix uteri	6	1.1	5.3	1.9	11.5		16.7
C54 Corpus uteri	5	4.4	1.1	0.4	2.6	0.8	10.7
C56 Ovary	6	3.3	1.8	0.7	4.0	3.6	16.7
C64 Kidney	3	1.9	1.6	0.3	4.5	1.4	10.7
C67 Bladder	3	1.4	2.1	0.4	6.1	2.1	66.7
C70-C72 CNS cancer	3	1.1	2.7	0.6	8.0	2.5	66.7
C73 Thyroid	7	1.5	4.5	1.8	9.3		42.9
C76-C79 CUP	4	1.4	2.9	0.8	7.5	3.5	12.7
C82-C85 NHL	8	3.0	2.7	1.2	5.3		
C91-C96 Leukaemia	4	1.2	3.3	0.9	8.4	3.7	25.0
C91-C90 Deukaemia		1.2	٥.٥	0.9	0.4	3.1	23.0
Other primaries	3	0.5	5.8	1.2	16.8	± 3.3	
Not observed	0	3.7	0.0	0.0	1.0		
1.00 02001 000		J.,	3.0	3.0		, 3.0	
All mult. primaries	308	79.9	3.9	3.4	4.3	± 302.0	12.7
-						-	

Patients	1853
Median age at second malignancy (years)	67.4
Person-years	7552
Mean observation time (years)	4.1
Median observation time (years)	2.9

The occurrence of second malignancy is statistically significant.

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

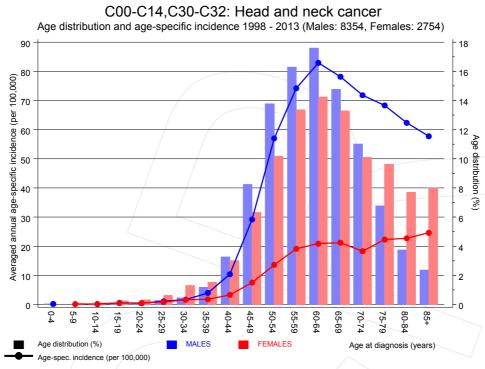
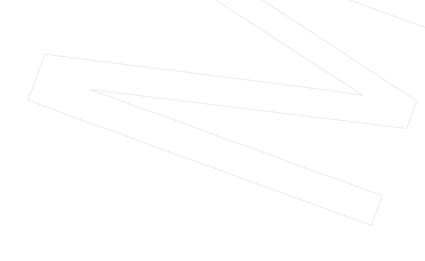


Figure 7. Age distribution and age-specific incidence



C00-C14,C30-C32: Head and neck cancer

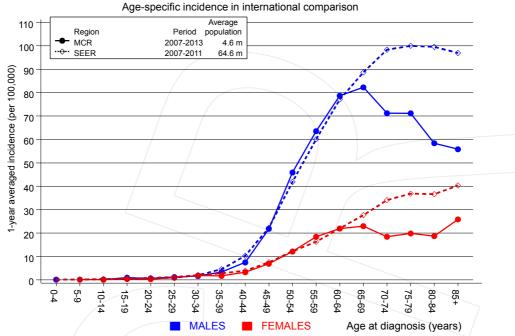


Figure 7a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).



Reference:

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence - SEER 18 Regs Research Data, released April 2014, based on the November 2013 submission. http://www.seer.cancer.gov.

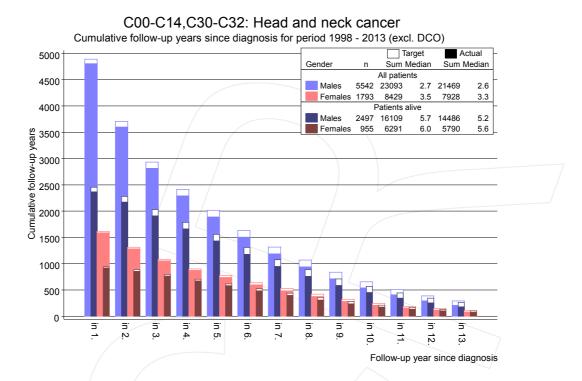
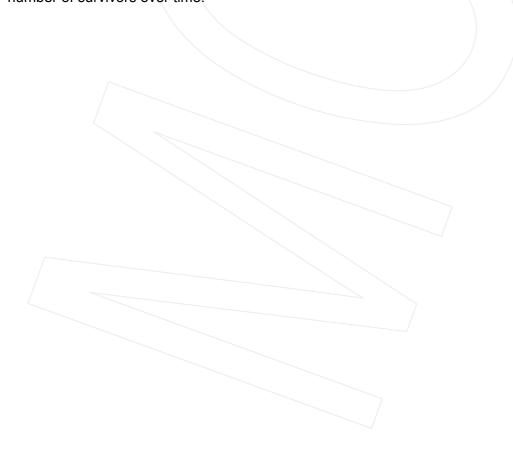
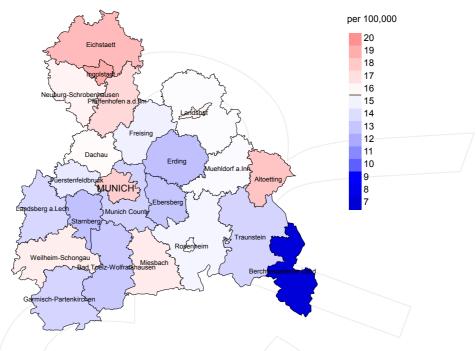


Figure 8. Cumulative follow-up years depending on time since diagnosis

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) 2007 - 2013: Males



Average incidence (world standard population) 2007 - 2013: Females

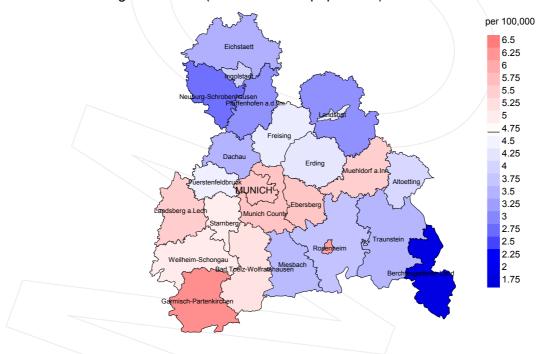
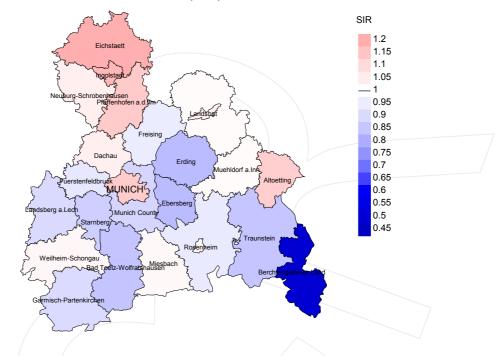


Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 15.6/100,000 WS N=4,162, females 4.7/100,000 WS N=1,435).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,928 female residents (averaged) in the period from 2007 to 2013 a total of 46 women were identified with newly diagnosed HN cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 5.6/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 3.5 and 8.8/100,000.

Standardized incidence ratio (SIR) 2007 - 2013: Males



Standardized incidence ratio (SIR) 2007 - 2013: Females

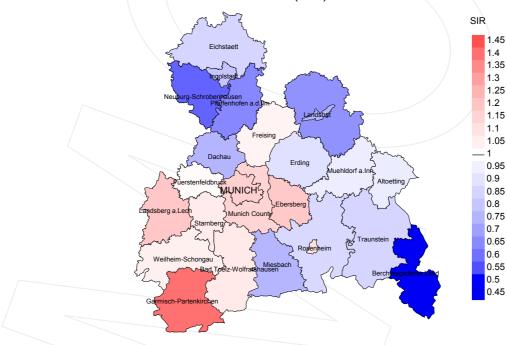


Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=4,162, females N=1,435).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,642 female residents (averaged) in the period from 2007 to 2013 a total of 46 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 1.19. Though, the value of this parameter may vary with an underlying probability of 99% between 0.78 and 1.72, 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	%	%	n	%	%
1998	480	97.7	4.8	372	77.5	94.9
1999	502	97.0	3.8	381	75.9	91.1
2000	458	97.8	4.4	345	75.3	94.8
2001	456	97.1	5.3	337	73.9	93.8
2002	759	98.2	7.0	540	71.1	96.5
2003	756	98.5	4.9	542	71.7	96.7
2004	709	97.9	5.4	487	68.7	96.5
2005	750	96.1	4.1	478	63.7	98.3
2006	723	96.5	2.8	453	62.7	97.8
2007	857	88.0	6.1	511	59.6	98.0
2008	917	76.4	3.8	513	55.9	96.9
2009	897	79.6	2.7	487	54.3	98.2
2010	935	74.9	4.2	435	46.5	97.7
2011	854	73.8	4.3	368	43.1	95.4
2012	822	74.2	4.6	261	31.8	94.3
2013	421	98.8	7.8	137	32.5	89.1
1998-2013	11296	88.3	4.6	6647	58.8	96.1

Table 10b

Annual cohorts of incident cancers and deaths, proportion of death certificates and cases deceased the same year of cancer diagnosis (incl. DCO)

			Prop.		D
6			deaths		Prop.
Year of	Incident		with death	Deaths in	deaths in
diagnosis/	cases	Deaths	certific.	same year	same year
death	n	n	8	n	%
1998	480	311	91.6	64	13.3
1999	502	334	88.3	69	13.7
2000	458	327	94.8	56	12.2
2001	456	352	90.3	73	16.0
2002	759	504	97.0	119	15.7
2003	756	515	96.9	112	14.8
2004	709	527	96.6	116	16.4
2005	750	491	96.7	108	14.4
2006	723	564	96.8	106	14.7
2007	857	611	97.5	130	15.2
2008	917	604	98.2	127	13.8
2009	897	625	98.4	115	12.8
2010	935	627	98.7	128	13.7
2011	854	610	97.7	120	14.1
2012	822	672	97.3	121	14.7
2013	421	603	99.0	91	21.6
1998-2013	11296	8277	96.6	1655	14.7

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	%	8	8
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	76.5	23.5	88.8
2005	491	80.0	20.0	90.9
2006	564	74.6	25.4	84.8
2007	611	76.9	23.1	88.6
2008	604	76.8	23.2	87.0
2009	625	76.5	23.5	87.8
2010	627	78.1	21.9	88.5
2011	610	72.5	27.5	85.1
2012	672	73.8	26.2	85.6
2013	603	73.0	27.0	85.8
1998-2013	8277	74.9	25.1	87.2

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

Year of death	Deaths n	Age at death (all causes)	Age at death (cancer-related) Years	Age at death (non-cancer-related) Years	Age at death (according to death certificate) Years
1998	231	62.2	60.2	66.2	62.2
1999	263	61.7	59.8	65.1	59.6
2000	255	63.8	62.2	66.9	64.0
2001	278	61.9	60.4	67.9	61.0
2002	399	63.6	62.5	70.2	62.6
2003	401	64.1	63.1	69.1	63.4
2004	413	63.6	62.4	70.8	63.0
2005	363	65.4	64.6	74.4	65.0
2006	437	65.4	64.6	71.8	64.8
2007	492	66.1	64.9	71.0	65.5
2008	475	67.5	66.6	71.8	67.2
2009	482	68.0	66.3	73.9	66.9
2010	492	67.6	66.5	72.2	66.5
2011	477	69.1	67.3	71.4	68.2
2012	518	70.7	69.6	74.0	69.7
2013	444	69.8	67.4	75.2	68.3
1998-2013	6420	66.1	64.7	71.7	65.2

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 $\begin{tabular}{ll} \begin{tabular}{ll} \begin{tabula$

Year of death	Deaths n	Age at death (all causes)	Age at death (cancer-related) Years	Age at death (non-cancer-related) Years	Age at death (according to death certificate)
1998	80	71.9	68.6	83.1	71.6
1999	71	73.4	67.4	78.0	70.3
2000	72	67.8	61.0	79.9	67.6
2001	74	72.2	69.7	75.2	71.9
2002	105	71.9	71.0	78.3	71.8
2003	114	71.0	65.0	78.3	70.7
2004	114	73.7	73.7	73.7	73.0
2005	128	68.4	65.9	82.3	66.7
2006	127	73.8	70.9	80.4	71.3
2007	119	70.9	68.4	81.5	69.2
2008	129	69.4	68.0	77.1	68.5
2009	143	70.3	68.5	81.7	69.6
2010	135	71.4	68.4	81.7	68.8
2011	133	72.7	70.7	82.4	71.1
2012	154	73.1	71.5	82.9	71.5
2013	159	74.0	71.7	83.2	72.2
1998-2013	1857	72.0	69.3	80.2	70.0

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	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	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	0.60	11.5	0.60	16.1	0.60	18.3	0.61
2002	304	16.3	0.54	9.9	0.51	14.3	0.53	16.9	0.57
2003	301	16.1	0.54	9.7	0.51	13.9	0.53	16.1	0.55
2004	318	16.9	0.58	10.2	0.56	14.5	0.58	17.0	0.59
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	0.60	14.4	0.62	17.1	0.65
2007	382	17.2	0.60	10.0	0.57	14.3	0.59	16.8	0.61
2008	376	16.9	0.55	9.5	0.51	13.6	0.53	16.3	0.55
2009	374	16.8	0.57	9.2	0.53	13.3	0.55	16.0	0.58
2010	390	17.3	0.56	9.5	0.53	13.8	0.55	16.4	0.57
2011	348	15.2	0.58	8.2	0.55	11.8	0.56	14.2	0.58
2012	381	16.7	0.65	8.5	0.57	12.6	0.61	15.6	0.65
2013	321	14.1	1.07	7.5	0.99	10.9	1.03	13.2	1.07
1998-2013	4869	16.4	0.58	9.4	0.55	13.5	0.57	16.1	0.60

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	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	0.53	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	0.40	3.0	0.42	3.5	0.43
2004	85	4.3	0.56	1.8	0.45	2.7	0.48	3.5	0.52
2005	101	5.1	0.59	2.5	0.54	3.7	0.56	4.3	0.58
2006	89	4.4	0.45	1.8	0.32	2.8	0.36	3.5	0.40
2007	88	3.8	0.43	1.8	0.36	2.6	0.38	3.1	0.41
2008	88	3.8	0.40	1.8	0.35	2.6	0.37	3.1	0.38
2009	105	4.5	0.48	2.1	0.42	3.1	0.44	3.6	0.44
2010	101	4.3	0.46	2.0	0.41	2.9	0.43	3.5	0.45
2011	95	4.0	0.41	1.8	0.35	2.6	0.35	3.1	0.37
2012	116	4.9	0.52	2.1	0.43	3.1	0.45	3.8	0.48
2013	119	5.0	1.01	2.1	0.83	3.2	0.87	3.9	0.96
1998-2013	1337	4.3	0.49	2.0	0.42	2.9	0.44	3.5	0.46

Table 13

Age distribution of age at death (cancer-related) for period 1998-2013

(incl. multiple primaries)

Age at								
death	Cases		Males			Females		
Years	n	% Cum.	% n	%	Cum.%	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	5	0.1 / 0.	1 5	0.1	0.1/			0.1
25-29	4	0.1 0.	2 2	0.0	0.2	2	0.1	0.2
30-34	4	0.1 0.	2 2	0.0	0,2	2	0.1	0.3
35-39	35	0.5 0.	8 27	0.5	0.7	8	0.6	0.9
40-44	110	1.6 2.	4 93	1.8	2.5	17	1.2	2.1
45-49	330	4.9 7.	4 275	5.2	7.7	55	3.8	5.9
50-54	666	10.0 17.	3 572	10.9	18.7	94	6.6	12.5
55-59	975	14.6 32.	0 817	15.6	34.3	158	11.0	23.6
60-64	1118	16.8 48.	7 906	17.3	51.6	212	14.8	38.4
65-69	1060 /	15.9 64.	6 855	16.3	67.9	205	14.3	52.7
70-74	827	12.4 77.	0 652	12.4	80.3	175	12.2	65.0
75-79	670	10.0 87.	1 509	9.7	90.0	161	11.3	76.2
80-84	454	6.8 93.	9 311	5.9	96.0	143	10.0	86.2
85+	408	6.1 100.	0 211	4.0	100.0	197	13.8	100.0
All ages	6669	100.0	5239	100.0		1430	100.0	

Included in the statistics are 37.8% multiple primaries in males and 33.3% in females.

Table 14

Age-specific mortality (cancer-related) and proportion of all cancers for period 1998-2013 (incl. multiple primaries)

			Males		Females		Males	Females
Age at			Age-		Age-		Prop.all	Prop.all
death	Males	Females	spec.		spec.		cancers	cancers
Years	n	n	mortal.	MI-index	mortal.	MI-index	%	%
0 - 4	2		0.1	0.50	0.0		6.1	
5- 9			0.0		0.0			
10-14			0.0		0.0			
15-19		1	0.0		0.1	0.14		2.7
20-24	5		0.3	0.63	0.0		5.6	
25-29	2	2	0.1	0.08	0.1	0.11	1.9	1.7
30-34	2	2	0.1	0.05	0.1	0.06	1.1	0.9
35-39	27	8	1.1	0.27	0.3	0.19	6.8	1.5
40-44	93	17	3.5	0.33	0.7	0.20	10.9	1.5
45-49	275	55	11.6	0.39	2.4	0.31	15.2	2.7
50-54	572	94	28.3	0.49	4.6	0.33	17.3	3.0
55-59	817	158	44.5	0.59	8.2	0.42	13.8	3.3
60-64	906	212	51.1	0.60	11.3	0.53	10.2	3.3
65-69	855	205	54.2	0.68	11.9	0.55	7.2	2.5
70-74	652	175	50.9	0.70	11.5	0.63	4.8	1.8
75-79	509	161	61.6	0.90	13.6	0.59	3.9	1.5
80-84	311	143	62.2	0.99	15.3	0.67	2.9	1.3
85+	211	197	61.9	1.06	22.0	0.88	2.4	1.4
All ages	5239	1430					6.5	2.0
Mortality								
Raw			17.6	0.62	4.6	0.51		
WS			10.2	0.58	2.1	0.44		
ES			14.6	0.60	3.1	0.46		
BRD-S			17.3	0.63	3.8	0.48		
PYLL-70								
per 100,000			146.8		29.8			
ES			131.7		25.6			
AYLL-70			11.1		10.5			

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

Table 15a

Multiple primaries in deaths in period 1998-2013

MALES

					Syn- chron	Syn- chron		
	Total	Total	Pre	Pre	±30d	±30d	Post	Post
Diagnosis	n	%↓	n	%	n	-%	n	- %
		/ •						
C03-C06 Oral cavity	109	4.3			6	5.5	103	94.5
C09-C10 Oropharynx	126	5.0			32	25.4	94	74.6
C12-C13 Hypopharynx	90/	3.6			25	27.8	65	72.2
C15 Oesophagus	218	8.7	37	17.0	30	13.8	151	69.3
C16 Stomach	67	2.7	15	22.4	4	6.0	48	71.6
C18 Colon	120	4.8	41	34.2	5	4.2	74	61.7
C19-C20 Rectum	73	2.9	16	21.9	3	4.1	54	74.0
C22 Liver	62	2.5	2	3.2	10	16.1	50	80.6
C25 Pancreas	52	2.1	5	9.6	4	7.7	43	82.7
C32 Larynx	78	3.1			13	16.7	65	83.3
C33-C34 Lung	573	22.8	70	12.2	59	10.3	444	77.5
C43 Malign. melanoma	51	2.0	24	47.1	5	9.8	22	43.1
C44 Skin others	210	8.3	71	33.8	30	14.3	109	51.9
C61 Prostate	198	7.9	93	47.0	14	7.1	91	46.0
C64 Kidney	47	1.9	16	34.0	5	10.6	26	55.3
C67 Bladder	114	4.5	53	46.5	3	2.6	58	50.9
C76-C79 CUP	66	2.6	31	47.0	5	7.6	30	45.5
C82-C85 NHL	54	2.1	21	38.9	8	14.8	25	46.3
C91-C96 Leukaemia	28	1.1	6	21.4	1 \	3.6	21	75.0
Other primaries	182	7.2	64	35.2	11	6.0	107	58.8
All mult. primaries	2518	100.0	565	22.4	273	10.8	1680	66.7

Multiple primaries with number of cases 1 to 16 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 1998-2013
FEMALES

					Syn-	Syn-		
					chron	chron		
	Total	Total	Pre	Pre	±30d	±30d	Post	Post
Diagnosis	n	% ↓	n	← %	n	~ %	n	← %
C03-C06 Oral cavity	25	3.7			1	4.0	24	96.0
C09-C10 Oropharynx	33	4.9			7	21.2	26	78.8
C12-C13 Hypopharynx	19 /	2.8			3	15.8	16	84.2
C15 Oesophagus	46	6.9	5	10.9	6	13.0	35	76.1
C16 Stomach	16	2.4	4	25.0	3	18.8	9	56.3
C18 Colon	36	5.4	16	44.4	3	8.3	17	47.2
C19-C20 Rectum	10	1.5	4	40.0			6	60.0
C22 Liver	8	1.2			2	25.0	6	75.0
C25 Pancreas	13	1.9	1	7.7	1	7.7	11	84.6
C32 Larynx	14	2.1			_ 1	7.1	13	92.9
C33-C34 Lung	109	16.3	8	7.3	9	8.3	92	84.4
C43 Malign. melanoma	10	1.5	1	10.0			9	90.0
C44 Skin others	35	5.2	9	25.7	_ 5	14.3	21	60.0
C50 Breast	117	17.5	75	64.1	6	5.1	36	30.8
C51 Vulva	7	1.0	2	28.6			5	71.4
C53 Cervix uteri	21	3.1	16	76.2			5	23.8
C54 Corpus uteri	15	2.2	9	60.0	1	6.7	5	33.3
C56 Ovary	13	1.9	5	38.5			8	61.5
C67 Bladder	12	1.8	7	58.3			5	41.7
C70-C72 CNS cancer	14	2.1	2	14.3	2	14.3	10	71.4
C73 Thyroid	8	1.2	6	75.0	1	12.5	1	12.5
C76-C79 CUP	17	2.5	10	58.8			7	41.2
C82-C85 NHL	17	2.5	7	41.2	1	5.9	9	52.9
C91-C96 Leukaemia	10	1.5	3	30.0			7	70.0
Other primaries	45	6.7	9	20.0	6	13.3	30	66.7
-								
All mult. primaries	670	100.0	199	29.7	58	8.7	413	61.6
-								

Multiple primaries with number of cases 1 to 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 1998-2013

(Singular primaries only *)

			Males		Females		Males	Females
Age at			Age-		Age-		Prop.all	Prop.all
death	Males	Females	spec.		spec.		cancers	cancers
Years	n	n	mortal.	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		1	0.0		0.1	0.14		3.0
20-24	5		0.3	0.63	0.0		6.0	
25-29	2	2	0.1	0.10	0.1	0.13	2.0	1.8
30-34	2	2	0.1	0.06	0.1	0.06	1.1	1.0
35-39	24	6	1.0	0.27	0.3	0.15	6.4	1.3
40-44	81	15	3.1	0.32	0.6	0.20	10.3	1.5
45-49	231	48	9.8	0.37	2.1	0.31	14.1	2.8
50-54	478	77	23.7	0.48	3.7	0.32	16.6	3.0
55-59	677	130	36.9	0.59	6.8	0.43	13.3	3.2
60-64	717	160	40.5	0.58	8.5	0.49	9.6	3.0
65-69	672	154	42.6	0.69	8.9	0.54	6.9	2.3
70-74	509	127	39.7	0.77	8.4	0.59	4.8	1.6
75-79	365	130	44.2	0.95	10.9	0.63	3.7	1.5
80-84	223	99	44.6	1.03	10.6	0.60	2.8	1.1
85+	150	156	44.0	1.25	17.5	0.90	2.2	1.4
All ages	4136	1107					6.5	1.9
Mortality								
Raw			13.9	0.61	3.6	0.49		
WS			8.1	0.57	1.7	0.42		
ES			11.6	0.59	2.4	0.44		
BRD-S			13.6	0.62	2.9	0.46		
PYLL-70								
per 100,000			121.3		24.3			
ES			108.7		21.0			
AYLL-70			11.2		10.9			

^{*} See corresponding tables with multiple primaries.

Table 17

Age-specific mortality (cancer-related) and proportion of all cancers for period 1998-2013

(Single primaries only *)

			Males		Females		Males	Females
Age at	_	_	Age-		Age-		_	Prop.all
death		Females	/ - /		spec.	\ . <u>-</u>	cancers	cancers
Years	n	n	mortal.	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	5		0.0	0.63	0.0		6.3	
25-29	2	2	0.1		0.1	0.15	2.2	1.9
30-34	2	1	0.1	0.16	0.0	0.03	1.1	0.5
35-39	24	3	1.0	0.29	0.0	0.03	6.7	0.7
40-44	75	13	2.9		0.5	0.20	10.0	1.4
45-49	200	33	8.5	0.37	1.4	0.24	13.0	2.1
50-54	379	68	18.8		3.3	0.31	14.5	2.9
55-59	510	101	27.8	0.53	5.3	0.41	11.0	2.8
60-64	514	112	29.0	0.49	6.0	0.40	7.8	2.4
65-69	448	107	28.4		6.2	0.44	5.4	1.9
70-74	313	86	24.4		5.7	0.44	3.5	1.3
75-79	221	88	26.7		7.4	0.51	2.8	1.2
80-84	137	68	27.4		7.3	0.48	2.1	0.9
85+	99	122	29.0	0.93	13.7	0.75	1.8	1.3
		122	23.0	0.55	±3.7	0.73	1.0	1.3
All ages	2929	804					5.4	1.6
1111 0.302		3,2					/ 3.1	
Mortality								
Raw			9.9	0.51	2.6	0.41		
WS			5.9		1.2	0.35		
ES			8.3	0.50	1.8	0.37		
BRD-S			9.6	0.51	2.1	0.39		
PYLL-70								
per 100,000			96.0		18.4			
ES			86.1		15.9			
AYLL-70			11.9		11.1			

^{*} See corresponding tables with multiple primaries.

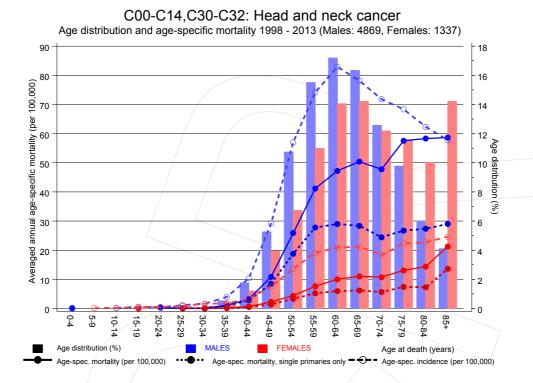
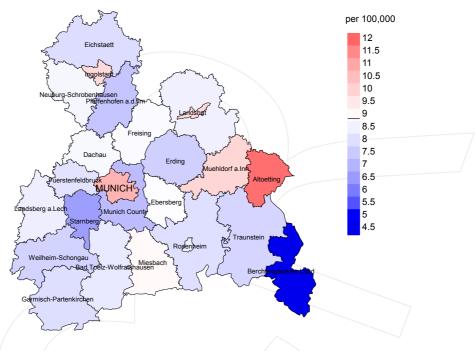


Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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) 2007 - 2013: Males



Average mortality (world standard population) 2007 - 2013: Females

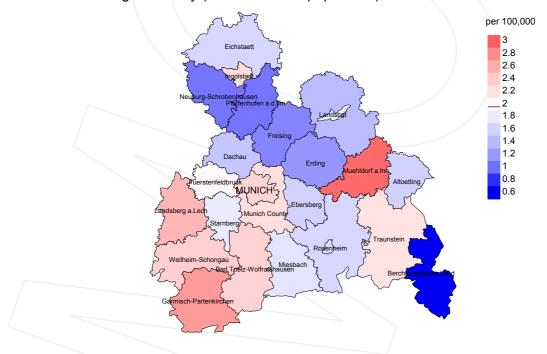
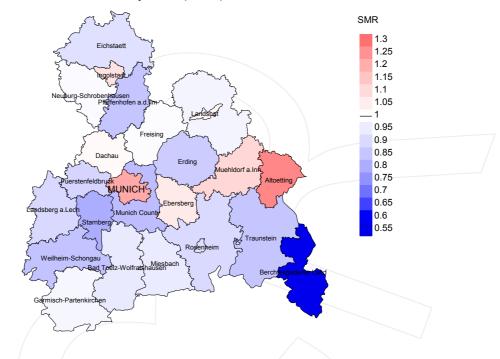


Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2013. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 8.9/100,000 WS N=2,548, females 2.0/100,000 WS N=705).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,928 female residents (averaged) in the period from 2007 to 2013 a total of 18 women died from HN cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 1.6/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.7 and 3.1/100,000.

Standardized mortality ratio (SMR) 2007 - 2013: Males



Standardized mortality ratio (SMR) 2007 - 2013: Females

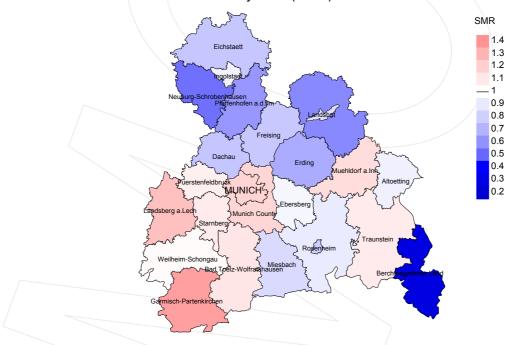


Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=2,548, females N=705).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,642 female residents (averaged) in the period from 2007 to 2013 a total of 18 women died from HN cancer. 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 0.48 and 1.72, 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. 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

Recommended Citation

Munich Cancer Registry. Baseline statistics C00-C14,C30-C32: HN cancer [Internet]. 2015 [updated 2015 May 19; cited 2015 Jul 1]. Available from: http://www.tumorregister-muenchen.de/en/facts/base/base_C0032E.pdf

Copyright

The content of the public web site provided by the Munich Cancer Registry is available worldwide and free of charge. All documents are free to download, utilize, copy, print-out and distribute, providing that the MCR is referenced.

Disclaimer

The Munich Cancer Registry reserves the right to not be responsible for the topicality, correctness, completeness or quality of the information provided. Liability claims regarding damage caused by the use of any information provided, including any kind of information which is incomplete or incorrect, will therefore be rejected.

Index of figures and tables

Fig./Tbl		Page
1	Pts cohorts, DCO, mult. prim., follow-up / yr	4
1a	Gender distribution by year of diagnosis	5
2	Incidence by year of diagnosis	6
3	Age distribution parameters by year of diagnosis	7
4	Age distribution by 5-year age group and gender	9
5	Age-specific incidence and DCO rate	10
6	Standardized incidence ratio of second primaries	11
7	Age distribution and age-specific incidence (chart)	13
7a	Age-specific incidence internationally (chart)	14
8	Cumulative follow-up years (chart)	15
9a	Map of cancer incidence (WS) by county (chart)	16
9b	Standardized incidence ratio (SIR) by county (chart)	17
10a	Pts incident cohorts and mortality / yr	18
10b	Incidence and mortality by year of diagnosis	19
10c	Cancer-related deaths, death certification available / yr	20
11	Medians of age at death / yr	21
12	Mortality by year of death	23
13	Distribution of age at death	24
14	Age-specific mortality	25
15	Multiple primaries in deaths	26
16	Age-specific mortality (first primaries)	28
17	Age-specific mortality (single primaries)	29
18	Age distribution and age-specific mortality (chart)	30
19a	Map of cancer mortality (WS) by county (chart)	31
19b	Standardized mortality ratio (SMR) by county (chart)	32