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

C33, C34: Non-small cell LC

Year of diagnosis	1998-2013
Patients	18,690
Diseases	18,858
Creation date	05/19/2015
Export date	12/30/2014
Population	4.64 m

http://www.tumorregister-muenchen.de/en/facts/base/base_C34n_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 4.64 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.

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

Code	Description
C33	Malignant neoplasm of trachea
C34.-	Malignant neoplasm of bronchus and lung
C34.0	Main bronchus
C34.1	Upper lobe, bronchus or lung
C34.2	Middle lobe, bronchus or lung
C34.3	Lower lobe, bronchus or lung
C34.8	Overlapping lesion of bronchus and lung
C34.9	Bronchus or lung, unspecified

... if morphology recorded and not existing any of ...

Morphology codes (ICD-O-3 2011) used for specifying cancer site

Code	Description
8002/3	Malignant tumor, small cell type
8041/3	Small cell carcinoma, NOS
8042/3	Oat cell carcinoma
8043/3	Small cell carcinoma, fusiform cell
8044/3	Small cell carcinoma, intermediate cell
8045/3	Combined small cell carcinoma

INCIDENCE

Table 1

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

Year of diagnosis	Cases n	Prop. mult. primaries %	Prop. deaths %	Prop. actively followed %	
1998	616	15.9	91.7	99.5	
1999	679	19.6	90.4	98.7	
2000	659	20.2	89.2	98.6	
2001	687	21.3	91.0	98.3	
2002	1059	22.3	89.5	98.8	#
2003	1147	23.1	88.8	98.9	
2004	1144	22.6	88.2	99.0	
2005	1149	23.6	88.2	98.0	
2006	1200	24.5	84.8	97.9	
2007	1472	22.8	82.9	93.9	# ##
2008	1562	26.2	81.6	89.3	
2009	1565	25.2	80.1	89.4	
2010	1593	26.6	77.9	88.2	
2011	1624	26.3	74.5	89.0	
2012	1616	26.4	64.1	84.8	
2013	1086	26.0	44.4	98.3	###
1998-2013	18858	24.0	80.2	93.8	

Due to the pathohistological classification of the tumor and the lack of information on morphology on the death certificates, the proportion of DCO cases can not be determined.

\# 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	616	424	192	68.8
1999	679	471	208	69.4
2000	659	460	199	69.8
2001	687	484	203	70.5
2002	1059	727	332	68.6
2003	1147	759	388	66.2
2004	1144	766	378	67.0
2005	1149	774	375	67.4
2006	1200	804	396	67.0
2007	1472	969	503	65.8
2008	1562	1022	540	65.4
2009	1565	1001	564	64.0
2010	1593	1012	581	63.5
2011	1624	1017	607	62.6
2012	1616	988	628	61.1
2013	1086	681	405	62.7
1998-2013	18858	12359	6499	65.5

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 4.64 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	424	192	38.3	16.3	23.5	8.6	34.1	12.3	41.9	14.7
1999	471	208	42.1	17.5	26.0	9.1	37.4	13.0	45.7	16.1
2000	460	199	40.4	16.6	24.7	9.2	35.4	12.9	42.7	15.2
2001	484	203	41.8	16.7	25.6	9.1	36.7	12.8	44.2	15.3
2002	727	332	39.0	17.0	22.6	9.1	33.0	12.9	41.4	15.4
2003	759	388	40.5	19.7	23.2	10.5	33.9	14.9	41.7	17.6
2004	766	378	40.7	19.1	22.6	10.1	33.3	14.2	41.8	16.9
2005	774	375	40.9	18.8	22.6	10.1	32.7	14.2	40.7	16.5
2006	804	396	42.0	19.7	22.8	10.1	33.2	14.3	41.4	17.0
2007	969	503	43.7	21.8	23.1	11.5	33.9	16.2	43.9	19.2
2008	1022	540	45.9	23.3	23.9	12.2	35.2	17.2	44.6	20.2
2009	1001	564	44.9	24.3	23.7	12.2	34.6	17.2	42.6	20.6
2010	1012	581	44.9	24.8	23.2	12.5	33.7	17.7	42.1	21.1
2011	1017	607	44.5	25.7	22.8	12.5	33.2	17.8	41.6	21.3
2012	988	628	43.2	26.6	21.8	13.0	32.0	18.6	40.9	22.2
2013	681	405	29.8	17.2	15.0	8.6	22.0	12.2	27.8	14.4
1998-2013	12359	6499	41.6	20.9	22.6	10.7	32.9	15.2	41.1	18.1

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	616	65.2	10.4	28.1	91.7	51.7	57.7	65.5	73.2	77.9
1999	679	65.7	10.3	32.0	93.0	51.8	58.4	66.7	73.1	78.5
2000	659	64.7	10.7	15.8	88.6	51.1	57.7	65.1	72.7	78.4
2001	687	65.0	10.9	17.0	93.6	50.3	58.4	65.6	72.4	78.3
2002	1059	66.2	10.5	27.5	91.7	52.3	59.3	66.5	74.2	79.3
2003	1147	66.4	10.4	17.5	95.0	52.7	59.3	66.9	73.7	79.5
2004	1144	66.6	10.6	24.4	92.2	53.1	59.7	66.6	74.8	80.2
2005	1149	66.2	10.8	18.1	92.7	52.6	59.5	66.6	74.2	79.5
2006	1200	66.9	10.5	27.5	92.7	53.4	60.3	67.0	74.6	80.3
2007	1472	67.2	10.9	7.5	97.2	53.2	60.5	67.8	75.4	80.5
2008	1562	67.4	10.6	22.3	95.7	53.8	60.9	68.4	75.1	80.3
2009	1565	67.4	10.6	20.3	95.2	53.7	60.6	68.2	74.6	80.9
2010	1593	67.6	10.4	3.5	97.8	53.9	61.2	68.5	75.0	80.3
2011	1624	67.9	10.8	22.2	94.7	53.2	60.8	68.8	75.5	81.8
2012	1616	68.4	10.7	22.9	96.6	54.0	61.7	69.1	76.2	82.2
2013	1086	68.2	10.2	27.9	91.5	54.0	62.0	69.1	75.3	80.7
1998-2013	18858	67.0	10.6	3.5	97.8	53.0	60.1	67.7	74.7	80.3

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	424	64.9	9.8	28.1	91.7	52.6	58.0	65.0	72.3	77.0
1999	471	65.1	9.9	32.0	90.6	52.1	58.2	65.7	72.2	77.7
2000	460	64.7	10.0	28.1	88.6	52.0	58.2	64.8	71.6	77.9
2001	484	64.9	10.2	17.0	93.6	52.0	58.9	65.3	71.6	77.6
2002	727	66.4	10.0	34.2	91.7	52.6	60.2	66.4	73.9	79.3
2003	759	66.6	9.6	36.8	93.5	53.7	60.2	66.8	73.6	78.9
2004	766	67.1	10.1	37.2	92.2	54.0	60.5	67.0	74.6	80.2
2005	774	67.0	10.2	18.1	92.7	54.6	61.1	67.3	74.3	79.3
2006	804	67.2	9.9	28.7	92.1	54.1	61.2	67.2	74.5	79.5
2007	969	68.0	10.3	7.5	94.1	54.7	61.9	68.4	75.7	80.6
2008	1022	68.2	10.1	22.3	90.2	55.0	61.9	68.9	75.3	80.2
2009	1001	67.8	10.0	30.8	93.1	55.2	61.0	68.2	74.5	80.5
2010	1012	67.9	10.2	3.5	93.2	54.3	61.8	69.2	75.0	80.2
2011	1017	67.9	10.4	28.9	91.2	53.4	61.3	69.3	75.3	81.4
2012	988	69.0	10.7	22.9	96.6	55.2	63.0	69.8	76.6	82.3
2013	681	68.8	9.8	27.9	90.9	55.3	62.2	69.9	75.6	80.4
1998-2013	12359	67.3	10.2	3.5	96.6	54.0	60.8	67.9	74.6	80.0

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	192	65.9	11.6	35.8	89.6	50.3	56.8	66.8	75.2	79.9
1999	208	67.1	11.2	32.9	93.0	51.5	58.9	68.7	76.1	79.6
2000	199	64.7	12.3	15.8	87.6	49.2	55.9	66.6	74.1	78.7
2001	203	65.3	12.4	24.4	92.6	48.1	56.8	66.7	74.6	80.4
2002	332	65.6	11.6	27.5	89.7	50.9	57.8	67.2	75.1	79.2
2003	388	65.9	11.7	17.5	95.0	51.1	57.3	67.2	74.3	80.2
2004	378	65.5	11.5	24.4	92.1	50.3	57.8	65.3	74.9	80.2
2005	375	64.7	11.7	21.6	89.3	49.9	56.5	65.2	73.6	79.8
2006	396	66.4	11.6	27.5	92.7	51.7	59.1	66.2	75.2	81.7
2007	503	65.5	11.7	22.3	97.2	50.2	57.4	65.9	74.6	80.3
2008	540	66.0	11.4	29.4	95.7	51.6	58.6	66.3	74.3	80.4
2009	564	66.8	11.5	20.3	95.2	51.8	59.7	68.2	74.9	81.5
2010	581	66.9	10.8	33.2	97.8	52.7	60.1	67.2	75.0	80.5
2011	607	67.9	11.4	22.2	94.7	51.9	59.7	68.0	76.2	83.1
2012	628	67.5	10.8	33.3	91.8	52.8	59.9	68.3	75.4	81.5
2013	405	67.2	10.7	30.6	91.5	53.1	60.0	67.2	74.8	81.0
1998-2013	6499	66.4	11.4	15.8	97.8	51.3	58.7	67.0	74.9	80.8

Table 4

Age distribution by 5-year age group and gender for period 1998-2013 (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	1	0.0	0.0	1	0.0	0.0			0.0
10-14	0	0.0	0.0			0.0			0.0
15-19	6	0.0	0.0	4	0.0	0.0	2	0.0	0.0
20-24	9	0.0	0.1	3	0.0	0.1	6	0.1	0.1
25-29	20	0.1	0.2	10	0.1	0.2	10	0.2	0.3
30-34	43	0.2	0.4	16	0.1	0.3	27	0.4	0.7
35-39	123	0.7	1.1	67	0.5	0.8	56	0.9	1.6
40-44	296	1.6	2.6	159	1.3	2.1	137	2.1	3.7
45-49	677	3.6	6.2	391	3.2	5.3	286	4.4	8.1
50-54	1308	6.9	13.2	769	6.2	11.5	539	8.3	16.4
55-59	2188	11.6	24.8	1408	11.4	22.9	780	12.0	28.4
60-64	2936	15.6	40.3	1973	16.0	38.9	963	14.8	43.2
65-69	3517	18.6	59.0	2406	19.5	58.3	1111	17.1	60.3
70-74	3206	17.0	76.0	2233	18.1	76.4	973	15.0	75.2
75-79	2539	13.5	89.5	1679	13.6	90.0	860	13.2	88.5
80-84	1456	7.7	97.2	931	7.5	97.5	525	8.1	96.6
85+	532	2.8	100.0	308	2.5	100.0	224	3.4	100.0
All ages	18858	100.0		12359	100.0		6499	100.0	

Included in the statistics are 30.0% multiple primaries in males and 27.9% in females.

Table 5

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

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males DCO rate n=5 %	Females DCO rate n=1 %	Males Prop.all cancers n=158258 %	Females Prop.all cancers n=153136 %
0- 4	1		0.1	0.0			0.3	
5- 9	1		0.1	0.0			0.6	
10-14			0.0	0.0				
15-19	4	2	0.3	0.1			1.1	0.7
20-24	3	6	0.2	0.3			0.5	1.1
25-29	10	10	0.5	0.5			1.0	0.9
30-34	16	27	0.7	1.2			1.1	1.3
35-39	67	56	2.7	2.4			3.0	1.5
40-44	159	137	6.1	5.5			5.0	2.2
45-49	388	286	16.4	12.4			7.3	3.3
50-54	766	538	37.9	26.2			8.9	4.9
55-59	1404	774	76.5	40.3	0.1		9.7	5.7
60-64	1961	953	110.6	50.8	0.1		9.0	5.5
65-69	2390	1110	151.4	64.3			8.7	5.9
70-74	2223	968	173.5	63.8	0.1	0.1	8.3	5.3
75-79	1669	858	201.9	72.2	0.1		8.1	4.9
80-84	927	525	185.3	56.3			6.8	3.3
85+	308	224	90.3	25.1			3.1	1.3
All ages	12297	6474			0.0	0.0	7.8	4.2
Incidence								
Raw			41.4	20.8				
WS			22.4	10.7				
ES			32.7	15.1				
BRD-S			40.9	18.0				

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 1998-2013
MALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C00	Lip	2	0.3	6.9	0.8	24.8		1.2	50.0
C03-C06	Oral cavity	12	2.2	5.5	2.8	9.6	#	6.7	25.0
C09-C10	Oropharynx	23	2.7	8.4	5.3	12.6	#	13.9	8.7
C12-C13	Hypopharynx	11	1.5	7.2	3.6	12.8	#	6.5	9.1
C15	Oesophagus	25	4.5	5.5	3.6	8.2	#	14.0	4.0
C16	Stomach	32	10.0	3.2	2.2	4.5	#	15.0	12.5
C17	Small intestine	5	1.2	4.1	1.3	9.7	#	2.6	
C18	Colon	40	24.4	1.6	1.2	2.2	#	10.7	17.5
C19-C20	Rectum	24	14.1	1.7	1.1	2.5	#	6.8	8.3
C22	Liver	24	6.9	3.5	2.2	5.2	#	11.7	20.8
C23-C24	Bile	4	2.4	1.7	0.5	4.4		1.1	25.0
C25	Pancreas	23	8.6	2.7	1.7	4.0	#	9.9	34.8
C26	GI cancer	2	0.3	7.6	0.9	27.4		1.2	
C32	Larynx	29	2.7	10.7	7.1	15.3	#	18.0	13.8
C33-C34	Lung	122	30.0	4.1	3.4	4.9	#	63.0	1.6
C43	Malign. melanoma	12	9.7	1.2	0.6	2.2		1.5	
C46,C49	Soft tissue	5	1.3	4.0	1.3	9.2	#	2.6	
C61	Prostate	87	75.9	1.1	0.9	1.4		7.6	17.2
C64	Kidney	27	8.9	3.0	2.0	4.4	#	12.4	22.2
C65	Renal pelvis	7	1.0	7.0	2.8	14.4	#	4.1	
C67	Bladder	31	10.5	2.9	2.0	4.2	#	14.0	12.9
C70-C72	CNS cancer	4	3.3	1.2	0.3	3.1		0.5	25.0
C73	Thyroid	5	1.6	3.1	1.0	7.2		2.3	
C76-C79	CUP	6	4.1	1.5	0.5	3.2		1.3	16.7
C82-C85	NHL	27	9.7	2.8	1.8	4.1	#	11.8	14.8
C90	Mult. myeloma	2	3.1	0.6	0.1	2.3		-0.8	50.0
C91-C96	Leukaemia	16	3.8	4.2	2.4	6.8	#	8.3	37.5
Other primaries		10	4.6	2.2	1.0	4.0	#	3.7	40.0
Not observed		0	3.5	0.0	0.0	1.1		-2.4	
All mult. primaries		617	252.8	2.4	2.3	2.6	#	249.3	13.5

Patients	8704
Median age at second malignancy (years)	71.0
Person-years	14608
Mean observation time (years)	1.7
Median observation time (years)	0.8

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 1998-2013
FEMALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C09-C10	Oropharynx	3	0.4	7.2	1.5	21.0	#	3.0	
C15	Oesophagus	4	0.6	7.2	2.0	18.3	#	4.0	
C16	Stomach	12	3.2	3.8	1.9	6.6	#	10.2	33.3
C17	Small intestine	2	0.5	4.3	0.5	15.7		1.8	
C18	Colon	22	9.0	2.5	1.5	3.7	#	15.2	13.6
C19-C20	Rectum	5	4.0	1.2	0.4	2.9		1.1	20.0
C22	Liver	3	1.1	2.8	0.6	8.3		2.3	33.3
C23-C24	Bile	2	1.3	1.5	0.2	5.6		0.8	100.0
C25	Pancreas	11	3.9	2.8	1.4	5.0	#	8.2	27.3
C32	Larynx	3	0.2	15.9	3.3	46.6	#	3.3	
C33-C34	Lung	40	7.0	5.7	4.1	7.8	#	38.3	2.5
C43	Malign. melanoma	7	3.4	2.1	0.8	4.3		4.2	14.3
C50	Breast	47	29.5	1.6	1.2	2.1	#	20.3	14.9
C51	Vulva	4	0.9	4.7	1.3	12.0	#	3.7	
C53	Cervix uteri	6	1.3	4.8	1.8	10.4	#	5.5	33.3
C54	Corpus uteri	7	5.5	1.3	0.5	2.6		1.7	14.3
C55,C57	Fem. genitals un	2	0.2	11.8	1.4	42.5	#	2.1	100.0
C56	Ovary	8	4.0	2.0	0.9	3.9		4.7	25.0
C57.9	Fem. urogen.	2	0.0	221.0	26.8	798.3	#	2.3	
C64	Kidney	7	2.4	2.9	1.2	6.0	#	5.3	42.9
C65	Renal pelvis	3	0.3	10.6	2.2	31.1	#	3.2	
C67	Bladder	3	1.6	1.8	0.4	5.4		1.6	33.3
C70-C72	CNS cancer	3	1.3	2.2	0.5	6.6		1.9	66.7
C73	Thyroid	7	1.8	3.9	1.6	8.1	#	6.1	14.3
C76-C79	CUP	4	1.5	2.6	0.7	6.7		2.9	
C82-C85	NHL	7	3.6	2.0	0.8	4.0		4.0	14.3
C90	Mult. myeloma	3	1.2	2.6	0.5	7.6		2.1	66.7
C91-C96	Leukaemia	3	1.4	2.1	0.4	6.1		1.8	33.3
Other primaries		6	1.1	5.6	2.0	12.1	#	5.7	16.7
Not observed		0	2.9	0.0	0.0	1.3		-3.4	
All mult. primaries		236	94.9	2.5	2.2	2.8	#	164.0	17.8

Patients	4458
Median age at second malignancy (years)	69.4
Person-years	8604
Mean observation time (years)	1.9
Median observation time (years)	0.9

The occurrence of second malignancy is statistically significant.

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

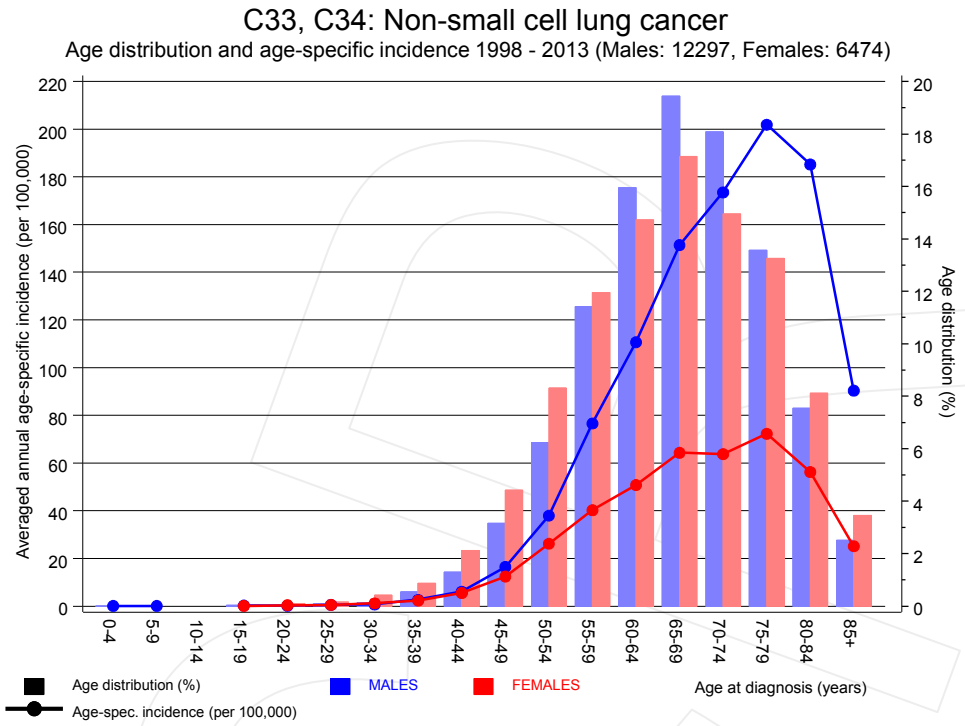


Figure 7. Age distribution and age-specific incidence

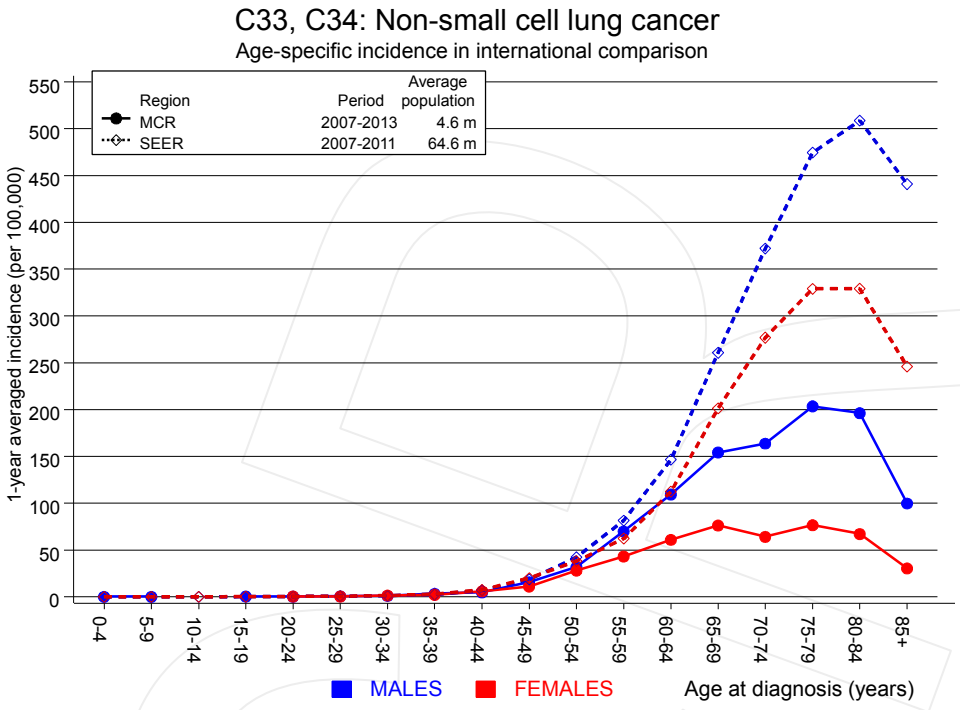


Figure 7a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

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.

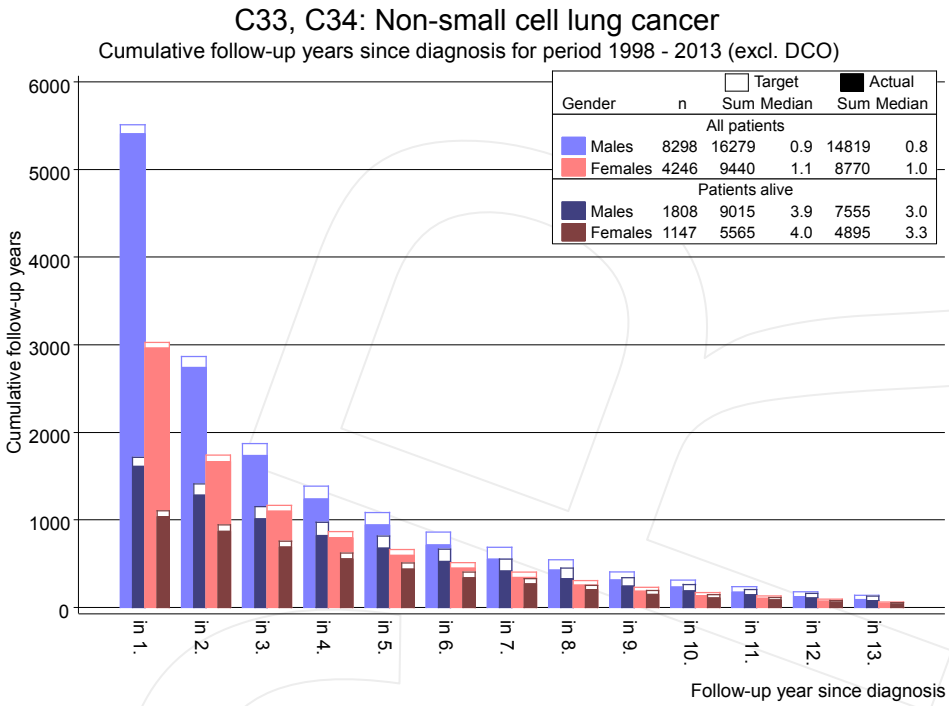
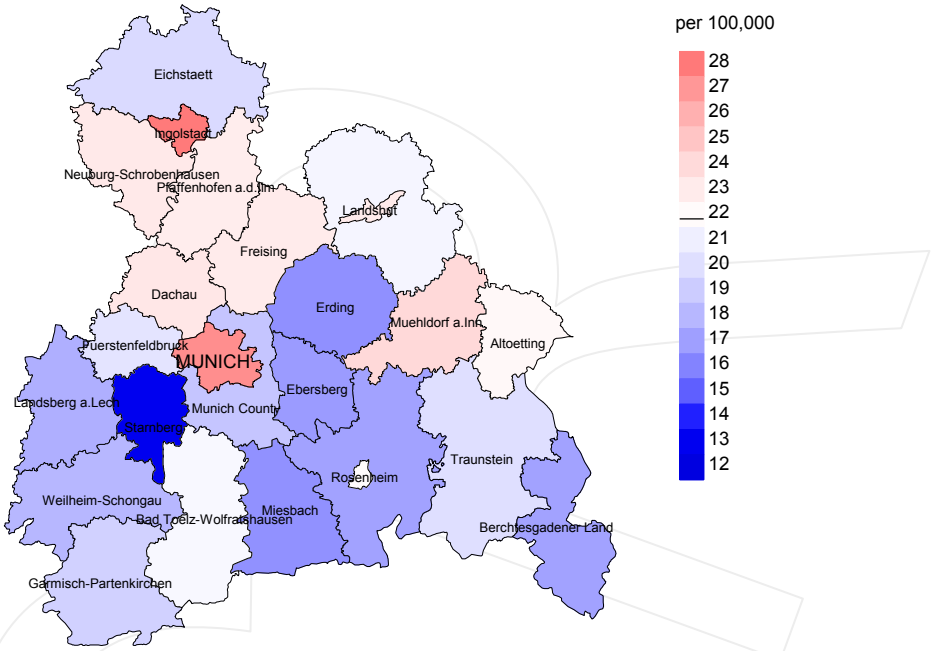


Figure 8. Cumulative follow-up years depending on time since diagnosis

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

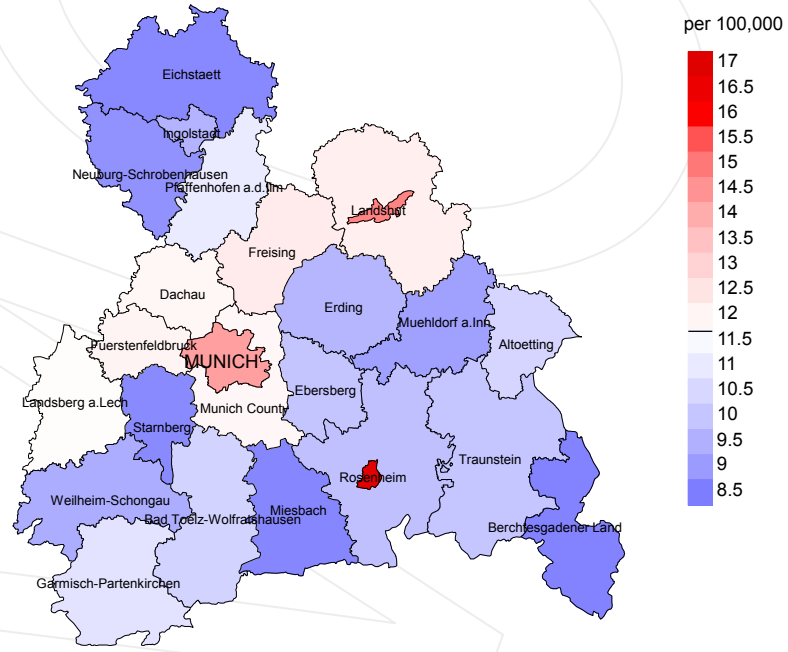
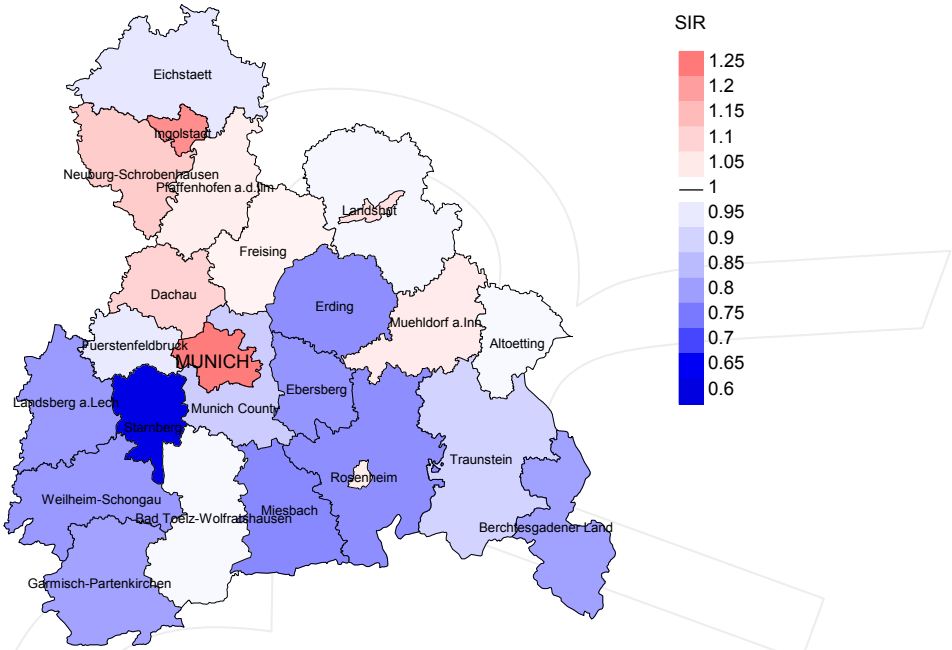


Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 21.9/100,000 WS N=6,649, females 11.7/100,000 WS N=3,807).

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 83 women were identified with newly diagnosed non-small cell LC. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 10.0/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 7.2 and 13.5/100,000.

Standardized incidence ratio (SIR) 2007 - 2013: Males



Standardized incidence ratio (SIR) 2007 - 2013: Females

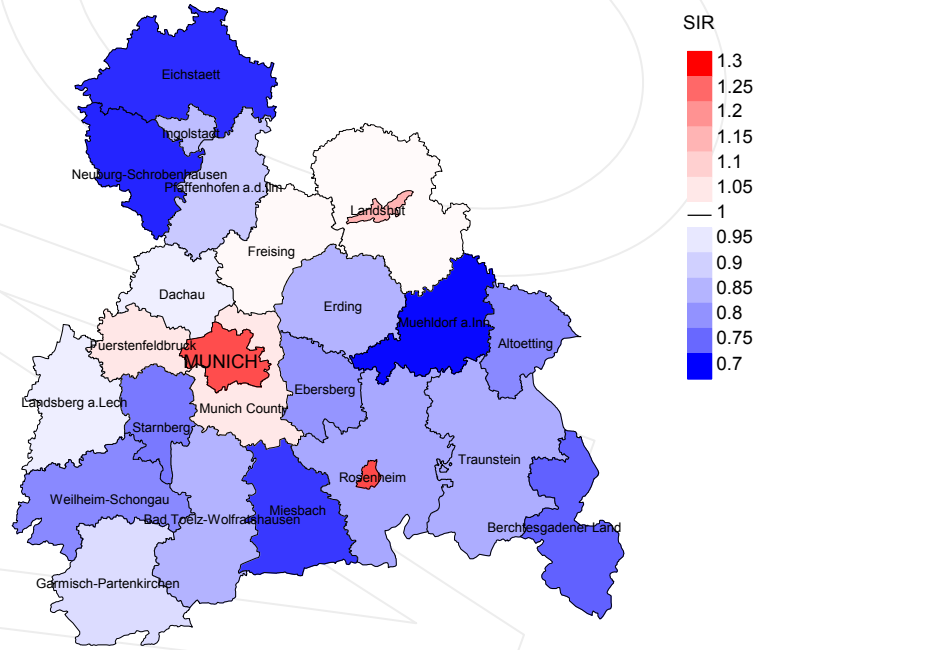


Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=6,649, females N=3,807).

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 83 women were identified with newly diagnosed non-small cell LC. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.80. Though, the value of this parameter may vary with an underlying probability of 99% between 0.60 and 1.06, 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)

Year of diagnosis	Incident cases n	Prop. actively followed %	Deaths n	Prop. deaths %	Prop. deaths with death certific. %
1998	616	99.5	565	91.7	91.0
1999	679	98.7	614	90.4	93.3
2000	659	98.6	588	89.2	94.4
2001	687	98.3	625	91.0	93.4
2002	1059	98.8	948	89.5	96.7
2003	1147	98.9	1018	88.8	96.5
2004	1144	99.0	1009	88.2	97.8
2005	1149	98.0	1013	88.2	98.0
2006	1200	97.9	1017	84.8	98.2
2007	1472	93.9	1221	82.9	98.3
2008	1562	89.3	1275	81.6	99.2
2009	1565	89.4	1253	80.1	98.5
2010	1593	88.2	1241	77.9	97.8
2011	1624	89.0	1210	74.5	97.5
2012	1616	84.8	1036	64.1	94.7
2013	1086	98.3	482	44.4	88.6
1998-2013	18858	93.8	15115	80.2	96.6

Table 10b

Annual cohorts of incident cancers and deaths, proportion of death certificates and cases deceased the same year of cancer diagnosis
(incl. DCO)
(with respect to registry area expansion from 2.51 to 3.96 m as of 2002, and from 3.96 to 4.64 m as of 2007, respectively)

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	616	497	89.5	201	32.6
1999	679	521	92.5	206	30.3
2000	659	549	92.5	208	31.6
2001	687	563	92.2	212	30.9
2002	1059	841	97.1	341	32.2
2003	1147	960	97.0	394	34.4
2004	1144	1003	97.3	374	32.7
2005	1149	989	97.7	396	34.5
2006	1200	1052	97.6	383	31.9
2007	1472	1167	98.4	455	30.9
2008	1562	1229	98.8	476	30.5
2009	1565	1289	99.2	473	30.2
2010	1593	1375	98.8	503	31.6
2011	1624	1409	98.9	541	33.3
2012	1616	1402	97.9	513	31.7
2013	1086	1226	98.4	341	31.4
1998-2013	18858	16072	97.3	6017	31.9

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)

Year of death	Deaths n	Prop. cancer-related %	Prop. non-cancer-related %	Prop. cancer recorded on death certificate %
1998	497	84.7	15.3	95.7
1999	521	88.9	11.1	96.1
2000	549	90.3	9.7	97.6
2001	563	88.3	11.7	96.0
2002	841	91.6	8.4	95.6
2003	960	92.4	7.6	96.6
2004	1003	94.2	5.8	97.2
2005	989	92.4	7.6	96.0
2006	1052	92.1	7.9	96.6
2007	1167	93.1	6.9	96.7
2008	1229	93.7	6.3	96.5
2009	1289	93.1	6.9	96.6
2010	1375	92.6	7.4	96.5
2011	1409	93.0	7.0	95.8
2012	1402	92.2	7.8	96.0
2013	1226	93.1	6.9	95.6
1998-2013	16072	92.2	7.8	96.3

Table 11a

Medians 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 (non-cancer-related) Years	Age at death (according to death certificate) Years
1998	347	67.8	67.4	70.5	67.9
1999	368	68.4	68.3	69.3	68.6
2000	381	67.0	66.5	70.4	67.1
2001	398	67.1	66.5	71.2	67.5
2002	601	67.1	66.6	74.5	66.7
2003	685	67.9	67.8	70.3	67.9
2004	697	68.8	68.6	71.7	68.9
2005	676	69.2	69.0	75.3	69.2
2006	735	69.7	69.5	71.9	69.6
2007	797	69.4	68.8	74.9	69.3
2008	835	69.6	69.1	76.1	69.4
2009	884	70.5	70.2	74.6	70.2
2010	896	70.9	70.5	75.6	70.7
2011	924	71.1	70.7	74.8	70.8
2012	879	71.5	70.6	80.1	71.2
2013	782	72.3	72.1	77.5	72.2
1998-2013	10885	69.8	69.4	73.9	69.6

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

Medians 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 (non-cancer-related) Years	Age at death (according to death certificate) Years
1998	150	66.6	67.1	63.4	68.0
1999	153	70.9	70.8	72.7	70.9
2000	168	68.8	68.3	74.3	68.8
2001	165	70.7	69.7	73.2	70.5
2002	240	69.1	68.6	72.8	69.1
2003	275	69.4	68.9	72.2	69.1
2004	306	70.1	69.1	78.6	69.7
2005	313	66.7	66.1	77.5	66.7
2006	317	70.1	69.7	77.4	69.7
2007	370	68.8	68.3	77.4	68.4
2008	394	69.2	68.2	78.6	68.3
2009	405	68.7	68.3	79.7	68.5
2010	479	69.8	69.6	76.0	69.8
2011	485	69.7	69.3	77.0	69.5
2012	523	71.1	70.7	79.0	71.0
2013	444	70.5	70.1	82.7	70.3
1998-2013	5187	69.6	69.0	76.5	69.3

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

Deaths of patients are considered to be cancer-related, in case that fact was recorded on the death certificate, or patients had suffered from metastasis or recurrence.

Table 12a

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

Year of death	Deaths n	Mort. raw	MI-Index raw	Mort. WS	MI-Index WS	Mort. ES	MI-Index ES	Mort. BRD-S	MI-Index BRD-S
1998	291	26.3	0.69	16.0	0.68	23.6	0.69	29.8	0.71
1999	328	29.3	0.70	17.5	0.67	26.1	0.70	34.1	0.75
2000	340	29.9	0.74	17.9	0.73	26.2	0.74	33.0	0.78
2001	350	30.2	0.73	17.9	0.70	26.3	0.72	33.2	0.76
2002	544	29.2	0.75	16.7	0.74	24.5	0.74	31.1	0.76
2003	630	33.6	0.83	18.9	0.82	27.8	0.82	35.0	0.84
2004	659	35.0	0.86	19.1	0.85	28.5	0.86	36.5	0.88
2005	614	32.4	0.80	17.1	0.76	25.4	0.78	32.9	0.81
2006	673	35.1	0.84	18.1	0.80	27.2	0.82	35.5	0.86
2007	737	33.3	0.77	17.1	0.75	25.5	0.76	33.5	0.77
2008	779	35.0	0.77	18.0	0.76	26.7	0.77	34.7	0.78
2009	814	36.5	0.82	18.1	0.77	27.1	0.79	35.3	0.83
2010	815	36.2	0.81	17.9	0.78	26.5	0.79	34.3	0.82
2011	851	37.2	0.84	18.2	0.80	27.2	0.83	35.3	0.86
2012	799	35.0	0.81	17.1	0.79	25.3	0.80	33.0	0.81
2013	727	31.8	1.07	15.0	1.01	22.7	1.04	30.1	1.09
1998-2013	9951	33.5	0.81	17.5	0.78	26.1	0.80	33.8	0.82

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	130	11.1	0.68	5.8	0.67	8.2	0.67	9.8	0.66
1999	135	11.4	0.66	5.5	0.62	8.1	0.63	10.3	0.65
2000	156	13.0	0.78	6.8	0.73	9.7	0.75	11.7	0.77
2001	148	12.2	0.73	6.2	0.67	8.9	0.70	11.0	0.72
2002	226	11.5	0.68	5.9	0.65	8.4	0.65	10.3	0.67
2003	257	13.0	0.66	6.5	0.62	9.5	0.64	11.6	0.66
2004	286	14.5	0.76	7.0	0.69	10.2	0.72	12.8	0.76
2005	300	15.1	0.80	7.7	0.76	11.0	0.77	13.1	0.79
2006	296	14.7	0.75	7.0	0.70	10.2	0.71	12.5	0.74
2007	350	15.2	0.70	7.4	0.66	10.7	0.67	13.0	0.69
2008	372	16.0	0.69	7.6	0.63	11.1	0.65	13.6	0.67
2009	386	16.6	0.69	8.2	0.68	11.7	0.68	13.9	0.68
2010	458	19.6	0.80	9.1	0.73	13.1	0.74	16.1	0.77
2011	460	19.5	0.76	9.0	0.72	12.9	0.73	15.9	0.75
2012	493	20.9	0.79	9.2	0.72	13.5	0.73	16.8	0.76
2013	416	17.6	1.03	8.0	0.93	11.6	0.95	14.1	0.98
1998-2013	4869	15.7	0.75	7.5	0.70	10.8	0.72	13.2	0.74

Table 13

Age distribution of age at death (cancer-related) for period 1998-2013
(**incl. multiple primaries**)

Age at death Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
15-19	1	0.0	0.0	1	0.0	0.0			0.0
20-24	5	0.0	0.0	4	0.0	0.0	1	0.0	0.0
25-29	6	0.0	0.1	3	0.0	0.1	3	0.1	0.1
30-34	7	0.0	0.1	4	0.0	0.1	3	0.1	0.1
35-39	65	0.4	0.6	36	0.4	0.5	29	0.6	0.7
40-44	180	1.2	1.8	89	0.9	1.4	91	1.9	2.6
45-49	431	2.9	4.6	258	2.6	3.9	173	3.5	6.1
50-54	874	5.8	10.5	530	5.3	9.2	344	7.0	13.1
55-59	1486	9.9	20.4	961	9.5	18.7	525	10.7	23.8
60-64	2174	14.5	34.9	1516	15.0	33.8	658	13.4	37.2
65-69	2648	17.7	52.5	1857	18.4	52.2	791	16.1	53.2
70-74	2692	18.0	70.5	1886	18.7	70.9	806	16.4	69.6
75-79	2272	15.1	85.6	1563	15.5	86.4	709	14.4	84.1
80-84	1497	10.0	95.6	994	9.9	96.3	503	10.2	94.3
85+	659	4.4	100.0	378	3.8	100.0	281	5.7	100.0
All ages	14997	100.0		10080	100.0		4917	100.0	

Included in the statistics are 30.0% multiple primaries in males and 27.9% in females.

Table 14

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2013
(**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			0.0		0.0			
5- 9			0.0		0.0			
10-14			0.0		0.0			
15-19	1		0.1	0.25	0.0		2.2	
20-24	4	1	0.2	1.33	0.1	0.17	4.4	2.0
25-29	3	3	0.1	0.30	0.1	0.30	2.8	2.6
30-34	4	3	0.2	0.25	0.1	0.11	2.2	1.3
35-39	36	29	1.4	0.54	1.2	0.52	9.0	5.6
40-44	89	91	3.4	0.56	3.7	0.66	10.4	8.0
45-49	258	173	10.9	0.66	7.5	0.60	14.3	8.6
50-54	530	344	26.2	0.69	16.7	0.64	16.1	11.1
55-59	961	525	52.4	0.68	27.3	0.67	16.3	11.1
60-64	1516	658	85.5	0.77	35.1	0.68	17.0	10.1
65-69	1857	791	117.6	0.77	45.8	0.71	15.5	9.5
70-74	1886	806	147.2	0.84	53.1	0.83	13.9	8.2
75-79	1563	709	189.1	0.93	59.7	0.82	11.9	6.6
80-84	994	503	198.7	1.07	53.9	0.96	9.2	4.5
85+	378	281	110.8	1.23	31.4	1.25	4.3	2.1
All ages	10080	4917					12.6	6.8
Mortality								
Raw			33.9	0.82	15.8	0.76		
WS			17.7	0.79	7.6	0.71		
ES			26.4	0.80	10.9	0.72		
BRD-S			34.2	0.83	13.4	0.74		
PYLL-70								
per 100,000			176.4		102.2			
ES			155.1		87.4			
AYLL-70			9.0		10.4			

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

Table 15a

Multiple primaries in deaths in period 1998-2013
MALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03-C06 Oral cavity	107	3.7	87	81.3	8	7.5	12	11.2
C09-C10 Oropharynx	88	3.0	60	68.2	9	10.2	19	21.6
C12-C13 Hypopharynx	50	1.7	32	64.0	8	16.0	10	20.0
C15 Oesophagus	67	2.3	23	34.3	21	31.3	23	34.3
C16 Stomach	103	3.5	47	45.6	23	22.3	33	32.0
C18 Colon	227	7.8	145	63.9	33	14.5	49	21.6
C19-C20 Rectum	121	4.1	86	71.1	17	14.0	18	14.9
C22 Liver	34	1.2	10	29.4	9	26.5	15	44.1
C25 Pancreas	39	1.3	8	20.5	9	23.1	22	56.4
C32 Larynx	132	4.5	91	68.9	17	12.9	24	18.2
C33-C34 Lung	208	7.1			65	31.3	143	68.8
C43 Malign. melanoma	95	3.2	79	83.2	7	7.4	9	9.5
C44 Skin others	190	6.5	132	69.5	23	12.1	35	18.4
C61 Prostate	543	18.6	440	81.0	30	5.5	73	13.4
C62 Testis	30	1.0	27	90.0	1	3.3	2	6.7
C64 Kidney	116	4.0	76	65.5	18	15.5	22	19.0
C67 Bladder	339	11.6	265	78.2	22	6.5	52	15.3
C70-C72 CNS cancer	35	1.2	18	51.4	6	17.1	11	31.4
C76-C79 CUP	33	1.1	20	60.6	7	21.2	6	18.2
C81 Hodgkin lymphoma	28	1.0	28	100.0				
C82-C85 NHL	101	3.5	66	65.3	16	15.8	19	18.8
C90 Mult. myeloma	28	1.0	13	46.4	7	25.0	8	28.6
C91-C96 Leukaemia	42	1.4	21	50.0	6	14.3	15	35.7
Other primaries	170	5.8	108	63.5	18	10.6	44	25.9
All mult. primaries	2926	100.0	1882	64.3	380	13.0	664	22.7

Multiple primaries with number of cases 1 to 20 are pooled in category "Other primaries".

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

Table 15b

Multiple primaries in deaths in period 1998-2013
FEMALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03-C06 Oral cavity	30	2.2	26	86.7	2	6.7	2	6.7
C09-C10 Oropharynx	12	0.9	9	75.0	1	8.3	2	16.7
C16 Stomach	33	2.5	15	45.5	6	18.2	12	36.4
C18 Colon	100	7.5	68	68.0	11	11.0	21	21.0
C19-C20 Rectum	24	1.8	18	75.0	2	8.3	4	16.7
C21 Anus/canal	13	1.0	10	76.9	1	7.7	2	15.4
C25 Pancreas	30	2.2	9	30.0	5	16.7	16	53.3
C32 Larynx	12	0.9	7	58.3	2	16.7	3	25.0
C33-C34 Lung	79	5.9			21	26.6	58	73.4
C43 Malign. melanoma	33	2.5	30	90.9			3	9.1
C44 Skin others	52	3.9	28	53.8	4	7.7	20	38.5
C50 Breast	354	26.5	287	81.1	29	8.2	38	10.7
C51 Vulva	19	1.4	15	78.9	2	10.5	2	10.5
C53 Cervix uteri	73	5.5	61	83.6	6	8.2	6	8.2
C54 Corpus uteri	68	5.1	59	86.8	2	2.9	7	10.3
C55,C57 Fem. genitals un	13	1.0	11	84.6	1	7.7	1	7.7
C56 Ovary	33	2.5	22	66.7	3	9.1	8	24.2
C64 Kidney	35	2.6	21	60.0	6	17.1	8	22.9
C67 Bladder	55	4.1	44	80.0	3	5.5	8	14.5
C70-C72 CNS cancer	47	3.5	19	40.4	10	21.3	18	38.3
C73 Thyroid	25	1.9	17	68.0	5	20.0	3	12.0
C76-C79 CUP	19	1.4	8	42.1	4	21.1	7	36.8
C81 Hodgkin lymphoma	11	0.8	11	100.0				
C82-C85 NHL	51	3.8	42	82.4	2	3.9	7	13.7
C90 Mult. myeloma	18	1.3	5	27.8	5	27.8	8	44.4
C91-C96 Leukaemia	20	1.5	8	40.0	3	15.0	9	45.0
Other primaries	78	5.8	38	48.7	13	16.7	27	34.6
All mult. primaries	1337	100.0	888	66.4	149	11.1	300	22.4

Multiple primaries with number of cases 1 to 10 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** *)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	MI-index	Females Age-spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4			0.0		0.0			
5- 9			0.0		0.0			
10-14			0.0		0.0			
15-19	1		0.1	0.33	0.0		2.4	
20-24	3	1	0.2	1.50	0.1	0.17	3.6	2.1
25-29	2	3	0.1	0.22	0.1	0.30	2.0	2.8
30-34	4	3	0.2	0.25	0.1	0.12	2.2	1.5
35-39	35	25	1.4	0.56	1.1	0.47	9.4	5.4
40-44	84	83	3.2	0.57	3.3	0.67	10.6	8.4
45-49	237	151	10.0	0.67	6.5	0.59	14.5	8.7
50-54	470	305	23.3	0.69	14.8	0.66	16.3	11.7
55-59	840	456	45.8	0.69	23.7	0.69	16.5	11.4
60-64	1266	535	71.4	0.77	28.5	0.71	17.0	10.0
65-69	1509	628	95.6	0.79	36.4	0.73	15.6	9.4
70-74	1497	619	116.9	0.88	40.8	0.82	14.0	7.9
75-79	1149	580	139.0	0.95	48.8	0.86	11.5	6.8
80-84	698	382	139.5	1.12	41.0	0.96	8.6	4.3
85+	254	222	74.5	1.21	24.8	1.26	3.8	2.0
All ages	8049	3993					12.6	6.8
Mortality								
Raw			27.1	0.82	12.9	0.76		
WS			14.4	0.79	6.2	0.71		
ES			21.3	0.81	9.0	0.73		
BRD-S			27.0	0.84	10.9	0.75		
PYLL-70								
per 100,000			153.8		88.2			
ES			135.4		75.7			
AYLL-70			9.3		10.7			

* 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** *)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	MI-index	Females Age-spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4			0.0		0.0			
5- 9			0.0		0.0			
10-14			0.0		0.0			
15-19	1		0.1	0.33	0.0		2.4	
20-24	2	1	0.1	2.00	0.1	0.17	2.5	2.3
25-29	2	3	0.1	0.22	0.1	0.30	2.2	2.9
30-34	4	3	0.2	0.25	0.1	0.13	2.3	1.6
35-39	34	25	1.4	0.55	1.1	0.49	9.5	5.9
40-44	84	82	3.2	0.58	3.3	0.69	11.2	9.0
45-49	234	147	9.9	0.67	6.4	0.59	15.2	9.5
50-54	457	300	22.6	0.69	14.6	0.67	17.5	12.8
55-59	824	438	44.9	0.70	22.8	0.69	17.8	12.3
60-64	1209	514	68.2	0.78	27.4	0.71	18.4	11.1
65-69	1426	585	90.3	0.79	33.9	0.71	17.0	10.3
70-74	1406	580	109.8	0.88	38.2	0.81	15.8	8.8
75-79	1048	548	126.8	0.92	46.1	0.84	13.1	7.6
80-84	638	355	127.5	1.06	38.1	0.93	10.0	4.8
85+	240	208	70.4	1.17	23.3	1.19	4.5	2.2
All ages	7609	3789					14.1	7.5
Mortality								
Raw			25.6	0.82	12.2	0.76		
WS			13.7	0.79	6.0	0.71		
ES			20.2	0.80	8.6	0.72		
BRD-S			25.5	0.83	10.4	0.74		
PYLL-70								
per 100,000			149.3		85.6			
ES			131.5		73.5			
AYLL-70			9.4		10.8			

* See corresponding tables with multiple primaries.

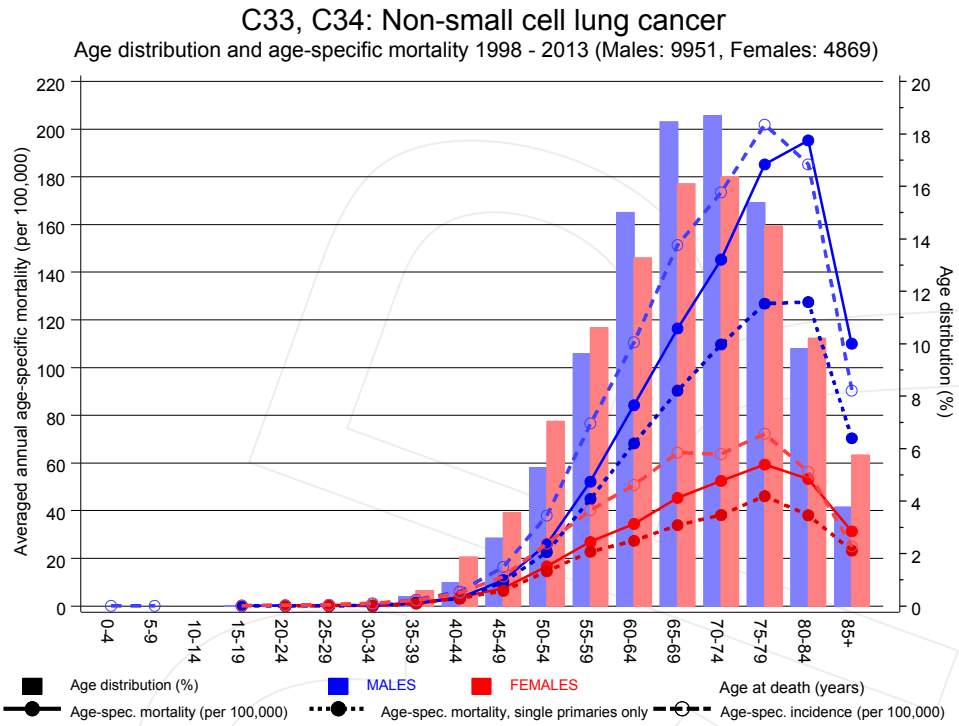
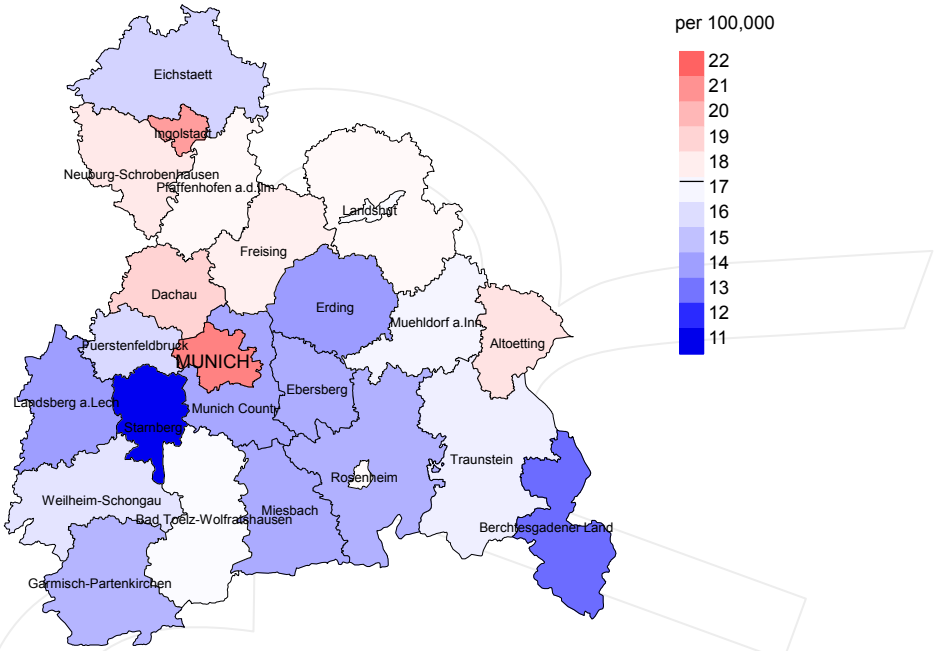


Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

The difference between age at diagnosis (Table 3) and age at non-small cell LC-related death (see Table 10) should be considered.

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



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

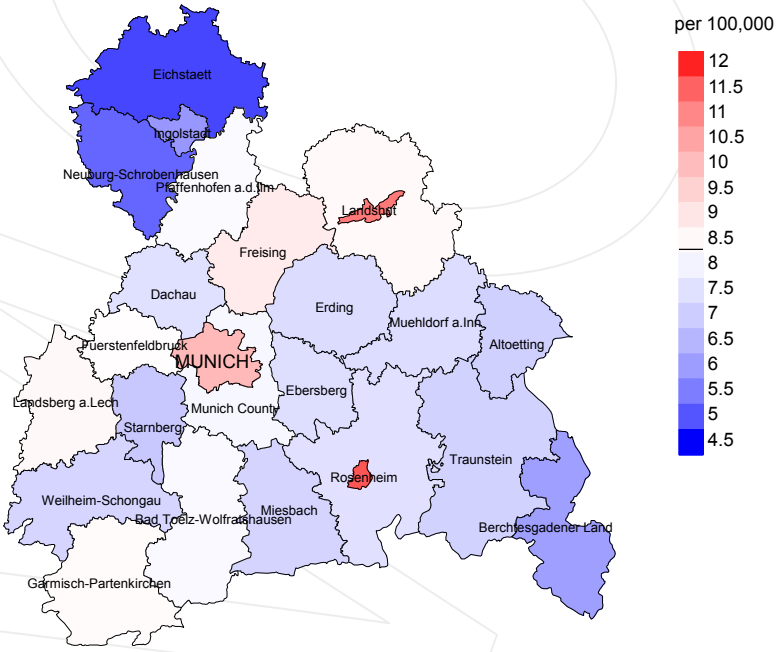


Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2013. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 17.3/100,000 WS N=5,498, females 8.3/100,000 WS N=2,914).

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 67 women died from non-small cell LC. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 7.4/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 5.2 and 10.4/100,000.

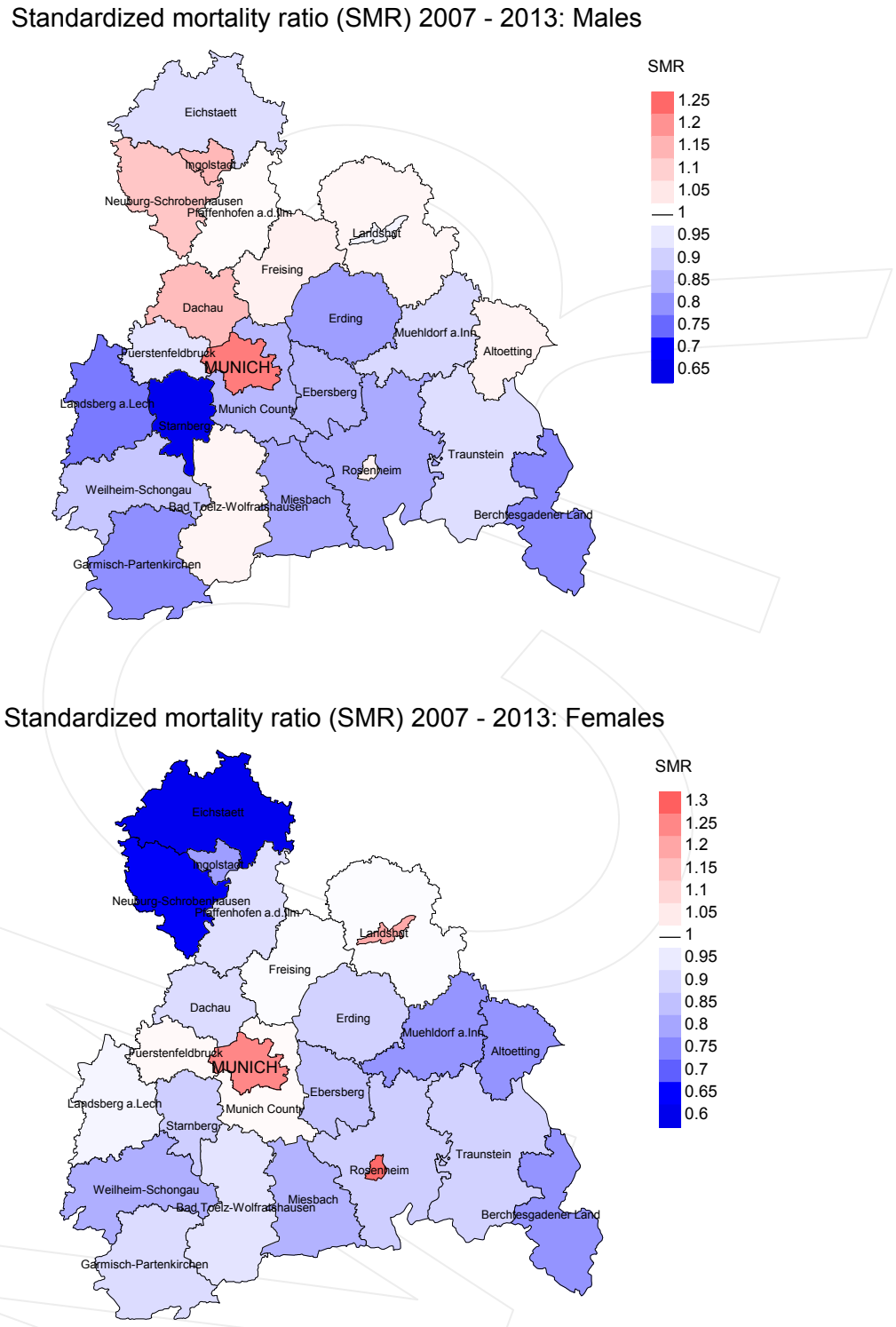


Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=5,498, females N=2,914).

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 67 women died from non-small cell LC. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.86. Though, the value of this parameter may vary with an underlying probability of 99% between 0.61 and 1.16, 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 C33, C34: Non-small cell LC [Internet]. 2015 [updated 2015 May 19; cited 2015 Jul 1]. Available from: http://www.tumorregister-muenchen.de/en/facts/base/base_C34n_E.pdf

Copyright

Disclaimer

Index of figures and tables