Munich Cancer Registry

- Survival
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ICD-10 C00: Lip cancer

Incidence and Mortality

Year of diagnosis	1998-2016
Patients	362
Diseases	364
Creation date	08/21/2018
Export date	08/09/2018
Population	4.81 m

Munich Cancer Registry
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https://www.tumorregister-muenchen.de/en

https://www.tumorregister-muenchen.de/en/facts/base/bC00__E-ICD-10-C00-Lip-cancer-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.

Some remarks regarding this cancer type

As a general rule, these few results from the TRM form the basis of sophisticated analyses. For head and neck tumors this is not the case. Therefore the results for head and neck tumors should be interpreted with caution. In part this is due to problems of classification because of limited specific details of locality. Additionally, with advanced tumors in a close topographic location it is often not possible to determine the exact ICD localization of a tumor.

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

Code	Description
C00.-	Malignant neoplasm of lip
C00.0	External upper lip
C00.1	External lower lip
C00.2	External lip, unspecified
C00.3	Upper lip, inner aspect
C00.4	Lower lip, inner aspect
C00.5	Lip, unspecified, inner aspect
C00.6	Commissure of lip
C00.8	Overlapping lesion of lip
C00.9	Lip, unspecified

INCIDENCE

Table 1

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

Year of diagnosis	All cases n	DCO cases n	Prop. DCO %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %
1998	17			11.8	23.2	52.9	100.0
1999	19			13.9	23.1	63.2	94.7
2000	9			11.1	22.5	77.8	100.0
2001	10			16.4	21.5	50.0	90.0
2002	32	2	6.3	14.9	21.2	68.8	96.9 #
2003	24	2	8.3	13.5	20.0	66.7	95.8
2004	19	1	5.3	15.4	20.8	52.6	89.5
2005	23			16.3	19.1	52.2	100.0
2006	11			17.7	17.8	72.7	81.8
2007	21	2	9.5	17.3	16.7	52.4	71.4 #
2008	29			17.3	15.0	55.2	69.0
2009	21			18.3	15.8	47.6	66.7
2010	23			19.8	12.5	34.8	60.9
2011	33	1	3.0	21.0	11.2	42.4	60.6
2012	24			22.2	14.5	41.7	70.8
2013	22	3	13.6	23.4	6.5	40.9	45.5
2014	16	1	6.3	24.1	7.7	25.0	37.5
2015	5			24.3	10.0	20.0	80.0
2016	6			24.5	0.0		50.0 ##
1998-2016	364	12	3.3	24.5	23.2	50.5	76.6

364 cases diagnosed 1998-2016 are related to a total of 362 patients. Currently, in 167 (46.1 %) of these 362 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 107 / 30 / 30 (29.6 % / 8.3 % / 8.3 %) 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 16 cases has been diagnosed, of which 24.1 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 7.7 % 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 DCO, further malignancies, deaths, and active follow-up (MALES) (incl. DCO)

Year of diagnosis	Males n	Males %	DCO cases n	Prop. DCO %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %	
1998	11	64.7			9.1	27.4	54.5	100.0	
1999	13	68.4			12.5	27.9	69.2	92.3	
2000	8	88.9			9.4	26.7	75.0	100.0	
2001	8	80.0			15.0	25.7	50.0	87.5	
2002	21	65.6	1	4.8	14.8	25.7	61.9	95.2	#
2003	11	45.8	2	18.2	15.3	23.8	72.7	90.9	
2004	13	68.4	1	7.7	18.8	23.5	38.5	84.6	
2005	14	60.9			21.2	22.1	57.1	100.0	
2006	6	54.5			21.9	20.8	50.0	66.7	
2007	12	57.1	2	16.7	20.5	19.3	41.7	58.3	#
2008	22	75.9			20.9	17.4	40.9	59.1	
2009	16	76.2			21.3	18.2	50.0	68.8	
2010	12	52.2			22.8	13.7	41.7	66.7	
2011	24	72.7	1	4.2	23.6	9.7	45.8	58.3	
2012	15	62.5			24.8	14.6	40.0	60.0	
2013	12	54.5	2	16.7	26.1	3.7	50.0	50.0	
2014	10	62.5			26.8	5.9	10.0	30.0	
2015	3	60.0			26.8	0.0	33.3	100.0	
2016	5	83.3			26.7	0.0		60.0	##
1998-2016	236	64.8	9	3.8	26.7	27.4	48.3	73.7	

236 cases diagnosed 1998-2016 are related to a total of 234 patients. Currently, in 119 (50.9 %) of these 234 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 75 / 20 / 24 (32.1 % / 8.5 % / 10.3 %) 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 10 cases has been diagnosed, of which 26.8 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 5.9 % 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 DCO, further malignancies, deaths, and active follow-up (FEMALES)
(incl. DCO)

Year of diagnosis	Females n	Females %	DCO cases n	Prop. DCO %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %	
1998	6	35.3			16.7	15.4	50.0	100.0	
1999	6	31.6			16.7	14.3	50.0	100.0	
2000	1	11.1			15.4	15.0	100.0	100.0	
2001	2	20.0			20.0	14.2	50.0	100.0	
2002	11	34.4	1	9.1	15.4	13.5	81.8	100.0	#
2003	13	54.2			10.3	13.7	61.5	100.0	
2004	6	31.6			8.9	15.9	83.3	100.0	
2005	9	39.1			7.4	13.9	44.4	100.0	
2006	5	45.5			10.2	12.5	100.0	100.0	
2007	9	42.9			11.8	11.9	66.7	88.9	#
2008	7	24.1			10.7	10.3	100.0	100.0	
2009	5	23.8			12.5	11.8	40.0	60.0	
2010	11	47.8			14.3	10.6	27.3	54.5	
2011	9	27.3			16.0	13.9	33.3	66.7	
2012	9	37.5			17.4	14.3	44.4	88.9	
2013	10	45.5	1	10.0	18.5	10.5	30.0	40.0	
2014	6	37.5	1	16.7	19.2	11.1	50.0	50.0	
2015	2	40.0			19.7	33.3		50.0	
2016	1	16.7			20.3	0.0	##		
1998-2016	128	35.2	3	2.3	20.3	15.4	54.7	82.0	

128 cases diagnosed 1998-2016 are related to a total of 128 patients. Currently, in 48 (37.5 %) of these 128 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 32 / 10 / 6 (25.0 % / 7.8 % / 4.7 %) 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 6 cases has been diagnosed, of which 19.2 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 11.1 % 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 including DCO cases
(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	11	6	1.0	0.5	0.7	0.2	0.9	0.3	1.0	0.4
1999	13	6	1.2	0.5	0.6	0.2	1.1	0.3	1.6	0.4
2000	8	1	0.7	0.1	0.5	0.1	0.7	0.1	0.9	0.1
2001	8	2	0.7	0.2	0.4	0.1	0.6	0.1	0.7	0.1
2002	21	11	1.1	0.6	0.6	0.2	1.0	0.4	1.3	0.4
2003	11	13	0.6	0.7	0.3	0.2	0.5	0.4	0.6	0.5
2004	13	6	0.7	0.3	0.3	0.1	0.5	0.2	0.7	0.2
2005	14	9	0.7	0.5	0.4	0.2	0.6	0.3	0.8	0.4
2006	6	5	0.3	0.2	0.2	0.1	0.2	0.1	0.3	0.2
2007	12	9	0.5	0.4	0.3	0.1	0.4	0.2	0.6	0.3
2008	22	7	1.0	0.3	0.5	0.1	0.8	0.1	1.0	0.2
2009	16	5	0.7	0.2	0.3	0.1	0.5	0.1	0.7	0.1
2010	12	11	0.5	0.5	0.3	0.2	0.4	0.2	0.5	0.4
2011	24	9	1.1	0.4	0.5	0.2	0.8	0.3	1.1	0.4
2012	15	9	0.7	0.4	0.3	0.2	0.4	0.2	0.6	0.3
2013	12	10	0.5	0.4	0.2	0.1	0.3	0.2	0.5	0.3
2014	10	6	0.4	0.2	0.2	0.0	0.3	0.1	0.4	0.1
2015	3	2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1
2016	5	1	0.2	0.0	0.1	0.0	0.1	0.0	0.2	0.0
1998-2016	236	128	0.6	0.3	0.3	0.1	0.5	0.2	0.6	0.3

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)
(incl. DCO)

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	17	66.4	13.8	26.4	85.0	53.8	61.9	66.3	74.1	84.7
1999	19	72.7	11.0	55.0	86.8	55.6	60.6	75.2	80.8	85.8
2000	9	62.9	12.7	47.9	82.7	47.9	54.4	57.3	73.3	82.7
2001	10	70.6	15.6	54.4	94.9	54.4	62.4	64.6	87.4	94.9
2002	32	72.8	11.3	53.9	94.4	58.7	64.8	71.9	81.4	86.0
2003	24	72.9	13.9	41.7	94.5	51.3	63.0	74.8	84.3	90.0
2004	19	72.5	7.9	60.7	87.9	62.1	64.9	73.9	75.8	84.4
2005	23	71.2	12.2	36.9	99.0	58.9	66.1	72.0	78.5	82.5
2006	11	77.5	10.5	59.3	93.2	63.6	67.0	80.7	85.1	87.9
2007	21	73.6	10.0	43.7	84.3	62.5	70.2	76.9	80.4	81.8
2008	29	71.7	12.0	46.2	90.8	52.1	64.3	70.8	81.8	87.4
2009	21	73.8	10.9	45.8	88.3	65.1	68.2	74.2	82.1	86.6
2010	23	72.9	10.4	53.7	85.9	57.7	63.8	74.1	81.1	85.3
2011	33	68.5	16.4	29.3	90.5	49.4	62.0	72.8	80.8	83.5
2012	24	71.8	10.6	38.6	85.2	60.3	66.9	73.4	78.7	83.8
2013	22	77.7	11.0	53.5	94.6	64.1	69.8	77.5	88.0	91.8
2014	16	78.7	9.8	62.6	93.7	64.3	69.9	81.6	84.7	93.2
2015	5	69.3	7.1	60.3	76.1	60.3	64.0	70.6	75.7	76.1
2016	6	72.7	6.8	62.3	78.2	62.3	65.9	76.1	77.6	78.2
1998-2016	364	72.3	12.0	26.4	99.0	56.5	64.3	73.7	81.1	85.9

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	11	61.5	12.7	26.4	74.1	54.4	61.8	63.9	69.4	69.8
1999	13	72.3	11.2	55.0	86.8	55.6	60.6	75.2	80.8	85.4
2000	8	64.0	13.2	47.9	82.7	47.9	52.8	61.9	75.9	82.7
2001	8	68.5	14.8	54.4	94.9	54.4	58.4	64.6	76.3	94.9
2002	21	72.2	9.4	53.9	86.0	62.2	65.8	72.6	79.4	85.7
2003	11	67.9	14.8	41.7	94.5	51.3	60.2	69.8	75.8	84.4
2004	13	71.6	7.7	60.7	87.9	62.1	66.6	71.0	75.5	80.9
2005	14	70.2	8.9	53.7	82.5	58.9	62.6	71.1	75.6	81.9
2006	6	72.9	10.9	59.3	85.1	59.3	63.6	73.9	81.5	85.1
2007	12	70.9	10.9	43.7	81.1	57.7	67.1	74.1	78.7	79.7
2008	22	68.2	11.2	46.2	86.2	52.1	63.6	68.3	78.0	83.3
2009	16	72.2	11.3	45.8	87.7	53.1	66.7	73.7	80.6	84.5
2010	12	70.9	10.9	56.2	85.9	57.7	60.0	70.7	79.1	85.8
2011	24	71.1	15.7	29.3	90.5	50.6	63.1	77.0	81.5	86.1
2012	15	73.1	8.2	59.5	85.1	60.8	66.9	73.4	79.4	83.8
2013	12	74.4	8.4	59.4	88.0	64.1	69.0	75.7	80.6	83.8
2014	10	75.4	10.0	62.6	93.2	63.5	67.1	75.6	82.0	88.6
2015	3	74.2	3.1	70.6	76.1	70.6	70.6	75.7	76.1	76.1
2016	5	71.7	7.2	62.3	78.2	62.3	65.9	74.6	77.6	78.2
1998-2016	236	70.7	11.3	26.4	94.9	55.6	63.7	71.2	79.0	83.8

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	6	75.4	11.7	53.8	85.0	53.8	72.9	78.1	84.7	85.0
1999	6	73.6	11.7	55.9	85.8	55.9	62.3	79.0	79.7	85.8
2000	1	54.7		54.7	54.7	54.7	54.7	54.7	54.7	54.7
2001	2	79.1	22.2	63.5	94.8	63.5	63.5	79.1	94.8	94.8
2002	11	73.9	14.7	58.4	94.4	58.7	58.9	69.3	91.0	92.8
2003	13	77.1	12.1	48.5	90.0	63.8	69.6	79.7	86.6	90.0
2004	6	74.3	8.8	63.8	84.4	63.8	64.2	75.2	82.8	84.4
2005	9	72.9	16.6	36.9	99.0	36.9	68.8	72.3	78.5	99.0
2006	5	83.0	7.6	75.6	93.2	75.6	76.1	82.0	87.9	93.2
2007	9	77.2	7.8	62.5	84.3	62.5	76.9	80.4	81.8	84.3
2008	7	82.8	6.9	72.1	90.8	72.1	77.6	82.9	89.5	90.8
2009	5	78.9	8.7	68.2	88.3	68.2	72.9	78.4	86.6	88.3
2010	11	75.0	9.8	53.7	85.3	63.8	70.8	76.7	85.0	85.0
2011	9	61.9	17.2	29.4	83.5	29.4	51.0	64.2	76.3	83.5
2012	9	69.8	14.1	38.6	85.2	38.6	67.0	71.2	78.0	85.2
2013	10	81.6	12.8	53.5	94.6	61.6	76.0	84.4	91.8	93.6
2014	6	84.2	7.3	71.4	93.7	71.4	84.0	84.6	87.0	93.7
2015	2	62.1	2.6	60.3	64.0	60.3	60.3	62.1	64.0	64.0
2016	1	77.6		77.6	77.6	77.6	77.6	77.6	77.6	77.6
1998-2016	128	75.3	12.8	29.4	99.0	58.4	67.3	78.0	84.4	90.0

Table 4

Age distribution by 5-year age group and sex for period 2007-2016
(incl. DCO)

Age at diagnosis Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4									
5-9									
10-14									
15-19									
20-24									
25-29	2	1.0	1.0	1	0.8	0.8	1	1.4	1.4
30-34	1	0.5	1.5	1	0.8	1.5			1.4
35-39	1	0.5	2.0			1.5	1	1.4	2.9
40-44	1	0.5	2.5	1	0.8	2.3			2.9
45-49	3	1.5	4.0	2	1.5	3.8	1	1.4	4.3
50-54	7	3.5	7.5	4	3.1	6.9	3	4.3	8.7
55-59	9	4.5	12.0	8	6.1	13.0	1	1.4	10.1
60-64	22	11.0	23.0	16	12.2	25.2	6	8.7	18.8
65-69	24	12.0	35.0	19	14.5	39.7	5	7.2	26.1
70-74	30	15.0	50.0	21	16.0	55.7	9	13.0	39.1
75-79	41	20.5	70.5	28	21.4	77.1	13	18.8	58.0
80-84	34	17.0	87.5	20	15.3	92.4	14	20.3	78.3
85+	25	12.5	100.0	10	7.6	100.0	15	21.7	100.0
All ages	200	100.0		131	100.0		69	100.0	

Table 5

Age-specific incidence, DCO rate 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 DCO rate n=5 %	Females DCO rate n=2 %	Males Prop.all cancers n=113978 %	Females Prop.all cancers n=112253 %
0- 4								
5- 9								
10-14								
15-19								
20-24								
25-29	1	1	0.1	0.1			0.1	0.1
30-34	1		0.1				0.1	
35-39		1		0.1				0.0
40-44	1		0.1				0.0	
45-49	2	1	0.1	0.1			0.1	0.0
50-54	4	3	0.2	0.2			0.1	0.0
55-59	7	1	0.5	0.1			0.1	0.0
60-64	16	6	1.3	0.5	6.3		0.1	0.1
65-69	19	5	1.6	0.4			0.1	0.0
70-74	21	9	1.9	0.7	4.8		0.1	0.1
75-79	28	13	3.5	1.3			0.2	0.1
80-84	20	14	4.3	2.0	5.0		0.2	0.1
85+	10	15	3.3	2.0	20.0	13.3	0.1	0.1
All ages	130	69			3.8	2.9	0.1	0.1
Incidence								
Raw			0.6	0.3				
WS			0.3	0.1				
ES			0.4	0.2				
BRD-S			0.5	0.2				

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

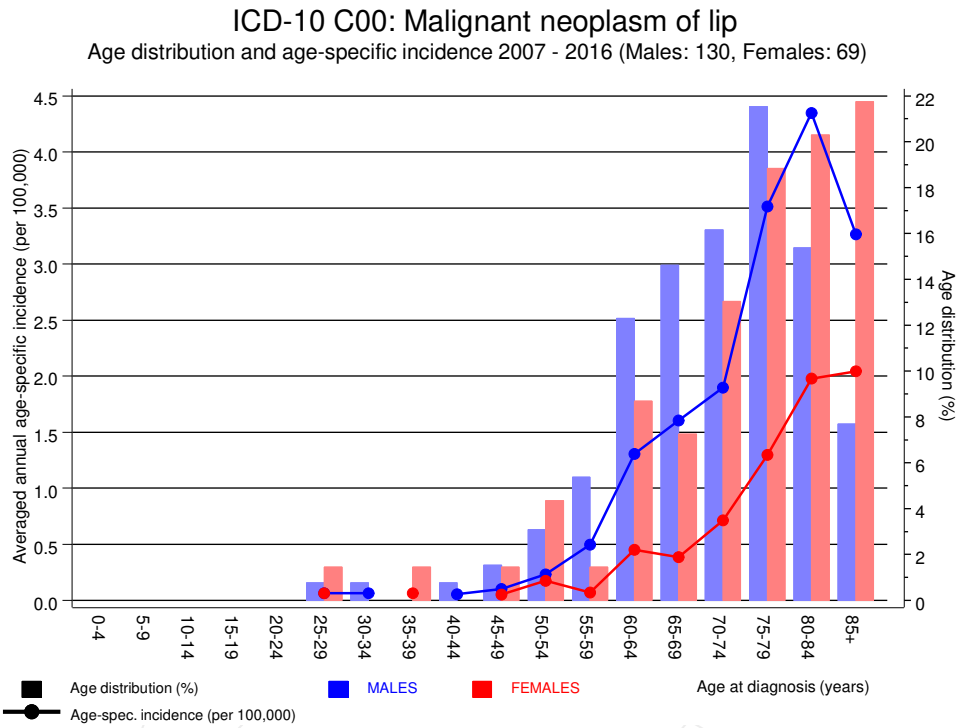


Figure 6. Age distribution (males: mean=71.8 yrs, median=73.4 yrs; females: mean=75.4 yrs, median=78.3 yrs) and age-specific incidence.

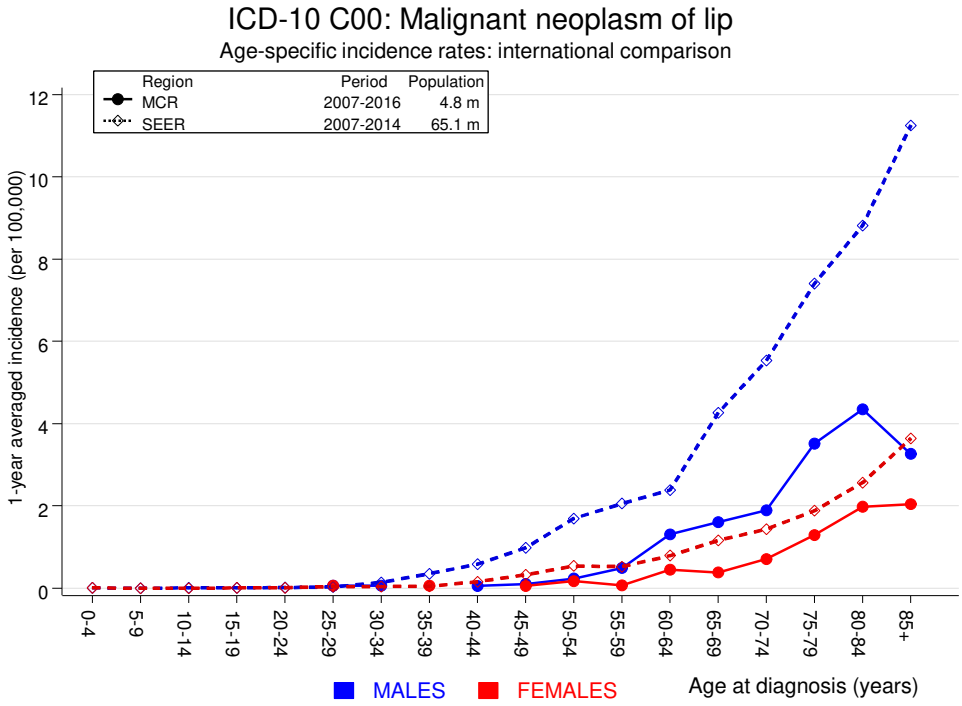


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

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 %
C00	Lip	2	0.0	74.5	9.0	269.2	#	19.7	
C03–C06	Oral cavity	4	0.1	28.2	7.7	72.3	#	38.5	
C16	Stomach	3	0.9	3.3	0.7	9.5		20.7	
C18	Colon	3	2.2	1.4	0.3	4.1		8.4	
C19–C20	Rectum	2	1.1	1.8	0.2	6.6		9.1	
C22	Liver	3	0.6	5.3	1.1	15.4	#	24.2	33.3
C33–C34	Lung	15	2.4	6.2	3.5	10.3	#	125.6	13.3
C43	Malign. melanoma	3	0.8	3.6	0.7	10.6		21.6	33.3
C61	Prostate	5	6.1	0.8	0.3	1.9		−10.8	20.0
C76–C79	CUP	2	0.4	5.3	0.6	19.3		16.2	
C82–C85	NHL	2	0.9	2.3	0.3	8.3		11.2	
Others, specified		6	2.5	2.4	0.9	5.2		35.0	33.3
Not observed		0	3.1	0.0	0.0	1.2		−31.0	
All further malignancies		50	21.1	2.4	1.8	3.1	#	288.3	14.0

Patients	219
Median age at next malignancy (years)	77.8
Person-years	1003
Mean observation time (years)	4.6
Median observation time (years)	3.7

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

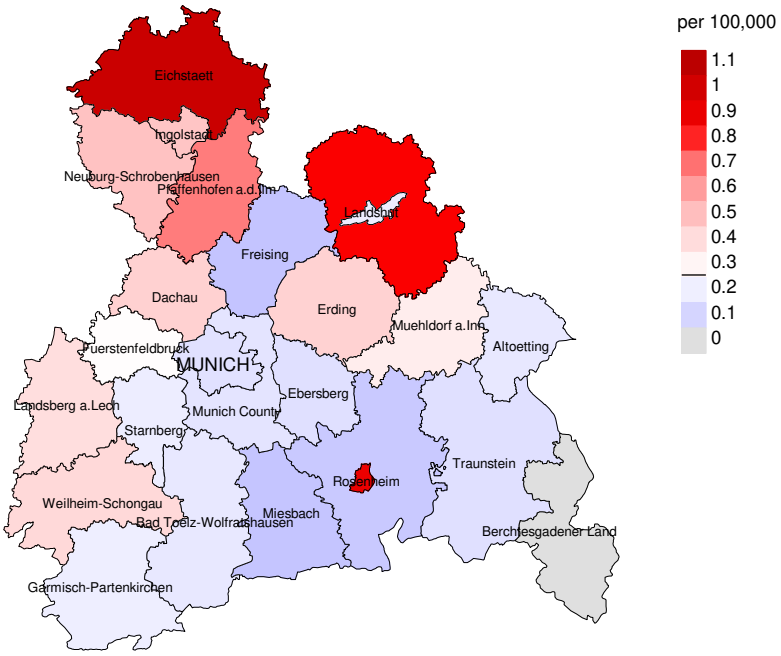
Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C43	Malign. melanoma	3	0.2	13.5	2.8	39.5	#	58.0	
C50	Breast	3	1.8	1.6	0.3	4.8		24.6	
C56	Ovary	2	0.3	7.4	0.9	26.8		36.1	
Others, specified		8	1.1	7.1	3.1	13.9	#	143.3	
Not observed		0	3.5	0.0	0.0	1.1		-72.0	
All further malignancies		16	6.9	2.3	1.3	3.8	#	190.0	

Patients	121
Median age at next malignancy (years)	74.9
Person-years	479
Mean observation time (years)	4.0
Median observation time (years)	2.4

The occurrence of further malignancy listed is statistically significant.

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

Average incidence (world standard population) 2007 - 2016: Males



Average incidence (world standard population) 2007 - 2016: Females

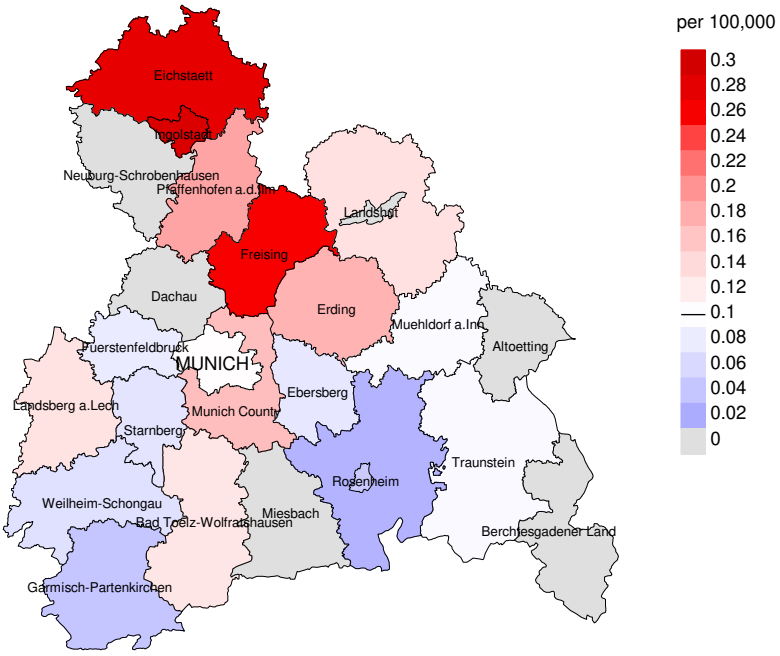
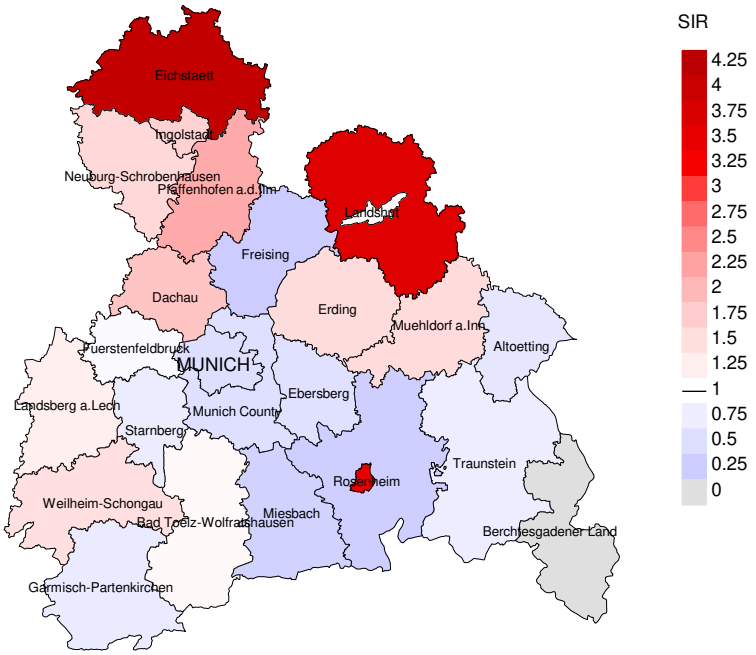


Figure 8a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.3/100,000 WS N=130, females 0.1/100,000 WS N=69).

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 lip cancer. 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 1.0/100,000.

Standardized incidence ratio (SIR) 2007 - 2016: Males



Standardized incidence ratio (SIR) 2007 - 2016: Females

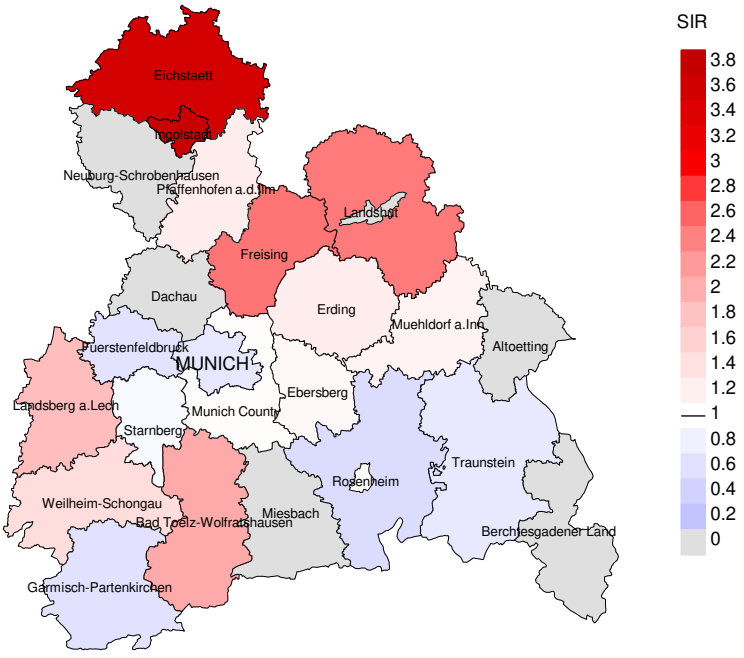


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=130, females N=69).

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 lip cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.10. Though, the value of this parameter may vary with an underlying probability of 99% between 0.06 and 5.09, and is therefore not statistically striking.

MORTALITY

Table 9a

Annual cohorts: Incident cancers, follow-up status, proportion of DCO, deaths among the annual cohorts and proportion of available death certificates (with respect to registry area expansion from 2.65 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 %	Prop. DCO %	Deaths n	Prop. deaths %	Prop. deaths with death certific. %
1998	17	100.0		9	52.9	100.0
1999	19	94.7		12	63.2	91.7
2000	9	100.0		7	77.8	100.0
2001	10	90.0		5	50.0	100.0
2002	32	96.9	6.3	22	68.8	86.4
2003	24	95.8	8.3	16	66.7	100.0
2004	19	89.5	5.3	10	52.6	90.0
2005	23	100.0		12	52.2	100.0
2006	11	81.8		8	72.7	100.0
2007	21	71.4	9.5	11	52.4	100.0
2008	29	69.0		16	55.2	100.0
2009	21	66.7		10	47.6	100.0
2010	23	60.9		8	34.8	87.5
2011	33	60.6	3.0	14	42.4	92.9
2012	24	70.8		10	41.7	90.0
2013	22	45.5	13.6	9	40.9	88.9
2014	16	37.5	6.3	4	25.0	100.0
2015	5	80.0		1	20.0	100.0
2016	6	50.0				
1998-2016	364	76.6	3.3	184	50.5	95.1

Table 9b

Annual cohorts of incident cancers and deaths, proportion of death certificates and cases deceased within the same year of being diagnosed with cancer (incl. DCO)
(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	Prop. deaths with death certific. %	Deaths in same year n	Prop. deaths in same year %
1998	17	8	100.0	1	5.9
1999	19	11	90.9		
2000	9	6	100.0		
2001	10	10	80.0	1	10.0
2002	32	10	100.0	3	9.4
2003	24	16	87.5	1	4.2
2004	19	11	100.0	2	10.5
2005	23	16	100.0	1	4.3
2006	11	18	100.0	1	9.1
2007	21	14	100.0	1	4.8
2008	29	21	95.2	2	6.9
2009	21	18	100.0	1	4.8
2010	23	20	95.0	1	4.3
2011	33	14	100.0	2	6.1
2012	24	24	91.7		
2013	22	14	92.9	5	22.7
2014	16	16	93.8	2	12.5
2015	5	20	100.0	1	20.0
2016	6	19	94.7		
1998-2016	364	286	95.8	25	6.9

Table 9c

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 2.65 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	8	37.5	62.5	62.5
1999	11	54.5	45.5	60.0
2000	6	83.3	16.7	83.3
2001	10	30.0	70.0	50.0
2002	10	70.0	30.0	80.0
2003	16	31.3	68.8	28.6
2004	11	72.7	27.3	81.8
2005	16	25.0	75.0	43.8
2006	18	38.9	61.1	44.4
2007	14	50.0	50.0	64.3
2008	21	28.6	71.4	40.0
2009	18	33.3	66.7	38.9
2010	20	35.0	65.0	42.1
2011	14	50.0	50.0	71.4
2012	24	45.8	54.2	54.5
2013	14	28.6	71.4	46.2
2014	16	31.3	68.8	60.0
2015	20	30.0	70.0	45.0
2016	19	31.6	68.4	44.4
1998-2016	286	39.5	60.5	51.8

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	6	68.1	77.5	65.4	68.1
1999	6	78.6	74.8	78.6	66.4
2000	5	79.4	76.5	82.8	76.5
2001	8	78.9	71.6	83.7	77.7
2002	9	81.4	81.4	76.5	81.4
2003	15	74.9	74.9	75.7	70.5
2004	9	78.4	78.4	84.7	78.1
2005	9	83.9	78.3	85.3	82.5
2006	9	82.1	76.8	83.7	76.8
2007	10	80.2	79.0	86.3	79.0
2008	13	85.5	85.7	82.1	85.6
2009	9	82.1	81.6	83.3	81.6
2010	15	77.2	75.4	81.7	76.4
2011	9	86.6	82.7	86.6	77.9
2012	16	80.2	81.4	71.2	80.2
2013	10	83.2	74.4	83.6	82.6
2014	13	79.4	80.0	78.8	79.4
2015	17	83.3	70.5	86.5	75.7
2016	12	82.5	81.8	82.8	82.8
1998-2016	200	81.5	79.1	82.8	79.2

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	2	85.3	83.5	87.1	83.5
1999	5	79.2	81.0	79.2	85.5
2000	1	79.9	79.9		79.9
2001	2	84.5		84.5	
2002	1	91.0		91.0	91.0
2003	1	95.3		95.3	
2004	2	88.3	85.5	91.0	85.5
2005	7	88.8	77.1	88.9	77.1
2006	9	82.7	79.4	83.0	77.9
2007	4	83.8	67.4	87.8	67.4
2008	8	88.5	77.6	89.9	77.9
2009	9	80.9	73.8	80.9	83.7
2010	5	87.7	64.8	88.2	64.8
2011	5	86.2	88.4	86.1	87.3
2012	8	84.3	78.8	86.3	78.8
2013	4	84.6	76.0	85.0	76.0
2014	3	84.3	84.3	78.7	77.7
2015	3	82.1	82.1	80.1	77.9
2016	7	89.3	95.2	86.8	95.2
1998-2016	86	85.4	79.4	87.1	79.9

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	2	0.2	0.18	0.1	0.16	0.2	0.20	0.2	0.21
1999	4	0.4	0.31	0.2	0.33	0.3	0.31	0.5	0.30
2000	4	0.4	0.50	0.2	0.40	0.3	0.45	0.5	0.57
2001	3	0.3	0.38	0.2	0.38	0.3	0.42	0.3	0.44
2002	7	0.4	0.33	0.2	0.28	0.3	0.33	0.5	0.40
2003	5	0.3	0.45	0.1	0.44	0.2	0.49	0.3	0.50
2004	7	0.4	0.54	0.2	0.47	0.3	0.58	0.5	0.67
2005	2	0.1	0.14	0.0	0.12	0.1	0.13	0.1	0.16
2006	4	0.2	0.67	0.1	0.66	0.2	0.64	0.2	0.71
2007	6	0.3	0.50	0.1	0.42	0.2	0.46	0.3	0.51
2008	4	0.2	0.18	0.1	0.14	0.1	0.19	0.2	0.20
2009	4	0.2	0.25	0.0	0.15	0.1	0.19	0.2	0.30
2010	6	0.3	0.55	0.1	0.53	0.2	0.53	0.3	0.52
2011	6	0.3	0.25	0.1	0.19	0.2	0.24	0.3	0.25
2012	9	0.4	0.60	0.1	0.45	0.2	0.50	0.4	0.66
2013	3	0.1	0.25	0.0	0.23	0.1	0.23	0.1	0.21
2014	4	0.2	0.40	0.0	0.25	0.1	0.30	0.2	0.39
2015	5	0.2	1.67	0.1	2.37	0.1	2.04	0.2	1.71
2016	5	0.2	1.00	0.1	0.74	0.1	0.83	0.2	1.04
1998-2016	90	0.2	0.38	0.1	0.32	0.2	0.36	0.3	0.41

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	1	0.1	0.17	0.0	0.11	0.0	0.13	0.1	0.19
1999	2	0.2	0.33	0.0	0.20	0.1	0.25	0.1	0.28
2000	1	0.1	1.00	0.0	0.34	0.0	0.48	0.1	0.93
2001									
2002									
2003									
2004	1	0.1	0.17	0.0	0.10	0.0	0.13	0.0	0.10
2005	2	0.1	0.22	0.0	0.15	0.1	0.20	0.1	0.28
2006	3	0.1	0.60	0.0	0.85	0.1	0.74	0.1	0.64
2007	1	0.0	0.11	0.0	0.19	0.0	0.15	0.0	0.09
2008	2	0.1	0.29	0.0	0.35	0.0	0.37	0.1	0.43
2009	2	0.1	0.40	0.0	0.61	0.1	0.51	0.1	0.53
2010	1	0.0	0.09	0.0	0.19	0.0	0.15	0.0	0.11
2011	1	0.0	0.11	0.0	0.03	0.0	0.05	0.0	0.05
2012	2	0.1	0.22	0.0	0.11	0.0	0.15	0.1	0.24
2013	1	0.0	0.10	0.0	0.08	0.0	0.10	0.0	0.13
2014	1	0.0	0.17	0.0	0.15	0.0	0.16	0.0	0.23
2015	1	0.0	0.50	0.0	0.12	0.0	0.18	0.0	0.38
2016	1	0.0	1.00	0.0	0.82	0.0	0.82	0.0	0.57
1998-2016	23	0.1	0.18	0.0	0.14	0.0	0.15	0.0	0.18

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									
15-19									
20-24									
25-29									
30-34									
35-39									
40-44									
45-49	1	1.5	1.5	1	1.9	1.9			0.0
50-54	1	1.5	3.1	1	1.9	3.8			0.0
55-59	0	0.0	3.1			3.8			0.0
60-64	3	4.6	7.7	1	1.9	5.8	2	15.4	15.4
65-69	6	9.2	16.9	5	9.6	15.4	1	7.7	23.1
70-74	8	12.3	29.2	8	15.4	30.8			23.1
75-79	13	20.0	49.2	9	17.3	48.1	4	30.8	53.8
80-84	20	30.8	80.0	16	30.8	78.8	4	30.8	84.6
85+	13	20.0	100.0	11	21.2	100.0	2	15.4	100.0
All ages	65	100.0		52	100.0		13	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								
15-19								
20-24								
25-29								
30-34								
35-39								
40-44								
45-49	1		0.1	0.50			0.1	
50-54	1		0.1	0.25			0.0	
55-59								
60-64	1	2	0.1	0.06	0.2	0.33	0.0	0.1
65-69	5	1	0.4	0.26	0.1	0.20	0.1	0.0
70-74	8		0.7	0.38			0.1	
75-79	9	4	1.1	0.32	0.4	0.31	0.1	0.1
80-84	16	4	3.5	0.80	0.6	0.29	0.2	0.1
85+	11	2	3.6	1.10	0.3	0.13	0.2	0.0
All ages	52	13					0.1	0.0
Mortality								
Raw			0.2	0.40	0.1	0.19		
WS			0.1	0.32	0.0	0.16		
ES			0.1	0.36	0.0	0.17		
BRD-S			0.2	0.41	0.0	0.20		
PYLL-70								
per 100,000			0.3		0.1			
ES			0.2		0.1			
AYLL-70			7.5		5.8			

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 ←%
C00	Lip	2	1.5					2	100.0
C03–C06	Oral cavity	5	3.8			1	20.0	4	80.0
C07–C08	Salivary gland	2	1.5					2	100.0
C15	Oesophagus	2	1.5	1	50.0			1	50.0
C16	Stomach	5	3.8	2	40.0			3	60.0
C18	Colon	4	3.0	2	50.0			2	50.0
C19–C20	Rectum	4	3.0	1	25.0			3	75.0
C22	Liver	2	1.5					2	100.0
C32	Larynx	3	2.3	2	66.7			1	33.3
C33–C34	Lung	30	22.7	3	10.0	1	3.3	26	86.7
C43	Malign. melanoma	6	4.5	2	33.3			4	66.7
C44	Skin others	31	23.5	11	35.5	6	19.4	14	45.2
C46,C49	Soft tissue	2	1.5	2	100.0				
C61	Prostate	14	10.6	7	50.0			7	50.0
C67	Bladder	4	3.0	1	25.0			3	75.0
C76–C79	CUP	2	1.5					2	100.0
C82–C85	NHL	7	5.3	4	57.1			3	42.9
C91–C96	Leukaemia	2	1.5					2	100.0
Others, specified		5	3.8	3	60.0			2	40.0
All further malignancies		132	100.0	41	31.1	8	6.1	83	62.9

Further malignancies with number of cases 1 are pooled in category “Others, specified”.

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 ←%
C00	Lip	1	4.5					1	100.0
C07-C08	Salivary gland	1	4.5			1	100.0		
C16	Stomach	2	9.1	2	100.0				
C18	Colon	2	9.1					2	100.0
C19-C20	Rectum	2	9.1	1	50.0			1	50.0
C25	Pancreas	1	4.5			1	100.0		
C30-C31	Sinuses	1	4.5					1	100.0
C43	Malign. melanoma	2	9.1					2	100.0
C44	Skin others	3	13.6			2	66.7	1	33.3
C50	Breast	2	9.1			2	100.0		
C51	Vulva	1	4.5					1	100.0
C54	Corpus uteri	1	4.5	1	100.0				
C56	Ovary	1	4.5					1	100.0
C82-C85	NHL	2	9.1	2	100.0				
All further malignancies		22	100.0	6	27.3	6	27.3	10	45.5

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								
15-19								
20-24								
25-29								
30-34								
35-39								
40-44								
45-49								
50-54	1		0.1	0.33			0.1	
55-59								
60-64	1	1	0.1	0.08	0.1	0.33	0.0	0.0
65-69	4	1	0.3	0.27	0.1	0.33	0.1	0.0
70-74	3		0.3	0.30			0.0	
75-79	8	3	1.0	0.50	0.3	0.33	0.1	0.1
80-84	9	1	2.0	0.75	0.1	0.10	0.2	0.0
85+	6		2.0	1.50			0.1	
All ages	32	6					0.1	0.0
Mortality								
Raw			0.1	0.39	0.0	0.13		
WS			0.1	0.30	0.0	0.14		
ES			0.1	0.34	0.0	0.14		
BRD-S			0.1	0.40	0.0	0.15		
PYLL-70								
per 100,000			0.2		0.1			
ES			0.1		0.0			
AYLL-70			5.8		5.0			

* See corresponding tables with multiple malignancies.

Table 16

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2015
(**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								
15-19								
20-24								
25-29								
30-34								
35-39								
40-44								
45-49								
50-54								
55-59								
60-64								
65-69	1		0.1	0.09			0.0	
70-74	1		0.1	0.14			0.0	
75-79	2	3	0.3	0.19	0.3	0.43	0.0	0.1
80-84	2		0.5	0.25			0.0	
85+	1		0.4	0.38			0.0	
All ages	7	3					0.0	0.0
Mortality								
Raw			0.0	0.12	0.0	0.08		
WS			0.0	0.08	0.0	0.06		
ES			0.0	0.10	0.0	0.07		
BRD-S			0.0	0.12	0.0	0.09		
PYLL-70								
per 100,000			0.0					
ES			0.0					
AYLL-70			2.5					

* See corresponding tables with multiple malignancies.

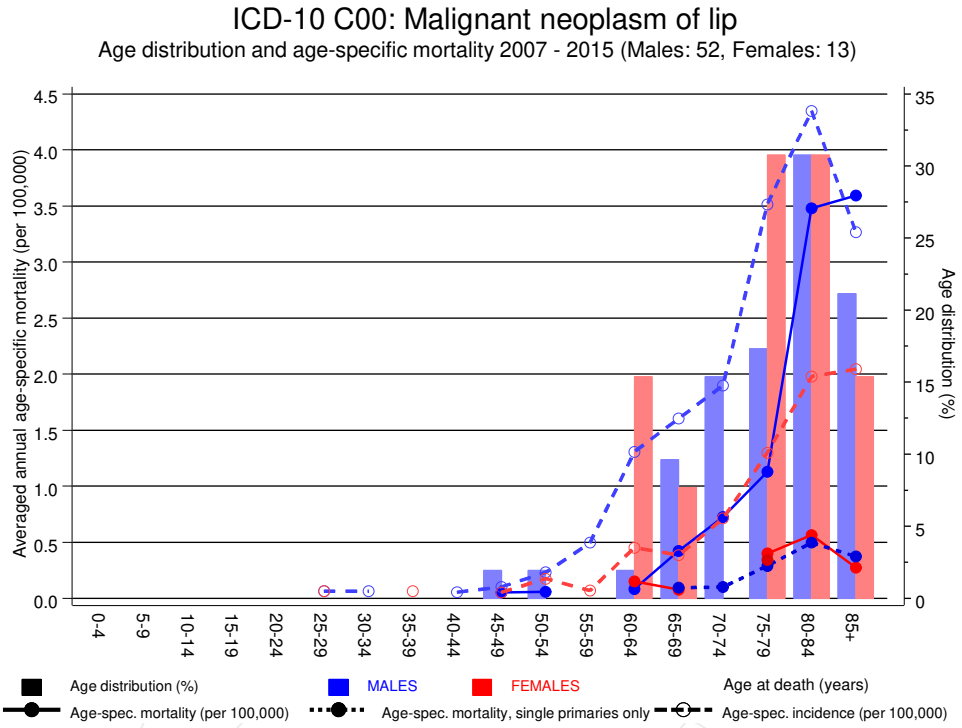
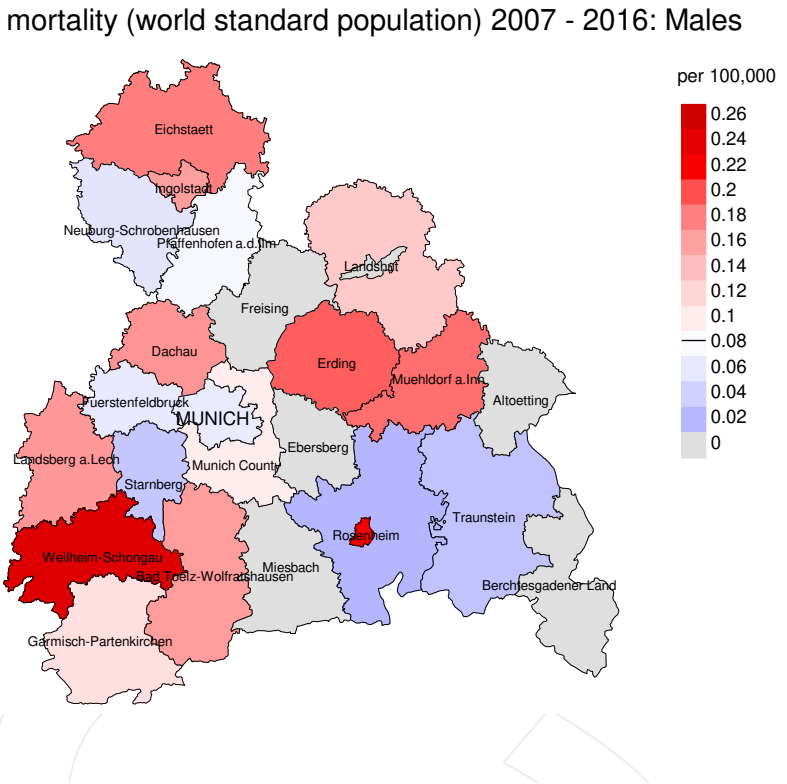


Figure 17. Distribution of age at death (bars; males: mean=70.1 yrs, median=72.8 yrs; females: mean=74.0 yrs, median=76.9 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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



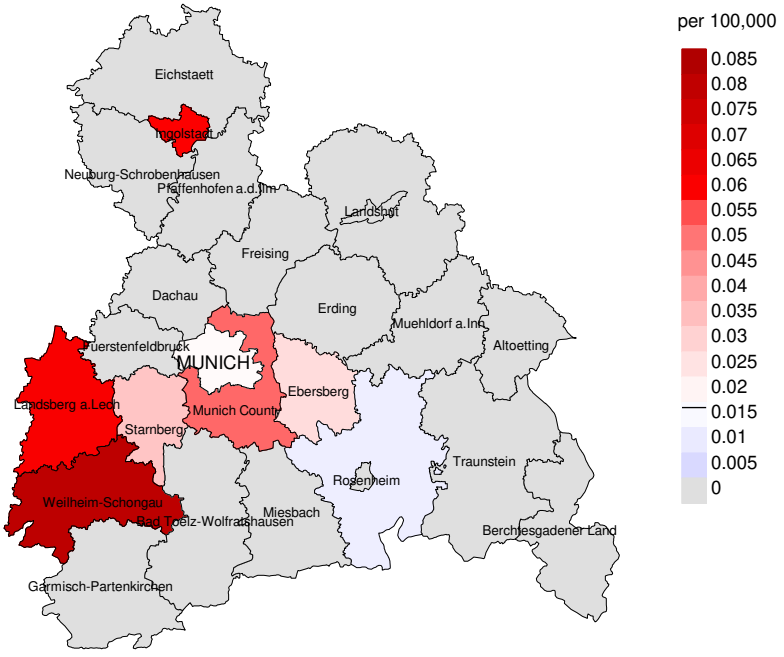
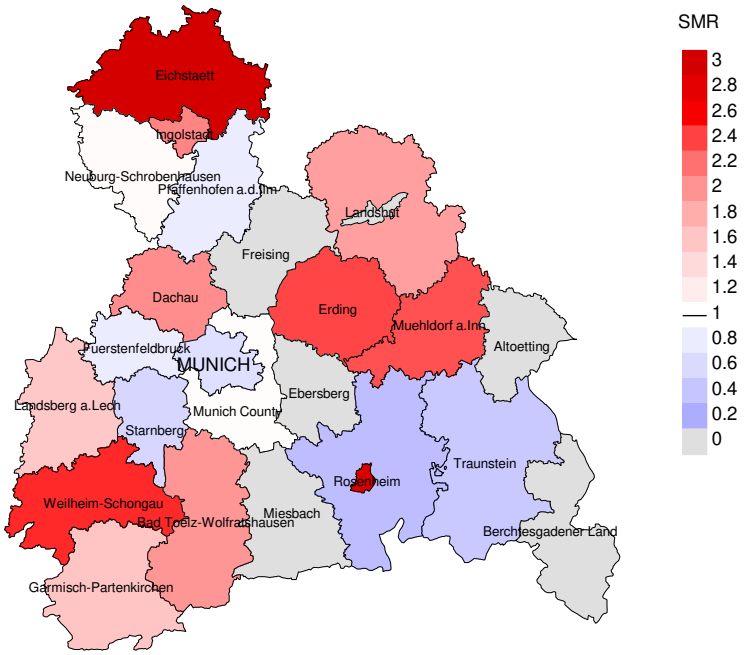


Figure 18a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2016. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.1/100,000 WS N=52, females 0.0/100,000 WS N=13).

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 1 women died from lip cancer. 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 1.0/100,000.

Standardized mortality ratio (SMR) 2007 - 2016: Males



Standardized mortality ratio (SMR) 2007 - 2016: Females

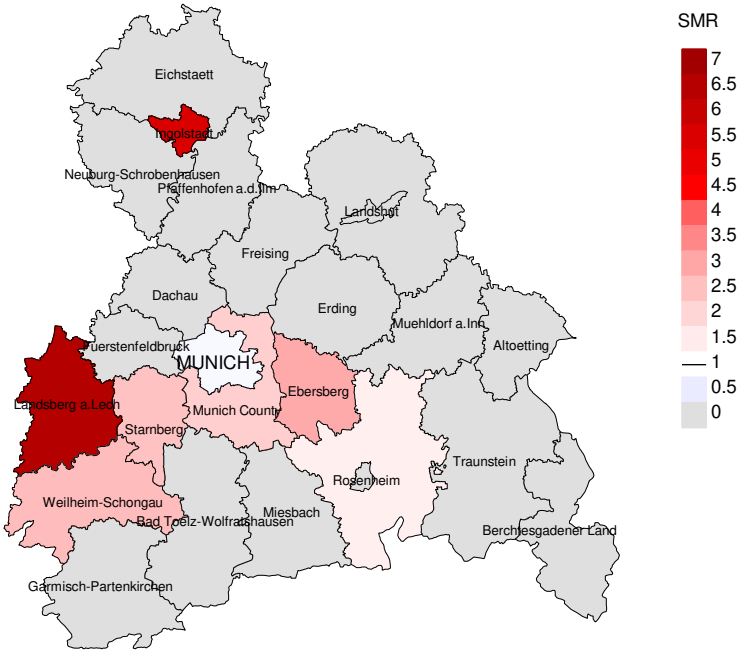


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=52, females N=13).

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 1 women died from lip cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 2.93. Though, the value of this parameter may vary with an underlying probability of 99% between 0.01 and 21.76, 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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