

Munich Cancer Registry



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

ICD-10 C02: Tongue excl. base of tongue

Incidence and Mortality

Year of diagnosis	1998-2016
Patients	1,218
Diseases	1,221
Creation date	08/21/2018
Export date	08/09/2018
Population	4.81 m




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

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

https://www.tumorregister-muenchen.de/en/facts/base/bC02__E-ICD-10-C02-Tongue-excl.-base-of-tongue-incidence-and-mortality.pdf

Index of figures and tables

Fig./Tbl.		Page
1	Annual cases, DCO, mult. malignancies, follow-up / yr	5
2	Incidence by year of diagnosis	8
3	Age distribution parameters by year of diagnosis	9
4	Age distribution by 5-year age group and sex	10
5	Age-specific incidence, DCO rate, proportion malignancies	11
6	Age distribution and age-specific incidence (chart)	12
6a	Age-specific incidence internationally (chart)	13
7	Standardized incidence ratio of further malignancies	14
8a	Map of cancer incidence (WS) by county (chart)	16
8b	Standardized incidence ratio (SIR) by county (chart)	17
9a	Pts incident cohorts and mortality / yr	18
9b	Incidence and mortality by year of diagnosis	19
9c	Cancer-related deaths, death certification available / yr	20
10	Medians of age at death / yr	21
11	Mortality by year of death	23
12	Distribution of age at death	24
13	Age-specific mortality	25
14	Further malignancies in deaths	26
15	Age-specific mortality (first primaries)	28
16	Age-specific mortality (single primaries)	29
17	Age distribution and age-specific mortality (chart)	30
18a	Map of cancer mortality (WS) by county (chart)	31
18b	Standardized mortality ratio (SMR) by county (chart)	32

**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
C02.-	Malignant neoplasm of other and unspecified parts of tongue
C02.0	Dorsal surface of tongue
C02.1	Border of tongue
C02.2	Ventral surface of tongue
C02.3	Anterior two-thirds of tongue, part unspecified
C02.4	Lingual tonsil
C02.8	Overlapping lesion of tongue
C02.9	Tongue, 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	50	3	6.0	16.0	15.9	82.0	98.0
1999	43			15.1	15.6	88.4	100.0
2000	43	2	4.7	13.2	15.1	79.1	100.0
2001	52			12.2	15.0	84.6	100.0
2002	74			13.4	14.9	70.3	97.3 #
2003	62	2	3.2	13.0	14.2	75.8	98.4
2004	62			11.9	13.4	79.0	100.0
2005	64			12.0	13.0	68.8	92.2
2006	71	2	2.8	11.3	12.9	69.0	91.5
2007	89	4	4.5	11.1	12.9	65.2	78.7 #
2008	87			11.3	12.3	52.9	72.4
2009	79	1	1.3	12.1	10.9	55.7	78.5
2010	89	1	1.1	12.0	11.0	50.6	75.3
2011	69	1	1.4	12.3	9.6	47.8	72.5
2012	87	1	1.1	12.4	7.6	34.5	64.4
2013	76			12.9	7.8	47.4	76.3
2014	67	1	1.5	13.4	10.9	50.7	91.0
2015	36			13.8	11.1	27.8	100.0
2016	21			14.2	10.5	23.8	71.4 ##
1998-2016	1221	18	1.5	14.2	15.9	60.5	85.5

1,221 cases diagnosed 1998-2016 are related to a total of 1,218 patients. Currently, in 361 (29.6 %) of these 1,218 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 270 / 70 / 21 (22.2 % / 5.7 % / 1.7 %) 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 retrieved from the respective headings.

How to interpret:

In 2014, a subgroup of 67 cases has been diagnosed, of which 13.4 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 10.9 % 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 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	33	66.0	1	3.0	18.2	15.5	81.8	97.0
1999	24	55.8			17.5	15.2	95.8	100.0
2000	32	74.4	2	6.3	14.6	14.8	87.5	100.0
2001	39	75.0			12.5	14.7	87.2	100.0
2002	46	62.2			13.2	14.7	67.4	97.8 #
2003	45	72.6	1	2.2	13.2	14.0	75.6	97.8
2004	42	67.7			12.3	13.3	83.3	100.0
2005	44	68.8			12.5	13.2	72.7	93.2
2006	46	64.8	1	2.2	11.7	12.7	76.1	93.5
2007	62	69.7	4	6.5	11.6	12.6	66.1	77.4 #
2008	52	59.8			11.6	12.8	59.6	75.0
2009	46	58.2			11.9	11.6	60.9	80.4
2010	58	65.2	1	1.7	12.1	10.9	58.6	81.0
2011	45	65.2	1	2.2	12.5	10.0	55.6	77.8
2012	56	64.4	1	1.8	12.8	6.8	35.7	64.3
2013	47	61.8			13.1	6.5	40.4	72.3
2014	43	64.2			13.9	10.3	51.2	88.4
2015	22	61.1			14.5	13.5	27.3	100.0
2016	16	76.2			14.9	12.5	25.0	68.8 ##
1998-2016	798	65.4	12	1.5	14.9	15.5	63.8	86.3

798 cases diagnosed 1998-2016 are related to a total of 796 patients. Currently, in 239 (30.0 %) of these 796 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 171 / 50 / 18 (21.5 % / 6.3 % / 2.3 %) 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 43 cases has been diagnosed, of which 13.9 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 10.3 % 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	17	34.0	2	11.8	11.8	16.6	82.4	100.0
1999	19	44.2			11.1	16.3	78.9	100.0
2000	11	25.6			10.6	15.8	54.5	100.0
2001	13	25.0			11.7	15.5	76.9	100.0
2002	28	37.8			13.6	15.2	75.0	96.4 #
2003	17	27.4	1	5.9	12.4	14.7	76.5	100.0
2004	20	32.3			11.2	13.5	70.0	100.0
2005	20	31.3			11.0	12.8	60.0	90.0
2006	25	35.2	1	4.0	10.6	13.3	56.0	88.0
2007	27	30.3			10.2	13.5	63.0	81.5 #
2008	35	40.2			10.8	11.4	42.9	68.6
2009	33	41.8	1	3.0	12.5	9.8	48.5	75.8
2010	31	34.8			11.8	11.2	35.5	64.5
2011	24	34.8			11.9	9.0	33.3	62.5
2012	31	35.6			11.7	9.1	32.3	64.5
2013	29	38.2			12.4	10.1	58.6	82.8
2014	24	35.8	1	4.2	12.4	12.2	50.0	95.8
2015	14	38.9			12.7	5.9	28.6	100.0
2016	5	23.8			12.8	0.0	20.0	80.0 ##
1998-2016	423	34.6	6	1.4	12.8	16.6	54.4	83.9

423 cases diagnosed 1998-2016 are related to a total of 422 patients. Currently, in 122 (28.9 %) of these 422 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 99 / 20 / 3 (23.5 % / 4.7 % / 0.7 %) 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 retrieved from the respective headings.

How to interpret:

In 2014, a subgroup of 24 cases has been diagnosed, of which 12.4 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 12.2 % 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 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	33	17	3.0	1.4	2.0	0.8	2.7	1.1	3.1	1.3
1999	24	19	2.1	1.6	1.5	0.9	2.0	1.3	2.2	1.5
2000	32	11	2.8	0.9	1.9	0.6	2.6	0.8	2.8	0.8
2001	39	13	3.4	1.1	2.2	0.6	3.0	0.8	3.3	1.0
2002	46	28	2.5	1.4	1.7	0.8	2.2	1.2	2.4	1.3
2003	45	17	2.4	0.9	1.7	0.4	2.3	0.5	2.4	0.7
2004	42	20	2.2	1.0	1.4	0.5	1.9	0.7	2.1	0.9
2005	44	20	2.3	1.0	1.5	0.7	1.9	0.9	2.1	0.9
2006	46	25	2.4	1.2	1.5	0.7	2.1	0.9	2.4	1.1
2007	62	27	2.8	1.2	1.7	0.7	2.4	0.9	2.6	1.1
2008	52	35	2.3	1.5	1.5	0.9	2.0	1.2	2.2	1.4
2009	46	33	2.1	1.4	1.3	0.7	1.8	1.0	2.0	1.2
2010	58	31	2.6	1.3	1.6	0.7	2.1	1.0	2.4	1.1
2011	45	24	2.0	1.0	1.3	0.6	1.7	0.8	1.9	0.9
2012	56	31	2.5	1.3	1.5	0.7	2.0	1.0	2.2	1.1
2013	47	29	2.0	1.2	1.2	0.6	1.6	0.8	1.9	1.0
2014	43	24	1.8	1.0	1.2	0.5	1.5	0.7	1.7	0.8
2015	22	14	0.9	0.6	0.6	0.3	0.8	0.4	0.9	0.5
2016	16	5	0.7	0.2	0.4	0.1	0.5	0.1	0.6	0.2
1998-2016	798	423	2.2	1.1	1.4	0.6	1.8	0.8	2.0	0.9

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.		Min.	Max.	Median				
		Mean	dev.			10%	25%	50%	75%	90%
1998	50	61.5	11.6	32.0	91.4	48.7	52.1	60.4	67.7	77.6
1999	43	59.2	14.5	25.6	90.8	42.2	49.9	57.9	68.6	77.7
2000	43	56.1	11.8	33.5	84.8	41.4	46.3	55.2	65.0	71.3
2001	52	59.9	12.2	33.7	90.0	44.4	50.9	60.3	65.6	76.0
2002	74	58.7	11.9	26.4	89.8	44.9	51.6	58.8	65.6	71.9
2003	62	60.4	14.2	28.1	98.2	45.6	52.4	57.8	69.5	81.2
2004	62	60.6	12.4	29.5	88.4	43.2	50.4	61.4	68.2	75.4
2005	64	58.4	11.2	33.0	92.0	43.3	49.8	60.4	65.0	69.8
2006	71	63.1	12.9	33.8	96.2	46.7	55.3	61.4	71.7	81.2
2007	89	60.6	12.5	26.0	101	44.2	52.8	60.9	67.9	76.7
2008	87	61.1	12.3	21.8	87.1	45.1	52.6	62.4	69.5	76.4
2009	79	62.1	12.9	30.2	88.9	46.8	53.6	62.2	71.4	79.9
2010	89	61.2	14.1	24.5	92.8	45.4	50.7	60.0	70.3	83.3
2011	69	61.2	14.5	29.2	92.8	40.8	53.1	62.1	69.7	80.0
2012	87	62.1	13.7	25.7	88.7	43.4	53.1	64.9	72.7	78.5
2013	76	64.2	14.5	28.1	95.5	45.3	54.6	64.3	74.7	81.8
2014	67	63.3	12.4	28.7	90.9	44.9	55.7	63.5	72.5	78.4
2015	36	63.3	12.5	40.2	86.3	47.1	53.8	63.4	71.8	82.9
2016	21	64.7	15.6	21.1	87.5	50.7	56.7	70.0	75.2	79.4
1998-2016	1221	61.1	13.1	21.1	101	44.9	52.5	61.1	70.0	78.5

Table 3a

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

Year of diagnosis	Cases n	Std.		Min.	Max.	Median				
		Mean	dev.			10%	25%	50%	75%	90%
1998	33	59.8	9.2	44.0	81.3	48.0	52.1	59.7	65.7	71.0
1999	24	55.2	13.1	33.3	90.8	41.2	48.5	51.7	60.8	67.1
2000	32	57.0	10.4	35.8	75.4	45.1	48.1	55.9	64.9	71.3
2001	39	58.9	12.7	33.7	90.0	43.6	49.0	58.9	64.4	79.9
2002	46	56.2	11.1	26.4	79.9	40.5	48.9	56.6	62.3	69.5
2003	45	56.3	10.4	28.1	86.1	45.6	50.9	55.1	61.9	70.0
2004	42	58.7	11.3	38.4	88.4	43.2	49.8	59.0	64.9	70.7
2005	44	57.5	10.9	36.8	82.5	42.9	48.1	59.2	65.3	69.8
2006	46	62.3	12.2	33.8	92.0	46.0	55.3	59.8	71.7	76.4
2007	62	59.8	12.5	26.0	101	44.2	52.1	59.8	67.9	73.4
2008	52	60.0	11.6	21.8	87.1	45.1	52.6	61.1	69.2	74.3
2009	46	60.2	11.6	30.2	79.9	44.5	53.2	62.2	66.9	73.8
2010	58	60.8	14.7	24.5	92.8	45.2	49.0	59.6	69.7	84.0
2011	45	60.3	13.4	29.2	88.6	42.9	53.6	59.3	68.8	78.1
2012	56	62.2	12.2	25.7	85.9	45.1	54.0	63.4	72.1	75.3
2013	47	61.7	13.2	30.0	84.3	44.5	53.6	62.0	71.2	79.9
2014	43	60.5	11.6	28.7	83.4	44.8	55.0	61.9	68.9	75.4
2015	22	60.4	9.3	40.2	76.3	47.1	54.0	62.6	66.9	70.2
2016	16	63.0	16.2	21.1	80.9	38.7	56.4	66.9	75.3	79.4
1998-2016	798	59.6	12.1	21.1	101	44.5	51.6	59.7	67.7	75.2

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		
								50%	75%	90%
1998	17	65.0	15.0	32.0	91.4	49.5	55.2	64.8	75.8	84.4
1999	19	64.3	15.0	25.6	87.3	42.2	53.3	68.2	75.3	79.3
2000	11	53.3	15.4	33.5	84.8	37.8	39.8	53.2	66.3	67.5
2001	13	63.1	10.0	44.0	76.2	52.0	56.9	60.5	72.4	76.0
2002	28	62.9	12.2	44.9	89.8	47.0	54.2	61.1	67.8	82.9
2003	17	71.3	17.1	35.5	98.2	44.8	63.1	72.6	84.0	91.2
2004	20	64.7	13.9	29.5	82.9	44.4	57.6	67.2	74.9	80.0
2005	20	60.4	11.8	33.0	92.0	48.1	54.0	61.3	64.7	72.8
2006	25	64.4	14.2	37.9	96.2	47.5	54.9	62.3	71.7	82.5
2007	27	62.4	12.4	34.4	83.6	45.5	54.6	62.8	69.4	79.8
2008	35	62.7	13.4	26.7	86.9	43.9	54.5	64.0	73.4	78.7
2009	33	64.7	14.1	32.4	88.9	47.5	54.2	65.8	75.4	82.8
2010	31	62.1	12.9	43.2	88.5	46.3	50.7	61.1	72.0	78.4
2011	24	62.8	16.6	31.2	92.8	40.8	49.6	64.3	75.1	86.6
2012	31	61.9	16.2	28.5	88.7	34.5	49.1	64.9	73.3	79.6
2013	29	68.2	15.8	28.1	95.5	46.3	61.7	72.1	76.3	89.1
2014	24	68.4	12.4	43.4	90.9	53.8	58.5	69.4	76.8	84.7
2015	14	67.8	15.7	43.8	86.3	48.1	53.6	71.1	82.9	84.1
2016	5	69.9	13.3	55.7	87.5	55.7	57.5	74.1	74.9	87.5
1998-2016	423	64.1	14.2	25.6	98.2	46.1	54.0	64.4	74.9	82.9

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									
10-14									
15-19									
20-24	3	0.4	0.4	3	0.7	0.7			0.0
25-29	8	1.1	1.6	5	1.1	1.8	3	1.2	1.2
30-34	12	1.7	3.3	6	1.3	3.1	6	2.4	3.6
35-39	10	1.4	4.7	8	1.8	4.9	2	0.8	4.3
40-44	36	5.1	9.9	24	5.4	10.3	12	4.7	9.1
45-49	57	8.1	18.0	36	8.1	18.3	21	8.3	17.4
50-54	80	11.4	29.4	56	12.5	30.9	24	9.5	26.9
55-59	95	13.6	43.0	69	15.4	46.3	26	10.3	37.2
60-64	103	14.7	57.7	68	15.2	61.5	35	13.8	51.0
65-69	95	13.6	71.3	67	15.0	76.5	28	11.1	62.1
70-74	83	11.9	83.1	52	11.6	88.1	31	12.3	74.3
75-79	60	8.6	91.7	32	7.2	95.3	28	11.1	85.4
80-84	33	4.7	96.4	12	2.7	98.0	21	8.3	93.7
85+	25	3.6	100.0	9	2.0	100.0	16	6.3	100.0
All ages	700	100.0		447	100.0		253	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=7 %	Females DCO rate n=2 %	Males	Females
							Prop.all cancers n=113978 %	Prop.all cancers n=112253 %
0- 4								
5- 9								
10-14								
15-19								
20-24	3		0.2				0.7	
25-29	5	3	0.3	0.2			0.7	0.4
30-34	6	6	0.4	0.4			0.6	0.4
35-39	8	2	0.5	0.1			0.6	0.1
40-44	24	12	1.3	0.7			1.1	0.3
45-49	36	21	1.8	1.1			0.9	0.3
50-54	56	24	3.2	1.4			0.9	0.3
55-59	69	26	4.9	1.8		3.8	0.7	0.3
60-64	68	35	5.6	2.6			0.5	0.3
65-69	67	28	5.7	2.2	3.0		0.4	0.2
70-74	52	31	4.7	2.4	3.8		0.2	0.2
75-79	32	28	4.0	2.8			0.2	0.2
80-84	12	21	2.6	3.0			0.1	0.2
85+	9	16	2.9	2.2	33.3	6.3	0.1	0.1
All ages	447	253			1.6	0.8	0.4	0.2
Incidence								
Raw			2.0	1.1				
WS			1.2	0.6				
ES			1.6	0.8				
BRD-S			1.8	0.9				

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 C02: Malignant neoplasm of other and unspecified parts of tongue

Age distribution and age-specific incidence 2007 - 2016 (Males: 447, Females: 253)

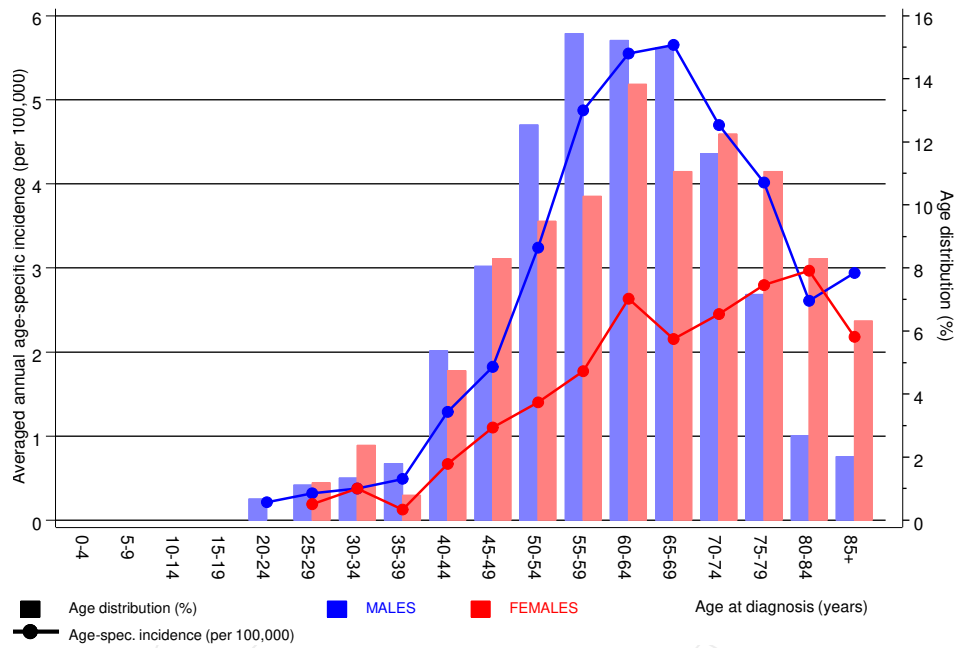


Figure 6. Age distribution (males: mean=60.8 yrs, median=61.8 yrs; females: mean=64.4 yrs, median=64.9 yrs) and age-specific incidence.

ICD-10 C02: Malignant neoplasm of other and unspecified parts of tongue

Age-specific incidence rates: international comparison

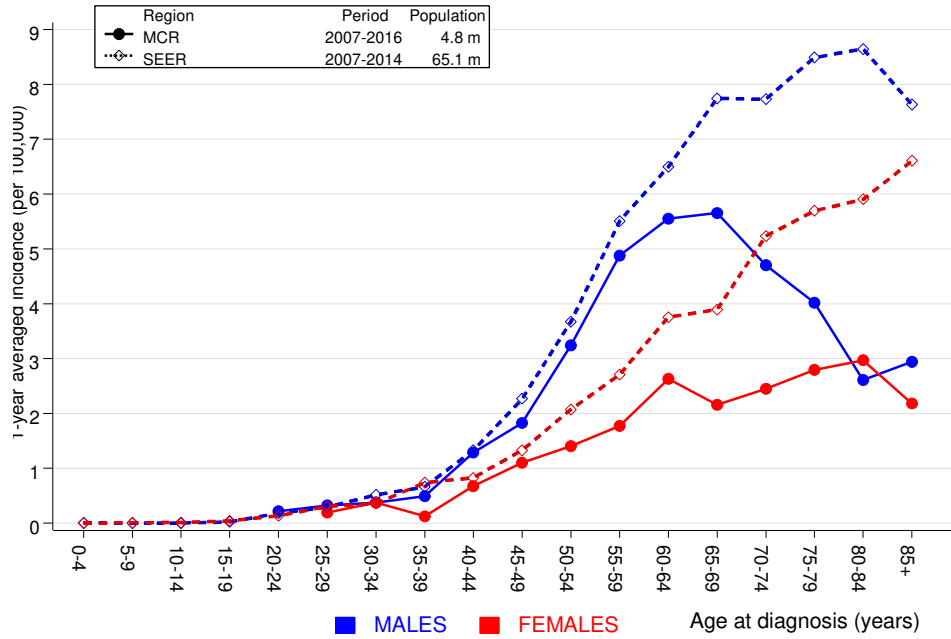


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

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 %
C03–C06 Oral cavity	4	0.3	11.6	3.2	29.7 #	14.9	
C09–C10 Oropharynx	20	0.4	45.6	27.9	70.5 #	80.0	
C12–C13 Hypopharynx	16	0.2	66.9	38.2	108.6 #	64.4	25.0
C15 Oesophagus	15	0.6	24.3	13.6	40.0 #	58.8	
C18 Colon	6	2.5	2.4	0.9	5.3	14.5	16.7
C19–C20 Rectum	6	1.6	3.7	1.4	8.1 #	18.0	
C22 Liver	3	0.8	3.7	0.8	10.7	8.9	33.3
C25 Pancreas	3	1.0	3.0	0.6	8.7	8.1	
C32 Larynx	9	0.4	25.2	11.5	47.8 #	35.3	11.1
C33–C34 Lung	35	3.4	10.2	7.1	14.1 #	129.0	20.0
C43 Malign. melanoma	3	1.4	2.2	0.5	6.5	6.7	
C61 Prostate	9	8.0	1.1	0.5	2.1	4.2	
C64 Kidney	3	1.1	2.8	0.6	8.2	7.9	
C67 Bladder	4	1.1	3.7	1.0	9.4 #	11.9	25.0
C73 Thyroid	3	0.3	11.5	2.4	33.5 #	11.2	
C82–C85 NHL	3	1.1	2.7	0.6	7.8	7.7	33.3
C91–C96 Leukaemia	2	0.4	4.9	0.6	17.8	6.5	
Others, specified	7	2.1	3.3	1.3	6.8 #	19.9	57.1
Not observed	0	1.9	0.0	0.0	1.9	-7.8	
All further malignancies	151	28.6	5.3	4.5	6.2 #	500.3	13.2
Patients		776					
Median age at next malignancy (years)		64.2					
Person-years		2446					
Mean observation time (years)		3.2					
Median observation time (years)		1.8					

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

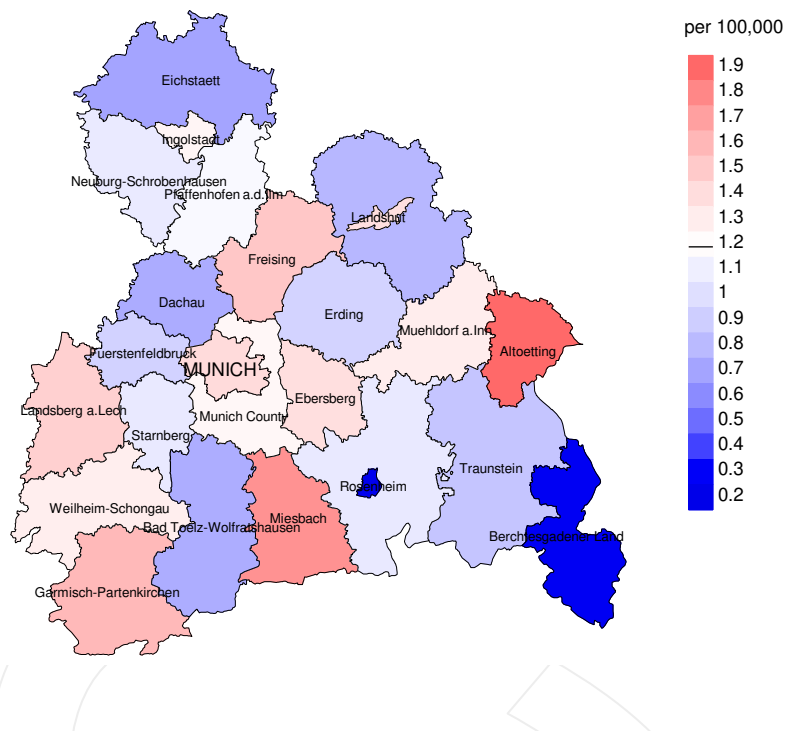
FEMALES

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C03–C06 Oral cavity	4	0.1	43.4	11.8	111.0 #	26.1	
C09–C10 Oropharynx	5	0.1	73.3	23.8	171.1 #	32.9	
C12–C13 Hypopharynx	4	0.0	212.8	58.0	544.8 #	26.6	50.0
C15 Oesophagus	5	0.1	51.6	16.7	120.4 #	32.7	
C19–C20 Rectum	2	0.6	3.4	0.4	12.3	9.4	
C22 Liver	2	0.2	11.6	1.4	41.8 #	12.2	50.0
C23–C24 Bile	3	0.2	15.6	3.2	45.5 #	18.7	
C32 Larynx	3	0.0	101.1	20.8	295.4 #	19.8	33.3
C33–C34 Lung	18	1.1	15.8	9.3	24.9 #	112.5	16.7
C50 Breast	5	4.8	1.1	0.3	2.5	1.6	
C54 Corpus uteri	2	0.8	2.4	0.3	8.6	7.7	
C56 Ovary	2	0.6	3.3	0.4	11.8	9.3	
C67 Bladder	3	0.3	11.7	2.4	34.3 #	18.3	66.7
C73 Thyroid	2	0.3	6.8	0.8	24.5	11.4	
C82–C85 NHL	4	0.6	7.2	2.0	18.4 #	23.0	
Others, specified	8	4.0	2.0	0.9	3.9	26.6	12.5
Not observed	0	1.3	0.0	0.0	2.9	-8.4	
All further malignancies	72	15.0	4.8	3.8	6.1 #	380.5	13.9
Patients		408					
Median age at next malignancy (years)		69.7					
Person-years		1499					
Mean observation time (years)		3.7					
Median observation time (years)		2.2					

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

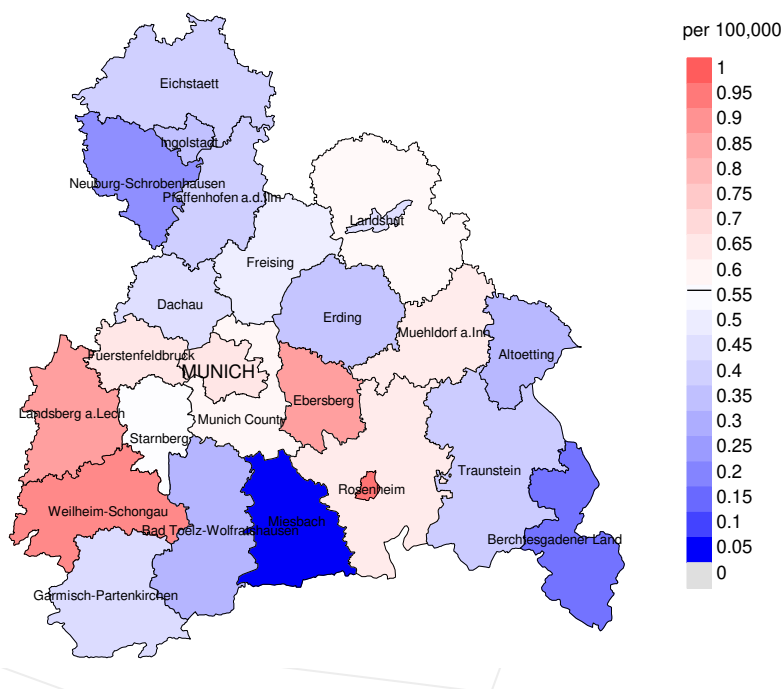
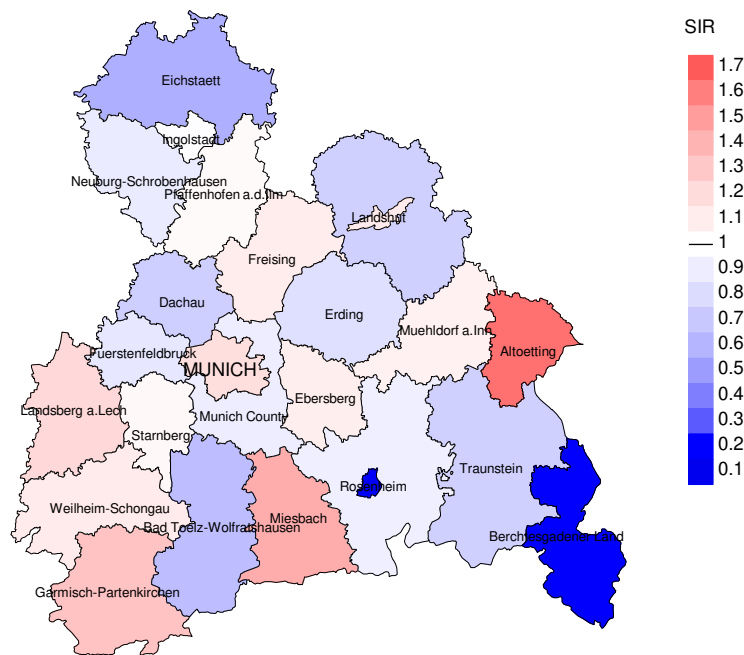


Figure 8a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 1.2/100,000 WS N=447, females 0.6/100,000 WS N=253).

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 10 women were identified with newly diagnosed tongue excl. base of tongue. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 0.9/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.3 and 2.1/100,000.

Standardized incidence ratio (SIR) 2007 - 2016: Males



Standardized incidence ratio (SIR) 2007 - 2016: Females

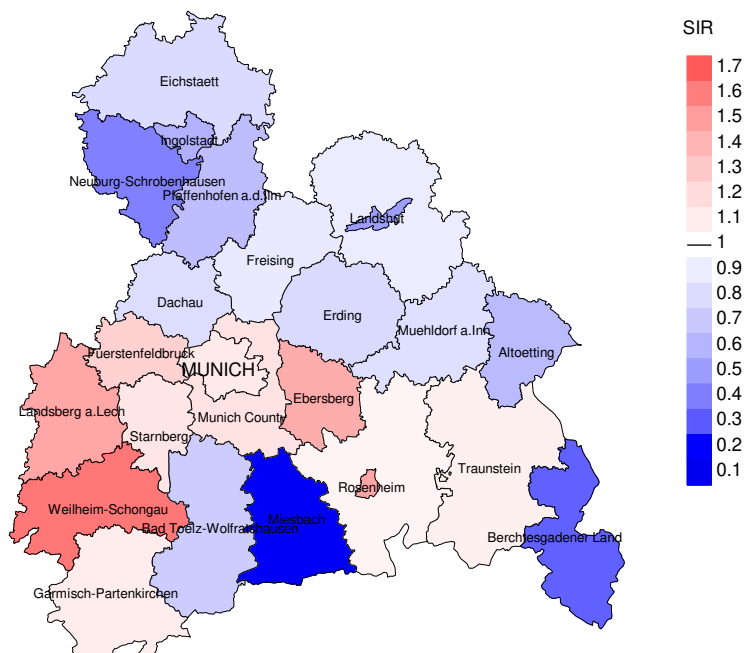


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=447, females N=253).

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 10 women were identified with newly diagnosed tongue excl. base of tongue. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.43. Though, the value of this parameter may vary with an underlying probability of 99% between 0.53 and 3.07, 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	50	98.0	6.0	41	82.0	95.1
1999	43	100.0		38	88.4	92.1
2000	43	100.0	4.7	34	79.1	97.1
2001	52	100.0		44	84.6	95.5
2002	74	97.3		52	70.3	98.1
2003	62	98.4	3.2	47	75.8	100.0
2004	62	100.0		49	79.0	95.9
2005	64	92.2		44	68.8	100.0
2006	71	91.5	2.8	49	69.0	100.0
2007	89	78.7	4.5	58	65.2	98.3
2008	87	72.4		46	52.9	95.7
2009	79	78.5	1.3	44	55.7	97.7
2010	89	75.3	1.1	45	50.6	95.6
2011	69	72.5	1.4	33	47.8	93.9
2012	87	64.4	1.1	30	34.5	96.7
2013	76	76.3		36	47.4	94.4
2014	67	91.0	1.5	34	50.7	100.0
2015	36	100.0		10	27.8	80.0
2016	21	71.4		5	23.8	60.0
1998-2016	1221	85.5	1.5	739	60.5	96.5

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	50	30	90.0	5	10.0
1999	43	23	82.6	4	9.3
2000	43	33	84.8	6	14.0
2001	52	39	89.7	9	17.3
2002	74	50	98.0	9	12.2
2003	62	51	98.0	7	11.3
2004	62	54	100.0	10	16.1
2005	64	53	100.0	6	9.4
2006	71	62	93.5	10	14.1
2007	89	74	100.0	15	16.9
2008	87	57	96.5	6	6.9
2009	79	59	98.3	4	5.1
2010	89	63	100.0	6	6.7
2011	69	59	96.6	6	8.7
2012	87	63	95.2	12	13.8
2013	76	59	100.0	12	15.8
2014	67	52	96.2	7	10.4
2015	36	51	100.0	1	2.8
2016	21	45	97.8	3	14.3
1998-2016	1221	977	96.6	138	11.3

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	30	60.0	40.0	85.2
1999	23	52.2	47.8	78.9
2000	33	69.7	30.3	96.4
2001	39	82.1	17.9	94.3
2002	50	74.0	26.0	91.8
2003	51	72.5	27.5	82.0
2004	54	81.5	18.5	90.7
2005	53	84.9	15.1	94.3
2006	62	67.7	32.3	81.0
2007	74	87.8	12.2	93.2
2008	57	78.9	21.1	90.9
2009	59	76.3	23.7	86.2
2010	63	82.5	17.5	92.1
2011	59	81.4	18.6	86.0
2012	63	76.2	23.8	90.0
2013	59	69.5	30.5	86.4
2014	52	76.9	23.1	92.0
2015	51	70.6	29.4	78.4
2016	45	68.9	31.1	81.8
1998-2016	977	75.8	24.2	88.2

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	21	58.5	59.2	58.5	60.5
1999	17	58.7	58.7	59.0	58.7
2000	24	60.4	60.4	59.3	63.6
2001	28	58.9	58.9	63.2	58.4
2002	42	62.8	63.7	60.0	62.1
2003	32	64.9	63.4	76.9	63.5
2004	36	60.3	59.5	70.8	59.8
2005	30	62.7	60.9	69.5	62.4
2006	42	61.1	61.6	60.9	61.3
2007	55	61.1	60.6	65.0	60.6
2008	38	61.9	60.7	64.7	61.0
2009	35	67.0	62.6	69.4	65.2
2010	45	65.5	63.7	72.7	65.4
2011	45	68.8	66.2	74.4	65.8
2012	47	64.3	61.9	68.2	63.8
2013	33	62.8	59.6	75.4	61.4
2014	31	69.4	66.7	71.4	68.1
2015	38	70.2	70.2	65.4	71.0
2016	24	65.2	63.6	73.2	64.4
1998–2016	663	63.5	62.1	67.8	62.6

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	9	67.8	65.1	73.4	65.1
1999	6	76.5	81.0	72.0	81.0
2000	9	69.8	67.9	85.7	69.8
2001	11	67.9	69.4	47.3	67.9
2002	8	63.8	61.1	75.6	63.8
2003	19	74.2	70.8	76.5	74.8
2004	18	74.9	80.4	66.6	75.2
2005	23	67.5	66.8	80.8	67.5
2006	20	80.3	76.9	84.4	73.2
2007	19	77.9	77.4	102.6	78.3
2008	19	69.2	66.2	69.4	65.0
2009	24	74.0	62.6	81.8	63.2
2010	18	68.2	67.7	82.0	67.7
2011	14	73.0	69.8	73.3	69.8
2012	16	65.7	64.2	75.5	65.7
2013	26	77.8	74.0	79.4	74.0
2014	21	70.4	70.3	75.9	70.4
2015	13	79.9	79.6	87.7	74.0
2016	21	77.2	76.0	88.1	76.0
1998-2016	314	71.0	69.4	79.3	69.5

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

Deaths of patients are considered to be cancer-related, in case that fact was recorded on the death certificate, or patients had suffered from metastasis or recurrence.

Table 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	12	1.1	0.36	0.6	0.31	0.9	0.33	1.1	0.36
1999	9	0.8	0.38	0.6	0.37	0.8	0.39	0.9	0.42
2000	16	1.4	0.50	0.9	0.48	1.3	0.50	1.5	0.54
2001	22	1.9	0.58	1.2	0.58	1.7	0.60	2.0	0.62
2002	31	1.7	0.67	1.0	0.60	1.4	0.65	1.7	0.72
2003	26	1.4	0.58	0.9	0.51	1.2	0.53	1.3	0.56
2004	29	1.5	0.69	1.0	0.72	1.4	0.72	1.4	0.68
2005	26	1.4	0.59	0.9	0.57	1.2	0.61	1.3	0.63
2006	29	1.5	0.63	0.9	0.65	1.3	0.61	1.4	0.58
2007	47	2.1	0.76	1.3	0.74	1.8	0.76	2.1	0.79
2008	33	1.5	0.63	0.9	0.61	1.3	0.64	1.5	0.69
2009	27	1.2	0.59	0.7	0.53	1.0	0.55	1.1	0.58
2010	35	1.6	0.60	0.9	0.58	1.3	0.61	1.4	0.59
2011	37	1.7	0.82	0.9	0.74	1.3	0.76	1.5	0.82
2012	36	1.6	0.64	0.9	0.64	1.3	0.64	1.4	0.64
2013	24	1.0	0.51	0.6	0.53	0.9	0.53	1.0	0.50
2014	23	1.0	0.53	0.6	0.48	0.8	0.50	0.9	0.54
2015	29	1.2	1.32	0.6	0.95	0.8	1.06	1.1	1.30
2016	16	0.7	1.00	0.4	1.19	0.6	1.13	0.6	1.01
1998-2016	507	1.4	0.64	0.8	0.60	1.1	0.62	1.3	0.64

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	0.35	0.3	0.39	0.4	0.38	0.5	0.35
1999	3	0.3	0.16	0.1	0.10	0.2	0.12	0.2	0.14
2000	7	0.6	0.64	0.3	0.55	0.5	0.58	0.5	0.61
2001	10	0.8	0.77	0.4	0.71	0.6	0.72	0.8	0.80
2002	6	0.3	0.21	0.2	0.22	0.3	0.24	0.3	0.23
2003	11	0.6	0.65	0.2	0.65	0.3	0.64	0.4	0.66
2004	15	0.8	0.75	0.3	0.54	0.4	0.58	0.6	0.63
2005	19	1.0	0.95	0.5	0.74	0.7	0.81	0.8	0.87
2006	13	0.6	0.52	0.2	0.35	0.4	0.40	0.5	0.45
2007	18	0.8	0.67	0.3	0.44	0.5	0.48	0.6	0.57
2008	12	0.5	0.34	0.3	0.33	0.4	0.33	0.5	0.36
2009	18	0.8	0.55	0.4	0.53	0.6	0.56	0.7	0.55
2010	17	0.7	0.55	0.4	0.53	0.5	0.54	0.6	0.55
2011	11	0.5	0.46	0.2	0.37	0.3	0.39	0.4	0.44
2012	12	0.5	0.39	0.3	0.41	0.4	0.40	0.4	0.38
2013	17	0.7	0.59	0.3	0.49	0.4	0.52	0.5	0.53
2014	17	0.7	0.71	0.3	0.70	0.5	0.69	0.6	0.71
2015	7	0.3	0.50	0.1	0.42	0.2	0.45	0.2	0.46
2016	15	0.6	3.00	0.2	2.28	0.3	2.35	0.4	2.70
1998-2016	234	0.6	0.55	0.3	0.47	0.4	0.49	0.5	0.52

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	1	0.2	0.2	1	0.3	0.3			0.0
25-29	2	0.4	0.7	1	0.3	0.7	1	0.7	0.7
30-34	2	0.4	1.1	1	0.3	1.0	1	0.7	1.4
35-39	4	0.9	2.0	2	0.7	1.6	2	1.4	2.8
40-44	8	1.8	3.8	7	2.3	3.9	1	0.7	3.5
45-49	27	6.0	9.8	22	7.2	11.1	5	3.5	6.9
50-54	40	8.9	18.6	33	10.7	21.8	7	4.9	11.8
55-59	63	14.0	32.6	50	16.3	38.1	13	9.0	20.8
60-64	67	14.9	47.5	45	14.7	52.8	22	15.3	36.1
65-69	72	16.0	63.4	50	16.3	69.1	22	15.3	51.4
70-74	59	13.1	76.5	45	14.7	83.7	14	9.7	61.1
75-79	49	10.9	87.4	28	9.1	92.8	21	14.6	75.7
80-84	29	6.4	93.8	15	4.9	97.7	14	9.7	85.4
85+	28	6.2	100.0	7	2.3	100.0	21	14.6	100.0
All ages	451	100.0		307	100.0		144	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.	Females Age- spec. mortal.	Males MI-index	Females MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4								
5- 9								
10-14								
15-19								
20-24	1		0.1	0.33			1.8	
25-29	1	1	0.1	0.20	0.1	0.33	1.4	1.4
30-34	1	1	0.1	0.17	0.1	0.17	1.0	0.8
35-39	2	2	0.1	0.25	0.1	1.00	1.0	0.7
40-44	7	1	0.4	0.29	0.1	0.08	1.4	0.1
45-49	22	5	1.1	0.61	0.3	0.24	1.9	0.4
50-54	33	7	1.9	0.59	0.4	0.29	1.6	0.4
55-59	50	13	3.5	0.72	0.9	0.50	1.5	0.5
60-64	45	22	3.7	0.66	1.7	0.63	0.9	0.6
65-69	50	22	4.2	0.75	1.7	0.79	0.7	0.4
70-74	45	14	4.1	0.87	1.1	0.45	0.5	0.2
75-79	28	21	3.5	0.88	2.1	0.75	0.3	0.3
80-84	15	14	3.3	1.25	2.0	0.67	0.2	0.2
85+	7	21	2.3	0.78	2.9	1.31	0.1	0.2
All ages	307	144					0.6	0.3
Mortality								
Raw			1.3	0.69	0.6	0.57		
WS			0.8	0.64	0.3	0.49		
ES			1.1	0.66	0.4	0.51		
BRD-S			1.2	0.69	0.5	0.54		
PYLL-70								
per 100,000			12.6		4.0			
ES			10.9		3.3			
AYLL-70			12.0		10.7			

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	28	10.5			2	7.1	26	92.9
C09–C10 Oropharynx	27	10.1			3	11.1	24	88.9
C12–C13 Hypopharynx	19	7.1	6	31.6	1	5.3	12	63.2
C15 Oesophagus	22	8.2	3	13.6	1	4.5	18	81.8
C16 Stomach	3	1.1					3	100.0
C18 Colon	3	1.1	1	33.3			2	66.7
C19–C20 Rectum	10	3.7	1	10.0			9	90.0
C22 Liver	4	1.5					4	100.0
C25 Pancreas	5	1.9					5	100.0
C32 Larynx	24	9.0	13	54.2	4	16.7	7	29.2
C33–C34 Lung	57	21.3	3	5.3	5	8.8	49	86.0
C43 Malign. melanoma	4	1.5	2	50.0			2	50.0
C44 Skin others	12	4.5	3	25.0			9	75.0
C61 Prostate	16	6.0	9	56.3			7	43.8
C67 Bladder	7	2.6	2	28.6	1	14.3	4	57.1
C76–C79 CUP	6	2.2	3	50.0			3	50.0
C82–C85 NHL	3	1.1	2	66.7			1	33.3
C91–C96 Leukaemia	3	1.1	1	33.3			2	66.7
Others, specified	14	5.2	8	57.1			6	42.9
All further malignancies	267	100.0	57	21.3	17	6.4	193	72.3

Further malignancies with number of cases 1 to 2 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	17	13.6			1	5.9	16	94.1
C09-C10 Oropharynx	10	8.0					10	100.0
C12-C13 Hypopharynx	5	4.0					5	100.0
C15 Oesophagus	9	7.2					9	100.0
C18 Colon	6	4.8	4	66.7			2	33.3
C23-C24 Bile	2	1.6					2	100.0
C25 Pancreas	2	1.6	1	50.0			1	50.0
C32 Larynx	4	3.2	1	25.0			3	75.0
C33-C34 Lung	22	17.6	1	4.5			21	95.5
C43 Malign. melanoma	3	2.4	1	33.3			2	66.7
C44 Skin others	3	2.4					3	100.0
C50 Breast	18	14.4	11	61.1			7	38.9
C54 Corpus uteri	2	1.6	2	100.0				
C56 Ovary	4	3.2	2	50.0			2	50.0
C67 Bladder	3	2.4	1	33.3			2	66.7
C76-C79 CUP	2	1.6	1	50.0			1	50.0
C90 Mult. myeloma	2	1.6	1	50.0			1	50.0
Others, specified	11	8.8	3	27.3			8	72.7
All further malignancies	125	100.0	29	23.2	1	0.8	95	76.0

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 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	1		0.1	0.50			2.0	
25-29	1	1	0.1	0.20	0.1	0.33	1.5	1.5
30-34	1	1	0.1	0.17	0.1	0.17	1.0	0.9
35-39	2	2	0.1	0.29	0.1	1.00	1.1	0.8
40-44	6	1	0.3	0.26	0.1	0.08	1.3	0.2
45-49	21	4	1.1	0.66	0.2	0.21	2.0	0.4
50-54	27	6	1.6	0.60	0.4	0.30	1.5	0.4
55-59	37	11	2.6	0.64	0.7	0.65	1.3	0.5
60-64	36	18	2.9	0.69	1.4	0.62	0.9	0.6
65-69	42	17	3.5	0.81	1.3	0.71	0.7	0.4
70-74	34	12	3.1	0.89	0.9	0.48	0.5	0.2
75-79	20	19	2.5	1.00	1.9	0.79	0.3	0.4
80-84	9	12	2.0	1.29	1.7	0.71	0.2	0.2
85+	7	18	2.3	0.88	2.5	1.50	0.1	0.2
All ages	244	122					0.6	0.3
Mortality								
Raw			1.1	0.69	0.5	0.58		
WS			0.6	0.64	0.2	0.49		
ES			0.9	0.66	0.3	0.52		
BRD-S			1.0	0.69	0.4	0.54		
PYLL-70								
per 100,000			10.6		3.4			
ES			9.1		2.9			
AYLL-70			12.3		11.2			

* 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		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								
20-24	1		0.1	0.50			2.0	
25-29	1	1	0.1	0.20	0.1	0.33	1.5	1.5
30-34	1	1	0.1	0.17	0.1	0.20	1.0	1.0
35-39	2		0.1	0.29			1.1	
40-44	5	1	0.3	0.23	0.1	0.08	1.1	0.2
45-49	20	4	1.0	0.71	0.2	0.22	1.9	0.4
50-54	22	5	1.3	0.52	0.3	0.29	1.2	0.3
55-59	23	9	1.6	0.47	0.6	0.64	0.8	0.4
60-64	22	10	1.8	0.49	0.8	0.40	0.5	0.3
65-69	27	10	2.3	0.64	0.8	0.53	0.5	0.2
70-74	26	7	2.4	0.81	0.6	0.30	0.4	0.1
75-79	10	11	1.3	0.56	1.1	0.58	0.2	0.2
80-84	7	5	1.5	1.00	0.7	0.36	0.1	0.1
85+	6	14	2.0	0.75	1.9	1.17	0.1	0.2
All ages	173	78					0.4	0.2
Mortality								
Raw			0.8	0.55	0.3	0.43		
WS			0.4	0.52	0.2	0.36		
ES			0.6	0.53	0.2	0.39		
BRD-S			0.7	0.55	0.3	0.40		
PYLL-70								
per 100,000			8.3		2.5			
ES			7.2		2.1			
AYLL-70			13.6		12.1			

* See corresponding tables with multiple malignancies.

ICD-10 C02: Malignant neoplasm of other and unspecified parts of tongue

Age distribution and age-specific mortality 2007 - 2016 (Males: 307, Females: 144)

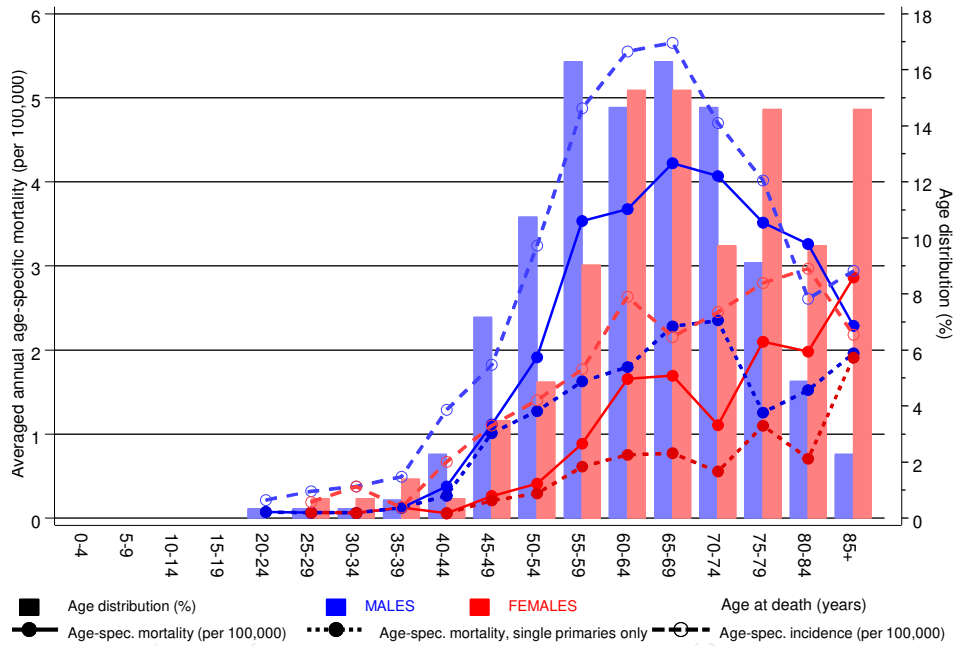
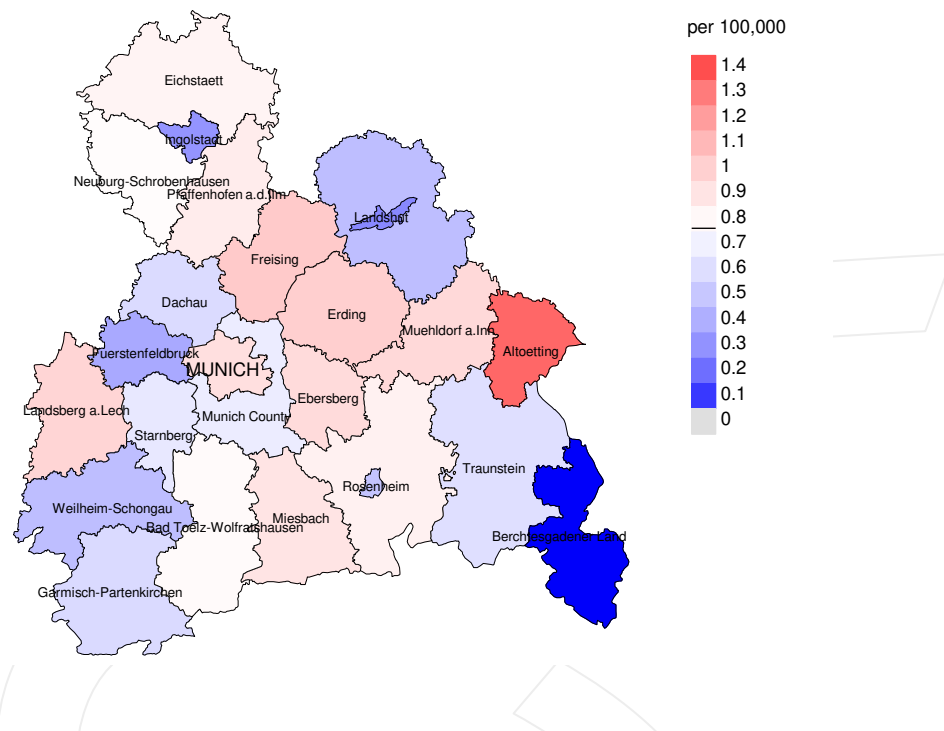


Figure 17. Distribution of age at death (bars; males: mean=59.2 yrs, median=58.4 yrs; females: mean=65.5 yrs, median=65.4 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

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



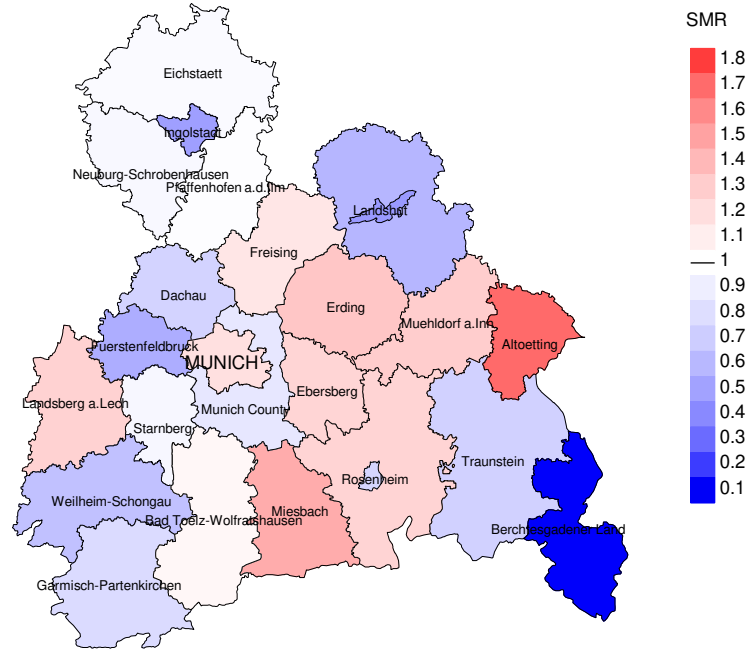
Average mortality (world standard population) 2007 - 2016: Females



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 0.8/100,000 WS N=307, females 0.3/100,000 WS N=144).

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 3 women died from tongue excl. base of tongue. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.3/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.0 and 1.3/100,000.

Standardized mortality ratio (SMR) 2007 - 2016: Males



Standardized mortality ratio (SMR) 2007 - 2016: Females

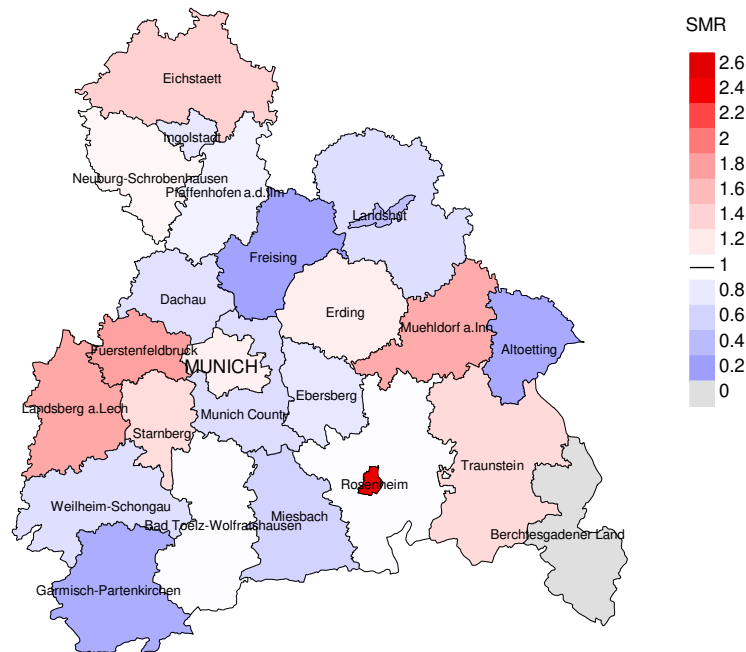


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=307, females N=144).

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 3 women died from tongue excl. base of tongue. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.77. Though, the value of this parameter may vary with an underlying probability of 99% between 0.09 and 2.83, 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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