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

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

Year of diagnosis	1998-2012
Patients	3,321
Diseases	3,368
Creation date	03/20/2014
Export date	02/12/2014
Population	4.5 m

http://www.tumorregister-muenchen.de/en/facts/base/base_C0914E.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
C05.1	Soft palate
C05.2	Uvula
C09	Tonsil
C10	Oropharynx excl. topography code C10.1 Anterior surface of epiglottis
C11	Nasopharynx
C12	Piriform sinus
C13	Hypopharynx
C14	Lip, oral cavity and pharynx

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	145	7	4.8	26.2	82.8	100.0	
1999	162	8	4.9	22.8	79.6	98.8	
2000	138	5	3.6	27.5	82.6	97.1	
2001	145	8	5.5	28.3	74.5	95.9	
2002	229	20	8.7	29.7	74.7	98.7	#
2003	242	5	2.1	31.8	77.3	98.3	#
2004	209	8	3.8	27.3	76.1	98.6	#
2005	263	14	5.3	30.8	65.8	97.0	#
2006	235	5	2.1	26.8	65.5	97.9	#
2007	275	26	9.5	25.8	62.5	91.6	# ##
2008	298	12	4.0	28.2	62.4	83.6	
2009	282	8	2.8	28.0	61.3	83.3	
2010	270	16	5.9	28.1	51.9	81.5	
2011	261	15	5.7	30.3	43.3	82.0	
2012	214	19	8.9	22.9	32.7	97.2	###
1998-2012	3368	176	5.2	27.9	64.4	92.4	

\# 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	145	125	20	86.2
1999	162	134	28	82.7
2000	138	110	28	79.7
2001	145	121	24	83.4
2002	229	197	32	86.0
2003	242	195	47	80.6
2004	209	178	31	85.2
2005	263	211	52	80.2
2006	235	178	57	75.7
2007	275	223	52	81.1
2008	298	228	70	76.5
2009	282	224	58	79.4
2010	270	216	54	80.0
2011	261	203	58	77.8
2012	214	162	52	75.7
1998-2012	3368	2705	663	80.3

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	125	20	11.3	1.7	7.6	0.9	10.1	1.4	10.8	1.5
1999	134	28	12.0	2.4	7.9	1.3	10.9	1.8	11.9	2.1
2000	110	28	9.7	2.3	6.4	1.5	8.9	2.0	9.9	2.1
2001	121	24	10.4	2.0	7.0	1.2	9.5	1.7	10.3	1.8
2002	197	32	10.6	1.6	6.9	1.0	9.5	1.3	10.2	1.5
2003	195	47	10.4	2.4	6.9	1.4	9.5	1.9	10.1	2.1
2004	178	31	9.5	1.6	6.3	0.8	8.5	1.2	9.2	1.4
2005	211	52	11.1	2.6	7.2	1.5	9.7	2.1	10.5	2.4
2006	178	57	9.3	2.8	6.0	1.8	8.2	2.5	9.0	2.6
2007	223	52	10.1	2.3	6.1	1.3	8.4	1.8	9.5	2.0
2008	228	70	10.2	3.0	6.4	1.6	8.8	2.1	9.8	2.5
2009	224	58	10.0	2.5	6.1	1.4	8.4	2.0	9.4	2.2
2010	216	54	9.6	2.3	5.8	1.4	8.0	1.9	8.9	2.0
2011	203	58	8.9	2.5	5.1	1.4	7.1	1.9	8.2	2.1
2012	162	52	7.1	2.2	4.2	1.2	5.8	1.7	6.6	1.9
1998-2012	2705	663	9.9	2.3	6.2	1.3	8.5	1.8	9.4	2.0

The computation of the incidence measures includes all primaries, irrespective of first or subsequent malignancy.

Table 3

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	145	57.7	10.7	0.9	87.6	46.9	51.6	57.3	63.5	70.7
1999	162	59.3	11.0	32.7	91.7	48.1	51.3	57.7	65.0	75.2
2000	138	59.1	10.4	31.0	89.6	47.9	51.8	58.0	65.0	74.1
2001	145	59.0	10.4	29.2	94.7	47.5	52.3	58.2	65.4	72.9
2002	229	59.5	9.8	37.3	96.8	47.4	53.2	59.2	64.2	72.9
2003	242	59.9	9.7	38.9	87.5	47.7	53.6	58.7	66.1	73.7
2004	209	59.3	10.6	31.7	87.8	46.2	51.9	58.7	65.1	74.6
2005	263	60.6	10.5	12.8	103	48.0	53.5	61.1	66.2	71.6
2006	235	60.0	10.9	17.6	101	47.6	52.5	58.9	66.4	72.5
2007	275	62.3	11.0	30.1	91.6	48.8	53.0	62.6	69.6	76.6
2008	298	63.1	10.5	28.3	97.0	49.3	57.3	62.1	69.0	77.0
2009	282	62.4	10.7	40.8	95.5	49.6	54.7	61.7	69.6	75.7
2010	270	61.4	10.9	21.3	92.3	47.9	54.1	61.3	69.1	74.1
2011	261	63.4	11.1	24.5	92.0	49.8	54.8	63.2	70.9	76.4
2012	214	63.7	10.8	39.9	98.2	49.3	55.3	63.3	71.1	77.2
1998-2012	3368	61.0	10.7	0.9	103	48.1	53.5	60.4	67.7	75.1

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	125	56.8	10.3	0.9	87.6	46.2	51.1	57.2	62.3	68.6
1999	134	58.6	10.0	37.1	87.0	48.6	51.2	57.0	64.2	73.6
2000	110	59.7	9.8	40.6	89.6	49.5	52.5	58.0	65.8	73.8
2001	121	58.3	9.5	29.2	81.2	47.5	52.0	58.2	65.4	69.9
2002	197	59.1	9.3	38.0	96.8	47.4	53.0	59.0	63.8	70.6
2003	195	59.4	9.0	39.6	87.5	48.1	53.4	58.5	65.9	72.6
2004	178	58.4	10.1	31.7	85.5	45.6	51.2	57.5	64.2	72.7
2005	211	60.1	10.2	12.8	99.0	47.7	53.5	61.0	65.7	70.4
2006	178	60.0	10.3	17.6	86.7	47.6	52.5	59.0	66.4	72.7
2007	223	62.2	10.4	39.1	91.6	49.1	52.9	62.6	69.6	75.6
2008	228	61.9	9.9	28.3	87.0	49.3	55.1	61.1	68.4	75.0
2009	224	62.2	10.1	40.8	90.7	49.6	54.6	61.7	69.5	73.9
2010	216	61.4	10.8	21.3	92.3	47.4	54.3	60.9	69.3	74.9
2011	203	63.3	10.7	32.1	89.2	49.7	54.1	63.0	71.0	75.6
2012	162	62.9	10.3	39.9	91.7	49.2	54.8	62.5	70.3	76.5
1998-2012	2705	60.6	10.2	0.9	99.0	48.1	53.2	60.2	67.2	73.9

Table 3b

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	20	63.0	12.1	50.7	86.7	51.3	53.8	58.3	72.3	84.0
1999	28	62.7	14.5	32.7	91.7	41.9	52.6	61.1	74.0	82.4
2000	28	56.7	12.6	31.0	81.3	39.8	49.5	57.7	61.0	77.0
2001	24	62.4	13.9	41.3	94.7	49.3	53.7	58.4	73.7	84.8
2002	32	61.9	12.1	37.3	83.6	47.6	53.7	60.8	70.8	78.9
2003	47	61.7	11.9	38.9	84.2	44.7	53.9	59.0	71.7	80.7
2004	31	64.4	12.1	36.3	87.8	50.9	56.0	62.9	75.7	80.5
2005	52	62.6	11.5	44.9	103	49.9	53.4	61.6	66.8	77.5
2006	57	59.9	12.8	34.7	101	46.3	51.6	58.8	65.6	72.5
2007	52	62.9	13.4	30.1	89.4	47.8	53.4	62.2	69.9	83.5
2008	70	66.9	11.4	35.5	97.0	55.1	61.1	66.4	70.8	83.3
2009	58	63.4	12.8	41.0	95.5	49.3	54.7	60.9	71.1	83.1
2010	54	61.4	11.6	33.3	90.0	48.8	53.4	62.9	68.3	71.8
2011	58	63.9	12.8	24.5	92.0	50.6	55.0	63.6	70.6	84.6
2012	52	66.0	12.1	44.8	98.2	52.5	57.2	64.6	72.9	79.2
1998-2012	663	62.9	12.5	24.5	103	48.7	54.2	61.7	70.3	80.8

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	1	0.0	0.0	1	0.0	0.0			0.0
5-9	0	0.0	0.0			0.0			0.0
10-14	1	0.0	0.1	1	0.0	0.1			0.0
15-19	1	0.0	0.1	1	0.0	0.1			0.0
20-24	3	0.1	0.2	2	0.1	0.2	1	0.2	0.2
25-29	4	0.1	0.3	4	0.1	0.3			0.2
30-34	12	0.4	0.7	6	0.2	0.6	6	0.9	1.1
35-39	27	0.8	1.5	17	0.6	1.2	10	1.5	2.6
40-44	104	3.1	4.5	85	3.1	4.3	19	2.9	5.4
45-49	327	9.7	14.3	275	10.2	14.5	52	7.8	13.3
50-54	544	16.2	30.4	454	16.8	31.3	90	13.6	26.8
55-59	596	17.7	48.1	482	17.8	49.1	114	17.2	44.0
60-64	624	18.5	66.6	513	19.0	68.1	111	16.7	60.8
65-69	477	14.2	80.8	386	14.3	82.3	91	13.7	74.5
70-74	307	9.1	89.9	252	9.3	91.6	55	8.3	82.8
75-79	169	5.0	94.9	127	4.7	96.3	42	6.3	89.1
80-84	101	3.0	97.9	63	2.3	98.7	38	5.7	94.9
85+	70	2.1	100.0	36	1.3	100.0	34	5.1	100.0
All ages	3368	100.0		2705	100.0		663	100.0	

Included in the statistics are 34.2% multiple primaries in males and 34.4% 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=126 %	Females DCO rate n=48 %	Males Prop.all cancers n=146755 %	Females Prop.all cancers n=142297 %
0- 4	1		0.1	0.0	100.0		0.3	
5- 9			0.0	0.0				
10-14	1		0.1	0.0			0.7	
15-19	1		0.1	0.0			0.3	
20-24	2	1	0.1	0.1			0.4	0.2
25-29	4		0.2	0.0			0.5	
30-34	6	6	0.3	0.3		16.7	0.4	0.3
35-39	17	10	0.7	0.5		10.0	0.8	0.3
40-44	83	19	3.4	0.8	1.2	5.3	2.8	0.3
45-49	270	51	12.5	2.4	2.6	3.9	5.5	0.6
50-54	451	86	24.4	4.6	3.5	2.3	5.6	0.8
55-59	478	114	28.1	6.4	2.3	3.5	3.5	0.9
60-64	510	110	30.9	6.3	3.9	3.6	2.5	0.7
65-69	383	89	26.1	5.5	4.2	2.2	1.5	0.5
70-74	250	55	21.6	4.0	9.2	7.3	1.0	0.3
75-79	125	42	16.6	3.8	5.6	9.5	0.7	0.3
80-84	63	37	13.9	4.3	14.3	24.3	0.5	0.2
85+	36	34	11.6	4.2	41.7	41.2	0.4	0.2
All ages	2681	654			4.7	7.3	1.8	0.5
Incidence								
Raw			9.8	2.3				
WS			6.2	1.3				
ES			8.4	1.8				
BRD-S			9.3	2.0				

The age-specific incidence characterizes the disease risk in a particular age group. The age distribution depends on the patient population frequency in each age group and reflects the tangible clinical picture of everyday patients care (see following chart).

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 %
C03-C06 Oral cavity	30	0.9	34.7	23.4	49.5	#	51.5	10.0
C09-C10 Oropharynx	26	1.1	22.9	15.0	33.5	#	43.9	
C12-C13 Hypopharynx	7	0.7	10.8	4.3	22.2	#	11.2	14.3
C15 Oesophagus	39	1.5	26.8	19.1	36.6	#	66.3	20.5
C16 Stomach	7	2.5	2.8	1.1	5.7	#	7.9	14.3
C18 Colon	12	6.1	2.0	1.0	3.4	#	10.4	
C19-C20 Rectum	5	4.1	1.2	0.4	2.8		1.5	
C21 Anus/canal	2	0.2	12.2	1.5	44.0	#	3.2	
C22 Liver	9	1.9	4.7	2.2	8.9	#	12.5	11.1
C25 Pancreas	8	2.3	3.5	1.5	6.9	#	10.1	25.0
C30-C31 Sinuses	2	0.1	16.4	2.0	59.1	#	3.3	
C32 Larynx	24	0.9	26.1	16.7	38.8	#	40.8	20.8
C33-C34 Lung	74	8.5	8.8	6.9	11.0	#	115.8	9.5
C43 Malign. melanoma	4	3.0	1.3	0.4	3.4		1.8	
C61 Prostate	22	20.2	1.1	0.7	1.6		3.1	4.5
C64 Kidney	7	2.6	2.7	1.1	5.5	#	7.7	28.6
C65 Renal pelvis	2	0.2	8.5	1.0	30.6	#	3.1	
C67 Bladder	6	2.5	2.4	0.9	5.3		6.2	16.7
C73 Thyroid	4	0.6	6.3	1.7	16.2	#	6.0	25.0
C76-C79 CUP	4	1.1	3.6	1.0	9.3		5.1	
C82-C85 NHL	2	2.6	0.8	0.1	2.8		-1.1	
Other primaries	7	3.7	1.9	0.8	3.9		5.8	28.6
Not observed	0	2.6	0.0	0.0	1.4		-4.5	
All mult. primaries	303	69.9	4.3	3.9	4.9	#	411.8	11.6

Patients	1935
Mean age at second malignancy (years)	63.8
Person-years	5661
Mean observation time (years)	2.9
Median observation time (years)	1.7

The occurrence of second malignancy is statistically significant.

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

Table 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	5	0.1	48.9	15.9	114.0	#	31.1	
C09-C10 Oropharynx	8	0.1	95.8	41.3	188.7	#	50.2	
C12-C13 Hypopharynx	3	0.0	130.5	26.9	381.5	#	18.9	
C15 Oesophagus	9	0.1	98.9	45.2	187.8	#	56.5	
C16 Stomach	2	0.4	4.6	0.6	16.5		9.9	
C18 Colon	5	1.3	4.0	1.3	9.3	#	23.8	
C32 Larynx	3	0.0	93.0	19.2	271.7	#	18.8	
C33-C34 Lung	12	1.1	10.8	5.6	18.9	#	69.1	8.3
C50 Breast	6	5.1	1.2	0.4	2.6		5.6	
C53 Cervix uteri	3	0.2	12.5	2.6	36.6	#	17.5	
C56 Ovary	2	0.6	3.2	0.4	11.7		8.8	50.0
C64 Kidney	2	0.3	5.9	0.7	21.4		10.5	
C70-C72 CNS cancer	2	0.2	9.5	1.2	34.4	#	11.4	50.0
Other primaries	8	3.0	2.7	1.1	5.2	#	31.6	12.5
Not observed	0	2.3	0.0	0.0	1.6		-14.4	
All mult. primaries	70	14.9	4.7	3.7	5.9	#	349.4	5.7

Patients	458
Mean age at second malignancy (years)	63.9
Person-years	1576
Mean observation time (years)	3.4
Median observation time (years)	2.3

The occurrence of second malignancy is statistically significant.

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

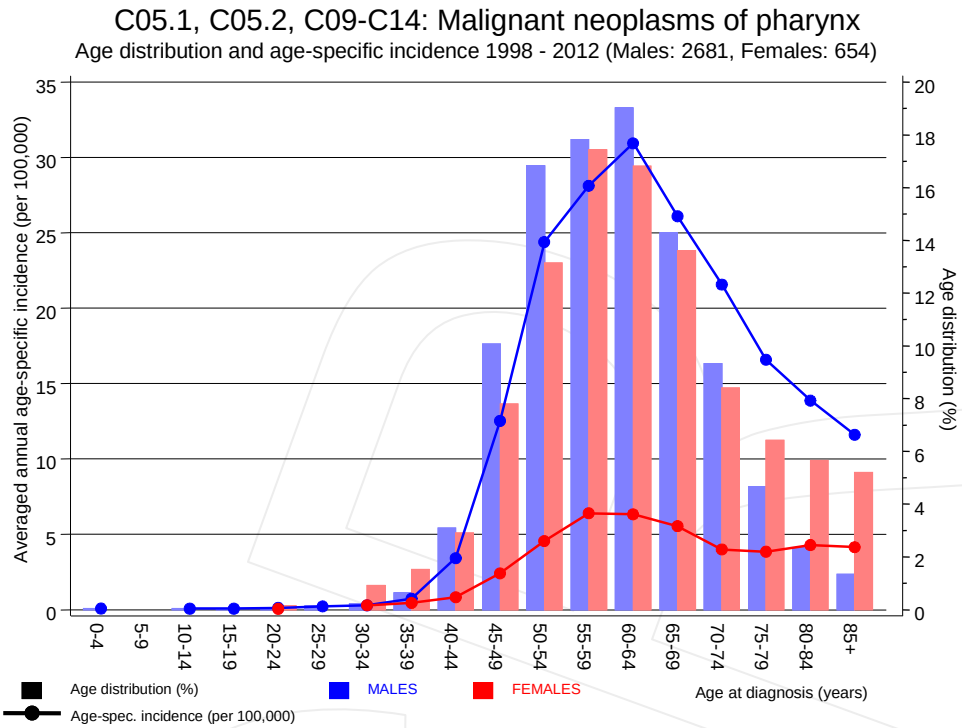


Figure 7. Age distribution and age-specific incidence

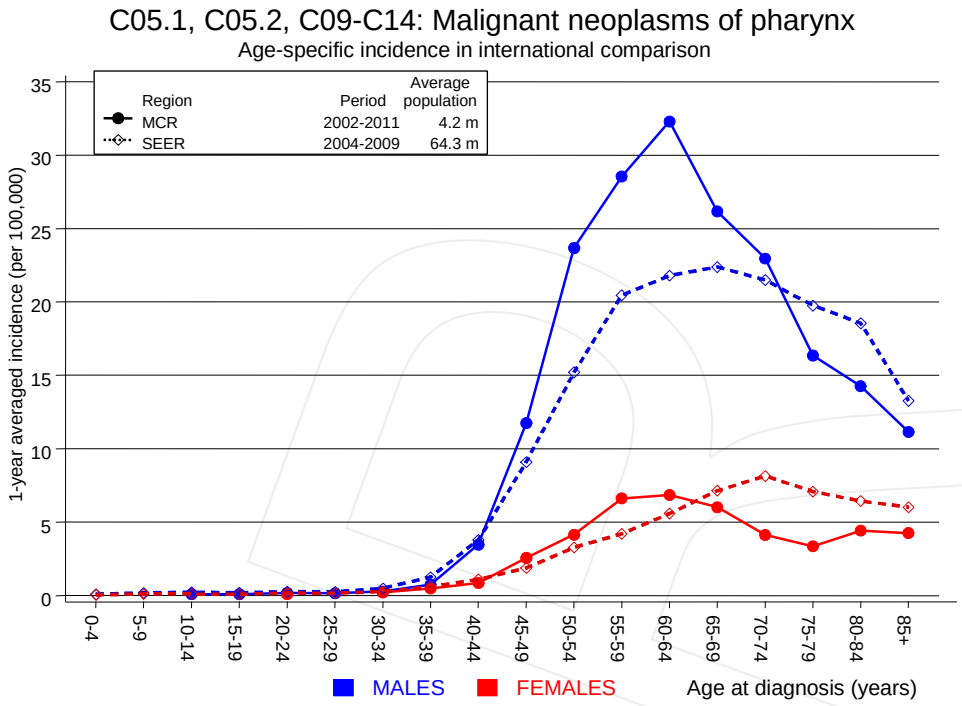


Figure 7a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

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.

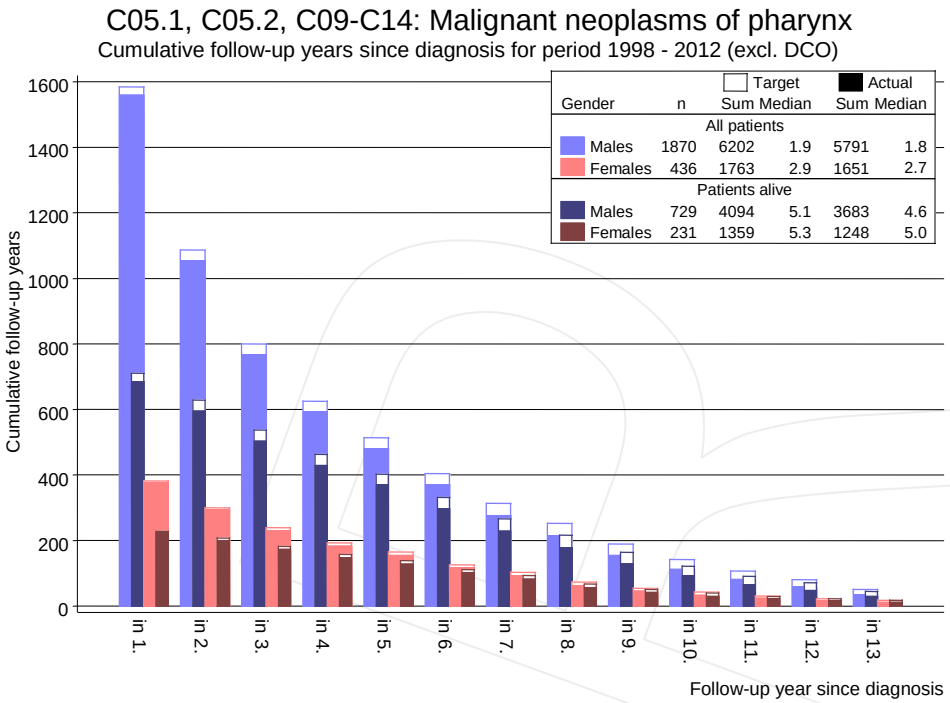
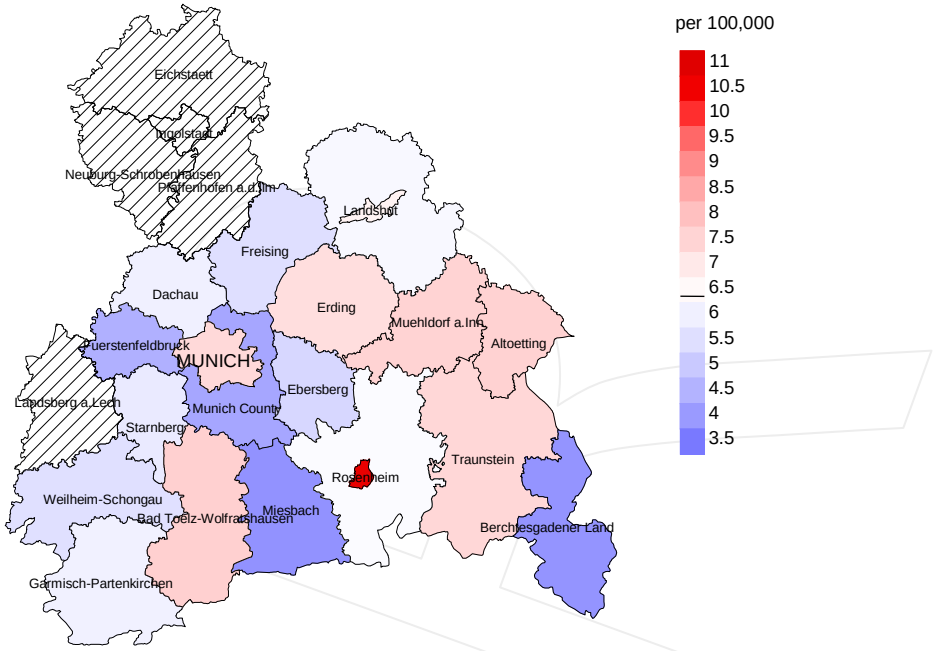


Figure 8. Cumulative follow-up years depending on time since diagnosis

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

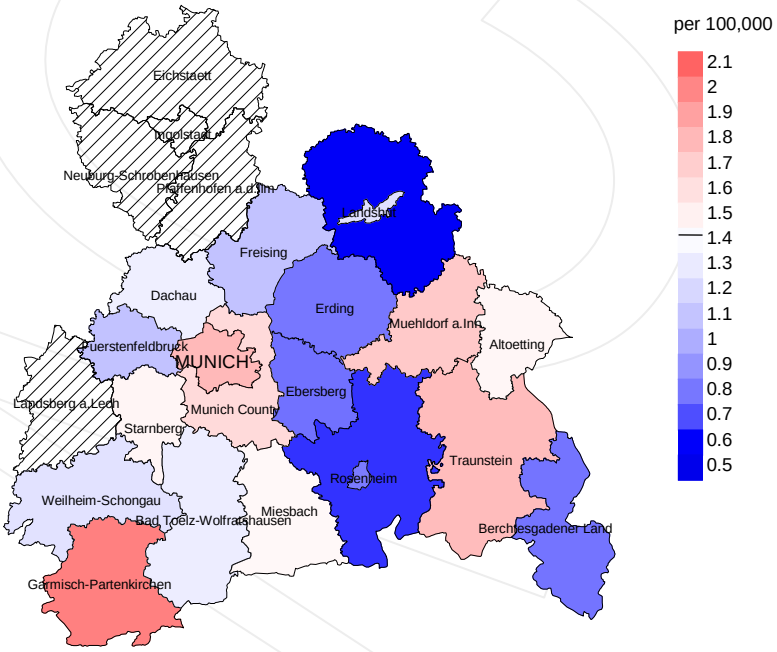
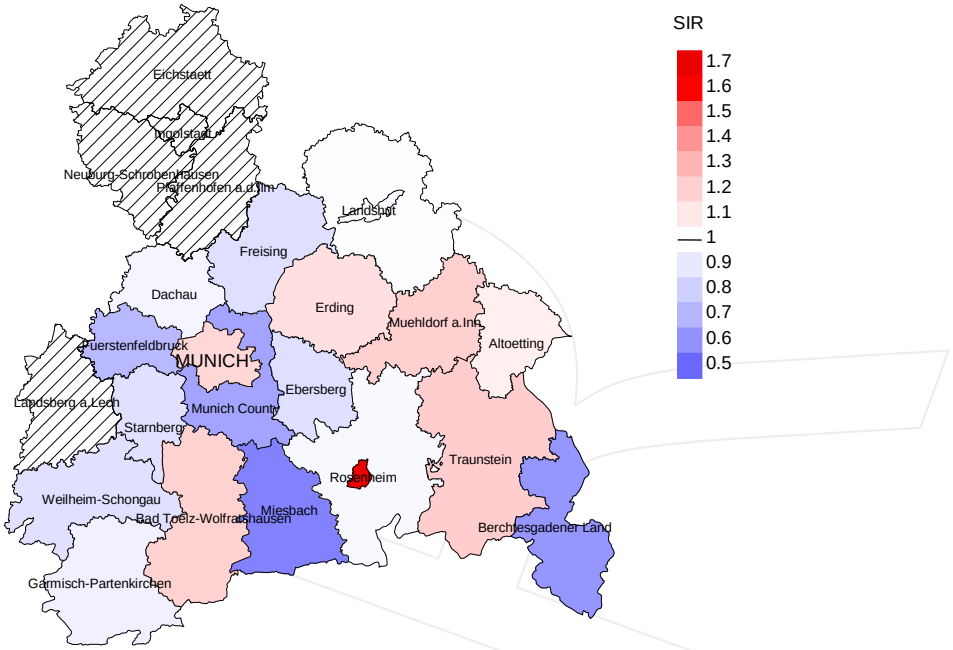


Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 6.4/100,000 WS N=1,145, females 1.4/100,000 WS N=300). 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 5 women were identified with newly diagnosed pharynx cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 0.8/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.1 and 2.4/100,000.

Standardized incidence ratio (SIR) 2003 - 2008: Males



Standardized incidence ratio (SIR) 2003 - 2008: Females

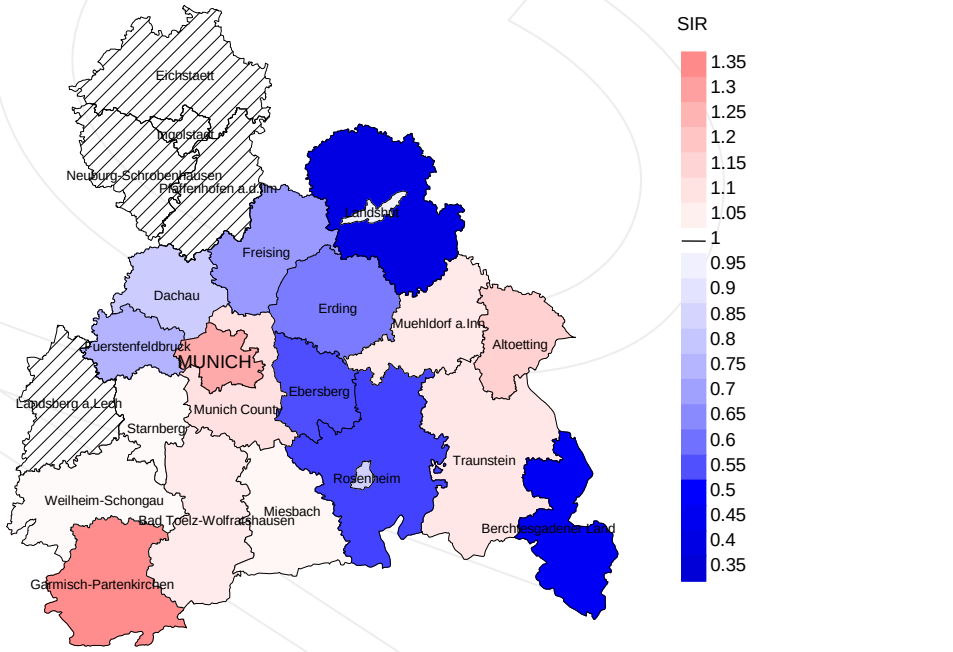


Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=1,145, females N=300). 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 5 women were identified with newly diagnosed pharynx cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.55. Though, the value of this parameter may vary with an underlying probability of 99% between 0.12 and 1.55, 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	145	100.0	4.8	120	82.8	96.7
1999	162	98.8	4.9	129	79.6	90.7
2000	138	97.1	3.6	114	82.6	93.9
2001	145	95.9	5.5	108	74.5	97.2
2002	229	98.7	8.7	171	74.7	96.5
2003	242	98.3	2.1	187	77.3	97.3
2004	209	98.6	3.8	159	76.1	96.9
2005	263	97.0	5.3	173	65.8	98.3
2006	235	97.9	2.1	154	65.5	98.7
2007	275	91.6	9.5	172	62.5	97.1
2008	298	83.6	4.0	186	62.4	97.8
2009	282	83.3	2.8	173	61.3	98.3
2010	270	81.5	5.9	140	51.9	99.3
2011	261	82.0	5.7	113	43.3	97.3
2012	214	97.2	8.9	70	32.7	94.3
1998-2012	3368	92.4	5.2	2169	64.4	96.9

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	145	116	90.5	27	18.6
1999	162	127	87.4	34	21.0
2000	138	113	95.6	21	15.2
2001	145	112	92.9	27	18.6
2002	229	168	97.6	46	20.1
2003	242	172	96.5	41	16.9
2004	209	178	96.6	31	14.8
2005	263	167	95.8	47	17.9
2006	235	186	98.4	38	16.2
2007	275	230	97.8	59	21.5
2008	298	206	98.5	52	17.4
2009	282	195	99.0	46	16.3
2010	270	207	99.0	45	16.7
2011	261	205	99.0	58	22.2
2012	214	215	99.5	50	23.4
1998-2012	3368	2597	96.9	622	18.5

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	116	77.6	22.4	94.3
1999	127	68.5	31.5	91.0
2000	113	85.0	15.0	93.5
2001	112	77.7	22.3	92.3
2002	168	81.5	18.5	91.5
2003	172	81.4	18.6	92.8
2004	178	82.6	17.4	91.3
2005	167	85.6	14.4	93.8
2006	186	84.9	15.1	91.3
2007	230	83.5	16.5	92.4
2008	206	82.0	18.0	89.2
2009	195	82.6	17.4	96.9
2010	207	83.6	16.4	92.7
2011	205	75.6	24.4	86.7
2012	215	81.9	18.1	91.6
1998-2012	2597	81.3	18.7	91.9

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	90	60.3	58.0	68.5	60.0
1999	101	61.2	60.3	63.7	60.7
2000	91	61.9	61.2	65.6	61.8
2001	92	61.0	59.5	66.1	61.0
2002	143	61.6	60.7	66.3	61.1
2003	148	63.2	62.3	67.6	62.6
2004	149	62.0	60.8	67.8	61.2
2005	141	62.9	62.4	65.9	62.6
2006	158	63.8	62.9	69.0	63.1
2007	191	63.4	62.2	69.6	62.9
2008	161	65.4	64.8	68.4	65.4
2009	155	64.9	64.6	66.4	64.9
2010	173	64.9	64.0	70.8	64.5
2011	171	66.1	64.6	70.9	65.5
2012	168	67.6	67.1	69.8	67.2
1998-2012	2132	63.7	62.7	68.1	63.3

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	26	69.5	68.5	72.9	69.3
1999	26	66.6	65.7	67.6	63.6
2000	22	58.8	57.4	67.9	58.2
2001	20	66.3	66.3	66.5	66.0
2002	25	66.7	65.9	68.6	67.3
2003	24	66.1	65.0	69.3	66.2
2004	29	69.9	69.8	70.2	70.0
2005	26	65.4	63.3	74.0	64.5
2006	28	69.7	68.7	74.2	68.9
2007	39	69.0	68.1	74.1	68.3
2008	45	66.7	65.3	72.4	65.1
2009	40	69.5	68.4	73.2	69.4
2010	34	64.6	63.1	68.6	63.3
2011	34	69.3	66.4	76.2	67.8
2012	47	70.9	70.7	73.6	70.4
1998-2012	465	67.6	66.6	71.2	67.0

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 death	Deaths n	Mort. raw	MI-Index raw	Mort. WS	MI-Index WS	Mort. ES	MI-Index ES	Mort. BRD-S	MI-Index BRD-S
1998	70	6.3	0.56	4.4	0.57	5.8	0.57	6.3	0.58
1999	74	6.6	0.55	4.2	0.53	5.9	0.54	6.7	0.56
2000	78	6.8	0.71	4.4	0.68	6.2	0.69	7.1	0.72
2001	72	6.2	0.60	4.1	0.58	5.7	0.60	6.2	0.61
2002	120	6.4	0.61	4.2	0.60	5.8	0.61	6.4	0.63
2003	122	6.5	0.63	4.1	0.59	5.7	0.60	6.3	0.63
2004	124	6.6	0.71	4.2	0.69	5.8	0.71	6.3	0.70
2005	122	6.4	0.58	3.9	0.55	5.5	0.57	6.1	0.58
2006	135	7.0	0.76	4.3	0.72	6.0	0.73	6.8	0.75
2007	159	7.2	0.72	4.3	0.72	6.1	0.73	6.9	0.73
2008	133	6.0	0.59	3.4	0.54	4.8	0.55	5.6	0.58
2009	131	5.9	0.59	3.4	0.56	4.8	0.57	5.6	0.60
2010	148	6.6	0.69	3.8	0.67	5.4	0.68	6.2	0.71
2011	131	5.7	0.66	3.3	0.66	4.6	0.66	5.3	0.67
2012	133	5.8	0.83	3.1	0.75	4.5	0.79	5.5	0.84
1998-2012	1752	6.4	0.65	3.9	0.63	5.4	0.64	6.2	0.66

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	20	1.7	1.00	0.8	0.86	1.2	0.88	1.5	1.00
1999	13	1.1	0.46	0.6	0.42	0.8	0.43	1.0	0.46
2000	19	1.6	0.68	1.0	0.67	1.3	0.68	1.5	0.69
2001	15	1.2	0.63	0.6	0.54	0.9	0.53	1.0	0.55
2002	17	0.9	0.53	0.5	0.50	0.7	0.52	0.8	0.51
2003	18	0.9	0.38	0.5	0.37	0.7	0.38	0.8	0.37
2004	23	1.2	0.74	0.5	0.65	0.8	0.65	1.0	0.72
2005	21	1.1	0.41	0.6	0.42	0.9	0.43	1.0	0.41
2006	23	1.1	0.41	0.6	0.31	0.8	0.33	1.0	0.37
2007	33	1.4	0.66	0.7	0.57	1.0	0.60	1.2	0.64
2008	36	1.6	0.52	0.8	0.54	1.2	0.55	1.3	0.52
2009	31	1.3	0.54	0.7	0.48	0.9	0.48	1.1	0.51
2010	25	1.1	0.48	0.6	0.46	0.9	0.47	1.0	0.50
2011	24	1.0	0.42	0.5	0.39	0.8	0.40	0.8	0.40
2012	43	1.8	0.83	0.8	0.69	1.2	0.71	1.4	0.73
1998-2012	361	1.3	0.55	0.7	0.50	0.9	0.51	1.1	0.53

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	1	0.0	0.0	1	0.1	0.1			0.0
5-9	0	0.0	0.0			0.1			0.0
10-14	0	0.0	0.0			0.1			0.0
15-19	0	0.0	0.0			0.1			0.0
20-24	0	0.0	0.0			0.1			0.0
25-29	0	0.0	0.0			0.1			0.0
30-34	2	0.1	0.1	1	0.1	0.1	1	0.3	0.3
35-39	11	0.5	0.6	8	0.4	0.6	3	0.8	1.1
40-44	39	1.8	2.5	35	2.0	2.5	4	1.1	2.2
45-49	145	6.7	9.2	126	7.0	9.5	19	5.2	7.4
50-54	271	12.6	21.7	241	13.4	23.0	30	8.2	15.7
55-59	407	18.9	40.6	348	19.4	42.4	59	16.2	31.9
60-64	407	18.9	59.5	347	19.4	61.7	60	16.5	48.4
65-69	336	15.6	75.1	277	15.4	77.2	59	16.2	64.6
70-74	226	10.5	85.5	186	10.4	87.6	40	11.0	75.5
75-79	160	7.4	93.0	128	7.1	94.7	32	8.8	84.3
80-84	87	4.0	97.0	62	3.5	98.2	25	6.9	91.2
85+	65	3.0	100.0	33	1.8	100.0	32	8.8	100.0
All ages	2157	100.0		1793	100.0		364	100.0	

Included in the statistics are 34.2% multiple primaries in males and 34.4% 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	1		0.1	1.00	0.0		3.2	
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	1	0.0	0.17	0.0	0.17	0.6	0.5
35-39	8	3	0.3	0.47	0.1	0.30	2.1	0.6
40-44	35	4	1.4	0.41	0.2	0.21	4.3	0.4
45-49	126	19	5.8	0.46	0.9	0.37	7.4	1.0
50-54	241	30	13.0	0.53	1.6	0.33	7.9	1.0
55-59	348	59	20.5	0.72	3.3	0.52	6.3	1.3
60-64	347	60	21.1	0.68	3.4	0.54	4.2	1.0
65-69	277	59	18.9	0.72	3.7	0.65	2.5	0.8
70-74	186	40	16.1	0.74	2.9	0.73	1.5	0.4
75-79	128	32	17.0	1.01	2.9	0.76	1.1	0.3
80-84	62	25	13.7	0.98	2.9	0.66	0.6	0.2
85+	33	32	10.6	0.92	3.9	0.94	0.4	0.3
All ages	1793	364					2.4	0.5
Mortality								
Raw			6.5	0.66	1.3	0.55		
WS			4.0	0.64	0.7	0.49		
ES			5.6	0.65	0.9	0.51		
BRD-S			6.3	0.67	1.1	0.53		
PYLL-70								
per 100,000			64.7		10.3			
ES			58.5		8.9			
AYLL-70			11.6		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	98	12.5	40	40.8	12	12.2	46	46.9
C09-C10 Oropharynx	50	6.4			9	18.0	41	82.0
C12-C13 Hypopharynx	51	6.5			23	45.1	28	54.9
C15 Oesophagus	92	11.7	20	21.7	11	12.0	61	66.3
C16 Stomach	14	1.8	4	28.6	2	14.3	8	57.1
C18 Colon	28	3.6	16	57.1	1	3.6	11	39.3
C19-C20 Rectum	12	1.5	5	41.7	1	8.3	6	50.0
C22 Liver	15	1.9			3	20.0	12	80.0
C25 Pancreas	17	2.2	2	11.8	1	5.9	14	82.4
C32 Larynx	27	3.4			5	18.5	22	81.5
C33-C34 Lung	151	19.3	26	17.2	21	13.9	104	68.9
C43 Malign. melanoma	12	1.5	6	50.0	2	16.7	4	33.3
C44 Skin others	48	6.1	16	33.3	7	14.6	25	52.1
C61 Prostate	39	5.0	19	48.7	2	5.1	18	46.2
C64 Kidney	13	1.7	6	46.2	2	15.4	5	38.5
C67 Bladder	23	2.9	13	56.5	1	4.3	9	39.1
C76-C79 CUP	23	2.9	14	60.9			9	39.1
C82-C85 NHL	7	0.9	2	28.6	2	28.6	3	42.9
Other primaries	64	8.2	26	40.6	7	10.9	31	48.4
All mult. primaries	784	100.0	215	27.4	112	14.3	457	58.3

Multiple primaries with number of cases n<7 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 ←%	Synchron ±30d n	Synchron ±30d ←%	Post n	Post ←%
C03-C06 Oral cavity	26	14.3	17	65.4	3	11.5	6	23.1
C07-C08 Salivary gland	1	0.5	1	100.0				
C09-C10 Oropharynx	2	1.1					2	100.0
C11 Nasopharynx	1	0.5			1	100.0		
C12-C13 Hypopharynx	6	3.3			3	50.0	3	50.0
C14 ENT cancer	1	0.5			1	100.0		
C15 Oesophagus	17	9.3	2	11.8	5	29.4	10	58.8
C16 Stomach	3	1.6			1	33.3	2	66.7
C18 Colon	7	3.8	4	57.1	1	14.3	2	28.6
C19-C20 Rectum	1	0.5					1	100.0
C21 Anus/canal	3	1.6	2	66.7			1	33.3
C22 Liver	1	0.5					1	100.0
C26 GI cancer	1	0.5					1	100.0
C30 Middle/inner ear	1	0.5					1	100.0
C30-C31 Sinuses	4	2.2	2	50.0			2	50.0
C32 Larynx	11	6.0	4	36.4	1	9.1	6	54.5
C33-C34 Lung	24	13.2	2	8.3	3	12.5	19	79.2
C44 Skin others	3	1.6					3	100.0
C50 Breast	31	17.0	23	74.2	3	9.7	5	16.1
C51 Vulva	2	1.1	1	50.0			1	50.0
C53 Cervix uteri	6	3.3	5	83.3			1	16.7
C54 Corpus uteri	3	1.6	2	66.7			1	33.3
C56 Ovary	2	1.1	1	50.0			1	50.0
C67 Bladder	4	2.2	3	75.0			1	25.0
C68 Urethra	1	0.5	1	100.0				
C70-C72 CNS cancer	2	1.1			1	50.0	1	50.0
C73 Thyroid	4	2.2	3	75.0	1	25.0		
C76-C79 CUP	7	3.8	4	57.1			3	42.9
C82-C85 NHL	3	1.6	2	66.7			1	33.3
C90 Mult. myeloma	1	0.5	1	100.0				
C91-C96 Leukaemia	3	1.6	1	33.3			2	66.7
All mult. primaries	182	100.0	81	44.5	24	13.2	77	42.3

Multiple primaries with number of cases n<1 are pooled in category "Other primaries".

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

Table 16

Age-specific mortality (cancer-related) and proportion of all cancers
for period 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			0.0		0.0			
20-24			0.0		0.0			
25-29			0.0		0.0			
30-34	1	1	0.0	0.17	0.0	0.17	0.6	0.5
35-39	7	1	0.3	0.47	0.0	0.13	1.9	0.2
40-44	31	3	1.3	0.41	0.1	0.16	4.1	0.3
45-49	107	16	5.0	0.45	0.8	0.37	7.0	1.0
50-54	207	23	11.2	0.52	1.2	0.32	7.7	1.0
55-59	293	50	17.2	0.73	2.8	0.58	6.1	1.3
60-64	275	43	16.7	0.67	2.5	0.46	3.9	0.9
65-69	209	47	14.2	0.69	2.9	0.65	2.3	0.8
70-74	147	30	12.7	0.81	2.2	0.75	1.5	0.4
75-79	96	21	12.7	1.07	1.9	0.78	1.0	0.3
80-84	37	16	8.1	0.88	1.9	0.59	0.5	0.2
85+	26	21	8.4	1.00	2.6	0.88	0.4	0.2
All ages	1436	272					2.4	0.5
Mortality								
Raw			5.2	0.65	0.9	0.53		
WS			3.2	0.63	0.5	0.47		
ES			4.5	0.64	0.7	0.49		
BRD-S			5.0	0.66	0.8	0.51		
PYLL-70								
per 100,000			54.1		8.1			
ES			48.8		7.0			
AYLL-70			11.9		10.8			

* 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			0.0		0.0			
25-29			0.0		0.0			
30-34	1	1	0.0	0.20	0.0	0.17	0.6	0.6
35-39	7	1	0.3	0.50	0.0	0.13	2.0	0.2
40-44	29	3	1.2	0.43	0.1	0.19	4.1	0.3
45-49	95	10	4.4	0.44	0.5	0.26	6.6	0.7
50-54	172	20	9.3	0.47	1.1	0.30	7.0	0.9
55-59	240	40	14.1	0.67	2.2	0.53	5.5	1.2
60-64	223	36	13.5	0.60	2.1	0.43	3.6	0.8
65-69	164	42	11.2	0.64	2.6	0.64	2.1	0.8
70-74	104	23	9.0	0.66	1.7	0.64	1.3	0.4
75-79	62	11	8.2	0.75	1.0	0.46	0.8	0.2
80-84	27	14	5.9	0.73	1.6	0.54	0.5	0.2
85+	22	17	7.1	0.88	2.1	0.74	0.4	0.2
All ages	1146	218					2.3	0.5
Mortality								
Raw			4.2	0.58	0.8	0.46		
WS			2.6	0.57	0.4	0.43		
ES			3.6	0.58	0.6	0.44		
BRD-S			4.0	0.59	0.6	0.45		
PYLL-70								
per 100,000			45.6		6.5			
ES			41.1		5.6			
AYLL-70			12.1		10.5			

* See corresponding tables with multiple primaries.

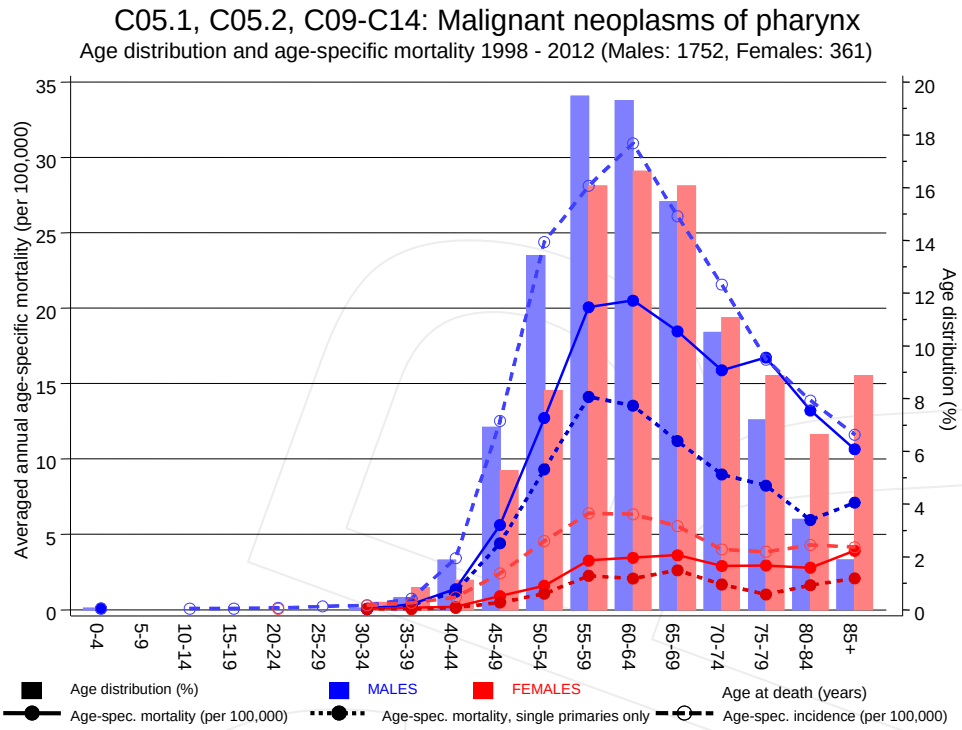
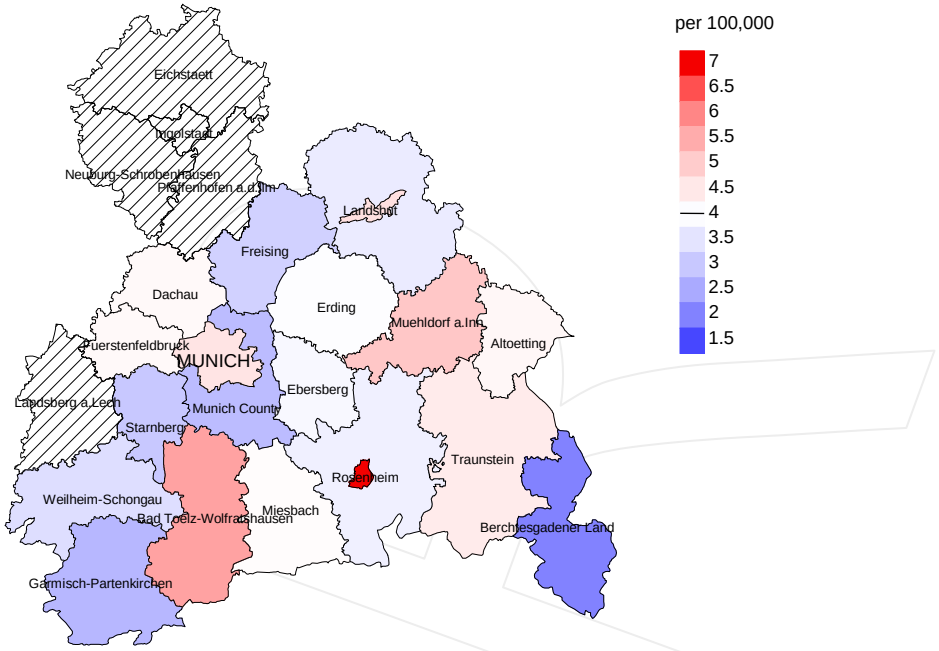


Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

The difference between age at diagnosis (Table 3) and age at pharynx 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

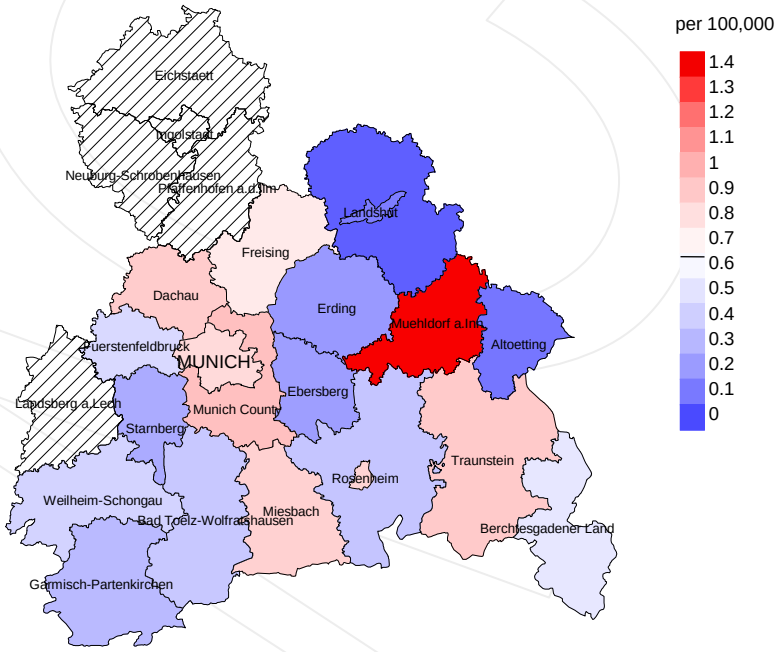
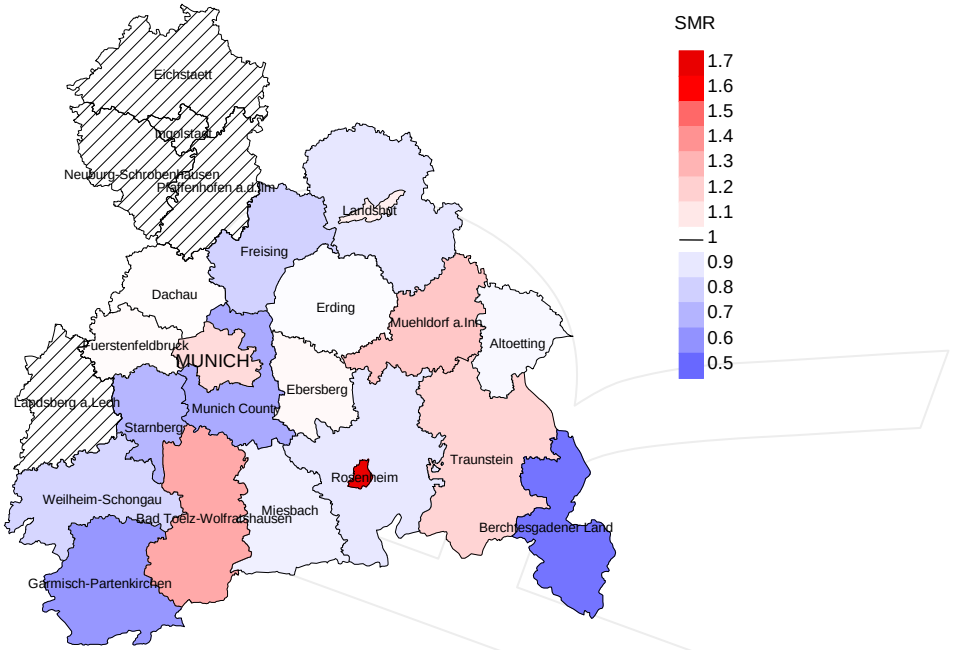


Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2003 to 2008. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 4.0/100,000 WS N=758, females 0.6/100,000 WS N=149). 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 2 women died from pharynx cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.2/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.0 and 1.2/100,000.

Standardized mortality ratio (SMR) 2003 - 2008: Males



Standardized mortality ratio (SMR) 2003 - 2008: Females

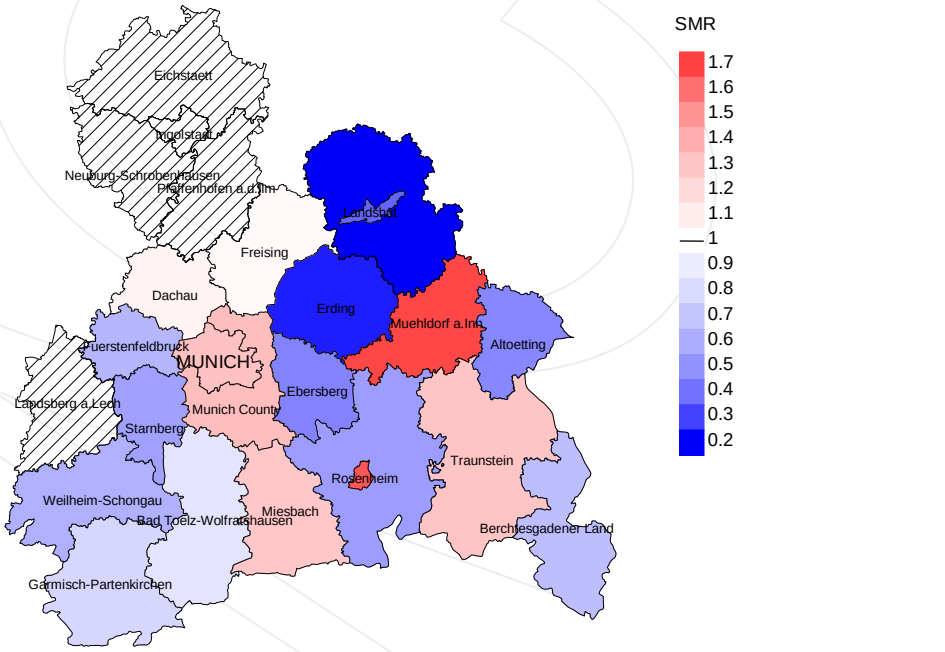


Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=758, females N=149). 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 2 women died from pharynx cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.45. Though, the value of this parameter may vary with an underlying probability of 99% between 0.02 and 2.09, 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 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

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