Munich Cancer Registry

- Survival
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ICD-10 C69: Eye melanoma

Incidence and Mortality

Year of diagnosis	1998-2016
Patients	327
Diseases	327
Creation date	08/21/2018
Export date	08/09/2018
Population	4.81 m

Munich Cancer Registry
Cancer Registry Bavaria - Upper Bavaria Regional Center
at Klinikum Grosshadern/IBE
Marchioninistr. 15
Munich, 81377
Germany

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

https://www.tumorregister-muenchen.de/en/facts/base/bC69M_E-ICD-10-C69-Eye-melanoma-incidence-and-mortality.pdf

Index of figures and tables

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 4.69 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, August 2018

[#] 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 2.65 million to 4.10 in 2002, and to 4.69 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.

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

Code	Description
C69.-	Malignant neoplasm of eye and adnexa

... in case of coexisting one of the following ...

Morphology codes (ICD-O-3 2014) used for specifying cancer site

Code	Description
8720/3	Malignant melanoma, NOS
8721/3	Nodular melanoma
8730/3	Amelanotic melanoma
8742/3	Lentigo maligna melanoma
8743/3	Superficial spreading melanoma
8770/3	Mixed epithelioid and spindle cell melanoma
8771/3	Epithelioid cell melanoma
8772/3	Spindle cell melanoma, NOS
8773/3	Spindle cell melanoma, type A
8774/3	Spindle cell melanoma, type B

INCIDENCE

Table 1

Cases with invasive cancer by year of diagnosis, proportions of further malignancies, deaths, and active follow-up (ALL PATIENTS)

Year of diagnosis	All cases n	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %
1998	9	0.0	12.7	77.8	88.9
1999	5	7.1	12.4	60.0	100.0
2000	11	20.0	12.0	81.8	90.9
2001	6	22.6	11.4	83.3	100.0
2002	22	18.9	11.3	63.6	95.5 #
2003	27	16.3	11.5	55.6	81.5
2004	31	18.0	10.7	74.2	83.9
2005	31	14.8	10.3	58.1	90.3
2006	30	14.5	9.3	50.0	86.7
2007	29	14.9	7.2	72.4	89.7 #
2008	25	15.0	5.7	76.0	88.0
2009	23	15.3	5.1	52.2	82.6
2010	25	15.0	3.9	72.0	80.0
2011	14	15.6	2.0	78.6	78.6
2012	12	15.7	2.6	66.7	91.7
2013	16	15.5	3.8	62.5	93.8
2014	9	15.7	0.0	22.2	88.9
2015	1	15.6	0.0	100.0	100.0
2016	1	15.9			100.0 ##
1998-2016	327	15.9	12.7	64.5	87.5

327 cases diagnosed 1998-2016 are related to a total of 327 patients. Currently, in 88 (26.9 %) of these 327 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 67 / 13 / 8 (20.5 % / 4.0 % / 2.4 %) patients exist having 2 / 3 / 4+ malignancies.

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 retreived from the respective headings.

How to interpret:
In 2014, a subgroup of 9 cases has been diagnosed, of which 15.7 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 0.0 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 1a

Cases with invasive cancer by year of diagnosis, proportions of further malignancies, deaths, and active follow-up (MALES)

Year of diagnosis	Males n	Males %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %
1998	2	22.2	0.0	11.3	100.0	100.0
1999	2	40.0	0.0	11.4	50.0	100.0
2000	5	45.5	11.1	11.6	100.0	100.0
2001	2	33.3	18.2	9.9	100.0	100.0
2002	14	63.6	12.0	10.0	78.6	100.0 #
2003	9	33.3	11.8	11.1	66.7	88.9
2004	15	48.4	14.3	11.1	60.0	73.3
2005	12	38.7	13.1	10.8	66.7	100.0
2006	14	46.7	14.7	10.0	50.0	92.9
2007	12	41.4	14.9	6.6	50.0	83.3 #
2008	11	44.0	13.3	6.3	81.8	90.9
2009	9	39.1	13.1	5.7	66.7	100.0
2010	15	60.0	13.9	4.4	80.0	86.7
2011	7	50.0	15.5	0.0	85.7	85.7
2012	9	75.0	15.9	0.0	77.8	88.9
2013	8	50.0	15.8	0.0	50.0	87.5
2014	5	55.6	15.9	0.0	40.0	100.0
2015	1	100.0	15.8	0.0	100.0	100.0
2016	0 ##					
1998-2016	152	46.5	15.8	11.3	68.4	90.8

152 cases diagnosed 1998-2016 are related to a total of 152 patients. Currently, in 39 (25.7 %) of these 152 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 30 / 6 / 3 (19.7 % / 3.9 % / 2.0 %) patients exist having 2 / 3 / 4+ malignancies.

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 retreived from the respective headings.

How to interpret:
In 2014, a subgroup of 5 cases has been diagnosed, of which 15.9 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 0.0 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 1b

Cases with invasive cancer by year of diagnosis, proportions of further malignancies, deaths, and active follow-up (FEMALES)

Year of diagnosis	Females n	Females %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %
1998	7	77.8	0.0	14.0	71.4	85.7
1999	3	60.0	10.0	13.3	66.7	100.0
2000	6	54.5	25.0	12.3	66.7	83.3
2001	4	66.7	25.0	12.8	75.0	100.0
2002	8	36.4	25.0	12.5	37.5	87.5 #
2003	18	66.7	19.6	11.8	50.0	77.8
2004	16	51.6	21.0	10.3	87.5	93.8
2005	19	61.3	16.0	9.9	52.6	84.2
2006	16	53.3	14.4	8.7	50.0	81.3
2007	17	58.6	14.9	7.9	88.2	94.1 #
2008	14	56.0	16.4	5.1	71.4	85.7
2009	14	60.9	16.9	4.4	42.9	71.4
2010	10	40.0	15.8	3.2	60.0	70.0
2011	7	50.0	15.7	4.8	71.4	71.4
2012	3	25.0	15.4	6.7	33.3	100.0
2013	8	50.0	15.3	8.3	75.0	100.0
2014	4	44.4	15.5	0.0		75.0
2015	0					
2016	1	100.0	16.0			100.0 ##
1998-2016	175	53.5	16.0	14.0	61.1	84.6

175 cases diagnosed 1998-2016 are related to a total of 175 patients. Currently, in 49 (28.0 %) of these 175 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 37 / 7 / 5 (21.1 % / 4.0 % / 2.9 %) patients exist having 2 / 3 / 4+ malignancies.

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 retreived from the respective headings.

How to interpret:
In 2014, a subgroup of 4 cases has been diagnosed, of which 15.5 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 0.0 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 2

Incidence measures by year of diagnosis
(with respect to registry area expansion from 2.65 to 4.10 m as of 2002,
and from 4.10 to 4.81 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	2	7	0.2	0.6	0.1	0.4	0.2	0.5	0.2	0.5
1999	2	3	0.2	0.3	0.1	0.2	0.2	0.2	0.2	0.2
2000	5	6	0.4	0.5	0.3	0.2	0.4	0.3	0.5	0.4
2001	2	4	0.2	0.3	0.1	0.2	0.2	0.2	0.2	0.3
2002	14	8	0.8	0.4	0.5	0.2	0.7	0.3	0.8	0.3
2003	9	18	0.5	0.9	0.3	0.5	0.4	0.7	0.5	0.8
2004	15	16	0.8	0.8	0.4	0.5	0.6	0.6	0.9	0.7
2005	12	19	0.6	1.0	0.4	0.4	0.6	0.6	0.6	0.8
2006	14	16	0.7	0.8	0.5	0.4	0.6	0.5	0.7	0.6
2007	12	17	0.5	0.7	0.3	0.4	0.4	0.5	0.5	0.6
2008	11	14	0.5	0.6	0.2	0.3	0.4	0.4	0.5	0.5
2009	9	14	0.4	0.6	0.2	0.4	0.3	0.5	0.4	0.5
2010	15	10	0.7	0.4	0.3	0.2	0.5	0.3	0.6	0.4
2011	7	7	0.3	0.3	0.1	0.2	0.2	0.3	0.3	0.3
2012	9	3	0.4	0.1	0.2	0.1	0.3	0.1	0.4	0.1
2013	8	8	0.3	0.3	0.2	0.1	0.3	0.2	0.3	0.2
2014	5	4	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.1
2015	1		0.0		0.0		0.0		0.0	
2016		1		0.0		0.0		0.0		0.0
1998-2016	152	175	0.4	0.5	0.2	0.2	0.3	0.3	0.4	0.4

The computation of the incidence measures includes all cancers, irrespective of first or subsequent malignancy.

Table 3

Age distribution parameters by year of diagnosis (ALL PATIENTS)

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	9	53.0	13.9	31.1	70.5	31.1	41.2	60.2	63.3	70.5
1999	5	56.0	6.1	50.4	65.9	50.4	52.1	54.7	56.7	65.9
2000	11	66.9	15.6	40.9	86.8	49.0	55.4	71.4	80.7	84.2
2001	6	68.1	8.7	57.5	83.3	57.5	63.3	67.3	69.9	83.3
2002	22	61.4	17.8	16.7	90.9	37.2	52.7	65.0	72.6	80.1
2003	27	60.4	13.8	31.0	81.2	43.3	51.1	62.6	70.2	78.0
2004	31	68.1	9.0	51.9	81.5	54.2	61.6	67.3	77.0	79.4
2005	31	67.2	15.1	34.3	91.9	46.1	56.5	71.6	79.9	82.3
2006	30	66.4	17.1	7.3	94.2	50.7	57.7	65.4	74.3	90.9
2007	29	66.3	14.9	40.4	96.8	44.6	53.2	68.7	78.2	84.4
2008	25	72.0	12.0	35.7	89.6	54.8	65.6	73.9	81.2	84.7
2009	23	61.2	15.4	36.8	86.4	40.4	47.0	62.9	73.7	82.8
2010	25	63.8	16.6	28.4	85.8	37.8	57.2	70.1	72.8	84.1
2011	14	66.3	12.1	44.4	84.0	55.1	56.2	66.1	75.1	83.6
2012	12	66.6	13.5	45.1	82.9	46.2	55.7	71.2	75.8	82.6
2013	16	65.7	15.6	24.6	89.7	43.7	57.3	70.4	75.2	78.9
2014	9	64.6	14.3	43.6	84.3	43.6	55.5	68.2	75.8	84.3
2015	1	83.4		83.4	83.4	83.4	83.4	83.4	83.4	83.4
2016	1	79.4		79.4	79.4	79.4	79.4	79.4	79.4	79.4
1998-2016	327	65.2	14.6	7.3	96.8	44.6	55.1	66.9	75.7	83.0

Table 3a

Age distribution parameters by year of diagnosis (MALES)

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	2	66.9	5.1	63.3	70.5	63.3	63.3	66.9	70.5	70.5
1999	2	58.2	11.0	50.4	65.9	50.4	50.4	58.2	65.9	65.9
2000	5	64.0	15.8	40.9	80.4	40.9	55.4	71.4	71.8	80.4
2001	2	69.9	0.0	69.8	69.9	69.8	69.8	69.9	69.9	69.9
2002	14	60.0	17.7	16.7	81.6	37.2	52.7	62.4	72.6	80.1
2003	9	61.4	10.3	44.1	76.6	44.1	53.7	60.6	70.2	76.6
2004	15	72.0	7.4	60.1	81.4	62.2	66.6	72.5	78.6	80.6
2005	12	61.8	12.4	34.3	74.8	49.4	53.5	63.8	72.1	74.3
2006	14	62.3	8.6	49.6	79.2	51.7	55.1	63.4	66.4	74.3
2007	12	66.3	12.8	44.6	83.3	47.1	56.2	69.8	75.0	78.5
2008	11	72.5	15.9	35.7	89.6	54.1	68.9	75.7	84.7	87.8
2009	9	65.8	12.4	38.6	80.3	38.6	62.9	65.6	73.7	80.3
2010	15	66.2	16.5	28.4	84.2	37.8	62.7	71.8	72.8	84.1
2011	7	74.0	10.4	55.1	84.0	55.1	68.5	75.1	83.6	84.0
2012	9	66.8	13.3	45.1	82.9	45.1	62.2	71.0	73.8	82.9
2013	8	59.7	17.9	24.6	78.9	24.6	49.0	66.9	71.0	78.9
2014	5	66.0	14.4	47.1	84.3	47.1	56.9	68.2	73.6	84.3
2015	1	83.4		83.4	83.4	83.4	83.4	83.4	83.4	83.4
1998-2016	152	65.7	13.5	16.7	89.6	47.1	58.4	68.8	74.1	81.2

Table 3b

Age distribution parameters by year of diagnosis (FEMALES)

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	7	49.0	13.1	31.1	64.0	31.1	36.3	49.7	60.5	64.0
1999	3	54.5	2.3	52.1	56.7	52.1	52.1	54.7	56.7	56.7
2000	6	69.3	16.5	49.0	86.8	49.0	55.8	70.0	84.2	86.8
2001	4	67.2	11.2	57.5	83.3	57.5	60.4	64.1	74.0	83.3
2002	8	63.9	18.8	31.0	90.9	31.0	52.0	68.8	73.7	90.9
2003	18	60.0	15.5	31.0	81.2	33.7	47.5	63.8	69.1	79.8
2004	16	64.4	9.0	51.9	81.5	52.8	56.2	65.0	71.2	77.2
2005	19	70.6	15.9	36.6	91.9	40.2	63.7	74.8	82.2	84.0
2006	16	69.9	21.7	7.3	94.2	48.2	62.7	69.4	87.8	91.6
2007	17	66.2	16.6	40.4	96.8	43.1	53.2	65.4	79.5	84.5
2008	14	71.6	8.5	54.8	84.2	63.7	65.3	71.4	76.2	83.0
2009	14	58.3	16.8	36.8	86.4	40.4	46.3	53.7	69.5	85.8
2010	10	60.1	16.8	32.2	85.8	37.9	43.8	58.9	74.7	80.8
2011	7	58.6	8.3	44.4	71.8	44.4	55.3	58.5	63.6	71.8
2012	3	65.9	17.1	46.2	76.3	46.2	46.2	75.2	76.3	76.3
2013	8	71.8	10.7	54.9	89.7	54.9	65.0	73.5	76.4	89.7
2014	4	62.9	16.2	43.6	76.7	43.6	49.5	65.7	76.2	76.7
2016	1	79.4		79.4	79.4	79.4	79.4	79.4	79.4	79.4
1998-2016	175	64.8	15.6	7.3	96.8	43.6	54.2	65.3	76.3	84.1

Table 4

Age distribution by 5-year age group and sex for period 2007-2016

Age at diagnosis Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4									
5-9									
10-14									
15-19									
20-24	1	0.6	0.6	1	1.3	1.3			0.0
25-29	1	0.6	1.3	1	1.3	2.6			0.0
30-34	1	0.6	1.9			2.6	1	1.3	1.3
35-39	4	2.6	4.5	3	3.9	6.5	1	1.3	2.6
40-44	10	6.5	11.0	3	3.9	10.4	7	9.0	11.5
45-49	11	7.1	18.1	5	6.5	16.9	6	7.7	19.2
50-54	10	6.5	24.5	2	2.6	19.5	8	10.3	29.5
55-59	12	7.7	32.3	3	3.9	23.4	9	11.5	41.0
60-64	12	7.7	40.0	6	7.8	31.2	6	7.7	48.7
65-69	19	12.3	52.3	12	15.6	46.8	7	9.0	57.7
70-74	27	17.4	69.7	18	23.4	70.1	9	11.5	69.2
75-79	18	11.6	81.3	6	7.8	77.9	12	15.4	84.6
80-84	22	14.2	95.5	15	19.5	97.4	7	9.0	93.6
85+	7	4.5	100.0	2	2.6	100.0	5	6.4	100.0
All ages	155	100.0		77	100.0		78	100.0	

Table 5

Age-specific incidence and proportion of all cancers
for period 2007-2016

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males Prop.all cancers n=113978 %	Females Prop.all cancers n=112253 %
0- 4						
5- 9						
10-14						
15-19						
20-24	1		0.1		0.2	
25-29	1		0.1		0.1	
30-34		1		0.1		0.1
35-39	3	1	0.2	0.1	0.2	0.0
40-44	3	7	0.2	0.4	0.1	0.2
45-49	5	6	0.3	0.3	0.1	0.1
50-54	2	8	0.1	0.5	0.0	0.1
55-59	3	9	0.2	0.6	0.0	0.1
60-64	6	6	0.5	0.5	0.0	0.1
65-69	12	7	1.0	0.5	0.1	0.0
70-74	18	9	1.6	0.7	0.1	0.1
75-79	6	12	0.8	1.2	0.0	0.1
80-84	15	7	3.3	1.0	0.1	0.1
85+	2	5	0.7	0.7	0.0	0.0
All ages	77	78			0.1	0.1
Incidence						
Raw			0.3	0.3		
WS			0.2	0.2		
ES			0.2	0.2		
BRD-S			0.3	0.3		

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).

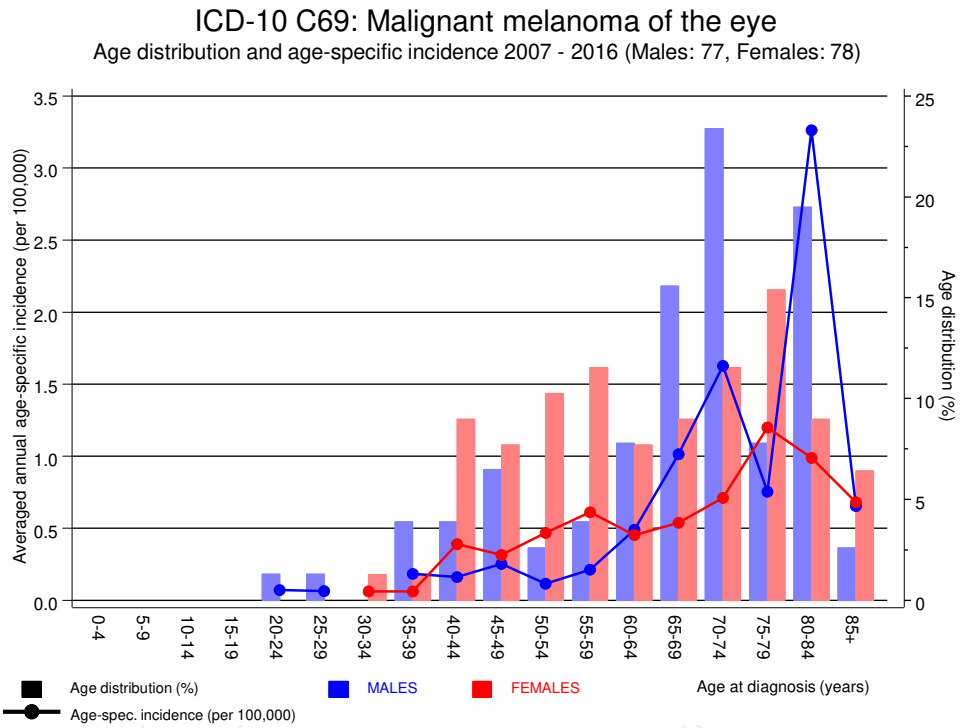


Figure 6. Age distribution (males: mean=67.4 yrs, median=70.3 yrs; females: mean=64.8 yrs, median=65.3 yrs) and age-specific incidence.

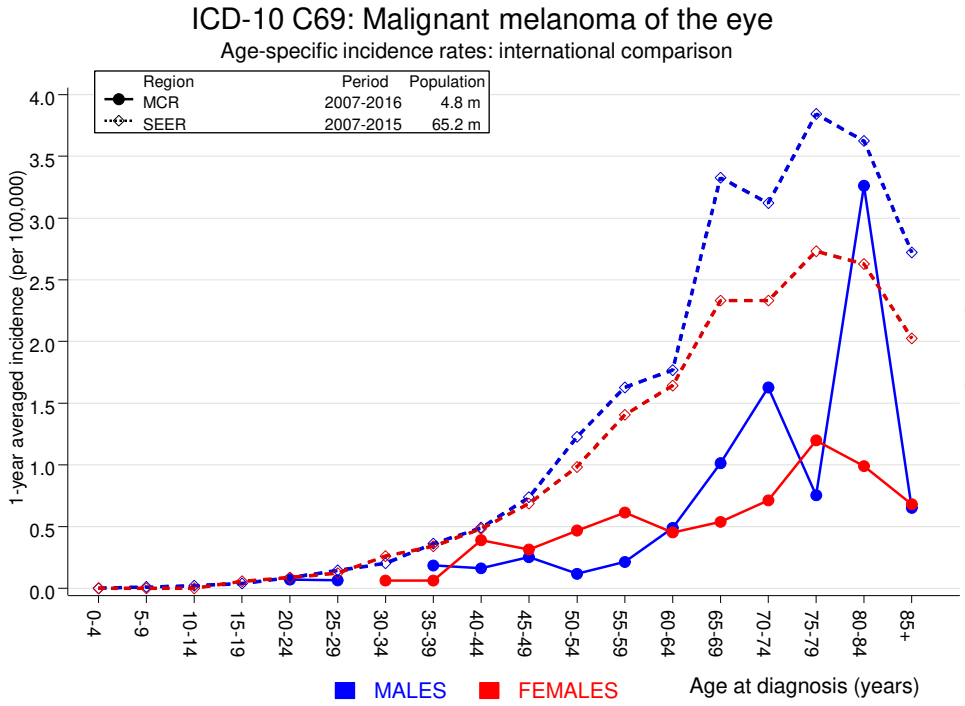


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

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.

Table 7a

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of further malignancies for period 1998–2016
MALES

Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C18	Colon	2	1.0	2.0	0.2	7.4		18.1	
C33–C34	Lung	5	1.1	4.4	1.4	10.2	#	68.1	20.0
C43	Malign. melanoma	3	0.4	7.1	1.5	20.8	#	45.6	
C61	Prostate	4	2.8	1.4	0.4	3.7		21.5	
C67	Bladder	2	0.5	4.3	0.5	15.6		27.2	
Others, specified		4	1.2	3.4	0.9	8.6		49.6	
Not observed		0	2.9	0.0	0.0	1.3		−50.9	
All further malignancies		20	9.9	2.0	1.2	3.1	#	179.3	5.0

Patients	146
Median age at next malignancy (years)	74.3
Person-years	566
Mean observation time (years)	3.9
Median observation time (years)	2.7

The occurrence of further malignancy listed is statistically significant.

Observed further malignancies with count 1 are pooled in category “Others, specified”.

Table 7b

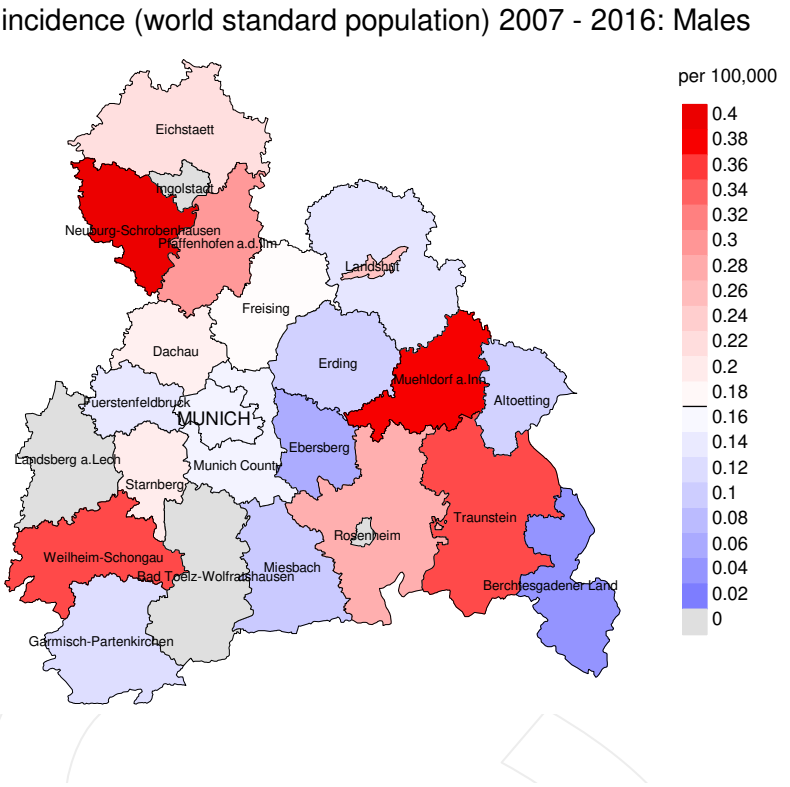
Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of further malignancies for period 1998–2016
FEMALES

Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C22	Liver	2	0.1	19.3	2.3	69.9	#	21.6	
C43	Malign. melanoma	2	0.4	5.7	0.7	20.6		18.8	50.0
C50	Breast	8	2.8	2.8	1.2	5.6	#	59.2	
C54	Corpus uteri	2	0.5	4.1	0.5	14.7		17.2	
C56	Ovary	2	0.4	5.5	0.7	19.9		18.7	
Others, specified		10	1.7	5.8	2.8	10.6	#	94.2	10.0
Not observed		0	3.1	0.0	0.0	1.2		−35.9	
All further malignancies		26	9.0	2.9	1.9	4.2	#	193.9	7.7

Patients	167
Median age at next malignancy (years)	65.6
Person-years	877
Mean observation time (years)	5.3
Median observation time (years)	4.6

The occurrence of further malignancy listed is statistically significant.

Observed further malignancies with count 1 are pooled in category “Others, specified”.



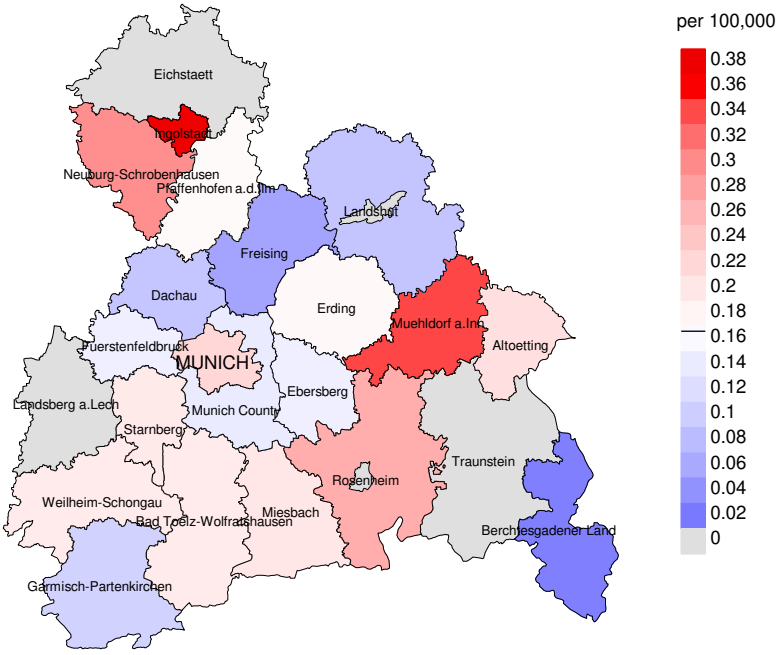
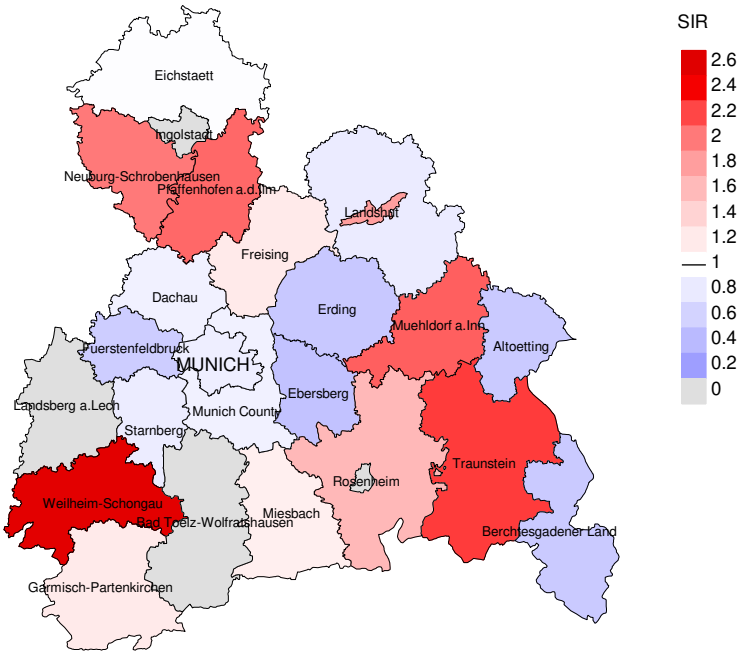


Figure 8a. Map of cancer incidence (world standard population) by county averaged for period 2007 to 2016. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.2/100,000 WS N=77, females 0.2/100,000 WS N=78).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 2 women were identified with newly diagnosed eye melanoma. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 0.1/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.0 and 1.1/100,000.

Standardized incidence ratio (SIR) 2007 - 2016: Males



Standardized incidence ratio (SIR) 2007 - 2016: Females

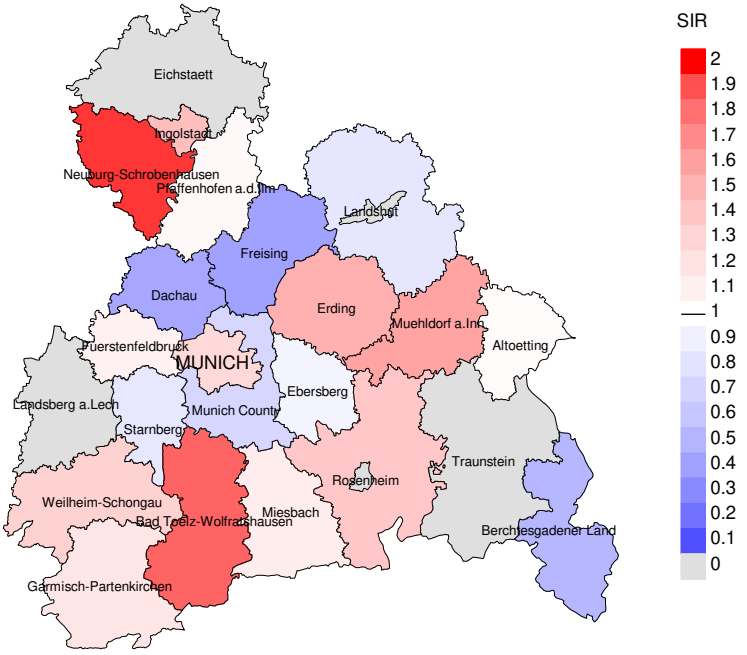


Figure 8b. Map of standardized incidence ratio (SIR) by county averaged for period 2007 to 2016. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=77, females N=78).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 2 women were identified with newly diagnosed eye melanoma. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.92. Though, the value of this parameter may vary with an underlying probability of 99% between 0.05 and 4.28, and is therefore not statistically striking.

MORTALITY

Table 9a

Annual cohorts: Incident cancers, follow-up status,
and deaths among the annual cohorts

(with respect to registry area expansion from 2.65 to 4.10 m as of 2002,
and from 4.10 to 4.81 m as of 2007, respectively)

Year of diagnosis	Incident cases n	Prop. actively followed %	Deaths n	Prop. deaths %	Prop. deaths with death certific. %
1998	9	88.9	7	77.8	100.0
1999	5	100.0	3	60.0	100.0
2000	11	90.9	9	81.8	88.9
2001	6	100.0	5	83.3	100.0
2002	22	95.5	14	63.6	92.9
2003	27	81.5	15	55.6	93.3
2004	31	83.9	23	74.2	91.3
2005	31	90.3	18	58.1	88.9
2006	30	86.7	15	50.0	100.0
2007	29	89.7	21	72.4	100.0
2008	25	88.0	19	76.0	100.0
2009	23	82.6	12	52.2	100.0
2010	25	80.0	18	72.0	94.4
2011	14	78.6	11	78.6	100.0
2012	12	91.7	8	66.7	100.0
2013	16	93.8	10	62.5	100.0
2014	9	88.9	2	22.2	100.0
2015	1	100.0	1	100.0	100.0
2016	1	100.0			
1998-2016	327	87.5	211	64.5	96.2

Table 9b

Annual cohorts of incident cancers and deaths,
and cases deceased within the same year of being diagnosed with cancer

(with respect to registry area expansion from 2.65 to 4.10 m as of 2002,
and from 4.10 to 4.81 m as of 2007, respectively)

Year of diagnosis/ death	Incident cases n	Deaths n	Deaths in same year n	Prop. deaths in same year %
1998	9	11		
1999	5	5		
2000	11	12		
2001	6	3		
2002	22	12		
2003	27	17	2	7.4
2004	31	13	2	6.5
2005	31	19	4	12.9
2006	30	16		
2007	29	22	3	10.3
2008	25	18	1	4.0
2009	23	26	2	8.7
2010	25	23		
2011	14	32	2	14.3
2012	12	18	1	8.3
2013	16	26	1	6.3
2014	9	26	1	11.1
2015	1	29	1	100.0
2016	1	13		
1998–2016	327	341	20	6.1

Table 9c

Annual cohorts of deaths, and proportion of cancer-related and non-cancer-related deaths

(with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.81 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer-related %	Prop. non-cancer-related %	Prop. cancer recorded on death certificate %
1998	11	63.6	36.4	60.0
1999	5	40.0	60.0	75.0
2000	12	83.3	16.7	83.3
2001	3	33.3	66.7	100.0
2002	12	50.0	50.0	50.0
2003	17	76.5	23.5	86.7
2004	13	69.2	30.8	84.6
2005	19	84.2	15.8	88.2
2006	16	62.5	37.5	73.3
2007	22	86.4	13.6	90.9
2008	18	77.8	22.2	88.9
2009	26	84.6	15.4	84.6
2010	23	60.9	39.1	77.3
2011	32	81.3	18.8	80.6
2012	18	72.2	27.8	72.2
2013	26	84.6	15.4	88.5
2014	26	73.1	26.9	69.2
2015	29	72.4	27.6	67.9
2016	13	69.2	30.8	76.9
1998-2016	341	74.2	25.8	79.0

Table 10a

Medians of age at death according to the grouping in Table 9
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	3	85.3	90.3	71.0	71.0
1999	3	76.2		76.2	76.2
2000	2	83.5	83.5		83.5
2001	1	87.2		87.2	
2002	4	67.8	69.2	66.5	67.6
2003	10	65.9	65.9	72.9	69.0
2004	6	71.4	71.0	79.1	71.0
2005	10	74.8	68.7	85.9	68.7
2006	8	75.7	73.8	86.2	73.8
2007	9	73.3	65.5	81.3	67.4
2008	8	70.3	70.3		70.3
2009	12	71.6	67.7	84.1	67.7
2010	8	79.7	75.1	83.4	79.7
2011	18	73.5	73.5	72.9	73.5
2012	9	68.7	65.7	86.1	65.7
2013	10	80.8	80.8		80.8
2014	15	76.7	75.3	82.3	75.3
2015	17	77.1	76.1	88.1	76.1
2016	5	73.7	73.7	79.5	71.8
1998-2016	158	74.4	73.2	83.6	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 10b

Medians of age at death according to the grouping in Table 9
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	8	90.0	84.5	91.3	84.7
1999	2	71.8	71.8		71.8
2000	10	73.2	66.8	75.1	66.8
2001	2	78.5	59.8	97.3	78.5
2002	8	83.3	72.7	85.9	72.7
2003	7	63.8	57.1	89.4	57.7
2004	7	73.4	66.1	83.6	71.7
2005	9	78.0	75.6	83.3	73.2
2006	8	81.8	68.2	83.7	68.4
2007	13	69.1	69.1		69.1
2008	10	82.3	72.8	92.7	79.8
2009	14	72.0	68.2	89.0	68.2
2010	15	85.6	67.2	91.3	67.5
2011	14	77.6	74.7	81.8	74.0
2012	9	73.4	61.5	86.0	61.5
2013	16	71.9	70.4	82.3	70.9
2014	11	75.7	60.2	94.3	50.0
2015	12	76.6	74.8	85.0	74.8
2016	8	65.9	65.9	72.6	62.8
1998-2016	183	75.2	69.4	87.1	69.8

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 11a

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	1	0.1	0.50	0.0	0.38	0.1	0.55	0.1	0.59
1999									
2000	2	0.2	0.40	0.1	0.32	0.2	0.43	0.3	0.49
2001									
2002	3	0.2	0.21	0.1	0.18	0.1	0.19	0.1	0.18
2003	8	0.4	0.89	0.3	0.85	0.4	0.83	0.4	0.90
2004	5	0.3	0.33	0.1	0.39	0.2	0.36	0.3	0.32
2005	8	0.4	0.67	0.2	0.60	0.4	0.68	0.5	0.75
2006	6	0.3	0.43	0.2	0.33	0.2	0.39	0.3	0.49
2007	6	0.3	0.50	0.2	0.54	0.2	0.57	0.3	0.54
2008	8	0.4	0.73	0.2	0.81	0.3	0.76	0.3	0.68
2009	9	0.4	1.00	0.2	1.00	0.3	1.05	0.4	1.03
2010	6	0.3	0.40	0.1	0.34	0.2	0.42	0.3	0.44
2011	15	0.7	2.14	0.3	2.28	0.4	2.20	0.6	1.95
2012	8	0.4	0.89	0.2	1.05	0.3	1.08	0.3	0.93
2013	10	0.4	1.25	0.2	0.81	0.3	1.07	0.4	1.25
2014	13	0.6	2.60	0.2	2.13	0.4	2.33	0.5	2.58
2015	14	0.6	14.0	0.2	20.3	0.3	17.4	0.5	12.2
2016	3	0.1		0.1		0.1		0.1	
1998-2016	125	0.3	0.82	0.2	0.72	0.3	0.80	0.3	0.85

Table 11b

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	6	0.5	0.86	0.1	0.34	0.3	0.49	0.3	0.64
1999	2	0.2	0.67	0.1	0.41	0.1	0.42	0.2	0.66
2000	8	0.7	1.33	0.3	1.43	0.5	1.38	0.5	1.19
2001	1	0.1	0.25	0.1	0.32	0.1	0.34	0.1	0.28
2002	3	0.2	0.38	0.1	0.30	0.1	0.31	0.1	0.32
2003	5	0.3	0.28	0.2	0.33	0.2	0.33	0.2	0.30
2004	4	0.2	0.25	0.1	0.24	0.2	0.25	0.2	0.27
2005	8	0.4	0.42	0.2	0.39	0.2	0.41	0.3	0.40
2006	4	0.2	0.25	0.1	0.20	0.1	0.23	0.1	0.25
2007	13	0.6	0.76	0.2	0.65	0.3	0.65	0.4	0.68
2008	6	0.3	0.43	0.1	0.37	0.2	0.40	0.2	0.40
2009	13	0.6	0.93	0.3	0.69	0.4	0.80	0.4	0.84
2010	8	0.3	0.80	0.2	0.85	0.3	0.78	0.3	0.85
2011	11	0.5	1.57	0.2	0.95	0.3	1.05	0.3	1.24
2012	5	0.2	1.67	0.1	2.59	0.2	2.35	0.2	1.64
2013	12	0.5	1.50	0.2	1.98	0.4	1.79	0.4	1.65
2014	6	0.2	1.50	0.2	2.14	0.2	1.64	0.2	1.43
2015	7	0.3		0.1		0.2		0.2	
2016	6	0.2	6.00	0.1	15.6	0.2	10.8	0.2	6.87
1998-2016	128	0.3	0.73	0.2	0.66	0.2	0.68	0.3	0.70

Table 12

Age distribution of age at death (cancer-related) for period 2007-2016
(**incl. multiple malignancies**)

Age at death Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4									
5-9									
10-14	1	0.6	0.6			0.0	1	1.1	1.1
15-19	0	0.0	0.6			0.0			1.1
20-24	1	0.6	1.1			0.0	1	1.1	2.3
25-29	0	0.0	1.1			0.0			2.3
30-34	1	0.6	1.7	1	1.1	1.1			2.3
35-39	0	0.0	1.7			1.1			2.3
40-44	5	2.8	4.5	3	3.3	4.3	2	2.3	4.6
45-49	2	1.1	5.6			4.3	2	2.3	6.9
50-54	7	3.9	9.5	4	4.3	8.7	3	3.4	10.3
55-59	20	11.2	20.7	8	8.7	17.4	12	13.8	24.1
60-64	15	8.4	29.1	7	7.6	25.0	8	9.2	33.3
65-69	27	15.1	44.1	9	9.8	34.8	18	20.7	54.0
70-74	31	17.3	61.5	19	20.7	55.4	12	13.8	67.8
75-79	29	16.2	77.7	18	19.6	75.0	11	12.6	80.5
80-84	18	10.1	87.7	13	14.1	89.1	5	5.7	86.2
85+	22	12.3	100.0	10	10.9	100.0	12	13.8	100.0
All ages	179	100.0		92	100.0		87	100.0	

Table 13

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2016
(**incl. multiple malignancies**)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	Males MI-index	Females Age-spec. mortal.	Females MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4								
5- 9								
10-14		1			0.1	1.00		4.2
15-19								
20-24		1			0.1	1.00		3.0
25-29								
30-34	1		0.1	1.00			1.0	
35-39								
40-44	3	2	0.2	1.00	0.1	0.29	0.6	0.3
45-49		2			0.1	0.33		0.2
50-54	4	3	0.2	2.00	0.2	0.38	0.2	0.2
55-59	8	12	0.6	2.67	0.8	1.33	0.2	0.4
60-64	7	8	0.6	1.17	0.6	1.33	0.1	0.2
65-69	9	18	0.8	0.75	1.4	2.57	0.1	0.3
70-74	19	12	1.7	1.06	0.9	1.33	0.2	0.2
75-79	18	11	2.3	3.00	1.1	0.92	0.2	0.2
80-84	13	5	2.8	0.87	0.7	0.71	0.2	0.1
85+	10	12	3.3	5.00	1.6	2.40	0.2	0.1
All ages	92	87					0.2	0.2
Mortality								
Raw			0.4	1.19	0.4	1.12		
WS			0.2	1.06	0.2	1.06		
ES			0.3	1.18	0.2	1.06		
BRD-S			0.4	1.20	0.3	1.06		
PYLL-70								
per 100,000			1.8		2.6			
ES			1.6		2.4			
AYLL-70			11.4		10.9			

Table 14a

Further malignancies in deaths in period 1998–2016
MALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C09–C10	Oropharynx	1	1.9					1	100.0
C18	Colon	7	13.0					7	100.0
C19–C20	Rectum	2	3.7	1	50.0			1	50.0
C22	Liver	2	3.7					2	100.0
C23–C24	Bile	1	1.9					1	100.0
C25	Pancreas	1	1.9	1	100.0				
C33–C34	Lung	7	13.0	1	14.3			6	85.7
C43	Malign. melanoma	10	18.5	6	60.0	3	30.0	1	10.0
C44	Skin others	1	1.9	1	100.0				
C61	Prostate	13	24.1	7	53.8	1	7.7	5	38.5
C64	Kidney	1	1.9					1	100.0
C67	Bladder	3	5.6	1	33.3			2	66.7
C73	Thyroid	1	1.9					1	100.0
C76–C79	CUP	2	3.7					2	100.0
C82–C85	NHL	1	1.9					1	100.0
C90	Mult. myeloma	1	1.9	1	100.0				
All further malignancies		54	100.0	19	35.2	4	7.4	31	57.4

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 further malignancy.

Table 14b

Further malignancies in deaths in period 1998–2016
FEMALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C16	Stomach	3	5.1	1	33.3			2	66.7
C18	Colon	2	3.4	1	50.0			1	50.0
C19–C20	Rectum	1	1.7					1	100.0
C22	Liver	2	3.4					2	100.0
C25	Pancreas	1	1.7					1	100.0
C33–C34	Lung	5	8.5	2	40.0	1	20.0	2	40.0
C43	Malign. melanoma	8	13.6	2	25.0			6	75.0
C50	Breast	22	37.3	14	63.6	2	9.1	6	27.3
C53	Cervix uteri	2	3.4					2	100.0
C54	Corpus uteri	4	6.8	2	50.0			2	50.0
C56	Ovary	2	3.4					2	100.0
C64	Kidney	1	1.7					1	100.0
C69	Eye carcinoma	1	1.7					1	100.0
C70–C72	CNS cancer	2	3.4					2	100.0
C73	Thyroid	2	3.4	1	50.0			1	50.0
C91–C96	Leukaemia	1	1.7					1	100.0
All further malignancies		59	100.0	23	39.0	3	5.1	33	55.9

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 further malignancy.

Table 15

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2016
(**First primaries only** *)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	Males MI-index	Females Age-spec. mortal.	Females MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4								
5- 9								
10-14		1			0.1	1.00		4.8
15-19								
20-24		1			0.1	1.00		3.2
25-29								
30-34	1		0.1	1.00			1.0	
35-39								
40-44	3	1	0.2	0.92	0.1	0.18	0.7	0.2
45-49		1			0.1	0.15		0.1
50-54	4	3	0.2	1.77	0.2	0.38	0.2	0.2
55-59	8	12	0.6	2.35	0.8	1.18	0.3	0.5
60-64	5	7	0.4	0.90	0.5	1.57	0.1	0.2
65-69	7	17	0.6	0.63	1.3	3.83	0.1	0.4
70-74	17	7	1.5	0.97	0.6	0.91	0.2	0.1
75-79	16	11	2.0	4.63	1.1	1.07	0.2	0.2
80-84	7	2	1.5	0.61	0.3	0.36	0.1	0.0
85+	8	10	2.6	3.50	1.4	1.79	0.2	0.1
All ages	76	73					0.2	0.2
Mortality								
Raw			0.3	1.06	0.3	1.04		
WS			0.2	0.92	0.2	1.00		
ES			0.2	1.04	0.2	1.00		
BRD-S			0.3	1.07	0.2	1.00		
PYLL-70								
per 100,000			1.7		2.3			
ES			1.5		2.1			
AYLL-70			12.3		10.5			

* See corresponding tables with multiple malignancies.

Table 16

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2016
(**Single primaries only** *)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	Males MI-index	Females Age-spec. mortal.	Females MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4								
5- 9								
10-14		1			0.1	1.00		4.8
15-19								
20-24		1			0.1	1.00		3.2
25-29								
30-34	1		0.1	1.00			1.0	
35-39								
40-44	3	1	0.2	0.92	0.1	0.23	0.7	0.2
45-49		1			0.1	0.15		0.1
50-54	4	2	0.2	1.77	0.1	0.35	0.2	0.1
55-59	8	11	0.6	2.35	0.7	1.08	0.3	0.5
60-64	3	7	0.2	0.54	0.5	1.57	0.1	0.2
65-69	7	13	0.6	0.63	1.0	2.93	0.1	0.3
70-74	11	6	1.0	0.71	0.5	0.78	0.2	0.1
75-79	10	9	1.3	2.89	0.9	0.87	0.2	0.2
80-84	3	1	0.7	0.33	0.1	0.18	0.1	0.0
85+	5	7	1.6	2.19	1.0	1.25	0.1	0.1
All ages	55	60					0.1	0.2
Mortality								
Raw			0.2	0.82	0.3	0.90		
WS			0.1	0.74	0.1	0.93		
ES			0.2	0.82	0.2	0.91		
BRD-S			0.2	0.82	0.2	0.88		
PYLL-70								
per 100,000			1.6		2.1			
ES			1.4		1.9			
AYLL-70			12.7		11.1			

* See corresponding tables with multiple malignancies.

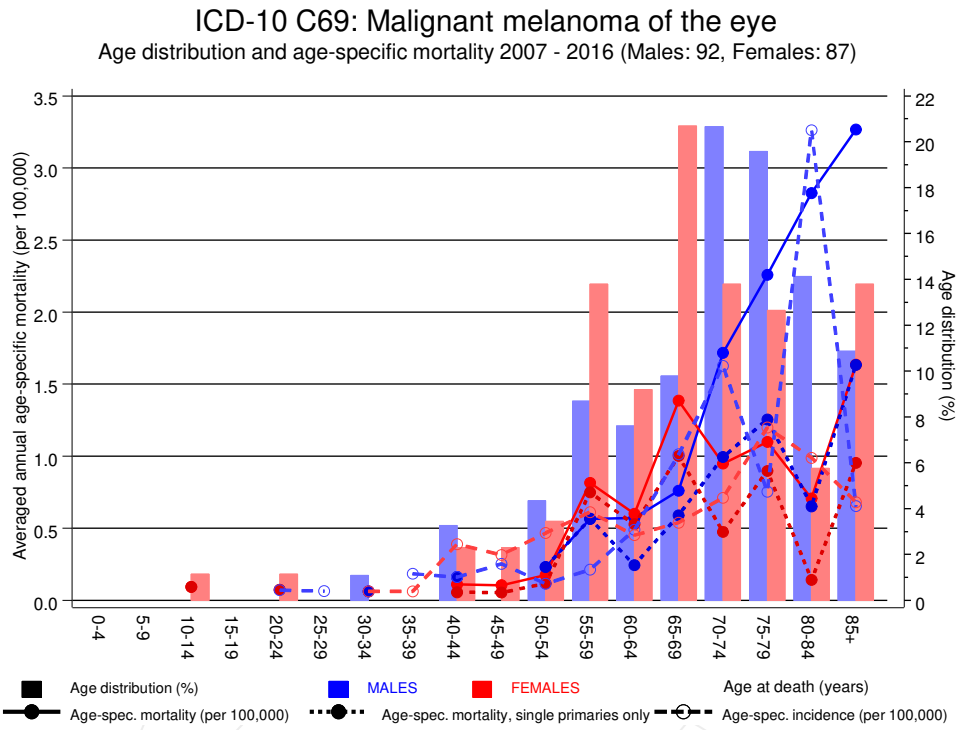


Figure 17. Distribution of age at death (bars; males: mean=63.6 yrs, median=65.6 yrs; females: mean=61.8 yrs, median=62.6 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

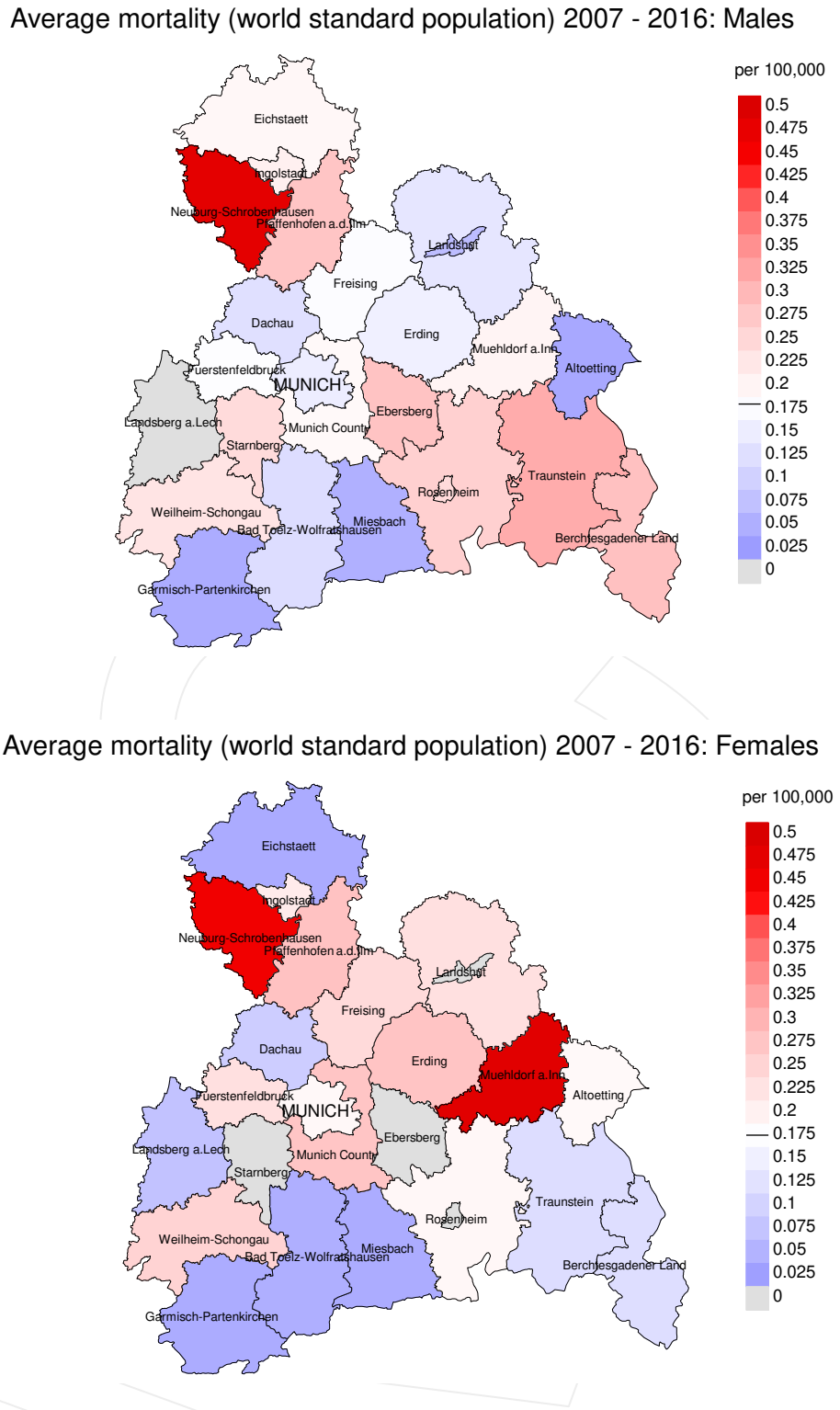
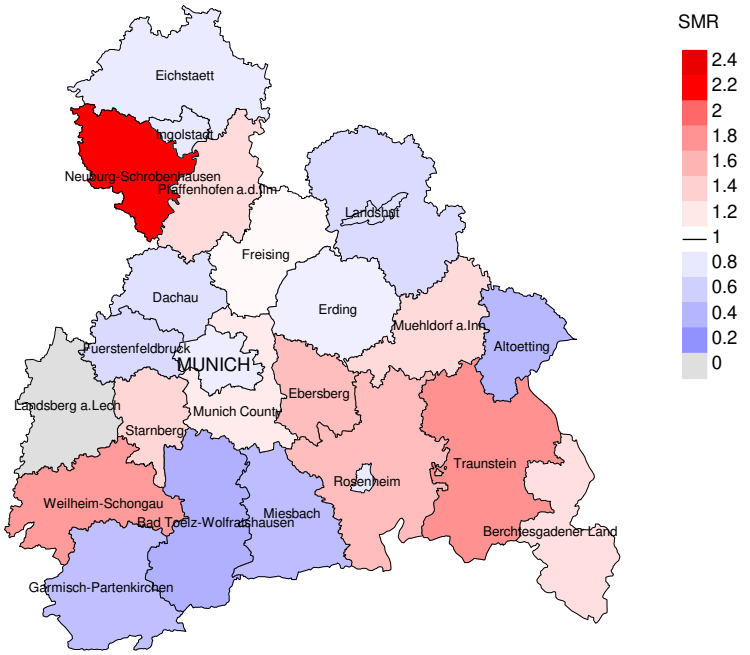


Figure 18a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2016. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.2/100,000 WS N=92, females 0.2/100,000 WS N=87).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 0 women died from eye melanoma. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.0/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.0 and 0.0/100,000.

Standardized mortality ratio (SMR) 2007 - 2016: Males



Standardized mortality ratio (SMR) 2007 - 2016: Females

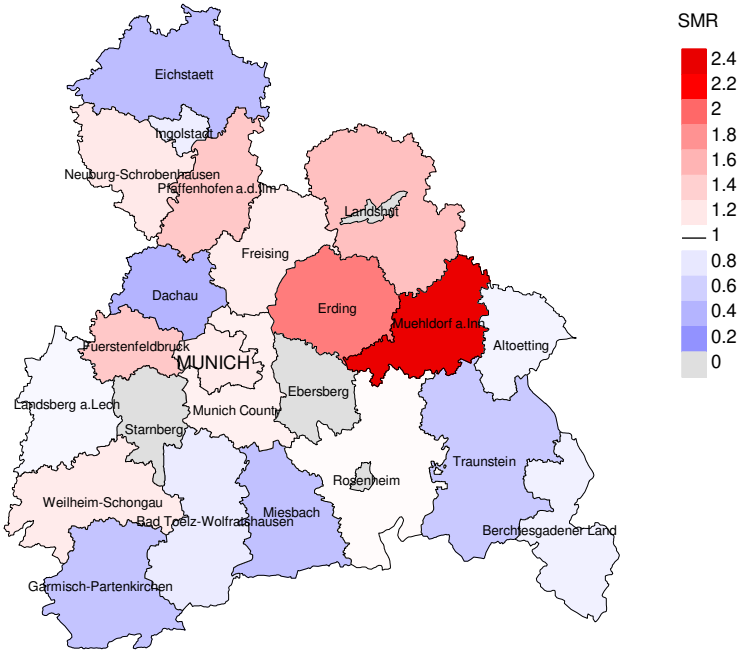


Figure 18b. Map of standardized mortality ratio (SMR) by county averaged for period 2007 to 2016. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=92, females N=87).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 0 women died from eye melanoma. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.00. Though, the value of this parameter may vary with an underlying probability of 99% between 0.00 and 2.25, 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

MCR	Munich Cancer Registry (Tumorregister München)
GEKID	Association of Population-based Cancer Registries in Germany (Gesellschaft der epidemiologischen Krebsregister in Deutschland e.V.)
SEER	Surveillance, Epidemiology, and End Results (USA)
DCO	Death certificate only
BRD-S	German standard population
ES	European standard population (old)
WS	World standard population
SIR	Standardized incidence ratio
CI	Confidence interval
EAR	Excess absolute risk = excess cancer cases (O - E) per 10,000 person-years
PYLL-70	Potential years of life lost prior to age 70 given a person dies before that age
AYLL-70	Average years of life lost prior to age 70 given a person dies before that age
SMR	Standardized mortality ratio
MI-index	Ratio between mortality and incidence
FRG	Federal Republic of Germany

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