Munich Cancer Registry

- Survival
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Munich Cancer Registry at Munich Cancer Center
Marchioninistr. 15
Munich, 81377
Germany

http://www.tumorregister-muenchen.de/en

Cancer statistics: Baseline statistics

CLL: Chronic lymph. leukaemia (morph.)

Year of diagnosis	1998-2012
Patients	2,716
Diseases	2,720
Creation date	03/20/2014
Export date	02/12/2014
Population	4.5 m

http://www.tumorregister-muenchen.de/en/facts/base/base_hCLL_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, March 2014

[#] Base data has been collected since 1998. An increase in new diseases is apparent, which is an effect of two extensions in the MCR catchment area (from a base population of 2.51 million to 3.96 in 2002, and to 4.52 million in 2007). Death certificates from 2013 are incorporated into these analyses.

[##] Due to the high frequency and good prognosis of non-malignant skin cancer (C44), no systematic ascertainment is performed for this diagnosis. C44 is not designated as a primary, but rather as a secondary tumor.

[###] DCO (death certificate only) identifies a cancer case that first becomes available to the MCR through the death certificate. A high proportion of DCO cases (≥5%) in particular cancer types indicate insufficient participation of specific cancer specializations.

Some remarks regarding this cancer type

The results for leukemias should be interpreted with caution. As with other primarily non-surgically or non-radiologically treated cancer diseases, the MCR hardly manages to obtain even the simplest information on this cancer. The proportion of DCO cases indicates a situation that is far away from a satisfying cooperation. In the group of institutions that potentially participate in reporting are a few hospitals that refuse any contribution to MCR.

ICD-10 codes used for specifying cancer site

ICD-10	Description
C91.1	Chronic lymphocytic leukaemia of B-cell type

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

Code	Description
9670/3	Malignant lymphoma, small B lymphocytic, NOS
9823/3	B-cell chronic 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	99	8	8.1	23.2	72.7	97.0	
1999	93	7	7.5	37.6	65.6	98.9	
2000	94	16	17.0	36.2	74.5	96.8	
2001	138	36	26.1	27.5	71.0	99.3	
2002	251	74	29.5	29.9	74.5	96.8	#
2003	210	64	30.5	27.6	66.2	97.1	#
2004	228	52	22.8	32.0	59.6	93.0	#
2005	200	53	26.5	38.0	67.5	94.5	#
2006	210	34	16.2	43.3	55.2	91.9	#
2007	246	54	22.0	28.5	52.8	82.5	# ##
2008	212	44	20.8	42.0	46.7	71.7	
2009	216	48	22.2	31.0	42.1	71.8	
2010	196	52	26.5	34.2	45.9	78.6	
2011	189	50	26.5	34.4	40.7	74.6	
2012	138	46	33.3	28.3	43.5	99.3	###
1998-2012	2720	638	23.5	33.1	57.4	88.2	

\# 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	99	52	47	52.5
1999	93	48	45	51.6
2000	94	58	36	61.7
2001	138	74	64	53.6
2002	251	138	113	55.0
2003	210	132	78	62.9
2004	228	127	101	55.7
2005	200	124	76	62.0
2006	210	133	77	63.3
2007	246	143	103	58.1
2008	212	120	92	56.6
2009	216	121	95	56.0
2010	196	111	85	56.6
2011	189	107	82	56.6
2012	138	79	59	57.2
1998-2012	2720	1567	1153	57.6

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 4.52 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	52	47	4.7	4.0	2.8	1.8	4.2	2.7	5.5	3.4
1999	48	45	4.3	3.8	2.5	1.9	3.8	2.7	5.0	3.3
2000	58	36	5.1	3.0	3.1	1.3	4.6	2.0	5.4	2.5
2001	74	64	6.4	5.3	3.8	2.2	5.6	3.3	7.3	4.2
2002	138	113	7.4	5.8	4.2	2.2	6.2	3.4	8.0	4.5
2003	132	78	7.0	4.0	3.8	1.5	5.8	2.4	7.6	3.1
2004	127	101	6.8	5.1	3.6	2.2	5.5	3.2	7.2	4.1
2005	124	76	6.5	3.8	3.2	1.4	5.1	2.2	7.0	3.0
2006	133	77	6.9	3.8	3.6	1.4	5.5	2.2	7.2	2.9
2007	143	103	6.5	4.5	3.2	1.7	5.0	2.6	6.7	3.4
2008	120	92	5.4	4.0	2.5	1.5	3.9	2.2	5.3	2.9
2009	121	95	5.4	4.1	2.7	1.5	4.1	2.2	5.2	2.9
2010	111	85	4.9	3.6	2.2	1.2	3.5	1.9	4.9	2.6
2011	107	82	4.7	3.5	2.2	1.2	3.4	1.8	4.4	2.4
2012	79	59	3.5	2.5	1.4	0.7	2.3	1.2	3.3	1.6
1998-2012	1567	1153	5.7	4.0	2.9	1.5	4.5	2.3	5.9	3.1

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	99	68.0	12.8	33.9	95.8	54.0	59.2	67.4	77.8	84.2
1999	93	66.4	12.1	31.9	89.4	52.0	58.5	66.1	76.8	80.4
2000	94	69.0	11.2	46.5	91.2	54.7	60.5	67.8	77.2	86.5
2001	138	71.0	11.8	40.5	94.0	57.1	63.6	69.4	78.7	87.7
2002	251	71.4	12.3	28.6	95.0	55.9	63.0	71.1	80.1	88.3
2003	210	71.6	12.1	35.6	98.9	55.8	63.5	72.3	80.7	87.7
2004	228	70.7	12.4	29.8	98.6	55.4	63.4	71.4	79.9	86.3
2005	200	73.2	11.1	34.4	97.1	58.1	65.8	75.0	80.3	86.2
2006	210	72.1	11.6	30.0	95.4	56.9	64.9	72.8	80.6	86.3
2007	246	72.1	12.7	37.6	99.8	53.3	63.5	73.6	81.7	87.3
2008	212	73.9	10.6	42.6	97.4	61.0	67.2	73.0	81.8	88.2
2009	216	72.4	12.7	28.2	98.6	55.7	64.1	72.7	82.5	88.1
2010	196	75.4	11.9	42.8	101	59.2	68.5	76.7	83.7	89.4
2011	189	73.0	13.0	41.8	101	53.9	65.6	73.1	82.5	89.4
2012	138	76.4	11.2	39.0	96.9	61.1	69.1	77.5	85.1	89.0
1998-2012	2720	72.1	12.2	28.2	101	56.0	64.0	72.7	81.1	87.7

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	52	66.2	13.2	33.9	95.8	51.8	57.7	64.6	75.8	82.5
1999	48	66.0	12.9	31.9	89.4	51.8	56.2	64.3	78.3	82.6
2000	58	67.6	10.5	46.5	91.1	53.5	60.5	67.3	72.3	85.0
2001	74	68.1	11.0	40.5	90.7	56.2	61.4	67.7	76.2	83.2
2002	138	68.5	11.7	28.6	90.9	54.1	61.9	68.1	76.8	84.1
2003	132	69.7	11.0	35.6	90.7	56.0	63.0	69.8	77.3	83.8
2004	127	70.0	11.7	29.8	95.2	56.8	62.9	70.4	77.8	83.3
2005	124	71.4	11.0	34.4	91.3	55.9	65.7	71.8	78.8	85.0
2006	133	70.8	11.4	30.0	95.4	55.9	64.3	71.5	78.1	85.2
2007	143	70.3	12.4	37.6	97.8	51.2	61.1	71.9	80.1	85.0
2008	120	72.8	8.9	49.5	93.7	61.2	67.4	71.8	78.6	85.1
2009	121	70.5	11.6	42.1	97.0	54.6	63.1	70.9	77.8	86.5
2010	111	74.2	11.8	45.3	101	55.4	67.1	75.5	82.2	88.4
2011	107	70.7	12.4	41.8	101	52.5	63.5	71.3	80.6	86.1
2012	79	73.9	10.7	39.0	95.2	59.9	68.5	75.2	80.7	87.5
1998-2012	1567	70.4	11.6	28.6	101	54.9	63.1	71.0	78.5	85.1

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	47	70.1	12.2	39.8	90.3	55.6	61.4	71.4	78.7	86.7
1999	45	66.9	11.3	39.1	88.4	52.3	60.4	68.0	75.1	78.2
2000	36	71.2	12.0	49.3	91.2	54.7	60.5	71.7	81.3	88.6
2001	64	74.4	11.9	51.2	94.0	59.4	64.9	74.2	84.9	92.5
2002	113	74.9	12.0	40.4	95.0	58.5	66.0	75.6	84.4	90.1
2003	78	74.8	13.3	47.3	98.9	53.7	65.0	77.5	83.5	92.1
2004	101	71.6	13.1	40.4	98.6	52.1	64.4	72.6	81.7	87.3
2005	76	76.2	10.7	43.7	97.1	62.4	69.2	77.5	84.1	90.3
2006	77	74.3	11.8	32.7	93.9	57.3	67.7	75.1	82.8	88.4
2007	103	74.6	12.8	39.5	99.8	56.7	64.8	77.1	85.0	89.0
2008	92	75.4	12.3	42.6	97.4	60.7	66.5	78.0	84.9	90.8
2009	95	74.9	13.8	28.2	98.6	57.5	69.1	77.0	85.4	88.7
2010	85	77.0	12.0	42.8	97.5	60.9	70.6	78.7	84.7	91.2
2011	82	75.9	13.2	44.4	96.7	56.6	69.0	77.6	87.5	90.9
2012	59	79.8	11.1	55.0	96.9	61.1	73.1	83.9	87.6	91.3
1998-2012	1153	74.5	12.6	28.2	99.8	57.8	65.8	75.9	84.3	89.7

Table 4

Age distribution by 5-year age group and gender for period 1998-2012 (incl. DCO)

Age at diagnosis Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
25-29	4	0.1	0.1	3	0.2	0.2	1	0.1	0.1
30-34	5	0.2	0.3	4	0.3	0.4	1	0.1	0.2
35-39	11	0.4	0.7	8	0.5	1.0	3	0.3	0.4
40-44	37	1.4	2.1	18	1.1	2.1	19	1.6	2.1
45-49	60	2.2	4.3	39	2.5	4.6	21	1.8	3.9
50-54	126	4.6	8.9	87	5.6	10.1	39	3.4	7.3
55-59	191	7.0	16.0	125	8.0	18.1	66	5.7	13.0
60-64	307	11.3	27.2	186	11.9	30.0	121	10.5	23.5
65-69	397	14.6	41.8	260	16.6	46.6	137	11.9	35.4
70-74	410	15.1	56.9	266	17.0	63.6	144	12.5	47.9
75-79	404	14.9	71.8	235	15.0	78.6	169	14.7	62.5
80-84	341	12.5	84.3	176	11.2	89.8	165	14.3	76.8
85+	427	15.7	100.0	160	10.2	100.0	267	23.2	100.0
All ages	2720	100.0		1567	100.0		1153	100.0	

Included in the statistics are 50.9% multiple primaries in males and 35.7% in females.

Table 5

Age-specific incidence, DCO rate and proportion of all cancers
for period 1998-2012

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males DCO rate n=293 %	Females DCO rate n=344 %	Males Prop.all cancers n=146755 %	Females Prop.all cancers n=142297 %
0- 4			0.0	0.0				
5- 9			0.0	0.0				
10-14			0.0	0.0				
15-19			0.0	0.0				
20-24			0.0	0.0				
25-29	3	1	0.2	0.1		100.0	0.3	0.1
30-34	4	1	0.2	0.0			0.3	0.1
35-39	8	3	0.3	0.1			0.4	0.1
40-44	18	19	0.7	0.8	5.6		0.6	0.3
45-49	39	21	1.8	1.0			0.8	0.3
50-54	87	39	4.7	2.1	3.4		1.1	0.4
55-59	125	66	7.4	3.7	5.6	1.5	0.9	0.5
60-64	186	121	11.3	7.0	8.1	6.6	0.9	0.7
65-69	260	137	17.7	8.5	8.8	6.6	1.0	0.8
70-74	266	144	23.0	10.4	12.0	15.3	1.1	0.9
75-79	235	168	31.2	15.4	23.8	25.0	1.2	1.0
80-84	176	165	38.8	19.1	33.0	52.1	1.4	1.1
85+	160	266	51.6	32.5	61.3	65.8	1.7	1.7
All ages	1567	1151			18.7	29.9	1.1	0.8
Incidence								
Raw			5.7	4.0				
WS			2.9	1.5				
ES			4.5	2.3				
BRD-S			5.9	3.1				

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

Table 6a

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of second primaries for period 1998-2012
MALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C07-C08	Salivary gland	5	0.2	28.3	9.2	66.0	#	11.0	
C15	Oesophagus	4	1.4	2.9	0.8	7.5		6.0	
C16	Stomach	8	3.3	2.4	1.0	4.7	#	10.7	
C18	Colon	14	8.0	1.8	1.0	3.0		13.8	7.1
C19-C20	Rectum	10	4.4	2.2	1.1	4.1	#	12.7	
C22	Liver	7	2.2	3.2	1.3	6.6	#	11.0	14.3
C33-C34	Lung	26	9.4	2.8	1.8	4.1	#	38.0	
C43	Malign. melanoma	12	3.0	4.0	2.1	6.9	#	20.6	
C46,C49	Soft tissue	3	0.4	7.3	1.5	21.4	#	5.9	
C50	Breast	2	0.2	10.0	1.2	36.1	#	4.1	
C61	Prostate	51	23.8	2.1	1.6	2.8	#	62.1	3.9
C62	Testis	2	0.2	12.2	1.5	44.0	#	4.2	
C64	Kidney	5	2.8	1.8	0.6	4.2		5.1	
C65	Renal pelvis	2	0.3	6.2	0.8	22.4		3.8	
C67	Bladder	9	3.5	2.6	1.2	4.9	#	12.6	
C70-C72	CNS cancer	2	1.0	1.9	0.2	6.9		2.2	
C76-C79	CUP	3	1.3	2.2	0.5	6.5		3.8	
C81	Hodgkin lymphoma	4	0.2	26.1	7.1	66.9	#	8.8	
C82-C85	NHL	7	3.1	2.2	0.9	4.6		8.9	28.6
C90	Mult. myeloma	2	1.0	2.0	0.2	7.1		2.3	
C91-C96	Leukaemia	7	1.3	5.5	2.2	11.4	#	13.1	28.6
Other primaries		6	4.4	1.4	0.5	3.0		3.7	16.7
Not observed		0	4.7	0.0	0.0	0.8	#	-10.9	
All mult. primaries		191	80.2	2.4	2.1	2.7	#	253.5	4.7

Patients	977
Mean age at second malignancy (years)	72.4
Person-years	4370
Mean observation time (years)	4.5
Median observation time (years)	4.0

The occurrence of second malignancy is statistically significant.

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

Table 6b

Standardized incidence ratio (SIR, with 95% confidence limits),
excess absolute risk (EAR) and DCO rate of second primaries
for period 1998-2012
FEMALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C16	Stomach	5	1.4	3.6	1.2	8.3	#	12.3	
C18	Colon	6	3.8	1.6	0.6	3.4		7.4	16.7
C19-C20	Rectum	2	1.7	1.2	0.1	4.4		1.2	
C21	Anus/canal	2	0.2	10.7	1.3	38.5	#	6.2	
C25	Pancreas	3	1.6	1.8	0.4	5.3		4.7	
C33-C34	Lung	7	2.5	2.8	1.1	5.7	#	15.3	
C43	Malign. melanoma	5	1.2	4.2	1.3	9.7	#	13.0	
C50	Breast	25	10.6	2.4	1.5	3.5	#	49.2	
C54	Corpus uteri	4	2.1	1.9	0.5	5.0		6.6	
C56	Ovary	3	1.5	1.9	0.4	5.7		5.0	
C73	Thyroid	2	0.6	3.5	0.4	12.5		4.9	
C76-C79	CUP	2	0.7	3.0	0.4	11.0		4.6	
C82-C85	NHL	10	1.4	6.9	3.3	12.8	#	29.3	20.0
C91-C96	Leukaemia	3	0.6	5.2	1.1	15.1	#	8.3	
Other primaries		7	2.1	3.3	1.3	6.7	#	16.6	
Not observed		0	4.4	0.0	0.0	0.8	#	-15.1	
All mult. primaries		86	36.5	2.4	1.9	2.9	#	169.5	3.5

Patients	648
Mean age at second malignancy (years)	72.2
Person-years	2921
Mean observation time (years)	4.5
Median observation time (years)	4.1

The occurrence of second malignancy is statistically significant.

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

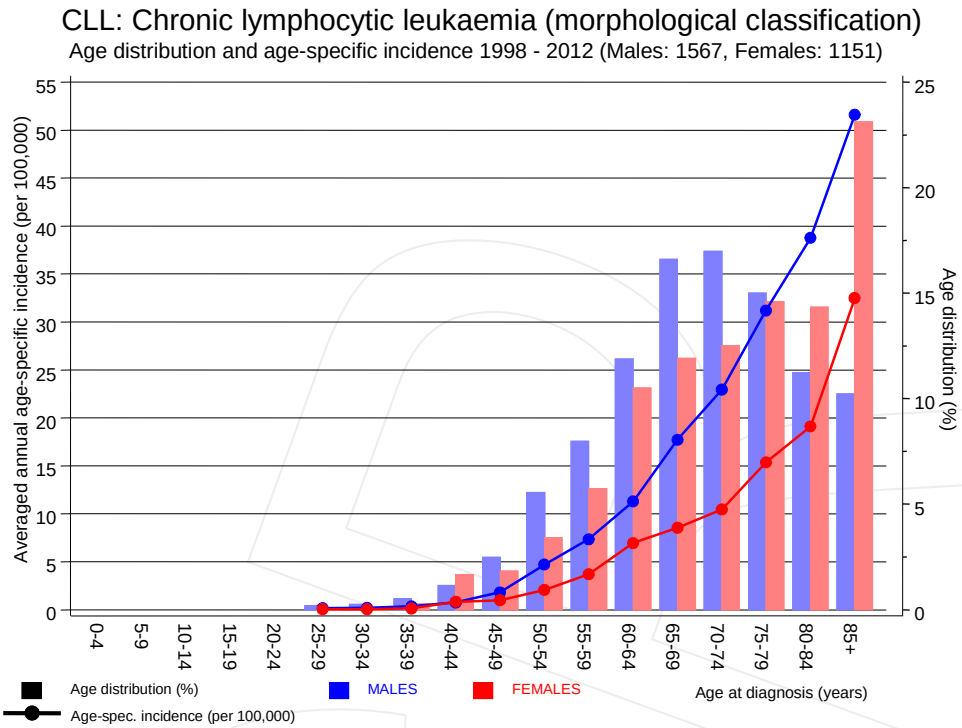


Figure 7. Age distribution and age-specific incidence

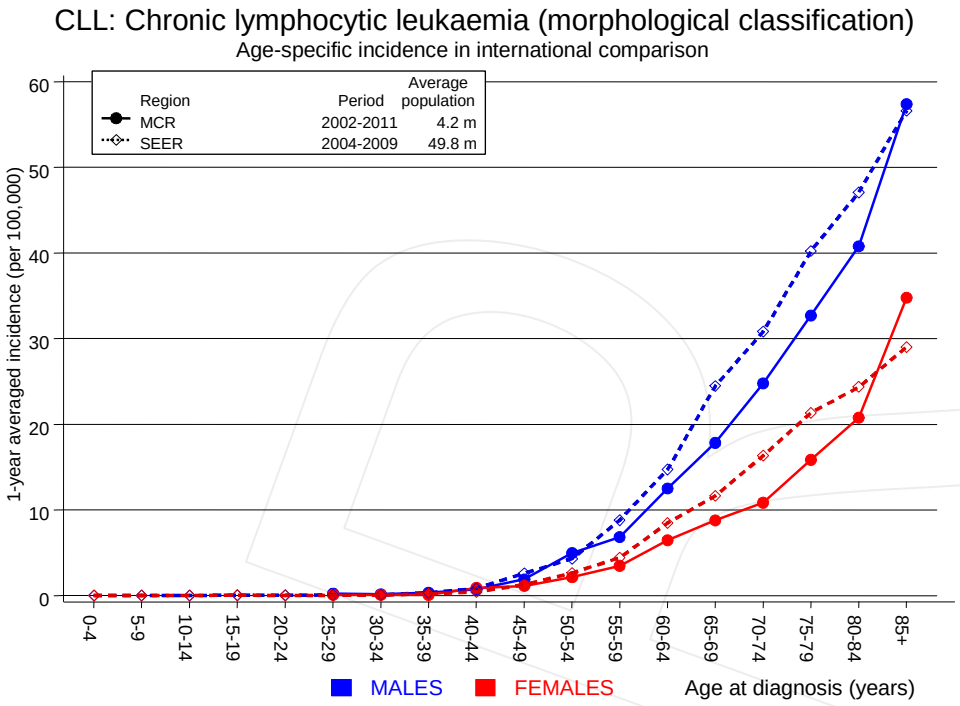


Figure 7a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence - SEER 18 Regs Research Data, released April 2012, based on the November 2011 submission. http://www.seer.cancer.gov.

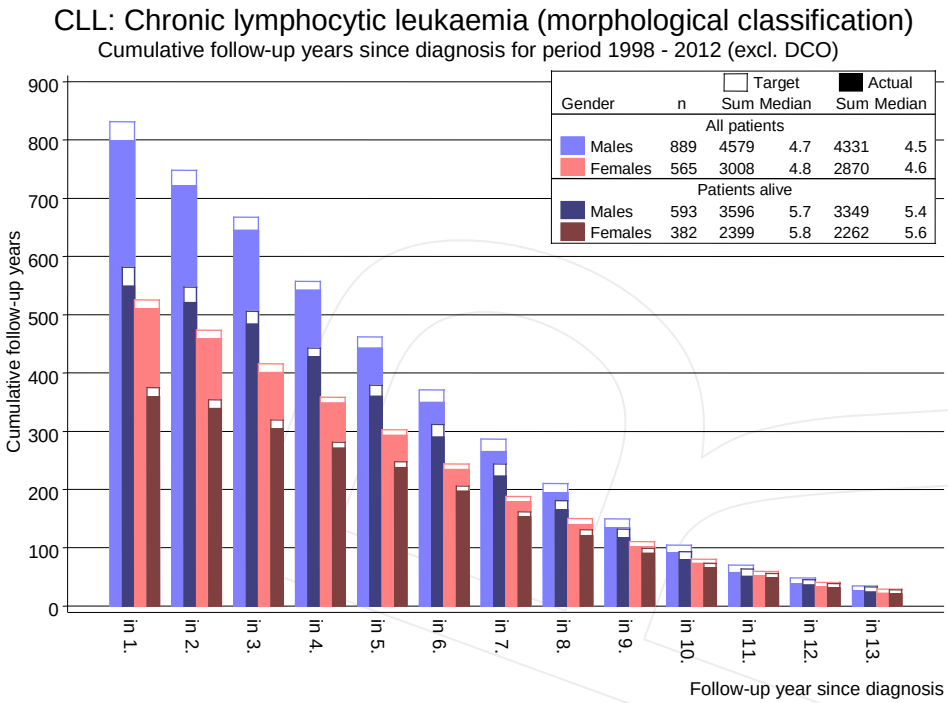
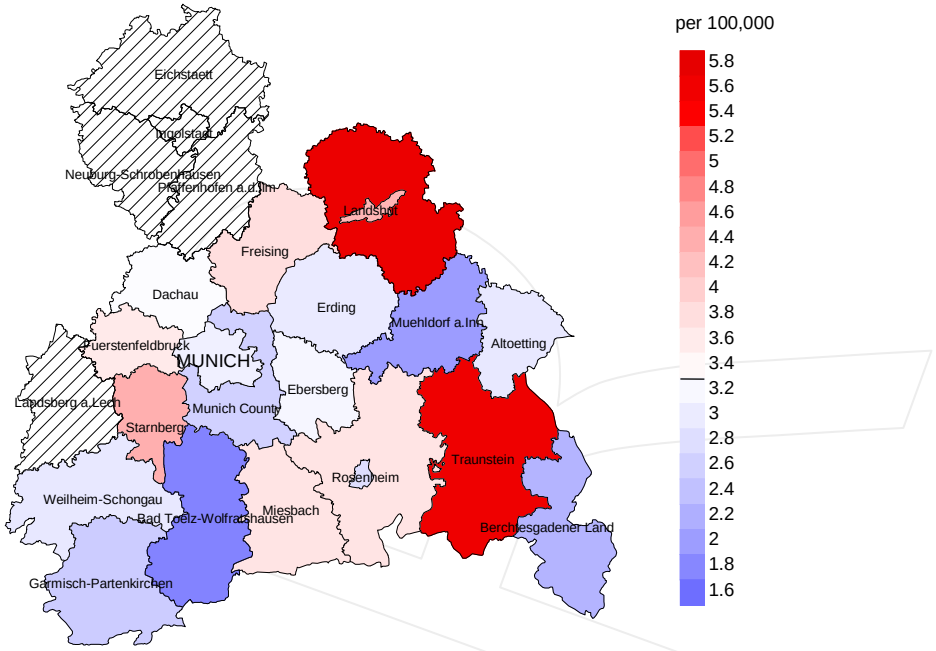


Figure 8. Cumulative follow-up years depending on time since diagnosis

The increase of the lost to follow-up rate can be interpreted as a consequence of a declining number of survivors over time.

Average incidence (world standard population) 2003 - 2008: Males



Average incidence (world standard population) 2003 - 2008: Females

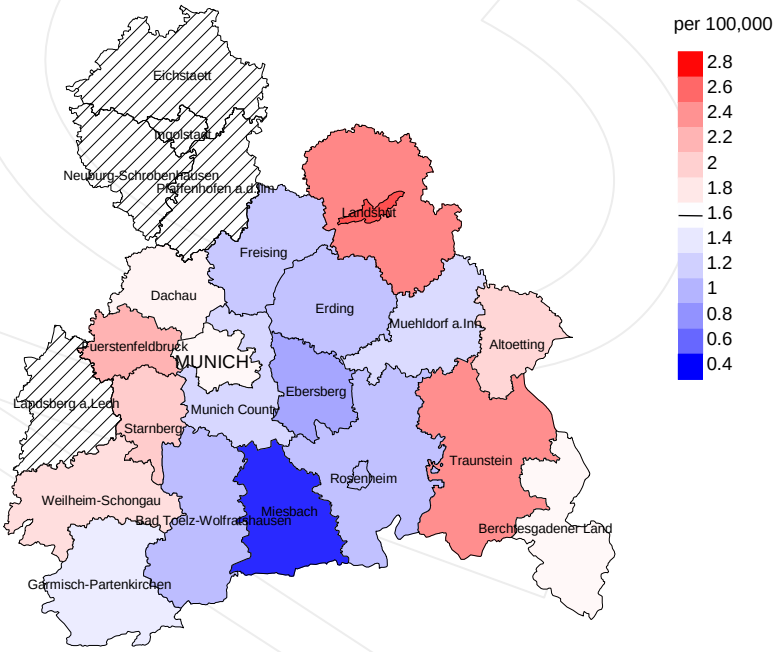
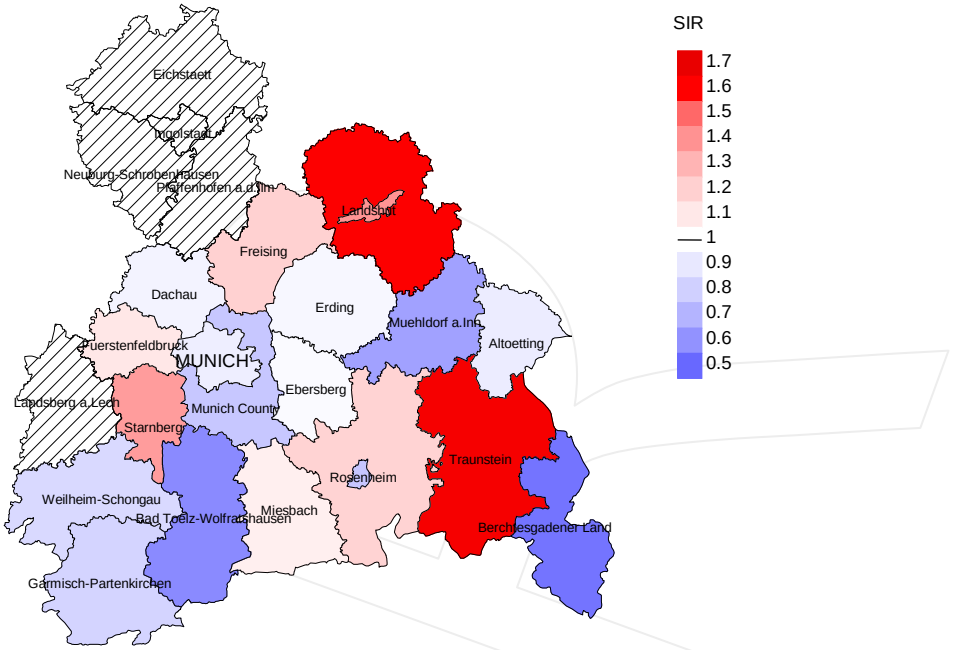


Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 3.3/100,000 WS N=743, females 1.6/100,000 WS N=503). 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 9 women were identified with newly diagnosed chronic lymph. leukaemia (morph.). Therefore, the mean incidence rate for this cancer type in this area can be calculated at 0.9/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.3 and 2.3/100,000.

Standardized incidence ratio (SIR) 2003 - 2008: Males



Standardized incidence ratio (SIR) 2003 - 2008: Females

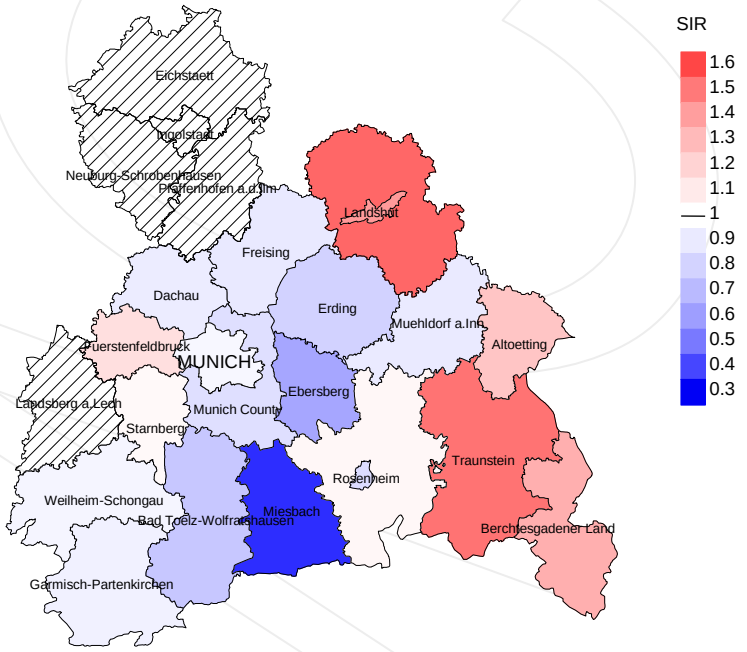


Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=743, females N=503). 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 9 women were identified with newly diagnosed chronic lymph. leukaemia (morph.). Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.63. Though, the value of this parameter may vary with an underlying probability of 99% between 0.22 and 1.39, 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	99	97.0	8.1	72	72.7	98.6
1999	93	98.9	7.5	61	65.6	95.1
2000	94	96.8	17.0	70	74.5	97.1
2001	138	99.3	26.1	98	71.0	98.0
2002	251	96.8	29.5	187	74.5	98.9
2003	210	97.1	30.5	139	66.2	99.3
2004	228	93.0	22.8	136	59.6	99.3
2005	200	94.5	26.5	135	67.5	98.5
2006	210	91.9	16.2	116	55.2	99.1
2007	246	82.5	22.0	130	52.8	100.0
2008	212	71.7	20.8	99	46.7	96.0
2009	216	71.8	22.2	91	42.1	97.8
2010	196	78.6	26.5	90	45.9	98.9
2011	189	74.6	26.5	77	40.7	98.7
2012	138	99.3	33.3	60	43.5	96.7
1998-2012	2720	88.2	23.5	1561	57.4	98.4

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	99	40	97.5	7	7.1
1999	93	50	92.0	5	5.4
2000	94	50	92.0	14	14.9
2001	138	89	96.6	41	29.7
2002	251	132	98.5	83	33.1
2003	210	120	98.3	75	35.7
2004	228	118	100.0	55	24.1
2005	200	149	100.0	63	31.5
2006	210	140	97.9	49	23.3
2007	246	154	100.0	66	26.8
2008	212	154	98.7	53	25.0
2009	216	133	100.0	52	24.1
2010	196	157	98.7	62	31.6
2011	189	153	99.3	55	29.1
2012	138	162	100.0	54	39.1
1998-2012	2720	1801	98.7	734	27.0

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	40	62.5	37.5	89.7
1999	50	62.0	38.0	87.0
2000	50	62.0	38.0	97.8
2001	89	59.6	40.4	93.0
2002	132	76.5	23.5	96.2
2003	120	80.0	20.0	94.1
2004	118	87.3	12.7	95.8
2005	149	79.9	20.1	96.6
2006	140	77.9	22.1	92.0
2007	154	74.7	25.3	89.6
2008	154	81.8	18.2	89.5
2009	133	82.7	17.3	94.0
2010	157	80.3	19.7	93.5
2011	153	74.5	25.5	90.1
2012	162	77.8	22.2	88.9
1998-2012	1801	76.9	23.1	92.5

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	23	74.5	70.8	84.9	74.4
1999	28	74.9	69.5	82.2	73.7
2000	34	74.1	71.2	80.0	74.2
2001	42	74.7	73.3	78.0	74.5
2002	76	75.0	74.9	75.4	75.2
2003	67	74.7	74.8	74.5	74.8
2004	75	74.1	73.1	82.4	74.4
2005	90	76.3	74.9	81.3	75.9
2006	83	74.8	73.2	80.7	74.0
2007	82	77.1	75.8	81.5	76.4
2008	96	75.7	75.0	78.5	75.7
2009	78	75.7	74.6	81.9	75.7
2010	93	77.2	76.1	81.6	77.0
2011	97	76.2	75.6	78.4	76.2
2012	102	78.2	77.6	80.1	78.2
1998-2012	1066	75.9	74.8	79.9	75.7

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	17	79.1	76.0	81.8	77.6
1999	22	77.7	75.7	81.9	76.4
2000	16	82.7	75.9	89.4	81.9
2001	47	78.9	76.2	81.7	78.6
2002	56	81.1	78.0	87.7	80.9
2003	53	78.1	75.8	86.7	77.9
2004	43	77.5	76.1	84.5	77.0
2005	59	80.2	78.5	88.8	80.0
2006	57	79.5	78.8	81.9	78.8
2007	72	80.2	77.2	87.7	79.9
2008	58	80.7	79.1	89.5	80.2
2009	55	78.3	76.9	84.2	77.9
2010	64	81.5	79.7	88.6	81.4
2011	56	81.0	78.9	85.3	80.8
2012	60	81.6	82.0	79.5	81.0
1998-2012	735	80.0	78.1	85.3	79.6

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	17	1.5	0.33	0.9	0.34	1.4	0.34	1.7	0.32
1999	16	1.4	0.33	0.8	0.34	1.3	0.34	1.7	0.34
2000	23	2.0	0.40	1.2	0.39	1.8	0.40	2.3	0.42
2001	29	2.5	0.39	1.4	0.37	2.2	0.39	3.0	0.42
2002	63	3.4	0.46	1.7	0.41	2.8	0.45	4.1	0.51
2003	54	2.9	0.41	1.4	0.38	2.4	0.41	3.3	0.44
2004	67	3.6	0.53	1.8	0.50	2.9	0.53	3.9	0.55
2005	70	3.7	0.56	1.7	0.52	2.8	0.55	4.1	0.59
2006	65	3.4	0.49	1.6	0.44	2.5	0.45	3.6	0.50
2007	63	2.8	0.44	1.2	0.39	2.1	0.42	3.1	0.46
2008	77	3.5	0.64	1.5	0.60	2.5	0.64	3.6	0.67
2009	66	3.0	0.55	1.3	0.49	2.1	0.52	3.0	0.58
2010	75	3.3	0.68	1.3	0.61	2.2	0.63	3.3	0.69
2011	76	3.3	0.71	1.3	0.60	2.2	0.65	3.2	0.74
2012	76	3.3	0.96	1.2	0.86	2.1	0.92	3.3	1.00
1998-2012	837	3.0	0.53	1.4	0.48	2.3	0.51	3.3	0.56

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	8	0.7	0.17	0.3	0.14	0.4	0.15	0.5	0.16
1999	15	1.3	0.33	0.5	0.24	0.7	0.27	1.0	0.31
2000	8	0.7	0.22	0.2	0.18	0.4	0.20	0.5	0.20
2001	24	2.0	0.38	0.7	0.33	1.1	0.34	1.6	0.38
2002	38	1.9	0.34	0.7	0.30	1.1	0.32	1.5	0.34
2003	42	2.1	0.54	0.7	0.48	1.2	0.50	1.7	0.54
2004	36	1.8	0.36	0.6	0.28	1.0	0.31	1.4	0.35
2005	49	2.5	0.64	0.8	0.58	1.3	0.59	1.8	0.61
2006	44	2.2	0.57	0.7	0.47	1.1	0.51	1.7	0.57
2007	52	2.3	0.50	0.7	0.43	1.2	0.45	1.7	0.49
2008	49	2.1	0.53	0.6	0.42	1.0	0.46	1.5	0.51
2009	44	1.9	0.46	0.6	0.42	1.0	0.44	1.4	0.48
2010	51	2.2	0.60	0.6	0.50	1.0	0.53	1.5	0.57
2011	38	1.6	0.46	0.4	0.38	0.7	0.40	1.1	0.45
2012	50	2.1	0.85	0.5	0.67	0.9	0.74	1.4	0.87
1998-2012	548	1.9	0.48	0.6	0.39	1.0	0.42	1.4	0.46

Table 13

Age distribution of age at death (cancer-related) for period 1998-2012
(**incl. multiple primaries**)

Age at death	Cases			Males			Females		
Years	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
30-34	1	0.1	0.1	1	0.1	0.1			0.0
35-39	0	0.0	0.1			0.1			0.0
40-44	4	0.3	0.4	3	0.4	0.5	1	0.2	0.2
45-49	11	0.8	1.2	7	0.8	1.3	4	0.7	0.9
50-54	21	1.5	2.7	12	1.4	2.7	9	1.6	2.5
55-59	51	3.7	6.3	36	4.3	7.0	15	2.7	5.3
60-64	98	7.1	13.4	66	7.9	14.9	32	5.8	11.1
65-69	173	12.5	25.8	128	15.3	30.2	45	8.2	19.3
70-74	235	16.9	42.8	153	18.2	48.4	82	14.9	34.2
75-79	276	19.9	62.6	173	20.6	69.0	103	18.7	52.9
80-84	258	18.6	81.2	141	16.8	85.8	117	21.3	74.2
85+	261	18.8	100.0	119	14.2	100.0	142	25.8	100.0
All ages	1389	100.0		839	100.0		550	100.0	

Included in the statistics are 50.9% multiple primaries in males and 35.7% in females.

Table 14

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2012
(**incl. multiple primaries**)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	MI-index	Females Age-spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4			0.0		0.0			
5- 9			0.0		0.0			
10-14			0.0		0.0			
15-19			0.0		0.0			
20-24			0.0		0.0			
25-29			0.0		0.0			
30-34	1		0.0	0.25	0.0		0.6	
35-39			0.0		0.0			
40-44	3	1	0.1	0.17	0.0	0.05	0.4	0.1
45-49	7	4	0.3	0.18	0.2	0.19	0.4	0.2
50-54	12	9	0.6	0.14	0.5	0.23	0.4	0.3
55-59	36	15	2.1	0.29	0.8	0.23	0.6	0.3
60-64	66	32	4.0	0.35	1.8	0.26	0.8	0.5
65-69	128	45	8.7	0.49	2.8	0.33	1.1	0.6
70-74	153	82	13.2	0.58	5.9	0.57	1.2	0.9
75-79	173	103	23.0	0.74	9.4	0.61	1.4	1.0
80-84	141	117	31.1	0.80	13.5	0.71	1.4	1.1
85+	119	142	38.4	0.74	17.3	0.53	1.5	1.1
All ages	839	550					1.1	0.8
Mortality								
Raw			3.1	0.54	1.9	0.48		
WS			1.4	0.48	0.6	0.39		
ES			2.3	0.51	1.0	0.42		
BRD-S			3.3	0.56	1.4	0.46		
PYLL-70								
per 100,000			7.1		3.3			
ES			6.1		2.8			
AYLL-70			6.9		7.7			

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

Table 15a

Multiple primaries in deaths in period 1998-2012
MALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03-C06 Oral cavity	6	1.2	1	16.7	3	50.0	2	33.3
C07-C08 Salivary gland	5	1.0			1	20.0	4	80.0
C16 Stomach	10	1.9	2	20.0			8	80.0
C18 Colon	39	7.5	17	43.6	5	12.8	17	43.6
C19-C20 Rectum	20	3.9	6	30.0	3	15.0	11	55.0
C25 Pancreas	5	1.0			1	20.0	4	80.0
C33-C34 Lung	55	10.6	5	9.1	13	23.6	37	67.3
C43 Malign. melanoma	26	5.0	9	34.6	3	11.5	14	53.8
C44 Skin others	146	28.2	14	9.6	7	4.8	125	85.6
C46,C49 Soft tissue	7	1.4	3	42.9			4	57.1
C61 Prostate	75	14.5	33	44.0	11	14.7	31	41.3
C64 Kidney	13	2.5	6	46.2	2	15.4	5	38.5
C67 Bladder	23	4.4	9	39.1	3	13.0	11	47.8
C70-C72 CNS cancer	6	1.2			1	16.7	5	83.3
C76-C79 CUP	6	1.2					6	100.0
C81 Hodgkin lymphoma	8	1.5	1	12.5	1	12.5	6	75.0
C82-C85 NHL	22	4.2			4	18.2	18	81.8
C90 Mult. myeloma	6	1.2	2	33.3	3	50.0	1	16.7
C91-C96 Leukaemia	13	2.5					13	100.0
Other primaries	27	5.2	10	37.0	6	22.2	11	40.7
All mult. primaries	518	100.0	118	22.8	67	12.9	333	64.3

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 1998-2012
FEMALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C16	Stomach	6	2.7	1	16.7	3	50.0	2	33.3
C18	Colon	16	7.3	6	37.5	2	12.5	8	50.0
C19-C20	Rectum	3	1.4	2	66.7			1	33.3
C23-C24	Bile	3	1.4	1	33.3	1	33.3	1	33.3
C25	Pancreas	5	2.3					5	100.0
C33-C34	Lung	9	4.1			1	11.1	8	88.9
C43	Malign. melanoma	9	4.1	7	77.8			2	22.2
C44	Skin others	56	25.5	13	23.2	4	7.1	39	69.6
C50	Breast	39	17.7	21	53.8	4	10.3	14	35.9
C51	Vulva	4	1.8	3	75.0			1	25.0
C53	Cervix uteri	3	1.4	3	100.0				
C54	Corpus uteri	7	3.2	3	42.9	1	14.3	3	42.9
C56	Ovary	9	4.1	2	22.2	2	22.2	5	55.6
C64	Kidney	7	3.2	2	28.6	3	42.9	2	28.6
C67	Bladder	4	1.8	1	25.0	2	50.0	1	25.0
C70-C72	CNS cancer	4	1.8	1	25.0	2	50.0	1	25.0
C73	Thyroid	2	0.9	1	50.0			1	50.0
C76-C79	CUP	3	1.4	1	33.3			2	66.7
C82-C85	NHL	11	5.0			1	9.1	10	90.9
C90	Mult. myeloma	4	1.8			2	50.0	2	50.0
C91-C96	Leukaemia	4	1.8	1	25.0			3	75.0
Other primaries		12	5.5	3	25.0	2	16.7	7	58.3
All mult. primaries		220	100.0	72	32.7	30	13.6	118	53.6

Multiple primaries with number of cases n<2 are pooled in category "Other primaries".

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

Table 16

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2012
(**Singular primaries only** *)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	MI-index	Females Age-spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4			0.0		0.0			
5- 9			0.0		0.0			
10-14			0.0		0.0			
15-19			0.0		0.0			
20-24			0.0		0.0			
25-29			0.0		0.0			
30-34	1		0.0	0.33	0.0		0.6	
35-39			0.0		0.0			
40-44	3	1	0.1	0.18	0.0	0.06	0.4	0.1
45-49	7	4	0.3	0.19	0.2	0.21	0.5	0.2
50-54	10	8	0.5	0.13	0.4	0.22	0.4	0.3
55-59	32	13	1.9	0.30	0.7	0.23	0.7	0.3
60-64	51	28	3.1	0.33	1.6	0.27	0.7	0.6
65-69	107	41	7.3	0.51	2.6	0.37	1.2	0.7
70-74	131	77	11.3	0.70	5.6	0.66	1.3	1.1
75-79	136	77	18.0	0.82	7.0	0.62	1.5	1.0
80-84	110	93	24.2	0.88	10.8	0.76	1.5	1.1
85+	87	112	28.1	0.81	13.7	0.52	1.4	1.1
All ages	675	454					1.1	0.8
Mortality								
Raw			2.5	0.56	1.6	0.49		
WS			1.1	0.49	0.5	0.40		
ES			1.9	0.53	0.8	0.43		
BRD-S			2.7	0.59	1.2	0.48		
PYLL-70								
per 100,000			6.1		3.0			
ES			5.2		2.5			
AYLL-70			7.1		7.7			

* See corresponding tables with multiple primaries.

Table 17

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2012
(**Single primaries only** *)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	MI-index	Females Age-spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4			0.0		0.0			
5- 9			0.0		0.0			
10-14			0.0		0.0			
15-19			0.0		0.0			
20-24			0.0		0.0			
25-29			0.0		0.0			
30-34	1		0.0	0.33	0.0		0.6	
35-39			0.0		0.0			
40-44	3	1	0.1	0.19	0.0	0.06	0.4	0.1
45-49	5	4	0.2	0.14	0.2	0.24	0.3	0.3
50-54	9	7	0.5	0.14	0.4	0.23	0.4	0.3
55-59	26	12	1.5	0.29	0.7	0.25	0.6	0.4
60-64	37	23	2.2	0.33	1.3	0.25	0.6	0.5
65-69	69	34	4.7	0.43	2.1	0.38	0.9	0.6
70-74	90	62	7.8	0.63	4.5	0.59	1.1	1.0
75-79	94	57	12.5	0.68	5.2	0.51	1.3	0.9
80-84	77	80	17.0	0.69	9.3	0.71	1.3	1.1
85+	68	94	21.9	0.66	11.5	0.45	1.4	1.1
All ages	479	374					1.0	0.8
Mortality								
Raw			1.7	0.49	1.3	0.45		
WS			0.8	0.43	0.4	0.38		
ES			1.3	0.46	0.7	0.40		
BRD-S			1.9	0.51	1.0	0.44		
PYLL-70								
per 100,000			4.7		2.6			
ES			4.1		2.2			
AYLL-70			7.8		8.0			

* See corresponding tables with multiple primaries.

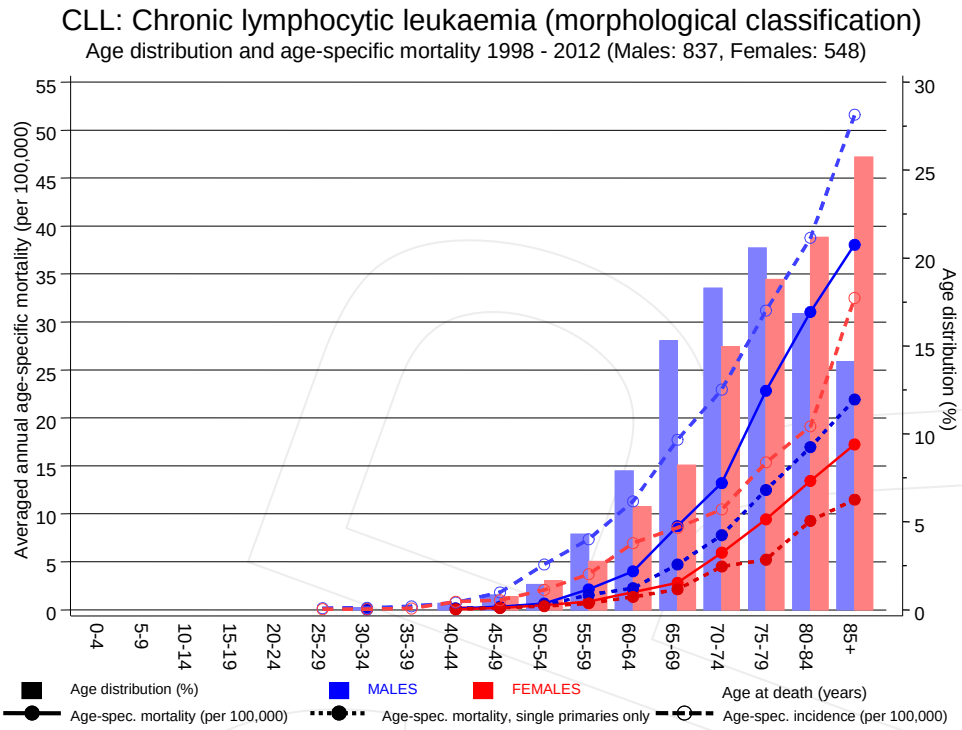
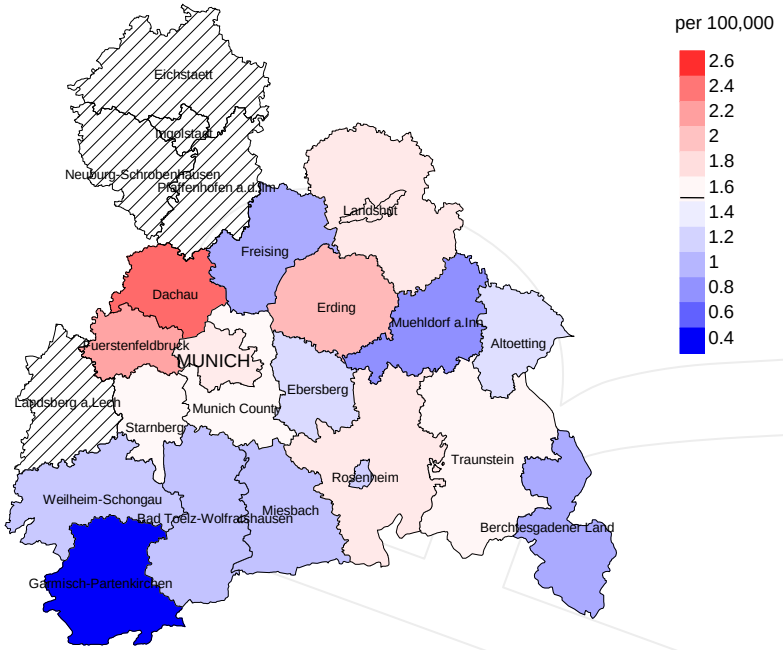


Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

Average mortality (world standard population) 2003 - 2008: Males



Average mortality (world standard population) 2003 - 2008: Females

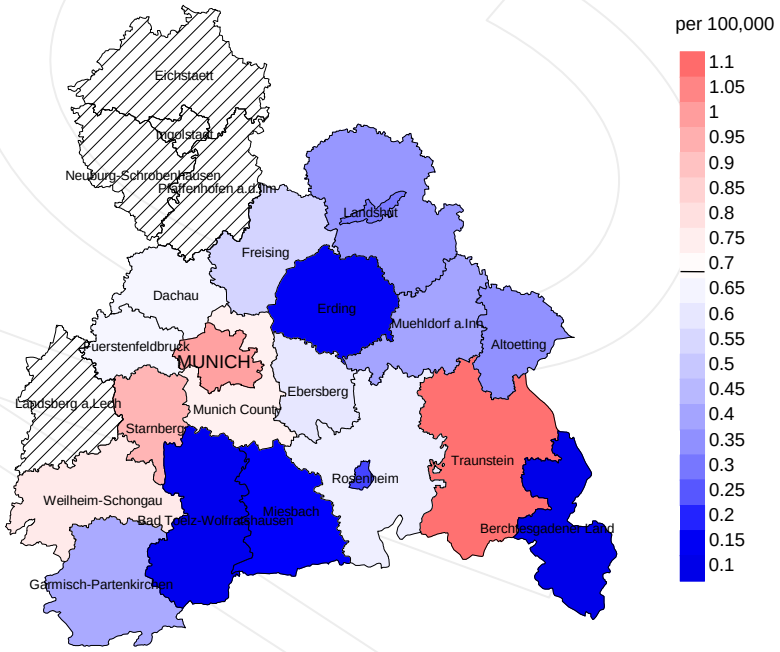
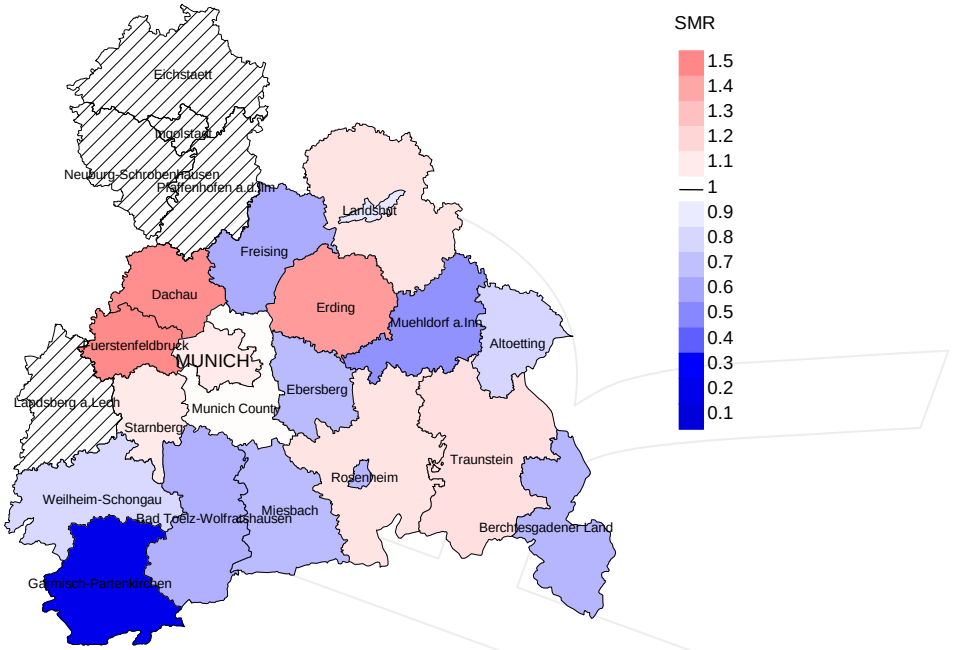


Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2003 to 2008. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 1.5/100,000 WS N=380, females 0.7/100,000 WS N=263). 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 7 women died from chronic lymph. leukaemia (morph.). Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.6/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.2 and 1.6/100,000.

Standardized mortality ratio (SMR) 2003 - 2008: Males



Standardized mortality ratio (SMR) 2003 - 2008: Females

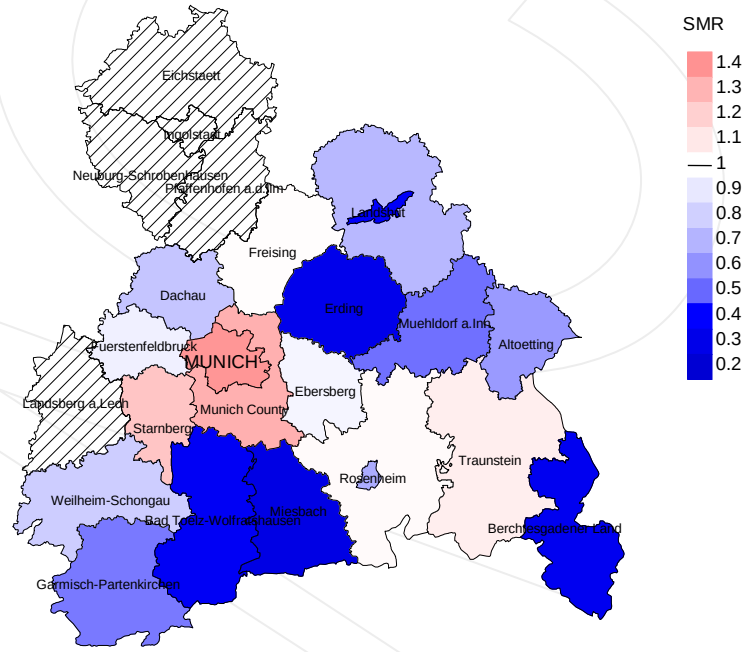


Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=380, females N=263). 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 7 women died from chronic lymph. leukaemia (morph.). Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.96. Though, the value of this parameter may vary with an underlying probability of 99% between 0.28 and 2.34, 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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