

Munich Cancer Registry



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

ICD-10 C26: Other digestive organ cancer

Incidence and Mortality

Year of diagnosis	1998-2016
Patients	499
Diseases	499
Creation date	08/21/2018
Export date	08/09/2018
Population	4.81 m



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

https://www.tumorregister-muenchen.de/en/facts/base/bC26__E-ICD-10-C26-Other-digestive-organ-cancer-incidence-and-mortality.pdf

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

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

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

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

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

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

Munich Cancer Registry, August 2018

[#] Base data has been collected since 1998. An increase in new diseases is apparent, which is an effect of two extensions in the MCR catchment area (from a base population of 2.65 million to 4.10 in 2002, and to 4.69 million in 2007).

^{##} Due to the high frequency and good prognosis of non-malignant skin cancer (C44), no systematic ascertainment is performed for this diagnosis. C44 is not designated as a primary, but rather as a secondary tumor.

^{###} DCO (death certificate only) identifies a cancer case that first becomes available to the MCR through the death certificate.

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

Code	Description
C26.-	Malignant neoplasm of other and ill-defined digestive organs
C26.0	Intestinal tract, part unspecified
C26.1	Spleen
C26.8	Overlapping lesion of digestive system
C26.9	Ill-defined sites within the digestive system

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	14	13	92.9	14.3	2.9	100.0	100.0
1999	12	6	50.0	7.7	2.9	91.7	91.7
2000	12	10	83.3	10.5	2.8	100.0	100.0
2001	18	14	77.8	10.7	2.9	100.0	100.0
2002	47	34	72.3	14.6	2.8	97.9	100.0 #
2003	42	30	71.4	12.4	2.8	95.2	95.2
2004	43	25	58.1	13.3	2.6	97.7	100.0
2005	27	16	59.3	13.5	2.9	100.0	100.0
2006	26	8	30.8	14.5	2.8	96.2	100.0
2007	35	16	45.7	15.2	2.3	100.0	100.0 #
2008	26	13	50.0	15.2	1.4	96.2	100.0
2009	14	8	57.1	15.2	1.0	100.0	100.0
2010	20	17	85.0	16.4	1.1	100.0	100.0
2011	27	18	66.7	17.9	1.2	100.0	100.0
2012	33	17	51.5	17.9	1.5	100.0	100.0
2013	35	17	48.6	18.8	1.0	100.0	100.0
2014	27	13	48.1	18.8	1.5	92.6	92.6
2015	24	17	70.8	18.9	2.4	95.8	100.0
2016	17	11	64.7	19.0	0.0	88.2	100.0 ##
1998-2016	499	303	60.7	19.0	2.9	97.6	99.0

499 cases diagnosed 1998-2016 are related to a total of 499 patients. Currently, in 113 (22.6 %) of these 499 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 100 / 9 / 4 (20.0 % / 1.8 % / 0.8 %) patients exist having 2 / 3 / 4+ malignancies.

The increases of incident cases in 2002 and 2007 reflect the expansion to additional registry areas.

Please be aware that data of recent annual patient cohorts may not yet be fully processed. The years under evaluation can be retrieved from the respective headings.

How to interpret:

In 2014, a subgroup of 27 cases has been diagnosed, of which 18.8 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 1.5 % 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	8	57.1	7	87.5	25.0	3.4	100.0	100.0
1999	1	8.3	1	100.0	22.2	3.6	100.0	100.0
2000	4	33.3	3	75.0	15.4	3.6	100.0	100.0
2001	8	44.4	5	62.5	14.3	3.7	100.0	100.0
2002	18	38.3	10	55.6	17.9	3.8	100.0	100.0 #
2003	14	33.3	7	50.0	17.0	3.6	85.7	85.7
2004	20	46.5	8	40.0	13.7	3.2	95.0	100.0
2005	7	25.9	4	57.1	15.0	3.7	100.0	100.0
2006	12	46.2	3	25.0	16.3	3.9	100.0	100.0
2007	20	57.1	12	60.0	16.1	3.4	100.0	100.0 #
2008	14	53.8	5	35.7	15.9	2.1	92.9	100.0
2009	5	35.7	2	40.0	16.0	1.2	100.0	100.0
2010	8	40.0	7	87.5	17.3	1.3	100.0	100.0
2011	8	29.6	6	75.0	18.4	1.4	100.0	100.0
2012	19	57.6	9	47.4	19.9	1.6	100.0	100.0
2013	17	48.6	6	35.3	20.2	2.4	100.0	100.0
2014	7	25.9	1	14.3	20.0	4.0	85.7	85.7
2015	11	45.8	7	63.6	20.9	5.6	90.9	100.0
2016	7	41.2	5	71.4	20.7	0.0	85.7	100.0 ##
1998-2016	208	41.7	108	51.9	20.7	3.4	96.6	98.6

208 cases diagnosed 1998-2016 are related to a total of 208 patients. Currently, in 51 (24.5 %) of these 208 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 44 / 4 / 3 (21.2 % / 1.9 % / 1.4 %) 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 7 cases has been diagnosed, of which 20.0 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 4.0 % 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 1b

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

Year of diagnosis	Females n	Females %	DCO cases n	Prop. DCO %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %
1998	6	42.9	6	100.0	0.0	2.4	100.0	100.0
1999	11	91.7	5	45.5	0.0	2.5	90.9	90.9
2000	8	66.7	7	87.5	8.0	2.2	100.0	100.0
2001	10	55.6	9	90.0	8.6	2.3	100.0	100.0
2002	29	61.7	24	82.8	12.5	2.0	96.6	100.0 #
2003	28	66.7	23	82.1	9.8	2.2	100.0	100.0
2004	23	53.5	17	73.9	13.0	2.0	100.0	100.0
2005	20	74.1	12	60.0	12.6	2.3	100.0	100.0
2006	14	53.8	5	35.7	13.4	1.9	92.9	100.0
2007	15	42.9	4	26.7	14.6	1.4	100.0	100.0 #
2008	12	46.2	8	66.7	14.8	0.8	100.0	100.0
2009	9	64.3	6	66.7	14.6	0.9	100.0	100.0
2010	12	60.0	10	83.3	15.7	1.0	100.0	100.0
2011	19	70.4	12	63.2	17.6	1.1	100.0	100.0
2012	14	42.4	8	57.1	16.5	1.4	100.0	100.0
2013	18	51.4	11	61.1	17.7	0.0	100.0	100.0
2014	20	74.1	12	60.0	17.9	0.0	95.0	95.0
2015	13	54.2	10	76.9	17.4	0.0	100.0	100.0
2016	10	58.8	6	60.0	17.9	0.0	90.0	100.0 ##
1998-2016	291	58.3	195	67.0	17.9	2.4	98.3	99.3

291 cases diagnosed 1998-2016 are related to a total of 291 patients. Currently, in 62 (21.3 %) of these 291 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 56 / 5 / 1 (19.2 % / 1.7 % / 0.3 %) 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 20 cases has been diagnosed, of which 17.9 % 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 4.81 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	8	6	0.7	0.5	0.4	0.1	0.7	0.2	0.9	0.3
1999	1	11	0.1	0.9	0.0	0.3	0.1	0.5	0.2	0.7
2000	4	8	0.4	0.7	0.2	0.1	0.3	0.3	0.3	0.4
2001	8	10	0.7	0.8	0.4	0.2	0.6	0.3	0.9	0.5
2002	18	29	1.0	1.5	0.5	0.4	0.8	0.7	1.1	1.0
2003	14	28	0.7	1.4	0.4	0.3	0.7	0.6	0.9	1.0
2004	20	23	1.1	1.2	0.5	0.3	0.9	0.6	1.3	0.8
2005	7	20	0.4	1.0	0.2	0.3	0.3	0.5	0.4	0.6
2006	12	14	0.6	0.7	0.3	0.3	0.5	0.5	0.7	0.6
2007	20	15	0.9	0.6	0.4	0.3	0.7	0.4	1.0	0.5
2008	14	12	0.6	0.5	0.3	0.1	0.5	0.2	0.6	0.3
2009	5	9	0.2	0.4	0.1	0.1	0.2	0.2	0.2	0.3
2010	8	12	0.4	0.5	0.2	0.1	0.3	0.2	0.3	0.3
2011	8	19	0.4	0.8	0.2	0.2	0.3	0.4	0.3	0.5
2012	19	14	0.8	0.6	0.4	0.1	0.6	0.2	0.8	0.4
2013	17	18	0.7	0.8	0.2	0.2	0.4	0.3	0.7	0.5
2014	7	20	0.3	0.8	0.1	0.2	0.2	0.3	0.3	0.5
2015	11	13	0.5	0.5	0.2	0.1	0.3	0.2	0.4	0.3
2016	7	10	0.3	0.4	0.1	0.1	0.2	0.2	0.3	0.2
1998-2016	208	291	0.6	0.8	0.3	0.2	0.4	0.3	0.6	0.5

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

Table 3

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

Year of diagnosis	Cases n	Std.		Median						
		Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	14	77.6	13.4	50.3	97.7	54.2	72.9	78.6	88.7	89.7
1999	12	76.7	17.0	30.8	95.5	60.3	76.2	79.6	85.2	91.4
2000	12	79.5	11.2	63.6	94.3	64.5	68.5	81.2	90.3	90.8
2001	18	80.9	14.9	42.6	97.1	50.7	77.9	85.4	89.7	95.2
2002	47	77.6	15.7	40.8	96.4	48.0	72.2	82.1	89.2	92.9
2003	42	79.6	10.0	57.0	94.7	62.5	75.8	80.2	88.5	89.4
2004	43	80.0	11.7	49.7	96.9	64.3	71.2	81.5	89.6	95.0
2005	27	79.2	11.9	52.2	95.9	63.4	69.4	80.5	89.8	93.5
2006	26	74.4	12.4	49.9	92.9	60.7	63.4	74.4	85.4	92.5
2007	35	71.4	12.4	40.7	94.0	53.8	64.5	71.5	81.4	85.8
2008	26	78.5	11.5	45.1	94.1	61.0	72.6	80.2	88.3	89.2
2009	14	80.0	14.0	48.0	99.7	62.3	68.1	83.0	88.5	95.4
2010	20	80.0	12.9	51.8	95.6	55.3	72.7	84.3	89.2	91.5
2011	27	81.1	11.5	49.8	96.2	64.5	71.5	84.1	89.6	92.7
2012	33	79.6	11.0	56.9	96.5	62.7	71.9	83.2	86.8	91.9
2013	35	81.0	8.4	61.1	93.2	70.5	75.4	81.2	87.7	92.4
2014	27	80.2	9.2	49.7	96.1	72.0	74.5	80.9	86.0	90.6
2015	24	79.9	14.1	43.9	96.9	56.9	74.5	85.0	88.9	90.6
2016	17	78.8	15.6	35.6	102	66.6	72.6	80.2	88.3	99.3
1998-2016	499	78.7	12.4	30.8	102	61.8	72.2	81.2	88.3	92.4

Table 3a

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

Year of diagnosis	Cases n	Std.		Median						
		Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	8	71.0	12.9	50.3	88.9	50.3	62.7	73.0	78.6	88.9
1999	1	83.6		83.6	83.6	83.6	83.6	83.6	83.6	83.6
2000	4	66.3	2.6	63.6	68.8	63.6	64.1	66.3	68.5	68.8
2001	8	72.5	18.7	42.6	97.1	42.6	56.9	78.4	84.9	97.1
2002	18	72.0	15.9	40.8	93.6	44.8	61.6	75.1	84.1	90.1
2003	14	75.2	13.0	57.0	94.7	58.7	63.7	76.2	88.3	93.9
2004	20	77.9	12.0	49.7	96.1	61.3	70.5	79.1	86.5	92.1
2005	7	71.8	5.3	63.4	80.4	63.4	69.2	73.1	74.2	80.4
2006	12	75.3	11.0	49.9	85.8	64.9	68.4	77.5	85.3	85.5
2007	20	71.5	13.2	40.7	90.9	53.5	64.6	75.3	81.4	84.8
2008	14	72.0	11.1	45.1	86.3	60.2	66.2	73.7	78.9	85.1
2009	5	77.0	19.5	48.0	95.4	48.0	67.4	82.6	91.6	95.4
2010	8	74.4	13.1	53.9	88.8	53.9	64.3	77.8	84.3	88.8
2011	8	80.8	11.3	64.5	94.2	64.5	70.2	83.3	90.1	94.2
2012	19	76.9	11.6	56.9	91.9	62.5	65.7	80.9	86.8	91.1
2013	17	79.6	7.4	61.8	93.0	71.6	75.4	79.9	85.3	88.5
2014	7	75.4	11.7	49.7	83.7	49.7	76.2	78.1	83.5	83.7
2015	11	76.7	18.2	43.9	96.9	44.7	67.3	83.2	88.9	94.7
2016	7	76.9	9.0	67.6	90.9	67.6	67.6	73.4	85.6	90.9
1998-2016	208	75.0	12.6	40.7	97.1	56.9	67.5	77.0	84.4	89.3

Table 3b

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	Median				
						10%	25%	50%	75%	90%
1998	6	86.5	8.1	73.0	97.7	73.0	83.7	87.5	89.7	97.7
1999	11	76.1	17.6	30.8	95.5	60.3	75.1	77.7	86.7	91.4
2000	8	86.2	6.5	75.5	94.3	75.5	81.2	87.8	90.8	94.3
2001	10	87.6	5.7	77.9	95.2	78.7	84.0	88.3	92.3	94.5
2002	29	81.1	14.8	42.2	96.4	50.4	80.1	84.1	89.9	94.6
2003	28	81.8	7.5	62.1	90.1	75.7	77.1	81.7	88.7	89.4
2004	23	81.9	11.5	60.7	96.9	66.3	74.4	84.4	94.5	95.5
2005	20	81.8	12.5	52.2	95.9	61.2	78.0	83.8	92.2	94.0
2006	14	73.7	13.9	54.6	92.9	60.7	61.9	71.0	90.6	92.6
2007	15	71.3	11.8	46.5	94.0	57.9	64.3	71.3	78.1	85.8
2008	12	86.0	6.4	72.6	94.1	74.2	85.1	88.3	89.2	90.4
2009	9	81.7	11.0	62.3	99.7	62.3	81.2	83.3	87.0	99.7
2010	12	83.7	11.9	51.8	95.6	70.5	81.9	86.6	90.7	91.8
2011	19	81.3	11.8	49.8	96.2	63.3	71.5	84.1	89.6	92.7
2012	14	83.2	9.4	60.2	96.5	74.1	79.5	83.8	89.1	94.9
2013	18	82.2	9.3	61.1	93.2	68.4	77.6	82.3	90.4	92.8
2014	20	81.9	7.7	68.0	96.1	72.4	74.4	83.4	87.5	91.2
2015	13	82.6	9.3	56.9	90.6	74.3	80.6	86.1	88.8	89.9
2016	10	80.1	19.4	35.6	102	51.1	72.6	86.6	90.1	101
1998-2016	291	81.3	11.7	30.8	102	64.3	75.6	84.0	89.5	92.9

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									
25-29									
30-34									
35-39	1	0.4	0.4		0.0		1	0.7	0.7
40-44	3	1.2	1.6	3	2.6	2.6			0.7
45-49	5	1.9	3.5	3	2.6	5.2	2	1.4	2.1
50-54	5	1.9	5.4	4	3.4	8.6	1	0.7	2.8
55-59	4	1.6	7.0	2	1.7	10.3	2	1.4	4.2
60-64	15	5.8	12.8	9	7.8	18.1	6	4.2	8.5
65-69	19	7.4	20.2	11	9.5	27.6	8	5.6	14.1
70-74	35	13.6	33.7	14	12.1	39.7	21	14.8	28.9
75-79	27	10.5	44.2	19	16.4	56.0	8	5.6	34.5
80-84	49	19.0	63.2	21	18.1	74.1	28	19.7	54.2
85+	95	36.8	100.0	30	25.9	100.0	65	45.8	100.0
All ages	258	100.0		116	100.0		142	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=60 %	Females DCO rate n=87 %	Males	Females
							Prop.all cancers n=113978 %	Prop.all cancers n=112253 %
0- 4								
5- 9								
10-14								
15-19								
20-24								
25-29								
30-34								
35-39		1		0.1				0.0
40-44	3		0.2				0.1	
45-49	3	2	0.2	0.1			0.1	0.0
50-54	4	1	0.2	0.1	75.0	100.0	0.1	0.0
55-59	2	2	0.1	0.1	100.0		0.0	0.0
60-64	9	6	0.7	0.5	22.2	33.3	0.1	0.1
65-69	11	8	0.9	0.6	45.5	25.0	0.1	0.1
70-74	14	21	1.3	1.7	42.9	33.3	0.1	0.1
75-79	19	8	2.4	0.8	36.8	50.0	0.1	0.1
80-84	21	28	4.6	4.0	61.9	57.1	0.2	0.3
85+	30	65	9.8	8.9	73.3	84.6	0.4	0.5
All ages	116	142			51.7	61.3	0.1	0.1
Incidence								
Raw			0.5	0.6				
WS			0.2	0.2				
ES			0.3	0.3				
BRD-S			0.5	0.4				

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 C26: Malignant neoplasm of other and ill-defined digestive organs

Age distribution and age-specific incidence 2007 - 2016 (Males: 116, Females: 142)

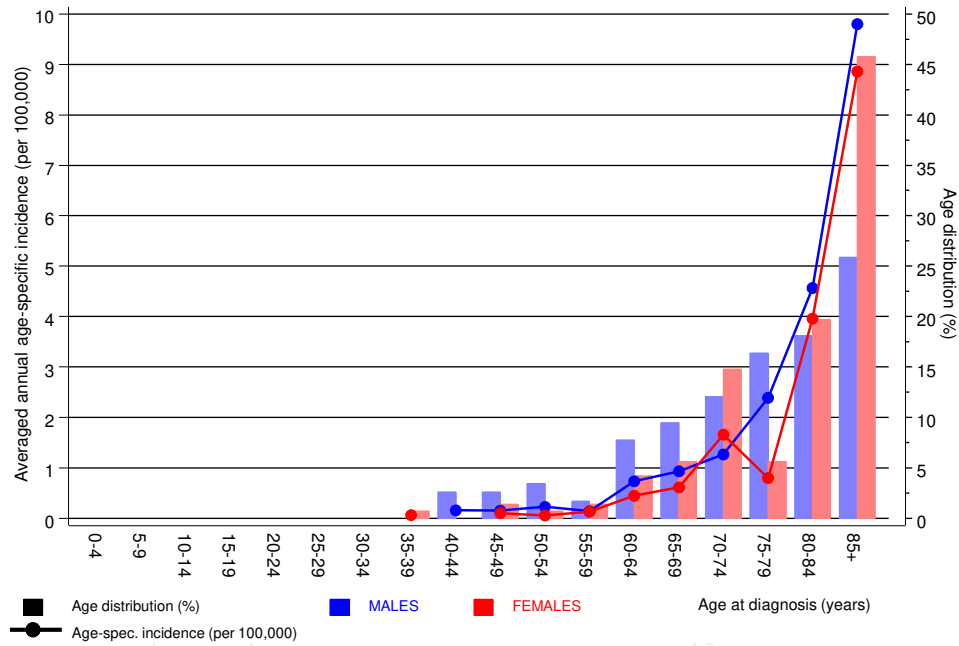


Figure 6. Age distribution (males: mean=75.8 yrs, median=78.0 yrs; females: mean=81.3 yrs, median=84.1 yrs) and age-specific incidence.

ICD-10 C26: Malignant neoplasm of other and ill-defined digestive organs

Age-specific incidence rates: international comparison

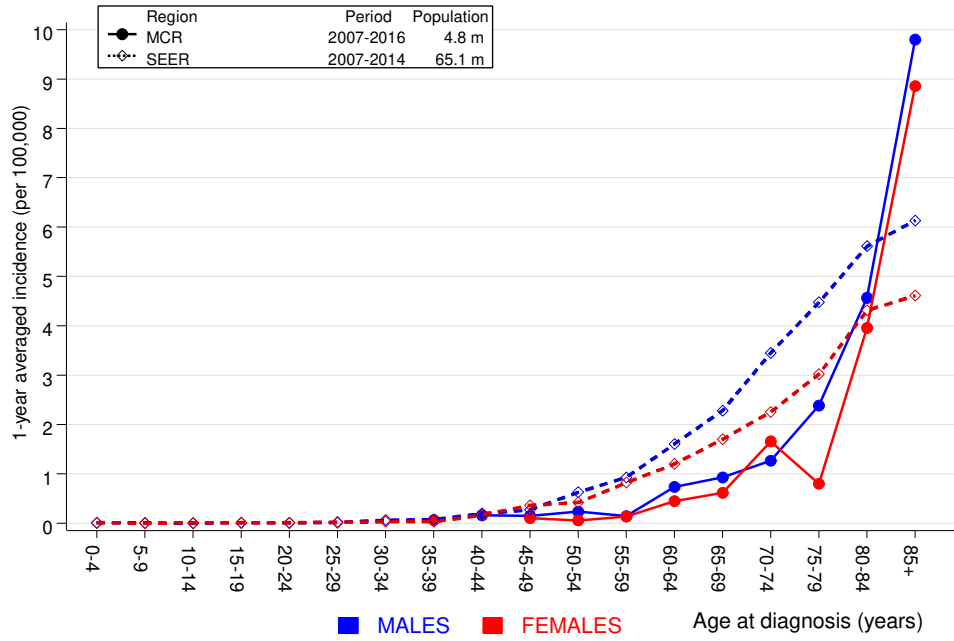


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

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 %
C33–C34 Lung	3	0.3	11.8	2.4	34.5 #	205.6	33.3
C61 Prostate	2	0.6	3.1	0.4	11.2	101.6	
Others, specified	5	0.5	9.8	3.2	22.9 #	336.2	40.0
Not observed	0	0.8	0.0	0.0	4.5	-61.9	
All further malignancies	10	2.2	4.5	2.1	8.2 #	581.4	30.0
Patients		120					
Median age at next malignancy (years)		69.5					
Person-years		134					
Mean observation time (years)		1.1					
Median observation time (years)		0.2					

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

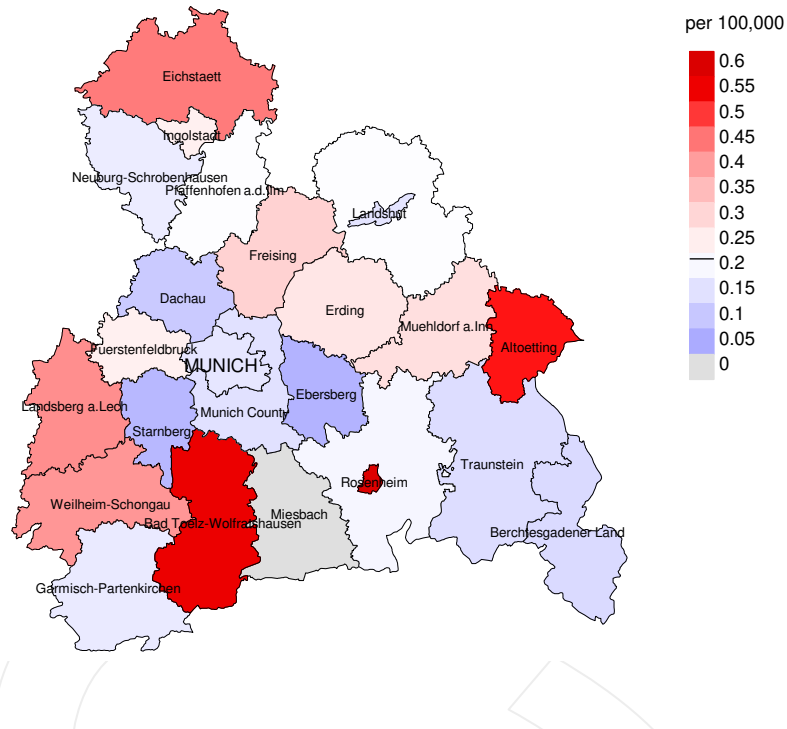
FEMALES

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C76–C79 CUP	3	0.0	74.7	15.4	218.3 #	294.9	33.3
Others, specified	8	0.6	12.5	5.4	24.7 #	733.5	25.0
Not observed	0	0.9	0.0	0.0	4.3	-85.7	
All further malignancies	11	1.5	7.1	3.6	12.8 #	942.7	27.3
Patients		155					
Median age at next malignancy (years)		79.4					
Person-years		100					
Mean observation time (years)		0.6					
Median observation time (years)		0.2					

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

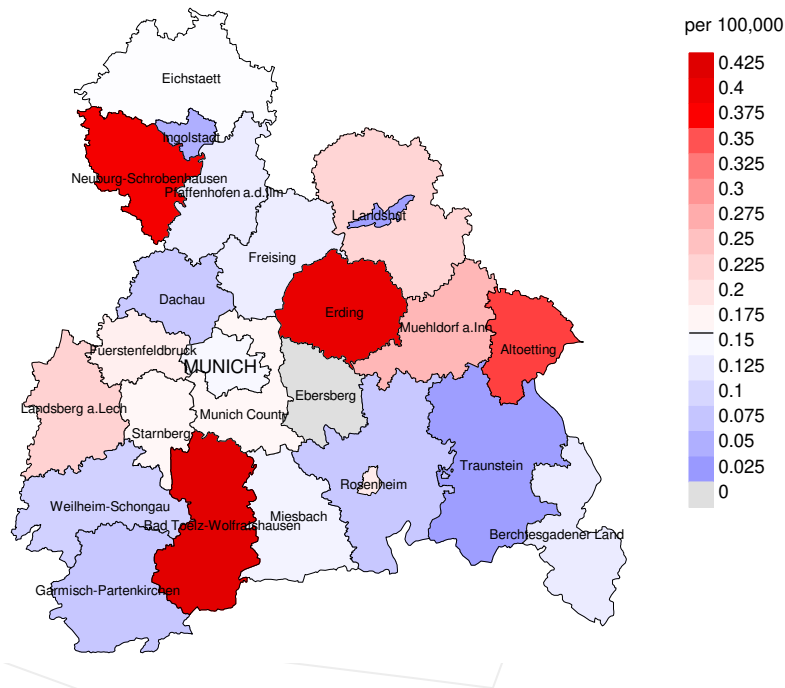
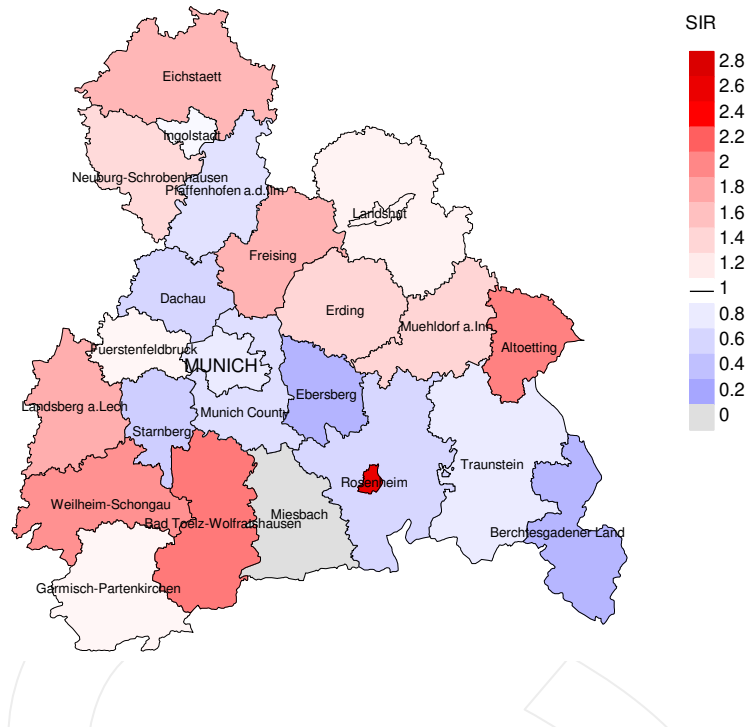


Figure 8a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.2/100,000 WS N=116, females 0.2/100,000 WS N=142).

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 0 women were identified with newly diagnosed other digestive organ cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 0.0/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.0 and 0.0/100,000.

Standardized incidence ratio (SIR) 2007 - 2016: Males



Standardized incidence ratio (SIR) 2007 - 2016: Females

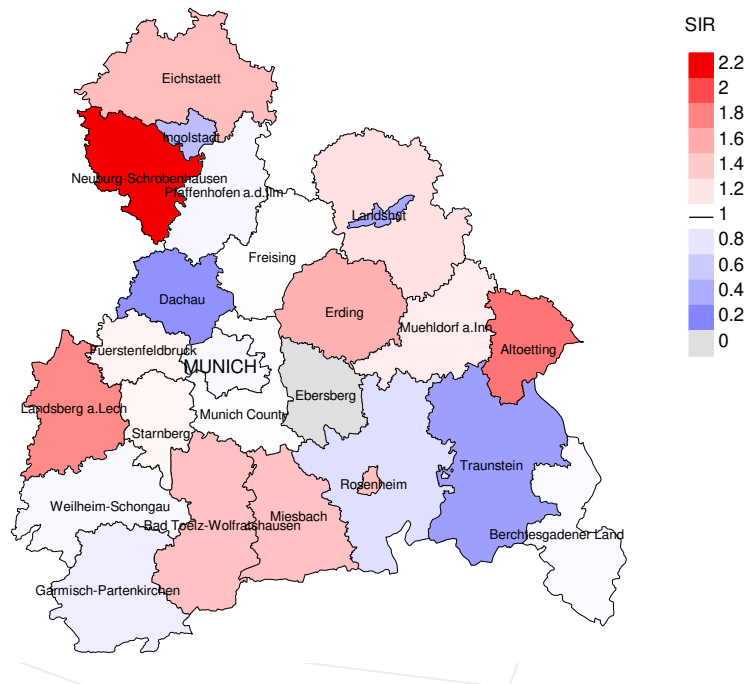


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=116, females N=142).

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 0 women were identified with newly diagnosed other digestive organ cancer. Therefore, the mean standardized incidence ratio (SIR) 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 1.45, 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	14	100.0	92.9	14	100.0	100.0
1999	12	91.7	50.0	11	91.7	100.0
2000	12	100.0	83.3	12	100.0	100.0
2001	18	100.0	77.8	18	100.0	100.0
2002	47	100.0	72.3	46	97.9	100.0
2003	42	95.2	71.4	40	95.2	100.0
2004	43	100.0	58.1	42	97.7	97.6
2005	27	100.0	59.3	27	100.0	100.0
2006	26	100.0	30.8	25	96.2	100.0
2007	35	100.0	45.7	35	100.0	97.1
2008	26	100.0	50.0	25	96.2	96.0
2009	14	100.0	57.1	14	100.0	85.7
2010	20	100.0	85.0	20	100.0	100.0
2011	27	100.0	66.7	27	100.0	96.3
2012	33	100.0	51.5	33	100.0	97.0
2013	35	100.0	48.6	35	100.0	100.0
2014	27	92.6	48.1	25	92.6	100.0
2015	24	100.0	70.8	23	95.8	100.0
2016	17	100.0	64.7	15	88.2	93.3
1998-2016	499	99.0	60.7	487	97.6	98.4

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	14	15	100.0	10	71.4
1999	12	12	100.0	9	75.0
2000	12	12	100.0	10	83.3
2001	18	17	100.0	14	77.8
2002	47	30	100.0	35	74.5
2003	42	24	100.0	29	69.0
2004	43	36	97.2	34	79.1
2005	27	27	100.0	22	81.5
2006	26	24	100.0	19	73.1
2007	35	28	96.4	29	82.9
2008	26	18	100.0	21	80.8
2009	14	11	90.9	11	78.6
2010	20	12	100.0	18	90.0
2011	27	20	85.0	24	88.9
2012	33	23	100.0	29	87.9
2013	35	28	100.0	29	82.9
2014	27	25	100.0	25	92.6
2015	24	17	100.0	22	91.7
2016	17	12	100.0	14	82.4
1998-2016	499	391	98.5	404	81.0

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 4.81 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer- related %	Prop. non-cancer- related %	Prop. cancer recorded on death certificate %
1998	15	80.0	20.0	100.0
1999	12	75.0	25.0	91.7
2000	12	100.0		100.0
2001	17	58.8	41.2	100.0
2002	30	86.7	13.3	100.0
2003	24	87.5	12.5	95.8
2004	36	94.4	5.6	97.1
2005	27	96.3	3.7	100.0
2006	24	87.5	12.5	100.0
2007	28	100.0		100.0
2008	18	100.0		100.0
2009	11	90.9	9.1	100.0
2010	12	100.0		91.7
2011	20	75.0	25.0	100.0
2012	23	100.0		100.0
2013	28	89.3	10.7	92.9
2014	25	100.0		100.0
2015	17	88.2	11.8	94.1
2016	12	83.3	16.7	83.3
1998-2016	391	90.0	10.0	97.7

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	8	75.2	73.0	77.6	75.2
1999	3	71.1	67.8	71.1	71.1
2000	3	68.2	68.2		68.2
2001	7	79.3	79.3		79.3
2002	10	81.7	81.3	90.1	81.7
2003	9	62.4	62.4		62.4
2004	11	77.3	77.3	79.4	77.3
2005	10	77.8	77.5	84.2	77.8
2006	11	76.0	78.3	74.5	76.0
2007	14	73.4	73.4		71.6
2008	11	75.0	75.0		75.0
2009	5	72.8	72.8		72.8
2010	3	73.5	73.5		81.2
2011	10	72.2	73.2	71.1	83.4
2012	9	83.6	83.6		83.6
2013	16	76.2	76.2	81.4	76.1
2014	8	77.8	77.8		77.8
2015	9	79.5	78.8	89.9	79.2
2016	4	76.9	73.5	80.3	73.5
1998-2016	161	76.0	75.4	80.3	76.1

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	7	88.7	88.7	92.0	88.7
1999	9	81.6	86.8	77.5	84.2
2000	9	84.3	84.3		84.3
2001	10	88.3	87.2	88.4	88.3
2002	20	88.3	89.2	81.1	88.3
2003	15	87.6	88.4	75.9	87.9
2004	25	86.1	86.1		86.1
2005	17	83.1	83.1		83.1
2006	13	78.3	78.3	79.4	78.3
2007	14	69.2	69.2		69.2
2008	7	88.4	88.4		88.4
2009	6	82.5	83.3	24.5	83.3
2010	9	81.8	81.8		81.8
2011	10	80.1	74.5	84.4	80.1
2012	14	84.2	84.2		84.2
2013	12	82.4	81.2	93.1	81.2
2014	17	84.5	84.5		84.5
2015	8	84.7	84.7		84.7
2016	8	78.1	78.4	66.6	78.4
1998–2016	230	83.9	83.9	83.0	84.0

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	7	0.6	0.88	0.4	0.83	0.6	0.86	0.8	0.93
1999	2	0.2	2.00	0.1	2.51	0.2	2.05	0.3	1.45
2000	3	0.3	0.75	0.2	0.77	0.2	0.78	0.2	0.78
2001	7	0.6	0.88	0.3	0.84	0.6	0.88	0.8	0.91
2002	9	0.5	0.50	0.2	0.45	0.4	0.49	0.6	0.55
2003	9	0.5	0.64	0.3	0.76	0.4	0.65	0.5	0.55
2004	9	0.5	0.45	0.2	0.47	0.4	0.46	0.5	0.43
2005	9	0.5	1.29	0.2	1.11	0.4	1.32	0.5	1.52
2006	10	0.5	0.83	0.2	0.79	0.4	0.81	0.6	0.88
2007	14	0.6	0.70	0.3	0.70	0.5	0.71	0.7	0.70
2008	11	0.5	0.79	0.2	0.70	0.3	0.74	0.5	0.79
2009	5	0.2	1.00	0.1	0.99	0.2	0.94	0.2	0.83
2010	3	0.1	0.38	0.1	0.34	0.1	0.34	0.1	0.32
2011	7	0.3	0.88	0.2	1.02	0.2	0.93	0.3	0.84
2012	9	0.4	0.47	0.2	0.44	0.3	0.45	0.4	0.48
2013	14	0.6	0.82	0.2	0.93	0.4	0.87	0.6	0.80
2014	8	0.3	1.14	0.1	1.34	0.2	1.27	0.3	1.16
2015	7	0.3	0.64	0.1	0.64	0.2	0.63	0.3	0.62
2016	3	0.1	0.43	0.1	0.42	0.1	0.43	0.1	0.42
1998-2016	146	0.4	0.70	0.2	0.70	0.3	0.70	0.4	0.70

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	5	0.4	0.83	0.1	0.87	0.2	0.86	0.3	0.88
1999	7	0.6	0.64	0.1	0.44	0.2	0.52	0.4	0.54
2000	9	0.7	1.12	0.2	1.44	0.3	1.26	0.5	1.25
2001	3	0.2	0.30	0.1	0.31	0.1	0.31	0.2	0.31
2002	17	0.9	0.59	0.3	0.72	0.5	0.67	0.5	0.56
2003	12	0.6	0.43	0.2	0.46	0.3	0.46	0.4	0.39
2004	25	1.3	1.09	0.4	1.08	0.6	1.06	0.8	0.99
2005	17	0.9	0.85	0.2	0.72	0.3	0.76	0.6	0.88
2006	11	0.5	0.79	0.2	0.68	0.3	0.72	0.4	0.78
2007	14	0.6	0.93	0.3	0.97	0.4	0.99	0.5	0.92
2008	7	0.3	0.58	0.1	0.79	0.1	0.70	0.2	0.69
2009	5	0.2	0.56	0.0	0.49	0.1	0.51	0.1	0.51
2010	9	0.4	0.75	0.1	1.10	0.2	0.95	0.3	0.94
2011	8	0.3	0.42	0.1	0.63	0.2	0.56	0.3	0.55
2012	14	0.6	1.00	0.1	0.99	0.2	0.99	0.4	0.96
2013	11	0.5	0.61	0.1	0.69	0.2	0.66	0.3	0.65
2014	17	0.7	0.85	0.2	0.80	0.3	0.82	0.4	0.84
2015	8	0.3	0.62	0.1	0.66	0.1	0.65	0.2	0.67
2016	7	0.3	0.70	0.1	0.53	0.1	0.60	0.2	0.72
1998-2016	206	0.5	0.71	0.2	0.74	0.3	0.73	0.3	0.71

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									
25-29									
30-34									
35-39									
40-44	2	1.1	1.1	2	2.5	2.5			0.0
45-49	3	1.7	2.8	1	1.2	3.7	2	2.0	2.0
50-54	5	2.8	5.5	3	3.7	7.4	2	2.0	4.0
55-59	4	2.2	7.7	1	1.2	8.6	3	3.0	7.0
60-64	11	6.1	13.8	5	6.2	14.8	6	6.0	13.0
65-69	16	8.8	22.7	10	12.3	27.2	6	6.0	19.0
70-74	31	17.1	39.8	15	18.5	45.7	16	16.0	35.0
75-79	25	13.8	53.6	17	21.0	66.7	8	8.0	43.0
80-84	31	17.1	70.7	10	12.3	79.0	21	21.0	64.0
85+	53	29.3	100.0	17	21.0	100.0	36	36.0	100.0
All ages	181	100.0		81	100.0		100	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		Females		Males		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								
25-29								
30-34								
35-39								
40-44	2		0.1	0.67			0.4	
45-49	1	2	0.1	0.33	0.1	1.00	0.1	0.2
50-54	3	2	0.2	0.75	0.1	2.00	0.1	0.1
55-59	1	3	0.1	0.50	0.2	1.50	0.0	0.1
60-64	5	6	0.4	0.56	0.5	1.00	0.1	0.2
65-69	10	6	0.8	0.91	0.5	0.75	0.1	0.1
70-74	15	16	1.4	1.07	1.3	0.76	0.2	0.2
75-79	17	8	2.1	0.89	0.8	1.00	0.2	0.1
80-84	10	21	2.2	0.48	3.0	0.75	0.1	0.3
85+	17	36	5.6	0.57	4.9	0.55	0.3	0.4
All ages	81	100					0.2	0.2
Mortality								
Raw			0.4	0.70	0.4	0.70		
WS			0.1	0.70	0.1	0.78		
ES			0.2	0.69	0.2	0.76		
BRD-S			0.3	0.68	0.3	0.76		
PYLL-70								
per 100,000			1.0		0.9			
ES			0.8		0.7			
AYLL-70			9.3		9.3			

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 ←%
C12-C13 Hypopharynx	1	2.2			1	100.0		
C16 Stomach	2	4.3	2	100.0				
C18 Colon	4	8.7	3	75.0			1	25.0
C23-C24 Bile	1	2.2	1	100.0				
C25 Pancreas	1	2.2			1	100.0		
C30-C31 Sinuses	1	2.2	1	100.0				
C32 Larynx	1	2.2	1	100.0				
C33-C34 Lung	5	10.9	1	20.0	2	40.0	2	40.0
C43 Malign. melanoma	2	4.3					2	100.0
C44 Skin others	5	10.9	1	20.0			4	80.0
C61 Prostate	13	28.3	11	84.6	2	15.4		
C64 Kidney	2	4.3			2	100.0		
C67 Bladder	2	4.3	2	100.0				
C76-C79 CUP	5	10.9	2	40.0	3	60.0		
C82-C85 NHL	1	2.2			1	100.0		
All further malignancies	46	100.0	25	54.3	12	26.1	9	19.6

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	1	2.0	1	100.0				
C07-C08 Salivary gland	1	2.0			1	100.0		
C09-C10 Oropharynx	1	2.0	1	100.0				
C16 Stomach	2	4.1	2	100.0				
C17 Small intestine	1	2.0					1	100.0
C18 Colon	4	8.2	4	100.0				
C22 Liver	1	2.0			1	100.0		
C33-C34 Lung	2	4.1	1	50.0			1	50.0
C40-C41 Bone	1	2.0	1	100.0				
C44 Skin others	1	2.0	1	100.0				
C48 Peritoneal	1	2.0	1	100.0				
C50 Breast	13	26.5	8	61.5	4	30.8	1	7.7
C53 Cervix uteri	2	4.1	1	50.0			1	50.0
C54 Corpus uteri	3	6.1	3	100.0				
C56 Ovary	3	6.1	1	33.3	1	33.3	1	33.3
C64 Kidney	2	4.1	2	100.0				
C67 Bladder	1	2.0			1	100.0		
C70-C72 CNS cancer	1	2.0			1	100.0		
C73 Thyroid	2	4.1	2	100.0				
C76-C79 CUP	4	8.2			2	50.0	2	50.0
C82-C85 NHL	1	2.0	1	100.0				
C91-C96 Leukaemia	1	2.0					1	100.0
All further malignancies	49	100.0	30	61.2	11	22.4	8	16.3

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 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. 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	2		0.1	0.67	0.4	
45-49	1	2	0.1	0.33	0.1	0.2
50-54	2	2	0.1	0.67	0.1	0.1
55-59	1	3	0.1	1.00	0.2	0.1
60-64	4	4	0.3	0.50	0.3	0.1
65-69	7	3	0.6	1.00	0.2	0.1
70-74	12	12	1.1	1.33	0.9	0.2
75-79	14	5	1.8	1.00	0.5	0.1
80-84	8	14	1.7	0.40	2.0	0.3
85+	10	32	3.3	0.50	4.4	0.62
All ages	61	77			0.1	0.2
Mortality						
Raw			0.3	0.69	0.3	0.71
WS			0.1	0.70	0.1	0.75
ES			0.2	0.69	0.2	0.75
BRD-S			0.3	0.67	0.2	0.74
PYLL-70						
per 100,000			0.9		0.8	
ES			0.7		0.6	
AYLL-70			10.1		11.1	

* See corresponding tables with multiple malignancies.

Table 16

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

Age at death Years	Males n	Females n	Males Age- spec. mortal. MI-index	Females Age- spec. mortal. MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4						
5- 9						
10-14						
15-19						
20-24						
25-29						
30-34						
35-39						
40-44	2		0.1	0.67	0.4	
45-49	1	2	0.1	0.50	0.1	0.2
50-54	2	2	0.1	0.67	0.1	0.1
55-59	1	3	0.1	1.00	0.2	0.1
60-64	4	4	0.3	0.50	0.3	0.1
65-69	6	3	0.5	0.86	0.2	0.1
70-74	11	12	1.0	1.38	0.9	0.2
75-79	14	3	1.8	1.00	0.3	0.1
80-84	7	14	1.5	0.37	2.0	0.3
85+	9	32	2.9	0.45	4.4	0.5
All ages	57	75			0.1	0.2
Mortality						
Raw			0.2	0.67	0.3	0.69
WS			0.1	0.68	0.1	0.75
ES			0.2	0.67	0.1	0.74
BRD-S			0.2	0.65	0.2	0.72
PYLL-70						
per 100,000			0.8		0.8	
ES			0.7		0.6	
AYLL-70			10.6		11.1	

* See corresponding tables with multiple malignancies.

ICD-10 C26: Malignant neoplasm of other and ill-defined digestive organs

Age distribution and age-specific mortality 2007 - 2016 (Males: 81, Females: 100)

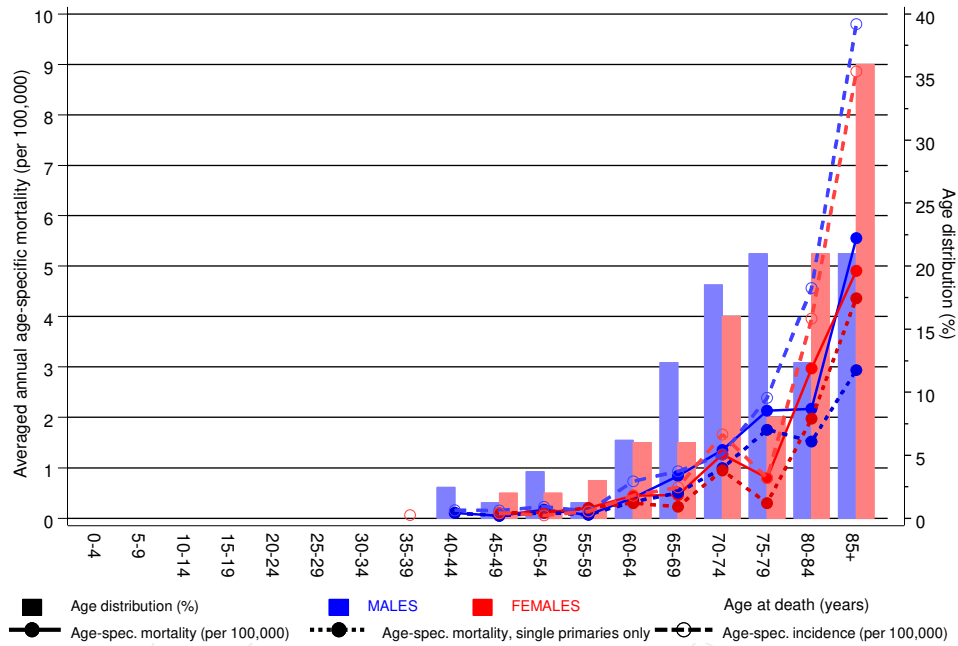
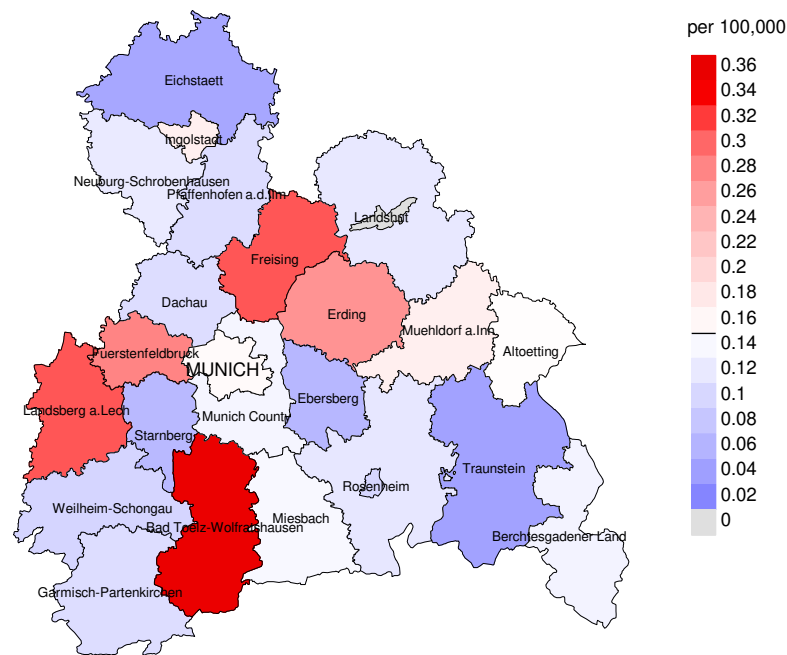


Figure 17. Distribution of age at death (bars; males: mean=73.7 yrs, median=75.1 yrs; females: mean=79.0 yrs, median=81.5 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

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



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

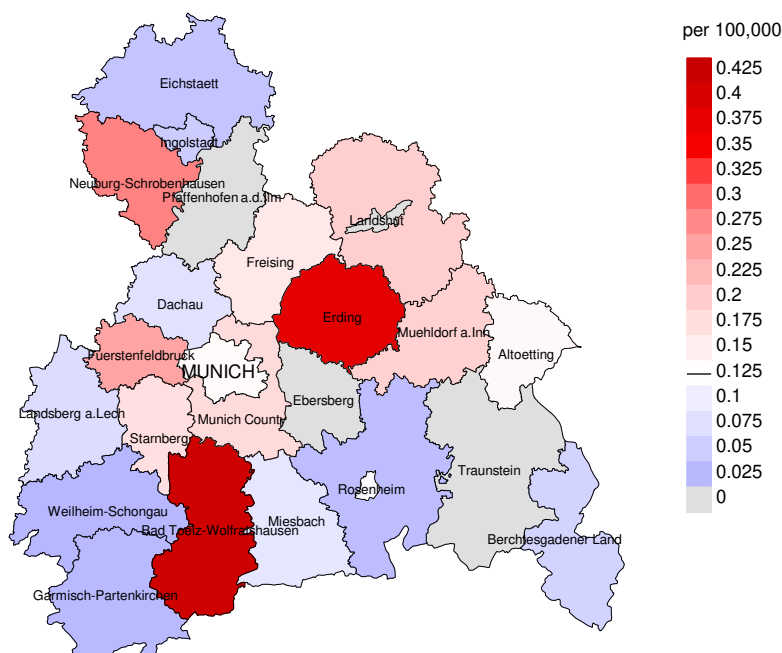
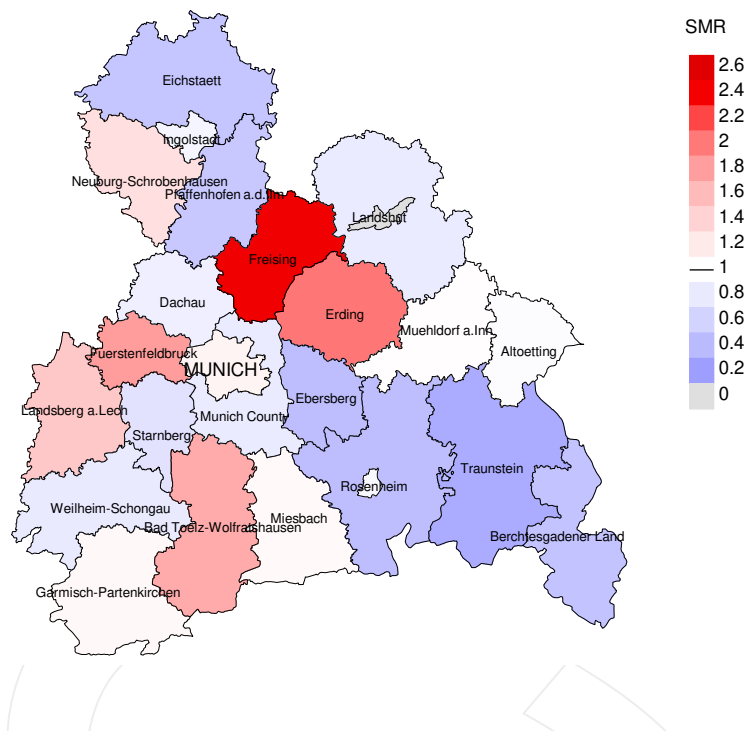


Figure 18a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2016. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.1/100,000 WS N=81, females 0.1/100,000 WS N=100).

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

Standardized mortality ratio (SMR) 2007 - 2016: Males



Standardized mortality ratio (SMR) 2007 - 2016: Females

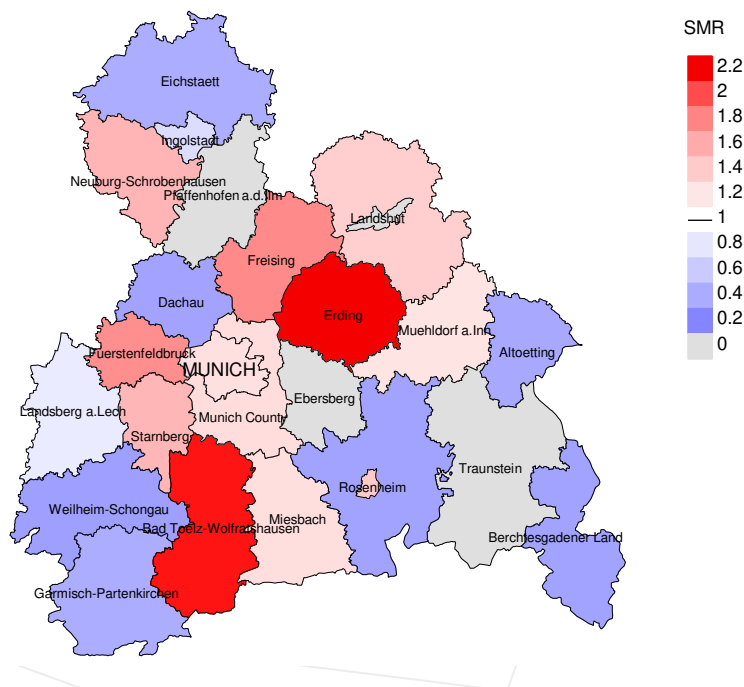


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=81, females N=100).

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 0 women died from other digestive organ cancer. 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 2.03, 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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