Munich Cancer Registry

ICD-10 C06: Mouth cancer NOS

Incidence and Mortality

Year of diagnosis	1998-2020
Patients	353
Diseases	354
Creation date	12/20/2021
Database export	12/20/2021
Population	4.95 m

BERLIN

GERMANY

BAVARIA

MUNICH

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

https://www.tumorregister-muenchen.de/en/facts/base/bC06__E-ICD-10-C06-Mouth-cancer-NOS-incidence-and-mortality.pdf

Index of figures and tables

Global Statements about the statistics on the Internet −
Baseline Statistics (grey button   ), **Survival** (red button   )

In these analyses, the clinics and physicians of Upper Bavaria and the city and county of Landshut[#], with a total of 4.69 million inhabitants, account for the frequency of cancer diseases[##] and the achieved long term results. Additionally, the long term survival evaluated by the Munich Cancer Registry (MCR) is compared with the results of the population-based registry in the USA (SEER), which is useful for checking the consistency of the data on an international level.

In comparing several tables, inconsistent figures may be detected. This is based on the fact that different patient cohorts are included in the base calculation, for example when proportions of multiple tumors or DCO-cases[###] are concerned. In other cases the individual tumor diagnosis is the basis for calculation, for example with incidence.

The foot notes describe the currentness of the data. The baseline statistics and survival data are updated annually. This yearly analysis comprises the Annual Report of the MCR.

Clinics and physicians have access to essentially more detailed data, with which they can check, compare and in the best case optimize their own data and results.

We would be pleased to receive corrections, critique and useful suggestions. Just send an e-mail to tumor@ibe.med.uni-muenchen.de.

Munich Cancer Registry, December 2021

[#]   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
C06.-	Malignant neoplasm of other and unspecified parts of mouth
C06.0	Cheek mucosa
C06.1	Vestibule of mouth
C06.2	Retromolar area
C06.8	Overlapping lesion of other and unspecified parts of mouth
C06.9	Mouth, 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	12			0.0	16.9	83.3	100.0
1999	16			14.3	17.2	87.5	100.0
2000	16	1	6.3	11.4	17.0	81.3	100.0
2001	9	2	22.2	11.3	17.2	77.8	100.0
2002	28	10	35.7	16.0	17.0	92.9	96.4 #
2003	15	2	13.3	15.6	16.9	73.3	100.0
2004	19	2	10.5	16.5	17.5	84.2	100.0
2005	9	1	11.1	16.1	16.7	77.8	100.0
2006	15			16.5	16.3	73.3	100.0
2007	21			15.6	16.4	90.5	100.0 #
2008	16			16.5	15.1	68.8	93.8
2009	27			17.7	14.0	59.3	88.9
2010	19	4	21.1	18.0	12.3	68.4	100.0
2011	19			20.3	12.6	63.2	94.7
2012	16			19.8	10.9	50.0	100.0
2013	30	1	3.3	21.3	10.5	53.3	96.7
2014	14	1	7.1	21.3	12.3	50.0	100.0
2015	19			22.2	11.8	57.9	94.7
2016	14	1	7.1	21.9	12.1	42.9	100.0
2017	9	1	11.1	22.2	10.5	66.7	100.0
2018	4			22.5	10.0		100.0
2019	2			22.3	16.7	50.0	100.0
2020	5			23.4	0.0	80.0	100.0 ##
1998-2020	354	26	7.3	23.4	16.9	69.2	97.7

354 cases diagnosed 1998-2020 are related to a total of 353 patients. Currently, in 140 (39.7 %) of these 353 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 101 / 23 / 16 (28.6 % / 6.5 % / 4.5 %) 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 2018, a subgroup of 4 cases has been diagnosed, of which 22.5 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 10.0 % 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).

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                              Table 1a

            Cases with invasive cancer by year of diagnosis, proportions of
             DCO, further malignancies, deaths, and active follow-up (MALES)
                                (incl. DCO)
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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	5	41.7			0.0	17.4	80.0	100.0
1999	8	50.0			15.4	17.9	87.5	100.0
2000	11	68.8	1	9.1	12.5	17.5	90.9	100.0
2001	5	55.6	2	40.0	13.8	17.3	100.0	100.0
2002	15	53.6	6	40.0	13.6	17.2	93.3	93.3 #
2003	8	53.3	1	12.5	13.5	15.5	62.5	100.0
2004	12	63.2	2	16.7	15.6	16.4	75.0	100.0
2005	3	33.3			14.9	15.4	100.0	100.0
2006	8	53.3			14.7	15.0	100.0	100.0
2007	7	33.3			14.6	15.2	100.0	100.0 #
2008	9	56.3			17.6	16.2	66.7	88.9
2009	14	51.9			19.0	15.5	71.4	85.7
2010	10	52.6	2	20.0	19.1	14.3	60.0	100.0
2011	11	57.9			22.2	13.5	54.5	90.9
2012	9	56.3			21.5	10.9	22.2	100.0
2013	17	56.7	1	5.9	23.7	8.9	70.6	100.0
2014	8	57.1	1	12.5	23.8	10.3	62.5	100.0
2015	10	52.6			24.7	12.9	70.0	90.0
2016	7	50.0			24.9	14.3	42.9	100.0
2017	7	77.8			24.5	14.3	71.4	100.0
2018	3	75.0			24.6	14.3		100.0
2019	1	50.0			24.5	25.0	100.0	100.0
2020	4	80.0			26.0	0.0	75.0	100.0 ##
1998–2020	192	54.2	16	8.3	26.0	17.4	71.9	96.9

192 cases diagnosed 1998-2020 are related to a total of 191 patients. Currently, in 79 (41.4 %) of these 191 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 52 / 16 / 11 (27.2 % / 8.4 % / 5.8 %) 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 2018, a subgroup of 3 cases has been diagnosed, of which 24.6 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 14.3 % 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).

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                                Table 1b

             Cases with invasive cancer by year of diagnosis, proportions of
              DCO, further malignancies, deaths, and active follow-up (FEMALES)
                                 (incl. DCO)
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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	7	58.3			0.0	16.3	85.7	100.0
1999	8	50.0			13.3	16.3	87.5	100.0
2000	5	31.3			10.0	16.4	60.0	100.0
2001	4	44.4			8.3	17.0	50.0	100.0
2002	13	46.4	4	30.8	18.9	16.8	92.3	100.0 #
2003	7	46.7	1	14.3	18.2	18.6	85.7	100.0
2004	7	36.8			17.6	18.8	100.0	100.0
2005	6	66.7	1	16.7	17.5	18.1	66.7	100.0
2006	7	46.7			18.8	17.8	42.9	100.0
2007	14	66.7			16.7	17.9	85.7	100.0 #
2008	7	43.8			15.3	13.6	71.4	100.0
2009	13	48.1			16.3	12.0	46.2	92.3
2010	9	47.4	2	22.2	16.8	9.7	77.8	100.0
2011	8	42.1			18.3	11.3	75.0	100.0
2012	7	43.8			18.0	10.9	85.7	100.0
2013	13	43.3			18.5	12.8	30.8	92.3
2014	6	42.9			18.4	15.4	33.3	100.0
2015	9	47.4			19.3	10.0	44.4	100.0
2016	7	50.0	1	14.3	18.5	8.3	42.9	100.0
2017	2	22.2	1	50.0	19.5	0.0	50.0	100.0
2018	1	25.0			20.0	0.0		100.0
2019	1	50.0			19.9	0.0		100.0
2020	1	20.0			20.4	0.0	100.0	100.0 ##
1998–2020	162	45.8	10	6.2	20.4	16.3	66.0	98.8

162 cases diagnosed 1998-2020 are related to a total of 162 patients. Currently, in 61 (37.7 %) of these 162 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 49 / 7 / 5 (30.2 % / 4.3 % / 3.1 %) 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 2018, a subgroup of 1 cases has been diagnosed, of which 20.0 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 0.0 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 2

Incidence measures by year of diagnosis including DCO cases
(with respect to registry area expansion from 2.65 to 4.10 m as of 2002,
and from 4.10 to 4.94 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	5	7	0.5	0.6	0.3	0.3	0.4	0.5	0.5	0.6
1999	8	8	0.7	0.7	0.4	0.3	0.7	0.5	0.9	0.6
2000	11	5	1.0	0.4	0.6	0.2	0.9	0.3	0.9	0.4
2001	5	4	0.4	0.3	0.3	0.2	0.4	0.2	0.6	0.3
2002	15	13	0.8	0.7	0.5	0.2	0.7	0.3	0.8	0.5
2003	8	7	0.4	0.4	0.3	0.2	0.4	0.3	0.4	0.3
2004	12	7	0.6	0.4	0.4	0.2	0.6	0.2	0.7	0.3
2005	3	6	0.2	0.3	0.1	0.2	0.1	0.2	0.2	0.2
2006	8	7	0.4	0.3	0.2	0.2	0.4	0.2	0.5	0.3
2007	7	14	0.3	0.6	0.2	0.2	0.3	0.4	0.3	0.5
2008	9	7	0.4	0.3	0.2	0.1	0.4	0.2	0.4	0.2
2009	14	13	0.6	0.6	0.3	0.3	0.5	0.4	0.6	0.5
2010	10	9	0.4	0.4	0.3	0.1	0.4	0.2	0.4	0.3
2011	11	8	0.5	0.3	0.3	0.2	0.4	0.2	0.5	0.3
2012	9	7	0.4	0.3	0.3	0.1	0.3	0.2	0.4	0.2
2013	17	13	0.7	0.5	0.4	0.3	0.6	0.4	0.7	0.4
2014	8	6	0.3	0.2	0.2	0.1	0.3	0.1	0.3	0.2
2015	10	9	0.4	0.4	0.2	0.2	0.3	0.2	0.4	0.3
2016	7	7	0.3	0.3	0.2	0.1	0.2	0.2	0.3	0.2
2017	7	2	0.3	0.1	0.1	0.0	0.2	0.0	0.3	0.0
2018	3	1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0
2019	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2020	4	1	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0
1998-2020	192	162	0.4	0.3	0.2	0.2	0.3	0.2	0.4	0.3

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

Table 3

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	12	61.9	13.2	38.5	80.8	45.2	53.5	61.1	72.4	78.4
1999	16	68.4	11.1	53.4	90.5	53.6	61.1	65.3	76.3	85.5
2000	16	65.6	11.0	45.2	85.5	50.6	58.4	67.0	71.9	82.1
2001	9	71.5	13.9	49.6	94.3	49.6	63.0	71.3	78.6	94.3
2002	28	69.2	14.4	41.2	94.9	52.0	56.9	71.1	80.9	91.8
2003	15	62.6	12.2	43.4	83.7	45.7	50.3	62.5	71.6	82.7
2004	19	63.6	14.4	31.2	89.8	43.1	55.4	63.0	73.1	87.0
2005	9	65.0	20.1	40.7	98.7	40.7	46.4	65.8	79.2	98.7
2006	15	68.4	13.2	48.7	89.3	55.5	56.9	63.4	81.1	86.2
2007	21	70.9	12.1	41.5	87.2	54.6	65.0	71.9	80.1	83.3
2008	16	66.0	13.3	45.6	91.5	49.9	57.4	62.7	75.5	87.8
2009	27	64.9	15.0	29.6	83.7	47.4	55.8	67.2	80.3	83.6
2010	19	65.9	16.9	21.9	87.9	51.1	54.6	64.9	83.0	87.7
2011	19	68.1	14.2	46.0	96.9	49.4	54.1	68.5	78.3	93.0
2012	16	63.6	14.9	40.9	90.1	48.6	52.1	61.0	74.9	87.0
2013	30	68.1	11.6	45.0	92.3	53.2	62.1	66.9	74.4	84.4
2014	14	68.2	12.5	50.2	90.8	50.6	59.1	67.9	75.0	87.1
2015	19	65.3	13.6	39.9	86.8	50.2	51.3	70.6	75.7	80.6
2016	14	67.8	12.8	43.6	88.5	46.4	61.1	69.2	77.1	80.8
2017	9	76.5	11.2	55.7	95.6	55.7	74.0	77.4	80.6	95.6
2018	4	54.2	15.8	37.8	69.5	37.8	40.8	54.8	67.7	69.5
2019	2	64.3	18.8	51.0	77.6	51.0	51.0	64.3	77.6	77.6
2020	5	75.9	6.4	69.2	83.1	69.2	71.8	73.1	82.4	83.1
1998−2020	354	66.9	13.6	21.9	98.7	50.2	57.0	66.8	77.1	84.0

Table 3a

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	5	56.8	15.3	38.5	80.8	38.5	52.1	54.9	57.6	80.8
1999	8	68.5	12.4	53.4	85.5	53.4	58.8	65.6	80.2	85.5
2000	11	65.9	8.8	53.6	85.5	58.1	58.6	66.0	71.8	72.0
2001	5	72.6	16.9	49.6	94.3	49.6	63.0	77.4	78.6	94.3
2002	15	60.6	11.9	41.2	92.2	51.7	52.3	60.0	66.3	72.2
2003	8	65.4	5.5	59.3	74.3	59.3	61.0	64.5	69.1	74.3
2004	12	61.3	13.8	31.2	87.0	53.3	55.2	60.3	68.5	75.5
2005	3	69.9	20.4	46.4	84.0	46.4	46.4	79.2	84.0	84.0
2006	8	68.5	12.3	55.5	89.3	55.5	59.1	63.5	79.0	89.3
2007	7	70.5	13.1	54.6	87.2	54.6	54.7	71.8	83.3	87.2
2008	9	62.8	8.7	49.9	77.2	49.9	57.9	59.6	68.0	77.2
2009	14	69.5	9.8	55.8	83.7	57.4	62.2	68.1	80.3	83.7
2010	10	58.6	6.9	51.1	72.8	51.5	54.5	55.6	64.2	68.9
2011	11	64.8	15.2	46.0	93.0	49.4	52.2	64.0	78.3	81.1
2012	9	54.2	10.1	40.9	77.2	40.9	49.6	52.3	53.2	77.2
2013	17	67.4	7.8	53.1	85.0	53.4	63.6	66.9	70.6	75.9
2014	8	64.5	12.7	50.2	87.1	50.2	54.6	61.8	73.0	87.1
2015	10	65.1	10.8	50.2	79.8	50.3	53.1	68.1	72.9	77.7
2016	7	69.6	14.5	43.6	88.5	43.6	61.1	70.1	80.8	88.5
2017	7	74.0	9.9	55.7	84.9	55.7	66.7	77.4	80.6	84.9
2018	3	49.2	14.8	37.8	65.9	37.8	37.8	43.8	65.9	65.9
2019	1	77.6		77.6	77.6	77.6	77.6	77.6	77.6	77.6
2020	4	74.1	5.8	69.2	82.4	69.2	70.5	72.4	77.7	82.4
1998−2020	192	65.1	12.0	31.2	94.3	51.7	55.6	64.3	73.6	81.1

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	7	65.5	11.2	45.2	78.4	45.2	60.3	68.2	75.9	78.4
1999	8	68.4	10.5	58.9	90.5	58.9	61.1	65.1	72.6	90.5
2000	5	65.0	16.2	45.2	82.1	45.2	50.6	70.9	76.3	82.1
2001	4	70.1	11.3	56.5	84.0	56.5	62.5	69.9	77.6	84.0
2002	13	79.1	10.3	54.3	94.9	71.5	74.6	80.8	82.9	91.8
2003	7	59.4	17.1	43.4	83.7	43.4	45.7	50.3	82.7	83.7
2004	7	67.6	15.7	43.1	89.8	43.1	55.4	69.0	81.3	89.8
2005	6	62.6	21.4	40.7	98.7	40.7	41.4	63.1	68.5	98.7
2006	7	68.3	15.2	48.7	86.2	48.7	56.9	62.3	84.6	86.2
2007	14	71.1	12.0	41.5	87.1	51.8	69.0	73.4	80.1	81.6
2008	7	70.1	17.6	45.6	91.5	45.6	55.4	64.7	87.8	91.5
2009	13	60.0	18.2	29.6	83.6	30.7	49.4	60.9	72.8	82.1
2010	9	74.0	21.2	21.9	87.9	21.9	70.5	83.0	87.1	87.9
2011	8	72.6	12.3	57.3	96.9	57.3	65.8	69.7	77.6	96.9
2012	7	75.7	10.8	61.2	90.1	61.2	68.1	72.7	87.0	90.1
2013	13	68.9	15.5	45.0	92.3	46.8	60.6	66.9	81.2	91.0
2014	6	73.2	11.5	59.1	90.8	59.1	65.6	70.8	81.9	90.8
2015	9	65.5	16.8	39.9	86.8	39.9	51.3	72.0	80.3	86.8
2016	7	65.9	11.6	46.4	78.5	46.4	59.8	63.5	77.1	78.5
2017	2	85.0	15.0	74.4	95.6	74.4	74.4	85.0	95.6	95.6
2018	1	69.5		69.5	69.5	69.5	69.5	69.5	69.5	69.5
2019	1	51.0		51.0	51.0	51.0	51.0	51.0	51.0	51.0
2020	1	83.1		83.1	83.1	83.1	83.1	83.1	83.1	83.1
1998−2020	162	69.0	15.1	21.9	98.7	47.4	59.8	70.7	81.2	87.1

Table 4

Age distribution by 5-year age group and sex for period 2007-2020
(incl. DCO)
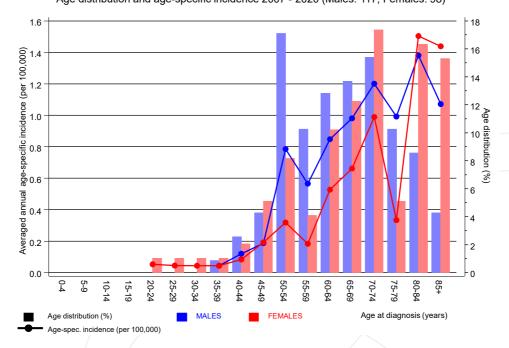
Age at diagnosis Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4									
5-9									
10-14									
15-19									
20-24	1	0.5	0.5			0.0	1	1.0	1.0
25-29	1	0.5	0.9			0.0	1	1.0	2.0
30-34	1	0.5	1.4			0.0	1	1.0	3.1
35-39	2	0.9	2.3	1	0.9	0.9	1	1.0	4.1
40-44	5	2.3	4.7	3	2.6	3.4	2	2.0	6.1
45-49	10	4.7	9.3	5	4.3	7.7	5	5.1	11.2
50-54	28	13.0	22.3	20	17.1	24.8	8	8.2	19.4
55-59	16	7.4	29.8	12	10.3	35.0	4	4.1	23.5
60-64	25	11.6	41.4	15	12.8	47.9	10	10.2	33.7
65-69	28	13.0	54.4	16	13.7	61.5	12	12.2	45.9
70-74	35	16.3	70.7	18	15.4	76.9	17	17.3	63.3
75-79	17	7.9	78.6	12	10.3	87.2	5	5.1	68.4
80-84	26	12.1	90.7	10	8.5	95.7	16	16.3	84.7
85+	20	9.3	100.0	5	4.3	100.0	15	15.3	100.0
All ages	215	100.0		117	100.0		98	100.0	

Table 5

Age-specific incidence, DCO rate and proportion of all cancers
for period 2007-2020

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males DCO rate n=4 %	Females DCO rate n=4 %	Males Prop.all cancers n=153686 %	Females Prop.all cancers n=155051 %
0- 4								
5- 9								
10-14								
15-19								
20-24		1		0.1				0.2
25-29		1		0.0				0.1
30-34		1		0.0				0.0
35-39	1	1	0.0	0.0			0.1	0.0
40-44	3	2	0.1	0.1			0.1	0.0
45-49	5	5	0.2	0.2			0.1	0.1
50-54	20	8	0.8	0.3			0.2	0.1
55-59	12	4	0.6	0.2	8.3		0.1	0.0
60-64	15	10	0.8	0.5	13.3	10.0	0.1	0.1
65-69	16	12	1.0	0.7			0.1	0.1
70-74	18	17	1.2	1.0	5.6		0.1	0.1
75-79	12	5	1.0	0.3			0.0	0.0
80-84	10	16	1.4	1.5			0.1	0.1
85+	5	15	1.1	1.4		20.0	0.0	0.1
All ages	117	98			3.4	4.1	0.1	0.1
Incidence								
Raw			0.4	0.3				
WS			0.2	0.1				
ES			0.3	0.2				
BRD-S			0.3	0.2				

The age-specific incidence characterizes the disease risk in a particular age group. The age distribution depends on the patient population frequency in each age group and reflects the tangible clinical picture of everyday patients care (see following chart).
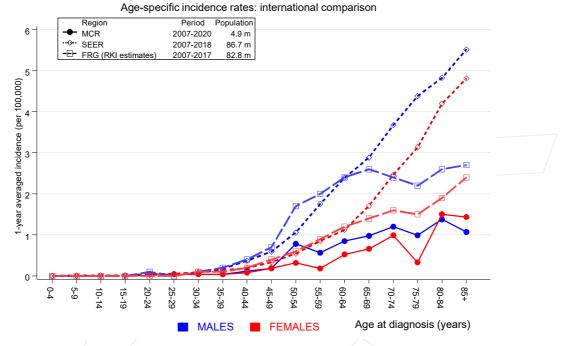
ICD-10 C06: Malignant neoplasm of other and unspecified parts of mouth
Age distribution and age-specific incidence 2007 - 2020 (Males: 117, Females: 98)

Figure 6. Age distribution (males: mean=65.5 yrs, median=65.9 yrs; females: mean=69.4 yrs, median=71.1 yrs) and age-specific incidence.

ICD-10 C06: Malignant neoplasm of other and unspecified parts of mouth
Age-specific incidence rates: international comparison

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

Table 7a

Standardized incidence ratio (SIR, with 95% confidence limits),
excess absolute risk (EAR) and DCO rate of further malignancies
for period 1998-2020
MALES

Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C00	Lip	1	0.0	84.1	2.1	468.8	#	14.7	
C03-C06	Oral cavity	1	0.1	10.5	0.3	58.4		13.5	
C09-C10	Oropharynx	2	0.1	16.8	2.0	60.6	#	28.0	
C12-C13	Hypopharynx	3	0.1	46.7	9.6	136.5	#	43.7	
C15	Oesophagus	3	0.2	13.8	2.9	40.5	#	41.5	
C16	Stomach	3	0.4	7.1	1.5	20.6	#	38.4	
C19-C20	Rectum	1	0.6	1.8	0.0	9.8		6.4	
C25	Pancreas	1	0.4	2.4	0.1	13.6		8.8	
C30-C31	Sinuses	1	0.0	50.8	1.3	283.3	#	14.6	100.0
C32	Larynx	1	0.1	9.2	0.2	51.4		13.3	
C33-C34	Lung	6	1.2	4.8	1.8	10.5	#	70.8	
C43	Malign. melanoma	4	0.5	8.5	2.3	21.8	#	52.6	25.0
C61	Prostate	5	3.1	1.6	0.5	3.8		29.0	20.0
C64	Kidney	2	0.4	5.5	0.7	19.9		24.4	
C67	Bladder	3	0.5	6.1	1.3	17.9	#	37.4	
C68	Urethra	1	0.0	105.1	2.7	585.3	#	14.8	
C76-C79	CUP	1	0.2	5.5	0.1	30.4		12.2	
C82-C85	NHL	4	0.4	9.2	2.5	23.6	#	53.1	
Not observed		0	2.5	0.0	0.0	1.5		-36.6	
All further malignancies		43	10.7	4.0	2.9	5.4	#	480.6	7.0

Patients	177
Median age at next malignancy (years)	69.9
Person-years	671
Mean observation time (years)	3.8
Median observation time (years)	1.7

The occurrence of further specified malignancy is statistically significant.
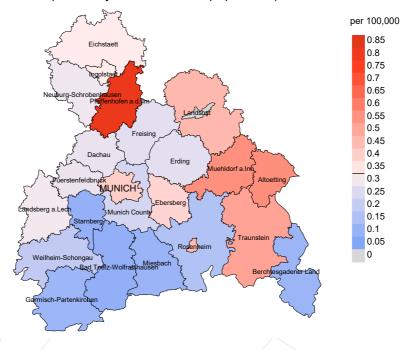
Table 7b

Standardized incidence ratio (SIR, with 95% confidence limits),
excess absolute risk (EAR) and DCO rate of further malignancies
for period 1998–2020

FEMALES

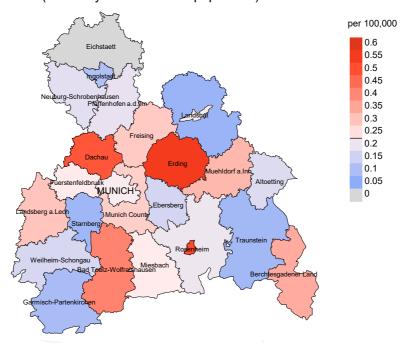| Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C00	Lip	1	0.0	165.8	4.2	923.8	#	14.3	
C03–C06	Oral cavity	4	0.0	85.3	23.2	218.4	#	56.9	
C07–C08	Salivary gland	1	0.0	74.4	1.9	414.7	#	14.2	
C09–C10	Oropharynx	2	0.0	62.1	7.5	224.5	#	28.3	
C14	ENT cancer	1	0.0	703.1	17.8	3918	#	14.4	100.0
C16	Stomach	2	0.3	7.0	0.9	25.4		24.7	50.0
C18	Colon	1	0.8	1.2	0.0	6.9		2.8	
C22	Liver	1	0.1	9.9	0.3	55.3		12.9	
C25	Pancreas	1	0.4	2.6	0.1	14.6		8.9	
C32	Larynx	1	0.0	70.3	1.8	391.9	#	14.2	
C33–C34	Lung	4	0.6	6.7	1.8	17.1	#	48.9	25.0
C43	Malign. melanoma	1	0.3	3.4	0.1	18.7		10.1	
C44	Skin others	1	0.0	999.1	25.3	5567	#	14.4	
C50	Breast	5	2.4	2.1	0.7	4.9		37.6	
C54	Corpus uteri	1	0.4	2.2	0.1	12.5		8.0	
C56	Ovary	1	0.3	3.1	0.1	17.3		9.8	
C82–C85	NHL	1	0.3	3.1	0.1	17.5		9.8	
Not observed		0	2.0	0.0	0.0	1.8		−28.9	
All further malignancies		29	8.1	3.6	2.4	5.2	#	301.1	10.3

Patients	153
Median age at next malignancy (years)	69.0
Person-years	695
Mean observation time (years)	4.5
Median observation time (years)	2.5

The occurrence of further specified malignancy is statistically significant.

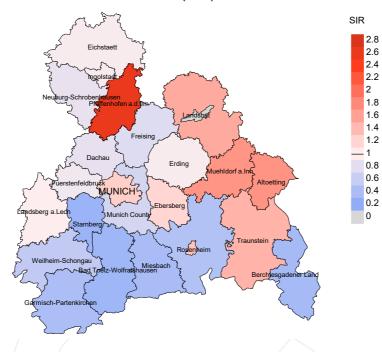Average incidence (Germany 1987 standard population) 2007 - 2020: Males

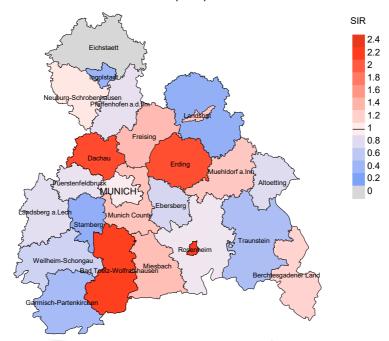Average incidence (Germany 1987 standard population) 2007 - 2020: Females

Figure 8a. Map of cancer incidence (german standard population, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.3/100,000 WS N=117, females 0.2/100,000 WS N=98).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,727 female residents (averaged) in the period from 2007 to 2020 a total of 2 women were identified with newly diagnosed mouth cancer NOS. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 0.2/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.0 and 0.8/100,000.

Standardized incidence ratio (SIR) 2007 - 2020: Males

Standardized incidence ratio (SIR) 2007 - 2020: Females

Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2020. 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=117, females N=98).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,153 female residents (averaged) in the period from 2007 to 2020 a total of 2 women were identified with newly diagnosed mouth cancer NOS. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.75. Though, the value of this parameter may vary with an underlying probability of 99% between 0.04 and 3.48, 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 4.94 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	12	100.0		10	83.3	100.0
1999	16	100.0		14	87.5	71.4
2000	16	100.0	6.3	13	81.3	100.0
2001	9	100.0	22.2	7	77.8	71.4
2002	28	96.4	35.7	26	92.9	92.3
2003	15	100.0	13.3	11	73.3	100.0
2004	19	100.0	10.5	16	84.2	93.8
2005	9	100.0	11.1	7	77.8	100.0
2006	15	100.0		11	73.3	90.9
2007	21	100.0		19	90.5	100.0
2008	16	93.8		11	68.8	100.0
2009	27	88.9		16	59.3	87.5
2010	19	100.0	21.1	13	68.4	100.0
2011	19	94.7		12	63.2	91.7
2012	16	100.0		8	50.0	75.0
2013	30	96.7	3.3	16	53.3	93.8
2014	14	100.0	7.1	7	50.0	100.0
2015	19	94.7		11	57.9	100.0
2016	14	100.0	7.1	6	42.9	83.3
2017	9	100.0	11.1	6	66.7	83.3
2018	4	100.0				
2019	2	100.0		1	50.0	100.0
2020	5	100.0		4	80.0	100.0
1998–2020	354	97.7	7.3	245	69.2	92.7

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 4.94 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	12	8	100.0	2	16.7
1999	16	6	83.3		
2000	16	14	92.9	5	31.3
2001	9	14	85.7	3	33.3
2002	28	21	95.2	14	50.0
2003	15	12	100.0	1	6.7
2004	19	17	100.0	5	26.3
2005	9	14	92.9	1	11.1
2006	15	10	90.0	1	6.7
2007	21	9	88.9	2	9.5
2008	16	12	100.0	1	6.3
2009	27	18	88.9	4	14.8
2010	19	16	100.0	6	31.6
2011	19	16	100.0	3	15.8
2012	16	21	100.0	1	6.3
2013	30	19	100.0	10	33.3
2014	14	17	94.1	5	35.7
2015	19	12	91.7	3	15.8
2016	14	13	100.0	5	35.7
2017	9	11	100.0	4	44.4
2018	4	7	57.1		
2019	2	9	55.6	1	50.0
2020	5	12	66.7	1	20.0
1998−2020	354	308	92.5	78	22.0

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 4.94 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer-related %	Prop. non-cancer-related %	Prop. cancer recorded on death certificate %
1998	8	100.0		100.0
1999	6	50.0	50.0	80.0
2000	14	35.7	64.3	84.6
2001	14	78.6	21.4	91.7
2002	21	71.4	28.6	90.0
2003	12	83.3	16.7	83.3
2004	17	82.4	17.6	94.1
2005	14	78.6	21.4	84.6
2006	10	60.0	40.0	77.8
2007	9	55.6	44.4	62.5
2008	12	83.3	16.7	91.7
2009	18	77.8	22.2	81.3
2010	16	75.0	25.0	87.5
2011	16	56.3	43.8	81.3
2012	21	81.0	19.0	85.7
2013	19	68.4	31.6	73.7
2014	17	70.6	29.4	81.3
2015	12	75.0	25.0	90.9
2016	13	84.6	15.4	84.6
2017	11	63.6	36.4	63.6
2018	7	71.4	28.6	75.0
2019	9	33.3	66.7	80.0
2020	12	25.0	75.0	75.0
1998–2020	308	69.2	30.8	83.5
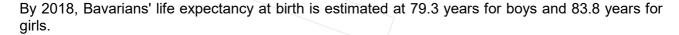
Table 10a

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	5	73.9	73.9		73.9
1999	4	62.0	62.0	65.2	56.0
2000	12	65.8	66.1	65.6	67.4
2001	11	69.1	62.8	74.1	70.7
2002	12	62.0	62.8	57.9	61.9
2003	9	63.1	65.9	62.5	65.9
2004	9	73.1	67.5	79.2	70.3
2005	9	65.2	64.5	74.4	64.5
2006	6	77.5	63.7	94.0	64.9
2007	6	70.9	68.1	74.0	68.1
2008	5	82.6	82.6		82.6
2009	9	64.4	63.5	65.4	62.6
2010	9	72.5	62.7	81.7	64.5
2011	10	77.8	77.8	74.3	74.2
2012	12	73.0	73.0	77.3	73.0
2013	9	68.4	69.5	53.1	71.2
2014	11	74.6	71.5	92.0	73.0
2015	7	73.3	64.8	87.7	69.1
2016	7	81.6	81.1	85.1	81.1
2017	7	76.6	75.2	79.2	75.2
2018	4	70.1	68.4	77.2	73.4
2019	9	73.2	73.2	74.6	75.7
2020	6	78.8	81.2	77.8	72.1
1998–2020	188	71.6	69.9	74.4	71.1

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	3	60.6	60.6		60.6
1999	2	70.8	61.0	80.6	61.0
2000	2	89.6		89.6	91.0
2001	3	82.8	82.8		82.8
2002	9	81.8	82.4	76.3	81.8
2003	3	55.8	50.5	91.9	50.5
2004	8	77.6	81.4	71.1	77.6
2005	5	78.8	78.8		78.8
2006	4	73.6	69.8	81.4	69.8
2007	3	84.4	69.4	85.7	69.4
2008	7	81.2	81.2	84.2	81.6
2009	9	73.9	71.8	85.7	71.8
2010	7	73.0	69.9	88.6	73.0
2011	6	74.0	88.2	73.4	73.4
2012	9	80.1	80.1	76.7	77.1
2013	10	80.3	74.1	91.2	75.8
2014	6	87.3	86.7	87.9	86.7
2015	5	83.9	85.5	75.4	85.5
2016	6	74.3	74.3		74.3
2017	4	82.8	89.5	76.1	89.5
2018	3	88.2	88.2		90.3
2019					
2020	6	89.1	93.1	87.5	76.6
1998–2020	120	79.0	78.7	84.4	77.3

By 2018, Bavarians' life expectancy at birth is estimated at 79.3 years for boys and 83.8 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	5	0.5	1.00	0.3	0.92	0.4	0.97	0.6	1.12
1999	2	0.2	0.25	0.1	0.25	0.2	0.23	0.2	0.18
2000	5	0.4	0.45	0.3	0.42	0.4	0.46	0.5	0.51
2001	8	0.7	1.60	0.4	1.66	0.6	1.62	0.8	1.32
2002	7	0.4	0.47	0.2	0.44	0.3	0.46	0.4	0.49
2003	8	0.4	1.00	0.3	1.04	0.4	1.09	0.4	1.07
2004	7	0.4	0.58	0.2	0.52	0.3	0.52	0.4	0.59
2005	6	0.3	2.00	0.2	2.48	0.3	2.36	0.3	1.56
2006	3	0.2	0.38	0.1	0.43	0.1	0.35	0.1	0.31
2007	4	0.2	0.57	0.1	0.63	0.1	0.55	0.2	0.49
2008	5	0.2	0.56	0.1	0.36	0.1	0.42	0.2	0.57
2009	8	0.4	0.57	0.2	0.69	0.3	0.65	0.4	0.57
2010	6	0.3	0.60	0.2	0.52	0.2	0.53	0.3	0.61
2011	6	0.3	0.55	0.1	0.40	0.2	0.49	0.3	0.60
2012	10	0.4	1.11	0.2	0.80	0.3	0.94	0.4	1.08
2013	6	0.3	0.35	0.1	0.31	0.2	0.32	0.2	0.37
2014	9	0.4	1.13	0.2	0.97	0.3	0.99	0.3	1.12
2015	5	0.2	0.50	0.1	0.53	0.2	0.52	0.2	0.51
2016	5	0.2	0.71	0.1	0.36	0.1	0.46	0.2	0.71
2017	6	0.2	0.86	0.1	1.06	0.2	0.98	0.2	0.88
2018	2	0.1	0.67	0.0	0.50	0.1	0.56	0.1	0.67
2019	3	0.1	3.00	0.1	5.87	0.1	4.42	0.1	3.19
2020	2	0.1	0.50	0.0	0.44	0.1	0.49	0.1	0.47
1998–2020	128	0.3	0.67	0.1	0.62	0.2	0.64	0.3	0.67

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	3	0.3	0.43	0.1	0.35	0.2	0.38	0.2	0.38
1999	1	0.1	0.13	0.1	0.15	0.1	0.13	0.1	0.13
2000									
2001	3	0.2	0.75	0.1	0.51	0.1	0.55	0.2	0.61
2002	8	0.4	0.62	0.1	0.51	0.2	0.53	0.3	0.55
2003	2	0.1	0.29	0.1	0.37	0.1	0.38	0.1	0.35
2004	7	0.4	1.00	0.1	0.79	0.2	0.84	0.3	0.97
2005	5	0.3	0.83	0.1	0.56	0.1	0.65	0.2	0.84
2006	3	0.1	0.43	0.1	0.42	0.1	0.45	0.1	0.45
2007	1	0.0	0.07	0.0	0.09	0.0	0.08	0.0	0.06
2008	5	0.2	0.71	0.1	0.49	0.1	0.56	0.2	0.66
2009	6	0.3	0.46	0.1	0.32	0.1	0.35	0.2	0.37
2010	6	0.3	0.67	0.1	0.81	0.2	0.87	0.2	0.76
2011	3	0.1	0.38	0.0	0.29	0.1	0.29	0.1	0.29
2012	7	0.3	1.00	0.1	0.71	0.1	0.79	0.2	0.85
2013	7	0.3	0.54	0.1	0.39	0.2	0.43	0.2	0.49
2014	3	0.1	0.50	0.0	0.21	0.0	0.27	0.0	0.27
2015	4	0.2	0.44	0.0	0.29	0.1	0.32	0.1	0.36
2016	6	0.2	0.86	0.1	0.62	0.1	0.71	0.2	0.75
2017	1	0.0	0.50	0.0	0.27	0.0	0.33	0.0	0.33
2018	3	0.1	3.00	0.0	1.31	0.1	1.68	0.1	1.97
2019									
2020	1	0.0	1.00	0.0	1.18	0.0	1.18	0.0	0.66
1998-2020	85	0.2	0.52	0.1	0.41	0.1	0.45	0.1	0.47

Table 12

Age distribution of age at death (cancer-related) for period 2007-2020
(incl. multiple malignancies)

Age at death Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4									
5-9									
10-14									
15-19									
20-24									
25-29									
30-34									
35-39									
40-44	1	0.8	0.8			0.0	1	1.9	1.9
45-49	1	0.8	1.5			0.0	1	1.9	3.8
50-54	8	6.2	7.7	4	5.2	5.2	4	7.5	11.3
55-59	5	3.8	11.5	5	6.5	11.7			11.3
60-64	17	13.1	24.6	15	19.5	31.2	2	3.8	15.1
65-69	14	10.8	35.4	7	9.1	40.3	7	13.2	28.3
70-74	27	20.8	56.2	18	23.4	63.6	9	17.0	45.3
75-79	14	10.8	66.9	10	13.0	76.6	4	7.5	52.8
80-84	17	13.1	80.0	10	13.0	89.6	7	13.2	66.0
85+	26	20.0	100.0	8	10.4	100.0	18	34.0	100.0
All ages	130	100.0		77	100.0		53	100.0	

Table 13

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2020
(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								
20-24								
25-29								
30-34								
35-39								
40-44		1			0.0	0.50		0.1
45-49		1			0.0	0.20		0.1
50-54	4	4	0.2	0.20	0.2	0.50	0.2	0.2
55-59	5		0.2	0.42			0.1	
60-64	15	2	0.8	1.00	0.1	0.20	0.2	0.0
65-69	7	7	0.4	0.44	0.4	0.58	0.1	0.1
70-74	18	9	1.2	1.00	0.5	0.53	0.2	0.1
75-79	10	4	0.8	0.83	0.3	0.80	0.1	0.0
80-84	10	7	1.4	1.00	0.7	0.44	0.1	0.1
85+	8	18	1.7	1.60	1.7	1.20	0.1	0.2
All ages	77	53					0.1	0.1
Mortality								
Raw			0.2	0.66	0.2	0.54		
WS			0.1	0.58	0.1	0.41		
ES			0.2	0.61	0.1	0.45		
BRD-S			0.2	0.67	0.1	0.46		
PYLL-70								
per 100,000			0.9		0.5			
ES			0.8		0.4			
AYLL-70			8.5		10.2			

Table 14a

Further malignancies in deaths in period 1998–2020
MALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Synchron ±30d n	Synchron ±30d ←%	Post n	Post ←%
C00 Lip	2	2.2	1	50.0	1	50.0		
C03–C06 Oral cavity	7	7.8					7	100.0
C09–C10 Oropharynx	5	5.6	3	60.0	1	20.0	1	20.0
C12–C13 Hypopharynx	5	5.6	2	40.0	1	20.0	2	40.0
C15 Oesophagus	4	4.4	3	75.0			1	25.0
C16 Stomach	4	4.4					4	100.0
C17 Small intestine	1	1.1	1	100.0				
C18 Colon	4	4.4	1	25.0			3	75.0
C19–C20 Rectum	1	1.1			1	100.0		
C22 Liver	4	4.4					4	100.0
C25 Pancreas	2	2.2	1	50.0			1	50.0
C30–C31 Sinuses	1	1.1	1	100.0				
C32 Larynx	3	3.3	3	100.0				
C33–C34 Lung	16	17.8	3	18.8			13	81.3
C43 Malign. melanoma	3	3.3	2	66.7			1	33.3
C44 Skin others	15	16.7	11	73.3			4	26.7
C61 Prostate	4	4.4	1	25.0			3	75.0
C62 Testis	1	1.1	1	100.0				
C63 Male urogen.	1	1.1	1	100.0				
C64 Kidney	2	2.2	1	50.0	1	50.0		
C65 Renal pelvis	1	1.1					1	100.0
C67 Bladder	2	2.2					2	100.0
C76–C79 CUP	1	1.1					1	100.0
C91–C96 Leukaemia	1	1.1	1	100.0				
All further malignancies	90	100.0	37	41.1	5	5.6	48	53.3

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 1998-2020
FEMALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C00	Lip	1	2.4					1	100.0
C03-C06	Oral cavity	8	19.0			1	12.5	7	87.5
C07-C08	Salivary gland	1	2.4	1	100.0				
C09-C10	Oropharynx	1	2.4			1	100.0		
C14	ENT cancer	1	2.4					1	100.0
C15	Oesophagus	1	2.4					1	100.0
C16	Stomach	2	4.8			1	50.0	1	50.0
C22	Liver	1	2.4					1	100.0
C25	Pancreas	1	2.4					1	100.0
C32	Larynx	1	2.4					1	100.0
C33-C34	Lung	9	21.4	1	11.1	2	22.2	6	66.7
C44	Skin others	4	9.5			1	25.0	3	75.0
C50	Breast	6	14.3	5	83.3			1	16.7
C52	Vagina	1	2.4	1	100.0				
C53	Cervix uteri	2	4.8	1	50.0			1	50.0
C56	Ovary	1	2.4	1	100.0				
C82-C85	NHL	1	2.4					1	100.0
All further malignancies		42	100.0	10	23.8	6	14.3	26	61.9

ICD-10 C44 (Other malignant neoplasms of skin) is not systematically recorded by MCR and therefore not considered for evaluation as a particular primary but at least as a further malignancy.

Table 15

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2020
(**First 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								
25-29								
30-34								
35-39								
40-44		1			0.0	0.47		0.1
45-49								
50-54	3	3	0.1	0.18	0.1	0.46	0.1	0.1
55-59	2		0.1	0.46			0.1	
60-64	10	2	0.6	0.84	0.1	0.21	0.2	0.0
65-69	6	3	0.4	0.56	0.2	0.46	0.1	0.1
70-74	11	7	0.7	1.29	0.4	0.65	0.1	0.1
75-79	9	4	0.7	0.75	0.3	0.73	0.1	0.1
80-84	7	6	1.0	1.27	0.6	0.50	0.1	0.1
85+	6	15	1.3	1.83	1.4	0.99	0.1	0.2
All ages	54	41					0.1	0.1
Mortality								
Raw			0.2	0.68	0.1	0.51		
WS			0.1	0.58	0.0	0.36		
ES			0.1	0.61	0.1	0.40		
BRD-S			0.2	0.68	0.1	0.43		
PYLL-70								
per 100,000			0.6		0.4			
ES			0.5		0.3			
AYLL-70			8.0		11.4			

* See corresponding tables with multiple malignancies.
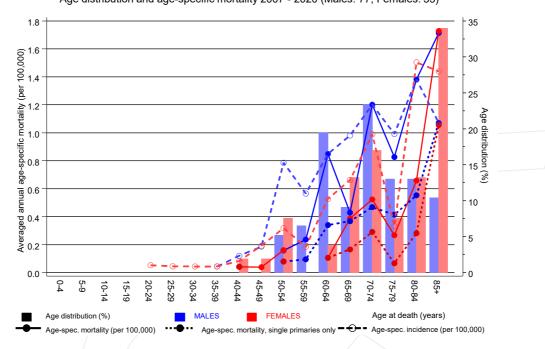
Table 16

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2020
(**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								
25-29								
30-34								
35-39								
40-44		1			0.0	0.93		0.1
45-49								
50-54	2	2	0.1	0.14	0.1	0.31	0.1	0.1
55-59	2		0.1	0.46			0.1	
60-64	6	2	0.3	0.55	0.1	0.21	0.1	0.1
65-69	6	3	0.4	0.62	0.2	0.70	0.1	0.1
70-74	7	5	0.5	1.31	0.3	0.58	0.1	0.1
75-79	5	1	0.4	0.51	0.1	0.46	0.1	0.0
80-84	4	3	0.6	0.73	0.3	0.27	0.1	0.0
85+	5	11	1.1	1.52	1.1	0.85	0.1	0.1
All ages	37	28					0.1	0.1

Mortality					
Raw	0.1	0.53	0.1	0.43
WS	0.1	0.46	0.0	0.32
ES	0.1	0.49	0.0	0.35
BRD-S	0.1	0.53	0.1	0.35

PYLL-70		
per 100,000	0.4	0.3
ES	0.4	0.3
AYLL-70	7.5	10.6

* See corresponding tables with multiple malignancies.

ICD-10 C06: Malignant neoplasm of other and unspecified parts of mouth
Age distribution and age-specific mortality 2007 - 2020 (Males: 77, Females: 53)
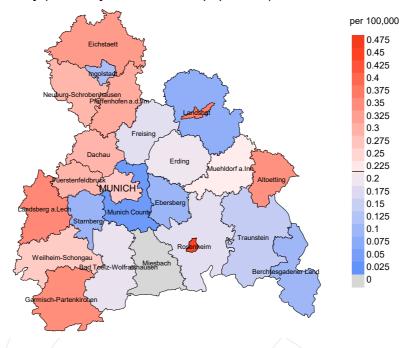
Figure 17. Distribution of age at death (bars; males: mean=65.9 yrs, median=64.7 yrs; females: mean=71.6 yrs, median=72.7 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).
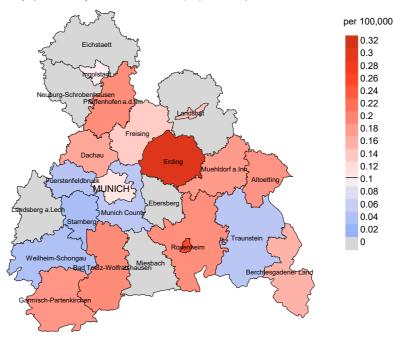
The difference between age at diagnosis (Table 3) and age at mouth cancer NOS-related death (see Table 10) should be considered.

Average mortality (Germany 1987 standard population) 2007 - 2020: Males
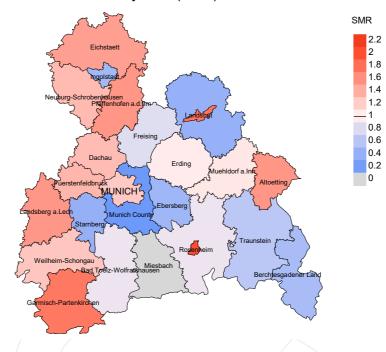
Average mortality (Germany 1987 standard population) 2007 - 2020: Females
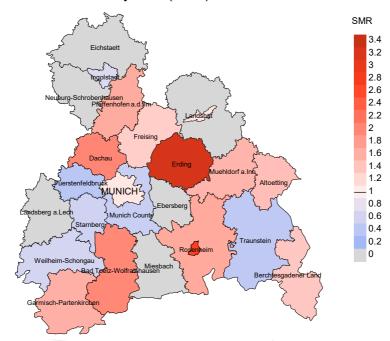
Figure 18a. Map of cancer mortality (german standard population) by county averaged for period 2007 to 2020. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.2/100,000 WS N=77, females 0.1/100,000 WS N=53).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,727 female residents (averaged) in the period from 2007 to 2020 a total of 0 women died from mouth cancer NOS. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.0/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.0 and 0.0/100,000.

Standardized mortality ratio (SMR) 2007 - 2020: Males

Standardized mortality ratio (SMR) 2007 - 2020: Females

Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2020. 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=77, females N=53).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,153 female residents (averaged) in the period from 2007 to 2020 a total of 0 women died from mouth cancer NOS. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.00. Though, the value of this parameter may vary with an underlying probability of 99% between 0.00 and 3.75, 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 ratio of mortality and incidence (mortality-to-incidence ratio, **MIR**, **MI-Index**) is a statistical index 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 MIR. 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 (FRG) 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 of mortality to incidence, MIR
FRG	Federal Republic of Germany

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