

Munich Cancer Registry



- ▶ Survival
- ▶ Selection Matrix
- ▶ Homepage
- ▶ *Deutsch*

ICD-10 C33, C34: Non-small cell LC

Incidence and Mortality

Year of diagnosis	1998-2016
Patients	23,729
Diseases	23,966
Creation date	08/21/2018
Export date	08/09/2018
Population	4.81 m



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

https://www.tumorregister-muenchen.de/en/facts/base/bC34n_E-ICD-10-C33-C34-Non-small-cell-LC-incidence-and-mortality.pdf

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**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
C33	Malignant neoplasm of trachea
C34.-	Malignant neoplasm of bronchus and lung
C34.0	Main bronchus
C34.1	Upper lobe, bronchus or lung
C34.2	Middle lobe, bronchus or lung
C34.3	Lower lobe, bronchus or lung
C34.8	Overlapping lesion of bronchus and lung
C34.9	Bronchus or lung, unspecified

... in case of morphology recorded and not coexisting any of ...

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

Code	Description
8002/3	Malignant tumor, small cell type
8041/3	Small cell carcinoma, NOS
8042/3	Oat cell carcinoma
8043/3	Small cell carcinoma, fusiform cell
8044/3	Small cell carcinoma, intermediate cell
8045/3	Combined small cell carcinoma

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	619	9.5	5.8	92.9	99.5
1999	681	11.3	5.7	91.5	98.5
2000	661	11.8	5.7	90.6	98.6
2001	690	12.4	5.6	91.9	98.7
2002	1060	13.2	5.5	91.3	98.6 #
2003	1149	13.9	5.4	90.0	98.5
2004	1148	14.5	5.2	89.0	98.3
2005	1152	15.2	5.2	90.0	97.8
2006	1201	15.7	5.1	87.8	97.3
2007	1478	16.2	5.0	85.7	93.0 #
2008	1569	16.8	5.0	84.9	90.6
2009	1568	17.2	4.7	84.2	90.9
2010	1605	17.7	4.4	83.6	91.1
2011	1643	18.1	4.0	81.9	90.5
2012	1681	18.6	3.8	78.2	89.0
2013	1651	18.8	3.5	74.9	87.5
2014	1668	19.0	3.2	66.4	88.7
2015	1448	19.4	2.7	57.4	97.9
2016	1294	19.6	2.1	30.6	71.1 ##
1998-2016	23966	19.6	5.8	79.4	92.4

23,966 cases diagnosed 1998-2016 are related to a total of 23,729 patients. Currently, in 5,802 (24.5 %) of these 23,729 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 4,537 / 967 / 298 (19.1 % / 4.1 % / 1.3 %) 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 retrieved from the respective headings.

How to interpret:

In 2014, a subgroup of 1,668 cases has been diagnosed, of which 19.0 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 3.2 % 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	427	69.0	9.4	6.0	94.4	99.8
1999	471	69.2	10.1	6.0	91.7	98.5
2000	461	69.7	11.3	5.9	90.9	98.7
2001	487	70.6	12.2	5.8	93.0	98.4
2002	728	68.7	13.2	5.7	93.4	99.0 #
2003	760	66.1	13.8	5.5	91.3	98.9
2004	769	67.0	14.2	5.4	90.6	98.4
2005	776	67.4	15.0	5.3	90.5	97.7
2006	806	67.1	15.5	5.2	88.2	97.5
2007	973	65.8	16.1	5.2	87.5	93.8 #
2008	1028	65.5	16.8	5.1	86.6	91.3
2009	1003	64.0	17.1	4.9	85.9	92.3
2010	1019	63.5	17.5	4.6	85.6	91.7
2011	1029	62.6	18.2	4.4	84.0	91.7
2012	1036	61.6	18.7	4.1	79.7	90.1
2013	1022	61.9	19.2	3.8	76.5	88.5
2014	981	58.8	19.4	3.4	68.6	89.7
2015	875	60.4	19.7	2.7	59.3	98.1
2016	744	57.5	19.9	2.2	31.3	70.0 ##
1998-2016	15395	64.2	19.9	6.0	81.6	93.2

15,395 cases diagnosed 1998-2016 are related to a total of 15,235 patients. Currently, in 3,800 (24.9 %) of these 15,235 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 2,963 / 639 / 198 (19.4 % / 4.2 % / 1.3 %) 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 retrieved from the respective headings.

How to interpret:

In 2014, a subgroup of 981 cases has been diagnosed, of which 19.4 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 3.4 % 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	192	31.0	9.9	5.4	89.6	99.0
1999	210	30.8	13.9	5.4	91.0	98.6
2000	200	30.3	13.0	5.3	90.0	98.5
2001	203	29.4	12.9	5.3	89.2	99.5
2002	332	31.3	13.2	5.2	86.7	97.6 #
2003	389	33.9	14.2	5.1	87.4	97.7
2004	379	33.0	15.1	5.0	85.8	98.2
2005	376	32.6	15.5	4.9	89.1	98.1
2006	395	32.9	16.3	5.0	86.8	97.0
2007	505	34.2	16.3	4.8	82.4	91.3 #
2008	541	34.5	16.9	4.8	81.7	89.3
2009	565	36.0	17.5	4.4	81.2	88.5
2010	586	36.5	17.9	4.1	80.2	90.1
2011	614	37.4	18.0	3.6	78.5	88.4
2012	645	38.4	18.3	3.2	75.7	87.3
2013	629	38.1	18.2	3.0	72.3	85.9
2014	687	41.2	18.3	3.0	63.3	87.2
2015	573	39.6	18.9	2.7	54.5	97.7
2016	550	42.5	19.1	2.0	29.6	72.5 ##
1998-2016	8571	35.8	19.1	5.4	75.6	91.0

8,571 cases diagnosed 1998-2016 are related to a total of 8,494 patients. Currently, in 2,002 (23.6 %) of these 8,494 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 1,574 / 328 / 100 (18.5 % / 3.9 % / 1.2 %) 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 retrieved from the respective headings.

How to interpret:

In 2014, a subgroup of 687 cases has been diagnosed, of which 18.3 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 3.0 % 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	427	192	38.5	16.3	23.7	8.6	34.4	12.3	42.4	14.7
1999	471	210	42.1	17.7	26.0	9.2	37.4	13.2	45.7	16.3
2000	461	200	40.5	16.6	24.7	9.3	35.5	13.0	42.8	15.3
2001	487	203	42.0	16.7	25.8	9.1	36.9	12.8	44.5	15.3
2002	728	332	39.1	17.0	22.6	9.1	33.0	12.9	41.5	15.4
2003	760	389	40.5	19.7	23.2	10.5	33.9	14.9	41.7	17.6
2004	769	379	40.9	19.2	22.6	10.1	33.4	14.2	41.9	16.9
2005	776	376	41.0	18.9	22.6	10.1	32.8	14.3	40.8	16.6
2006	806	395	42.1	19.7	22.9	10.1	33.3	14.3	41.5	17.0
2007	973	505	43.9	21.9	23.2	11.5	34.1	16.2	44.1	19.2
2008	1028	541	46.2	23.3	24.1	12.2	35.4	17.2	44.9	20.3
2009	1003	565	44.9	24.3	23.8	12.2	34.6	17.2	42.7	20.7
2010	1019	586	45.2	25.0	23.4	12.6	33.9	17.9	42.4	21.3
2011	1029	614	46.0	26.3	23.3	12.7	33.9	18.1	42.6	21.7
2012	1036	645	45.6	27.3	22.8	13.1	33.3	18.8	42.4	22.6
2013	1022	629	44.4	26.4	22.1	13.0	32.2	18.4	40.5	21.7
2014	981	687	42.1	28.5	20.2	13.7	29.8	19.4	37.9	23.4
2015	875	573	36.8	23.5	18.1	11.1	26.5	15.9	33.4	19.2
2016	744	550	31.0	22.4	15.5	10.8	22.6	15.3	28.0	18.3
1998-2016	15395	8571	41.8	22.3	22.2	11.2	32.4	15.9	40.5	19.0

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	Std.		Median				Median		
		Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	619	65.3	10.4	28.1	91.7	51.7	57.8	65.6	73.3	78.0
1999	681	65.7	10.3	32.0	93.0	51.8	58.4	66.7	73.0	78.5
2000	661	64.7	10.7	15.8	88.6	51.1	57.8	65.1	72.7	78.4
2001	690	65.0	10.9	17.0	93.6	50.3	58.3	65.5	72.4	78.3
2002	1060	66.2	10.5	27.5	91.7	52.3	59.3	66.6	74.2	79.3
2003	1149	66.3	10.4	17.5	95.0	52.7	59.3	66.9	73.7	79.5
2004	1148	66.6	10.5	24.4	92.2	53.1	59.7	66.6	74.7	80.2
2005	1152	66.2	10.8	18.1	92.7	52.6	59.5	66.6	74.2	79.5
2006	1201	66.9	10.5	27.5	92.7	53.4	60.3	67.0	74.6	80.3
2007	1478	67.2	10.9	7.5	97.2	53.2	60.5	67.8	75.4	80.5
2008	1569	67.4	10.6	22.3	95.7	53.8	60.9	68.3	75.0	80.3
2009	1568	67.4	10.5	20.3	95.2	53.7	60.6	68.2	74.6	80.9
2010	1605	67.6	10.4	3.5	97.8	53.9	61.3	68.5	74.9	80.3
2011	1643	67.9	10.8	22.2	94.7	53.2	60.8	68.9	75.6	81.8
2012	1681	68.4	10.7	22.9	96.6	54.0	61.7	69.1	76.1	82.2
2013	1651	68.2	10.4	27.9	97.7	53.8	61.6	69.1	75.6	81.0
2014	1668	68.6	10.9	15.9	96.0	53.3	62.1	70.3	76.0	81.5
2015	1448	68.7	10.4	29.2	95.2	54.5	61.6	70.1	76.0	81.3
2016	1294	68.3	10.5	20.9	95.0	54.0	60.9	69.1	75.7	81.0
1998-2016	23966	67.3	10.6	3.5	97.8	53.2	60.4	68.1	75.0	80.5

Table 3a

Age distribution parameters by year of diagnosis (MALES)

Year of diagnosis	Cases n	Std.		Median				Median		
		Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	427	65.0	9.8	28.1	91.7	52.6	58.1	65.2	72.6	77.1
1999	471	65.1	9.9	32.0	90.6	52.1	58.2	65.7	72.2	77.7
2000	461	64.8	10.0	28.1	88.6	52.1	58.4	64.9	71.6	78.0
2001	487	64.9	10.2	17.0	93.6	52.0	58.9	65.3	71.6	77.6
2002	728	66.4	10.0	34.2	91.7	52.6	60.2	66.4	73.9	79.3
2003	760	66.6	9.6	36.8	93.5	53.7	60.2	66.8	73.6	78.9
2004	769	67.1	10.0	37.2	92.2	54.0	60.6	67.0	74.6	80.2
2005	776	66.9	10.2	18.1	92.7	54.6	61.0	67.3	74.3	79.3
2006	806	67.2	9.9	28.7	92.1	54.1	61.2	67.2	74.5	79.5
2007	973	68.0	10.3	7.5	94.1	54.7	61.8	68.4	75.7	80.6
2008	1028	68.2	10.1	22.3	90.2	55.0	61.8	68.9	75.3	80.2
2009	1003	67.8	10.0	30.8	93.1	55.2	61.0	68.2	74.5	80.5
2010	1019	68.0	10.2	3.5	93.2	54.3	61.8	69.2	75.0	80.2
2011	1029	68.0	10.5	28.9	94.3	53.4	61.5	69.3	75.4	81.4
2012	1036	68.9	10.6	22.9	96.6	55.1	62.9	69.7	76.4	82.2
2013	1022	68.9	9.8	27.9	92.5	55.4	62.1	69.9	75.9	80.7
2014	981	69.5	10.3	30.3	96.0	54.8	63.0	71.0	76.7	82.2
2015	875	69.0	10.3	29.2	91.5	55.2	62.1	70.6	76.1	81.1
2016	744	68.6	10.1	25.5	94.6	54.7	61.3	69.6	75.6	81.1
1998-2016	15395	67.6	10.2	3.5	96.6	54.2	61.0	68.3	75.0	80.3

Table 3b

Age distribution parameters by year of diagnosis (FEMALES)

Year of diagnosis	Cases n	Mean	Std. dev.	Min. Max.		10% 25%		Median		
				Min.	Max.	10%	25%	50%	75%	90%
1998	192	65.9	11.6	35.8	89.6	50.3	56.8	66.8	75.2	79.9
1999	210	67.0	11.2	32.9	93.0	51.2	58.8	68.6	76.1	79.5
2000	200	64.6	12.4	15.8	87.6	49.1	55.9	66.5	74.0	78.7
2001	203	65.3	12.4	24.4	92.6	48.1	56.8	66.7	74.6	80.4
2002	332	65.6	11.6	27.5	89.7	50.9	57.8	67.2	75.1	79.2
2003	389	65.8	11.8	17.5	95.0	50.6	57.5	67.2	74.3	80.2
2004	379	65.5	11.4	24.4	92.1	50.3	57.8	65.3	74.9	80.2
2005	376	64.7	11.6	21.6	89.3	49.9	56.6	65.1	73.5	79.8
2006	395	66.4	11.6	27.5	92.7	51.7	59.1	66.1	75.2	81.7
2007	505	65.6	11.7	22.3	97.2	50.2	57.4	66.0	74.4	80.3
2008	541	66.0	11.4	29.4	95.7	51.9	58.6	66.3	74.3	80.4
2009	565	66.8	11.5	20.3	95.2	51.8	59.8	68.2	74.9	81.5
2010	586	66.9	10.7	33.2	97.8	52.7	60.2	67.3	74.9	80.5
2011	614	67.8	11.5	22.2	94.7	51.9	59.7	68.0	76.3	82.8
2012	645	67.7	10.9	33.3	91.8	52.9	59.9	68.5	75.7	81.6
2013	629	67.2	11.1	30.6	97.7	52.3	59.9	67.3	75.0	81.6
2014	687	67.4	11.5	15.9	95.0	51.0	60.4	69.2	75.5	80.8
2015	573	68.1	10.6	32.0	95.2	54.0	60.6	69.2	75.7	81.3
2016	550	67.8	10.9	20.9	95.0	53.3	60.8	68.6	75.8	80.7
1998-2016	8571	66.7	11.4	15.8	97.8	51.5	59.1	67.4	75.1	80.9

Table 4

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

Age at diagnosis Years	Cases n	Males			Females				
		%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4	1	0.0	0.0	1	0.0	0.0			0.0
5-9	1	0.0	0.0	1	0.0	0.0			0.0
10-14	0	0.0	0.0			0.0			0.0
15-19	3	0.0	0.0	2	0.0	0.0	1	0.0	0.0
20-24	6	0.0	0.1	2	0.0	0.1	4	0.1	0.1
25-29	14	0.1	0.2	8	0.1	0.1	6	0.1	0.2
30-34	35	0.2	0.4	15	0.2	0.3	20	0.3	0.5
35-39	84	0.5	0.9	46	0.5	0.8	38	0.6	1.2
40-44	197	1.3	2.2	91	0.9	1.7	106	1.8	3.0
45-49	528	3.4	5.6	298	3.1	4.8	230	3.9	6.9
50-54	1003	6.4	12.0	542	5.6	10.4	461	7.8	14.7
55-59	1575	10.1	22.1	938	9.7	20.0	637	10.8	25.5
60-64	2194	14.1	36.1	1340	13.8	33.8	854	14.5	40.0
65-69	2837	18.2	54.3	1791	18.4	52.3	1046	17.7	57.7
70-74	2916	18.7	73.0	1945	20.0	72.3	971	16.5	74.2
75-79	2279	14.6	87.6	1500	15.4	87.7	779	13.2	87.4
80-84	1364	8.7	96.4	870	9.0	96.7	494	8.4	95.8
85+	568	3.6	100.0	320	3.3	100.0	248	4.2	100.0
All ages	15605	100.0		9710	100.0		5895	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	1		0.1		0.5	
5- 9	1		0.1		1.0	
10-14						
15-19	2	1	0.2	0.1	0.8	0.5
20-24	2	4	0.1	0.3	0.4	1.1
25-29	8	6	0.5	0.4	1.2	0.7
30-34	15	20	0.9	1.3	1.6	1.4
35-39	46	38	2.8	2.4	3.3	1.5
40-44	91	106	4.9	5.9	4.2	2.3
45-49	296	229	15.0	12.0	7.5	3.3
50-54	540	460	31.3	26.9	8.8	5.3
55-59	933	630	65.9	42.9	10.1	6.7
60-64	1332	844	108.7	63.5	10.1	7.5
65-69	1774	1041	149.7	80.1	9.5	7.4
70-74	1933	967	174.7	76.4	9.2	6.5
75-79	1491	777	187.1	77.6	9.0	5.8
80-84	866	494	188.3	69.8	7.9	4.5
85+	320	248	104.5	33.8	4.0	1.9
All ages	9651	5865			8.5	5.2
Incidence						
Raw			42.2	24.8		
WS			21.4	12.2		
ES			31.2	17.3		
BRD-S			39.3	20.6		

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).

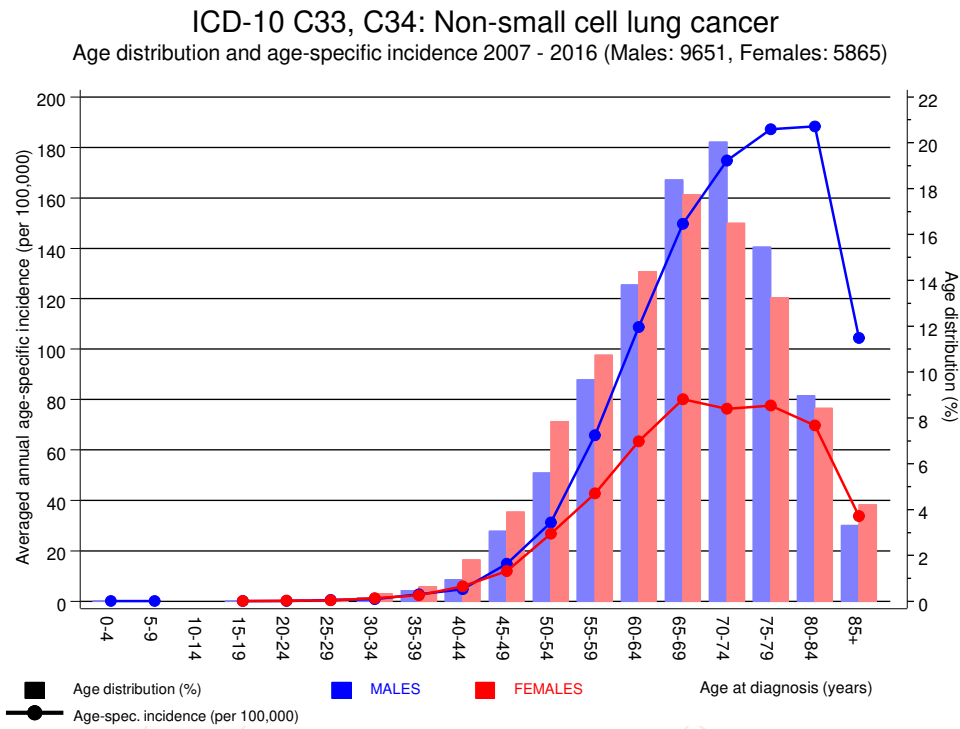


Figure 6. Age distribution (males: mean=68.5 yrs, median=69.4 yrs; females: mean=67.2 yrs, median=67.9 yrs) and age-specific incidence.

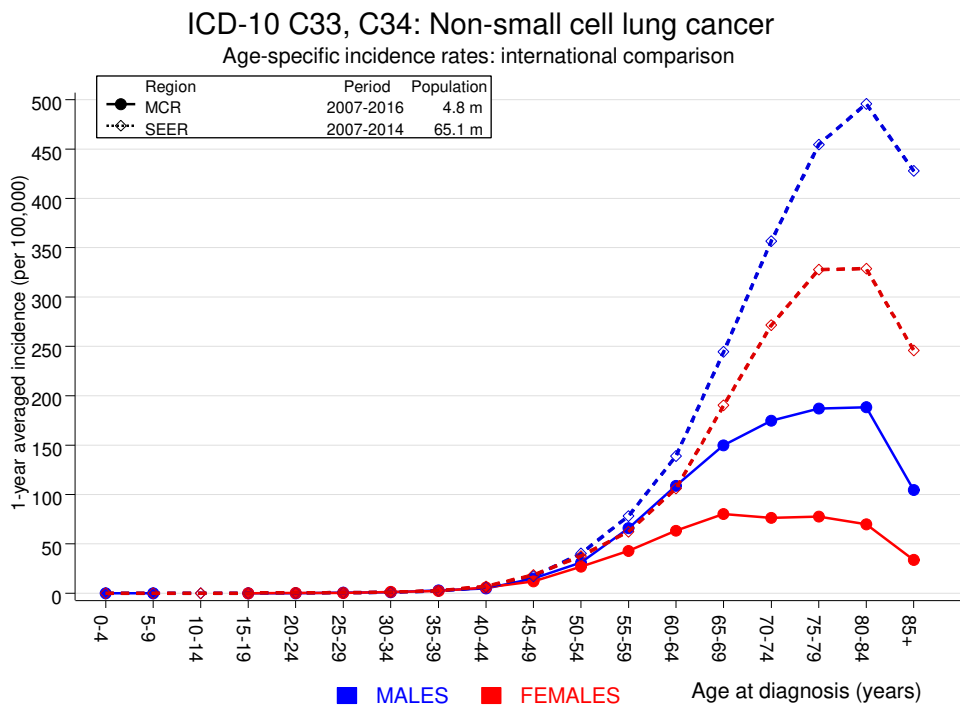


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

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	3	0.4	6.9	1.4	20.1 #	1.1	33.3
C03–C06 Oral cavity	27	3.3	8.2	5.4	11.9 #	10.4	18.5
C09–C10 Oropharynx	36	4.2	8.7	6.1	12.0 #	14.0	5.6
C12–C13 Hypopharynx	15	2.3	6.6	3.7	10.9 #	5.6	6.7
C15 Oesophagus	38	7.4	5.1	3.6	7.1 #	13.5	5.3
C16 Stomach	61	14.9	4.1	3.1	5.3 #	20.3	13.1
C17 Small intestine	7	2.1	3.4	1.4	6.9 #	2.2	
C18 Colon	72	36.3	2.0	1.6	2.5 #	15.7	16.7
C19–C20 Rectum	40	20.8	1.9	1.4	2.6 #	8.4	7.5
C21 Anus/canal	2	0.8	2.4	0.3	8.5	0.5	
C22 Liver	38	11.2	3.4	2.4	4.7 #	11.8	13.2
C23–C24 Bile	9	3.7	2.4	1.1	4.6 #	2.3	22.2
C25 Pancreas	33	14.1	2.3	1.6	3.3 #	8.3	42.4
C26 GI cancer	2	0.4	5.1	0.6	18.6	0.7	
C32 Larynx	53	4.1	12.9	9.6	16.8 #	21.5	11.3
C33–C34 Lung	207	46.4	4.5	3.9	5.1 #	70.8	1.4
C43 Malign. melanoma	28	16.5	1.7	1.1	2.5 #	5.1	10.7
C46,C49 Soft tissue	7	2.1	3.4	1.4	7.0 #	2.2	
C48 Peritoneal	2	0.3	6.7	0.8	24.1	0.7	
C50 Breast	3	1.0	3.1	0.6	8.9	0.9	33.3
C61 Prostate	127	112.2	1.1	0.9	1.3	6.5	17.3
C62 Testis	2	0.8	2.4	0.3	8.7	0.5	50.0
C64 Kidney	49	13.6	3.6	2.7	4.8 #	15.6	18.4
C65 Renal pelvis	9	1.6	5.5	2.5	10.5 #	3.2	
C67 Bladder	55	16.4	3.3	2.5	4.4 #	17.0	12.7
C68 Urinary org.	3	0.2	14.1	2.9	41.3 #	1.2	66.7
C70–C72 CNS cancer	7	5.0	1.4	0.6	2.9	0.9	42.9
C73 Thyroid	9	2.5	3.6	1.6	6.8 #	2.9	
C74–C80 Cancer others	2	0.8	2.4	0.3	8.7	0.5	50.0
C76–C79 CUP	8	6.3	1.3	0.6	2.5	0.8	12.5
C82–C85 NHL	43	15.3	2.8	2.0	3.8 #	12.2	9.3
C90 Mult. myeloma	7	4.9	1.4	0.6	3.0	0.9	28.6
C91–C96 Leukaemia	22	6.0	3.7	2.3	5.5 #	7.0	31.8
Others, specified	8	6.1	1.3	0.6	2.6	0.9	37.5
Not observed	0	2.7	0.0	0.0	1.4	-1.2	
All further malignancies	1034	386.7	2.7	2.5	2.8 #	285.1	12.6

Patients	14547
Median age at next malignancy (years)	71.2
Person-years	22701
Mean observation time (years)	1.6
Median observation time (years)	0.7

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

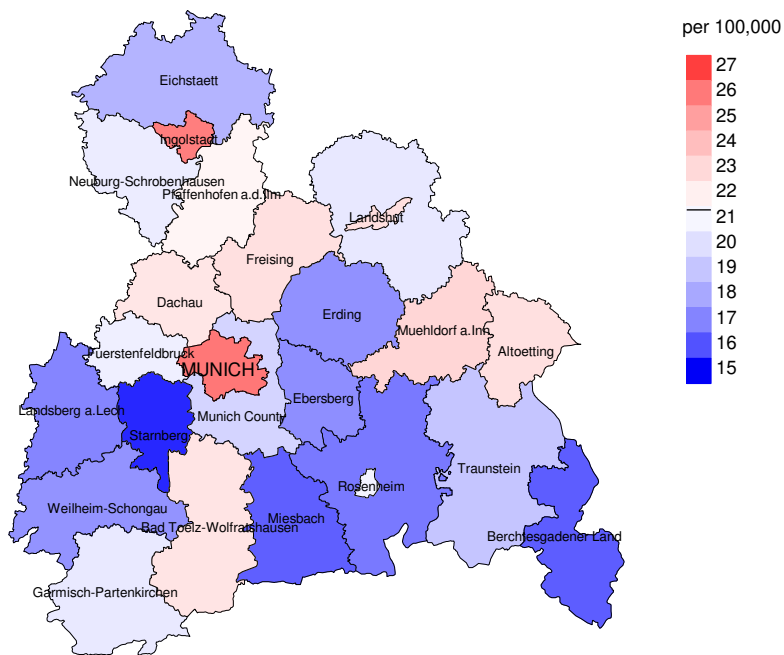
FEMALES

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C03–C06 Oral cavity	4	0.9	4.4	1.2	11.3 #	2.2	
C09–C10 Oropharynx	6	0.7	8.8	3.2	19.0 #	3.8	
C15 Oesophagus	8	1.0	8.0	3.4	15.7 #	5.0	12.5
C16 Stomach	17	4.8	3.6	2.1	5.7 #	8.8	35.3
C17 Small intestine	6	0.8	7.4	2.7	16.1 #	3.7	
C18 Colon	34	13.5	2.5	1.7	3.5 #	14.7	11.8
C19–C20 Rectum	9	5.9	1.5	0.7	2.9	2.2	11.1
C21 Anus/canal	4	0.8	4.9	1.3	12.7 #	2.3	
C22 Liver	6	1.8	3.3	1.2	7.2 #	3.0	16.7
C23–C24 Bile	3	2.0	1.5	0.3	4.5	0.7	66.7
C25 Pancreas	27	6.5	4.2	2.7	6.0 #	14.7	37.0
C32 Larynx	5	0.3	16.6	5.4	38.8 #	3.4	20.0
C33–C34 Lung	93	12.0	7.7	6.3	9.5 #	58.3	1.1
C43 Malign. melanoma	10	5.8	1.7	0.8	3.2	3.0	10.0
C46,C49 Soft tissue	2	0.9	2.3	0.3	8.4	0.8	50.0
C50 Breast	105	47.2	2.2	1.8	2.7 #	41.6	17.1
C51 Vulva	8	1.4	5.6	2.4	11.0 #	4.7	
C53 Cervix uteri	9	1.9	4.6	2.1	8.8 #	5.1	22.2
C54 Corpus uteri	11	8.7	1.3	0.6	2.3	1.6	9.1
C55,C57 Fem. genitals un	3	0.3	11.8	2.4	34.5 #	2.0	66.7
C56 Ovary	10	6.2	1.6	0.8	3.0	2.7	30.0
C57.9 Fem. urogen.	2	0.0	179.2	21.7	647.3 #	1.4	
C64 Kidney	11	3.7	3.0	1.5	5.3 #	5.3	45.5
C65 Renal pelvis	6	0.5	13.1	4.8	28.5 #	4.0	
C66 Ureter	2	0.2	8.4	1.0	30.2 #	1.3	
C67 Bladder	7	2.6	2.7	1.1	5.5 #	3.2	28.6
C70–C72 CNS cancer	4	2.1	1.9	0.5	5.0	1.4	50.0
C73 Thyroid	13	2.7	4.8	2.5	8.2 #	7.4	15.4
C76–C79 CUP	10	2.5	4.0	1.9	7.4 #	5.4	10.0
C82–C85 NHL	11	5.7	1.9	1.0	3.5	3.8	9.1
C90 Mult. myeloma	6	1.8	3.3	1.2	7.2 #	3.0	50.0
C91–C96 Leukaemia	8	2.3	3.5	1.5	6.9 #	4.1	12.5
Others, specified	8	1.1	7.0	3.0	13.8 #	4.9	37.5
Not observed	0	2.3	0.0	0.0	1.6	-1.7	
All further malignancies	468	150.9	3.1	2.8	3.4 #	228.2	16.0
Patients		7968					
Median age at next malignancy (years)		69.8					
Person-years		13897					
Mean observation time (years)		1.7					
Median observation time (years)		0.8					

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

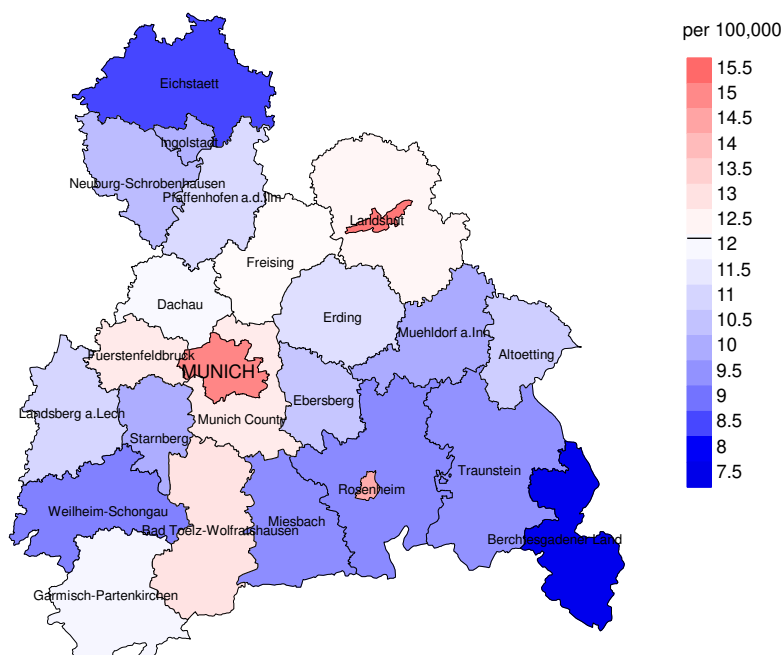
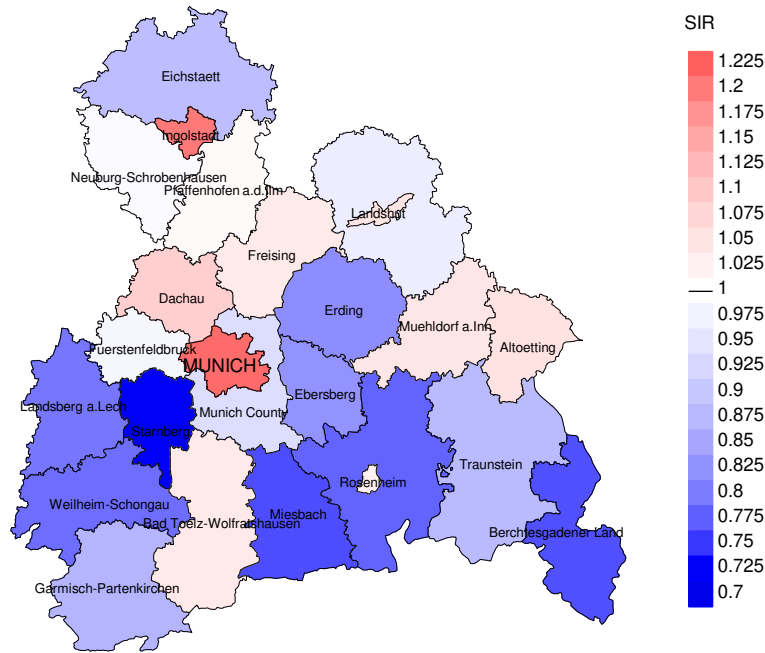


Figure 8a. Map of cancer incidence (world standard population) by county averaged for period 2007 to 2016. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 21.4/100,000 WS N=9,651, females 12.2/100,000 WS N=5,865).

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 132 women were identified with newly diagnosed non-small cell LC. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 10.6/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 8.3 and 13.5/100,000.

Standardized incidence ratio (SIR) 2007 - 2016: Males



Standardized incidence ratio (SIR) 2007 - 2016: Females

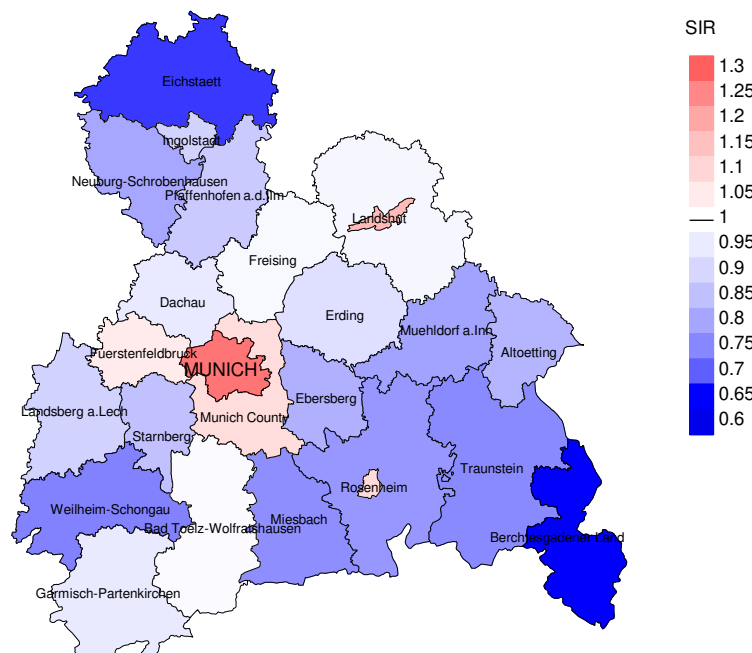


Figure 8b. Map of standardized incidence ratio (SIR) by county averaged for period 2007 to 2016. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=9,651, females N=5,865).

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 132 women were identified with newly diagnosed non-small cell LC. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.82. Though, the value of this parameter may vary with an underlying probability of 99% between 0.65 and 1.02, 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	619	99.5	575	92.9	91.1
1999	681	98.5	623	91.5	93.4
2000	661	98.6	599	90.6	94.7
2001	690	98.7	634	91.9	93.8
2002	1060	98.6	968	91.3	96.8
2003	1149	98.5	1034	90.0	96.6
2004	1148	98.3	1022	89.0	97.8
2005	1152	97.8	1037	90.0	98.2
2006	1201	97.3	1054	87.8	98.4
2007	1478	93.0	1267	85.7	98.3
2008	1569	90.6	1332	84.9	98.9
2009	1568	90.9	1321	84.2	98.9
2010	1605	91.1	1342	83.6	98.1
2011	1643	90.5	1346	81.9	98.4
2012	1681	89.0	1314	78.2	97.4
2013	1651	87.5	1237	74.9	97.7
2014	1668	88.7	1108	66.4	98.0
2015	1448	97.9	831	57.4	94.9
2016	1294	71.1	396	30.6	79.5
1998-2016	23966	92.4	19040	79.4	96.9

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	619	497	202	32.6
1999	681	521	207	30.4
2000	661	549	208	31.5
2001	690	564	213	30.9
2002	1060	842	341	32.2
2003	1149	960	394	34.3
2004	1148	1004	374	32.6
2005	1152	990	397	34.5
2006	1201	1054	383	31.9
2007	1478	1176	457	30.9
2008	1569	1235	476	30.3
2009	1568	1295	473	30.2
2010	1605	1376	503	31.3
2011	1643	1416	544	33.1
2012	1681	1412	518	30.8
2013	1651	1451	524	31.7
2014	1668	1426	508	30.5
2015	1448	1437	471	32.5
2016	1294	1090	325	25.1
1998-2016	23966	20295	7518	31.4

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	497	84.5	15.5	95.7
1999	521	88.1	11.9	96.1
2000	549	90.3	9.7	97.6
2001	564	88.1	11.9	96.0
2002	842	91.7	8.3	95.6
2003	960	92.4	7.6	96.6
2004	1004	94.1	5.9	97.2
2005	990	92.4	7.6	96.0
2006	1054	92.1	7.9	96.6
2007	1176	93.0	7.0	96.7
2008	1235	93.4	6.6	96.5
2009	1295	93.0	7.0	96.7
2010	1376	92.6	7.4	96.5
2011	1416	93.2	6.8	95.8
2012	1412	92.4	7.6	96.0
2013	1451	93.2	6.8	95.9
2014	1426	92.5	7.5	95.4
2015	1437	91.3	8.7	94.6
2016	1090	90.8	9.2	94.1
1998-2016	20295	92.1	7.9	96.0

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	347	67.8	67.5	70.5	67.9
1999	368	68.4	68.3	69.3	68.6
2000	381	67.0	66.5	71.2	67.1
2001	398	67.2	66.6	71.3	67.5
2002	602	67.1	66.6	74.8	66.7
2003	685	67.9	67.8	70.3	67.9
2004	698	68.7	68.6	71.7	68.8
2005	677	69.2	69.0	75.3	69.2
2006	736	69.7	69.5	71.9	69.6
2007	805	69.5	69.0	74.5	69.4
2008	840	69.7	69.2	76.2	69.4
2009	889	70.5	70.2	74.3	70.1
2010	896	70.9	70.5	75.6	70.7
2011	930	71.1	70.7	75.0	70.8
2012	888	71.5	70.6	80.1	71.2
2013	926	72.2	72.1	76.5	72.2
2014	889	72.7	72.4	74.9	72.5
2015	887	72.5	72.0	77.0	72.2
2016	638	73.7	73.3	78.0	73.4
1998-2016	13480	70.4	69.9	74.4	70.2

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	150	66.6	67.1	63.4	68.0
1999	153	70.9	70.8	72.7	70.9
2000	168	68.8	68.2	74.0	68.8
2001	166	70.7	69.6	73.2	70.5
2002	240	69.1	68.6	72.8	69.1
2003	275	69.4	68.9	72.2	69.1
2004	306	70.1	69.1	77.9	69.7
2005	313	66.7	66.1	77.5	66.7
2006	318	70.0	69.3	77.4	69.3
2007	371	69.0	68.3	77.4	68.4
2008	395	69.2	68.2	78.6	68.3
2009	406	68.7	68.3	79.3	68.5
2010	480	69.9	69.6	76.0	69.8
2011	486	69.8	69.3	76.7	69.6
2012	524	71.1	70.7	79.0	71.0
2013	525	71.1	70.4	81.2	70.7
2014	537	71.2	70.7	80.8	70.8
2015	550	71.9	71.3	77.2	71.7
2016	452	71.1	70.7	77.7	70.7
1998–2016	6815	70.0	69.5	76.9	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	290	26.2	0.68	16.0	0.68	23.5	0.68	29.8	0.70
1999	324	28.9	0.69	17.3	0.67	25.8	0.69	33.6	0.74
2000	341	29.9	0.74	17.9	0.73	26.3	0.74	33.1	0.78
2001	349	30.1	0.72	17.8	0.69	26.3	0.72	33.1	0.75
2002	546	29.3	0.75	16.8	0.74	24.6	0.75	31.2	0.76
2003	630	33.6	0.83	18.9	0.82	27.8	0.82	35.0	0.84
2004	660	35.1	0.86	19.1	0.85	28.5	0.86	36.6	0.88
2005	615	32.5	0.80	17.1	0.76	25.4	0.78	32.9	0.81
2006	675	35.2	0.84	18.1	0.80	27.3	0.82	35.6	0.86
2007	743	33.5	0.77	17.2	0.75	25.7	0.76	33.7	0.77
2008	781	35.1	0.77	18.0	0.75	26.8	0.76	34.8	0.78
2009	818	36.7	0.82	18.2	0.77	27.3	0.79	35.4	0.83
2010	817	36.2	0.81	17.9	0.77	26.6	0.79	34.4	0.82
2011	860	38.4	0.84	18.6	0.81	27.8	0.83	36.2	0.86
2012	809	35.6	0.78	17.2	0.76	25.5	0.77	33.1	0.78
2013	860	37.4	0.85	17.5	0.80	26.1	0.82	34.4	0.85
2014	813	34.9	0.83	16.1	0.80	24.2	0.82	31.4	0.83
2015	795	33.4	0.92	15.7	0.88	23.4	0.89	30.4	0.92
2016	568	23.6	0.77	10.6	0.69	16.1	0.72	21.3	0.76
1998-2016	12294	33.4	0.80	17.0	0.77	25.4	0.79	32.8	0.81

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	130	11.1	0.68	5.8	0.67	8.2	0.67	9.8	0.66
1999	135	11.4	0.65	5.5	0.61	8.1	0.62	10.3	0.64
2000	155	12.9	0.78	6.7	0.72	9.6	0.74	11.7	0.76
2001	149	12.2	0.73	6.2	0.68	9.0	0.70	11.0	0.72
2002	226	11.5	0.68	5.9	0.65	8.4	0.65	10.3	0.67
2003	257	13.0	0.66	6.5	0.62	9.5	0.64	11.6	0.66
2004	285	14.4	0.75	7.0	0.69	10.1	0.71	12.7	0.75
2005	300	15.1	0.80	7.7	0.76	11.0	0.77	13.1	0.79
2006	296	14.7	0.75	7.0	0.70	10.2	0.71	12.5	0.74
2007	351	15.2	0.70	7.5	0.66	10.8	0.67	13.1	0.69
2008	373	16.1	0.69	7.6	0.63	11.1	0.65	13.6	0.67
2009	386	16.6	0.69	8.2	0.68	11.7	0.68	13.9	0.68
2010	457	19.5	0.79	9.1	0.73	13.0	0.74	16.1	0.76
2011	460	19.7	0.75	9.0	0.71	13.0	0.72	16.0	0.74
2012	495	21.0	0.77	9.2	0.71	13.5	0.72	16.8	0.75
2013	493	20.7	0.78	9.2	0.71	13.3	0.72	16.3	0.75
2014	506	21.0	0.74	9.2	0.68	13.4	0.70	16.7	0.72
2015	517	21.2	0.91	9.2	0.83	13.4	0.85	16.8	0.88
2016	424	17.3	0.77	7.5	0.69	10.9	0.71	13.5	0.74
1998-2016	6395	16.7	0.75	7.8	0.70	11.3	0.71	13.9	0.73

Table 12

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

Age at death Years	Cases			Males			Females		
	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4									
5-9									
10-14									
15-19	1	0.0	0.0	1	0.0	0.0			0.0
20-24	3	0.0	0.0	2	0.0	0.0	1	0.0	0.0
25-29	3	0.0	0.1	3	0.0	0.1			0.0
30-34	10	0.1	0.1	4	0.1	0.1	6	0.1	0.2
35-39	45	0.4	0.5	24	0.3	0.4	21	0.5	0.6
40-44	125	1.0	1.5	67	0.9	1.3	58	1.3	1.9
45-49	329	2.7	4.2	192	2.4	3.7	137	3.1	5.0
50-54	635	5.2	9.3	358	4.6	8.3	277	6.2	11.2
55-59	1041	8.4	17.8	624	7.9	16.2	417	9.3	20.6
60-64	1587	12.9	30.7	1006	12.8	29.0	581	13.0	33.6
65-69	2107	17.1	47.8	1355	17.2	46.2	752	16.9	50.4
70-74	2310	18.7	66.5	1562	19.9	66.1	748	16.8	67.2
75-79	1992	16.2	82.7	1338	17.0	83.1	654	14.7	81.8
80-84	1395	11.3	94.0	914	11.6	94.7	481	10.8	92.6
85+	743	6.0	100.0	414	5.3	100.0	329	7.4	100.0
All ages	12326	100.0		7864	100.0		4462	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.	MI-index	Females Age- spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4								
5- 9								
10-14								
15-19	1		0.1	0.50			2.3	
20-24	2	1	0.1	1.00	0.1	0.25	3.5	3.0
25-29	3		0.2	0.38			4.1	
30-34	4	6	0.3	0.27	0.4	0.30	3.8	5.0
35-39	24	21	1.5	0.52	1.3	0.55	11.9	7.4
40-44	67	58	3.6	0.74	3.2	0.55	13.6	8.6
45-49	192	137	9.7	0.65	7.2	0.60	16.7	10.5
50-54	358	277	20.7	0.66	16.2	0.60	17.4	14.0
55-59	624	417	44.1	0.67	28.4	0.66	18.4	14.6
60-64	1006	581	82.1	0.76	43.7	0.69	20.2	15.5
65-69	1355	752	114.3	0.76	57.9	0.72	18.6	14.1
70-74	1562	748	141.2	0.81	59.1	0.77	16.8	11.0
75-79	1338	654	167.9	0.90	65.3	0.84	14.9	9.3
80-84	914	481	198.7	1.06	68.0	0.97	12.1	7.0
85+	414	329	135.2	1.29	44.8	1.33	6.3	3.6
All ages	7864	4462					15.0	9.6
Mortality								
Raw			34.4	0.81	18.8	0.76		
WS			16.6	0.78	8.6	0.70		
ES			24.8	0.79	12.4	0.72		
BRD-S			32.2	0.82	15.3	0.74		
PYLL-70								
per 100,000			160.4		109.8			
ES			137.9		91.5			
AYLL-70			8.9		9.7			

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 ←%
C03–C06 Oral cavity	133	3.9	102	76.7	15	11.3	16	12.0
C09–C10 Oropharynx	115	3.3	79	68.7	13	11.3	23	20.0
C12–C13 Hypopharynx	67	1.9	46	68.7	8	11.9	13	19.4
C15 Oesophagus	77	2.2	29	37.7	20	26.0	28	36.4
C16 Stomach	125	3.6	57	45.6	28	22.4	40	32.0
C18 Colon	271	7.9	177	65.3	38	14.0	56	20.7
C19–C20 Rectum	145	4.2	104	71.7	18	12.4	23	15.9
C22 Liver	56	1.6	17	30.4	15	26.8	24	42.9
C25 Pancreas	49	1.4	11	22.4	9	18.4	29	59.2
C32 Larynx	162	4.7	111	68.5	21	13.0	30	18.5
C33–C34 Lung	246	7.1			70	28.5	176	71.5
C43 Malign. melanoma	110	3.2	88	80.0	9	8.2	13	11.8
C44 Skin others	286	8.3	192	67.1	33	11.5	61	21.3
C61 Prostate	703	20.4	571	81.2	38	5.4	94	13.4
C62 Testis	42	1.2	38	90.5	1	2.4	3	7.1
C64 Kidney	146	4.2	98	67.1	19	13.0	29	19.9
C67 Bladder	239	6.9	174	72.8	19	7.9	46	19.2
C76–C79 CUP	40	1.2	22	55.0	9	22.5	9	22.5
C81 Hodgkin lymphoma	37	1.1	37	100.0				
C82–C85 NHL	136	3.9	93	68.4	18	13.2	25	18.4
C91–C96 Leukaemia	32	0.9	11	34.4	4	12.5	17	53.1
Others, specified	232	6.7	141	60.8	26	11.2	65	28.0
All further malignancies	3449	100.0	2198	63.7	431	12.5	820	23.8

Further malignancies with number of cases 1 to 28 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 ←%
C03-C06 Oral cavity	35	2.2	30	85.7	3	8.6	2	5.7
C09-C10 Oropharynx	22	1.4	17	77.3	2	9.1	3	13.6
C15 Oesophagus	12	0.7	6	50.0	1	8.3	5	41.7
C16 Stomach	39	2.4	18	46.2	8	20.5	13	33.3
C18 Colon	116	7.2	77	66.4	14	12.1	25	21.6
C19-C20 Rectum	38	2.4	27	71.1	3	7.9	8	21.1
C21 Anus/canal	20	1.2	16	80.0	1	5.0	3	15.0
C25 Pancreas	44	2.7	9	20.5	10	22.7	25	56.8
C32 Larynx	15	0.9	8	53.3	2	13.3	5	33.3
C33-C34 Lung	110	6.8			24	21.8	86	78.2
C43 Malign. melanoma	43	2.7	40	93.0			3	7.0
C44 Skin others	72	4.5	43	59.7	3	4.2	26	36.1
C50 Breast	457	28.3	369	80.7	34	7.4	54	11.8
C51 Vulva	20	1.2	14	70.0	2	10.0	4	20.0
C53 Cervix uteri	88	5.4	77	87.5	5	5.7	6	6.8
C54 Corpus uteri	92	5.7	83	90.2	2	2.2	7	7.6
C55,C57 Fem. genitals un	12	0.7	9	75.0	1	8.3	2	16.7
C56 Ovary	43	2.7	28	65.1	5	11.6	10	23.3
C64 Kidney	42	2.6	26	61.9	7	16.7	9	21.4
C67 Bladder	35	2.2	26	74.3	2	5.7	7	20.0
C73 Thyroid	35	2.2	24	68.6	6	17.1	5	14.3
C76-C79 CUP	28	1.7	12	42.9	6	21.4	10	35.7
C81 Hodgkin lymphoma	16	1.0	16	100.0				
C82-C85 NHL	61	3.8	51	83.6	3	4.9	7	11.5
C91-C96 Leukaemia	15	0.9	6	40.0	2	13.3	7	46.7
Others, specified	105	6.5	48	45.7	19	18.1	38	36.2
All further malignancies	1615	100.0	1080	66.9	165	10.2	370	22.9

Further malignancies with number of cases 1 to 10 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 15

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

Age at death Years	Males		Males		Females		Females	
	n	n	Age- spec. mortal.	MI-index	Age- spec. mortal.	MI-index	Prop.all cancers %	Prop.all cancers %
0- 4								
5- 9								
10-14								
15-19	1		0.1	1.00			2.4	
20-24	1	1	0.1	1.00	0.1	0.25	2.0	3.2
25-29	3		0.2	0.38			4.5	
30-34	4	6	0.3	0.29	0.4	0.32	3.9	5.7
35-39	21	16	1.3	0.50	1.0	0.47	11.1	6.2
40-44	61	53	3.3	0.72	3.0	0.55	13.3	8.9
45-49	178	118	9.0	0.67	6.2	0.60	17.0	10.4
50-54	309	234	17.9	0.66	13.7	0.59	17.1	14.0
55-59	534	368	37.7	0.66	25.0	0.69	18.2	15.4
60-64	832	479	67.9	0.76	36.0	0.70	19.9	15.6
65-69	1087	584	91.7	0.79	45.0	0.75	18.6	13.8
70-74	1171	553	105.8	0.82	43.7	0.76	16.3	10.4
75-79	962	503	120.7	0.93	50.2	0.87	14.5	9.3
80-84	626	355	136.1	1.14	50.2	0.99	11.4	6.7
85+	267	251	87.2	1.30	34.2	1.31	5.6	3.4
All ages	6057	3521					14.8	9.5
Mortality								
Raw			26.5	0.82	14.9	0.76		
WS			13.2	0.78	6.9	0.71		
ES			19.4	0.80	10.0	0.72		
BRD-S			24.8	0.83	12.1	0.74		
PYLL-70								
per 100,000			137.7		93.4			
ES			118.3		77.9			
AYLL-70			9.2		10.0			

* 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.	MI-index	Females Age- spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4								
5- 9								
10-14								
15-19	1		0.1	1.00			2.4	
20-24		1			0.1	0.25		3.2
25-29	3		0.2	0.38			4.5	
30-34	4	6	0.3	0.29	0.4	0.32	3.9	5.8
35-39	21	16	1.3	0.50	1.0	0.48	11.2	6.3
40-44	61	52	3.3	0.72	2.9	0.56	13.4	8.8
45-49	176	116	8.9	0.67	6.1	0.60	17.0	10.4
50-54	301	231	17.4	0.67	13.5	0.60	16.9	14.0
55-59	524	358	37.0	0.67	24.4	0.71	18.1	15.2
60-64	797	466	65.1	0.77	35.1	0.73	19.4	15.5
65-69	1037	547	87.5	0.80	42.1	0.73	18.2	13.2
70-74	1109	522	100.2	0.82	41.2	0.75	16.0	10.1
75-79	878	475	110.2	0.90	47.4	0.85	13.8	9.0
80-84	575	339	125.0	1.09	47.9	0.98	11.1	6.6
85+	247	232	80.7	1.22	31.6	1.22	5.6	3.3
All ages	5734	3361					14.6	9.3
Mortality								
Raw			25.1	0.81	14.2	0.76		
WS			12.6	0.78	6.6	0.71		
ES			18.4	0.79	9.6	0.72		
BRD-S			23.4	0.82	11.6	0.74		
PYLL-70								
per 100,000			134.0		91.2			
ES			115.1		76.2			
AYLL-70			9.2		10.2			

* See corresponding tables with multiple malignancies.

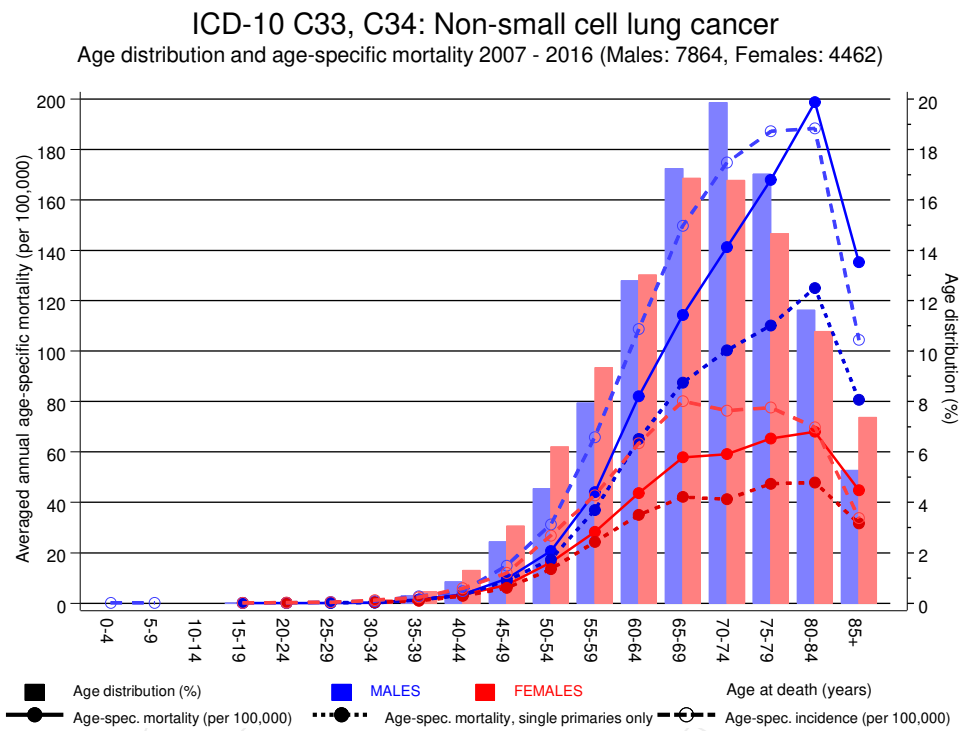
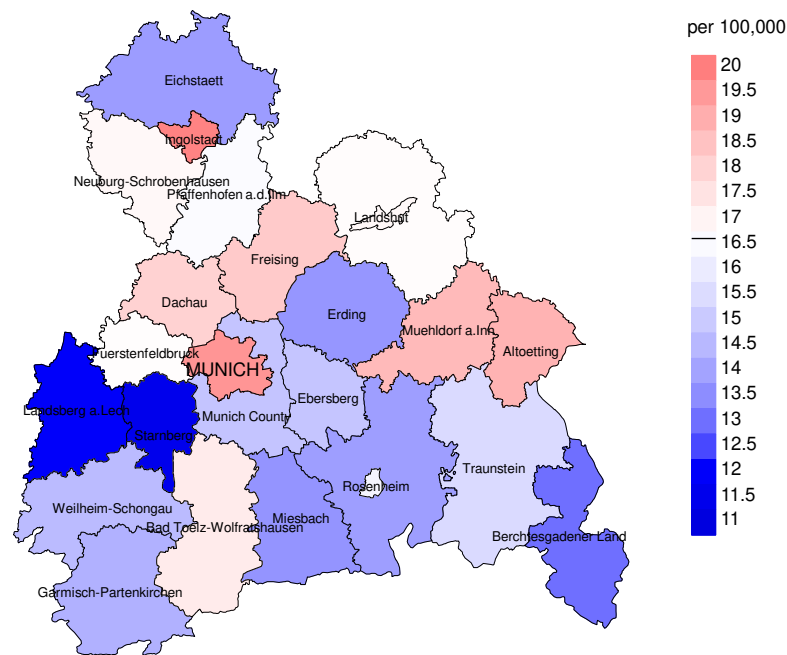


Figure 17. Distribution of age at death (bars; males: mean=68.5 yrs, median=69.4 yrs; females: mean=67.7 yrs, median=68.3 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

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



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

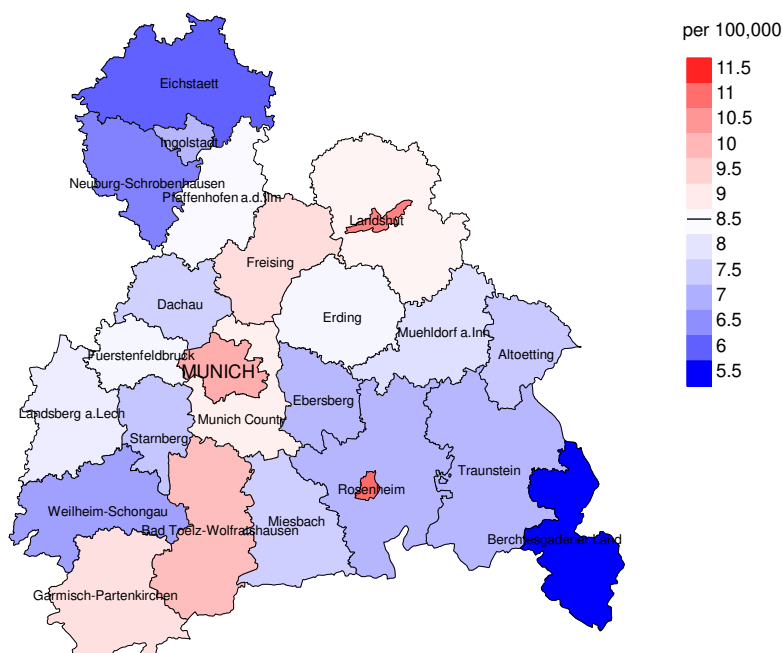
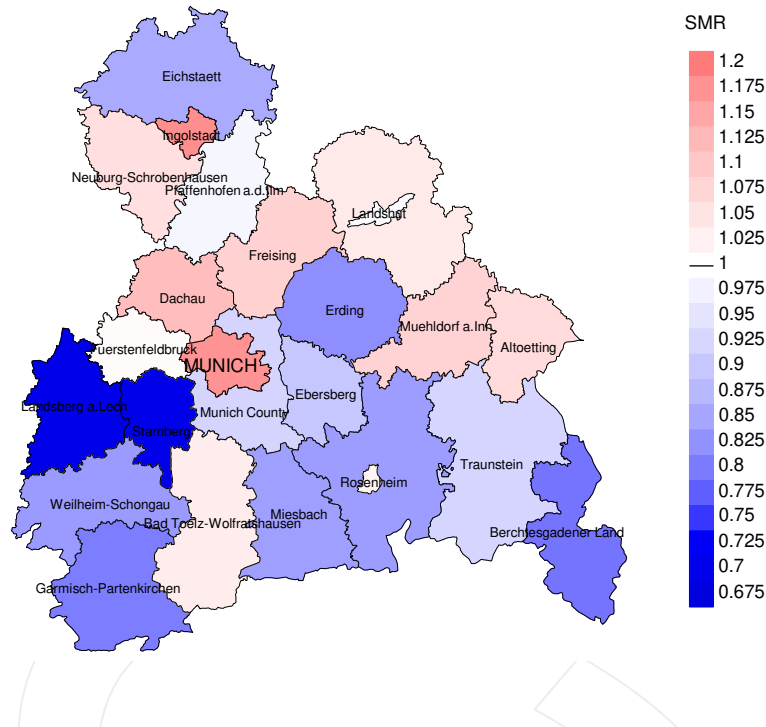


Figure 18a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2016. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 16.6/100,000 WS N=7,864, females 8.6/100,000 WS N=4,462).

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 99 women died from non-small cell LC. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 7.1/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 5.3 and 9.5/100,000.

Standardized mortality ratio (SMR) 2007 - 2016: Males



Standardized mortality ratio (SMR) 2007 - 2016: Females

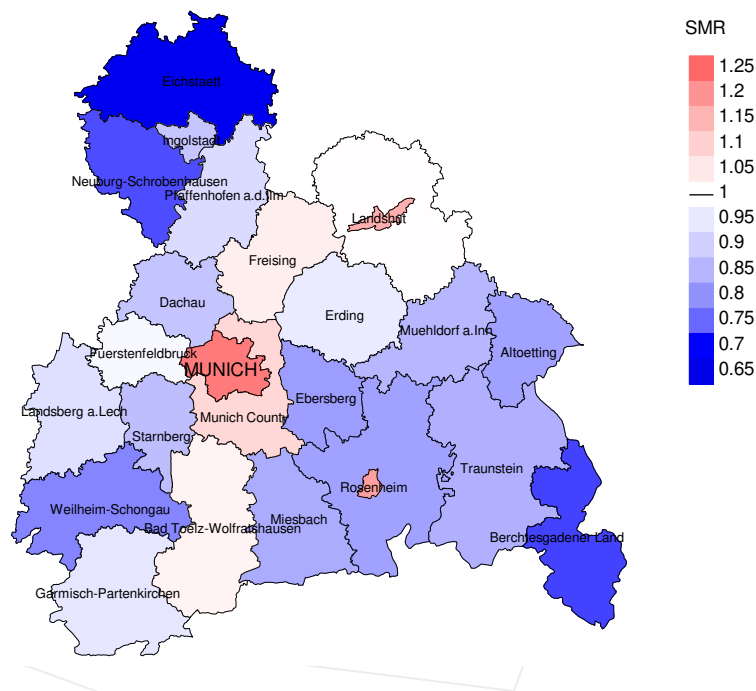


Figure 18b. Map of standardized mortality ratio (SMR) by county averaged for period 2007 to 2016. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=7,864, females N=4,462).

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 99 women died from non-small cell LC. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.81. Though, the value of this parameter may vary with an underlying probability of 99% between 0.62 and 1.05, 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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