

Munich Cancer Registry



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

ICD-10 C48: Peritoneal cancer

Incidence and Mortality

Year of diagnosis	1998-2016
Patients	916
Diseases	916
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/bC48__E-ICD-10-C48-Peritoneal-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
C48.-	Malignant neoplasm of retroperitoneum and peritoneum
C48.0	Retroperitoneum
C48.1	Specified parts of peritoneum
C48.2	Peritoneum, unspecified
C48.8	Overlapping lesion of retroperitoneum and peritoneum

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	22	4	18.2	13.6	10.6	77.3	90.9
1999	28	5	17.9	18.0	10.7	82.1	100.0
2000	20	4	20.0	18.6	10.5	85.0	100.0
2001	23	4	17.4	17.2	10.7	78.3	100.0
2002	40	5	12.5	15.0	10.8	82.5	100.0 #
2003	39	4	10.3	15.7	11.2	92.3	100.0
2004	51	7	13.7	16.6	11.5	68.6	96.1
2005	27	1	3.7	16.8	11.9	81.5	96.3
2006	44	2	4.5	16.7	12.0	70.5	97.7
2007	62	4	6.5	17.4	12.0	82.3	90.3 #
2008	51	2	3.9	17.0	11.1	78.4	90.2
2009	64	1	1.6	16.8	11.2	60.9	79.7
2010	73	3	4.1	17.6	10.9	60.3	78.1
2011	78			17.4	9.5	60.3	82.1
2012	62			17.4	8.5	59.7	80.6
2013	57			17.8	8.0	57.9	86.0
2014	74	3	4.1	18.0	3.5	47.3	77.0
2015	54	2	3.7	18.0	1.0	25.9	96.3
2016	47	1	2.1	18.1	2.2	14.9	51.1 ##
1998-2016	916	52	5.7	18.1	10.6	63.2	86.7

916 cases diagnosed 1998-2016 are related to a total of 916 patients. Currently, in 271 (29.6 %) of these 916 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 222 / 37 / 12 (24.2 % / 4.0 % / 1.3 %) patients exist having 2 / 3 / 4+ malignancies.

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

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

How to interpret:

In 2014, a subgroup of 74 cases has been diagnosed, of which 18.0 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 3.5 % 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	9	40.9			11.1	8.8	77.8	88.9
1999	11	39.3	2	18.2	25.0	9.1	90.9	100.0
2000	7	35.0	1	14.3	25.9	8.6	85.7	100.0
2001	7	30.4	1	14.3	23.5	8.9	85.7	100.0
2002	9	22.5	2	22.2	23.3	8.7	77.8	100.0 #
2003	10	25.6	2	20.0	22.6	9.1	90.0	100.0
2004	23	45.1	2	8.7	22.4	9.1	65.2	91.3
2005	8	29.6			22.6	8.5	100.0	100.0
2006	8	18.2	2	25.0	21.7	9.0	87.5	100.0
2007	15	24.2	1	6.7	20.6	7.1	66.7	80.0 #
2008	9	17.6	2	22.2	20.7	6.3	66.7	66.7
2009	13	20.3			20.2	5.8	46.2	69.2
2010	16	21.9	2	12.5	20.0	6.7	43.8	68.8
2011	16	20.5			20.5	2.7	43.8	75.0
2012	12	19.4			20.8	1.7	50.0	66.7
2013	11	19.3			20.7	2.1	36.4	81.8
2014	16	21.6	1	6.3	21.0	0.0	25.0	62.5
2015	12	22.2			20.3	0.0	16.7	100.0
2016	10	21.3			21.2	0.0	20.0	70.0 ##
1998-2016	222	24.2	18	8.1	21.2	8.8	58.1	83.3

222 cases diagnosed 1998-2016 are related to a total of 222 patients. Currently, in 68 (30.6 %) of these 222 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 58 / 9 / 1 (26.1 % / 4.1 % / 0.5 %) 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 2014, a subgroup of 16 cases has been diagnosed, of which 21.0 % 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 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	13	59.1	4	30.8	15.4	11.2	76.9	92.3
1999	17	60.7	3	17.6	13.3	11.2	76.5	100.0
2000	13	65.0	3	23.1	14.0	11.1	84.6	100.0
2001	16	69.6	3	18.8	13.6	11.3	75.0	100.0
2002	31	77.5	3	9.7	11.1	11.4	83.9	100.0 #
2003	29	74.4	2	6.9	12.6	11.8	93.1	100.0
2004	28	54.9	5	17.9	13.6	12.2	71.4	100.0
2005	19	70.4	1	5.3	13.9	12.9	73.7	94.7
2006	36	81.8			14.4	12.7	66.7	97.2
2007	47	75.8	3	6.4	16.1	13.2	87.2	93.6 #
2008	42	82.4			15.5	12.3	81.0	95.2
2009	51	79.7	1	2.0	15.5	12.6	64.7	82.4
2010	57	78.1	1	1.8	16.8	12.1	64.9	80.7
2011	62	79.5			16.3	11.3	64.5	83.9
2012	50	80.6			16.2	10.2	62.0	84.0
2013	46	80.7			16.9	9.6	63.0	87.0
2014	58	78.4	2	3.4	17.1	4.5	53.4	81.0
2015	42	77.8	2	4.8	17.2	1.3	28.6	95.2
2016	37	78.7	1	2.7	17.1	2.7	13.5	45.9 ##
1998-2016	694	75.8	34	4.9	17.1	11.2	64.8	87.8

694 cases diagnosed 1998-2016 are related to a total of 694 patients. Currently, in 203 (29.3 %) of these 694 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 164 / 28 / 11 (23.6 % / 4.0 % / 1.6 %) 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 58 cases has been diagnosed, of which 17.1 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 4.5 % 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 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	9	13	0.8	1.1	0.7	0.5	0.8	0.7	0.8	1.0
1999	11	17	1.0	1.4	0.7	0.7	0.9	1.0	1.1	1.3
2000	7	13	0.6	1.1	0.6	0.5	0.6	0.6	0.6	0.9
2001	7	16	0.6	1.3	0.4	0.7	0.5	0.9	0.8	1.1
2002	9	31	0.5	1.6	0.3	0.9	0.4	1.3	0.5	1.5
2003	10	29	0.5	1.5	0.3	0.8	0.5	1.1	0.6	1.3
2004	23	28	1.2	1.4	0.9	0.7	1.1	0.9	1.2	1.1
2005	8	19	0.4	1.0	0.2	0.6	0.3	0.7	0.4	0.8
2006	8	36	0.4	1.8	0.3	1.0	0.4	1.4	0.5	1.6
2007	15	47	0.7	2.0	0.4	0.8	0.6	1.2	0.6	1.6
2008	9	42	0.4	1.8	0.2	0.9	0.3	1.3	0.4	1.5
2009	13	51	0.6	2.2	0.4	1.2	0.5	1.6	0.6	1.9
2010	16	57	0.7	2.4	0.4	1.2	0.6	1.6	0.7	2.0
2011	16	62	0.7	2.7	0.4	1.2	0.6	1.8	0.7	2.1
2012	12	50	0.5	2.1	0.3	1.0	0.4	1.4	0.5	1.7
2013	11	46	0.5	1.9	0.3	1.0	0.4	1.3	0.4	1.6
2014	16	58	0.7	2.4	0.3	1.4	0.5	1.7	0.6	2.0
2015	12	42	0.5	1.7	0.3	0.8	0.4	1.1	0.5	1.4
2016	10	37	0.4	1.5	0.2	0.7	0.3	1.0	0.4	1.2
1998-2016	222	694	0.6	1.8	0.4	0.9	0.5	1.3	0.6	1.5

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.		Min.	Max.	Median				
		Mean	dev.			10%	25%	50%	75%	90%
1998	22	63.4	18.7	13.4	85.2	33.1	59.7	65.4	78.0	82.4
1999	28	62.9	15.2	28.9	87.1	39.6	53.7	67.5	74.3	78.9
2000	20	65.4	23.0	3.6	93.7	24.9	61.4	70.3	79.7	87.8
2001	23	62.9	16.9	32.5	84.3	34.7	48.9	64.5	78.2	82.8
2002	40	64.3	13.2	23.4	82.9	43.8	57.4	66.9	73.1	79.3
2003	39	63.6	15.5	16.3	89.3	40.7	54.0	66.1	75.0	82.8
2004	51	63.4	16.7	16.7	90.7	39.6	56.8	66.2	74.8	82.7
2005	27	62.2	19.0	1.9	90.4	40.0	49.8	66.7	77.6	80.5
2006	44	62.4	17.3	13.7	90.3	39.0	55.6	64.4	74.5	82.0
2007	62	68.5	11.9	28.8	89.4	56.1	64.5	68.8	77.0	81.7
2008	51	65.8	13.6	35.5	88.1	43.9	57.1	68.4	73.9	81.5
2009	64	63.4	16.8	0.2	87.1	46.3	56.6	68.0	74.9	78.6
2010	73	65.5	15.1	29.2	88.4	42.0	58.6	69.0	76.1	83.0
2011	78	66.8	13.2	29.8	92.3	44.5	61.6	69.7	74.4	82.5
2012	62	68.8	14.3	0.4	97.8	54.9	61.1	70.4	76.4	85.0
2013	57	63.9	15.3	20.7	87.4	44.6	55.9	67.2	74.4	78.6
2014	74	65.5	18.9	2.1	94.6	49.2	59.2	70.8	77.7	81.4
2015	54	66.3	14.0	18.4	88.0	49.7	58.0	69.9	76.0	80.1
2016	47	66.4	13.4	29.8	89.3	49.5	53.7	69.6	76.8	83.5
1998-2016	916	65.2	15.6	0.2	97.8	44.1	57.9	68.3	75.8	82.0

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	9	58.7	23.2	13.4	85.2	13.4	59.7	68.3	69.3	85.2
1999	11	58.8	16.7	28.9	77.1	39.6	43.4	66.7	74.1	74.4
2000	7	50.9	26.2	3.6	71.6	3.6	24.4	64.0	68.7	71.6
2001	7	69.2	11.4	48.8	81.9	48.8	64.5	66.8	78.2	81.9
2002	9	67.9	12.3	40.2	82.8	40.2	65.5	71.0	72.7	82.8
2003	10	64.2	11.9	41.5	77.6	46.3	56.9	66.1	75.2	77.0
2004	23	58.6	18.4	16.7	90.7	33.8	47.8	61.2	70.3	74.4
2005	8	58.9	14.1	37.5	75.2	37.5	46.0	62.8	70.3	75.2
2006	8	62.8	26.6	20.9	90.3	20.9	43.9	72.0	79.8	90.3
2007	15	57.4	13.2	28.8	70.7	35.9	44.9	63.0	65.9	69.8
2008	9	66.8	17.3	37.6	88.1	37.6	67.7	69.8	77.8	88.1
2009	13	54.2	24.5	0.2	79.9	30.6	39.8	57.2	74.5	78.6
2010	16	63.8	13.5	41.0	85.9	45.6	55.8	62.3	76.2	82.5
2011	16	59.5	17.5	29.8	84.0	30.7	43.4	68.1	72.2	76.8
2012	12	67.3	10.7	51.1	85.5	57.0	58.7	67.0	72.9	85.0
2013	11	60.4	17.9	25.9	87.3	39.3	44.6	64.1	73.0	75.9
2014	16	68.0	9.3	49.2	81.6	55.9	60.5	70.5	74.4	80.1
2015	12	60.7	18.0	18.4	86.4	45.9	50.1	64.1	72.7	76.0
2016	10	68.5	12.5	52.7	85.3	53.2	56.2	66.2	78.8	85.3
1998-2016	222	61.7	16.9	0.2	90.7	38.6	54.3	66.2	73.3	78.6

Table 3b

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

Year of diagnosis	Cases n	Std. dev.		Min.	Max.	Median				
		Mean	dev.			10%	25%	50%	75%	90%
1998	13	66.7	14.8	33.1	85.0	54.3	59.7	62.5	78.1	82.4
1999	17	65.6	14.1	31.9	87.1	45.5	56.3	68.7	75.3	80.3
2000	13	73.3	17.4	25.5	93.7	61.2	69.0	76.5	83.4	89.3
2001	16	60.2	18.5	32.5	84.3	33.2	45.3	61.1	79.1	82.9
2002	31	63.3	13.5	23.4	82.9	47.1	57.0	65.1	73.5	79.0
2003	29	63.4	16.8	16.3	89.3	40.2	54.0	66.1	74.2	83.1
2004	28	67.4	14.3	34.4	88.7	43.1	64.3	67.6	76.7	83.7
2005	19	63.6	20.9	1.9	90.4	40.0	52.8	67.5	79.1	82.4
2006	36	62.3	15.0	13.7	85.7	46.5	55.6	62.9	73.6	81.5
2007	47	72.1	9.1	46.1	89.4	63.9	67.1	70.4	79.1	82.3
2008	42	65.6	12.9	35.5	86.9	50.2	57.1	68.3	73.5	81.5
2009	51	65.8	13.6	2.2	87.1	52.8	58.7	68.0	75.3	78.6
2010	57	66.0	15.6	29.2	88.4	36.5	59.1	70.6	75.7	83.5
2011	62	68.7	11.3	38.0	92.3	54.0	62.9	69.9	77.2	82.5
2012	50	69.1	15.2	0.4	97.8	53.8	61.1	71.7	77.7	84.4
2013	46	64.7	14.8	20.7	87.4	45.6	56.7	69.3	74.6	78.6
2014	58	64.9	20.8	2.1	94.6	25.9	57.1	71.6	78.8	82.9
2015	42	68.0	12.5	25.2	88.0	51.5	59.5	71.3	77.5	80.1
2016	37	65.9	13.7	29.8	89.3	45.9	53.6	69.6	76.0	83.3
1998-2016	694	66.3	14.9	0.4	97.8	46.8	58.7	69.2	76.6	82.4

Table 4

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

Age at diagnosis Years	Cases			Males			Females		
	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4	5	0.8	0.8	1	0.8	0.8	4	0.8	0.8
5-9	1	0.2	1.0			0.8	1	0.2	1.0
10-14	0	0.0	1.0			0.8			1.0
15-19	1	0.2	1.1	1	0.8	1.5			1.0
20-24	3	0.5	1.6			1.5	3	0.6	1.6
25-29	10	1.6	3.2	3	2.3	3.8	7	1.4	3.0
30-34	4	0.6	3.9	3	2.3	6.2	1	0.2	3.3
35-39	14	2.3	6.1	7	5.4	11.5	7	1.4	4.7
40-44	15	2.4	8.5	5	3.8	15.4	10	2.0	6.7
45-49	24	3.9	12.4	6	4.6	20.0	18	3.7	10.4
50-54	39	6.3	18.6	7	5.4	25.4	32	6.5	16.9
55-59	56	9.0	27.7	14	10.8	36.2	42	8.5	25.4
60-64	60	9.6	37.3	16	12.3	48.5	44	8.9	34.3
65-69	101	16.2	53.5	21	16.2	64.6	80	16.3	50.6
70-74	113	18.2	71.7	19	14.6	79.2	94	19.1	69.7
75-79	90	14.5	86.2	15	11.5	90.8	75	15.2	85.0
80-84	55	8.8	95.0	4	3.1	93.8	51	10.4	95.3
85+	31	5.0	100.0	8	6.2	100.0	23	4.7	100.0
All ages	622	100.0		130	100.0		492	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=6 %	Females DCO rate n=10 %	Males	Females
							Prop.all cancers n=113978 %	Prop.all cancers n=112253 %
0– 4	1	4	0.1	0.4			0.5	2.7
5– 9		1		0.1				1.2
10–14								
15–19	1		0.1				0.4	
20–24		3		0.2				0.8
25–29	3	7	0.2	0.4			0.4	0.8
30–34	3	1	0.2	0.1			0.3	0.1
35–39	7	7	0.4	0.4			0.5	0.3
40–44	5	10	0.3	0.6			0.2	0.2
45–49	6	18	0.3	0.9			0.2	0.3
50–54	7	32	0.4	1.9			0.1	0.4
55–59	14	42	1.0	2.9			0.2	0.4
60–64	16	44	1.3	3.3			0.1	0.4
65–69	21	80	1.8	6.2			0.1	0.6
70–74	19	94	1.7	7.4	5.3		0.1	0.6
75–79	15	75	1.9	7.5	20.0	1.3	0.1	0.6
80–84	4	51	0.9	7.2		7.8	0.0	0.5
85+	8	23	2.6	3.1	25.0	21.7	0.1	0.2
All ages	130	492			4.6	2.0	0.1	0.4
Incidence								
Raw			0.6	2.1				
WS			0.3	1.0				
ES			0.5	1.4				
BRD–S			0.5	1.7				

The age-specific incidence characterizes the disease risk in a particular age group. The age distribution depends on the patient population frequency in each age group and reflects the tangible clinical picture of everyday patients care (see following chart).

ICD-10 C48: Malignant neoplasm of retroperitoneum and peritoneum

Age distribution and age-specific incidence 2007 - 2016 (Males: 130, Females: 492)

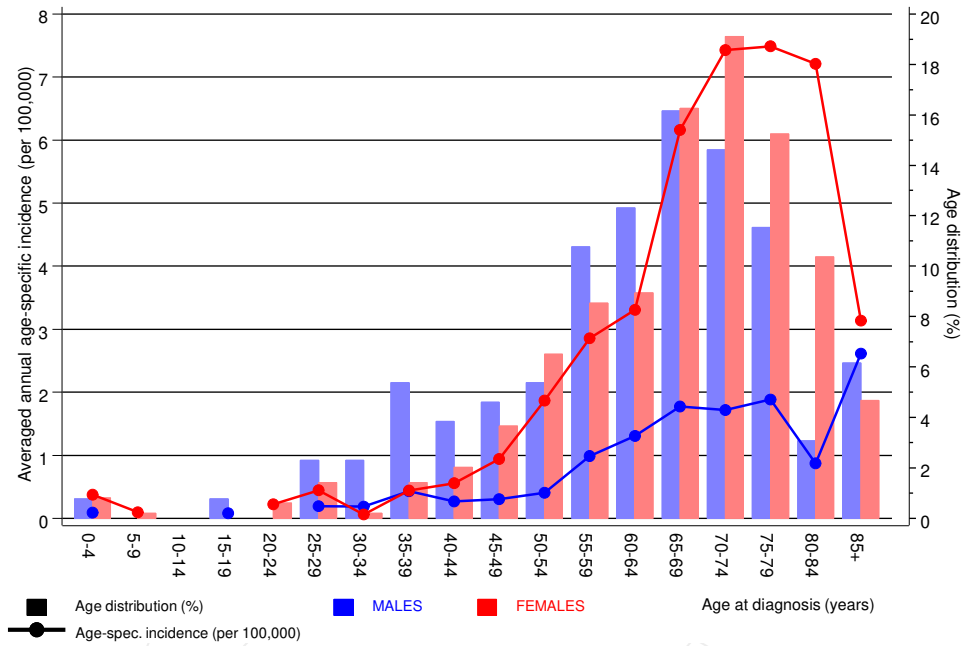


Figure 6. Age distribution (males: mean=62.4 yrs, median=66.2 yrs; females: mean=67.1 yrs, median=69.9 yrs) and age-specific incidence.

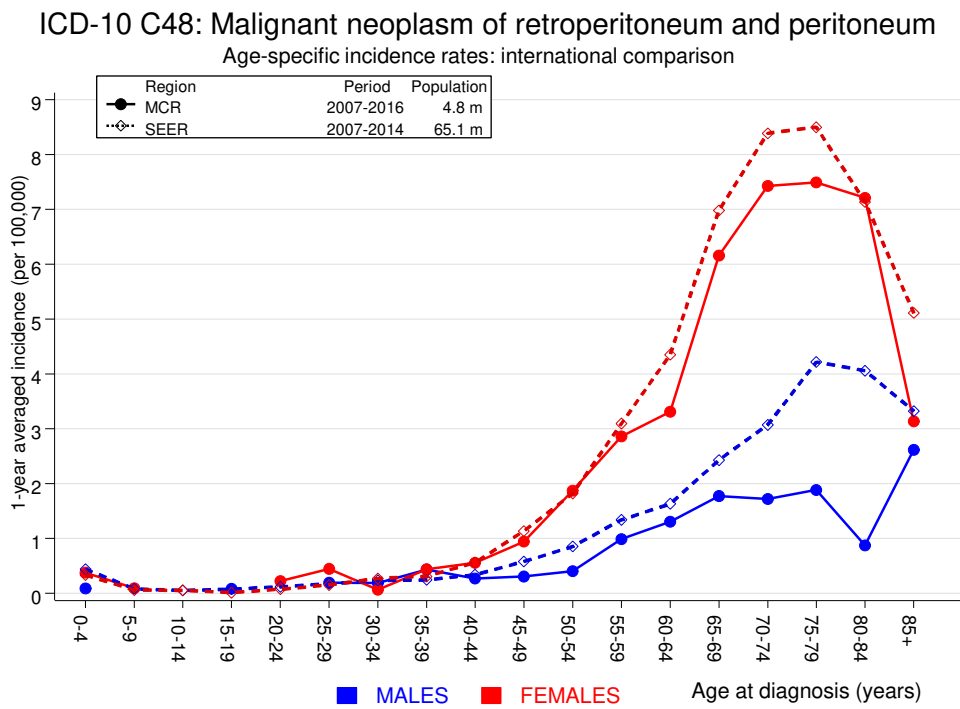


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence - SEER 18 Regs Research Data, released April 2014, based on the November 2013 submission. <http://www.seer.cancer.gov>.

Table 7a

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of further malignancies for period 1998–2016

MALES

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C19–C20 Rectum	2	0.4	4.7	0.6	17.0	26.7	
C61 Prostate	3	2.3	1.3	0.3	3.8	11.5	
C62 Testis	3	0.0	77.0	15.9	225.0 #	50.1	33.3
C64 Kidney	2	0.3	7.0	0.9	25.4	29.1	
C91–C96 Leukaemia	2	0.1	16.0	1.9	57.9 #	31.8	
Others, specified	8	3.2	2.5	1.1	4.9 #	80.7	25.0
Not observed	0	1.6	0.0	0.0	2.4	-26.4	
All further malignancies	20	8.0	2.5	1.5	3.9 #	203.4	15.0
Patients		206					
Median age at next malignancy (years)		66.2					
Person-years		591					
Mean observation time (years)		2.9					
Median observation time (years)		1.4					

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

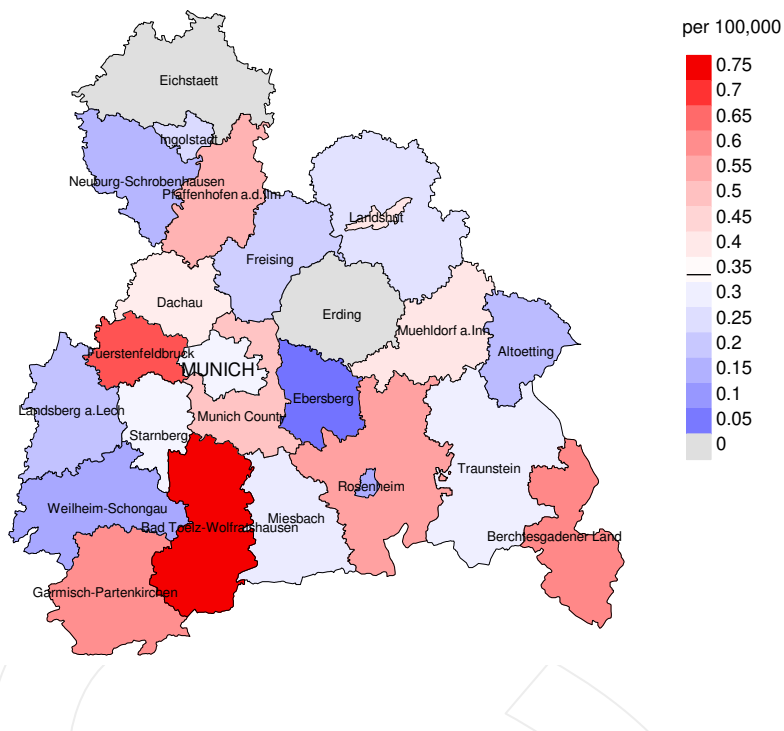
Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C16	Stomach	3	0.5	5.8	1.2	17.1 #	14.6	
C17	Small intestine	2	0.1	21.9	2.7	79.2 #	11.2	
C18	Colon	4	1.5	2.7	0.7	7.0	14.8	50.0
C33-C34	Lung	2	1.3	1.5	0.2	5.4	3.9	
C50	Breast	8	5.4	1.5	0.6	2.9	15.4	
C53	Cervix uteri	2	0.2	8.5	1.0	30.8 #	10.3	
C54	Corpus uteri	7	1.0	7.2	2.9	14.8 #	35.3	
C56	Ovary	52	0.7	75.5	56.4	99.0 #	300.4	84.6
C64	Kidney	2	0.4	4.9	0.6	17.6	9.3	
C82-C85	NHL	3	0.6	4.7	1.0	13.8	13.9	
C91-C96	Leukaemia	3	0.3	11.6	2.4	34.0 #	16.1	33.3
Others, specified		6	1.9	3.2	1.2	6.9 #	24.1	33.3
Not observed		0	3.1	0.0	0.0	1.2	-17.9	
All further malignancies		94	16.9	5.6	4.5	6.8 #	451.3	52.1

Patients	634
Median age at next malignancy (years)	72.6
Person-years	1708
Mean observation time (years)	2.7
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".

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



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

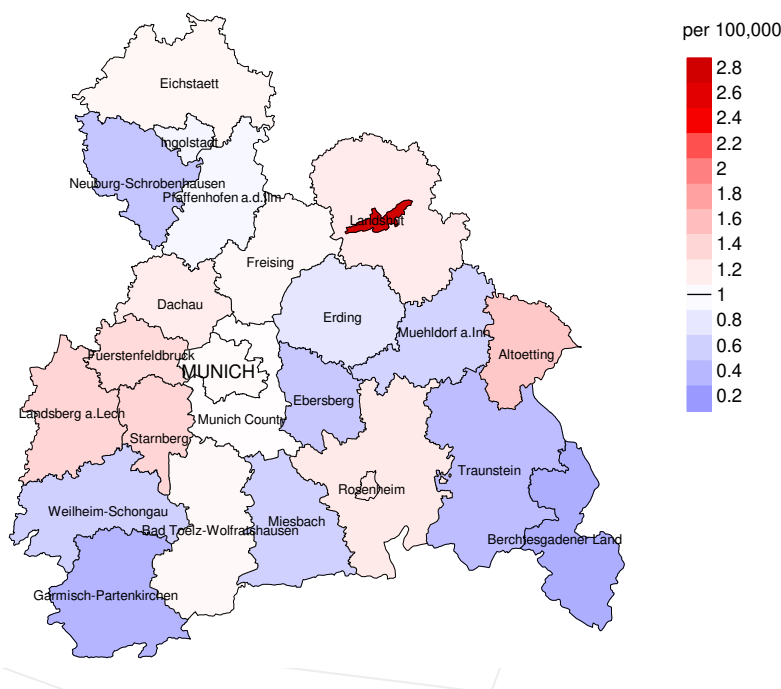
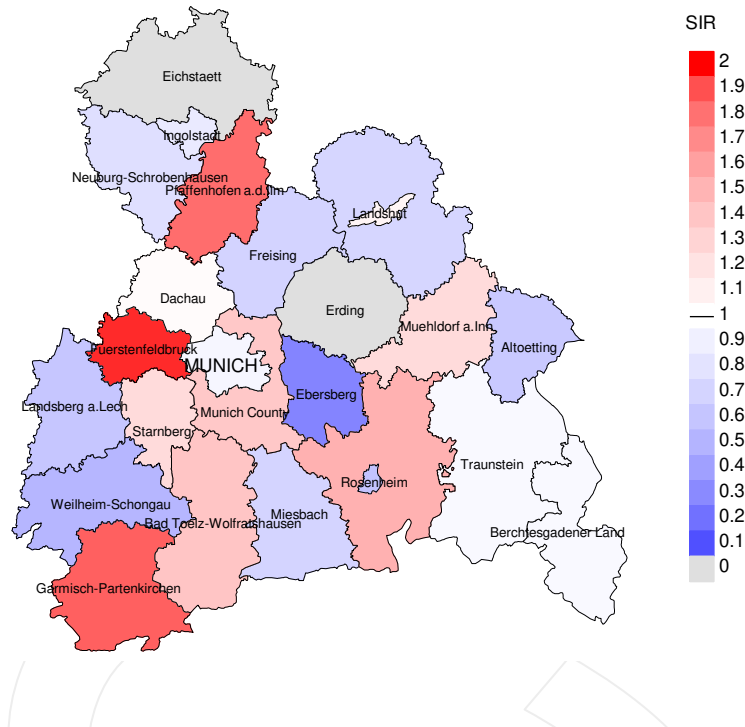


Figure 8a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.3/100,000 WS N=130, females 1.0/100,000 WS N=492).

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 8 women were identified with newly diagnosed peritoneal cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 0.5/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.1 and 1.6/100,000.

Standardized incidence ratio (SIR) 2007 - 2016: Males



Standardized incidence ratio (SIR) 2007 - 2016: Females

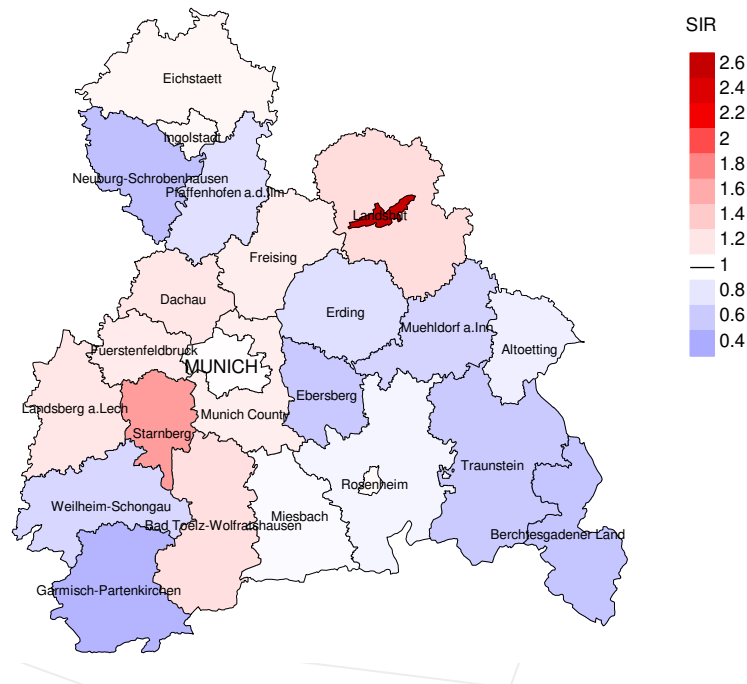


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=130, females N=492).

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 8 women were identified with newly diagnosed peritoneal cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.59. Though, the value of this parameter may vary with an underlying probability of 99% between 0.19 and 1.38, and is therefore not statistically striking.

MORTALITY

Table 9a

Annual cohorts: Incident cancers, follow-up status, proportion of DCO, deaths among the annual cohorts and proportion of available death certificates (with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.81 m as of 2007, respectively)

Year of diagnosis	Incident cases n	Prop. actively followed %	Prop. DCO %	Deaths n	Prop. deaths %	Prop. deaths with death certific. %
1998	22	90.9	18.2	17	77.3	94.1
1999	28	100.0	17.9	23	82.1	95.7
2000	20	100.0	20.0	17	85.0	94.1
2001	23	100.0	17.4	18	78.3	100.0
2002	40	100.0	12.5	33	82.5	90.9
2003	39	100.0	10.3	36	92.3	91.7
2004	51	96.1	13.7	35	68.6	100.0
2005	27	96.3	3.7	22	81.5	100.0
2006	44	97.7	4.5	31	70.5	96.8
2007	62	90.3	6.5	51	82.3	100.0
2008	51	90.2	3.9	40	78.4	100.0
2009	64	79.7	1.6	39	60.9	100.0
2010	73	78.1	4.1	44	60.3	97.7
2011	78	82.1		47	60.3	95.7
2012	62	80.6		37	59.7	94.6
2013	57	86.0		33	57.9	93.9
2014	74	77.0	4.1	35	47.3	85.7
2015	54	96.3	3.7	14	25.9	85.7
2016	47	51.1	2.1	7	14.9	57.1
1998-2016	916	86.7	5.7	579	63.2	95.3

Table 9b

Annual cohorts of incident cancers and deaths, proportion of death certificates and cases deceased within the same year of being diagnosed with cancer (incl. DCO)

(with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.81 m as of 2007, respectively)

Year of diagnosis/ death	Incident cases n	Deaths n	Prop. deaths with death certific. %	Deaths in same year n	Prop. deaths in same year %
1998	22	12	91.7	7	31.8
1999	28	13	84.6	7	25.0
2000	20	20	95.0	6	30.0
2001	23	21	90.5	8	34.8
2002	40	22	100.0	13	32.5
2003	39	17	82.4	7	17.9
2004	51	27	92.6	9	17.6
2005	27	30	100.0	8	29.6
2006	44	26	96.2	7	15.9
2007	62	34	100.0	9	14.5
2008	51	26	100.0	6	11.8
2009	64	42	95.2	11	17.2
2010	73	47	100.0	8	11.0
2011	78	47	100.0	16	20.5
2012	62	46	100.0	6	9.7
2013	57	48	95.8	7	12.3
2014	74	62	96.8	14	18.9
2015	54	45	95.6	5	9.3
2016	47	34	100.0	4	8.5
1998-2016	916	619	96.8	158	17.2

Table 9c

Annual cohorts of deaths, proportion of cancer-related and non-cancer-related deaths, and cancer recorded on death certificates
(incl. DCO)

(with respect to registry area expansion from 2.65 to 4.10 m as of 2002,
and from 4.10 to 4.81 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer- related %	Prop. non-cancer- related %	Prop. cancer recorded on death certificate %
1998	12	83.3	16.7	100.0
1999	13	69.2	30.8	100.0
2000	20	100.0		100.0
2001	21	95.2	4.8	100.0
2002	22	95.5	4.5	100.0
2003	17	94.1	5.9	85.7
2004	27	96.3	3.7	100.0
2005	30	93.3	6.7	96.7
2006	26	96.2	3.8	100.0
2007	34	94.1	5.9	97.1
2008	26	100.0		100.0
2009	42	85.7	14.3	92.5
2010	47	95.7	4.3	95.7
2011	47	97.9	2.1	100.0
2012	46	97.8	2.2	95.7
2013	48	93.8	6.3	97.8
2014	62	95.2	4.8	98.3
2015	45	93.3	6.7	97.7
2016	34	97.1	2.9	100.0
1998-2016	619	94.3	5.7	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	2	77.7	77.7		77.7
1999	8	73.2	68.3	75.9	73.2
2000	9	67.7	67.7		67.7
2001	7	65.9	65.9		68.6
2002	7	69.1	69.1		69.1
2003	8	73.5	71.4	92.4	73.5
2004	4	68.5	68.5		68.5
2005	6	65.9	65.9		65.9
2006	6	68.5	68.5		68.5
2007	13	66.3	60.6	78.4	63.4
2008	7	72.0	72.0		72.0
2009	12	73.0	69.7	81.2	70.1
2010	10	76.2	78.4	74.0	78.4
2011	8	69.8	69.7	72.2	69.8
2012	7	81.7	81.7		81.7
2013	8	72.4	73.6	71.1	73.6
2014	12	72.3	71.3	81.9	71.3
2015	6	70.1	70.1		72.3
2016	5	67.9	67.9		67.9
1998–2016	145	70.6	69.7	75.9	70.3

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	10	78.0	76.2	81.4	78.0
1999	5	80.3	78.3	80.3	80.3
2000	11	78.9	78.9		79.5
2001	14	74.8	73.5	81.7	76.1
2002	15	68.3	68.0	71.5	68.3
2003	9	64.5	64.5		66.0
2004	23	75.8	74.5	76.8	75.8
2005	24	71.8	71.8	77.5	71.8
2006	20	74.2	73.3	80.0	75.0
2007	21	75.3	75.3		75.3
2008	19	70.5	70.5		70.5
2009	30	73.2	71.8	89.6	73.2
2010	37	72.8	72.7	93.7	72.7
2011	39	74.1	74.1		74.1
2012	39	75.8	75.7	91.7	75.7
2013	40	74.0	73.2	84.3	73.2
2014	50	73.8	73.8	80.2	73.6
2015	39	72.6	72.2	80.7	72.3
2016	29	76.8	76.2	84.6	76.8
1998–2016	474	74.1	73.5	81.7	73.8

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

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

Table 11a

Mortality measures (cancer-related death) and mortality-incidence-index
by year of death

MALES

Year of death	Deaths n	Mort. raw	MI-Index raw	Mort. WS	MI-Index WS	Mort. ES	MI-Index ES	Mort. BRD-S	MI-Index BRD-S
1998	2	0.2	0.22	0.1	0.17	0.2	0.22	0.2	0.25
1999	5	0.4	0.45	0.3	0.43	0.4	0.46	0.5	0.50
2000	9	0.8	1.29	0.5	0.86	0.7	1.17	0.8	1.31
2001	7	0.6	1.00	0.4	1.06	0.5	0.95	0.7	0.91
2002	7	0.4	0.78	0.2	0.83	0.3	0.82	0.4	0.76
2003	7	0.4	0.70	0.2	0.63	0.3	0.65	0.4	0.74
2004	4	0.2	0.17	0.1	0.13	0.2	0.15	0.2	0.16
2005	6	0.3	0.75	0.2	0.93	0.3	0.82	0.3	0.84
2006	6	0.3	0.75	0.2	0.62	0.3	0.72	0.3	0.60
2007	11	0.5	0.73	0.3	0.70	0.4	0.75	0.5	0.90
2008	7	0.3	0.78	0.2	0.75	0.3	0.84	0.3	0.87
2009	8	0.4	0.62	0.2	0.42	0.3	0.49	0.3	0.54
2010	9	0.4	0.56	0.2	0.44	0.3	0.50	0.4	0.61
2011	7	0.3	0.44	0.2	0.41	0.3	0.46	0.3	0.47
2012	7	0.3	0.58	0.1	0.44	0.2	0.47	0.3	0.62
2013	7	0.3	0.64	0.1	0.48	0.2	0.55	0.3	0.67
2014	11	0.5	0.69	0.2	0.60	0.3	0.63	0.4	0.65
2015	6	0.3	0.50	0.2	0.52	0.2	0.49	0.2	0.51
2016	5	0.2	0.50	0.1	0.65	0.2	0.58	0.2	0.55
1998-2016	131	0.4	0.59	0.2	0.52	0.3	0.55	0.3	0.60

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	8	0.7	0.62	0.3	0.51	0.4	0.56	0.6	0.64
1999	4	0.3	0.24	0.1	0.17	0.2	0.18	0.2	0.17
2000	11	0.9	0.85	0.4	0.82	0.6	0.88	0.8	0.86
2001	13	1.1	0.81	0.4	0.64	0.7	0.72	0.9	0.78
2002	14	0.7	0.45	0.3	0.37	0.5	0.40	0.6	0.43
2003	9	0.5	0.31	0.3	0.35	0.3	0.31	0.4	0.32
2004	22	1.1	0.79	0.5	0.71	0.7	0.76	0.9	0.84
2005	22	1.1	1.16	0.5	0.81	0.7	0.97	0.9	1.10
2006	19	0.9	0.53	0.4	0.37	0.6	0.39	0.8	0.47
2007	21	0.9	0.45	0.3	0.39	0.5	0.40	0.7	0.43
2008	19	0.8	0.45	0.3	0.36	0.5	0.37	0.6	0.43
2009	28	1.2	0.55	0.5	0.42	0.8	0.46	1.0	0.51
2010	36	1.5	0.63	0.6	0.50	0.9	0.56	1.2	0.61
2011	39	1.7	0.63	0.6	0.51	1.0	0.55	1.3	0.60
2012	38	1.6	0.76	0.6	0.59	0.9	0.68	1.3	0.78
2013	38	1.6	0.83	0.6	0.62	0.9	0.69	1.2	0.75
2014	48	2.0	0.83	0.8	0.59	1.2	0.71	1.5	0.75
2015	36	1.5	0.86	0.7	0.87	0.9	0.85	1.2	0.86
2016	28	1.1	0.76	0.4	0.52	0.6	0.59	0.8	0.69
1998-2016	453	1.2	0.65	0.5	0.52	0.7	0.57	1.0	0.62

Table 12

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

Age at death Years	Cases			Males			Females		
	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4									
5-9									
10-14									
15-19	1	0.2	0.2	1	1.3	1.3			0.0
20-24	2	0.5	0.7	1	1.3	2.6	1	0.3	0.3
25-29	0	0.0	0.7			2.6			0.3
30-34	2	0.5	1.2	2	2.6	5.1			0.3
35-39	5	1.2	2.4	2	2.6	7.7	3	0.9	1.2
40-44	3	0.7	3.2			7.7	3	0.9	2.1
45-49	5	1.2	4.4	2	2.6	10.3	3	0.9	3.0
50-54	13	3.2	7.6	4	5.1	15.4	9	2.7	5.7
55-59	30	7.3	14.9	6	7.7	23.1	24	7.3	13.0
60-64	30	7.3	22.2	6	7.7	30.8	24	7.3	20.2
65-69	67	16.4	38.6	13	16.7	47.4	54	16.3	36.6
70-74	80	19.6	58.2	16	20.5	67.9	64	19.3	55.9
75-79	81	19.8	78.0	11	14.1	82.1	70	21.1	77.0
80-84	57	13.9	91.9	10	12.8	94.9	47	14.2	91.2
85+	33	8.1	100.0	4	5.1	100.0	29	8.8	100.0
All ages	409	100.0		78	100.0		331	100.0	

Table 13

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007–2016
(incl. multiple malignancies)

Age at death Years	Males n	Females n	Males Age- spec. mortal.	Males MI-index	Females Age- spec. mortal.	Females MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4								
5- 9								
10-14								
15-19	1		0.1	1.00			2.3	
20-24	1	1	0.1	1.00	0.1	0.33	1.8	3.0
25-29								
30-34	2		0.1	0.67			1.9	
35-39	2	3	0.1	0.29	0.2	0.43	1.0	1.1
40-44		3			0.2	0.30		0.4
45-49	2	3	0.1	0.33	0.2	0.17	0.2	0.2
50-54	4	9	0.2	0.57	0.5	0.28	0.2	0.5
55-59	6	24	0.4	0.43	1.6	0.57	0.2	0.8
60-64	6	24	0.5	0.38	1.8	0.55	0.1	0.6
65-69	13	54	1.1	0.62	4.2	0.68	0.2	1.0
70-74	16	64	1.4	0.84	5.1	0.68	0.2	0.9
75-79	11	70	1.4	0.73	7.0	0.93	0.1	1.0
80-84	10	47	2.2	2.50	6.6	0.92	0.1	0.7
85+	4	29	1.3	0.50	4.0	1.26	0.1	0.3
All ages	78	331					0.1	0.7
Mortality								
Raw			0.3	0.60	1.4	0.67		
WS			0.2	0.51	0.5	0.53		
ES			0.3	0.55	0.8	0.59		
BRD-S			0.3	0.61	1.1	0.64		
PYLL-70								
per 100,000			2.5		5.3			
ES			2.4		4.5			
AYLL-70			13.7		8.8			

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 ←%
C16 Stomach	4	7.5	3	75.0			1	25.0
C18 Colon	3	5.7	2	66.7			1	33.3
C19-C20 Rectum	2	3.8	1	50.0			1	50.0
C22 Liver	1	1.9			1	100.0		
C23-C24 Bile	1	1.9			1	100.0		
C25 Pancreas	2	3.8			2	100.0		
C33-C34 Lung	4	7.5	2	50.0	1	25.0	1	25.0
C38,C45 Mesothelioma	1	1.9	1	100.0				
C43 Malign. melanoma	1	1.9					1	100.0
C44 Skin others	4	7.5	4	100.0				
C61 Prostate	11	20.8	9	81.8			2	18.2
C62 Testis	2	3.8	1	50.0	1	50.0		
C64 Kidney	5	9.4	3	60.0	1	20.0	1	20.0
C65 Renal pelvis	1	1.9	1	100.0				
C67 Bladder	4	7.5	2	50.0			2	50.0
C68 Urethra	1	1.9					1	100.0
C76-C79 CUP	1	1.9	1	100.0				
C82-C85 NHL	3	5.7	2	66.7			1	33.3
C91-C96 Leukaemia	2	3.8					2	100.0
All further malignancies	53	100.0	32	60.4	7	13.2	14	26.4

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

Table 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 ←%
C16 Stomach	3	1.5	2	66.7	1	33.3		
C18 Colon	12	6.2	4	33.3	5	41.7	3	25.0
C19–C20 Rectum	2	1.0	2	100.0				
C25 Pancreas	2	1.0			1	50.0	1	50.0
C33–C34 Lung	2	1.0	1	50.0			1	50.0
C43 Malign. melanoma	8	4.1	7	87.5			1	12.5
C44 Skin others	11	5.7	7	63.6	3	27.3	1	9.1
C50 Breast	35	18.0	26	74.3	3	8.6	6	17.1
C53 Cervix uteri	3	1.5	3	100.0				
C54 Corpus uteri	14	7.2	6	42.9	7	50.0	1	7.1
C56 Ovary	74	38.1	11	14.9	10	13.5	53	71.6
C64 Kidney	3	1.5	1	33.3	1	33.3	1	33.3
C67 Bladder	2	1.0	1	50.0			1	50.0
C73 Thyroid	3	1.5	3	100.0				
C82–C85 NHL	5	2.6	3	60.0	1	20.0	1	20.0
C90 Mult. myeloma	3	1.5	1	33.3	1	33.3	1	33.3
C91–C96 Leukaemia	3	1.5					3	100.0
Others, specified	9	4.6	2	22.2	2	22.2	5	55.6
All further malignancies	194	100.0	80	41.2	35	18.0	79	40.7

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. MI-index	Females Age- spec. mortal. MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4						
5- 9						
10-14						
15-19	1		0.1	1.00	2.4	
20-24	1	1	0.1	1.00	2.0	3.2
25-29						
30-34	2		0.1	0.67	2.0	
35-39	2	2	0.1	0.29	1.1	0.8
40-44		3				0.5
45-49	2	3	0.1	0.33	0.2	0.3
50-54	4	7	0.2	0.57	0.4	0.4
55-59	5	19	0.4	0.42	1.3	0.8
60-64	4	21	0.3	0.33	1.6	0.7
65-69	8	39	0.7	0.62	3.0	0.9
70-74	10	53	0.9	0.83	4.2	1.0
75-79	9	53	1.1	1.00	5.3	1.0
80-84	8	30	1.7	2.00	4.2	0.6
85+	3	24	1.0	0.50	3.3	0.3
All ages	59	255			0.1	0.7
Mortality						
Raw			0.3	0.58	1.1	0.66
WS			0.1	0.49	0.4	0.52
ES			0.2	0.53	0.6	0.57
BRD-S			0.2	0.60	0.8	0.62
PYLL-70						
per 100,000			2.3		4.4	
ES			2.2		3.7	
AYLL-70			16.1		9.2	

* 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 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	1		0.1	1.00			2.4	
20-24	1	1	0.1	1.00	0.1	0.33	2.0	3.2
25-29								
30-34	2		0.1	0.67			2.0	
35-39	2	2	0.1	0.29	0.1	0.33	1.1	0.8
40-44		3			0.2	0.33		0.5
45-49	2	2	0.1	0.40	0.1	0.20	0.2	0.2
50-54	3	4	0.2	0.43	0.2	0.16	0.2	0.2
55-59	4	16	0.3	0.36	1.1	0.48	0.1	0.7
60-64	4	18	0.3	0.36	1.4	0.62	0.1	0.6
65-69	6	28	0.5	0.55	2.2	0.55	0.1	0.7
70-74	10	41	0.9	0.83	3.2	0.71	0.1	0.8
75-79	8	41	1.0	1.00	4.1	0.77	0.1	0.8
80-84	5	24	1.1	1.25	3.4	0.83	0.1	0.5
85+	2	20	0.7	0.40	2.7	1.11	0.0	0.3
All ages	50	200					0.1	0.6
Mortality								
Raw			0.2	0.54	0.8	0.60		
WS			0.1	0.47	0.3	0.47		
ES			0.2	0.50	0.5	0.51		
BRD-S			0.2	0.55	0.7	0.56		
PYLL-70								
per 100,000			2.1		3.6			
ES			2.0		3.1			
AYLL-70			17.3		9.7			

* See corresponding tables with multiple malignancies.

ICD-10 C48: Malignant neoplasm of retroperitoneum and peritoneum
 Age distribution and age-specific mortality 2007 - 2016 (Males: 78, Females: 331)

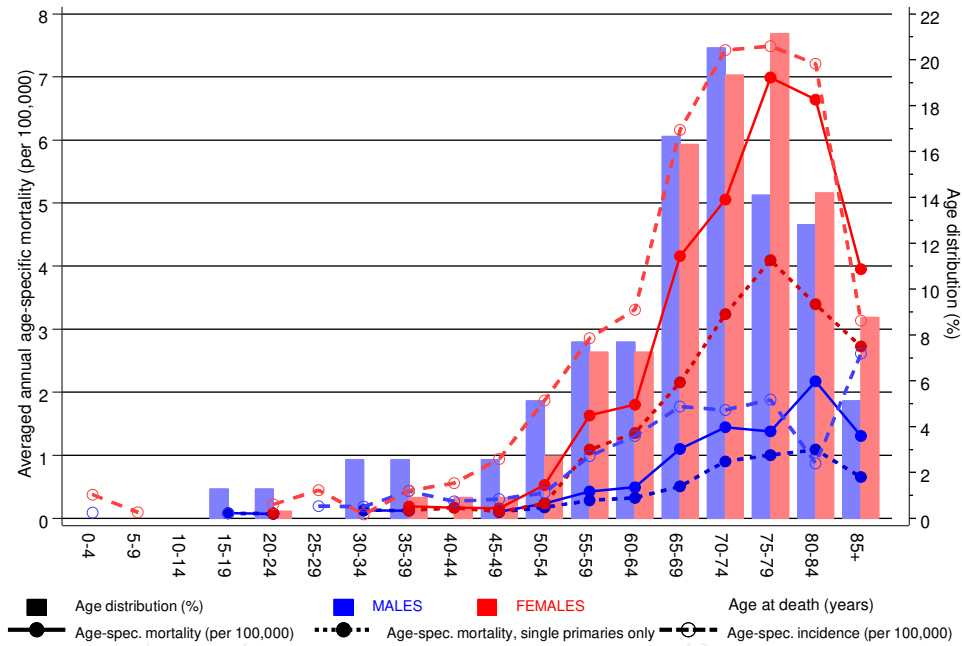
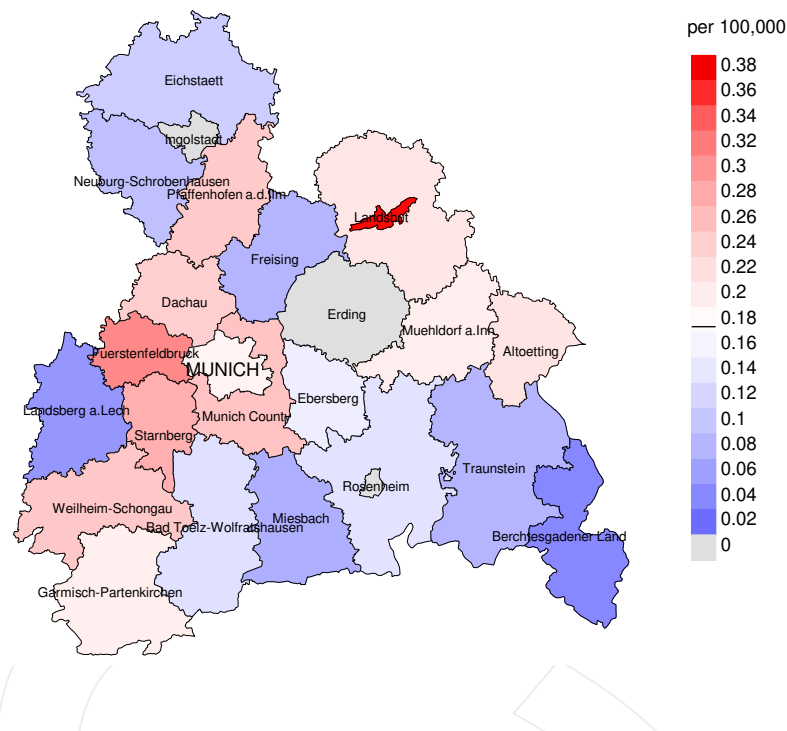


Figure 17. Distribution of age at death (bars; males: mean=63.2 yrs, median=67.4 yrs; females: mean=69.7 yrs, median=70.8 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

The difference between age at diagnosis (Table 3) and age at peritoneal 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

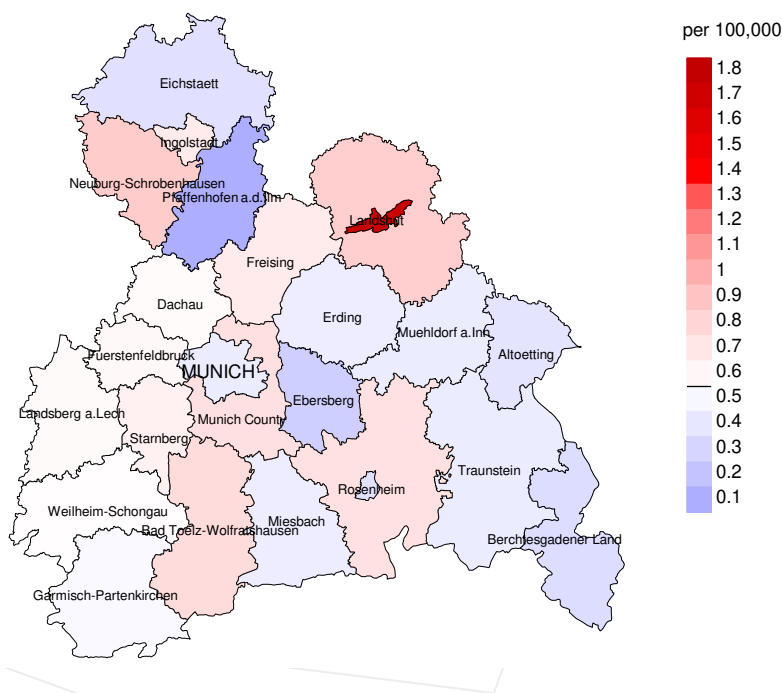
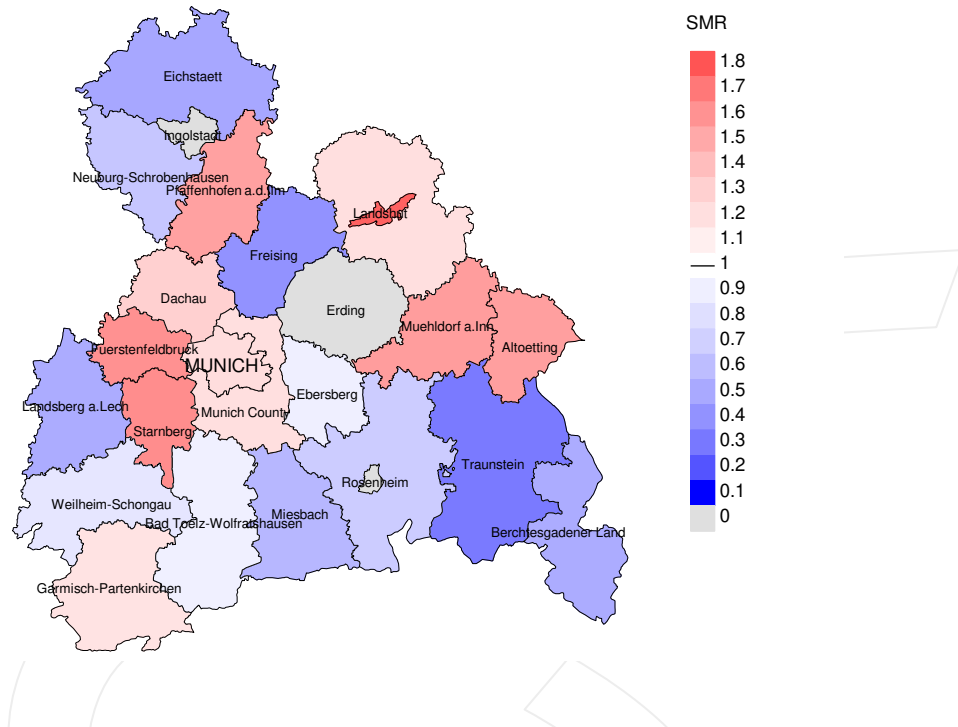


Figure 18a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2016. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.2/100,000 WS N=78, females 0.5/100,000 WS N=331).

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 5 women died from peritoneal cancer. 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 1.2/100,000.

Standardized mortality ratio (SMR) 2007 - 2016: Males



Standardized mortality ratio (SMR) 2007 - 2016: Females

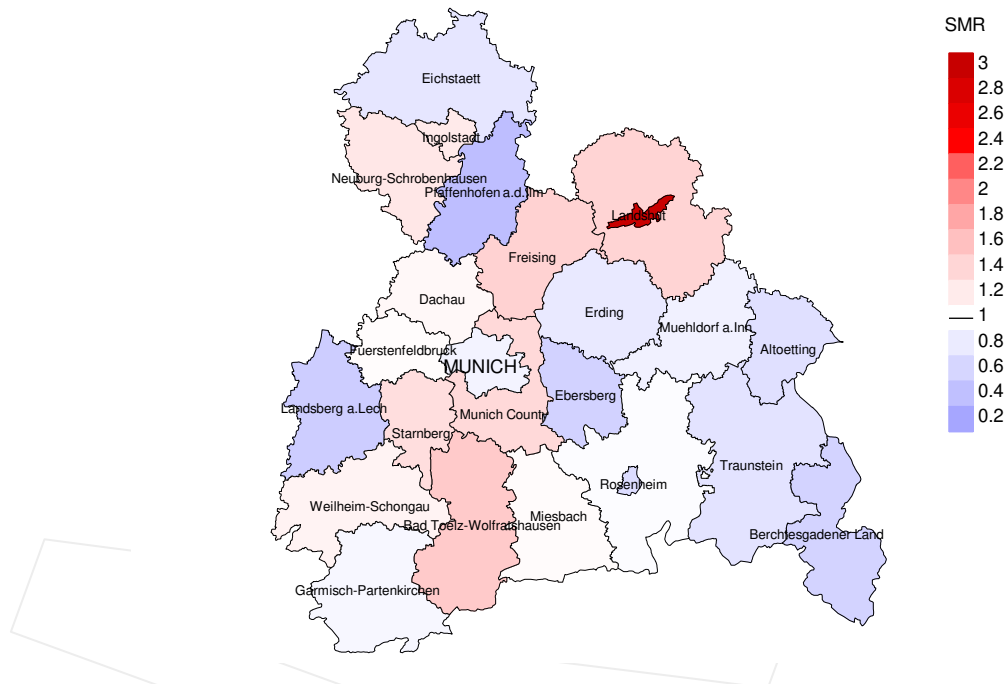


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=78, females N=331).

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 5 women died from peritoneal cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.56. Though, the value of this parameter may vary with an underlying probability of 99% between 0.12 and 1.58, 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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