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

C82-C85: NHL

Year of diagnosis	1998-2013
Patients	8,806
Diseases	8,866
Creation date	05/19/2015
Export date	12/30/2014
Population	4.64 m

http://www.tumorregister-muenchen.de/en/facts/base/base_C8285E.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
C82.-	Follicular lymphoma
C82.0	Follicular lymphoma grade I
C82.1	Follicular lymphoma grade II
C82.2	Follicular lymphoma grade III, unspecified
C82.3	Follicular lymphoma grade IIIa
C82.4	Follicular lymphoma grade IIIb
C82.5	Diffuse follicle centre lymphoma
C82.6	Cutaneous follicle centre lymphoma
C82.7	Other types of follicular lymphoma
C82.9	Follicular lymphoma, unspecified
C83.-	Non-follicular lymphoma
C83.0	Small cell B-cell lymphoma
C83.1	Mantle cell lymphoma
C83.3	Diffuse large B-cell lymphoma
C83.5	Lymphoblastic (diffuse) lymphoma
C83.7	Burkitt lymphoma
C83.8	Other non-follicular lymphoma
C83.9	Non-follicular (diffuse) lymphoma, unspecified
C84.-	Mature T/NK-cell lymphomas
C84.0	Mycosis fungoides
C84.1	Sézary disease
C84.4	Peripheral T-cell lymphoma, not elsewhere classified
C84.5	Other mature T/NK-cell lymphomas
C84.6	Anaplastic large cell lymphoma, ALK-positive
C84.7	Anaplastic large cell lymphoma, ALK-negative
C84.8	Cutaneous T-cell lymphoma, unspecified
C84.9	Mature T/NK-cell lymphoma, unspecified
C85.-	Other and unspecified types of non-Hodgkin lymphoma
C85.1	B-cell lymphoma, unspecified
C85.2	Mediastinal (thymic) large B-cell lymphoma
C85.7	Other specified types of non-Hodgkin lymphoma
C85.9	Non-Hodgkin lymphoma, unspecified

... if not existing ...

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

Code	Description
9823/3	B-cell lymphocytic leukemia/small lymphocytic lymphoma

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	335	38	11.3	21.5	73.1	99.1	
1999	348	54	15.5	18.7	71.6	98.6	
2000	301	41	13.6	25.2	70.4	99.0	
2001	351	41	11.7	25.4	65.0	98.3	
2002	577	101	17.5	24.1	67.1	98.3	#
2003	578	68	11.8	25.4	58.7	98.3	
2004	607	60	9.9	25.0	55.2	97.0	
2005	561	57	10.2	24.6	53.1	96.3	
2006	629	47	7.5	26.1	52.5	95.2	
2007	710	67	9.4	26.3	53.5	87.6	# ##
2008	674	47	7.0	25.2	49.4	69.0	
2009	736	44	6.0	26.0	42.4	68.5	
2010	709	50	7.1	24.7	41.2	69.7	
2011	709	62	8.7	23.8	42.3	68.8	
2012	635	39	6.1	28.0	34.5	74.2	
2013	406	42	10.3	31.3	34.0	99.5	###
1998-2013	8866	858	9.7	25.3	51.8	86.0	

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	335	175	160	52.2
1999	348	177	171	50.9
2000	301	157	144	52.2
2001	351	168	183	47.9
2002	577	300	277	52.0
2003	578	281	297	48.6
2004	607	312	295	51.4
2005	561	285	276	50.8
2006	629	355	274	56.4
2007	710	371	339	52.3
2008	674	368	306	54.6
2009	736	398	338	54.1
2010	709	379	330	53.5
2011	709	392	317	55.3
2012	635	329	306	51.8
2013	406	217	189	53.4
1998-2013	8866	4664	4202	52.6

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	175	160	15.8	13.6	10.4	6.9	14.5	9.7	18.7	11.9
1999	177	171	15.8	14.4	10.3	7.2	14.3	10.1	18.2	12.5
2000	157	144	13.8	12.0	8.8	5.9	12.3	8.5	15.9	10.7
2001	168	183	14.5	15.0	9.2	7.5	12.9	10.5	16.1	12.9
2002	300	277	16.1	14.1	9.6	6.5	13.7	9.4	17.1	11.8
2003	281	297	15.0	15.1	9.3	7.7	12.9	10.8	15.9	12.9
2004	312	295	16.6	14.9	10.2	7.1	14.2	9.9	16.9	12.5
2005	285	276	15.0	13.9	9.1	6.7	12.5	9.4	15.6	11.6
2006	355	274	18.5	13.6	10.6	6.5	15.0	9.2	18.8	11.4
2007	371	339	16.7	14.7	9.4	6.9	13.5	9.8	17.1	12.2
2008	368	306	16.5	13.2	9.0	6.1	12.7	8.5	16.2	10.6
2009	398	338	17.8	14.5	10.0	6.7	13.8	9.4	17.1	11.8
2010	379	330	16.8	14.1	9.1	6.7	12.9	9.2	16.1	11.5
2011	392	317	17.2	13.4	9.3	6.1	12.9	8.5	16.2	10.5
2012	329	306	14.4	13.0	7.2	6.0	10.5	8.4	13.8	10.3
2013	217	189	9.5	8.0	4.9	3.5	7.0	5.1	9.2	6.4
1998-2013	4664	4202	15.7	13.5	9.0	6.4	12.7	9.0	15.9	11.2

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	335	64.8	16.9	5.9	100	41.9	55.2	67.3	77.5	83.8
1999	348	64.8	17.1	2.8	93.9	41.5	56.2	66.1	78.0	84.4
2000	301	65.2	15.8	11.0	91.6	44.2	57.2	67.7	76.9	82.5
2001	351	64.4	16.3	4.9	98.7	40.7	55.1	66.0	76.9	84.0
2002	577	66.8	15.3	1.2	95.5	45.2	58.8	68.8	78.3	84.7
2003	578	64.8	15.8	1.7	96.3	42.5	55.9	66.8	76.5	82.8
2004	607	65.9	15.0	8.0	97.8	47.7	57.2	66.7	77.2	83.3
2005	561	65.6	15.9	3.4	98.4	44.5	57.7	67.9	77.2	83.9
2006	629	66.4	15.4	1.9	98.5	44.0	59.4	68.6	77.1	83.3
2007	710	67.1	15.7	4.0	101	45.7	57.6	69.5	78.4	84.6
2008	674	67.4	15.6	2.3	96.2	45.7	60.2	70.1	78.1	84.6
2009	736	66.6	15.4	4.3	95.2	45.6	59.3	68.8	77.7	84.4
2010	709	67.3	15.8	0.1	96.7	44.5	60.1	70.3	78.3	85.1
2011	709	67.1	16.0	7.8	99.2	44.3	58.8	70.9	77.8	84.6
2012	635	68.4	14.5	6.4	97.7	48.7	59.1	71.2	78.8	84.4
2013	406	69.1	14.5	1.0	96.3	50.4	62.5	72.0	78.5	84.9
1998-2013	8866	66.6	15.7	0.1	101	45.3	58.2	69.1	77.8	84.1

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	175	62.5	17.2	6.6	91.4	38.0	52.9	65.2	76.3	81.7
1999	177	62.3	17.3	2.8	93.8	38.4	55.7	63.8	74.7	82.5
2000	157	63.3	16.5	11.0	90.0	38.0	56.5	65.3	75.3	81.3
2001	168	62.2	16.0	4.9	90.3	38.5	54.4	64.3	74.2	79.8
2002	300	64.7	14.8	1.2	95.5	43.9	57.8	65.5	74.5	81.8
2003	281	63.0	16.3	1.7	94.3	39.9	54.7	65.9	74.9	81.4
2004	312	63.3	14.6	9.1	97.8	45.5	54.4	64.4	73.6	81.6
2005	285	63.3	16.3	3.4	90.9	42.5	54.8	65.2	75.6	81.2
2006	355	65.2	15.8	1.9	98.5	42.8	58.3	67.7	76.9	80.9
2007	371	65.5	15.9	10.6	94.8	43.5	54.9	68.7	77.4	83.4
2008	368	65.9	15.6	2.3	93.1	43.8	58.3	69.1	76.2	82.3
2009	398	64.5	15.7	9.4	94.8	42.7	54.2	67.8	75.6	82.0
2010	379	66.5	16.1	0.1	92.2	44.9	56.9	69.7	78.1	85.3
2011	392	65.5	15.9	7.8	94.6	43.6	56.7	69.8	77.0	82.7
2012	329	67.6	14.2	11.5	96.0	47.4	57.5	71.0	78.0	83.2
2013	217	68.8	15.6	1.0	96.3	49.4	62.5	72.8	78.8	84.2
1998-2013	4664	64.9	15.8	0.1	98.5	43.3	56.1	67.6	76.4	82.4

Table 3b

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	Median 10%	25%	50%	75%	90%
1998	160	67.4	16.2	5.9	100	46.1	58.5	69.2	79.0	85.7
1999	171	67.3	16.7	4.2	93.9	45.0	56.9	72.0	79.5	87.3
2000	144	67.3	14.8	22.0	91.6	48.7	57.4	70.5	78.8	84.4
2001	183	66.5	16.3	27.1	98.7	41.4	57.6	69.1	79.4	86.4
2002	277	69.0	15.5	6.6	94.6	46.3	60.0	72.4	80.2	87.2
2003	297	66.5	15.2	10.9	96.3	47.0	57.8	67.6	78.4	84.3
2004	295	68.8	15.0	8.0	94.2	49.7	61.9	70.2	79.7	84.2
2005	276	68.1	15.1	10.7	98.4	48.8	61.1	69.3	78.9	85.3
2006	274	68.0	14.8	19.9	95.8	47.5	61.1	70.0	77.8	84.9
2007	339	68.8	15.4	4.0	101	48.6	60.7	71.3	80.0	85.7
2008	306	69.2	15.5	5.4	96.2	46.7	62.6	70.8	80.3	86.0
2009	338	69.2	14.7	4.3	95.2	50.4	62.1	70.6	80.1	85.9
2010	330	68.3	15.4	10.6	96.7	44.5	62.1	71.0	79.2	84.8
2011	317	69.1	15.9	14.1	99.2	47.8	61.5	72.1	79.6	87.8
2012	306	69.1	14.8	6.4	97.7	49.5	61.4	71.3	80.1	86.7
2013	189	69.4	13.1	23.0	91.8	50.8	62.6	71.5	77.9	85.8
1998-2013	4202	68.4	15.3	4.0	101	48.1	60.2	70.8	79.4	85.7

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	16	0.2	0.2	13	0.3	0.3	3	0.1	0.1
5-9	22	0.2	0.4	13	0.3	0.6	9	0.2	0.3
10-14	21	0.2	0.7	13	0.3	0.8	8	0.2	0.5
15-19	37	0.4	1.1	26	0.6	1.4	11	0.3	0.7
20-24	64	0.7	1.8	42	0.9	2.3	22	0.5	1.3
25-29	90	1.0	2.8	47	1.0	3.3	43	1.0	2.3
30-34	137	1.5	4.4	83	1.8	5.1	54	1.3	3.6
35-39	191	2.2	6.5	111	2.4	7.5	80	1.9	5.5
40-44	291	3.3	9.8	179	3.8	11.3	112	2.7	8.1
45-49	396	4.5	14.3	254	5.4	16.7	142	3.4	11.5
50-54	548	6.2	20.4	309	6.6	23.4	239	5.7	17.2
55-59	690	7.8	28.2	380	8.1	31.5	310	7.4	24.6
60-64	952	10.7	39.0	513	11.0	42.5	439	10.4	35.0
65-69	1204	13.6	52.5	652	14.0	56.5	552	13.1	48.2
70-74	1291	14.6	67.1	685	14.7	71.2	606	14.4	62.6
75-79	1229	13.9	81.0	642	13.8	84.9	587	14.0	76.6
80-84	943	10.6	91.6	427	9.2	94.1	516	12.3	88.8
85+	744	8.4	100.0	275	5.9	100.0	469	11.2	100.0
All ages	8866	100.0		4664	100.0		4202	100.0	

Included in the statistics are 34.8% multiple primaries in males and 29.4% 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=433 %	Females DCO rate n=425 %	Males Prop.all cancers n=158258 %	Females Prop.all cancers n=153136 %
0- 4	13	3	0.9	0.2	7.7		4.0	1.2
5- 9	13	9	0.9	0.6			7.4	7.2
10-14	13	8	0.8	0.6			7.8	4.7
15-19	26	11	1.7	0.7	3.8		7.3	3.8
20-24	42	22	2.4	1.2		4.5	6.8	4.2
25-29	47	43	2.3	2.1			4.9	3.9
30-34	83	54	3.6	2.4	4.8		5.5	2.6
35-39	111	80	4.5	3.4	0.9	3.8	4.9	2.1
40-44	178	112	6.8	4.5	1.7	2.7	5.6	1.8
45-49	254	142	10.8	6.1	3.1	2.1	4.8	1.6
50-54	307	239	15.2	11.6	3.9	2.9	3.6	2.2
55-59	379	310	20.7	16.1	4.0	3.2	2.6	2.3
60-64	513	437	28.9	23.3	5.7	2.7	2.4	2.5
65-69	652	552	41.3	32.0	6.0	4.0	2.4	2.9
70-74	683	605	53.3	39.8	10.4	9.1	2.5	3.3
75-79	642	587	77.7	49.4	12.8	11.9	3.1	3.3
80-84	426	514	85.1	55.1	17.8	18.3	3.1	3.3
85+	274	469	80.3	52.5	33.2	30.9	2.8	2.7
All ages	4656	4197			9.3	10.1	2.9	2.7
Incidence								
Raw			15.7	13.5				
WS			9.0	6.4				
ES			12.6	9.0				
BRD-S			15.9	11.2				

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 %
C03-C06	Oral cavity	6	1.5	4.1	1.5	8.8	#	4.0	
C07-C08	Salivary gland	2	0.4	5.4	0.6	19.4		1.4	
C09-C10	Oropharynx	3	1.8	1.7	0.3	4.9		1.1	
C15	Oesophagus	4	3.0	1.3	0.4	3.4		0.9	
C16	Stomach	13	7.0	1.9	1.0	3.2		5.3	7.7
C18	Colon	23	16.5	1.4	0.9	2.1		5.7	4.3
C19-C20	Rectum	15	9.3	1.6	0.9	2.7		5.0	6.7
C21	Anus/canal	4	0.4	11.3	3.1	28.8	#	3.2	
C22	Liver	6	4.6	1.3	0.5	2.9		1.3	33.3
C25	Pancreas	9	6.0	1.5	0.7	2.9		2.6	
C32	Larynx	4	1.7	2.3	0.6	5.9		2.0	
C33-C34	Lung	42	19.7	2.1	1.5	2.9	#	19.6	9.5
C38,C45	Mesothelioma	4	1.1	3.7	1.0	9.4	#	2.6	
C43	Malign. melanoma	26	6.8	3.8	2.5	5.6	#	16.8	
C46,C49	Soft tissue	7	0.9	7.7	3.1	15.9	#	5.3	
C61	Prostate	73	49.1	1.5	1.2	1.9	#	20.9	2.7
C64	Kidney	25	5.9	4.3	2.8	6.3	#	16.8	
C66	Ureter	4	0.4	10.5	2.9	26.9	#	3.2	
C67	Bladder	16	7.4	2.1	1.2	3.5	#	7.5	
C68	Urethra	2	0.1	18.6	2.2	67.1	#	1.7	
C70-C72	CNS cancer	4	2.3	1.8	0.5	4.5		1.5	50.0
C73	Thyroid	2	1.2	1.7	0.2	6.3		0.7	
C76-C79	CUP	9	2.9	3.1	1.4	6.0	#	5.4	
C81	Hodgkin lymphoma	7	0.4	18.3	7.4	37.7	#	5.8	14.3
C82-C85	NHL	21	6.7	3.1	1.9	4.8	#	12.5	4.8
C90	Mult. myeloma	8	2.1	3.8	1.6	7.4	#	5.1	
C91-C96	Leukaemia	18	2.7	6.6	3.9	10.4	#	13.4	11.1
Other primaries		10	3.8	2.6	1.3	4.8	#	5.4	10.0
Not observed		0	3.9	0.0	0.0	0.9	#	-3.4	
All mult. primaries		367	169.4	2.2	2.0	2.4	#	173.2	4.9

Patients	2967
Median age at second malignancy (years)	70.9
Person-years	11410
Mean observation time (years)	3.8
Median observation time (years)	2.7

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 1998-2013
FEMALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C07-C08	Salivary gland	2	0.2	9.7	1.2	35.0	#	1.6	50.0
C16	Stomach	9	4.7	1.9	0.9	3.6		3.7	11.1
C17	Small intestine	2	0.6	3.3	0.4	12.1		1.2	
C18	Colon	19	13.0	1.5	0.9	2.3		5.2	5.3
C19-C20	Rectum	8	5.6	1.4	0.6	2.8		2.1	12.5
C21	Anus/canal	2	0.7	3.0	0.4	10.9		1.2	
C22	Liver	6	1.5	4.0	1.5	8.8	#	3.9	16.7
C23-C24	Bile	4	1.9	2.1	0.6	5.4		1.8	
C25	Pancreas	8	5.7	1.4	0.6	2.8		2.0	12.5
C33-C34	Lung	28	9.0	3.1	2.1	4.5	#	16.5	7.1
C43	Malign. melanoma	12	4.5	2.6	1.4	4.6	#	6.5	
C46,C49	Soft tissue	3	0.7	4.1	0.9	12.1		2.0	
C50	Breast	73	38.4	1.9	1.5	2.4	#	30.1	2.7
C51	Vulva	4	1.3	3.1	0.9	8.0		2.4	
C53	Cervix uteri	5	1.7	2.9	0.9	6.8		2.9	20.0
C54	Corpus uteri	11	7.1	1.5	0.8	2.8		3.4	
C56	Ovary	10	5.3	1.9	0.9	3.5		4.1	10.0
C64	Kidney	7	3.2	2.2	0.9	4.5		3.3	
C67	Bladder	3	2.4	1.2	0.3	3.6		0.5	
C69	Eye lymphoma	3	0.0	64.1	13.2	187.4	#	2.6	
C73	Thyroid	7	2.3	3.1	1.2	6.4	#	4.1	14.3
C76-C79	CUP	4	2.3	1.8	0.5	4.5		1.5	
C82-C85	NHL	20	5.0	4.0	2.5	6.2	#	13.1	
C90	Mult. myeloma	3	1.6	1.9	0.4	5.5		1.2	
C91-C96	Leukaemia	16	2.1	7.8	4.5	12.7	#	12.1	18.8
Other primaries		8	4.5	1.8	0.8	3.5		3.1	12.5
Not observed		0	3.4	0.0	0.0	1.1		-2.9	
All mult. primaries		277	128.6	2.2	1.9	2.4	#	128.8	6.1

Patients	2702
Median age at second malignancy (years)	74.4
Person-years	11523
Mean observation time (years)	4.3
Median observation time (years)	3.4

The occurrence of second malignancy is statistically significant.

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

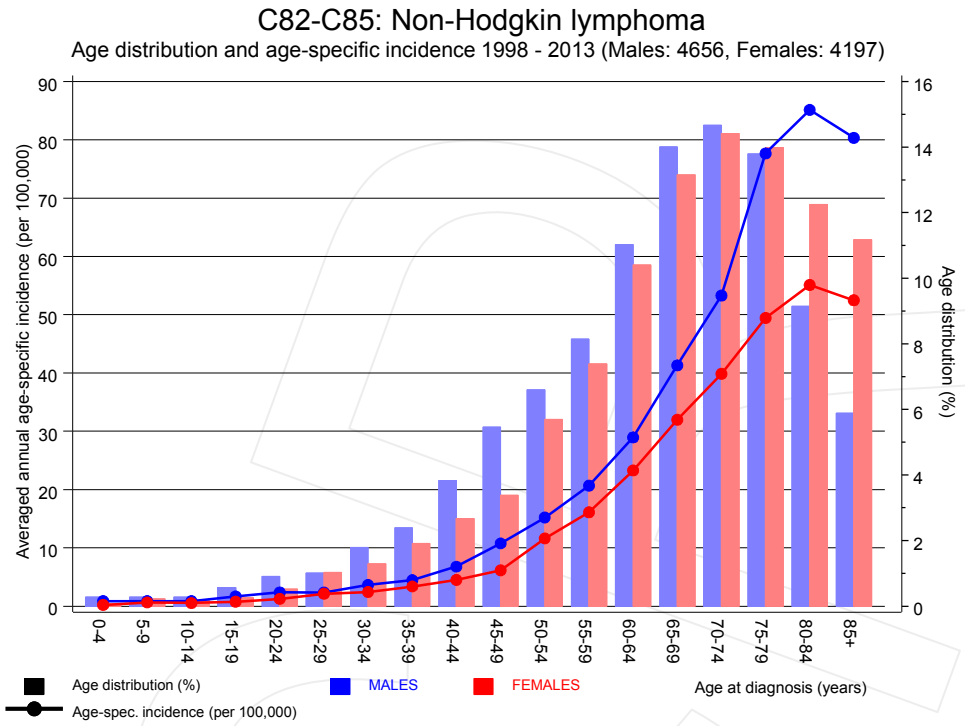


Figure 7. Age distribution and age-specific incidence

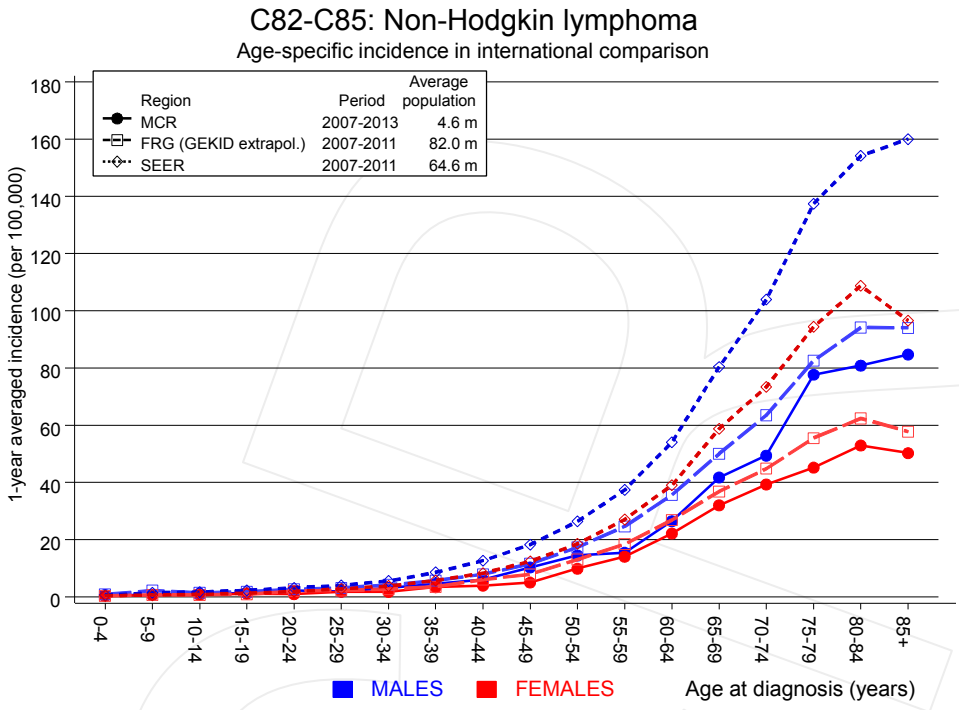


Figure 7a. Age-specific incidence in MCR registry areas compared to Germany (FRG, GEKID extrapolation) and SEER (Surveillance, Epidemiology, and End Results, USA).

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, 2014. http://www.gekid.de. Last access: 02/11/2015

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.

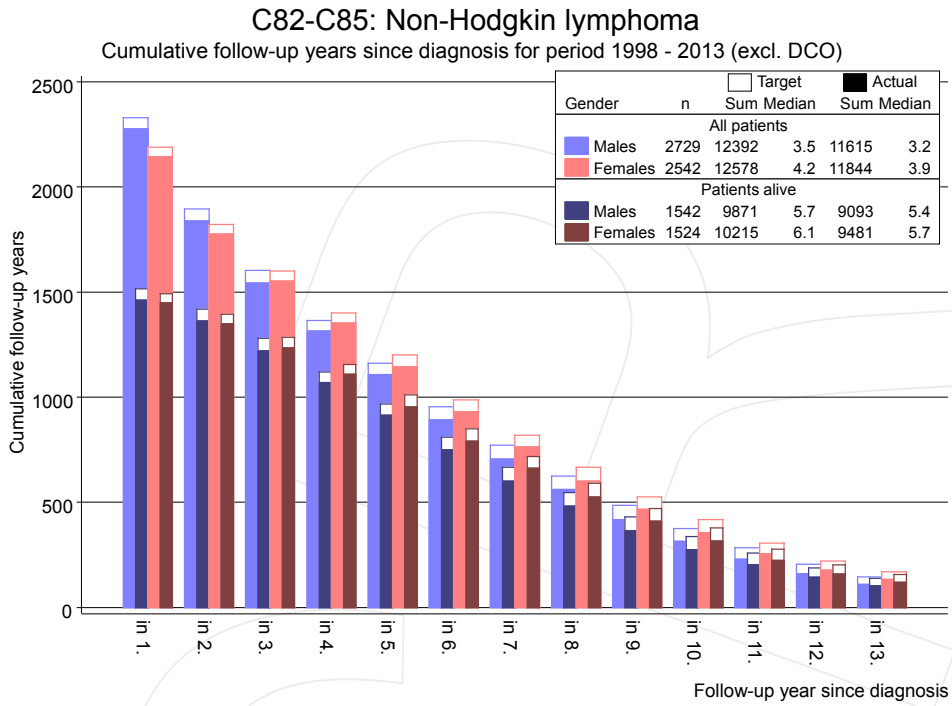
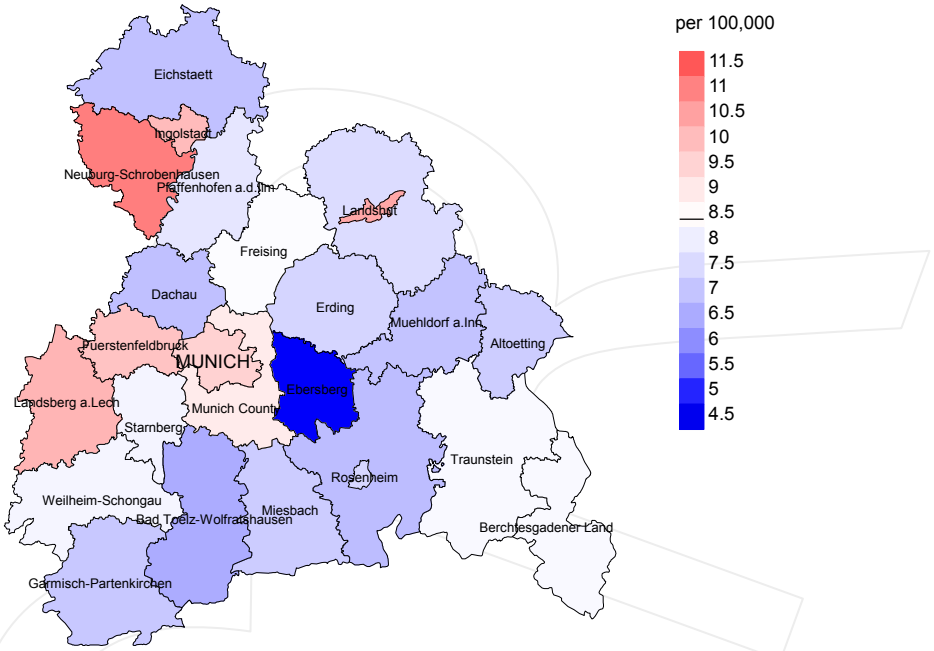


Figure 8. Cumulative follow-up years depending on time since diagnosis

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

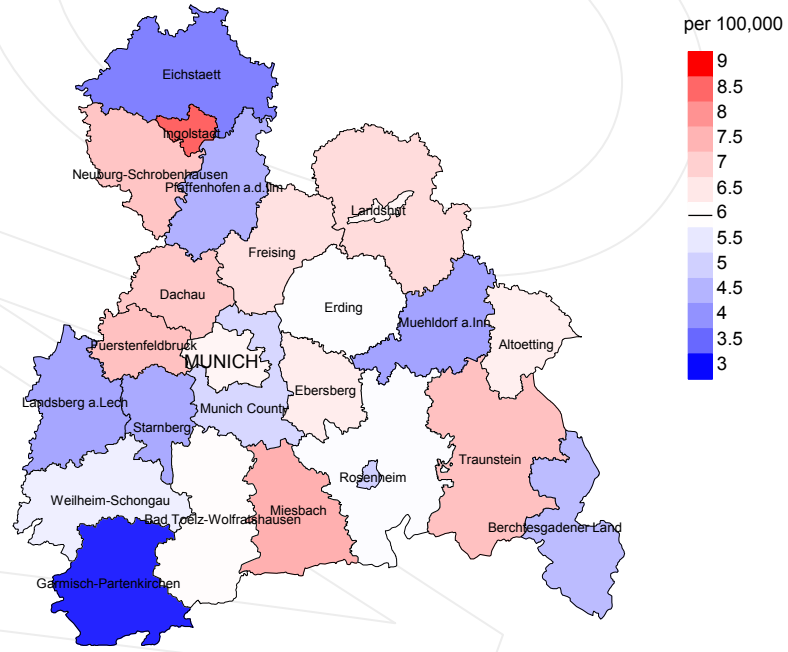


Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 8.4/100,000 WS N=2,448, females 6.0/100,000 WS N=2,122).

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 51 women were identified with newly diagnosed NHL. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 6.4/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 4.0 and 10.4/100,000.

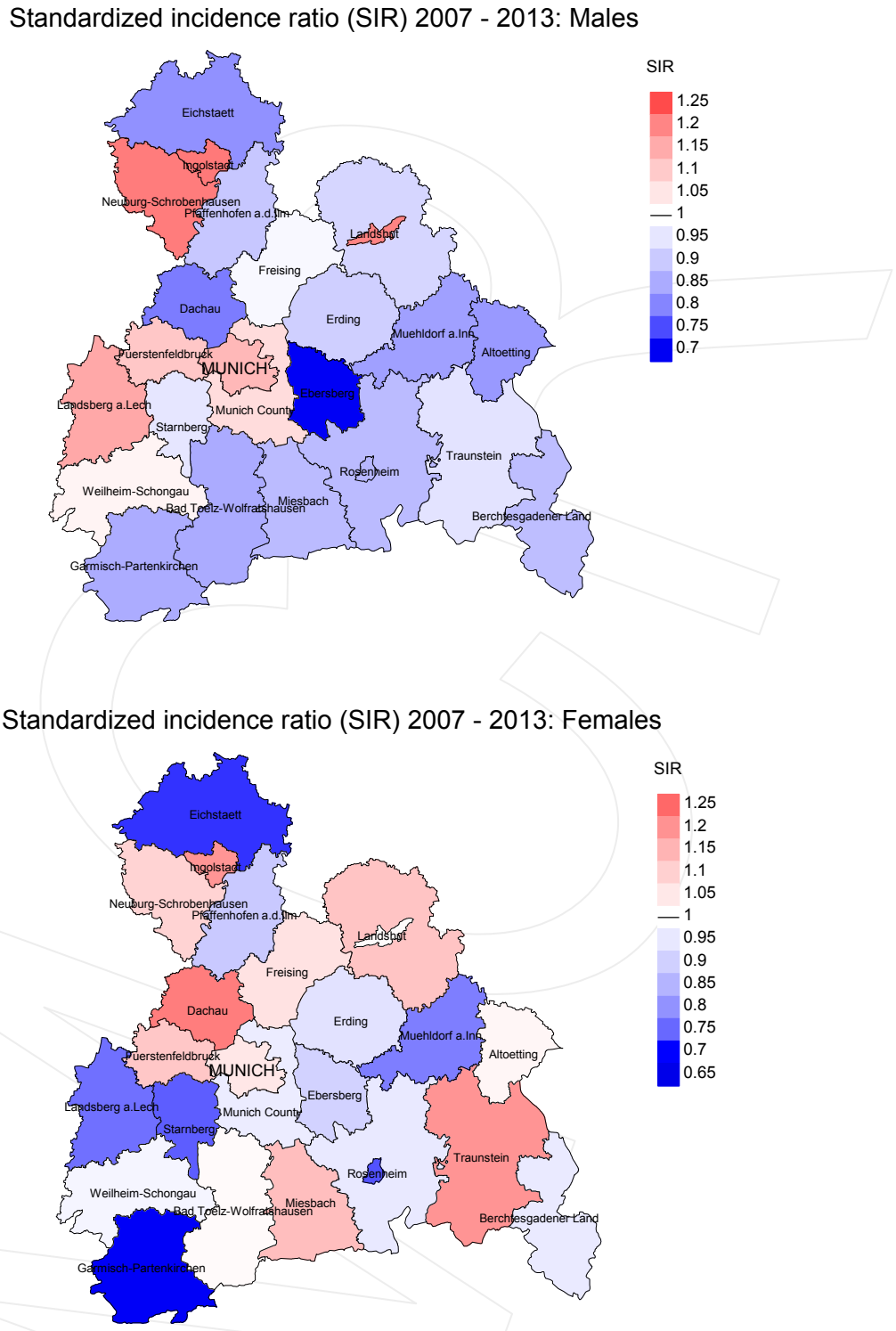


Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=2,448, females N=2,122).

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 51 women were identified with newly diagnosed NHL. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.90. Though, the value of this parameter may vary with an underlying probability of 99% between 0.61 and 1.28, 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 %	Prop. DCO %	Deaths n	Prop. deaths %	Prop. deaths with death certific. %
1998	335	99.1	11.3	245	73.1	93.5
1999	348	98.6	15.5	249	71.6	94.8
2000	301	99.0	13.6	212	70.4	97.6
2001	351	98.3	11.7	228	65.0	96.1
2002	577	98.3	17.5	387	67.1	96.1
2003	578	98.3	11.8	339	58.7	97.9
2004	607	97.0	9.9	335	55.2	97.9
2005	561	96.3	10.2	298	53.1	99.3
2006	629	95.2	7.5	330	52.5	97.3
2007	710	87.6	9.4	380	53.5	97.9
2008	674	69.0	7.0	333	49.4	98.2
2009	736	68.5	6.0	312	42.4	97.4
2010	709	69.7	7.1	292	41.2	96.6
2011	709	68.8	8.7	300	42.3	97.7
2012	635	74.2	6.1	219	34.5	94.5
2013	406	99.5	10.3	138	34.0	87.0
1998-2013	8866	86.0	9.7	4597	51.8	96.7

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	335	192	95.8	74	22.1
1999	348	225	92.9	87	25.0
2000	301	189	96.3	65	21.6
2001	351	212	96.7	71	20.2
2002	577	319	97.2	151	26.2
2003	578	322	97.5	131	22.7
2004	607	337	97.3	127	20.9
2005	561	320	97.5	115	20.5
2006	629	362	98.6	121	19.2
2007	710	416	96.9	164	23.1
2008	674	381	98.2	135	20.0
2009	736	424	98.3	152	20.7
2010	709	406	98.0	138	19.5
2011	709	419	98.3	137	19.3
2012	635	460	98.7	135	21.3
2013	406	411	98.5	99	24.4
1998-2013	8866	5395	97.6	1902	21.5

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	192	67.7	32.3	92.4
1999	225	73.8	26.2	92.8
2000	189	83.1	16.9	92.9
2001	212	81.1	18.9	93.7
2002	319	81.8	18.2	91.9
2003	322	80.7	19.3	92.4
2004	337	86.1	13.9	93.6
2005	320	80.0	20.0	92.3
2006	362	80.1	19.9	89.9
2007	416	82.2	17.8	91.1
2008	381	79.5	20.5	88.8
2009	424	78.5	21.5	87.1
2010	406	75.9	24.1	83.7
2011	419	76.8	23.2	85.0
2012	460	78.0	22.0	85.7
2013	411	73.5	26.5	82.2
1998-2013	5395	78.8	21.2	89.0

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	94	73.2	71.0	80.2	72.9
1999	125	72.0	66.4	77.0	72.0
2000	99	69.4	68.3	73.6	69.7
2001	98	68.3	67.6	78.1	67.9
2002	165	73.2	72.8	75.7	73.0
2003	164	71.7	69.9	77.0	71.5
2004	172	73.7	73.7	74.3	73.9
2005	172	74.9	74.9	73.7	74.9
2006	192	72.4	71.7	78.3	72.2
2007	224	72.5	72.3	75.1	72.1
2008	204	73.9	73.4	76.5	73.5
2009	233	75.6	74.9	80.9	74.9
2010	227	75.4	73.6	78.3	73.9
2011	226	75.1	73.7	79.9	74.2
2012	248	75.7	75.4	77.1	75.5
2013	232	78.1	77.3	82.1	77.6
1998-2013	2875	74.0	73.1	78.0	73.4

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	98	80.1	75.5	84.0	80.2
1999	100	78.5	76.7	84.4	79.1
2000	90	77.8	76.9	85.1	75.9
2001	114	78.2	76.7	84.5	77.9
2002	154	78.4	77.5	81.9	78.4
2003	158	78.2	76.0	82.8	77.0
2004	165	78.0	77.9	80.3	78.0
2005	148	79.3	76.5	85.4	78.3
2006	170	78.0	77.4	83.3	77.2
2007	192	79.4	78.6	81.2	78.6
2008	177	80.4	78.1	84.6	79.2
2009	191	81.2	79.8	85.1	80.3
2010	179	78.8	76.7	84.9	78.3
2011	193	79.0	77.7	83.0	77.9
2012	212	79.4	78.4	84.5	78.6
2013	179	79.0	77.3	83.4	77.5
1998-2013	2520	78.8	77.5	83.9	78.3

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	61	5.5	0.35	3.4	0.32	5.1	0.35	7.1	0.38
1999	93	8.3	0.53	5.1	0.49	7.4	0.52	9.5	0.52
2000	82	7.2	0.52	4.4	0.50	6.4	0.52	8.5	0.54
2001	82	7.1	0.49	4.3	0.47	6.3	0.49	8.1	0.50
2002	138	7.4	0.46	4.1	0.43	6.3	0.47	8.6	0.50
2003	137	7.3	0.49	4.0	0.44	6.0	0.47	8.1	0.51
2004	147	7.8	0.47	4.0	0.40	6.3	0.45	8.8	0.52
2005	143	7.5	0.50	3.6	0.39	5.8	0.46	8.4	0.54
2006	151	7.9	0.43	3.9	0.37	6.1	0.41	8.2	0.44
2007	183	8.3	0.49	4.3	0.45	6.5	0.48	8.7	0.51
2008	167	7.5	0.45	3.6	0.40	5.6	0.44	7.7	0.48
2009	179	8.0	0.45	3.7	0.37	5.8	0.42	8.1	0.47
2010	179	7.9	0.47	3.7	0.40	5.6	0.43	7.8	0.49
2011	169	7.4	0.43	3.4	0.37	5.2	0.40	7.1	0.44
2012	186	8.1	0.57	3.6	0.50	5.6	0.53	7.9	0.57
2013	167	7.3	0.78	3.0	0.63	5.0	0.72	7.1	0.78
1998-2013	2264	7.6	0.49	3.8	0.42	5.9	0.46	8.1	0.51

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	69	5.9	0.43	2.5	0.36	3.7	0.38	4.9	0.41
1999	73	6.2	0.43	2.4	0.33	3.8	0.37	5.4	0.43
2000	75	6.2	0.52	2.4	0.40	3.8	0.44	5.0	0.47
2001	90	7.4	0.49	3.0	0.40	4.6	0.44	6.2	0.48
2002	123	6.3	0.45	2.3	0.36	3.6	0.38	5.0	0.42
2003	123	6.2	0.41	2.5	0.33	3.7	0.35	5.0	0.38
2004	143	7.2	0.48	2.7	0.39	4.2	0.42	5.9	0.47
2005	113	5.7	0.41	2.1	0.31	3.2	0.35	4.4	0.38
2006	139	6.9	0.51	2.5	0.39	3.9	0.43	5.3	0.47
2007	159	6.9	0.47	2.4	0.35	3.8	0.39	5.1	0.42
2008	136	5.9	0.44	2.0	0.33	3.1	0.37	4.3	0.40
2009	154	6.6	0.46	2.0	0.30	3.3	0.35	4.7	0.40
2010	131	5.6	0.40	2.0	0.30	3.0	0.33	4.2	0.36
2011	153	6.5	0.48	2.2	0.36	3.4	0.40	4.7	0.45
2012	173	7.3	0.57	2.3	0.39	3.7	0.44	5.1	0.50
2013	135	5.7	0.72	1.9	0.54	3.0	0.59	4.2	0.66
1998-2013	1989	6.4	0.47	2.3	0.36	3.6	0.39	4.9	0.44

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.%
0-4	1	0.0	0.0	1	0.0	0.0			0.0
5-9	6	0.1	0.2	5	0.2	0.3	1	0.0	0.0
10-14	3	0.1	0.2	2	0.1	0.4	1	0.0	0.1
15-19	5	0.1	0.3	4	0.2	0.5	1	0.0	0.1
20-24	10	0.2	0.6	6	0.3	0.8	4	0.2	0.3
25-29	10	0.2	0.8	4	0.2	1.0	6	0.3	0.6
30-34	21	0.5	1.3	15	0.7	1.6	6	0.3	0.9
35-39	32	0.7	2.0	24	1.1	2.7	8	0.4	1.3
40-44	59	1.4	3.4	41	1.8	4.5	18	0.9	2.2
45-49	95	2.2	5.6	63	2.8	7.2	32	1.6	3.8
50-54	143	3.3	9.0	86	3.8	11.0	57	2.8	6.7
55-59	240	5.6	14.5	145	6.4	17.3	95	4.7	11.4
60-64	343	8.0	22.5	215	9.4	26.8	128	6.4	17.7
65-69	507	11.8	34.3	293	12.8	39.6	214	10.6	28.4
70-74	668	15.5	49.9	377	16.5	56.1	291	14.5	42.8
75-79	740	17.2	67.1	409	17.9	74.0	331	16.4	59.3
80-84	744	17.3	84.4	343	15.0	89.0	401	19.9	79.2
85+	669	15.6	100.0	250	11.0	100.0	419	20.8	100.0
All ages	4296	100.0		2283	100.0		2013	100.0	

Included in the statistics are 34.8% multiple primaries in males and 29.4% 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	1		0.1	0.08	0.0		3.0	
5- 9	5	1	0.3	0.38	0.1	0.11	13.2	2.5
10-14	2	1	0.1	0.15	0.1	0.13	5.7	3.2
15-19	4	1	0.3	0.15	0.1	0.09	8.9	2.7
20-24	6	4	0.3	0.14	0.2	0.18	6.7	7.8
25-29	4	6	0.2	0.09	0.3	0.14	3.7	5.2
30-34	15	6	0.7	0.18	0.3	0.11	8.1	2.6
35-39	24	8	1.0	0.22	0.3	0.10	6.0	1.5
40-44	41	18	1.6	0.23	0.7	0.16	4.8	1.6
45-49	63	32	2.7	0.25	1.4	0.23	3.5	1.6
50-54	86	57	4.3	0.28	2.8	0.24	2.6	1.8
55-59	145	95	7.9	0.38	4.9	0.31	2.5	2.0
60-64	215	128	12.1	0.42	6.8	0.29	2.4	2.0
65-69	293	214	18.6	0.45	12.4	0.39	2.5	2.6
70-74	377	291	29.4	0.55	19.2	0.48	2.8	2.9
75-79	409	331	49.5	0.64	27.9	0.56	3.1	3.1
80-84	343	401	68.6	0.80	43.0	0.78	3.2	3.6
85+	250	419	73.3	0.91	46.9	0.89	2.8	3.1
All ages	2283	2013					2.8	2.8
Mortality								
Raw			7.7	0.49	6.5	0.48		
WS			3.8	0.43	2.3	0.36		
ES			5.9	0.47	3.6	0.40		
BRD-S			8.1	0.51	4.9	0.44		
PYLL-70								
per 100,000			40.0		22.6			
ES			36.2		19.8			
AYLL-70			11.8		10.5			

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

Table 15a

Multiple primaries in deaths in period 1998-2013
MALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C16	Stomach	35	3.6	12	34.3	8	22.9	15	42.9
C18	Colon	63	6.5	31	49.2	12	19.0	20	31.7
C19-C20	Rectum	36	3.7	15	41.7	5	13.9	16	44.4
C22	Liver	16	1.7	3	18.8	2	12.5	11	68.8
C25	Pancreas	20	2.1			3	15.0	17	85.0
C32	Larynx	10	1.0	6	60.0	2	20.0	2	20.0
C33-C34	Lung	89	9.2	16	18.0	11	12.4	62	69.7
C43	Malign. melanoma	36	3.7	17	47.2	3	8.3	16	44.4
C44	Skin others	116	12.0	27	23.3	10	8.6	79	68.1
C46,C49	Soft tissue	11	1.1	7	63.6	1	9.1	3	27.3
C61	Prostate	156	16.1	93	59.6	23	14.7	40	25.6
C64	Kidney	34	3.5	24	70.6	5	14.7	5	14.7
C67	Bladder	52	5.4	25	48.1	7	13.5	20	38.5
C70-C72	CNS cancer	19	2.0	7	36.8	4	21.1	8	42.1
C76-C79	CUP	19	2.0	3	15.8	2	10.5	14	73.7
C81	Hodgkin lymphoma	24	2.5	14	58.3	2	8.3	8	33.3
C82-C85	NHL	46	4.8			2	4.3	44	95.7
C90	Mult. myeloma	30	3.1	13	43.3	12	40.0	5	16.7
C91-C96	Leukaemia	57	5.9	21	36.8	8	14.0	28	49.1
Other primaries		97	10.0	40	41.2	12	12.4	45	46.4
All mult. primaries		966	100.0	374	38.7	134	13.9	458	47.4

Multiple primaries with number of cases 1 to 9 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 ←%
C16	Stomach	29	4.0	9	31.0	3	10.3	17	58.6
C18	Colon	49	6.7	19	38.8	6	12.2	24	49.0
C19-C20	Rectum	17	2.3	9	52.9	2	11.8	6	35.3
C21	Anus/canal	10	1.4	4	40.0	1	10.0	5	50.0
C23-C24	Bile	10	1.4	1	10.0	1	10.0	8	80.0
C25	Pancreas	13	1.8			2	15.4	11	84.6
C33-C34	Lung	46	6.3	5	10.9	3	6.5	38	82.6
C43	Malign. melanoma	22	3.0	11	50.0	1	4.5	10	45.5
C44	Skin others	63	8.6	23	36.5	3	4.8	37	58.7
C50	Breast	173	23.6	107	61.8	15	8.7	51	29.5
C53	Cervix uteri	15	2.0	10	66.7	1	6.7	4	26.7
C54	Corpus uteri	21	2.9	19	90.5			2	9.5
C56	Ovary	23	3.1	6	26.1	3	13.0	14	60.9
C64	Kidney	15	2.0	7	46.7	3	20.0	5	33.3
C67	Bladder	15	2.0	7	46.7			8	53.3
C70-C72	CNS cancer	17	2.3	6	35.3	2	11.8	9	52.9
C73	Thyroid	8	1.1	6	75.0			2	25.0
C76-C79	CUP	12	1.6	4	33.3			8	66.7
C81	Hodgkin lymphoma	13	1.8	11	84.6			2	15.4
C82-C85	NHL	42	5.7			1	2.4	41	97.6
C90	Mult. myeloma	28	3.8	11	39.3	10	35.7	7	25.0
C91-C96	Leukaemia	39	5.3	6	15.4	3	7.7	30	76.9
Other primaries		54	7.4	21	38.9	7	13.0	26	48.1
All mult. primaries		734	100.0	302	41.1	67	9.1	365	49.7

Multiple primaries with number of cases 1 to 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 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	5	1	0.3	0.38	0.1	0.11	13.9	2.7
10-14	2	1	0.1	0.15	0.1	0.13	5.7	3.4
15-19	4	1	0.3	0.16	0.1	0.10	9.5	3.0
20-24	5	4	0.3	0.13	0.2	0.19	6.0	8.5
25-29	4	6	0.2	0.09	0.3	0.15	4.0	5.5
30-34	15	5	0.7	0.18	0.2	0.10	8.3	2.5
35-39	21	7	0.8	0.20	0.3	0.09	5.6	1.5
40-44	34	18	1.3	0.21	0.7	0.17	4.3	1.8
45-49	58	31	2.5	0.24	1.3	0.24	3.5	1.8
50-54	76	51	3.8	0.28	2.5	0.23	2.6	2.0
55-59	134	88	7.3	0.39	4.6	0.32	2.6	2.2
60-64	182	113	10.3	0.43	6.0	0.31	2.4	2.1
65-69	250	166	15.8	0.46	9.6	0.36	2.6	2.5
70-74	293	236	22.9	0.56	15.5	0.50	2.7	3.0
75-79	317	281	38.4	0.70	23.7	0.58	3.2	3.3
80-84	242	322	48.4	0.81	34.5	0.79	3.0	3.6
85+	178	341	52.2	0.88	38.2	0.89	2.6	3.1
All ages	1820	1672					2.8	2.9
Mortality								
Raw			6.1	0.48	5.4	0.47		
WS			3.1	0.41	2.0	0.36		
ES			4.8	0.45	3.0	0.39		
BRD-S			6.4	0.50	4.1	0.44		
PYLL-70								
per 100,000			35.6		20.7			
ES			32.3		18.2			
AYLL-70			12.1		11.1			

* 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	5	1	0.3	0.38	0.1	0.11	14.3	2.8
10-14	2	1	0.1	0.15	0.1	0.13	5.7	3.7
15-19	4	1	0.3	0.17	0.1	0.10	9.5	3.6
20-24	5	4	0.3	0.13	0.2	0.19	6.3	9.1
25-29	4	5	0.2	0.10	0.2	0.13	4.3	4.9
30-34	13	4	0.6	0.16	0.2	0.08	7.4	2.2
35-39	20	7	0.8	0.21	0.3	0.09	5.6	1.6
40-44	31	16	1.2	0.20	0.6	0.16	4.1	1.7
45-49	54	27	2.3	0.25	1.2	0.23	3.5	1.7
50-54	61	45	3.0	0.25	2.2	0.22	2.3	1.9
55-59	117	77	6.4	0.39	4.0	0.31	2.5	2.2
60-64	151	91	8.5	0.40	4.9	0.28	2.3	2.0
65-69	206	127	13.0	0.45	7.4	0.31	2.5	2.2
70-74	239	202	18.7	0.52	13.3	0.47	2.7	3.1
75-79	258	240	31.2	0.64	20.2	0.54	3.2	3.3
80-84	209	275	41.8	0.77	29.5	0.73	3.3	3.7
85+	148	301	43.4	0.76	33.7	0.81	2.7	3.2
All ages	1527	1424					2.8	2.8
Mortality								
Raw			5.1	0.45	4.6	0.44		
WS			2.6	0.39	1.7	0.33		
ES			4.0	0.43	2.6	0.36		
BRD-S			5.4	0.47	3.5	0.41		
PYLL-70								
per 100,000			31.5		17.9			
ES			28.7		15.9			
AYLL-70			12.5		11.7			

* See corresponding tables with multiple primaries.

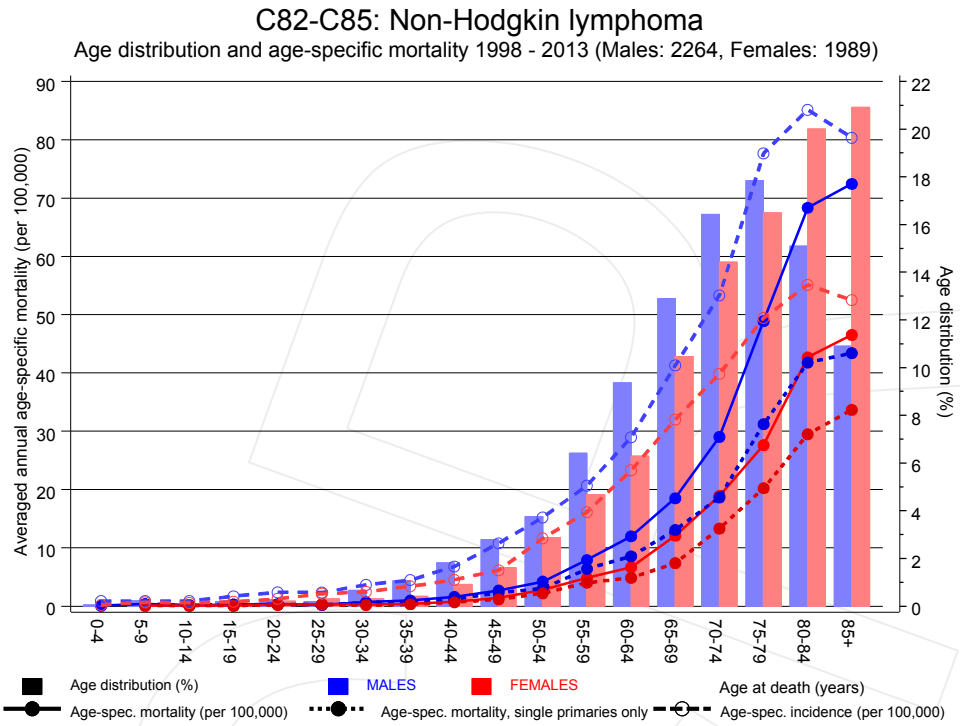
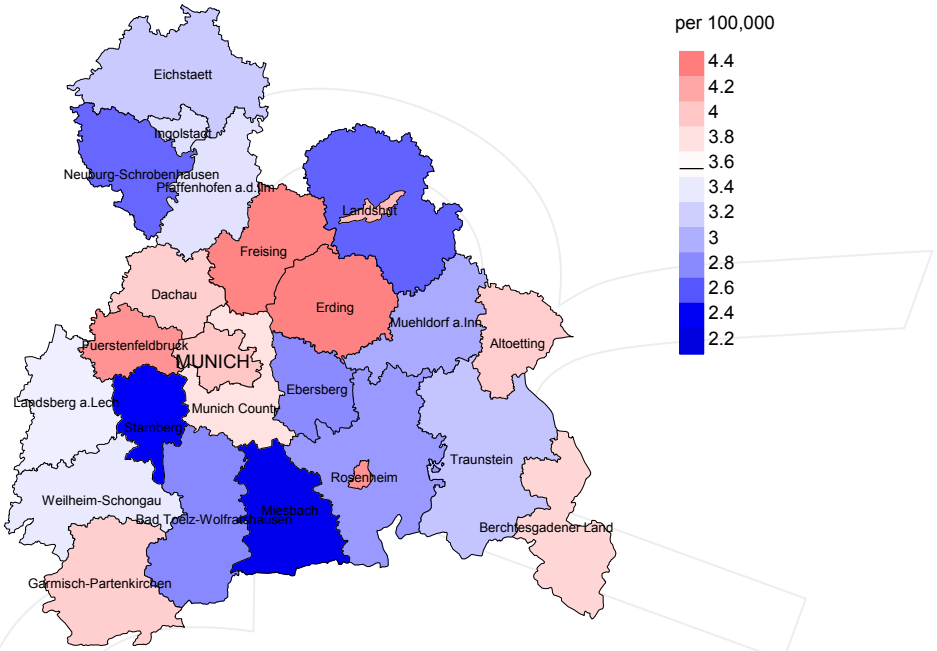


Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

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



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

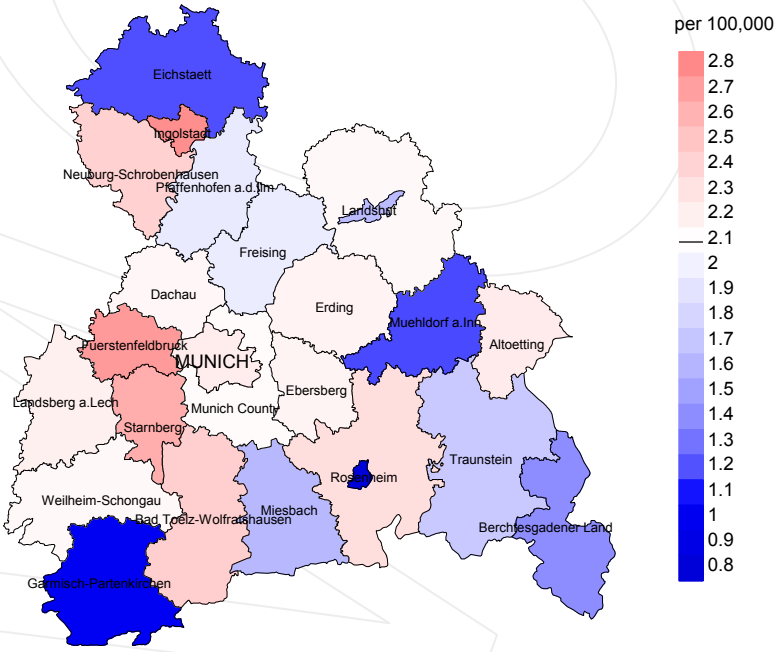


Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2013. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 3.6/100,000 WS N=1,215, females 2.1/100,000 WS N=1,028).

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 23 women died from NHL. Therefore, the mean mortality 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 1.1 and 3.9/100,000.

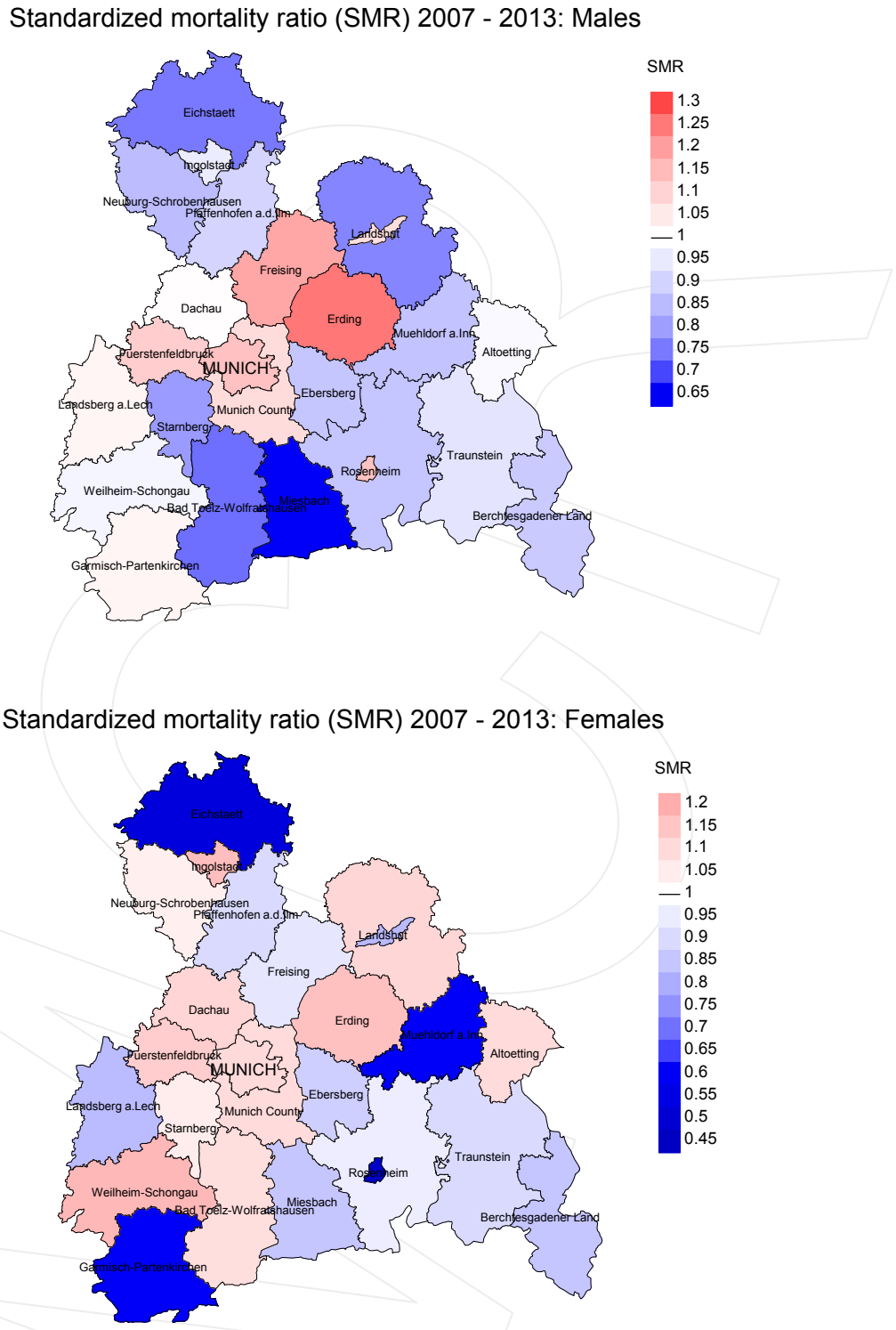


Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=1,215, females N=1,028).

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 23 women died from NHL. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.87. Though, the value of this parameter may vary with an underlying probability of 99% between 0.47 and 1.46, 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 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 C82-C85: NHL [Internet]. 2015 [updated 2015 May 19; cited 2015 Jul 1]. Available from: http://www.tumorregister-muenchen.de/en/facts/base/base_C8285E.pdf

Copyright

Disclaimer

Index of figures and tables