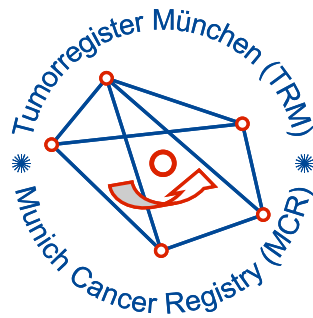


Munich Cancer Registry



- ▶ [Survival](#)
- ▶ [Selection Matrix](#)
- ▶ [Homepage](#)
- ▶ [Deutsch](#)

ICD-10 C90: Plasmacytoma

Incidence and Mortality

Year of diagnosis	1998-2014
Patients	3,726
Diseases	3,729
Creation date	04/13/2016
Export date	12/23/2015
Population	4.64 m



Munich Cancer Registry at Munich Cancer Center
Marchioninstr. 15
Munich, 81377
Germany

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

http://www.tumorregister-muenchen.de/en/facts/base/bC90__E-ICD-10-C90-Plasmacytoma-incidence-and-mortality.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.

Clinics and physicians have access to essentially more detailed data, with which they can check, compare and in the best case optimize their own data and results.

We would be pleased to receive corrections, critique and useful suggestions. Just send an e-mail to tumor@ibe.med.uni-muenchen.de.

Munich Cancer Registry, April 2016

[#] 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).

^{##} 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.

Some remarks regarding this cancer type

The results for plasmacytomas 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 (ICD-10 2015) used for specifying cancer site

Code	Description
C90.-	Multiple myeloma and malignant plasma cell neoplasms
C90.0	Multiple myeloma
C90.1	Plasma cell leukaemia
C90.2	Extramedullary plasmacytoma
C90.3	Solitary plasmacytoma

INCIDENCE

Table 1

All patients by year of diagnosis,
proportions of DCO, multiple primaries, deaths, and active follow-up
(incl. DCO)

Year of diagnosis	Cases n	DCO cases n	Prop. DCO %	Prop. mult. primaries %	Prop. deaths %	Prop. actively followed %
1998	125	30	24.0	18.4	90.4	97.6
1999	128	27	21.1	22.7	92.2	98.4
2000	133	39	29.3	13.5	95.5	99.2
2001	113	33	29.2	29.2	92.0	99.1
2002	233	76	32.6	22.3	86.7	98.7 #
2003	236	58	24.6	23.7	86.0	97.0
2004	237	65	27.4	25.3	85.7	98.3
2005	231	45	19.5	27.3	82.7	96.5
2006	234	41	17.5	24.4	81.2	96.6
2007	311	66	21.2	23.5	80.7	90.7 #
2008	324	56	17.3	23.5	71.3	84.9
2009	275	42	15.3	23.3	70.2	88.7
2010	275	48	17.5	27.6	66.2	82.2
2011	297	60	20.2	25.3	56.2	85.2
2012	251	41	16.3	31.9	52.2	85.7
2013	225	45	20.0	28.0	44.9	98.7
2014	101	34	33.7	37.6	45.5	96.0 ##
1998–2014	3729	806	21.6	25.1	73.8	92.4

The increases of incident cases in 2002 and 2007 reflect the expansion to additional registry areas.

Please be aware that data of recent annual patient cohorts may not yet be fully processed. The years under evaluation can be found in the respective headings.

Table 1a

All patients
by year of diagnosis and gender
(incl. DCO)

Year of diagnosis	All n	Males n	Females n	Prop. males %
1998	125	73	52	58.4
1999	128	65	63	50.8
2000	133	78	55	58.6
2001	113	55	58	48.7
2002	233	122	111	52.4
2003	236	142	94	60.2
2004	237	122	115	51.5
2005	231	120	111	51.9
2006	234	118	116	50.4
2007	311	169	142	54.3
2008	324	181	143	55.9
2009	275	140	135	50.9
2010	275	164	111	59.6
2011	297	159	138	53.5
2012	251	138	113	55.0
2013	225	133	92	59.1
2014	101	49	52	48.5
1998–2014	3729	2028	1701	54.4

Table 2

Incidence measures by year of diagnosis 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	73	52	6.6	4.4	4.1	2.0	5.9	3.0	7.3	3.7
1999	65	63	5.8	5.3	3.6	2.2	5.3	3.3	7.0	4.4
2000	78	55	6.8	4.6	3.8	1.9	6.1	2.9	8.5	3.9
2001	55	58	4.7	4.8	2.8	2.2	4.3	3.2	5.8	4.2
2002	122	111	6.5	5.7	3.7	2.3	5.6	3.5	7.3	4.6
2003	142	94	7.6	4.8	4.1	2.0	6.1	3.0	8.0	3.9
2004	122	115	6.5	5.8	3.6	2.3	5.4	3.5	6.9	4.7
2005	120	111	6.3	5.6	3.2	2.2	4.9	3.4	6.6	4.6
2006	118	116	6.2	5.8	3.2	2.3	4.8	3.4	6.2	4.6
2007	169	142	7.6	6.1	3.8	2.4	5.9	3.6	7.9	4.8
2008	181	143	8.1	6.2	4.1	2.5	6.1	3.8	7.9	5.1
2009	140	135	6.3	5.8	3.0	2.2	4.4	3.3	5.8	4.4
2010	164	111	7.3	4.7	3.6	1.8	5.3	2.8	7.0	3.6
2011	159	138	7.0	5.8	3.1	2.3	4.8	3.5	6.5	4.5
2012	138	113	6.0	4.8	2.7	1.7	4.2	2.7	5.6	3.7
2013	133	92	5.8	3.9	2.6	1.5	4.0	2.3	5.5	3.1
2014	49	52	2.1	2.2	1.0	0.8	1.6	1.2	2.0	1.7
1998-2014	2028	1701	6.3	5.1	3.2	2.0	4.9	3.1	6.4	4.1

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 patients)
(incl. DCO)

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	125	67.4	13.0	26.1	94.0	52.7	58.7	67.8	75.7	85.3
1999	128	69.4	13.0	23.9	92.8	53.2	60.1	70.9	78.7	85.6
2000	133	71.7	11.7	38.2	94.4	55.7	64.6	72.7	79.5	85.8
2001	113	68.9	11.1	36.1	93.7	50.9	61.7	70.5	77.3	81.4
2002	233	71.0	12.1	32.7	93.5	55.9	62.7	71.8	79.9	86.3
2003	236	69.6	11.2	31.4	99.0	55.4	62.3	69.1	78.2	83.7
2004	237	70.5	11.7	37.1	93.4	55.7	62.9	70.8	79.3	84.5
2005	231	71.8	11.0	38.9	102	56.7	65.2	73.0	79.6	84.7
2006	234	71.2	12.2	22.7	94.9	55.8	65.1	71.6	79.7	85.3
2007	311	71.4	10.9	30.9	93.2	58.6	65.1	71.7	80.1	84.5
2008	324	71.1	11.7	33.8	97.9	56.3	65.0	71.5	79.4	85.2
2009	275	72.0	11.2	34.7	94.6	57.2	66.2	72.2	80.0	85.7
2010	275	71.0	12.4	5.0	97.2	54.0	64.0	72.4	79.9	86.1
2011	297	71.8	12.0	33.3	97.4	53.8	66.4	73.2	79.8	86.0
2012	251	72.0	11.7	31.5	97.5	54.2	66.1	72.9	80.3	85.0
2013	225	72.2	12.0	38.5	93.1	52.7	64.2	74.5	81.1	85.2
2014	101	73.9	11.5	45.3	98.4	57.6	64.6	74.6	82.6	87.3
1998-2014	3729	71.1	11.8	5.0	102	55.2	64.0	72.1	79.6	85.3

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	73	64.8	13.4	26.1	92.3	49.5	56.2	64.7	73.6	83.9
1999	65	66.5	13.5	23.9	91.7	48.5	58.5	68.2	76.8	83.7
2000	78	70.9	11.5	38.2	92.3	55.6	61.6	71.6	79.5	86.5
2001	55	67.6	10.8	44.4	85.3	49.1	59.2	69.7	76.3	79.1
2002	122	69.2	12.0	32.7	93.5	54.4	62.1	69.9	78.0	83.6
2003	142	68.2	10.2	36.7	99.0	55.2	61.8	67.4	75.6	81.4
2004	122	68.6	12.1	37.1	93.4	52.6	60.7	69.6	76.4	83.1
2005	120	70.7	10.9	38.9	102	57.1	65.2	70.3	77.9	84.1
2006	118	69.5	12.0	27.5	94.8	53.7	64.3	70.0	76.9	84.4
2007	169	70.1	11.4	30.9	93.2	55.9	63.4	70.5	79.3	82.9
2008	181	69.8	12.2	33.8	97.9	51.6	64.7	70.3	78.4	85.1
2009	140	70.3	10.7	34.7	94.1	55.5	65.5	71.3	77.7	83.8
2010	164	69.6	12.4	5.0	93.0	53.3	63.8	71.0	77.6	84.6
2011	159	71.3	11.6	33.3	97.4	52.5	67.3	73.0	78.4	84.2
2012	138	70.9	11.3	41.0	92.5	52.4	64.9	72.2	77.9	84.1
2013	133	71.7	12.3	38.5	93.1	51.1	64.0	74.5	80.6	85.2
2014	49	73.6	11.9	45.3	96.6	57.6	63.6	73.7	84.1	87.8
1998-2014	2028	69.8	11.8	5.0	102	53.1	63.0	70.9	78.0	84.1

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	52	71.1	11.7	37.6	94.0	57.6	62.3	70.8	78.7	88.1
1999	63	72.4	11.9	49.2	92.8	56.1	62.1	74.6	80.1	87.9
2000	55	72.8	12.0	40.6	94.4	55.7	66.9	75.9	80.1	85.8
2001	58	70.1	11.3	36.1	93.7	57.3	63.3	70.7	79.1	83.2
2002	111	73.0	11.9	38.9	93.2	56.3	63.7	74.3	82.6	87.8
2003	94	71.8	12.4	31.4	94.2	55.8	63.8	72.9	80.7	85.6
2004	115	72.6	10.9	38.8	92.1	57.8	65.6	73.5	81.6	84.5
2005	111	72.9	11.0	42.1	96.8	56.7	65.3	74.8	81.8	84.7
2006	116	72.8	12.2	22.7	94.9	56.7	66.2	74.6	82.1	85.7
2007	142	73.1	9.9	44.4	92.3	61.6	66.8	73.1	81.3	86.1
2008	143	72.8	10.7	37.5	94.3	59.1	66.4	73.9	80.0	85.5
2009	135	73.8	11.4	36.3	94.6	60.0	67.6	73.9	83.8	87.1
2010	111	73.0	12.1	40.5	97.2	55.9	66.5	73.5	82.2	87.1
2011	138	72.5	12.4	41.9	97.1	54.5	65.3	73.9	81.7	87.8
2012	113	73.2	12.0	31.5	97.5	55.1	67.2	75.4	82.9	86.1
2013	92	72.9	11.7	43.3	92.2	56.9	64.2	74.8	81.2	85.5
2014	52	74.1	11.2	49.1	98.4	56.4	66.5	75.6	82.2	85.7
1998–2014	1701	72.7	11.5	22.7	98.4	56.7	65.7	73.9	81.4	86.3

Table 4

Age distribution by 5-year age group and gender for period 2007–2014
(incl. DCO)

Age at diagnosis Years	Cases			Males			Females		
	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
0–4	1	0.0	0.0	1	0.1	0.1			0.0
5–9	0	0.0	0.0			0.1			0.0
10–14	0	0.0	0.0			0.1			0.0
15–19	0	0.0	0.0			0.1			0.0
20–24	0	0.0	0.0			0.1			0.0
25–29	0	0.0	0.0			0.1			0.0
30–34	5	0.2	0.3	4	0.4	0.4	1	0.1	0.1
35–39	8	0.4	0.7	6	0.5	1.0	2	0.2	0.3
40–44	34	1.7	2.3	25	2.2	3.2	9	1.0	1.3
45–49	70	3.4	5.7	47	4.1	7.3	23	2.5	3.8
50–54	83	4.0	9.8	46	4.1	11.4	37	4.0	7.8
55–59	112	5.4	15.2	53	4.7	16.1	59	6.4	14.1
60–64	187	9.1	24.3	113	10.0	26.0	74	8.0	22.1
65–69	306	14.9	39.1	171	15.1	41.1	135	14.6	36.7
70–74	393	19.1	58.2	249	22.0	63.1	144	15.6	52.3
75–79	336	16.3	74.6	178	15.7	78.8	158	17.1	69.3
80–84	287	13.9	88.5	137	12.1	90.9	150	16.2	85.5
85+	237	11.5	100.0	103	9.1	100.0	134	14.5	100.0
All ages	2059	100.0		1133	100.0		926	100.0	

Included in the statistics are 35.5% multiple primaries in males and 28.5% in females.

Table 5

Age-specific incidence, DCO rate and proportion of all cancers
for period 2007-2014

Age at diagnosis Years	Males n	Females n	Males Age- spec. incid. %	Females Age- spec. incid. %	Males DCO rate n=191 %	Females DCO rate n=200 %	Males Prop.all cancers n=91183 %	Females Prop.all cancers n=89596 %
0- 4	1		0.1	0.0			0.6	
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	4	1	0.3	0.1			0.5	0.1
35-39	6	2	0.5	0.2			0.5	0.1
40-44	25	9	1.5	0.6			1.4	0.2
45-49	47	23	3.0	1.5			1.5	0.4
50-54	46	37	3.6	2.9	8.7	5.4	0.9	0.5
55-59	53	59	5.0	5.3	3.8	3.4	0.7	0.8
60-64	113	74	11.5	7.0	6.2	8.1	1.0	0.8
65-69	171	135	17.8	12.9	8.8	9.6	1.1	1.2
70-74	249	144	27.4	13.8	12.9	11.1	1.5	1.2
75-79	178	158	32.3	22.2	18.5	17.7	1.4	1.6
80-84	137	150	39.2	26.8	29.9	31.3	1.6	1.7
85+	103	133	44.5	23.0	55.3	64.7	1.7	1.3
All ages	1133	925			16.9	21.6	1.2	1.0
Incidence								
Raw			6.3	4.9				
WS			3.0	1.9				
ES			4.5	2.9				
BRD-S			6.0	3.8				

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

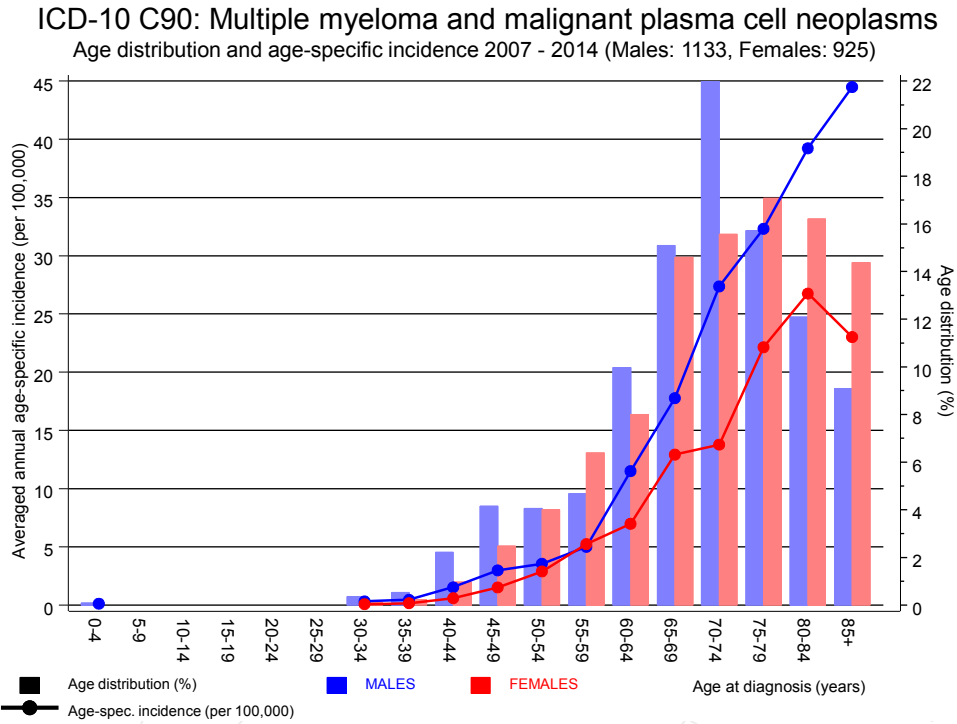


Figure 6. Age distribution and age-specific incidence

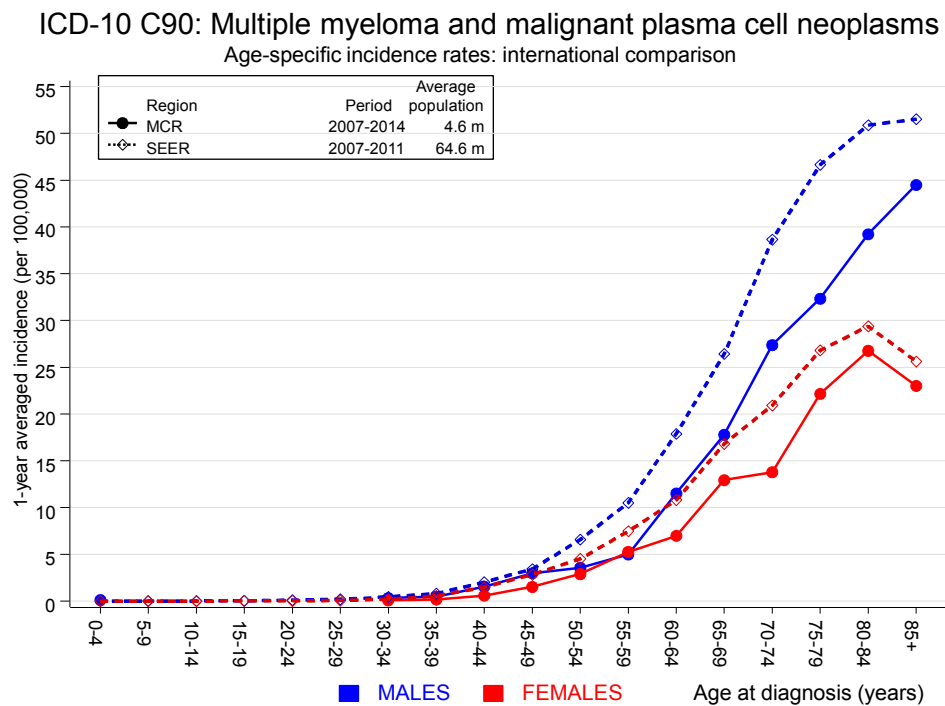


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

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>.

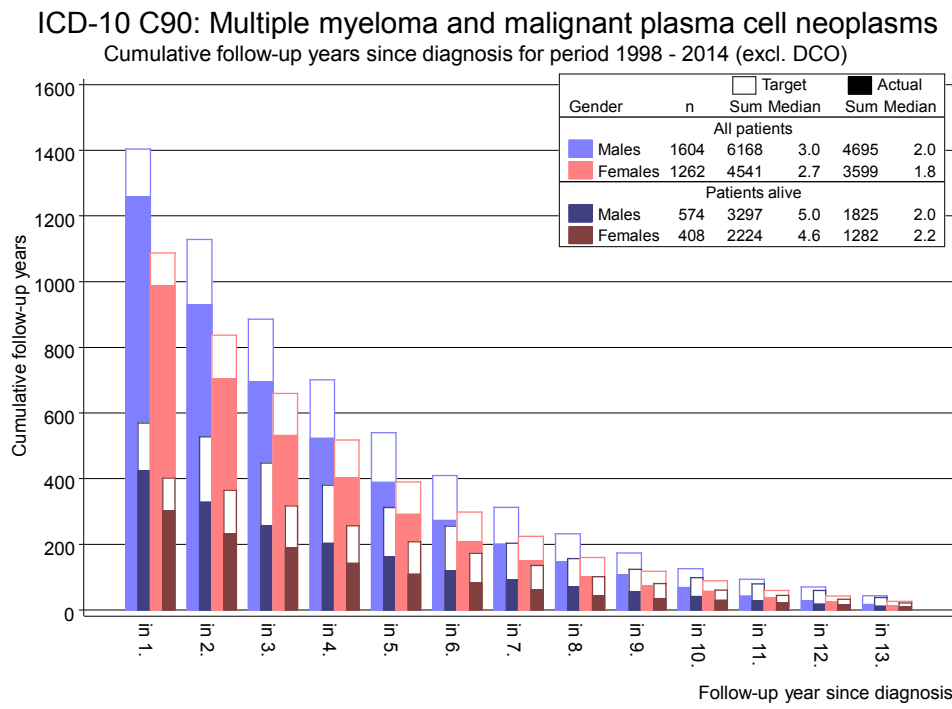


Figure 7. Cumulative follow-up years depending on time since diagnosis

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

Table 8a

Standardized incidence ratio (SIR, with 95% confidence limits),
excess absolute risk (EAR) and DCO rate of second primaries
for period 1998–2014

MALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%	EAR	DCO %
C15	Oesophagus	5	1.5	3.4	1.1	8.0 #	7.5	20.0
C16	Stomach	8	3.2	2.5	1.1	5.0 #	10.2	
C18	Colon	11	7.6	1.4	0.7	2.6	7.1	
C19–C20	Rectum	7	4.4	1.6	0.6	3.3	5.5	
C22	Liver	3	2.2	1.3	0.3	3.9	1.6	33.3
C25	Pancreas	3	2.9	1.0	0.2	3.0	0.3	33.3
C33–C34	Lung	14	9.5	1.5	0.8	2.5	9.6	7.1
C38,C45	Mesothelioma	2	0.5	3.7	0.4	13.3	3.1	
C40–C41	Bone	3	0.1	46.8	9.6	136.7 #	6.2	
C43	Malign. melanoma	8	3.4	2.3	1.0	4.6 #	9.7	
C46,C49	Soft tissue	3	0.4	7.2	1.5	21.0 #	5.5	
C61	Prostate	52	23.8	2.2	1.6	2.9 #	59.5	1.9
C64	Kidney	7	2.8	2.5	1.0	5.1 #	8.8	14.3
C67	Bladder	8	3.5	2.3	1.0	4.6 #	9.6	
C70–C72	CNS cancer	5	1.1	4.8	1.5	11.1 #	8.3	20.0
C73	Thyroid	2	0.5	3.8	0.5	13.8	3.1	
C76–C79	CUP	5	1.3	3.8	1.2	8.9 #	7.8	
C82–C85	NHL	17	3.1	5.4	3.1	8.6 #	29.2	5.9
C90	Mult. myeloma	2	1.0	1.9	0.2	7.0	2.1	50.0
C91–C96	Leukaemia	8	1.3	6.3	2.7	12.5 #	14.2	12.5
Other primaries		9	3.8	2.4	1.1	4.5 #	11.0	
Not observed		0	2.8	0.0	0.0	1.3	–5.9	
All mult. primaries		182	80.7	2.3	1.9	2.6 #	214.0	5.5

Patients	1680
Median age at second malignancy (years)	73.7
Person-years	4737
Mean observation time (years)	2.8
Median observation time (years)	1.9

The occurrence of second malignancy is statistically significant.

Observed second primaries with count 1 are pooled in category “Other primaries”

Table 8b

Standardized incidence ratio (SIR, with 95% confidence limits),
excess absolute risk (EAR) and DCO rate of second primaries
for period 1998-2014
FEMALES

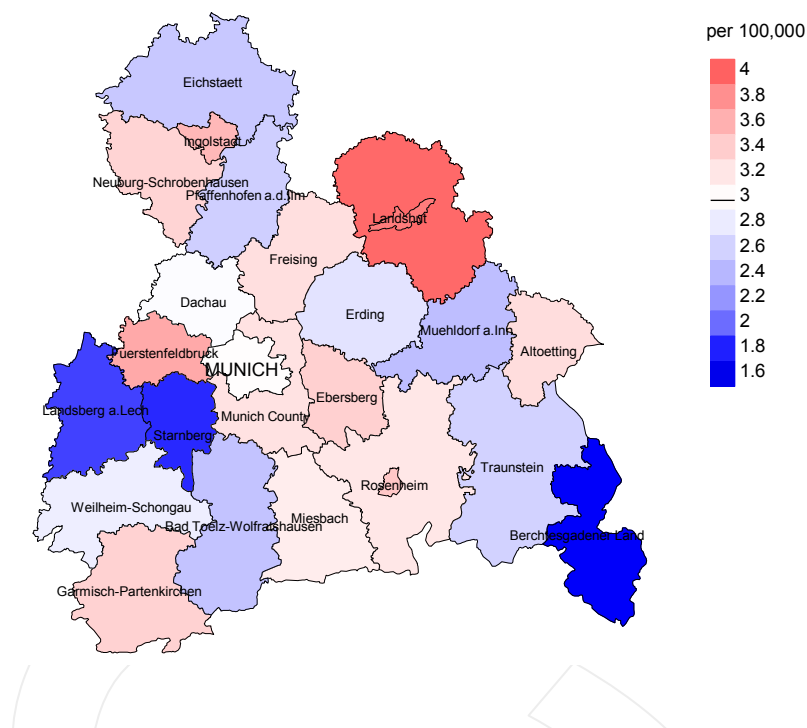
Diagnosis	Observed n	Expected n	SIR	LCL 95%	UCL 95%	EAR	DCO %
C09-C10 Oropharynx	2	0.2	11.4	1.4	41.3 #	5.0	
C16 Stomach	3	1.5	2.0	0.4	5.8	4.0	
C18 Colon	10	4.3	2.3	1.1	4.3 #	15.5	
C19-C20 Rectum	2	1.9	1.1	0.1	3.9	0.4	
C25 Pancreas	2	2.0	1.0	0.1	3.7	0.1	50.0
C33-C34 Lung	5	3.2	1.5	0.5	3.6	4.8	
C43 Malign. melanoma	7	1.6	4.4	1.8	9.1 #	14.7	
C48 Peritoneal	3	0.2	16.9	3.5	49.5 #	7.7	
C50 Breast	15	13.2	1.1	0.6	1.9	4.9	13.3
C54 Corpus uteri	2	2.5	0.8	0.1	2.9	-1.5	
C56 Ovary	2	1.8	1.1	0.1	4.0	0.5	50.0
C67 Bladder	2	0.8	2.5	0.3	8.9	3.2	
C73 Thyroid	2	0.7	2.8	0.3	10.1	3.5	
C76-C79 CUP	2	0.8	2.6	0.3	9.5	3.4	
C82-C85 NHL	10	1.7	5.8	2.8	10.7 #	22.6	20.0
C91-C96 Leukaemia	5	0.7	7.1	2.3	16.5 #	11.7	
Other primaries	11	3.3	3.3	1.7	6.0 #	21.0	27.3
Not observed	0	3.6	0.0	0.0	1.0	-9.8	
All mult. primaries	85	44.0	1.9	1.5	2.4 #	111.8	10.6

Patients 1348
 Median age at second malignancy (years) 72.4
 Person-years 3669
 Mean observation time (years) 2.7
 Median observation time (years) 1.7

The occurrence of second malignancy is statistically significant.

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

Average incidence (world standard population) 2007 - 2014: Males



Average incidence (world standard population) 2007 - 2014: Females

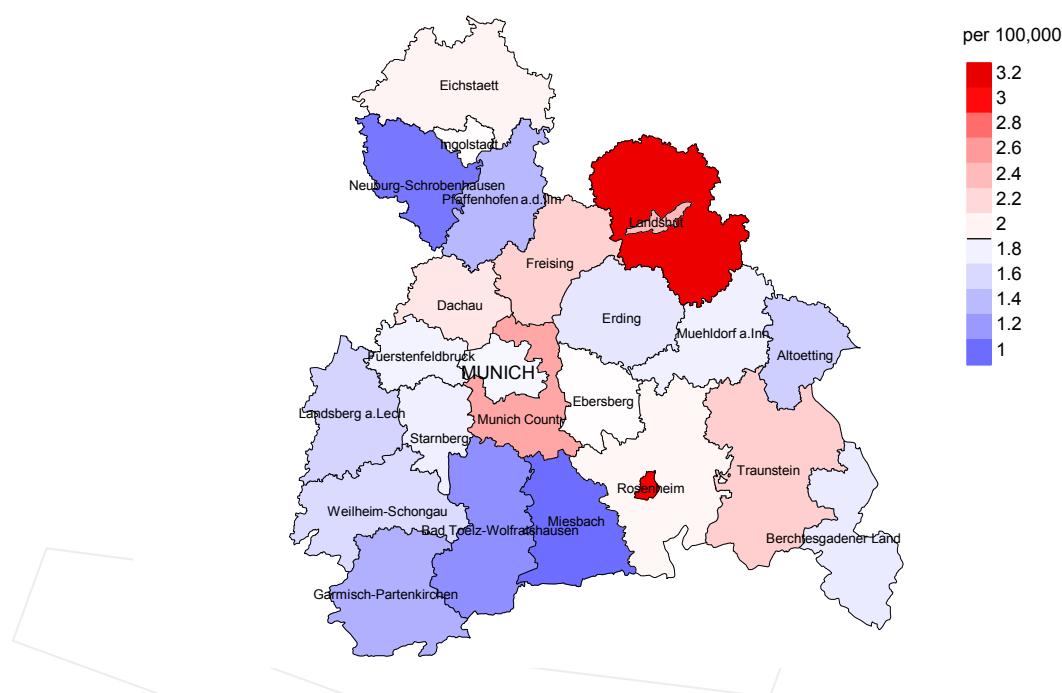
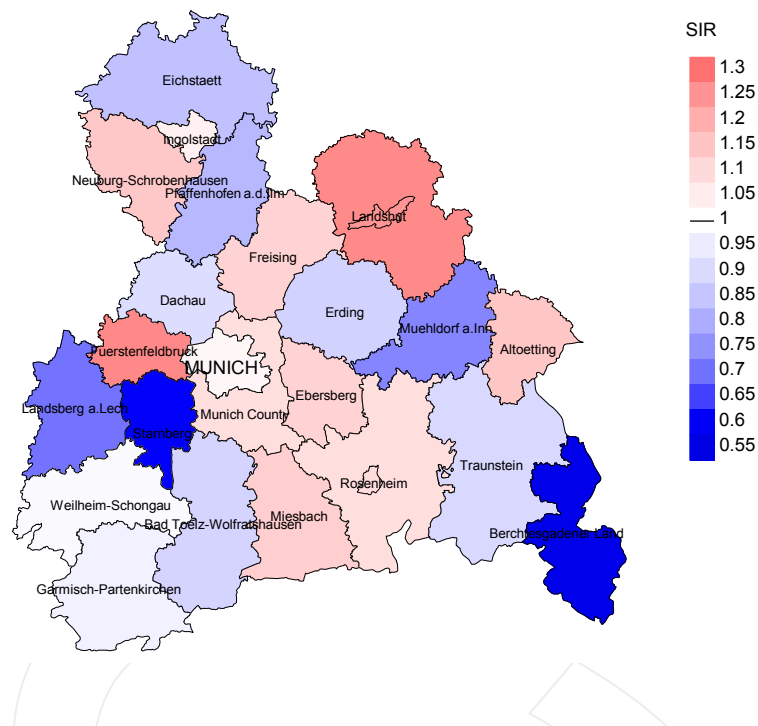


Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2014. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 3.0/100,000 WS N=1,133, females 1.9/100,000 WS N=925).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 65,347 female residents (averaged) in the period from 2007 to 2014 a total of 24 women were identified with newly diagnosed plasmacytoma. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 1.9/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 1.0 and 3.4/100,000.

Standardized incidence ratio (SIR) 2007 - 2014: Males



Standardized incidence ratio (SIR) 2007 - 2014: Females

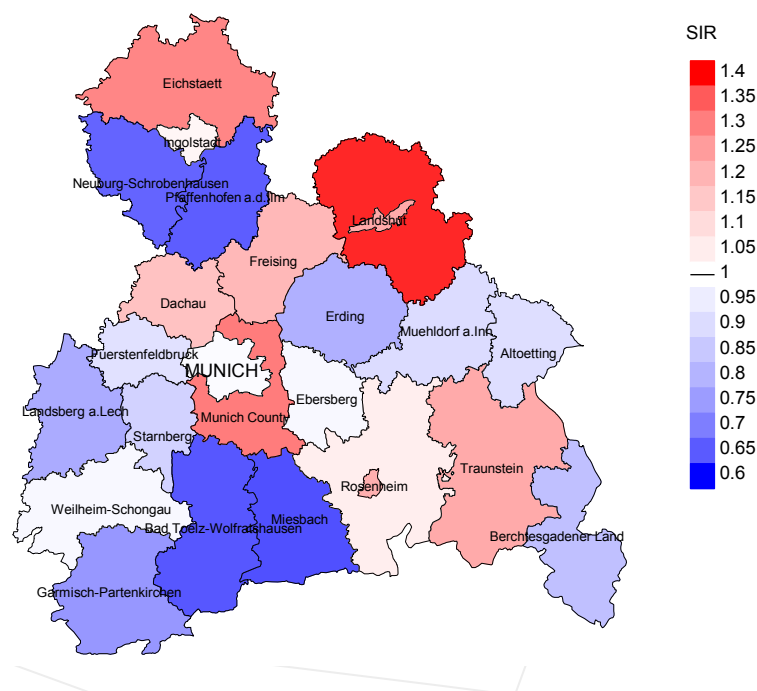


Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2014. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=1,133, females N=925).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,924 female residents (averaged) in the period from 2007 to 2014 a total of 24 women were identified with newly diagnosed plasmacytoma. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.98. Though, the value of this parameter may vary with an underlying probability of 99% between 0.54 and 1.63, 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	125	97.6	24.0	113	90.4	93.8
1999	128	98.4	21.1	118	92.2	94.1
2000	133	99.2	29.3	127	95.5	95.3
2001	113	99.1	29.2	104	92.0	96.2
2002	233	98.7	32.6	202	86.7	98.0
2003	236	97.0	24.6	203	86.0	97.0
2004	237	98.3	27.4	203	85.7	98.0
2005	231	96.5	19.5	191	82.7	98.4
2006	234	96.6	17.5	190	81.2	98.9
2007	311	90.7	21.2	251	80.7	97.6
2008	324	84.9	17.3	231	71.3	98.7
2009	275	88.7	15.3	193	70.2	96.9
2010	275	82.2	17.5	182	66.2	98.9
2011	297	85.2	20.2	167	56.2	99.4
2012	251	85.7	16.3	131	52.2	99.2
2013	225	98.7	20.0	101	44.9	97.0
2014	101	96.0	33.7	46	45.5	97.8
1998-2014	3729	92.4	21.6	2753	73.8	97.6

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	125	84	92.9	35	28.0
1999	128	98	95.9	41	32.0
2000	133	111	91.9	45	33.8
2001	113	102	95.1	36	31.9
2002	233	144	95.8	87	37.3
2003	236	163	99.4	80	33.9
2004	237	193	98.4	91	38.4
2005	231	149	98.0	66	28.6
2006	234	153	97.4	66	28.2
2007	311	183	98.9	90	28.9
2008	324	215	97.2	83	25.6
2009	275	214	97.2	71	25.8
2010	275	223	99.1	75	27.3
2011	297	235	97.9	81	27.3
2012	251	211	97.2	62	24.7
2013	225	225	99.1	70	31.1
2014	101	211	97.6	45	44.6
1998-2014	3729	2914	97.4	1124	30.1

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	84	53.6	46.4	94.9
1999	98	75.5	24.5	96.8
2000	111	64.9	35.1	96.1
2001	102	60.8	39.2	99.0
2002	144	81.9	18.1	97.1
2003	163	80.4	19.6	96.9
2004	193	83.4	16.6	96.8
2005	149	83.9	16.1	95.2
2006	153	85.0	15.0	96.6
2007	183	85.8	14.2	95.6
2008	215	84.7	15.3	92.3
2009	214	81.8	18.2	96.6
2010	223	83.4	16.6	91.0
2011	235	82.1	17.9	93.0
2012	211	84.4	15.6	93.2
2013	225	83.6	16.4	92.8
2014	211	82.9	17.1	92.2
1998-2014	2914	80.7	19.3	94.6

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	35	68.9	66.1	78.5	71.7
1999	51	71.9	71.4	76.4	71.8
2000	62	75.4	72.1	77.0	77.8
2001	47	75.5	75.5	76.1	75.5
2002	73	71.3	71.8	70.0	71.5
2003	83	72.4	71.5	74.9	72.4
2004	103	73.4	73.1	77.2	73.5
2005	76	74.0	74.0	74.3	73.8
2006	79	73.6	73.4	79.5	73.4
2007	94	74.3	74.1	79.9	74.6
2008	124	72.3	70.5	81.6	71.5
2009	114	72.6	72.0	78.0	73.1
2010	116	74.1	73.6	77.1	73.6
2011	130	75.8	75.7	80.7	75.8
2012	108	75.2	74.5	81.3	76.4
2013	140	76.4	75.2	81.1	76.1
2014	116	77.6	76.1	79.4	77.2
1998-2014	1551	74.4	73.7	78.3	74.4

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	49	78.3	70.4	80.6	78.2
1999	47	78.4	76.8	82.5	78.4
2000	49	77.2	76.7	78.8	76.5
2001	55	76.9	73.9	78.2	76.6
2002	71	76.5	74.0	82.1	77.0
2003	80	75.1	73.3	81.1	75.1
2004	90	75.5	74.0	82.5	75.4
2005	73	76.3	74.6	85.0	75.5
2006	74	76.3	76.1	78.8	77.2
2007	89	78.1	77.7	83.5	78.2
2008	91	77.4	76.6	81.4	77.4
2009	100	73.4	71.9	81.1	73.0
2010	107	76.1	75.4	81.8	75.9
2011	105	76.0	73.9	84.2	75.5
2012	103	77.8	76.6	81.4	76.4
2013	85	79.2	79.0	79.8	79.2
2014	95	77.0	76.1	83.2	77.0
1998-2014	1363	76.8	75.3	81.5	76.5

By 2010, life expectancy at birth was 77.5 years for boys and 82.6 years for girls.

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	22	2.0	0.30	1.2	0.30	1.7	0.29	2.0	0.28
1999	39	3.5	0.60	2.1	0.59	3.2	0.61	4.4	0.63
2000	39	3.4	0.50	1.9	0.49	3.0	0.50	4.5	0.53
2001	31	2.7	0.56	1.4	0.50	2.3	0.55	3.5	0.61
2002	58	3.1	0.48	1.7	0.46	2.6	0.47	3.6	0.49
2003	68	3.6	0.48	1.9	0.45	2.9	0.48	4.0	0.51
2004	84	4.5	0.69	2.3	0.64	3.6	0.66	4.8	0.71
2005	64	3.4	0.53	1.7	0.53	2.7	0.55	3.7	0.56
2006	67	3.5	0.57	1.7	0.52	2.6	0.54	3.6	0.58
2007	84	3.8	0.50	1.8	0.47	2.9	0.49	4.0	0.51
2008	108	4.9	0.60	2.4	0.58	3.6	0.60	4.8	0.61
2009	93	4.2	0.66	1.9	0.65	3.0	0.67	4.0	0.68
2010	94	4.2	0.57	1.8	0.49	2.8	0.53	3.9	0.57
2011	114	5.0	0.72	2.1	0.68	3.4	0.71	4.8	0.74
2012	90	3.9	0.65	1.7	0.61	2.6	0.63	3.7	0.67
2013	114	5.0	0.86	2.0	0.77	3.3	0.81	4.8	0.86
2014	95	4.2	1.94	1.7	1.64	2.8	1.77	4.1	2.02
1998-2014	1264	3.9	0.62	1.9	0.58	3.0	0.61	4.1	0.64

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	23	2.0	0.44	0.9	0.45	1.3	0.45	1.7	0.46
1999	35	2.9	0.56	1.1	0.49	1.7	0.51	2.4	0.54
2000	33	2.7	0.60	1.0	0.54	1.6	0.55	2.2	0.58
2001	31	2.5	0.53	1.1	0.49	1.7	0.52	2.3	0.54
2002	60	3.1	0.54	1.2	0.53	1.8	0.52	2.4	0.53
2003	63	3.2	0.67	1.3	0.64	1.9	0.65	2.6	0.66
2004	77	3.9	0.67	1.5	0.64	2.3	0.66	3.2	0.67
2005	61	3.1	0.55	1.2	0.53	1.8	0.54	2.5	0.54
2006	63	3.1	0.54	1.1	0.48	1.7	0.51	2.5	0.55
2007	73	3.2	0.52	1.1	0.44	1.7	0.47	2.4	0.51
2008	74	3.2	0.52	1.2	0.47	1.8	0.48	2.5	0.50
2009	82	3.5	0.61	1.4	0.62	2.0	0.62	2.7	0.61
2010	92	3.9	0.83	1.3	0.73	2.1	0.75	2.9	0.80
2011	79	3.3	0.57	1.2	0.54	1.9	0.55	2.6	0.57
2012	88	3.7	0.78	1.3	0.74	2.0	0.75	2.7	0.72
2013	74	3.1	0.80	1.0	0.64	1.6	0.68	2.3	0.76
2014	80	3.4	1.54	1.1	1.41	1.8	1.48	2.6	1.54
1998-2014	1088	3.3	0.64	1.2	0.59	1.8	0.60	2.5	0.62

Table 13

Age distribution of age at death (cancer-related) for period 2007-2014
(incl. multiple primaries)

Age at death Years	Cases			Males			Females		
	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
25-29	1	0.1	0.1	1	0.1	0.1			0.0
30-34	1	0.1	0.1	1	0.1	0.3			0.0
35-39	2	0.1	0.3	1	0.1	0.4	1	0.2	0.2
40-44	8	0.6	0.8	5	0.6	1.0	3	0.5	0.6
45-49	16	1.1	2.0	12	1.5	2.5	4	0.6	1.2
50-54	43	3.0	5.0	27	3.4	5.9	16	2.5	3.7
55-59	59	4.1	9.1	26	3.3	9.2	33	5.1	8.9
60-64	98	6.8	15.9	62	7.8	17.0	36	5.6	14.5
65-69	205	14.3	30.2	115	14.5	31.6	90	14.0	28.5
70-74	293	20.4	50.6	169	21.3	52.9	124	19.3	47.8
75-79	266	18.5	69.2	154	19.4	72.3	112	17.4	65.3
80-84	248	17.3	86.5	124	15.7	88.0	124	19.3	84.6
85+	194	13.5	100.0	95	12.0	100.0	99	15.4	100.0
All ages	1434	100.0		792	100.0		642	100.0	

Included in the statistics are 35.5% multiple primaries in males and 28.5% in females.

Table 14

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2014
(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	1		0.1	1.00	0.0		1.6	
30-34	1		0.1	0.25	0.0		1.1	
35-39	1	1	0.1	0.17	0.1	0.50	0.6	0.4
40-44	5	3	0.3	0.20	0.2	0.33	1.1	0.5
45-49	12	4	0.8	0.26	0.3	0.17	1.2	0.3
50-54	27	16	2.1	0.59	1.2	0.43	1.4	0.9
55-59	26	33	2.4	0.49	2.9	0.56	0.8	1.3
60-64	62	36	6.3	0.55	3.4	0.49	1.3	1.0
65-69	115	90	12.0	0.67	8.6	0.67	1.6	1.7
70-74	169	124	18.6	0.68	11.9	0.86	1.9	1.9
75-79	154	112	28.0	0.87	15.7	0.71	1.8	1.8
80-84	124	124	35.5	0.91	22.1	0.83	1.7	1.9
85+	95	99	41.0	0.92	17.1	0.74	1.6	1.1
All ages	792	642					1.6	1.5
Mortality								
Raw			4.4	0.70	3.4	0.69		
WS			1.9	0.64	1.2	0.63		
ES			3.1	0.68	1.9	0.65		
BRD-S			4.3	0.72	2.6	0.67		
PYLL-70								
per 100,000			12.9		8.8			
ES			11.2		7.4			
AYLL-70			8.3		7.6			

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

Table 15a

Multiple primaries in deaths in period 1998-2014
MALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn- chron ±30d n	Syn- chron ±30d ←%	Post n	Post ←%
C16	Stomach	11	2.5	5	45.5	2	18.2	4	36.4
C18	Colon	23	5.3	12	52.2	3	13.0	8	34.8
C19-C20	Rectum	19	4.4	10	52.6	3	15.8	6	31.6
C22	Liver	6	1.4	1	16.7	1	16.7	4	66.7
C25	Pancreas	6	1.4			1	16.7	5	83.3
C33-C34	Lung	20	4.6	4	20.0	4	20.0	12	60.0
C40-C41	Bone	5	1.2			1	20.0	4	80.0
C43	Malign. melanoma	27	6.3	22	81.5	1	3.7	4	14.8
C44	Skin others	35	8.1	18	51.4	1	2.9	16	45.7
C61	Prostate	110	25.5	79	71.8	6	5.5	25	22.7
C64	Kidney	22	5.1	11	50.0	4	18.2	7	31.8
C67	Bladder	14	3.2	7	50.0			7	50.0
C70-C72	CNS cancer	12	2.8	3	25.0	2	16.7	7	58.3
C76-C79	CUP	5	1.2					5	100.0
C82-C85	NHL	30	6.9	7	23.3	8	26.7	15	50.0
C90	Mult. myeloma	31	7.2			3	9.7	28	90.3
C91-C96	Leukaemia	19	4.4	3	15.8	1	5.3	15	78.9
Other primaries		37	8.6	18	48.6	3	8.1	16	43.2
All mult. primaries		432	100.0	200	46.3	44	10.2	188	43.5

Multiple primaries with number of cases 1 to 4 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 1998-2014
FEMALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn- chron ±30d n	Syn- chron ±30d ←%	Post n	Post ←%
C16	Stomach	7	2.4	2	28.6	2	28.6	3	42.9
C18	Colon	23	7.9	13	56.5	1	4.3	9	39.1
C19-C20	Rectum	15	5.2	11	73.3	1	6.7	3	20.0
C21	Anus/canal	4	1.4	3	75.0			1	25.0
C25	Pancreas	6	2.1			2	33.3	4	66.7
C33-C34	Lung	7	2.4	3	42.9	1	14.3	3	42.9
C43	Malign. melanoma	16	5.5	11	68.8			5	31.3
C44	Skin others	12	4.1	6	50.0	1	8.3	5	41.7
C48	Peritoneal	3	1.0	1	33.3	1	33.3	1	33.3
C50	Breast	86	29.7	66	76.7	6	7.0	14	16.3
C53	Cervix uteri	6	2.1	6	100.0				
C54	Corpus uteri	9	3.1	8	88.9			1	11.1
C56	Ovary	5	1.7	3	60.0	1	20.0	1	20.0
C64	Kidney	5	1.7	5	100.0				
C67	Bladder	4	1.4	1	25.0	1	25.0	2	50.0
C70-C72	CNS cancer	7	2.4	5	71.4			2	28.6
C73	Thyroid	4	1.4	2	50.0			2	50.0
C76-C79	CUP	4	1.4	1	25.0	1	25.0	2	50.0
C82-C85	NHL	20	6.9	6	30.0	6	30.0	8	40.0
C90	Mult. myeloma	23	7.9			1	4.3	22	95.7
C91-C96	Leukaemia	11	3.8	3	27.3	3	27.3	5	45.5
Other primaries		13	4.5	8	61.5			5	38.5
All mult. primaries		290	100.0	164	56.6	28	9.7	98	33.8

Multiple primaries with number of cases 1 to 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 2007-2014
(First 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	1		0.1	1.00	0.0		1.8	
30-34	1		0.1	0.25	0.0		1.2	
35-39	1	1	0.1	0.20	0.1	0.50	0.6	0.4
40-44	4	3	0.2	0.16	0.2	0.33	0.9	0.5
45-49	10	2	0.6	0.24	0.1	0.10	1.1	0.2
50-54	25	13	1.9	0.64	1.0	0.38	1.6	0.9
55-59	26	29	2.4	0.62	2.6	0.58	1.0	1.4
60-64	58	31	5.9	0.59	2.9	0.55	1.5	1.1
65-69	99	70	10.3	0.72	6.7	0.66	1.8	1.7
70-74	142	98	15.6	0.70	9.4	0.88	2.0	1.9
75-79	113	94	20.5	0.97	13.2	0.78	1.8	1.9
80-84	87	106	24.9	1.02	18.9	0.90	1.6	2.1
85+	62	74	26.8	0.84	12.8	0.70	1.4	1.1
All ages	629	521					1.6	1.5
Mortality								
Raw			3.5	0.72	2.8	0.71		
WS			1.6	0.66	1.0	0.64		
ES			2.5	0.70	1.5	0.66		
BRD-S			3.4	0.74	2.1	0.70		
PYLL-70								
per 100,000			11.8		7.3			
ES			10.3		6.1			
AYLL-70			8.4		7.8			

* See corresponding tables with multiple primaries.

Table 17

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2014
(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	1		0.1	1.00	0.0		2.0	
30-34	1		0.1	0.25	0.0		1.2	
35-39	1	1	0.1	0.20	0.1	0.50	0.6	0.5
40-44	4	3	0.2	0.16	0.2	0.33	1.0	0.6
45-49	10	2	0.6	0.25	0.1	0.10	1.2	0.2
50-54	24	12	1.9	0.69	0.9	0.38	1.7	0.9
55-59	21	28	2.0	0.51	2.5	0.60	0.9	1.5
60-64	51	28	5.2	0.55	2.6	0.51	1.5	1.2
65-69	88	65	9.1	0.69	6.2	0.66	1.9	1.9
70-74	128	91	14.1	0.70	8.7	0.88	2.3	2.2
75-79	98	83	17.8	0.90	11.6	0.72	2.0	2.1
80-84	74	99	21.2	0.95	17.7	0.86	1.8	2.4
85+	54	72	23.3	0.76	12.5	0.69	1.6	1.3
All ages	555	484					1.8	1.7
Mortality								
Raw			3.1	0.68	2.6	0.69		
WS			1.4	0.63	0.9	0.62		
ES			2.2	0.66	1.4	0.64		
BRD-S			3.0	0.70	2.0	0.67		
PYLL-70								
per 100,000			10.8		6.9			
ES			9.4		5.8			
AYLL-70			8.6		7.9			

* See corresponding tables with multiple primaries.

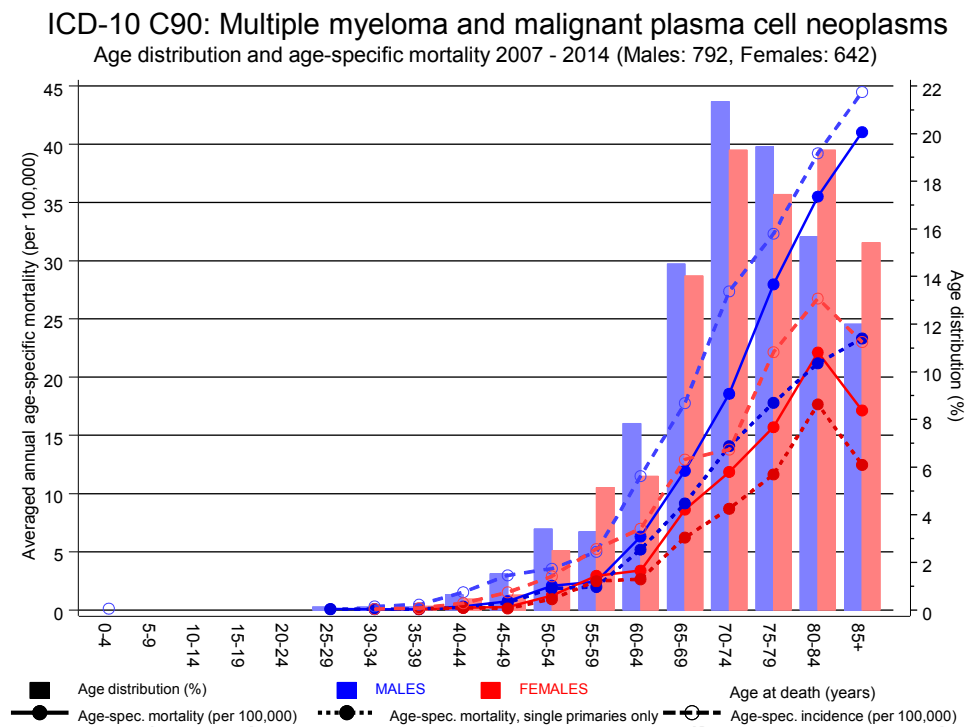
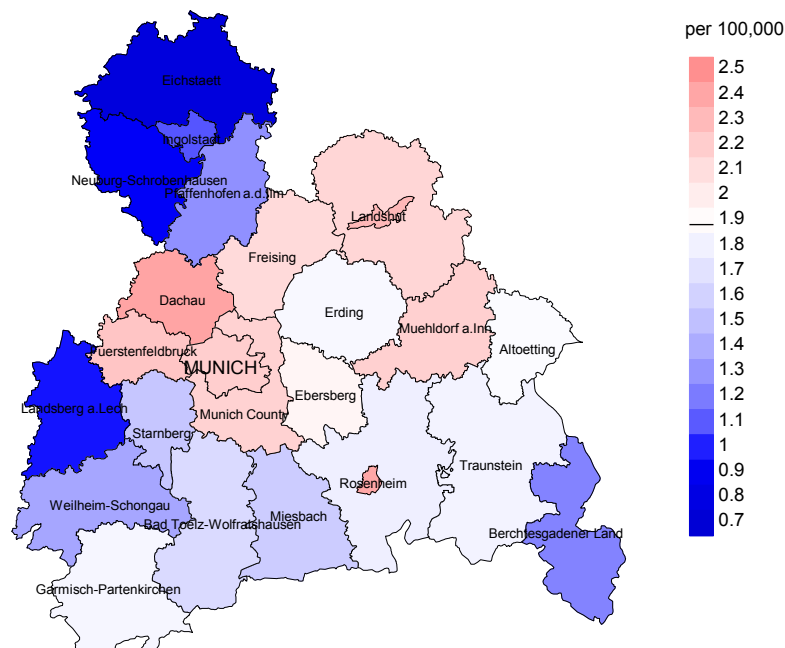


Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

Average mortality (world standard population) 2007 - 2014: Males



Average mortality (world standard population) 2007 - 2014: Females

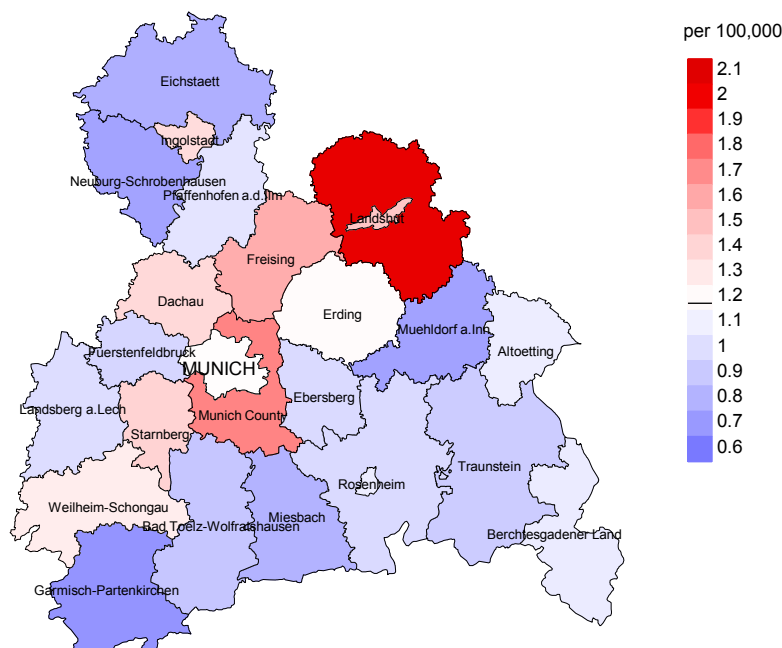
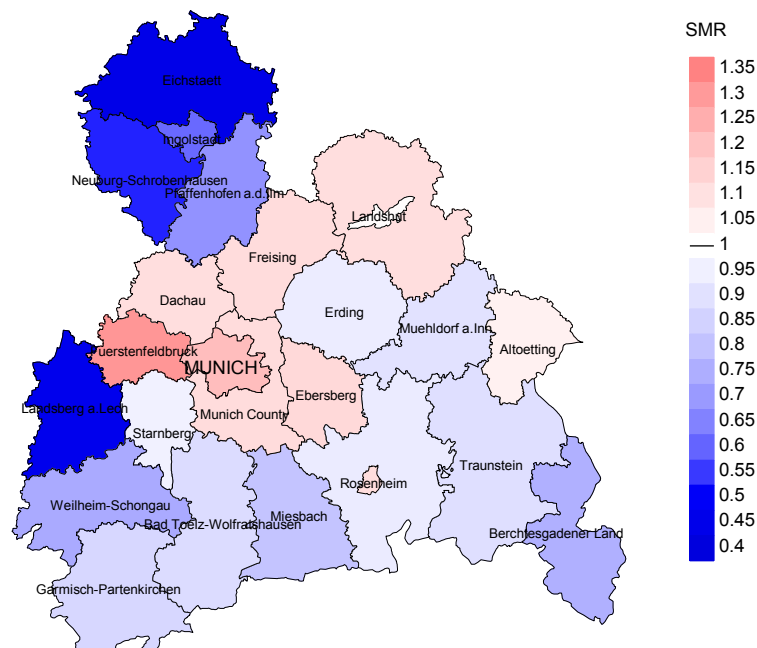


Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2014. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 1.9/100,000 WS N=781, females 1.2/100,000 WS N=635).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 65,347 female residents (averaged) in the period from 2007 to 2014 a total of 16 women died from plasmacytoma. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 1.0/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.4 and 2.1/100,000.

Standardized mortality ratio (SMR) 2007 - 2014: Males



Standardized mortality ratio (SMR) 2007 - 2014: Females

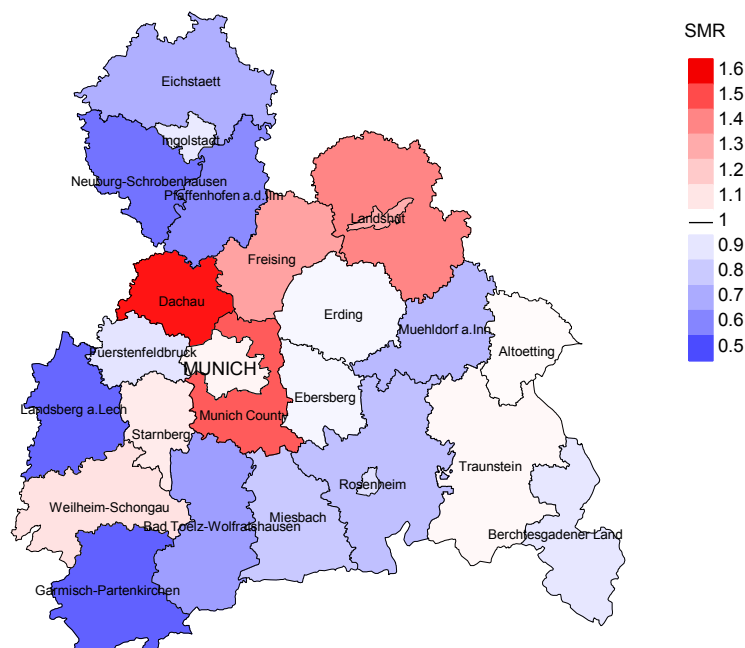


Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2014. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=781, females N=635).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,924 female residents (averaged) in the period from 2007 to 2014 a total of 16 women died from plasmacytoma. 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 0.45 and 1.77, 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, where applicable. 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

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