

Munich Cancer Registry



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

ICD-10 C07, C08: Salivary gland cancer

Incidence and Mortality

Year of diagnosis	1998-2016
Patients	773
Diseases	774
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/bC0708E-ICD-10-C07-C08-Salivary-gland-cancer-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.

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
C07	Malignant neoplasm of parotid gland
C08.-	Malignant neoplasm of other and unspecified major salivary glands
C08.0	Submandibular gland
C08.1	Sublingual gland
C08.8	Overlapping lesion of major salivary glands
C08.9	Major salivary gland, 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	25	5	20.0	12.0	14.8	68.0	100.0
1999	23	2	8.7	12.5	14.7	60.9	87.0
2000	29	4	13.8	14.3	14.8	75.9	96.6
2001	27	5	18.5	12.5	14.8	63.0	88.9
2002	47	3	6.4	15.2	14.6	66.0	93.6 #
2003	30	3	10.0	14.4	14.1	60.0	93.3
2004	39	5	12.8	15.0	13.9	61.5	100.0
2005	41	3	7.3	17.2	13.6	63.4	95.1
2006	37	1	2.7	16.8	13.5	54.1	86.5
2007	53	2	3.8	17.9	13.9	54.7	83.0 #
2008	55	2	3.6	17.5	13.2	54.5	67.3
2009	49			18.9	13.8	67.3	81.6
2010	69	6	8.7	20.2	13.0	50.7	73.9
2011	58	3	5.2	19.9	10.3	39.7	65.5
2012	49	1	2.0	19.7	7.0	36.7	69.4
2013	58	3	5.2	19.9	6.5	48.3	77.6
2014	54	3	5.6	20.1	7.3	31.5	81.5
2015	23	4	17.4	20.6	3.6	47.8	95.7
2016	8	1	12.5	20.8	0.0	25.0	75.0 ##
1998-2016	774	56	7.2	20.8	14.8	53.6	82.7

774 cases diagnosed 1998-2016 are related to a total of 773 patients. Currently, in 262 (33.9 %) of these 773 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 196 / 41 / 25 (25.4 % / 5.3 % / 3.2 %) 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 54 cases has been diagnosed, of which 20.1 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 7.3 % 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	14	56.0	2	14.3	7.1	15.1	71.4	100.0
1999	10	43.5	1	10.0	12.5	14.9	60.0	80.0
2000	16	55.2	1	6.3	17.5	14.8	68.8	100.0
2001	12	44.4	2	16.7	15.4	14.8	83.3	83.3
2002	24	51.1	1	4.2	18.4	15.1	58.3	95.8 #
2003	14	46.7			16.7	14.3	57.1	85.7
2004	23	59.0	2	8.7	16.8	14.2	65.2	100.0
2005	26	63.4	2	7.7	20.1	14.0	65.4	92.3
2006	20	54.1	1	5.0	19.5	13.8	65.0	95.0
2007	31	58.5			21.6	14.7	64.5	90.3 #
2008	37	67.3			20.7	13.2	56.8	67.6
2009	28	57.1			22.0	14.6	75.0	75.0
2010	49	71.0	2	4.1	24.3	14.5	55.1	77.6
2011	33	56.9	2	6.1	24.0	12.8	39.4	63.6
2012	24	49.0			23.8	8.8	50.0	75.0
2013	30	51.7	1	3.3	24.0	7.7	66.7	86.7
2014	31	57.4	2	6.5	23.7	8.3	38.7	83.9
2015	12	52.2	2	16.7	24.0	5.9	50.0	100.0
2016	6	75.0	1	16.7	24.1	0.0	16.7	66.7 ##
1998-2016	440	56.8	22	5.0	24.1	15.1	58.4	83.6

440 cases diagnosed 1998-2016 are related to a total of 439 patients. Currently, in 165 (37.6 %) of these 439 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 120 / 26 / 19 (27.3 % / 5.9 % / 4.3 %) 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 31 cases has been diagnosed, of which 23.7 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 8.3 % 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	11	44.0	3	27.3	18.2	14.3	63.6	100.0
1999	13	56.5	1	7.7	12.5	14.5	61.5	92.3
2000	13	44.8	3	23.1	10.8	14.8	84.6	92.3
2001	15	55.6	3	20.0	9.6	14.7	46.7	93.3
2002	23	48.9	2	8.7	12.0	14.1	73.9	91.3 #
2003	16	53.3	3	18.8	12.1	13.8	62.5	100.0
2004	16	41.0	3	18.8	13.1	13.4	56.3	100.0
2005	15	36.6	1	6.7	13.9	13.1	60.0	100.0
2006	17	45.9			13.7	13.0	41.2	76.5
2007	22	41.5	2	9.1	13.7	12.6	40.9	72.7 #
2008	18	32.7	2	11.1	13.4	13.1	50.0	66.7
2009	21	42.9			15.0	12.7	57.1	90.5
2010	20	29.0	4	20.0	14.5	10.9	40.0	65.0
2011	25	43.1	1	4.0	14.3	7.3	40.0	68.0
2012	25	51.0	1	4.0	14.1	4.8	24.0	64.0
2013	28	48.3	2	7.1	14.4	4.9	28.6	67.9
2014	23	42.6	1	4.3	15.3	5.9	21.7	78.3
2015	11	47.8	2	18.2	16.3	0.0	45.5	90.9
2016	2	25.0			16.5	0.0	50.0	100.0 ##
1998-2016	334	43.2	34	10.2	16.5	14.3	47.3	81.4

334 cases diagnosed 1998-2016 are related to a total of 334 patients. Currently, in 97 (29.0 %) of these 334 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 76 / 15 / 6 (22.8 % / 4.5 % / 1.8 %) 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 23 cases has been diagnosed, of which 15.3 % 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 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	14	11	1.3	0.9	0.8	0.6	1.1	0.7	1.6	0.8
1999	10	13	0.9	1.1	0.5	0.6	0.8	0.7	0.9	0.9
2000	16	13	1.4	1.1	0.8	0.4	1.3	0.7	1.6	0.9
2001	12	15	1.0	1.2	0.6	0.8	0.9	1.0	1.2	1.1
2002	24	23	1.3	1.2	0.8	0.5	1.1	0.7	1.3	1.0
2003	14	16	0.7	0.8	0.5	0.4	0.7	0.6	0.7	0.7
2004	23	16	1.2	0.8	0.7	0.4	1.0	0.6	1.4	0.7
2005	26	15	1.4	0.8	0.8	0.4	1.1	0.6	1.4	0.6
2006	20	17	1.0	0.8	0.6	0.6	0.8	0.7	1.1	0.8
2007	31	22	1.4	1.0	0.8	0.5	1.1	0.7	1.4	0.7
2008	37	18	1.7	0.8	0.9	0.4	1.3	0.5	1.6	0.6
2009	28	21	1.3	0.9	0.7	0.6	0.9	0.7	1.2	0.8
2010	49	20	2.2	0.9	1.2	0.5	1.7	0.6	2.1	0.7
2011	33	25	1.5	1.1	0.7	0.6	1.1	0.8	1.3	0.9
2012	24	25	1.1	1.1	0.5	0.5	0.8	0.7	1.0	0.8
2013	30	28	1.3	1.2	0.7	0.7	1.0	0.8	1.2	1.0
2014	31	23	1.3	1.0	0.6	0.6	0.9	0.7	1.2	0.9
2015	12	11	0.5	0.5	0.2	0.2	0.3	0.3	0.5	0.4
2016	6	2	0.2	0.1	0.1	0.0	0.1	0.0	0.2	0.0
1998-2016	440	334	1.2	0.9	0.7	0.5	0.9	0.6	1.2	0.7

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	Std.				Median				
		Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	25	63.1	22.1	9.5	97.4	31.9	51.4	62.3	81.9	85.6
1999	23	66.7	19.2	13.9	90.9	33.0	60.9	69.0	80.7	85.3
2000	29	70.4	13.0	48.8	91.9	51.7	60.0	72.7	80.3	88.3
2001	27	64.8	17.9	16.4	95.8	42.4	55.1	65.5	78.6	84.0
2002	47	66.9	15.2	31.4	96.4	45.8	55.0	68.5	78.6	84.6
2003	30	61.5	17.9	22.9	90.5	33.3	51.4	61.6	75.5	82.4
2004	39	66.9	19.2	24.7	94.9	37.7	50.1	70.5	81.9	90.6
2005	41	65.2	15.9	31.9	93.1	43.5	54.3	65.9	79.0	82.0
2006	37	60.1	17.1	21.6	89.7	38.8	45.1	63.5	73.9	83.9
2007	53	64.3	18.3	7.7	92.9	35.7	55.9	68.1	76.1	85.0
2008	55	66.5	17.8	19.8	98.4	40.0	54.5	68.1	81.1	86.4
2009	49	66.0	18.9	16.6	96.1	38.7	60.8	68.5	80.1	85.8
2010	69	65.1	20.1	18.2	95.3	33.0	48.9	70.0	80.6	89.1
2011	58	67.6	17.2	14.4	95.5	45.2	56.8	70.3	78.9	87.1
2012	49	69.0	15.2	36.3	99.1	45.0	59.0	72.0	78.4	87.6
2013	58	66.1	20.6	12.1	93.9	34.8	51.4	72.0	82.1	88.0
2014	54	66.6	17.3	16.8	93.1	41.7	58.0	72.6	77.1	83.1
2015	23	72.8	12.2	51.1	91.8	54.7	64.3	75.7	82.8	84.5
2016	8	76.8	14.7	52.8	93.0	52.8	66.5	81.5	86.3	93.0
1998-2016	774	66.2	17.8	7.7	99.1	40.6	54.7	69.5	79.3	86.6

Table 3a

Age distribution parameters by year of diagnosis (MALES)
(incl. DCO)

Year of diagnosis	Cases n	Std.				Median				
		Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	14	62.0	18.0	31.9	85.6	34.1	51.4	60.4	82.4	84.2
1999	10	62.5	18.7	32.0	90.4	32.5	54.0	66.4	72.3	84.5
2000	16	67.1	12.6	48.8	89.7	50.0	58.7	64.8	75.1	88.3
2001	12	66.9	11.8	48.6	84.0	52.0	57.8	66.6	76.4	83.9
2002	24	62.9	13.0	36.8	84.6	45.8	54.0	64.7	73.0	78.6
2003	14	57.5	13.9	29.1	81.1	36.2	51.4	58.8	64.7	72.6
2004	23	66.7	19.0	26.7	92.4	44.8	46.3	70.5	81.9	90.2
2005	26	65.7	15.7	31.9	87.8	40.9	61.2	70.0	77.8	82.0
2006	20	63.5	14.3	39.1	84.3	42.1	54.4	64.0	77.7	81.7
2007	31	64.1	16.6	15.7	84.6	33.2	54.3	70.5	76.1	77.9
2008	37	66.0	15.1	19.8	89.1	47.4	58.1	67.8	77.7	84.3
2009	28	68.6	15.6	16.6	86.8	48.2	63.5	69.9	80.6	85.5
2010	49	66.5	19.4	18.2	95.3	36.1	52.3	70.4	80.6	89.1
2011	33	70.2	16.0	14.4	95.5	50.8	62.9	72.5	79.9	87.1
2012	24	69.7	13.6	45.0	94.3	50.9	60.2	70.9	80.4	86.7
2013	30	68.4	20.5	19.0	93.9	36.2	53.0	74.5	84.8	88.2
2014	31	72.8	11.1	47.3	93.1	58.0	67.8	73.5	80.4	87.5
2015	12	75.6	10.2	57.3	91.8	64.3	68.3	75.4	83.6	88.0
2016	6	72.1	14.1	52.8	84.1	52.8	55.9	78.0	83.9	84.1
1998-2016	440	66.9	16.0	14.4	95.5	45.1	57.4	69.8	78.7	85.2

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		
				Min.	Max.	10%	25%	50%	75%	90%
1998	11	64.4	27.3	9.5	97.4	29.6	42.5	73.6	81.9	93.7
1999	13	69.9	19.8	13.9	90.9	55.1	64.3	75.7	81.6	85.3
2000	13	74.3	12.9	51.7	91.9	52.9	66.4	78.9	80.7	87.6
2001	15	63.1	21.9	16.4	95.8	27.1	52.2	65.5	78.6	90.7
2002	23	71.1	16.5	31.4	96.4	48.2	63.5	71.5	82.4	89.4
2003	16	65.0	20.6	22.9	90.5	30.3	50.1	74.1	79.9	85.2
2004	16	67.1	20.2	24.7	94.9	37.1	57.1	70.1	79.4	93.2
2005	15	64.1	16.7	33.8	93.1	43.5	51.3	61.1	80.3	83.7
2006	17	56.1	19.6	21.6	89.7	26.6	41.3	54.5	69.9	84.0
2007	22	64.6	20.9	7.7	92.9	38.3	55.9	66.6	85.0	88.1
2008	18	67.6	22.8	25.6	98.4	28.7	51.8	74.3	82.8	90.7
2009	21	62.6	22.5	16.8	96.1	31.1	48.4	67.5	79.4	85.8
2010	20	61.8	21.8	27.5	90.4	28.7	44.1	68.2	79.5	88.9
2011	25	64.2	18.4	17.2	94.6	40.3	54.8	67.4	75.3	87.6
2012	25	68.3	16.9	36.3	99.1	43.6	57.2	73.0	77.7	87.8
2013	28	63.6	20.8	12.1	93.6	34.8	48.1	67.9	80.2	88.0
2014	23	58.2	20.7	16.8	87.3	27.7	41.7	62.4	76.1	78.1
2015	11	69.7	14.0	51.1	83.9	52.0	54.7	77.2	82.8	83.2
2016	2	90.7	3.2	88.5	93.0	88.5	88.5	90.7	93.0	93.0
1998-2016	334	65.2	19.9	7.7	99.1	36.3	52.0	69.0	80.3	88.0

Table 4

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

Age at diagnosis Years	Cases n	Males			Females				
		%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4									
5-9	1	0.2	0.2			0.0	1	0.5	0.5
10-14	2	0.4	0.6	1	0.4	0.4	1	0.5	1.0
15-19	9	1.9	2.5	5	1.8	2.1	4	2.1	3.1
20-24	0	0.0	2.5			2.1			3.1
25-29	12	2.5	5.0	4	1.4	3.6	8	4.1	7.2
30-34	9	1.9	6.9	4	1.4	5.0	5	2.6	9.7
35-39	13	2.7	9.7	4	1.4	6.4	9	4.6	14.4
40-44	18	3.8	13.4	6	2.1	8.5	12	6.2	20.5
45-49	23	4.8	18.3	13	4.6	13.2	10	5.1	25.6
50-54	28	5.9	24.2	19	6.8	19.9	9	4.6	30.3
55-59	23	4.8	29.0	13	4.6	24.6	10	5.1	35.4
60-64	33	6.9	35.9	18	6.4	31.0	15	7.7	43.1
65-69	57	12.0	47.9	38	13.5	44.5	19	9.7	52.8
70-74	65	13.7	61.6	47	16.7	61.2	18	9.2	62.1
75-79	66	13.9	75.4	42	14.9	76.2	24	12.3	74.4
80-84	52	10.9	86.3	32	11.4	87.5	20	10.3	84.6
85+	65	13.7	100.0	35	12.5	100.0	30	15.4	100.0
All ages	476	100.0		281	100.0		195	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=10 %	Females DCO rate n=15 %	Males Prop.all cancers n=113978 %	Females Prop.all cancers n=112253 %
0- 4								
5- 9		1		0.1				1.2
10-14	1	1	0.1	0.1			0.9	1.0
15-19	5	4	0.4	0.3			2.0	1.9
20-24								
25-29	4	8	0.3	0.5			0.6	1.0
30-34	4	5	0.3	0.3			0.4	0.3
35-39	4	9	0.2	0.6			0.3	0.4
40-44	6	12	0.3	0.7			0.3	0.3
45-49	13	10	0.7	0.5			0.3	0.1
50-54	19	9	1.1	0.5		11.1	0.3	0.1
55-59	13	10	0.9	0.7			0.1	0.1
60-64	18	15	1.5	1.1			0.1	0.1
65-69	38	19	3.2	1.5			0.2	0.1
70-74	47	18	4.2	1.4			0.2	0.1
75-79	42	24	5.3	2.4	4.8	4.2	0.3	0.2
80-84	32	20	7.0	2.8	6.3	15.0	0.3	0.2
85+	35	30	11.4	4.1	17.1	33.3	0.4	0.2
All ages	281	195			3.6	7.7	0.2	0.2
Incidence								
Raw			1.2	0.8				
WS			0.6	0.4				
ES			0.9	0.6				
BRD-S			1.2	0.7				

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).

ICD-10 C07, C08: Malignant neoplasm of salivary glands
 Age distribution and age-specific incidence 2007 - 2016 (Males: 281, Females: 195)

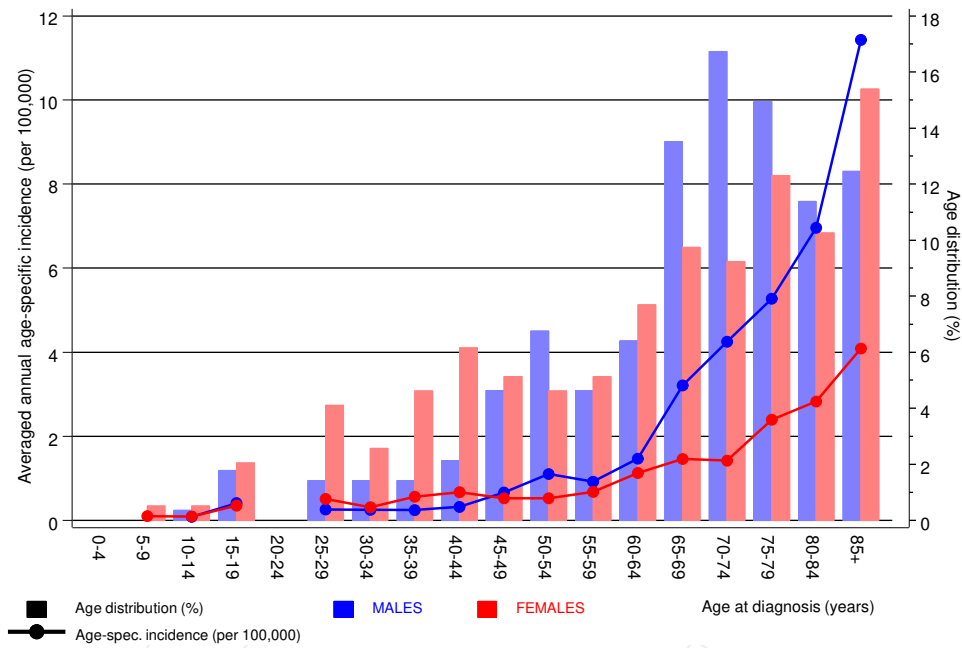


Figure 6. Age distribution (males: mean=68.5 yrs, median=71.2 yrs; females: mean=64.5 yrs, median=68.5 yrs) and age-specific incidence.

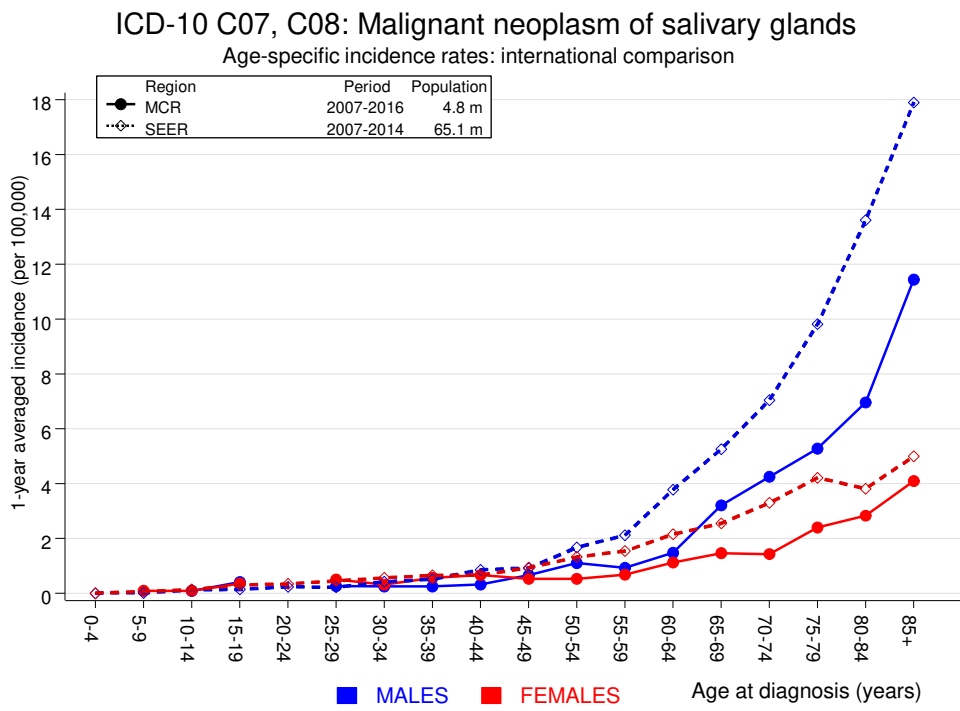


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

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 %
C11 Nasopharynx	2	0.0	136.1	16.5	491.5 #	14.2	50.0
C16 Stomach	2	0.9	2.3	0.3	8.4	8.2	
C18 Colon	3	2.0	1.5	0.3	4.3	6.8	
C19–C20 Rectum	2	1.1	1.8	0.2	6.4	6.3	
C25 Pancreas	3	0.8	3.7	0.8	10.7	15.6	33.3
C32 Larynx	2	0.2	9.2	1.1	33.3 #	12.8	
C33–C34 Lung	14	2.5	5.6	3.1	9.4 #	82.4	14.3
C43 Malign. melanoma	2	1.0	2.1	0.3	7.5	7.5	
C46,C49 Soft tissue	2	0.1	16.0	1.9	57.9 #	13.4	50.0
C61 Prostate	12	6.0	2.0	1.0	3.5 #	42.7	25.0
C67 Bladder	5	1.0	5.1	1.7	11.9 #	28.8	
C82–C85 NHL	3	0.9	3.4	0.7	10.0	15.2	
C91–C96 Leukaemia	2	0.4	5.5	0.7	20.0	11.7	50.0
Others, specified	9	2.6	3.5	1.6	6.7 #	46.1	
Not observed	0	2.0	0.0	0.0	1.8	-14.4	
All further malignancies	63	21.5	2.9	2.3	3.8 #	297.3	14.3
Patients		413					
Median age at next malignancy (years)		72.5					
Person-years		1396					
Mean observation time (years)		3.4					
Median observation time (years)		2.0					

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

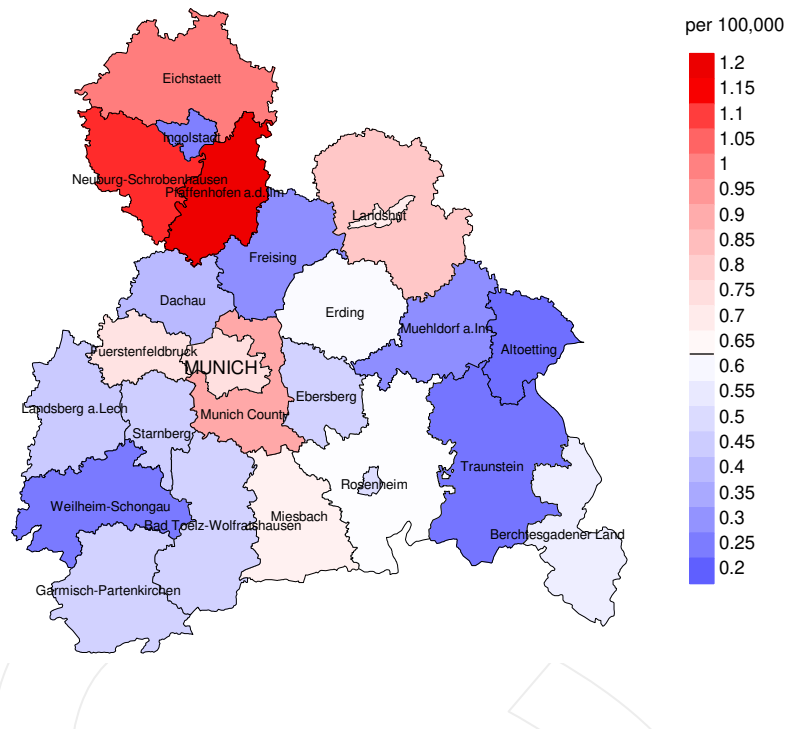
FEMALES

Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C18	Colon	2	1.4	1.4	0.2	5.1	4.7	
C25	Pancreas	2	0.6	3.1	0.4	11.3	11.2	100.0
C33–C34	Lung	10	0.9	11.4	5.5	20.9 #	75.2	30.0
C50	Breast	11	3.6	3.0	1.5	5.4 #	60.6	18.2
C73	Thyroid	2	0.2	9.8	1.2	35.5 #	14.8	50.0
Others, specified		15	2.9	5.2	2.9	8.5 #	99.7	13.3
Not observed		0	3.3	0.0	0.0	1.1	-27.6	
All further malignancies		42	13.0	3.2	2.3	4.4 #	238.7	23.8
Patients								308
Median age at next malignancy (years)								75.9
Person-years								1214
Mean observation time (years)								3.9
Median observation time (years)								2.8

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

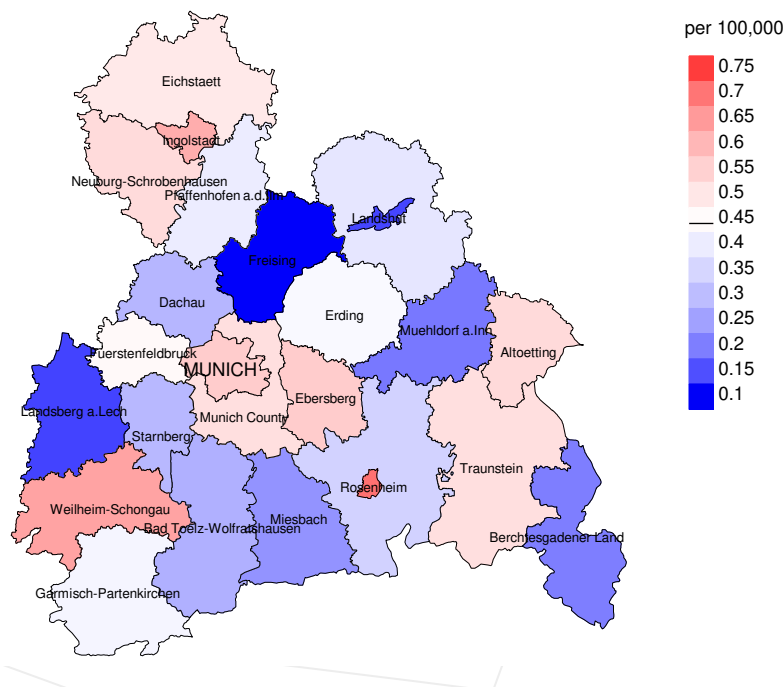
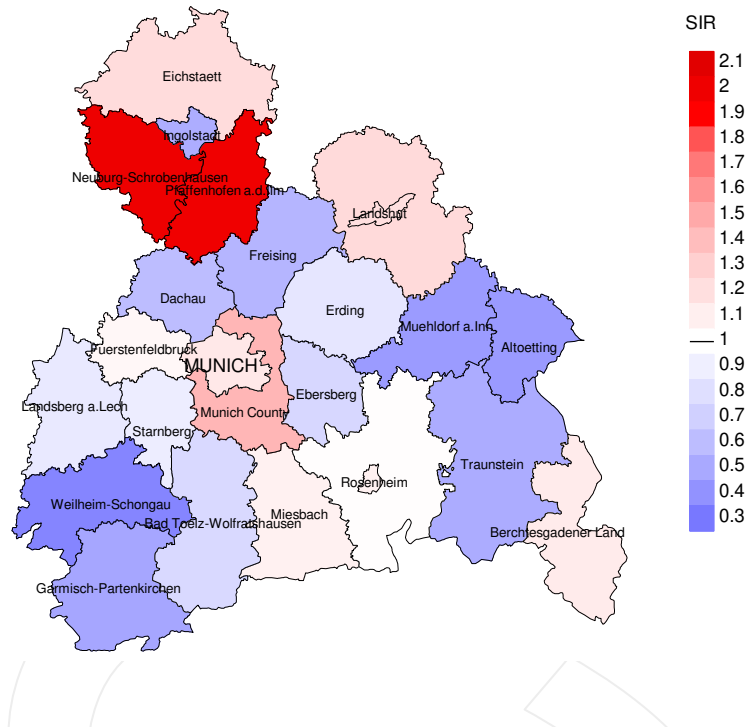


Figure 8a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.6/100,000 WS N=281, females 0.4/100,000 WS N=195).

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 4 women were identified with newly diagnosed salivary gland cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 0.6/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.1 and 2.0/100,000.

Standardized incidence ratio (SIR) 2007 - 2016: Males



Standardized incidence ratio (SIR) 2007 - 2016: Females

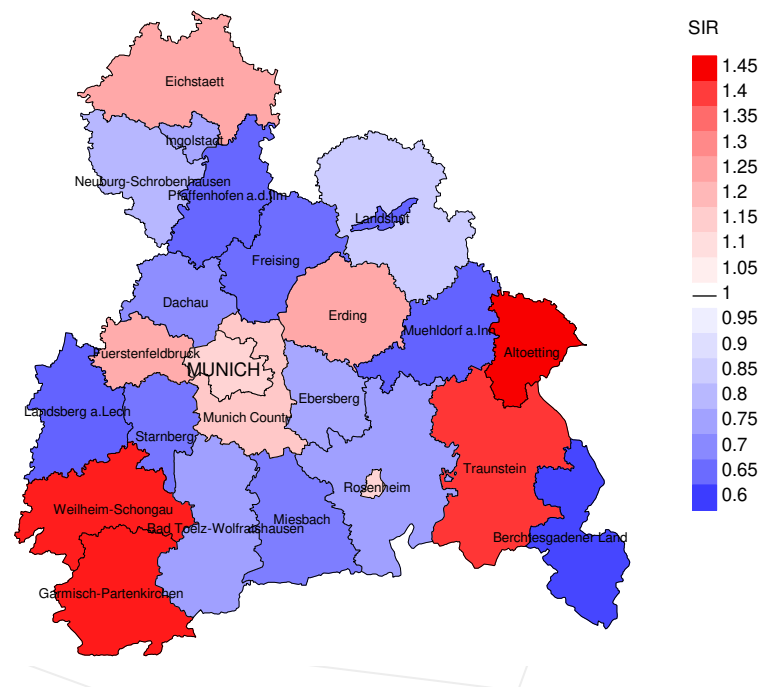


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=281, females N=195).

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 4 women were identified with newly diagnosed salivary gland cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.76. Though, the value of this parameter may vary with an underlying probability of 99% between 0.13 and 2.38, 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	25	100.0	20.0	17	68.0	100.0
1999	23	87.0	8.7	14	60.9	100.0
2000	29	96.6	13.8	22	75.9	95.5
2001	27	88.9	18.5	17	63.0	94.1
2002	47	93.6	6.4	31	66.0	96.8
2003	30	93.3	10.0	18	60.0	88.9
2004	39	100.0	12.8	24	61.5	87.5
2005	41	95.1	7.3	26	63.4	100.0
2006	37	86.5	2.7	20	54.1	100.0
2007	53	83.0	3.8	29	54.7	100.0
2008	55	67.3	3.6	30	54.5	96.7
2009	49	81.6		33	67.3	100.0
2010	69	73.9	8.7	35	50.7	100.0
2011	58	65.5	5.2	23	39.7	100.0
2012	49	69.4	2.0	18	36.7	100.0
2013	58	77.6	5.2	28	48.3	96.4
2014	54	81.5	5.6	17	31.5	94.1
2015	23	95.7	17.4	11	47.8	100.0
2016	8	75.0	12.5	2	25.0	100.0
1998-2016	774	82.7	7.2	415	53.6	97.3

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	25	16	87.5	7	28.0
1999	23	16	100.0	3	13.0
2000	29	17	100.0	6	20.7
2001	27	13	92.3	5	18.5
2002	47	27	92.6	4	8.5
2003	30	20	95.0	4	13.3
2004	39	31	90.3	10	25.6
2005	41	18	100.0	5	12.2
2006	37	19	94.7	6	16.2
2007	53	23	95.7	3	5.7
2008	55	25	100.0	4	7.3
2009	49	35	100.0	6	12.2
2010	69	34	97.1	9	13.0
2011	58	39	100.0	3	5.2
2012	49	43	95.3	5	10.2
2013	58	40	100.0	8	13.8
2014	54	40	97.5	5	9.3
2015	23	39	100.0	7	30.4
2016	8	28	96.4	2	25.0
1998-2016	774	523	96.9	102	13.2

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	16	50.0	50.0	85.7
1999	16	50.0	50.0	68.8
2000	17	94.1	5.9	100.0
2001	13	69.2	30.8	75.0
2002	27	63.0	37.0	80.0
2003	20	80.0	20.0	84.2
2004	31	77.4	22.6	100.0
2005	18	50.0	50.0	72.2
2006	19	63.2	36.8	83.3
2007	23	65.2	34.8	72.7
2008	25	84.0	16.0	84.0
2009	35	74.3	25.7	82.9
2010	34	88.2	11.8	90.9
2011	39	61.5	38.5	74.4
2012	43	72.1	27.9	85.4
2013	40	85.0	15.0	90.0
2014	40	80.0	20.0	84.6
2015	39	66.7	33.3	76.9
2016	28	57.1	42.9	66.7
1998-2016	523	71.5	28.5	82.4

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	4	78.9	79.6	78.7	82.4
1999	8	70.5	71.6	58.3	70.5
2000	7	82.0	82.0		82.0
2001	6	71.6	74.0	66.2	74.0
2002	17	71.8	71.8	72.5	73.2
2003	11	78.4	78.4		78.5
2004	19	76.6	77.8	76.6	75.7
2005	5	80.2	79.5	82.3	80.2
2006	12	76.5	74.4	79.2	74.5
2007	15	78.4	78.0	79.8	77.8
2008	15	72.6	71.6	78.1	70.7
2009	27	74.7	70.7	78.8	73.4
2010	22	74.4	74.4		74.5
2011	27	78.0	73.0	86.2	77.1
2012	24	80.4	78.2	83.7	78.7
2013	24	83.5	82.9	85.2	83.5
2014	28	79.0	79.0	81.4	79.5
2015	23	76.1	75.4	83.9	78.2
2016	16	80.5	78.7	83.4	80.6
1998–2016	310	77.8	76.2	79.6	77.1

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	12	80.7	78.5	87.6	79.4
1999	8	84.6	74.1	86.2	83.1
2000	10	80.3	80.7	70.0	80.3
2001	7	88.3	83.9	88.3	83.9
2002	10	81.4	78.3	84.6	74.0
2003	9	81.4	70.7	83.7	72.4
2004	12	82.9	82.9	82.5	84.6
2005	13	79.3	75.5	82.1	77.4
2006	7	89.7	87.5	89.9	87.5
2007	8	86.8	85.3	88.6	89.3
2008	10	76.9	67.2	85.0	70.1
2009	8	86.4	87.2	85.7	81.1
2010	12	77.8	73.5	86.6	73.5
2011	12	84.2	76.7	91.3	78.6
2012	19	78.1	77.3	83.4	77.6
2013	16	86.1	83.1	90.0	84.2
2014	12	82.6	80.2	83.3	82.6
2015	16	82.3	77.0	92.2	77.9
2016	12	83.4	81.1	86.8	79.7
1998-2016	213	82.5	78.5	86.0	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	0.14	0.1	0.11	0.2	0.15	0.3	0.22
1999	5	0.4	0.50	0.3	0.49	0.4	0.53	0.6	0.63
2000	7	0.6	0.44	0.3	0.40	0.6	0.44	0.8	0.52
2001	5	0.4	0.42	0.2	0.39	0.4	0.42	0.6	0.48
2002	11	0.6	0.46	0.3	0.42	0.5	0.47	0.7	0.54
2003	11	0.6	0.79	0.3	0.57	0.5	0.74	0.7	0.97
2004	14	0.7	0.61	0.4	0.56	0.6	0.62	0.9	0.65
2005	2	0.1	0.08	0.0	0.05	0.1	0.06	0.1	0.10
2006	8	0.4	0.40	0.2	0.33	0.3	0.37	0.4	0.40
2007	11	0.5	0.35	0.2	0.25	0.4	0.32	0.6	0.39
2008	14	0.6	0.38	0.3	0.34	0.5	0.38	0.6	0.39
2009	21	0.9	0.75	0.5	0.68	0.7	0.73	0.9	0.72
2010	22	1.0	0.45	0.5	0.38	0.7	0.42	1.0	0.45
2011	19	0.8	0.58	0.4	0.50	0.6	0.54	0.8	0.59
2012	17	0.7	0.71	0.3	0.61	0.5	0.68	0.7	0.70
2013	21	0.9	0.70	0.4	0.58	0.6	0.66	0.9	0.71
2014	24	1.0	0.77	0.4	0.68	0.6	0.73	0.9	0.79
2015	16	0.7	1.33	0.3	1.34	0.4	1.33	0.6	1.28
2016	10	0.4	1.67	0.2	2.09	0.3	1.86	0.4	1.71
1998-2016	240	0.7	0.55	0.3	0.46	0.5	0.52	0.7	0.57

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	0.55	0.1	0.19	0.2	0.33	0.4	0.47
1999	3	0.3	0.23	0.1	0.20	0.2	0.22	0.2	0.26
2000	9	0.7	0.69	0.2	0.57	0.4	0.59	0.6	0.64
2001	4	0.3	0.27	0.1	0.12	0.2	0.17	0.2	0.20
2002	6	0.3	0.26	0.1	0.22	0.2	0.22	0.2	0.23
2003	5	0.3	0.31	0.1	0.27	0.2	0.28	0.2	0.29
2004	10	0.5	0.63	0.2	0.38	0.3	0.47	0.4	0.54
2005	7	0.4	0.47	0.1	0.37	0.2	0.40	0.3	0.44
2006	4	0.2	0.24	0.0	0.06	0.1	0.10	0.1	0.14
2007	4	0.2	0.18	0.0	0.06	0.1	0.10	0.1	0.16
2008	7	0.3	0.39	0.1	0.36	0.2	0.40	0.2	0.36
2009	5	0.2	0.24	0.1	0.12	0.1	0.15	0.1	0.18
2010	8	0.3	0.40	0.2	0.33	0.2	0.37	0.3	0.40
2011	5	0.2	0.20	0.1	0.11	0.1	0.14	0.2	0.18
2012	14	0.6	0.56	0.2	0.53	0.3	0.50	0.4	0.52
2013	13	0.5	0.46	0.1	0.22	0.2	0.29	0.3	0.34
2014	8	0.3	0.35	0.1	0.19	0.2	0.23	0.2	0.26
2015	10	0.4	0.91	0.2	0.89	0.2	0.86	0.3	0.89
2016	6	0.2	3.00	0.1	7.34	0.1	5.25	0.2	5.17
1998-2016	134	0.3	0.40	0.1	0.26	0.2	0.31	0.3	0.35

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									
20-24	2	0.8	0.8	2	1.1	1.1			0.0
25-29	1	0.4	1.2			1.1	1	1.3	1.3
30-34	1	0.4	1.6			1.1	1	1.3	2.5
35-39	0	0.0	1.6			1.1			2.5
40-44	6	2.4	3.9	4	2.3	3.4	2	2.5	5.0
45-49	9	3.5	7.5	4	2.3	5.7	5	6.3	11.3
50-54	8	3.1	10.6	7	4.0	9.7	1	1.3	12.5
55-59	10	3.9	14.5	9	5.1	14.9	1	1.3	13.8
60-64	13	5.1	19.6	6	3.4	18.3	7	8.8	22.5
65-69	26	10.2	29.8	20	11.4	29.7	6	7.5	30.0
70-74	38	14.9	44.7	30	17.1	46.9	8	10.0	40.0
75-79	47	18.4	63.1	34	19.4	66.3	13	16.3	56.3
80-84	33	12.9	76.1	23	13.1	79.4	10	12.5	68.8
85+	61	23.9	100.0	36	20.6	100.0	25	31.3	100.0
All ages	255	100.0		175	100.0		80	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	2		0.1	1.00			3.5	
25-29		1			0.1	0.13		1.4
30-34		1			0.1	0.20		0.8
35-39								
40-44	4	2	0.2	0.67	0.1	0.17	0.8	0.3
45-49	4	5	0.2	0.31	0.3	0.50	0.3	0.4
50-54	7	1	0.4	0.37	0.1	0.11	0.3	0.1
55-59	9	1	0.6	0.69	0.1	0.10	0.3	0.0
60-64	6	7	0.5	0.33	0.5	0.47	0.1	0.2
65-69	20	6	1.7	0.53	0.5	0.32	0.3	0.1
70-74	30	8	2.7	0.64	0.6	0.44	0.3	0.1
75-79	34	13	4.3	0.81	1.3	0.54	0.4	0.2
80-84	23	10	5.0	0.72	1.4	0.50	0.3	0.1
85+	36	25	11.8	1.03	3.4	0.83	0.6	0.3
All ages	175	80					0.3	0.2
Mortality								
Raw			0.8	0.62	0.3	0.41		
WS			0.3	0.53	0.1	0.27		
ES			0.5	0.59	0.2	0.32		
BRD-S			0.7	0.62	0.2	0.36		
PYLL-70								
per 100,000			3.1		1.7			
ES			2.7		1.4			
AYLL-70			12.0		14.4			

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	1.1	2	100.0				
C03–C06 Oral cavity	2	1.1	1	50.0	1	50.0		
C09–C10 Oropharynx	4	2.2	2	50.0			2	50.0
C11 Nasopharynx	2	1.1	1	50.0			1	50.0
C16 Stomach	2	1.1	1	50.0			1	50.0
C18 Colon	3	1.6	1	33.3			2	66.7
C19–C20 Rectum	4	2.2	2	50.0			2	50.0
C22 Liver	3	1.6			2	66.7	1	33.3
C25 Pancreas	3	1.6					3	100.0
C30 Middle/inner ear	2	1.1	2	100.0				
C32 Larynx	2	1.1	1	50.0			1	50.0
C33–C34 Lung	15	8.2			1	6.7	14	93.3
C43 Malign. melanoma	2	1.1	1	50.0	1	50.0		
C44 Skin others	77	42.1	35	45.5	7	9.1	35	45.5
C46,C49 Soft tissue	2	1.1					2	100.0
C61 Prostate	21	11.5	15	71.4	4	19.0	2	9.5
C64 Kidney	2	1.1	1	50.0			1	50.0
C67 Bladder	9	4.9	4	44.4			5	55.6
C70–C72 CNS cancer	3	1.6	1	33.3			2	66.7
C76–C79 CUP	3	1.6	2	66.7	1	33.3		
C82–C85 NHL	10	5.5	6	60.0	2	20.0	2	20.0
Others, specified	10	5.5	5	50.0			5	50.0
All further malignancies	183	100.0	83	45.4	19	10.4	81	44.3

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	1.4			1	100.0		
C12–C13 Hypopharynx	1	1.4					1	100.0
C15 Oesophagus	1	1.4					1	100.0
C16 Stomach	3	4.3	1	33.3			2	66.7
C18 Colon	1	1.4	1	100.0				
C19–C20 Rectum	1	1.4					1	100.0
C25 Pancreas	4	5.7					4	100.0
C26 GI cancer	1	1.4			1	100.0		
C33–C34 Lung	10	14.3			1	10.0	9	90.0
C44 Skin others	12	17.1	7	58.3			5	41.7
C50 Breast	16	22.9	6	37.5			10	62.5
C54 Corpus uteri	2	2.9	1	50.0	1	50.0		
C56 Ovary	2	2.9	1	50.0			1	50.0
C64 Kidney	4	5.7					4	100.0
C69 Eye carcinoma	1	1.4	1	100.0				
C73 Thyroid	2	2.9	1	50.0			1	50.0
C76–C79 CUP	1	1.4	1	100.0				
C82–C85 NHL	6	8.6	3	50.0			3	50.0
C91–C96 Leukaemia	1	1.4					1	100.0
All further malignancies	70	100.0	23	32.9	4	5.7	43	61.4

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 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	2		0.1	1.00			3.9	
25-29		1			0.1	0.13		1.5
30-34		1			0.1	0.33		0.9
35-39								
40-44	4	2	0.2	0.67	0.1	0.18	0.9	0.3
45-49	4	5	0.2	0.31	0.3	0.50	0.4	0.4
50-54	5	1	0.3	0.29	0.1	0.13	0.3	0.1
55-59	9		0.6	0.75			0.3	
60-64	6	7	0.5	0.35	0.5	0.58	0.1	0.2
65-69	15	4	1.3	0.54	0.3	0.31	0.3	0.1
70-74	20	6	1.8	0.67	0.5	0.40	0.3	0.1
75-79	21	9	2.6	0.88	0.9	0.64	0.3	0.2
80-84	12	6	2.6	0.67	0.8	0.43	0.2	0.1
85+	19	22	6.2	1.00	3.0	0.92	0.4	0.3
All ages	117	64					0.3	0.2
Mortality								
Raw			0.5	0.59	0.3	0.42		
WS			0.2	0.49	0.1	0.27		
ES			0.4	0.55	0.1	0.32		
BRD-S			0.5	0.58	0.2	0.35		
PYLL-70								
per 100,000			2.9		1.6			
ES			2.5		1.4			
AYLL-70			12.8		15.6			

* 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						
20-24	2		0.1	1.00	3.9	
25-29		1				1.5
30-34						
35-39						
40-44	4	2	0.2	0.80	0.9	0.3
45-49	4	3	0.2	0.33	0.4	0.3
50-54	3		0.2	0.19	0.2	
55-59	6		0.4	0.67	0.2	
60-64	6	5	0.5	0.35	0.1	0.2
65-69	8	3	0.7	0.38	0.1	0.1
70-74	14	4	1.3	0.64	0.2	0.1
75-79	11	5	1.4	0.55	0.2	0.1
80-84	10	3	2.2	0.59	0.2	0.1
85+	16	16	5.2	0.89	0.4	0.2
All ages	84	42			0.2	0.1
Mortality						
Raw			0.4	0.49		
WS			0.2	0.41		
ES			0.3	0.46		
BRD-S			0.3	0.49		
PYLL-70						
per 100,000			2.4			1.1
ES			2.1			0.9
AYLL-70			14.8			15.0

* See corresponding tables with multiple malignancies.

ICD-10 C07, C08: Malignant neoplasm of salivary glands
 Age distribution and age-specific mortality 2007 - 2016 (Males: 175, Females: 80)

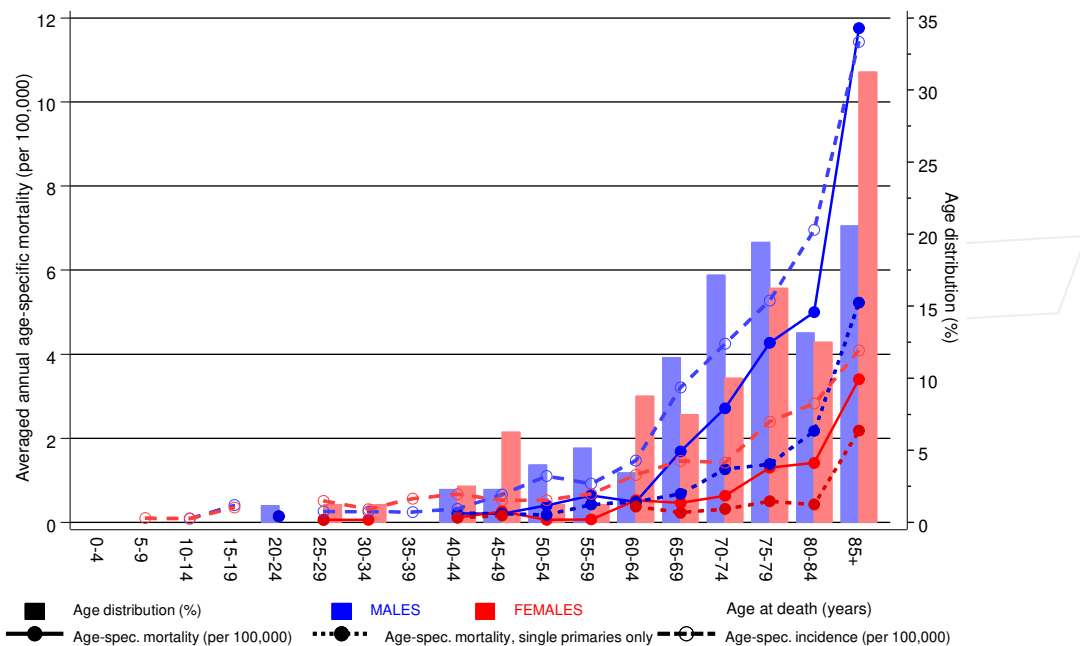
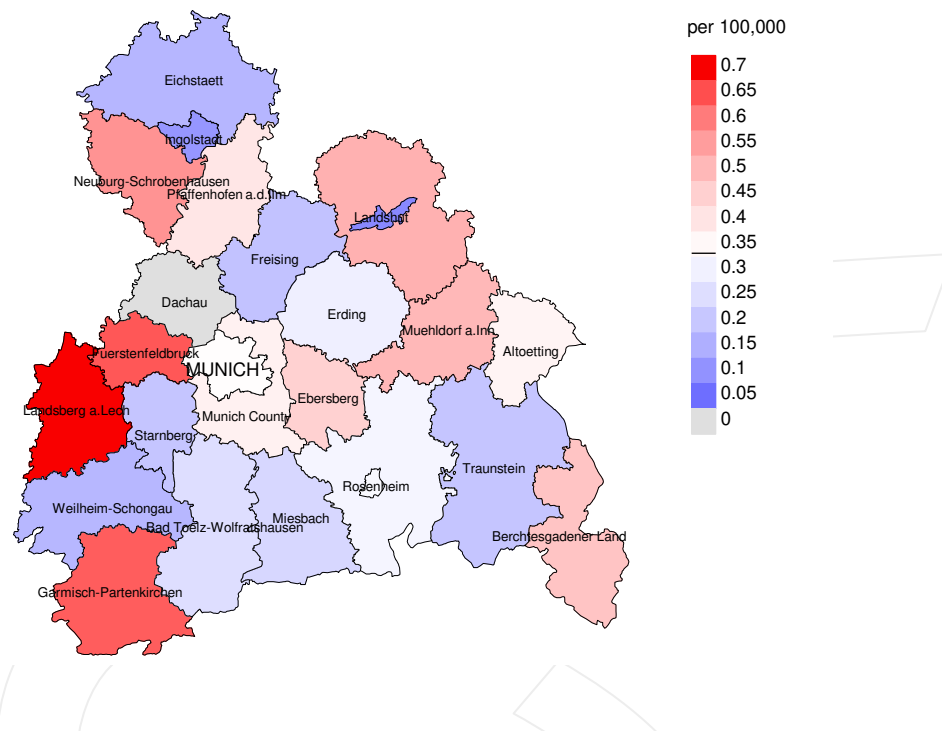


Figure 17. Distribution of age at death (bars; males: mean=70.0 yrs, median=72.1 yrs; females: mean=69.8 yrs, median=74.4 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

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



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

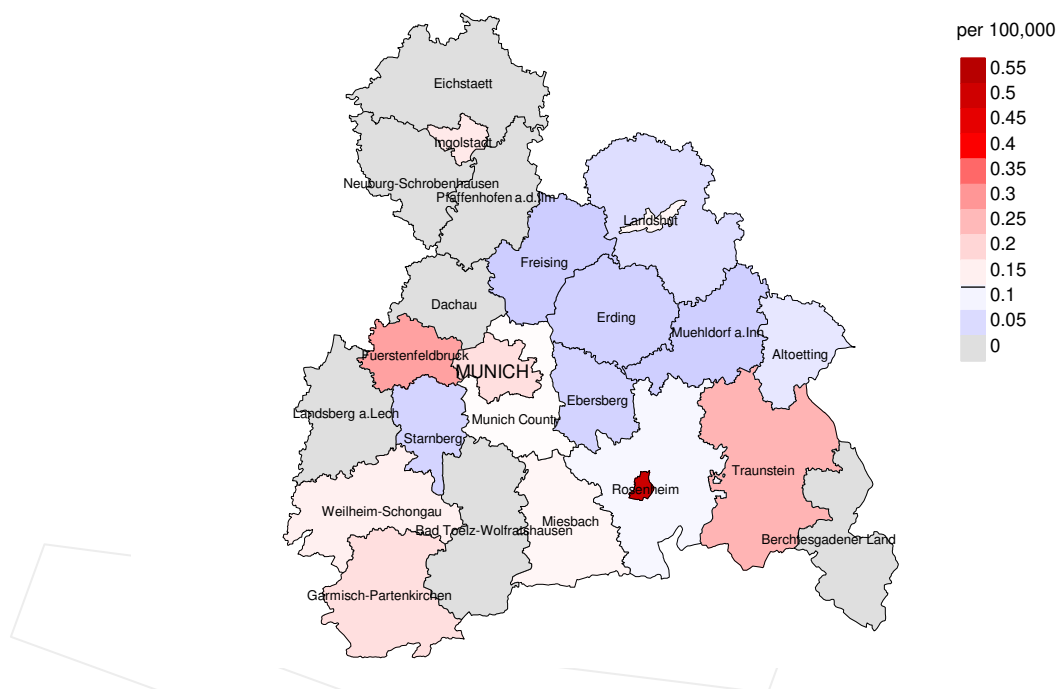
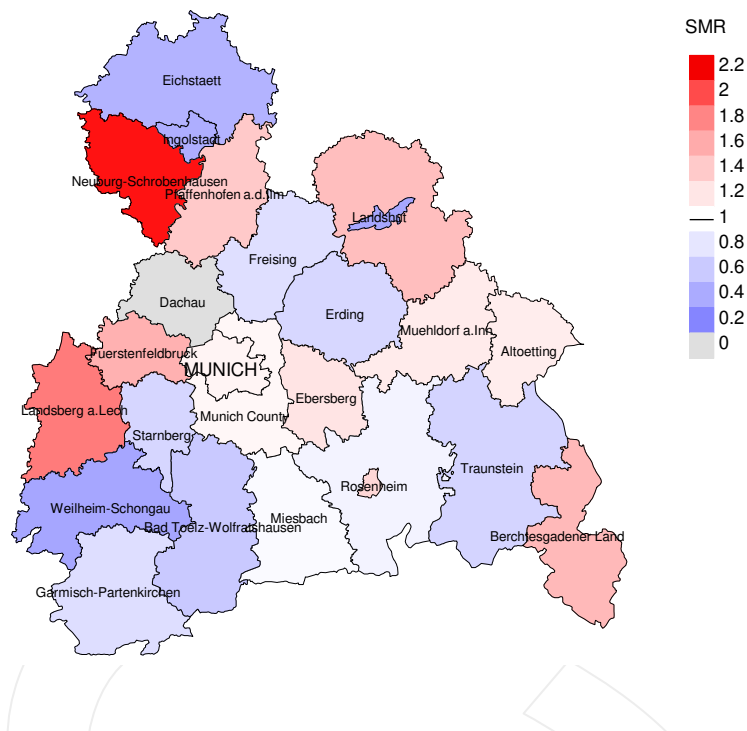


Figure 18a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2016. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.3/100,000 WS N=175, females 0.1/100,000 WS N=80).

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 salivary gland 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

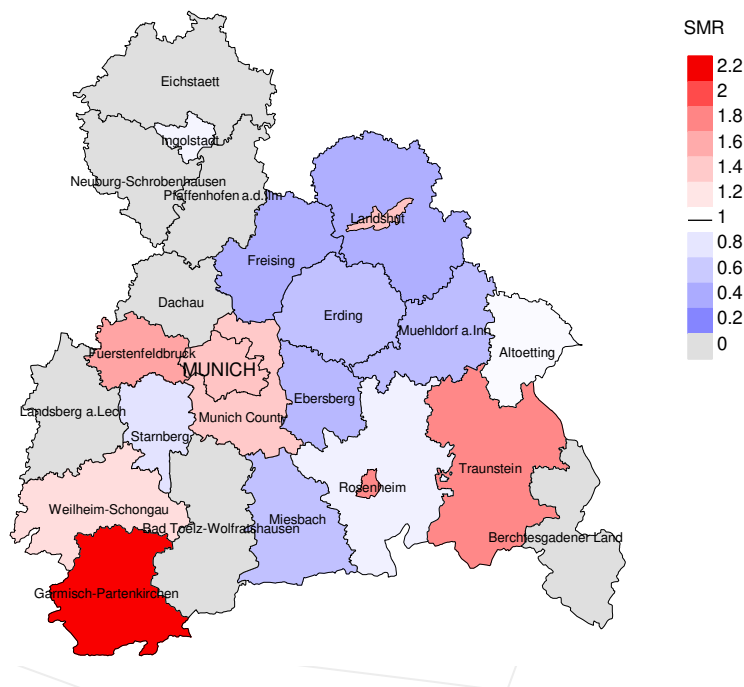


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=175, females N=80).

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 salivary gland cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.47. Though, the value of this parameter may vary with an underlying probability of 99% between 0.00 and 3.52, 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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