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

C22: Liver cancer

Year of diagnosis	1998-2011
Patients	4736
Diseases	4743
Creation date	04/02/2013
Export date	01/03/2013
Population	4.5 m

http://www.tumorregister-muenchen.de/en/facts/base/base_C22__E.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, April 2013

[#] 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 2011 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.

ICD-10 codes used for specifying cancer site

ICD-10	Description
C22.-	Malignant neoplasm of liver and intrahepatic bile ducts
C22.0	Liver cell carcinoma
C22.1	Intrahepatic bile duct carcinoma
C22.2	Hepatoblastoma
C22.3	Angiosarcoma of liver
C22.4	Other sarcomas of liver
C22.7	Other specified carcinomas of liver
C22.9	Liver, unspecified

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	182	67	36.8	9.3	96.7	100.0
1999	212	80	37.7	9.4	96.2	99.1
2000	218	88	40.4	10.6	93.1	100.0
2001	196	69	35.2	14.3	96.9	98.5
2002	350	147	42.0	16.6	98.3	100.0
2003	334	134	40.1	16.8	95.5	99.7
2004	340	135	39.7	19.1	93.2	98.8
2005	351	126	35.9	19.7	94.9	99.1
2006	400	127	31.8	20.0	91.5	98.3
2007	450	134	29.8	17.3	87.8	95.6 ##
2008	474	108	22.8	19.2	83.3	92.2
2009	455	111	24.4	20.4	80.9	92.5
2010	427	100	23.4	22.7	77.0	97.2
2011	354	95	26.8	18.4	63.8	87.0 ###
1998-2011	4743	1521	32.1	17.7	87.8	96.4

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	182	129	53	70.9
1999	212	141	71	66.5
2000	218	156	62	71.6
2001	196	155	41	79.1
2002	350	251	99	71.7
2003	334	242	92	72.5
2004	340	251	89	73.8
2005	351	254	97	72.4
2006	400	287	113	71.8
2007	450	335	115	74.4
2008	474	352	122	74.3
2009	455	328	127	72.1
2010	427	334	93	78.2
2011	354	270	84	76.3
1998-2011	4743	3485	1258	73.5

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	129	53	11.6	4.5	7.2	1.9	10.6	2.9	13.6	3.8
1999	141	71	12.6	6.0	7.4	2.4	11.2	3.7	14.6	4.9
2000	156	62	13.7	5.2	8.2	2.1	12.2	3.2	15.2	4.5
2001	155	41	13.4	3.4	7.9	1.7	11.7	2.2	15.2	2.7
2002	251	99	13.5	5.1	7.6	2.0	11.3	3.0	14.4	4.2
2003	242	92	12.9	4.7	7.0	1.8	10.5	2.8	13.9	3.8
2004	251	89	13.3	4.5	7.3	1.9	11.0	2.7	14.2	3.6
2005	254	97	13.4	4.9	7.2	2.1	10.6	2.9	13.5	3.7
2006	287	113	15.0	5.6	7.9	2.2	11.8	3.3	15.1	4.3
2007	335	115	15.1	5.0	8.1	2.1	11.9	3.1	15.3	3.9
2008	352	122	15.8	5.3	8.4	2.3	12.2	3.3	15.4	4.2
2009	328	127	14.7	5.5	7.4	2.1	10.9	3.2	13.9	4.2
2010	334	93	14.8	4.0	7.4	1.5	11.1	2.2	14.1	2.8
2011	270	84	12.0	3.6	6.1	1.5	8.8	2.1	11.4	2.7
1998-2011	3485	1258	13.9	4.8	7.4	2.0	11.0	2.9	14.1	3.8

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	182	68.4	12.1	16.5	92.2	54.9	60.8	68.7	76.8	83.6
1999	212	69.9	11.8	10.8	95.7	57.5	62.4	70.1	78.2	84.0
2000	218	70.2	11.8	25.1	94.3	55.8	63.5	69.7	77.9	86.1
2001	196	68.0	13.5	0.6	98.8	50.5	61.1	69.2	77.2	82.4
2002	350	69.5	11.1	29.3	94.0	55.7	62.4	69.8	77.5	82.5
2003	334	70.1	12.0	10.9	98.8	57.4	63.3	70.7	78.7	83.0
2004	340	69.7	12.0	3.1	93.4	54.6	62.1	70.5	78.1	84.3
2005	351	69.5	12.5	1.0	100	57.1	63.1	68.9	77.8	83.7
2006	400	69.9	11.3	20.4	96.6	54.8	63.0	69.8	78.2	84.5
2007	450	69.4	12.1	0.3	96.7	55.6	62.3	70.5	77.8	84.1
2008	474	68.6	12.4	1.1	97.9	55.0	62.3	69.4	76.8	83.0
2009	455	70.7	10.8	3.7	95.8	57.5	64.8	71.0	77.9	84.1
2010	427	70.7	11.3	0.8	98.5	56.4	63.7	71.2	78.1	85.2
2011	354	69.6	13.1	0.7	98.3	54.8	63.8	71.0	77.3	82.9
1998-2011	4743	69.7	11.9	0.3	100	55.8	62.8	70.2	77.8	83.9

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	129	67.1	11.5	16.5	89.1	55.0	60.6	66.6	74.7	82.6
1999	141	68.0	11.3	10.8	95.7	56.4	61.7	69.0	75.7	79.7
2000	156	69.2	12.2	25.1	94.3	55.5	62.6	68.4	76.0	87.9
2001	155	67.4	11.6	31.6	95.3	50.5	61.0	68.3	75.6	81.6
2002	251	68.2	10.1	36.0	93.8	55.6	62.1	67.9	75.4	81.2
2003	242	68.8	11.2	25.1	92.4	56.6	62.6	68.6	76.8	82.0
2004	251	68.6	10.9	22.5	93.4	54.7	61.2	69.0	75.9	81.9
2005	254	68.2	9.8	34.4	93.0	57.0	62.2	67.5	75.2	80.4
2006	287	68.7	10.4	41.8	96.6	55.0	62.0	69.1	76.2	81.9
2007	335	68.6	11.5	0.3	96.7	56.0	61.8	69.9	76.1	81.1
2008	352	67.8	11.1	6.5	97.9	55.0	61.6	68.9	75.0	80.8
2009	328	69.9	10.5	3.7	94.7	57.3	64.0	70.4	76.6	83.4
2010	334	69.6	10.8	0.8	94.9	56.2	62.4	70.7	76.6	82.6
2011	270	68.8	11.4	0.8	92.3	54.9	63.5	70.2	76.1	81.1
1998-2011	3485	68.6	10.9	0.3	97.9	55.6	62.1	69.2	75.9	81.6

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	53	71.5	13.2	34.6	92.2	52.8	64.3	74.9	79.6	87.3
1999	71	73.7	11.9	35.7	94.0	59.5	64.2	75.7	83.3	88.1
2000	62	72.7	10.6	33.9	93.4	60.8	65.6	74.8	80.3	83.6
2001	41	70.4	19.0	0.6	98.8	52.9	63.3	72.8	81.3	91.6
2002	99	72.8	12.6	29.3	94.0	58.3	65.3	76.5	80.7	86.9
2003	92	73.6	13.5	10.9	98.8	60.3	66.4	77.2	81.0	86.0
2004	89	73.0	14.3	3.1	93.4	51.3	65.2	74.3	83.6	89.3
2005	97	73.0	17.3	1.0	100	58.1	65.7	75.7	83.8	90.8
2006	113	72.9	12.9	20.4	95.3	54.2	66.6	72.4	83.1	86.7
2007	115	71.8	13.5	25.9	94.8	54.5	64.1	73.2	83.4	87.1
2008	122	70.7	15.4	1.1	96.7	55.7	64.0	73.4	81.3	86.0
2009	127	72.9	11.3	39.7	95.8	57.5	66.3	73.8	81.9	86.4
2010	93	74.7	12.0	15.6	98.5	60.8	69.0	74.0	85.2	87.7
2011	84	71.9	17.5	0.7	98.3	54.7	66.8	75.3	82.0	88.2
1998-2011	1258	72.6	13.9	0.6	100	56.6	65.5	74.5	82.0	87.4

Table 4

Age distribution by 5-year age group and gender for period 1998-2011 (incl. DCO)

Age at diagnosis Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4	14	0.3	0.3	6	0.2	0.2	8	0.6	0.6
5-9	2	0.0	0.3	1	0.0	0.2	1	0.1	0.7
10-14	2	0.0	0.4	1	0.0	0.2	1	0.1	0.8
15-19	4	0.1	0.5	2	0.1	0.3	2	0.2	1.0
20-24	4	0.1	0.5	2	0.1	0.3	2	0.2	1.1
25-29	7	0.1	0.7	4	0.1	0.5	3	0.2	1.4
30-34	12	0.3	0.9	8	0.2	0.7	4	0.3	1.7
35-39	23	0.5	1.4	14	0.4	1.1	9	0.7	2.4
40-44	43	0.9	2.3	29	0.8	1.9	14	1.1	3.5
45-49	111	2.3	4.7	91	2.6	4.5	20	1.6	5.1
50-54	210	4.4	9.1	165	4.7	9.3	45	3.6	8.7
55-59	417	8.8	17.9	348	10.0	19.3	69	5.5	14.1
60-64	638	13.5	31.4	520	14.9	34.2	118	9.4	23.5
65-69	826	17.4	48.8	656	18.8	53.0	170	13.5	37.0
70-74	845	17.8	66.6	659	18.9	71.9	186	14.8	51.8
75-79	697	14.7	81.3	501	14.4	86.3	196	15.6	67.4
80-84	507	10.7	92.0	307	8.8	95.1	200	15.9	83.3
85+	381	8.0	100.0	171	4.9	100.0	210	16.7	100.0
All ages	4743	100.0		3485	100.0		1258	100.0	

Included in the statistics are 21.6% multiple primaries in males and 20.2% in females.

Table 5

Age-specific incidence, DCO rate and proportion of all cancers
for period 1998-2011

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males DCO rate n=1035 %	Females DCO rate n=483 %	Males Prop.all cancers n=132509 %	Females Prop.all cancers n=129521 %
0- 4	6	8	0.5	0.7			2.1	3.8
5- 9	1	1	0.1	0.1			0.6	1.0
10-14	1	1	0.1	0.1			0.8	0.7
15-19	2	2	0.2	0.2			0.7	0.8
20-24	2	2	0.1	0.1	50.0		0.4	0.5
25-29	4	3	0.2	0.2		33.3	0.5	0.3
30-34	8	4	0.4	0.2	12.5	25.0	0.6	0.2
35-39	14	9	0.6	0.4	7.1		0.7	0.3
40-44	29	14	1.3	0.7	20.7	7.1	1.1	0.3
45-49	91	20	4.7	1.0	19.8	10.0	2.0	0.3
50-54	165	45	9.9	2.6	20.6	15.6	2.3	0.5
55-59	347	69	22.2	4.2	24.5	18.8	2.8	0.6
60-64	520	118	34.2	7.4	23.3	19.5	2.8	0.8
65-69	656	170	48.1	11.4	26.8	22.9	2.8	1.0
70-74	659	185	63.9	15.0	25.8	35.7	3.0	1.2
75-79	500	195	74.0	19.6	34.0	39.0	3.0	1.3
80-84	305	200	75.1	25.2	45.9	52.0	2.8	1.5
85+	171	210	61.6	28.3	65.5	71.4	2.1	1.4
All ages	3481	1256			29.7	38.5	2.6	1.0
Incidence								
Raw			13.8	4.8				
WS			7.4	2.0				
ES			11.0	2.9				
BRD-S			14.1	3.8				

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 1998-2011
MALES

Diagnosis	Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C03-C06 Oral cavity	2	0.4	5.5	0.7	19.9		6.3	
C15 Oesophagus	3	0.8	3.9	0.8	11.4		8.6	
C16 Stomach	3	1.9	1.6	0.3	4.6		4.2	
C18 Colon	15	4.5	3.3	1.8	5.4	#	40.4	13.3
C19-C20 Rectum	3	2.6	1.2	0.2	3.4		1.7	33.3
C22 Liver	5	1.2	4.0	1.3	9.4	#	14.6	80.0
C23-C24 Bile	3	0.4	7.1	1.5	20.7	#	10.0	33.3
C25 Pancreas	3	1.5	1.9	0.4	5.7		5.6	
C33-C34 Lung	16	5.4	2.9	1.7	4.8	#	40.8	37.5
C61 Prostate	12	13.3	0.9	0.5	1.6		-5.1	33.3
C64 Kidney	9	1.6	5.7	2.6	10.8	#	28.7	22.2
C67 Bladder	6	1.9	3.2	1.2	6.9	#	15.9	
C82-C85 NHL	7	1.7	4.0	1.6	8.3	#	20.4	28.6
C91-C96 Leukaemia	2	0.7	3.0	0.4	10.7		5.1	50.0
Other primaries	10	4.7	2.1	1.0	3.9	#	20.3	10.0
Not observed	0	2.4	0.0	0.0	1.5		-9.3	
All mult. primaries	99	45.1	2.2	1.8	2.7	#	208.4	24.2

Patients	1966
Mean age at second malignancy (years)	71.5
Person-years	2585
Mean observation time (years)	1.3
Median observation time (years)	0.5

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 1998-2011
FEMALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C16	Stomach	2	0.4	5.4	0.7	19.5		18.6	
C18	Colon	11	1.0	10.7	5.3	19.1	#	113.5	27.3
C22	Liver	2	0.1	17.3	2.1	62.4	#	21.4	
C50	Breast	5	3.0	1.6	0.5	3.8		22.3	20.0
C53	Cervix uteri	2	0.1	15.7	1.9	56.7	#	21.3	100.0
C54	Corpus uteri	2	0.6	3.4	0.4	12.3		16.1	
Other primaries		13	2.9	4.5	2.4	7.7	#	115.2	30.8
Not observed		0	1.9	0.0	0.0	1.9		-22.0	
All mult. primaries		37	10.1	3.7	2.6	5.1	#	306.3	27.0

Patients	684
Mean age at second malignancy (years)	73.0
Person-years	879
Mean observation time (years)	1.3
Median observation time (years)	0.5

The occurrence of second malignancy is statistically significant.

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

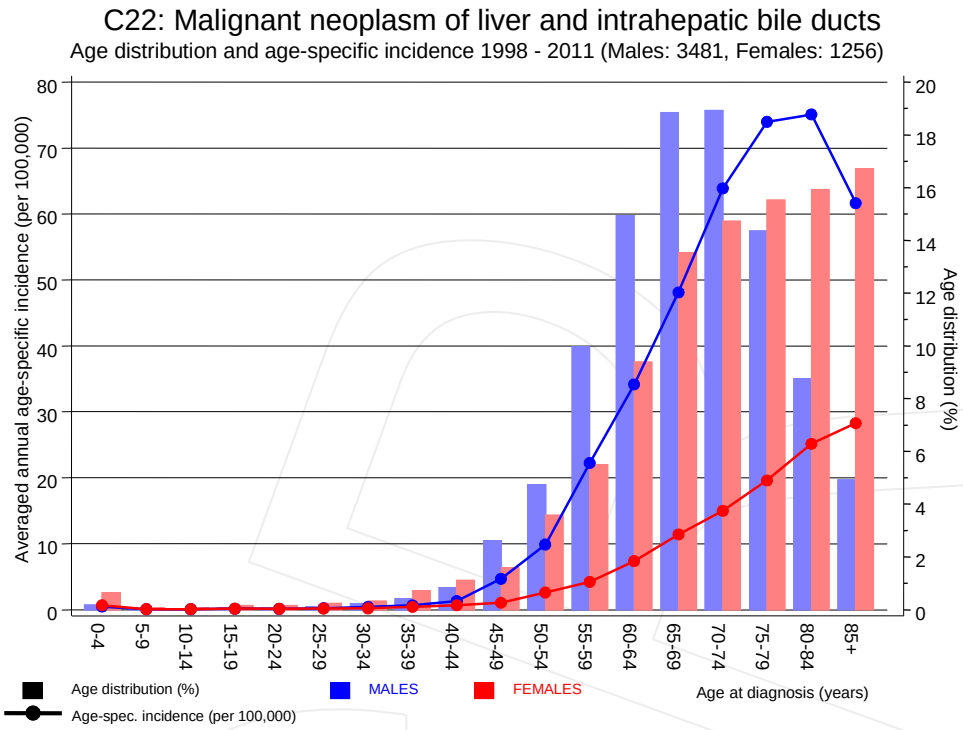


Figure 7. Age distribution and age-specific incidence

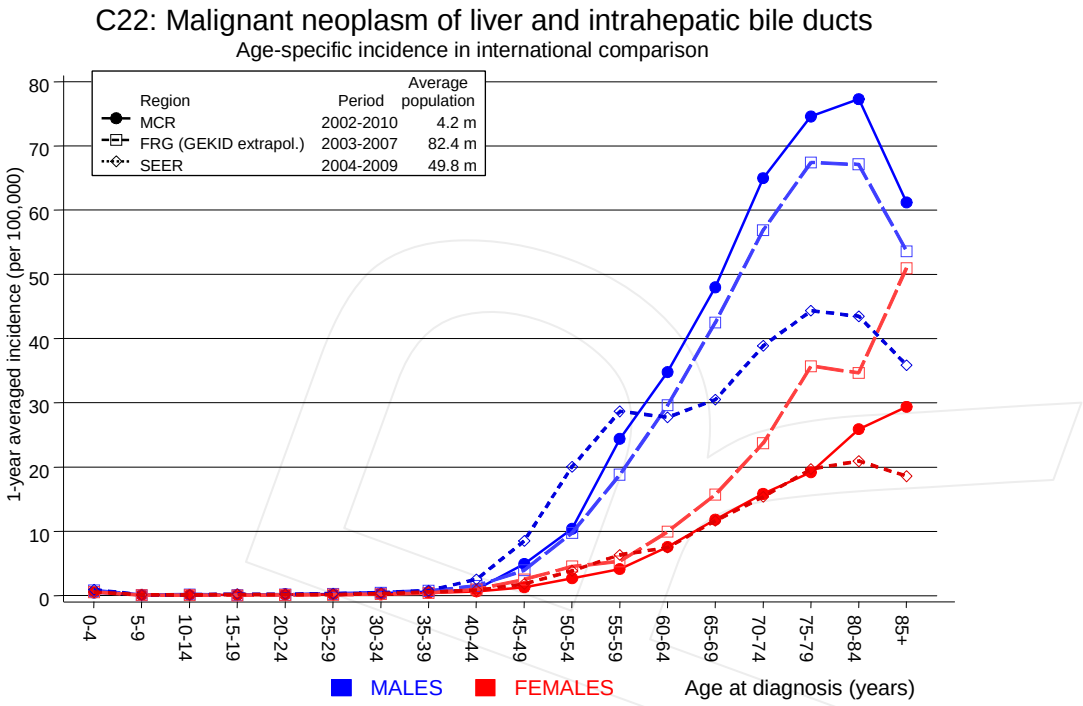


Figure 7a. Age-specific incidence in MCR registry areas compared to Germany (FRG, GEKID extrapolation) and SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

Extrapolated age-specific patient population of Germany, data status middle of 2010. Association of Population-based Cancer Registries in Germany (GEKID e.V.). Berlin, 2011. http://www.gekid.de. Last access: 05/12/2011

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.

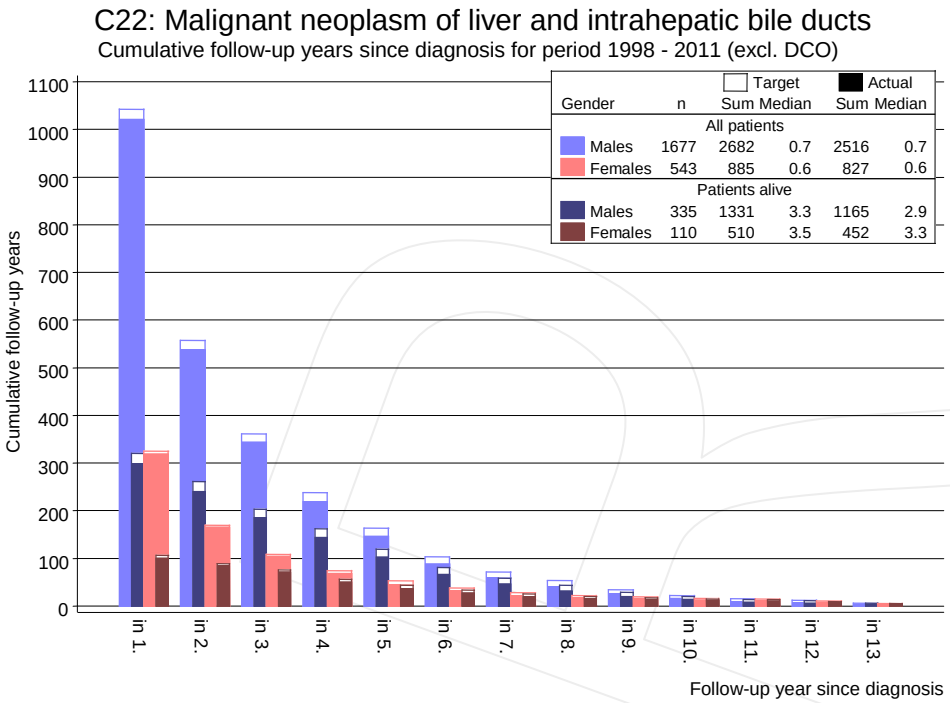
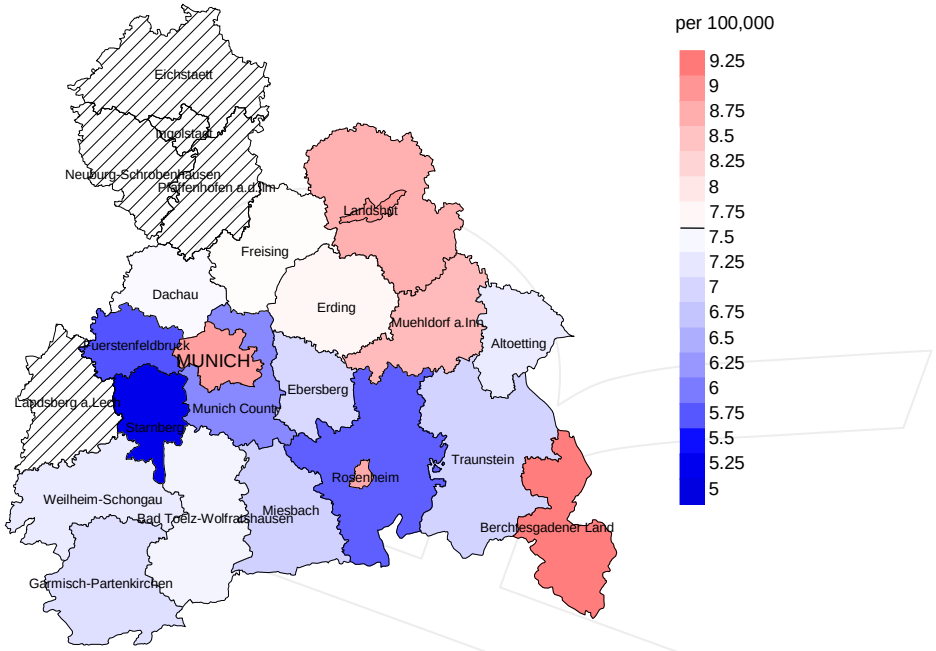


Figure 8. Cumulative follow-up years depending on time since diagnosis

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

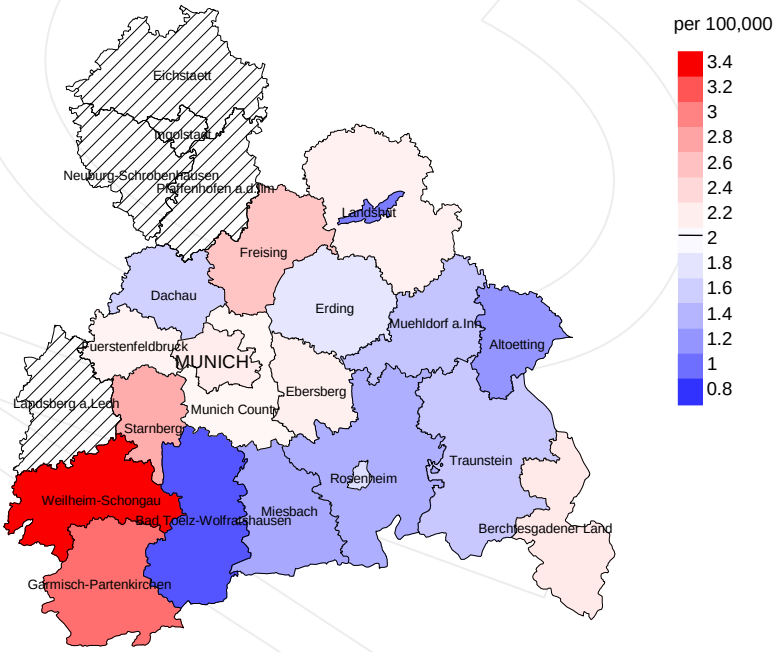
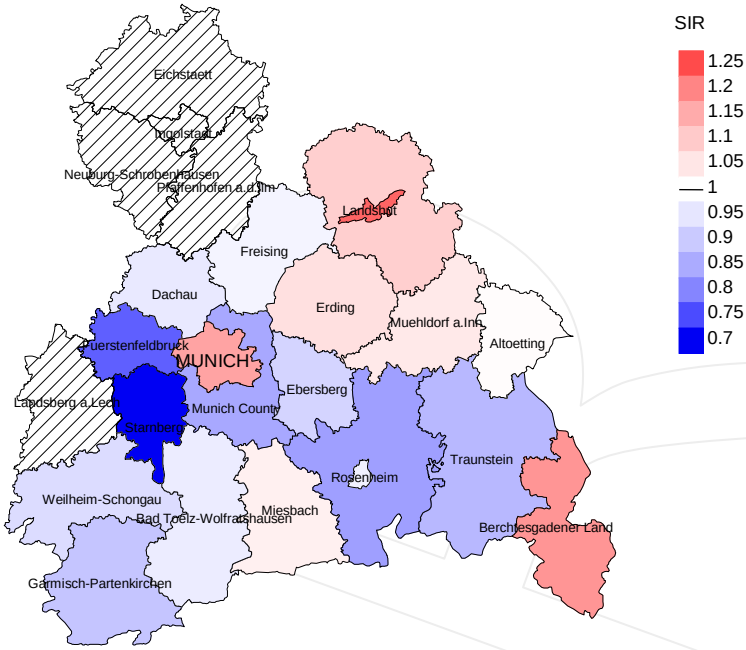


Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 7.6/100,000 WS N=1,638, females 2.0/100,000 WS N=600). 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 18 women were identified with newly diagnosed liver cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 2.2/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.8 and 5.2/100,000.

Standardized incidence ratio (SIR) 2003 - 2008: Males



Standardized incidence ratio (SIR) 2003 - 2008: Females

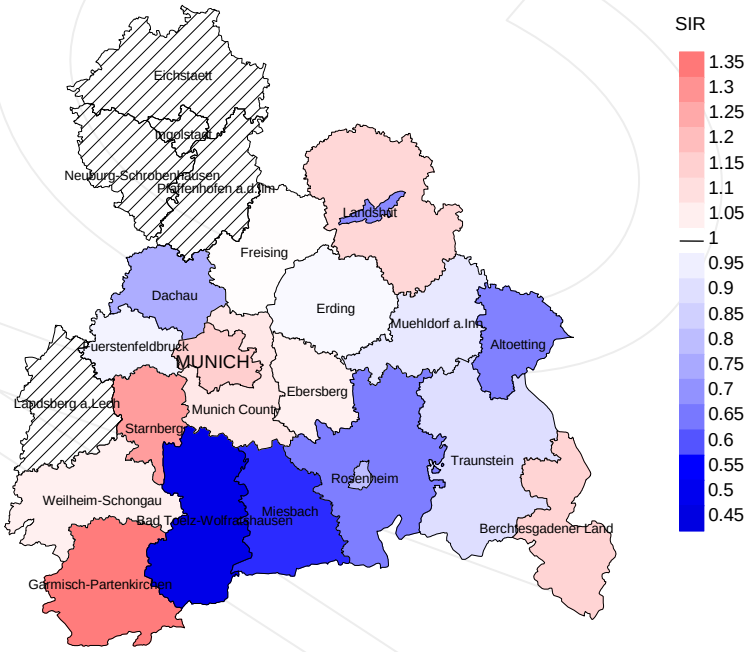


Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=1,638, females N=600). 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 18 women were identified with newly diagnosed liver cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.04. Though, the value of this parameter may vary with an underlying probability of 99% between 0.52 and 1.86, 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	182	100.0	36.8	176	96.7	96.0
1999	212	99.1	37.7	204	96.2	97.1
2000	218	100.0	40.4	203	93.1	95.6
2001	196	98.5	35.2	190	96.9	95.8
2002	350	100.0	42.0	344	98.3	98.0
2003	334	99.7	40.1	319	95.5	97.8
2004	340	98.8	39.7	317	93.2	98.1
2005	351	99.1	35.9	333	94.9	98.5
2006	400	98.3	31.8	366	91.5	99.2
2007	450	95.6	29.8	395	87.8	98.2
2008	474	92.2	22.8	395	83.3	99.0
2009	455	92.5	24.4	368	80.9	99.2
2010	427	97.2	23.4	329	77.0	99.1
2011	354	87.0	26.8	226	63.8	99.6
1998-2011	4743	96.4	32.1	4165	87.8	98.2

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	182	171	97.1	112	61.5
1999	212	197	95.4	134	63.2
2000	218	193	97.4	129	59.2
2001	196	186	96.8	111	56.6
2002	350	266	98.1	222	63.4
2003	334	273	98.2	198	59.3
2004	340	257	98.1	188	55.3
2005	351	288	96.2	197	56.1
2006	400	335	98.5	235	58.8
2007	450	316	98.4	227	50.4
2008	474	350	98.9	233	49.2
2009	455	355	98.6	230	50.5
2010	427	358	98.9	211	49.4
2011	354	326	99.1	180	50.8
1998-2011	4743	3871	98.0	2607	55.0

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	171	83.0	17.0	95.8
1999	197	87.8	12.2	96.3
2000	193	91.7	8.3	95.2
2001	186	93.0	7.0	99.4
2002	266	92.5	7.5	98.1
2003	273	92.7	7.3	98.1
2004	257	93.4	6.6	98.0
2005	288	90.6	9.4	97.1
2006	335	94.3	5.7	98.5
2007	316	90.5	9.5	95.5
2008	350	90.3	9.7	96.0
2009	355	94.6	5.4	98.3
2010	358	89.7	10.3	93.8
2011	326	88.7	11.3	94.1
1998-2011	3871	91.2	8.8	96.7

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	123	68.9	69.2	67.0	69.5
1999	133	69.9	69.3	73.2	70.0
2000	130	71.1	71.1	71.5	71.3
2001	144	68.7	68.4	72.3	68.9
2002	181	68.1	68.1	68.6	68.1
2003	207	69.5	69.9	65.3	69.9
2004	187	69.6	69.5	70.7	69.5
2005	205	68.3	68.2	68.9	68.4
2006	252	69.5	69.3	72.5	69.8
2007	244	70.5	70.3	72.2	70.5
2008	262	68.7	68.8	68.0	68.7
2009	259	70.4	70.2	73.8	70.6
2010	265	71.0	70.9	72.4	70.9
2011	251	70.2	70.3	69.4	70.4
1998-2011	2843	69.6	69.6	70.3	69.8

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	48	72.9	71.3	81.0	72.7
1999	64	74.5	74.2	78.5	75.6
2000	63	73.7	73.8	73.3	73.8
2001	42	72.7	71.3	90.2	72.9
2002	85	73.1	72.9	75.5	73.2
2003	66	71.4	71.0	78.2	71.4
2004	70	75.6	75.2	83.2	75.5
2005	83	74.6	75.0	69.9	74.9
2006	83	73.4	73.1	79.7	73.4
2007	72	74.2	74.2	75.1	75.4
2008	88	74.3	74.7	71.8	74.9
2009	96	73.2	73.2	74.1	73.3
2010	93	75.5	75.7	73.4	75.6
2011	75	74.5	74.8	71.6	74.8
1998-2011	1028	73.9	73.8	75.6	74.2

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	102	9.2	0.79	5.5	0.76	8.3	0.79	11.0	0.80
1999	114	10.2	0.81	6.0	0.80	9.2	0.82	12.4	0.85
2000	120	10.5	0.77	6.0	0.74	9.3	0.76	12.3	0.81
2001	134	11.6	0.86	6.8	0.86	10.1	0.87	13.1	0.86
2002	167	9.0	0.67	5.0	0.66	7.5	0.67	9.8	0.68
2003	190	10.1	0.79	5.5	0.78	8.3	0.79	10.9	0.79
2004	173	9.2	0.69	5.0	0.68	7.6	0.69	9.7	0.69
2005	184	9.7	0.73	5.2	0.72	7.7	0.73	10.0	0.74
2006	237	12.4	0.83	6.4	0.82	9.6	0.82	12.4	0.82
2007	220	9.9	0.66	5.0	0.62	7.6	0.64	10.1	0.66
2008	239	10.7	0.68	5.6	0.67	8.3	0.68	10.8	0.71
2009	244	10.9	0.74	5.5	0.74	8.2	0.75	10.4	0.75
2010	237	10.5	0.71	5.0	0.67	7.5	0.68	10.2	0.73
2011	221	9.8	0.82	4.8	0.78	7.1	0.81	9.3	0.82
1998-2011	2582	10.3	0.74	5.4	0.72	8.1	0.74	10.6	0.75

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	40	3.4	0.77	1.5	0.79	2.2	0.79	3.0	0.81
1999	59	5.0	0.83	1.9	0.79	3.0	0.81	4.1	0.83
2000	57	4.7	0.92	1.8	0.84	2.8	0.87	4.1	0.92
2001	39	3.2	0.95	1.5	0.89	2.2	0.97	2.7	1.01
2002	79	4.0	0.80	1.6	0.79	2.4	0.79	3.3	0.78
2003	63	3.2	0.68	1.4	0.74	2.0	0.72	2.7	0.70
2004	67	3.4	0.75	1.2	0.63	1.9	0.69	2.6	0.73
2005	77	3.9	0.79	1.5	0.69	2.2	0.76	2.9	0.78
2006	79	3.9	0.70	1.6	0.71	2.3	0.69	3.0	0.70
2007	66	2.9	0.57	1.1	0.53	1.6	0.53	2.1	0.54
2008	77	3.3	0.63	1.2	0.53	1.9	0.58	2.5	0.60
2009	92	4.0	0.72	1.5	0.72	2.3	0.72	3.1	0.73
2010	84	3.6	0.90	1.2	0.79	1.9	0.84	2.7	0.94
2011	68	2.9	0.82	1.1	0.69	1.6	0.78	2.1	0.80
1998-2011	947	3.6	0.75	1.4	0.70	2.1	0.73	2.8	0.75

Table 13

Age distribution of age at death (cancer-related) for period 1998-2011
(**incl. multiple primaries**)

Age at death Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4	1	0.0	0.0			0.0	1	0.1	0.1
5-9	1	0.0	0.1	1	0.0	0.0			0.1
10-14	2	0.1	0.1	1	0.0	0.1	1	0.1	0.2
15-19	1	0.0	0.1	1	0.0	0.1			0.2
20-24	1	0.0	0.2	1	0.0	0.2			0.2
25-29	3	0.1	0.3	1	0.0	0.2	2	0.2	0.4
30-34	10	0.3	0.5	5	0.2	0.4	5	0.5	0.9
35-39	17	0.5	1.0	9	0.3	0.7	8	0.8	1.8
40-44	29	0.8	1.8	22	0.9	1.6	7	0.7	2.5
45-49	70	2.0	3.8	56	2.2	3.7	14	1.5	4.0
50-54	138	3.9	7.7	112	4.3	8.1	26	2.7	6.7
55-59	271	7.7	15.4	222	8.6	16.7	49	5.2	11.9
60-64	471	13.3	28.7	379	14.7	31.3	92	9.7	21.6
65-69	589	16.7	45.4	476	18.4	49.7	113	11.9	33.5
70-74	624	17.6	63.0	483	18.7	68.4	141	14.9	48.4
75-79	590	16.7	79.7	430	16.6	85.0	160	16.9	65.2
80-84	413	11.7	91.4	244	9.4	94.4	169	17.8	83.0
85+	305	8.6	100.0	144	5.6	100.0	161	17.0	100.0
All ages	3536	100.0		2587	100.0		949	100.0	

Included in the statistics are 21.6% multiple primaries in males and 20.2% in females.

Table 14

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2011
(**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	0.0		0.1	0.13		4.5
5- 9	1		0.1	1.00	0.0		3.2	
10-14	1	1	0.1	1.00	0.1	1.00	3.4	4.2
15-19	1		0.1	0.50	0.0		2.6	
20-24	1		0.1	0.50	0.0		1.3	
25-29	1	2	0.1	0.25	0.1	0.67	1.1	2.0
30-34	5	5	0.3	0.63	0.3	1.25	3.0	2.5
35-39	9	8	0.4	0.64	0.4	0.89	2.5	1.8
40-44	22	7	1.0	0.76	0.3	0.50	2.9	0.7
45-49	56	14	2.9	0.62	0.7	0.70	3.6	0.8
50-54	112	26	6.7	0.68	1.5	0.58	4.0	1.0
55-59	222	49	14.2	0.64	3.0	0.71	4.3	1.2
60-64	379	92	24.9	0.73	5.7	0.78	4.9	1.7
65-69	476	113	34.9	0.73	7.6	0.66	4.6	1.6
70-74	483	141	46.8	0.73	11.4	0.76	4.4	1.8
75-79	430	160	63.6	0.86	16.1	0.82	3.9	1.8
80-84	244	169	60.1	0.79	21.3	0.85	2.8	1.8
85+	144	161	51.9	0.84	21.7	0.77	2.0	1.4
All ages	2587	949					3.9	1.6
Mortality								
Raw			10.3	0.74	3.6	0.75		
WS			5.4	0.72	1.4	0.70		
ES			8.1	0.74	2.1	0.73		
BRD-S			10.6	0.75	2.8	0.75		
PYLL-70								
per 100,000			50.0		14.2			
ES			44.2		12.4			
AYLL-70			8.8		10.1			

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

Table 15a

Multiple primaries in deaths in period 1998-2011
MALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03-C06 Oral cavity	18	3.3	15	83.3	1	5.6	2	11.1
C09-C10 Oropharynx	13	2.4	12	92.3	1	7.7		
C12-C13 Hypopharynx	7	1.3	6	85.7	1	14.3		
C15 Oesophagus	12	2.2	6	50.0	4	33.3	2	16.7
C16 Stomach	17	3.1	10	58.8	5	29.4	2	11.8
C17 Small intestine	5	0.9	2	40.0	2	40.0	1	20.0
C18 Colon	70	12.7	47	67.1	19	27.1	4	5.7
C19-C20 Rectum	37	6.7	28	75.7	6	16.2	3	8.1
C22 Liver	5	0.9			3	60.0	2	40.0
C25 Pancreas	6	1.1	1	16.7	3	50.0	2	33.3
C32 Larynx	15	2.7	13	86.7	2	13.3		
C33-C34 Lung	50	9.1	16	32.0	15	30.0	19	38.0
C43 Malign. melanoma	19	3.5	16	84.2			3	15.8
C44 Skin others	28	5.1	21	75.0			7	25.0
C61 Prostate	103	18.7	86	83.5	6	5.8	11	10.7
C62 Testis	5	0.9	5	100.0				
C64 Kidney	35	6.4	21	60.0	8	22.9	6	17.1
C65 Renal pelvis	5	0.9	5	100.0				
C67 Bladder	39	7.1	27	69.2	3	7.7	9	23.1
C70-C72 CNS cancer	6	1.1	5	83.3			1	16.7
C76-C79 CUP	7	1.3	4	57.1	1	14.3	2	28.6
C82-C85 NHL	14	2.5	8	57.1	4	28.6	2	14.3
C90 Mult. myeloma	8	1.5	4	50.0	2	25.0	2	25.0
C91-C96 Leukaemia	5	0.9	2	40.0			3	60.0
Other primaries	21	3.8	14	66.7	5	23.8	2	9.5
All mult. primaries	550	100.0	374	68.0	91	16.5	85	15.5

Multiple primaries with number of cases n<5 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 1998-2011
FEMALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03-C06 Oral cavity	5	2.7	4	80.0	1	20.0		
C09-C10 Oropharynx	1	0.5	1	100.0				
C15 Oesophagus	1	0.5	1	100.0				
C16 Stomach	6	3.2	4	66.7	1	16.7	1	16.7
C17 Small intestine	1	0.5	1	100.0				
C18 Colon	23	12.2	14	60.9	6	26.1	3	13.0
C19-C20 Rectum	6	3.2	5	83.3	1	16.7		
C22 Liver	2	1.1					2	100.0
C23-C24 Bile	2	1.1	1	50.0	1	50.0		
C26 GI cancer	1	0.5			1	100.0		
C32 Larynx	1	0.5			1	100.0		
C33-C34 Lung	3	1.6	1	33.3			2	66.7
C40-C41 Bone	1	0.5					1	100.0
C43 Malign. melanoma	4	2.1	4	100.0				
C44 Skin others	6	3.2	2	33.3	1	16.7	3	50.0
C46,C49 Soft tissue	1	0.5	1	100.0				
C50 Breast	48	25.5	43	89.6	2	4.2	3	6.3
C51 Vulva	4	2.1	4	100.0				
C53 Cervix uteri	6	3.2	4	66.7	1	16.7	1	16.7
C54 Corpus uteri	14	7.4	11	78.6	2	14.3	1	7.1
C56 Ovary	7	3.7	5	71.4	1	14.3	1	14.3
C64 Kidney	8	4.3	4	50.0	2	25.0	2	25.0
C66 Ureter	1	0.5	1	100.0				
C67 Bladder	6	3.2	4	66.7	2	33.3		
C69 Eye melanoma	3	1.6	3	100.0				
C70-C72 CNS cancer	4	2.1	2	50.0			2	50.0
C73 Thyroid	6	3.2	4	66.7	1	16.7	1	16.7
C74-C80 Cancer others	1	0.5			1	100.0		
C76-C79 CUP	5	2.7	1	20.0	3	60.0	1	20.0
C82-C85 NHL	9	4.8	8	88.9	1	11.1		
C91-C96 Leukaemia	2	1.1	1	50.0	1	50.0		
All mult. primaries	188	100.0	134	71.3	30	16.0	24	12.8

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 1998-2011
(**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		1	0.0		0.1	0.13		4.5
5- 9	1		0.1	1.00	0.0		3.4	
10-14	1	1	0.1	1.00	0.1	1.00	3.4	4.3
15-19	1		0.1	0.50	0.0		2.9	
20-24	1		0.1	0.50	0.0		1.3	
25-29	1	2	0.1	0.25	0.1	0.67	1.2	2.1
30-34	5	3	0.3	0.63	0.2	1.00	3.0	1.7
35-39	9	8	0.4	0.64	0.4	0.89	2.6	1.9
40-44	21	7	0.9	0.72	0.3	0.54	3.0	0.8
45-49	51	14	2.6	0.60	0.7	0.78	3.6	0.9
50-54	101	22	6.0	0.68	1.3	0.54	4.1	1.0
55-59	201	43	12.9	0.65	2.6	0.70	4.5	1.2
60-64	340	81	22.3	0.73	5.1	0.78	5.2	1.8
65-69	411	99	30.2	0.73	6.7	0.69	4.9	1.7
70-74	404	117	39.2	0.74	9.5	0.77	4.6	1.8
75-79	338	133	50.0	0.88	13.4	0.81	4.0	1.8
80-84	193	141	47.5	0.81	17.7	0.84	2.9	1.8
85+	120	130	43.3	0.86	17.5	0.76	2.2	1.4
All ages	2199	802					4.1	1.6
Mortality								
Raw			8.7	0.75	3.0	0.75		
WS			4.6	0.73	1.2	0.70		
ES			6.9	0.74	1.8	0.72		
BRD-S			9.0	0.76	2.4	0.75		
PYLL-70								
per 100,000			45.4		12.7			
ES			40.2		11.1			
AYLL-70			9.0		10.2			

* See corresponding tables with multiple primaries.

Table 17

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2011
(**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		1	0.0		0.1	0.13		4.5
5- 9	1		0.1	1.00	0.0		3.6	
10-14	1	1	0.1	1.00	0.1	1.00	3.4	4.5
15-19	1		0.1	0.50	0.0		2.9	
20-24	1		0.1	0.50	0.0		1.4	
25-29	1	2	0.1	0.25	0.1	0.67	1.3	2.2
30-34	5	3	0.3	0.63	0.2	1.00	3.1	1.8
35-39	9	8	0.4	0.69	0.4	0.89	2.8	2.1
40-44	21	7	0.9	0.72	0.3	0.54	3.2	0.9
45-49	50	13	2.6	0.60	0.7	0.72	3.8	1.0
50-54	101	22	6.0	0.69	1.3	0.58	4.5	1.1
55-59	198	41	12.7	0.65	2.5	0.71	4.9	1.3
60-64	328	79	21.6	0.73	4.9	0.80	5.7	2.0
65-69	401	98	29.4	0.73	6.6	0.69	5.5	2.0
70-74	388	114	37.6	0.73	9.2	0.77	5.2	2.1
75-79	327	129	48.4	0.88	13.0	0.81	4.8	2.1
80-84	182	137	44.8	0.80	17.2	0.84	3.4	2.1
85+	116	127	41.8	0.85	17.1	0.76	2.6	1.6
All ages	2131	782					4.6	1.8
Mortality								
Raw			8.5	0.74	3.0	0.75		
WS			4.5	0.72	1.2	0.70		
ES			6.7	0.74	1.8	0.73		
BRD-S			8.7	0.75	2.3	0.75		
PYLL-70								
per 100,000			44.6		12.4			
ES			39.5		10.8			
AYLL-70			9.1		10.2			

* See corresponding tables with multiple primaries.

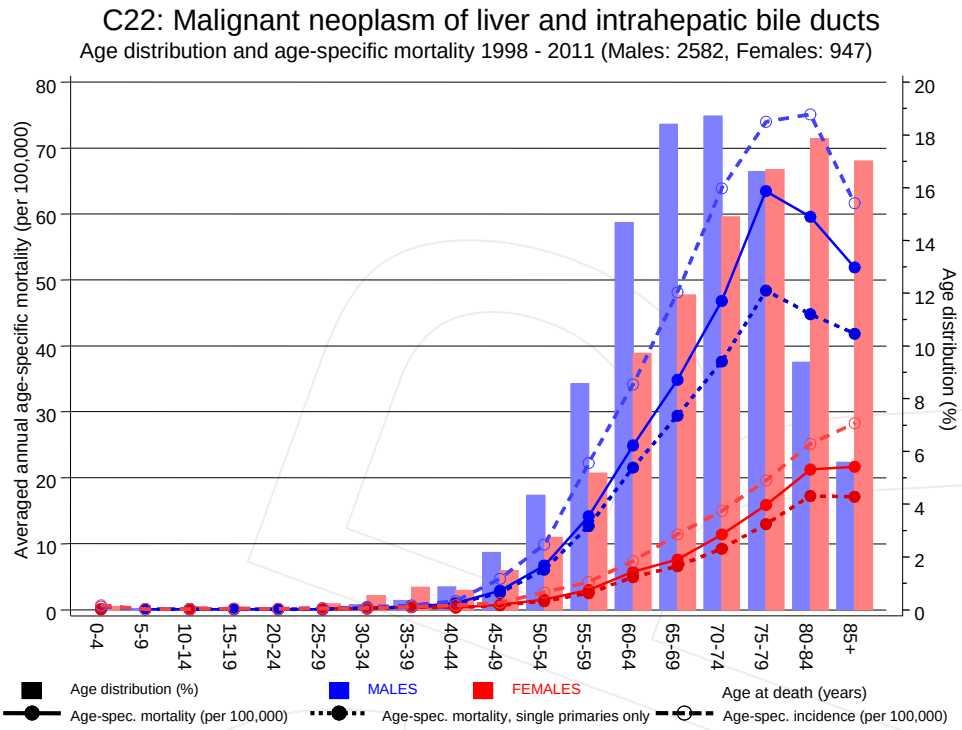
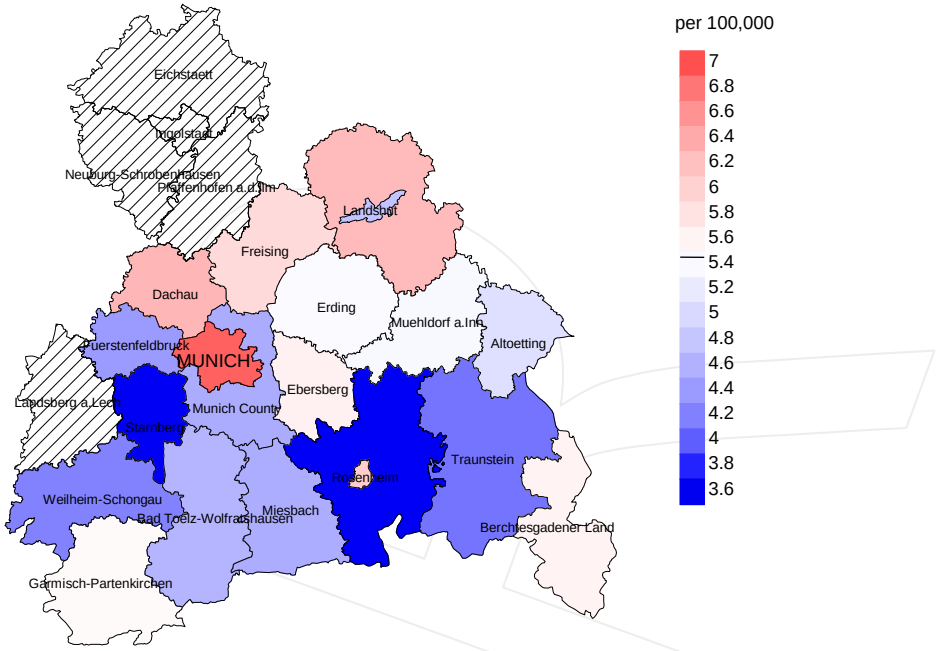


Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

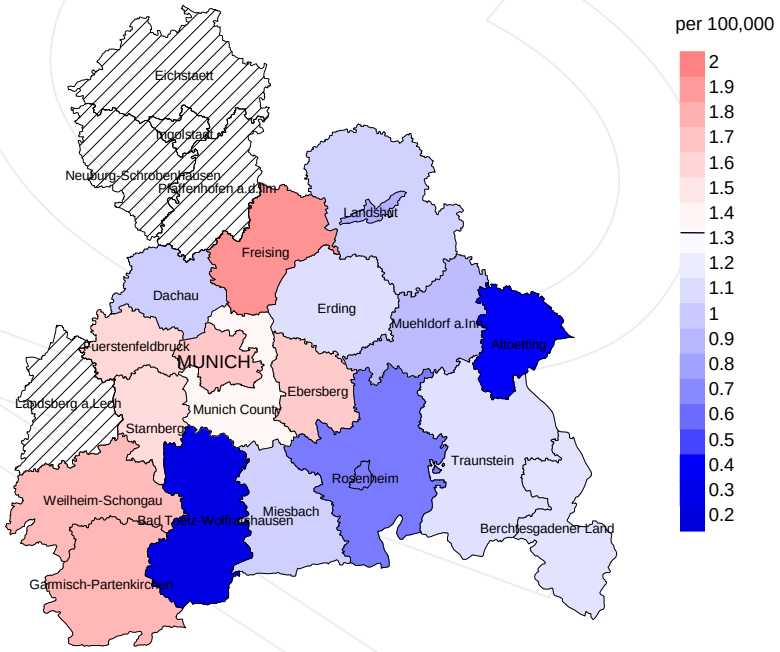
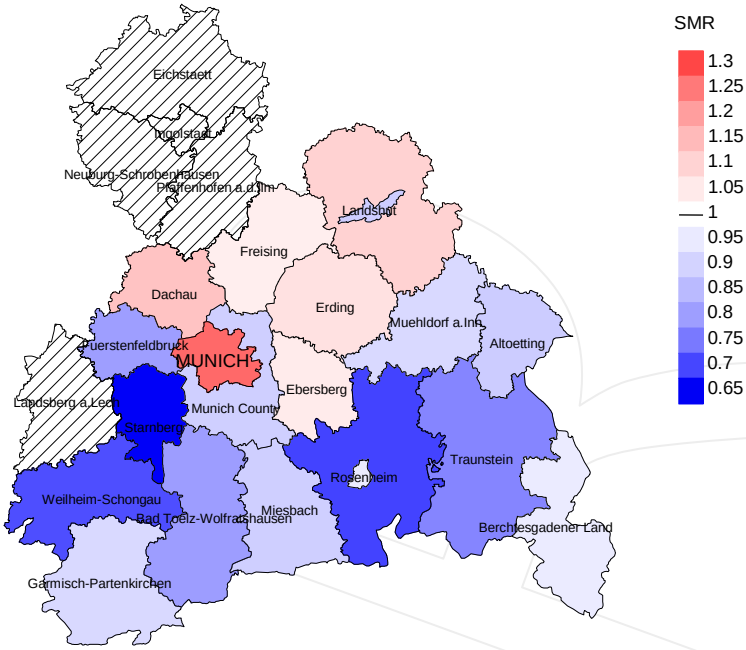


Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2003 to 2008. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 5.5/100,000 WS N=1,198, females 1.3/100,000 WS N=420). 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 16 women died from liver cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 1.7/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.7 and 3.5/100,000.

Standardized mortality ratio (SMR) 2003 - 2008: Males



Standardized mortality ratio (SMR) 2003 - 2008: Females

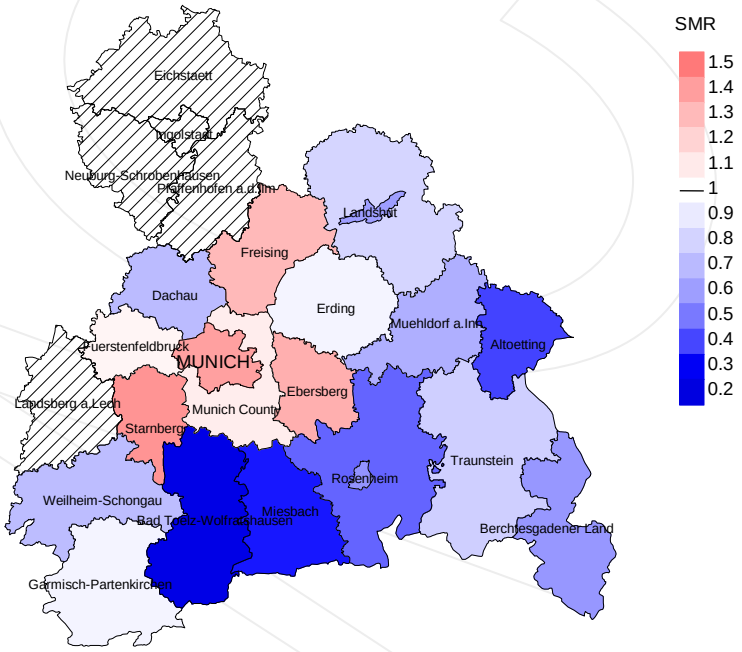


Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=1,198, females N=420). 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 16 women died from liver cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 1.34. Though, the value of this parameter may vary with an underlying probability of 99% between 0.63 and 2.46, 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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