

# Munich Cancer Registry



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

## ICD-10 C48: Peritoneal cancer

### Incidence and Mortality

Year of diagnosis	1998-2019
Patients	1,130
Diseases	1,130
Creation date	01/25/2021
Database export	01/07/2021
Population	4.92 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](https://www.tumorregister-muenchen.de/en/facts/base/bC48__E-ICD-10-C48-Peritoneal-cancer-incidence-and-mortality.pdf)

### Index of figures and tables

Fig./Tbl.		Page
1	Annual cases, DCO, mult. malignancies, follow-up / yr	4
2	Incidence by year of diagnosis	7
3	Age distribution parameters by year of diagnosis	8
4	Age distribution by 5-year age group and sex	11
5	Age-specific incidence, DCO rate, proportion malignancies	12
6	Age distribution and age-specific incidence (chart)	13
6a	Age-specific incidence internationally (chart)	14
7	Standardized incidence ratio of further malignancies	15
8a	Map of cancer incidence (BRD-S) by county (chart)	17
8b	Standardized incidence ratio (SIR) by county (chart)	18
9a	Pts incident cohorts and mortality / yr	19
9b	Incidence and mortality by year of diagnosis	20
9c	Cancer-related deaths, death certification available / yr	21
10	Medians of age at death / yr	22
11	Mortality by year of death	24
12	Distribution of age at death	26
13	Age-specific mortality	27
14	Further malignancies in deaths	28
15	Age-specific mortality (first primaries)	30
16	Age-specific mortality (single primaries)	31
17	Age distribution and age-specific mortality (chart)	32
18a	Map of cancer mortality (BRD-S) by county (chart)	33
18b	Standardized mortality ratio (SMR) by county (chart)	34

**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<sup>#</sup>, with a total of 4.69 million inhabitants, account for the frequency of cancer diseases<sup>##</sup> 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<sup>###</sup> 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](mailto:tumor@ibe.med.uni-muenchen.de).

Munich Cancer Registry, January 2021

<sup>#</sup> 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).

<sup>##</sup> 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.

<sup>###</sup> 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	21	5	23.8	14.3	10.6	76.2	90.5
1999	28	5	17.9	18.4	10.7	85.7	96.4
2000	20	5	25.0	18.8	10.5	85.0	100.0
2001	24	6	25.0	17.2	10.7	87.5	100.0
2002	40	5	12.5	15.0	10.7	87.5	100.0 #
2003	39	4	10.3	15.1	11.0	94.9	100.0
2004	53	7	13.2	16.0	11.3	69.8	100.0
2005	24	1	4.2	16.5	11.6	87.5	100.0
2006	44	2	4.5	16.4	11.6	75.0	100.0
2007	62	4	6.5	17.2	11.4	87.1	100.0 #
2008	51	3	5.9	16.7	10.6	84.3	100.0
2009	63	1	1.6	16.4	10.5	69.8	98.4
2010	73	3	4.1	17.3	9.6	67.1	100.0
2011	80	1	1.3	17.0	8.5	65.0	100.0
2012	64	1	1.6	17.3	7.2	73.4	100.0
2013	58	1	1.7	17.6	6.8	65.5	100.0
2014	74	3	4.1	17.8	3.8	62.2	94.6
2015	60	2	3.3	17.8	2.7	58.3	98.3
2016	56	2	3.6	18.0	2.5	64.3	100.0
2017	68	4	5.9	18.0	1.6	57.4	100.0
2018	70			18.7	0.8	34.3	100.0
2019	58			18.8	0.0	24.1	79.3 ##
1998-2019	1130	65	5.8	18.8	10.6	67.4	98.1

1,130 cases diagnosed 1998-2019 are related to a total of 1,130 patients. Currently, in 346 (30.6 %) of these 1,130 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 280 / 49 / 17 (24.8 % / 4.3 % / 1.5 %) 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 2017, a subgroup of 68 cases has been diagnosed, of which 18.0 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 1.6 % 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	38.1			12.5	9.0	75.0	87.5
1999	12	42.9	2	16.7	25.0	9.3	91.7	100.0
2000	7	35.0	1	14.3	25.9	8.9	85.7	100.0
2001	7	29.2	2	28.6	23.5	9.2	85.7	100.0
2002	8	20.0	2	25.0	23.8	9.0	87.5	100.0 #
2003	9	23.1	2	22.2	21.6	9.3	100.0	100.0
2004	23	43.4	2	8.7	21.6	9.2	69.6	100.0
2005	6	25.0			22.5	8.7	100.0	100.0
2006	8	18.2	2	25.0	21.6	9.0	87.5	100.0
2007	15	24.2	1	6.7	20.4	7.6	73.3	100.0 #
2008	9	17.6	2	22.2	20.5	7.0	77.8	100.0
2009	11	17.5			19.5	6.7	54.5	100.0
2010	16	21.9	2	12.5	19.4	7.3	50.0	100.0
2011	16	20.0	1	6.3	20.0	4.6	50.0	100.0
2012	12	18.8	1	8.3	20.4	4.3	58.3	100.0
2013	11	19.0			19.7	4.9	36.4	100.0
2014	16	21.6	1	6.3	20.1	1.4	43.8	100.0
2015	15	25.0			19.1	1.8	40.0	100.0
2016	13	23.2			20.3	0.0	46.2	100.0
2017	14	20.6			19.5	0.0	50.0	100.0
2018	9	12.9			19.2	0.0		100.0
2019	7	12.1			19.0	0.0	28.6	71.4 ##
1998-2019	252	22.3	21	8.3	19.0	9.0	60.7	98.8

252 cases diagnosed 1998-2019 are related to a total of 252 patients. Currently, in 71 (28.2 %) of these 252 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 58 / 11 / 2 (23.0 % / 4.4 % / 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 2017, a subgroup of 14 cases has been diagnosed, of which 19.5 % 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	61.9	5	38.5	15.4	11.0	76.9	92.3
1999	16	57.1	3	18.8	13.8	11.1	81.3	93.8
2000	13	65.0	4	30.8	14.3	10.9	84.6	100.0
2001	17	70.8	4	23.5	13.6	11.1	88.2	100.0
2002	32	80.0	3	9.4	11.0	11.2	87.5	100.0 #
2003	30	76.9	2	6.7	12.4	11.5	93.3	100.0
2004	30	56.6	5	16.7	13.2	11.8	70.0	100.0
2005	18	75.0	1	5.6	13.6	12.3	83.3	100.0
2006	36	81.8			14.1	12.2	72.2	100.0
2007	47	75.8	3	6.4	15.9	12.4	91.5	100.0 #
2008	42	82.4	1	2.4	15.3	11.5	85.7	100.0
2009	52	82.5	1	1.9	15.3	11.4	73.1	98.1
2010	57	78.1	1	1.8	16.6	10.2	71.9	100.0
2011	64	80.0			16.1	9.5	68.8	100.0
2012	52	81.3			16.4	7.9	76.9	100.0
2013	47	81.0	1	2.1	17.0	7.3	72.3	100.0
2014	58	78.4	2	3.4	17.1	4.4	67.2	93.1
2015	45	75.0	2	4.4	17.3	2.9	64.4	97.8
2016	43	76.8	2	4.7	17.3	3.0	69.8	100.0
2017	54	79.4	4	7.4	17.5	1.9	59.3	100.0
2018	61	87.1			18.5	0.9	39.3	100.0
2019	51	87.9			18.8	0.0	23.5	80.4 ##
1998-2019	878	77.7	44	5.0	18.8	11.0	69.4	97.9

878 cases diagnosed 1998-2019 are related to a total of 878 patients. Currently, in 275 (31.3 %) of these 878 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 222 / 38 / 15 (25.3 % / 4.3 % / 1.7 %) patients exist having 2 / 3 / 4+ malignancies.

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

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

How to interpret:

In 2017, a subgroup of 54 cases has been diagnosed, of which 17.5 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 1.9 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 2

Incidence measures by year of diagnosis including DCO cases  
(with respect to registry area expansion from 2.65 to 4.10 m as of 2002,  
and from 4.10 to 4.92 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	13	0.7	1.1	0.6	0.5	0.7	0.7	0.7	1.0
1999	12	16	1.1	1.3	0.8	0.8	1.0	1.0	1.2	1.2
2000	7	13	0.6	1.1	0.6	0.5	0.6	0.6	0.6	0.9
2001	7	17	0.6	1.4	0.4	0.7	0.5	1.0	0.8	1.2
2002	8	32	0.4	1.6	0.2	0.9	0.3	1.3	0.4	1.5
2003	9	30	0.5	1.5	0.3	0.9	0.4	1.1	0.5	1.3
2004	23	30	1.2	1.5	0.9	0.7	1.1	1.0	1.2	1.2
2005	6	18	0.3	0.9	0.2	0.4	0.3	0.6	0.3	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	11	52	0.5	2.2	0.4	1.2	0.5	1.7	0.5	2.0
2010	16	57	0.7	2.4	0.4	1.2	0.6	1.6	0.7	2.0
2011	16	64	0.7	2.7	0.4	1.3	0.6	1.8	0.7	2.2
2012	12	52	0.5	2.2	0.3	1.1	0.4	1.4	0.5	1.7
2013	11	47	0.5	2.0	0.3	1.0	0.4	1.3	0.5	1.7
2014	16	58	0.7	2.4	0.3	1.4	0.5	1.7	0.6	2.0
2015	15	45	0.6	1.8	0.4	0.8	0.5	1.2	0.6	1.5
2016	13	43	0.5	1.8	0.3	0.8	0.4	1.1	0.5	1.4
2017	14	54	0.6	2.2	0.3	1.0	0.4	1.5	0.5	1.8
2018	9	61	0.4	2.5	0.2	1.2	0.3	1.7	0.3	2.0
2019	7	51	0.3	2.1	0.1	1.0	0.2	1.4	0.3	1.7
1998-2019	252	878	0.6	1.9	0.4	1.0	0.5	1.3	0.5	1.6

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	21	62.4	18.5	13.4	85.0	33.1	59.7	62.5	74.5	81.1
1999	28	60.3	19.2	2.4	87.1	31.9	47.8	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	24	63.2	16.6	32.5	84.3	34.7	49.5	65.1	78.2	82.8
2002	40	64.4	13.3	23.4	82.9	43.8	57.4	67.2	73.1	79.7
2003	39	63.5	15.4	16.3	89.3	40.7	54.0	66.1	74.2	82.8
2004	53	63.3	16.4	16.7	90.7	39.6	57.6	66.1	74.4	82.7
2005	24	66.6	13.7	40.0	90.4	48.6	55.2	67.8	78.2	80.5
2006	44	62.4	17.3	13.7	90.3	39.0	55.6	64.4	74.5	82.0
2007	62	68.6	11.9	28.8	89.4	56.1	64.9	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	63	63.3	16.9	0.2	87.1	46.3	56.2	67.9	75.3	78.6
2010	73	65.5	15.1	29.2	88.4	42.0	58.6	69.0	76.1	83.0
2011	80	66.7	13.1	29.8	92.3	46.4	61.5	69.6	74.2	82.1
2012	64	68.7	14.3	0.4	97.8	53.2	60.9	70.4	77.1	85.0
2013	58	63.7	16.1	20.7	87.4	39.3	54.3	67.9	74.6	80.6
2014	74	65.5	18.9	2.1	94.6	49.2	59.2	70.8	77.7	81.4
2015	60	65.9	14.3	18.4	88.0	49.0	57.9	69.9	75.9	80.4
2016	56	67.2	13.2	29.8	89.3	51.9	55.6	70.0	76.9	83.4
2017	68	65.1	15.6	29.8	91.3	38.7	55.5	67.4	77.5	81.7
2018	70	66.4	11.3	33.4	88.5	52.6	58.7	68.1	75.0	79.4
2019	58	67.6	12.8	32.2	89.1	49.5	57.8	70.2	76.1	82.6
1998-2019	1130	65.4	15.2	0.2	97.8	45.3	58.0	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	8	55.4	22.5	13.4	74.5	13.4	43.4	65.0	69.1	74.5
1999	12	58.0	16.2	28.9	77.1	39.6	45.0	60.9	73.1	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	8	66.5	12.4	40.2	82.8	40.2	63.1	69.7	72.0	82.8
2003	9	62.8	11.8	41.5	77.6	41.5	56.9	63.2	71.2	77.6
2004	23	58.6	18.4	16.7	90.7	33.8	47.8	61.2	70.3	74.4
2005	6	65.0	9.8	48.6	75.2	48.6	59.0	67.4	72.4	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	11	50.3	24.7	0.2	79.9	30.6	31.9	50.4	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	57.7	20.6	25.9	87.3	26.1	39.3	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	15	59.6	18.5	18.4	86.4	33.2	49.7	60.8	74.5	81.3
2016	13	67.4	11.9	52.7	85.3	53.7	56.2	64.5	76.8	85.3
2017	14	58.5	19.4	29.8	80.3	30.3	36.6	62.8	75.5	79.8
2018	9	57.1	19.4	33.4	86.8	33.4	41.4	52.5	74.2	86.8
2019	7	67.9	14.3	49.5	82.4	49.5	54.9	71.8	82.2	82.4
1998-2019	252	61.2	17.1	0.2	90.7	36.6	51.9	65.7	73.4	79.5

Table 3b

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

Year of diagnosis	Cases n	Std.		Median						
		Mean	dev.	Min.	Max.	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	16	62.1	21.4	2.4	87.1	31.9	54.1	69.7	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	17	60.7	18.0	32.5	84.3	33.2	48.9	61.2	76.5	82.9
2002	32	63.9	13.6	23.4	82.9	47.1	57.1	65.6	73.7	79.5
2003	30	63.6	16.5	16.3	89.3	40.5	54.0	66.1	74.2	82.9
2004	30	66.9	14.0	34.4	88.7	43.3	63.0	66.6	76.6	83.2
2005	18	67.1	15.0	40.0	90.4	40.1	52.8	69.5	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	72.2	9.0	46.1	89.4	63.9	67.2	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	52	66.0	13.6	2.2	87.1	52.8	58.7	68.1	75.8	78.6
2010	57	66.0	15.6	29.2	88.4	36.5	59.1	70.6	75.7	83.5
2011	64	68.5	11.2	38.0	92.3	54.0	62.6	69.7	75.9	82.5
2012	52	69.0	15.1	0.4	97.8	53.2	61.1	71.7	78.3	83.1
2013	47	65.1	14.8	20.7	87.4	45.6	56.7	70.1	74.9	80.6
2014	58	64.9	20.8	2.1	94.6	25.9	57.1	71.6	78.8	82.9
2015	45	68.1	12.1	25.2	88.0	51.5	59.9	71.3	76.7	80.1
2016	43	67.2	13.7	29.8	89.3	49.5	54.9	71.2	77.1	83.3
2017	54	66.9	14.1	33.1	91.3	48.0	57.0	68.1	78.4	82.3
2018	61	67.7	9.1	49.9	88.5	57.1	59.3	68.2	75.0	79.0
2019	51	67.6	12.7	32.2	89.1	51.2	58.2	69.4	76.0	82.6
1998-2019	878	66.7	14.3	0.4	97.8	48.6	59.0	69.3	76.6	82.4

Table 4

Age distribution by 5-year age group and sex for period 2007-2019  
(incl. DCO)

Age at diagnosis Years	Cases			Males			Females		
	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4	5	0.6	0.6	1	0.6	0.6	4	0.6	0.6
5-9	1	0.1	0.7			0.6	1	0.1	0.7
10-14	0	0.0	0.7			0.6			0.7
15-19	1	0.1	0.8	1	0.6	1.2			0.7
20-24	3	0.4	1.2			1.2	3	0.4	1.2
25-29	12	1.4	2.6	5	3.0	4.3	7	1.0	2.2
30-34	11	1.3	3.9	7	4.3	8.5	4	0.6	2.8
35-39	18	2.2	6.1	9	5.5	14.0	9	1.3	4.2
40-44	20	2.4	8.5	7	4.3	18.3	13	1.9	6.1
45-49	30	3.6	12.1	7	4.3	22.6	23	3.4	9.5
50-54	53	6.3	18.4	11	6.7	29.3	42	6.2	15.8
55-59	84	10.0	28.4	17	10.4	39.6	67	10.0	25.7
60-64	85	10.2	38.6	17	10.4	50.0	68	10.1	35.8
65-69	124	14.8	53.4	23	14.0	64.0	101	15.0	50.8
70-74	150	17.9	71.3	22	13.4	77.4	128	19.0	69.8
75-79	122	14.6	85.9	20	12.2	89.6	102	15.2	85.0
80-84	78	9.3	95.2	8	4.9	94.5	70	10.4	95.4
85+	40	4.8	100.0	9	5.5	100.0	31	4.6	100.0
All ages	837	100.0		164	100.0		673	100.0	

Table 5

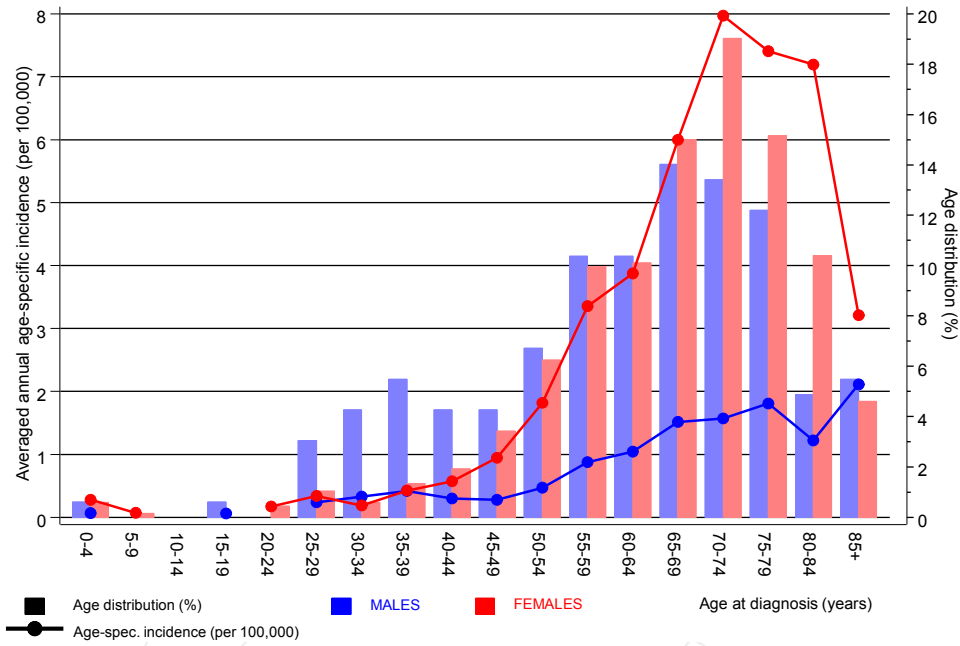
Age-specific incidence, DCO rate and proportion of all cancers  
for period 2007–2019

Age at diagnosis Years	Males n	Females n	Males Age- spec. incid. %	Females Age- spec. incid. %	Males DCO rate n=8 %	Females DCO rate n=17 %	Males Prop.all cancers n=143063 %	Females Prop.all cancers n=144724 %
0– 4	1	4	0.1	0.3			0.5	2.5
5– 9		1		0.1				1.1
10–14								
15–19	1		0.1				0.3	
20–24		3		0.2				0.6
25–29	5	7	0.2	0.3			0.6	0.6
30–34	7	4	0.3	0.2			0.6	0.2
35–39	9	9	0.4	0.4			0.5	0.3
40–44	7	13	0.3	0.6			0.3	0.2
45–49	7	23	0.3	0.9			0.1	0.3
50–54	11	42	0.5	1.8			0.1	0.4
55–59	17	67	0.9	3.4			0.1	0.5
60–64	17	68	1.0	3.9		1.5	0.1	0.5
65–69	23	101	1.5	6.0		1.0	0.1	0.6
70–74	22	128	1.6	8.0	4.5	2.3	0.1	0.7
75–79	20	102	1.8	7.4	15.0	1.0	0.1	0.6
80–84	8	70	1.2	7.2	12.5	5.7	0.1	0.5
85+	9	31	2.1	3.2	33.3	22.6	0.1	0.2
All ages	164	673			4.9	2.5	0.1	0.5
Incidence								
Raw			0.5	2.2				
WS			0.3	1.1				
ES			0.4	1.5				
BRD–S			0.5	1.8				

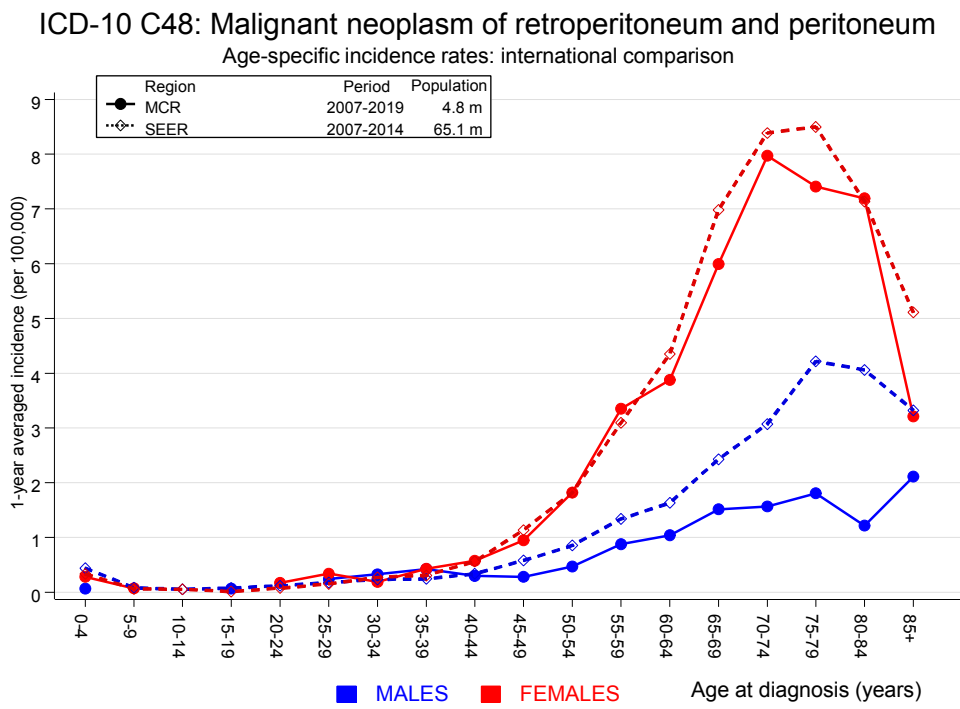
The age-specific incidence characterizes the disease risk in a particular age group. The age distribution depends on the patient population frequency in each age group and reflects the tangible clinical picture of everyday patients care (see following chart).

ICD-10 C48: Malignant neoplasm of retroperitoneum and peritoneum

Age distribution and age-specific incidence 2007 - 2019 (Males: 164, Females: 673)



**Figure 6.** Age distribution (males: mean=61.6 yrs, median=65.2 yrs; females: mean=67.3 yrs, median=69.8 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 2019, based on the November 2018 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 1998–2019

## MALES

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C16 Stomach	1	0.4	2.6	0.1	14.7	8.4	100.0
C18 Colon	1	0.9	1.1	0.0	5.9	0.8	
C19–C20 Rectum	2	0.5	3.8	0.5	13.7	19.9	
C22 Liver	1	0.3	3.4	0.1	18.9	9.5	
C25 Pancreas	2	0.4	5.2	0.6	18.9	21.9	100.0
C33–C34 Lung	2	1.2	1.7	0.2	6.1	11.0	
C43 Malign. melanoma	1	0.5	2.2	0.1	12.4	7.4	
C61 Prostate	3	2.8	1.1	0.2	3.1	2.3	
C62 Testis	4	0.0	84.3	23.0	216.0 #	53.4	25.0
C64 Kidney	2	0.3	5.8	0.7	20.8	22.3	
C67 Bladder	1	0.4	2.3	0.1	12.6	7.6	
C73 Thyroid	1	0.1	14.4	0.4	80.3	12.6	
C82–C85 NHL	1	0.4	2.4	0.1	13.4	7.9	
C91–C96 Leukaemia	2	0.1	13.5	1.6	48.9 #	25.0	
Not observed	0	1.6	0.0	0.0	2.4	-21.2	
All further malignancies	24	10.0	2.4	1.5	3.6 #	188.8	16.7
Patients		237					
Median age at next malignancy (years)		66.2					
Person-years		740					
Mean observation time (years)		3.1					
Median observation time (years)		1.4					

# 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 1998-2019

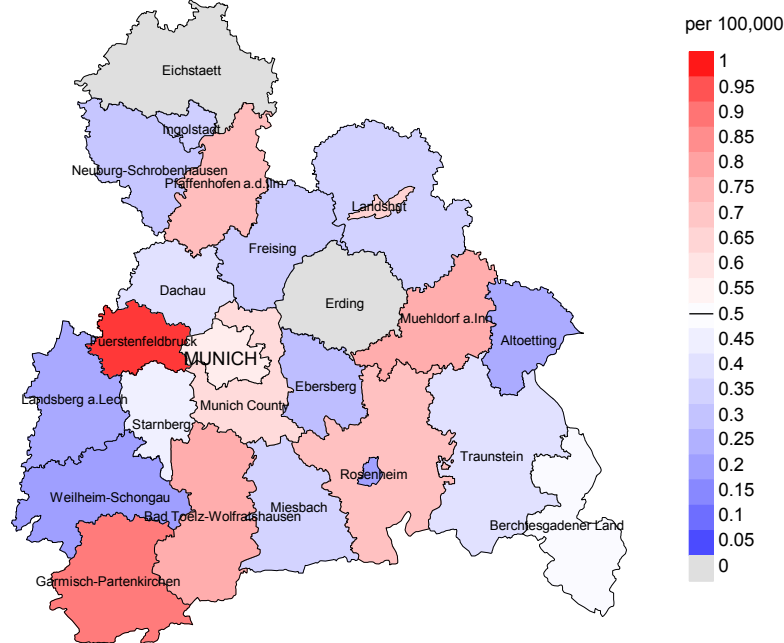
## FEMALES

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C16 Stomach	3	0.6	4.6	1.0	13.5	10.5	
C17 Small intestine	2	0.1	15.6	1.9	56.5 #	8.3	
C18 Colon	6	1.9	3.2	1.2	6.9 #	18.3	33.3
C25 Pancreas	2	1.0	2.1	0.3	7.5	4.6	100.0
C26 GI cancer	1	0.0	38.3	1.0	213.2	4.3	100.0
C33-C34 Lung	2	1.8	1.1	0.1	4.1	1.0	
C43 Malign. melanoma	1	0.9	1.2	0.0	6.4	0.6	
C46,C49 Soft tissue	1	0.1	8.4	0.2	46.9	3.9	
C50 Breast	13	7.1	1.8	1.0	3.1	26.2	
C51 Vulva	1	0.2	4.5	0.1	25.0	3.5	
C53 Cervix uteri	3	0.3	9.8	2.0	28.7 #	12.0	
C54 Corpus uteri	10	1.3	7.8	3.7	14.4 #	38.9	
C56 Ovary	63	0.9	71.0	54.5	90.8 #	277.0	81.0
C64 Kidney	2	0.5	4.0	0.5	14.5	6.7	
C74-C80 Cancer others	1	0.1	18.3	0.5	101.9	4.2	
C82-C85 NHL	4	0.8	4.9	1.3	12.6 #	14.2	
C90 Mult. myeloma	2	0.3	7.9	1.0	28.4	7.8	
C91-C96 Leukaemia	4	0.3	13.3	3.6	34.0 #	16.5	25.0
Not observed	0	3.9	0.0	0.0	1.0 #	-17.2	
All further malignancies	121	22.0	5.5	4.6	6.6 #	441.4	47.1
Patients		827					
Median age at next malignancy (years)		72.4					
Person-years		2242					
Mean observation time (years)		2.7					
Median observation time (years)		1.7					

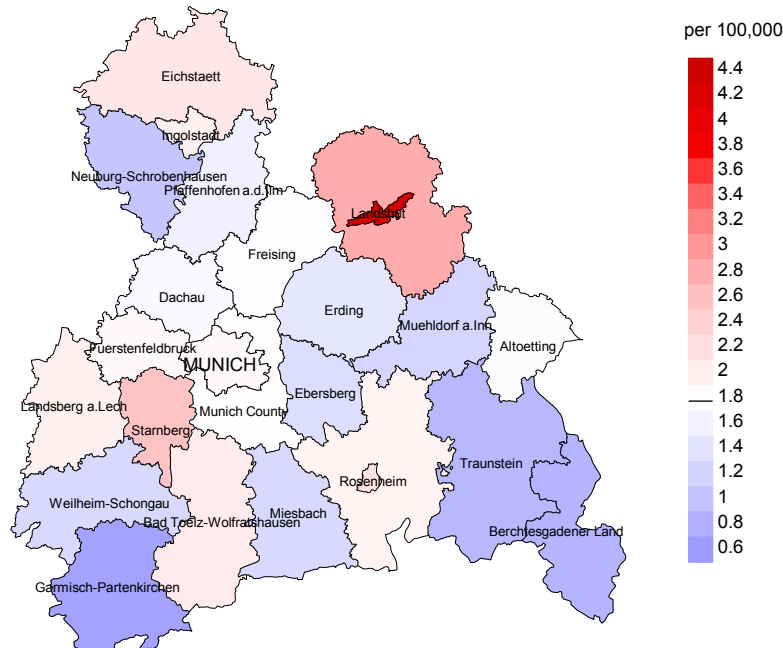
# The occurrence of further specified malignancy is statistically significant.



Average incidence (Germany 1987 standard population) 2007 - 2019: Males



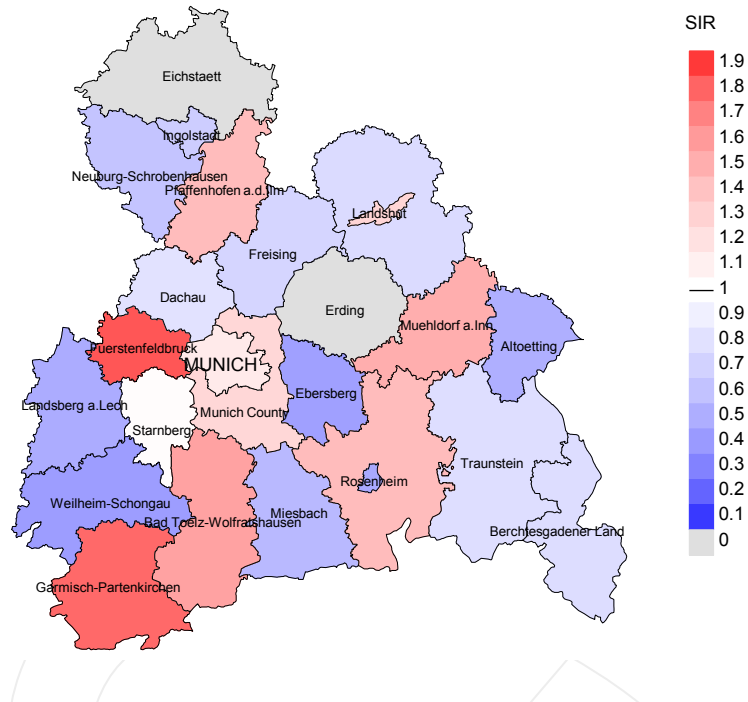
Average incidence (Germany 1987 standard population) 2007 - 2019: Females



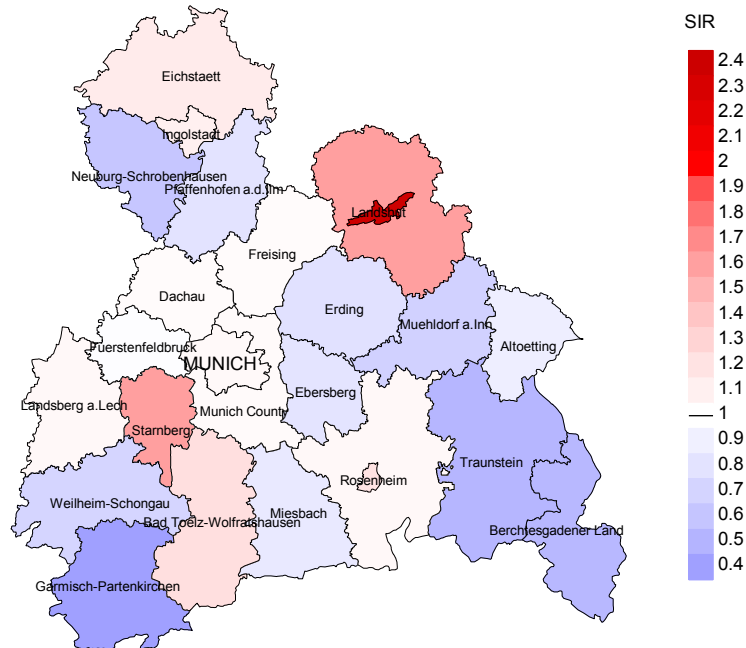
**Figure 8a.** Map of cancer incidence (german standard population, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.5/100,000 WS N=164, females 1.8/100,000 WS N=673).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,462 female residents (averaged) in the period from 2007 to 2019 a total of 15 women were identified with newly diagnosed peritoneal cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 1.3/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.6 and 2.5/100,000.

Standardized incidence ratio (SIR) 2007 - 2019: Males



Standardized incidence ratio (SIR) 2007 - 2019: Females



**Figure 8b.** Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2019. 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=164, females N=673).

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 2019 a total of 15 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 0.81. Though, the value of this parameter may vary with an underlying probability of 99% between 0.37 and 1.52, 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 4.92 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	21	90.5	23.8	16	76.2	93.8
1999	28	96.4	17.9	24	85.7	95.8
2000	20	100.0	25.0	17	85.0	94.1
2001	24	100.0	25.0	21	87.5	100.0
2002	40	100.0	12.5	35	87.5	85.7
2003	39	100.0	10.3	37	94.9	91.9
2004	53	100.0	13.2	37	69.8	97.3
2005	24	100.0	4.2	21	87.5	95.2
2006	44	100.0	4.5	33	75.0	93.9
2007	62	100.0	6.5	54	87.1	100.0
2008	51	100.0	5.9	43	84.3	95.3
2009	63	98.4	1.6	44	69.8	97.7
2010	73	100.0	4.1	49	67.1	95.9
2011	80	100.0	1.3	52	65.0	92.3
2012	64	100.0	1.6	47	73.4	89.4
2013	58	100.0	1.7	38	65.5	92.1
2014	74	94.6	4.1	46	62.2	87.0
2015	60	98.3	3.3	35	58.3	74.3
2016	56	100.0	3.6	36	64.3	69.4
2017	68	100.0	5.9	39	57.4	84.6
2018	70	100.0		24	34.3	41.7
2019	58	79.3		14	24.1	71.4
1998-2019	1130	98.1	5.8	762	67.4	89.2

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 4.92 m as of 2007, respectively)

Year of diagnosis/ death	Incident cases n	Deaths n	Prop. deaths with death certific. %	Prop. deaths in same year	
				n	%
1998	21	11	90.9	6	28.6
1999	28	14	85.7	8	28.6
2000	20	19	94.7	6	30.0
2001	24	21	90.5	8	33.3
2002	40	24	100.0	14	35.0
2003	39	17	82.4	7	17.9
2004	53	27	92.6	9	17.0
2005	24	29	100.0	8	33.3
2006	44	25	96.0	7	15.9
2007	62	33	100.0	9	14.5
2008	51	28	100.0	6	11.8
2009	63	42	95.2	11	17.5
2010	73	46	100.0	8	11.0
2011	80	46	100.0	16	20.0
2012	64	47	100.0	7	10.9
2013	58	48	95.8	7	12.1
2014	74	63	96.8	14	18.9
2015	60	47	95.7	6	10.0
2016	56	41	100.0	8	14.3
2017	68	63	100.0	18	26.5
2018	70	47	31.9	4	5.7
2019	58	55	40.0	8	13.8
1998–2019	1130	793	89.3	195	17.3

Table 9c

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

(with respect to registry area expansion from 2.65 to 4.10 m as of 2002,  
and from 4.10 to 4.92 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer- related %	Prop. non-cancer- related %	Prop. cancer recorded on death certificate %
1998	11	81.8	18.2	100.0
1999	14	71.4	28.6	100.0
2000	19	100.0		100.0
2001	21	95.2	4.8	100.0
2002	24	95.8	4.2	100.0
2003	17	94.1	5.9	85.7
2004	27	96.3	3.7	100.0
2005	29	93.1	6.9	96.6
2006	25	96.0	4.0	100.0
2007	33	93.9	6.1	97.0
2008	28	100.0		100.0
2009	42	85.7	14.3	92.5
2010	46	95.7	4.3	95.7
2011	46	97.8	2.2	100.0
2012	47	97.9	2.1	95.7
2013	48	93.8	6.3	97.8
2014	63	95.2	4.8	98.4
2015	47	93.6	6.4	97.8
2016	41	95.1	4.9	100.0
2017	63	96.8	3.2	95.2
2018	47	72.3	27.7	93.3
2019	55	60.0	40.0	95.5
1998–2019	793	90.8	9.2	97.3

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	1	69.8	69.8		69.8
1999	9	72.1	64.5	75.9	72.1
2000	8	68.2	68.2		68.2
2001	7	65.9	65.9		68.6
2002	6	68.7	68.7		68.7
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	5	70.4	70.4		70.4
2007	12	68.5	63.4	78.4	66.3
2008	7	72.0	72.0		72.0
2009	12	73.0	69.7	81.2	70.1
2010	9	74.0	72.2	74.0	72.2
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	7	68.5	68.2	82.1	68.5
2017	12	74.5	74.5		74.5
2018	8	77.1	73.9	84.2	73.9
2019	6	80.7		80.7	47.3
1998-2019	168	71.4	70.0	78.1	70.6

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

Table 10b

Medians of age at death according to the grouping in Table 9  
FEMALES

Year of death	Deaths n	Age at death (all causes) Years	Age at death (cancer-related) Years	Age at death (non-cancer-related) Years	Age at death (according to death certificate) Years
1998	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	18	70.0	70.0	71.5	70.0
2003	9	64.5	64.5		66.0
2004	23	75.8	74.5	76.8	75.8
2005	23	71.9	71.9	77.5	71.8
2006	20	74.2	73.3	80.0	75.0
2007	21	75.3	75.3		75.3
2008	21	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	38	74.4	74.4		74.4
2012	40	75.8	75.8	91.7	75.7
2013	40	74.0	73.2	84.3	73.2
2014	51	74.0	74.0	80.2	73.7
2015	41	72.6	72.4	80.7	72.5
2016	34	76.2	75.5	84.6	76.2
2017	51	74.2	74.2	79.7	73.9
2018	39	76.2	74.4	78.0	76.6
2019	49	74.6	72.5	75.1	74.1
1998-2019	625	74.2	73.6	80.3	74.0

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	1	0.1	0.13	0.1	0.11	0.1	0.13	0.1	0.13
1999	6	0.5	0.50	0.4	0.49	0.5	0.51	0.6	0.55
2000	8	0.7	1.14	0.5	0.78	0.6	1.06	0.7	1.20
2001	7	0.6	1.00	0.4	1.06	0.5	0.95	0.7	0.91
2002	6	0.3	0.75	0.2	0.82	0.3	0.80	0.3	0.71
2003	7	0.4	0.78	0.2	0.68	0.3	0.72	0.4	0.85
2004	4	0.2	0.17	0.1	0.13	0.2	0.15	0.2	0.16
2005	6	0.3	1.00	0.2	1.29	0.3	1.08	0.3	1.05
2006	5	0.3	0.63	0.1	0.50	0.2	0.61	0.3	0.53
2007	10	0.5	0.67	0.3	0.63	0.4	0.69	0.5	0.83
2008	7	0.3	0.78	0.2	0.75	0.3	0.84	0.3	0.87
2009	8	0.4	0.73	0.2	0.46	0.3	0.56	0.3	0.64
2010	8	0.4	0.50	0.2	0.42	0.3	0.46	0.4	0.54
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	0.45	0.2	0.55	0.3	0.65
2014	11	0.5	0.69	0.2	0.60	0.3	0.63	0.4	0.65
2015	6	0.3	0.40	0.2	0.43	0.2	0.40	0.2	0.41
2016	6	0.2	0.46	0.1	0.53	0.2	0.49	0.2	0.49
2017	12	0.5	0.86	0.2	0.62	0.3	0.73	0.4	0.81
2018	5	0.2	0.56	0.1	0.35	0.1	0.43	0.2	0.53
2019									
1998-2019	144	0.3	0.57	0.2	0.49	0.2	0.53	0.3	0.58



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	0.25	0.1	0.15	0.2	0.18	0.2	0.18
2000	11	0.9	0.85	0.4	0.82	0.6	0.88	0.8	0.86
2001	13	1.1	0.76	0.4	0.60	0.7	0.67	0.9	0.74
2002	17	0.9	0.53	0.4	0.44	0.6	0.47	0.8	0.51
2003	9	0.5	0.30	0.3	0.34	0.3	0.30	0.4	0.31
2004	22	1.1	0.73	0.5	0.64	0.7	0.69	0.9	0.77
2005	21	1.1	1.17	0.4	1.02	0.6	1.05	0.9	1.12
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	0.41	0.7	0.43
2008	21	0.9	0.50	0.4	0.39	0.5	0.41	0.7	0.48
2009	28	1.2	0.54	0.5	0.42	0.8	0.45	1.0	0.50
2010	36	1.5	0.63	0.6	0.50	0.9	0.56	1.2	0.61
2011	38	1.6	0.59	0.6	0.47	0.9	0.51	1.2	0.56
2012	39	1.7	0.75	0.6	0.58	1.0	0.67	1.3	0.76
2013	38	1.6	0.81	0.6	0.61	0.9	0.69	1.2	0.74
2014	49	2.0	0.84	0.8	0.59	1.2	0.72	1.6	0.77
2015	38	1.6	0.84	0.7	0.82	1.0	0.81	1.3	0.84
2016	33	1.3	0.77	0.4	0.56	0.7	0.62	1.0	0.70
2017	49	2.0	0.91	0.7	0.73	1.1	0.78	1.5	0.86
2018	29	1.2	0.48	0.5	0.42	0.7	0.42	0.9	0.46
2019	33	1.3	0.65	0.5	0.54	0.8	0.56	1.0	0.62
1998-2019	576	1.3	0.66	0.5	0.53	0.8	0.57	1.0	0.63

Table 12

Age distribution of age at death (cancer-related) for period 2007-2019  
(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	1.1	1.1			0.0
20-24	2	0.4	0.5	1	1.1	2.1	1	0.2	0.2
25-29	1	0.2	0.7			2.1	1	0.2	0.4
30-34	2	0.4	1.1	2	2.1	4.3			0.4
35-39	4	0.7	1.8	1	1.1	5.3	3	0.7	1.1
40-44	5	0.9	2.7			5.3	5	1.1	2.2
45-49	7	1.3	4.0	2	2.1	7.4	5	1.1	3.3
50-54	22	4.0	8.1	5	5.3	12.8	17	3.8	7.1
55-59	41	7.5	15.6	10	10.6	23.4	31	6.9	13.9
60-64	37	6.8	22.3	7	7.4	30.9	30	6.6	20.6
65-69	81	14.8	37.2	13	13.8	44.7	68	15.0	35.6
70-74	108	19.8	57.0	19	20.2	64.9	89	19.7	55.3
75-79	115	21.1	78.0	17	18.1	83.0	98	21.7	77.0
80-84	82	15.0	93.0	11	11.7	94.7	71	15.7	92.7
85+	38	7.0	100.0	5	5.3	100.0	33	7.3	100.0
All ages	546	100.0		94	100.0		452	100.0	

Table 13

Age-specific mortality (cancer-related) and proportion of all cancers  
for period 2007-2019  
(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			2.1	
20-24	1	1	0.1	1.00	0.1	0.33	1.5	2.6
25-29		1			0.0	0.14		1.1
30-34	2		0.1	0.29			1.6	
35-39	1	3	0.0	0.11	0.1	0.33	0.4	0.8
40-44		5			0.2	0.38		0.6
45-49	2	5	0.1	0.29	0.2	0.22	0.1	0.3
50-54	5	17	0.2	0.45	0.7	0.40	0.2	0.7
55-59	10	31	0.5	0.59	1.6	0.46	0.2	0.9
60-64	7	30	0.4	0.41	1.7	0.44	0.1	0.7
65-69	13	68	0.9	0.57	4.0	0.67	0.2	1.0
70-74	19	89	1.4	0.86	5.5	0.70	0.2	1.1
75-79	17	98	1.5	0.85	7.1	0.96	0.1	1.1
80-84	11	71	1.7	1.38	7.3	1.01	0.1	0.8
85+	5	33	1.2	0.56	3.4	1.06	0.1	0.3
All ages	94	452					0.1	0.8
Mortality								
Raw			0.3	0.57	1.5	0.67		
WS			0.2	0.48	0.6	0.54		
ES			0.2	0.52	0.9	0.58		
BRD-S			0.3	0.58	1.1	0.64		
PYLL-70								
per 100,000			2.1		5.8			
ES			1.9		4.9			
AYLL-70			13.1		9.4			

Table 14a

Further malignancies in deaths in period 1998-2019  
MALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn- chron ±30d n	Syn- chron ±30d ←%	Post n	Post ←%
C16 Stomach	4	7.3	3	75.0			1	25.0
C18 Colon	3	5.5	2	66.7			1	33.3
C19-C20 Rectum	3	5.5	1	33.3			2	66.7
C22 Liver	1	1.8			1	100.0		
C23-C24 Bile	1	1.8			1	100.0		
C25 Pancreas	2	3.6			2	100.0		
C33-C34 Lung	4	7.3	2	50.0	1	25.0	1	25.0
C38,C45 Mesothelioma	1	1.8	1	100.0				
C43 Malign. melanoma	1	1.8					1	100.0
C44 Skin others	4	7.3	4	100.0				
C61 Prostate	12	21.8	10	83.3			2	16.7
C62 Testis	3	5.5	2	66.7	1	33.3		
C64 Kidney	5	9.1	3	60.0	1	20.0	1	20.0
C67 Bladder	4	7.3	2	50.0			2	50.0
C68 Urethra	1	1.8					1	100.0
C76-C79 CUP	1	1.8	1	100.0				
C82-C85 NHL	3	5.5	2	66.7			1	33.3
C91-C96 Leukaemia	2	3.6					2	100.0
All further malignancies	55	100.0	33	60.0	7	12.7	15	27.3

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 1998-2019  
FEMALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn- chron ±30d n	Syn- chron ±30d ←%	Post n	Post ←%
C16 Stomach	4	1.7	2	50.0	1	25.0	1	25.0
C17 Small intestine	1	0.4			1	100.0		
C18 Colon	15	6.2	5	33.3	7	46.7	3	20.0
C19-C20 Rectum	2	0.8	2	100.0				
C21 Anus/canal	1	0.4	1	100.0				
C22 Liver	1	0.4					1	100.0
C25 Pancreas	3	1.2			1	33.3	2	66.7
C26 GI cancer	1	0.4					1	100.0
C33-C34 Lung	4	1.7	2	50.0			2	50.0
C43 Malign. melanoma	8	3.3	7	87.5			1	12.5
C44 Skin others	14	5.8	9	64.3	3	21.4	2	14.3
C46,C49 Soft tissue	2	0.8	1	50.0	1	50.0		
C48 Peritoneal	1	0.4					1	100.0
C50 Breast	47	19.4	35	74.5	6	12.8	6	12.8
C51 Vulva	1	0.4					1	100.0
C52 Vagina	1	0.4					1	100.0
C53 Cervix uteri	6	2.5	5	83.3	1	16.7		
C54 Corpus uteri	20	8.3	11	55.0	7	35.0	2	10.0
C56 Ovary	83	34.3	12	14.5	12	14.5	59	71.1
C64 Kidney	3	1.2	1	33.3	1	33.3	1	33.3
C66 Ureter	1	0.4					1	100.0
C67 Bladder	2	0.8	1	50.0			1	50.0
C73 Thyroid	4	1.7	4	100.0				
C76-C79 CUP	2	0.8	2	100.0				
C81 Hodgkin lymphoma	1	0.4	1	100.0				
C82-C85 NHL	6	2.5	3	50.0	2	33.3	1	16.7
C90 Mult. myeloma	5	2.1	2	40.0	1	20.0	2	40.0
C91-C96 Leukaemia	3	1.2					3	100.0
All further malignancies	242	100.0	106	43.8	44	18.2	92	38.0

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 2007-2019  
(**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	2.2	
20-24	1	1	0.1	1.00	1.7	2.7
25-29		1				1.2
30-34	2		0.1	0.29	1.6	
35-39	1	2	0.0	0.11	0.4	0.6
40-44		4				0.6
45-49	2	5	0.1	0.29	0.2	0.4
50-54	5	13	0.2	0.50	0.2	0.6
55-59	9	23	0.5	0.56	0.3	0.8
60-64	5	26	0.3	0.38	0.1	0.7
65-69	8	50	0.5	0.53	0.1	1.0
70-74	13	70	0.9	0.87	0.2	1.1
75-79	13	74	1.2	1.00	0.2	1.1
80-84	10	48	1.5	1.25	0.1	0.7
85+	4	28	0.9	0.67	0.1	0.3
All ages	74	345			0.1	0.8
Mortality						
Raw			0.2	0.56		
WS			0.1	0.45		
ES			0.2	0.50		
BRD-S			0.2	0.56		
PYLL-70						
per 100,000			1.9			4.6
ES			1.8			3.9
AYLL-70			15.0			9.7

\* See corresponding tables with multiple malignancies.

Table 16

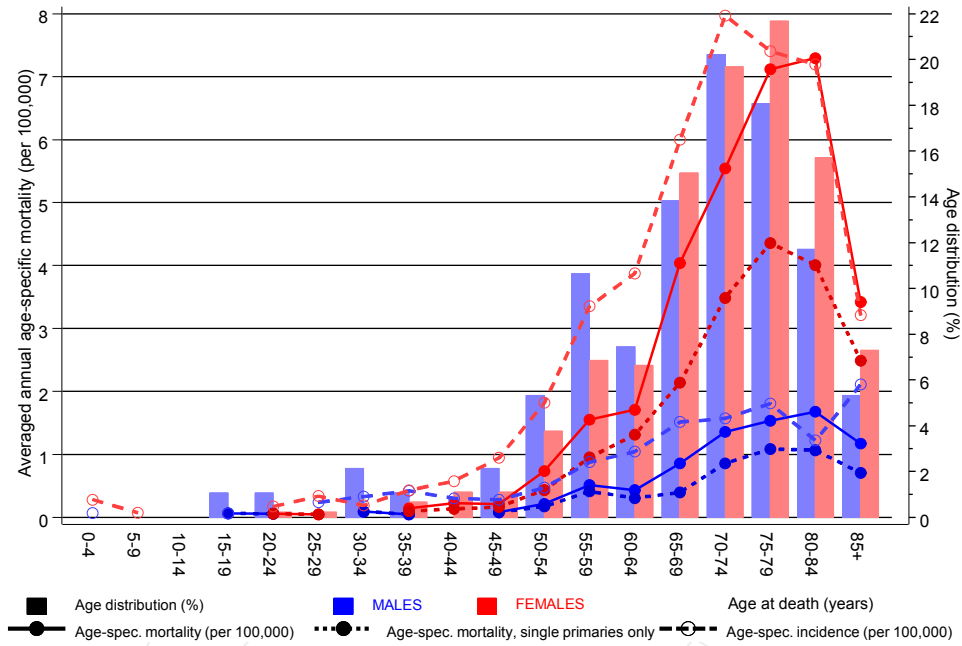
Age-specific mortality (cancer-related) and proportion of all cancers  
for period 2007-2019  
(**Single primaries only** \*)

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			2.2	
20-24	1	1	0.1	1.00	0.1	0.33	1.7	2.8
25-29		1			0.0	0.14		1.2
30-34	2		0.1	0.29			1.6	
35-39	1	2	0.0	0.11	0.1	0.29	0.4	0.6
40-44		3			0.1	0.30		0.4
45-49	2	4	0.1	0.33	0.2	0.27	0.2	0.3
50-54	4	10	0.2	0.40	0.4	0.33	0.2	0.5
55-59	8	19	0.4	0.53	1.0	0.40	0.2	0.7
60-64	5	23	0.3	0.42	1.3	0.55	0.1	0.6
65-69	6	36	0.4	0.46	2.1	0.56	0.1	0.7
70-74	12	56	0.9	0.80	3.5	0.75	0.1	0.9
75-79	12	60	1.1	1.00	4.4	0.87	0.2	0.9
80-84	7	39	1.1	1.00	4.0	0.89	0.1	0.6
85+	3	24	0.7	0.60	2.5	0.92	0.1	0.3
All ages	64	278					0.1	0.6
Mortality								
Raw			0.2	0.52	0.9	0.62		
WS			0.1	0.43	0.4	0.49		
ES			0.2	0.47	0.5	0.54		
BRD-S			0.2	0.53	0.7	0.59		
PYLL-70								
per 100,000			1.8		3.8			
ES			1.7		3.2			
AYLL-70			15.8		10.1			

\* See corresponding tables with multiple malignancies.

ICD-10 C48: Malignant neoplasm of retroperitoneum and peritoneum

Age distribution and age-specific mortality 2007 - 2019 (Males: 94, Females: 452)

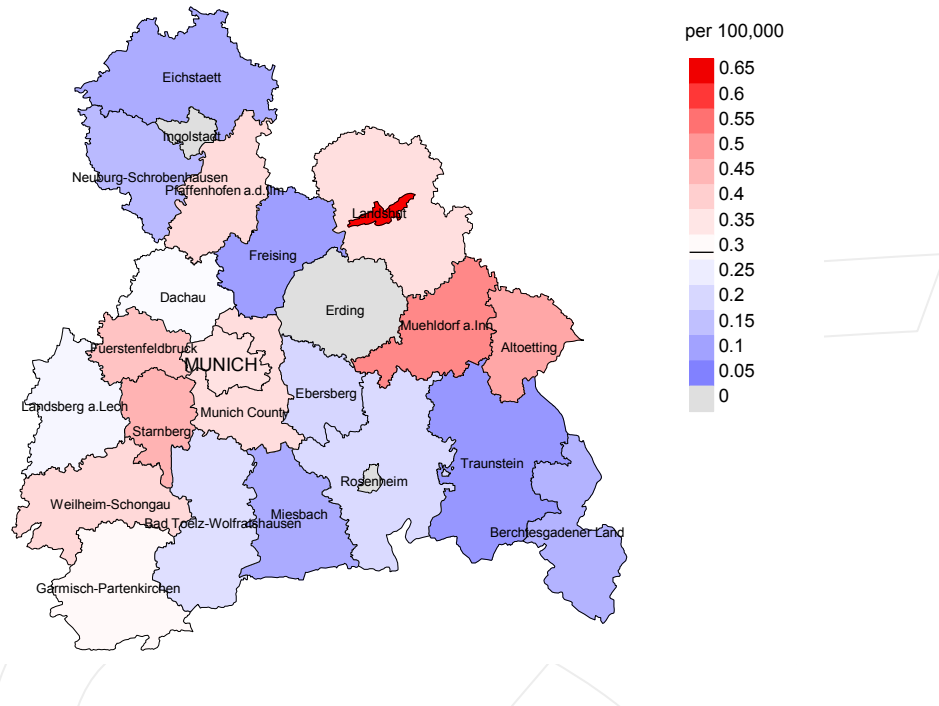


**Figure 17.** Distribution of age at death (bars; males: mean=64.3 yrs, median=67.6 yrs; females: mean=69.4 yrs, median=71.1 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

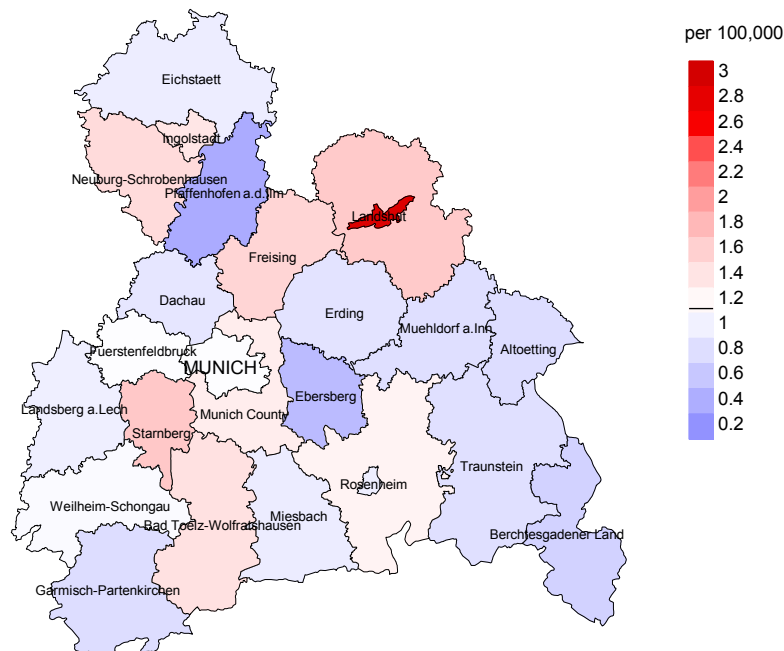
The difference between age at diagnosis (Table 3) and age at peritoneal cancer-related death (see Table 10) should be considered.



Average mortality (Germany 1987 standard population) 2007 - 2019: Males



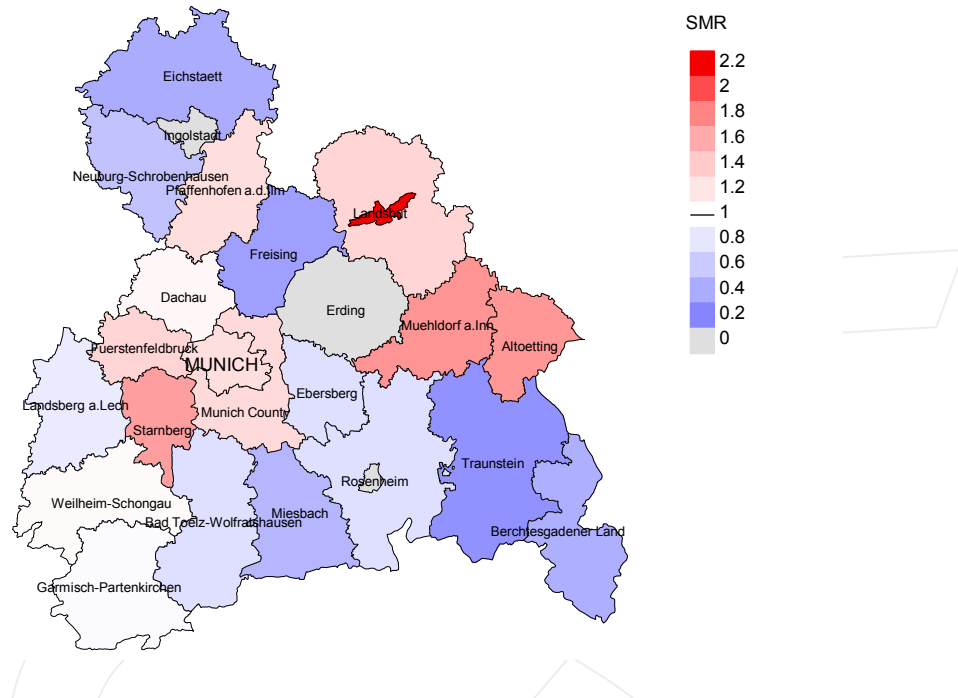
Average mortality (Germany 1987 standard population) 2007 - 2019: Females



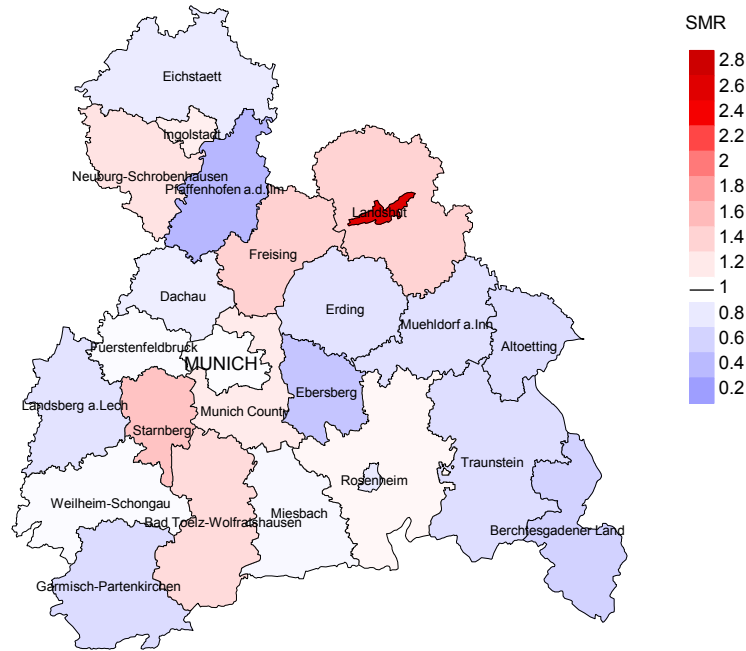
**Figure 18a.** Map of cancer mortality (german standard population) by county averaged for period 2007 to 2019. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.3/100,000 WS N=94, females 1.1/100,000 WS N=452).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,462 female residents (averaged) in the period from 2007 to 2019 a total of 6 women died from peritoneal cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.5/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.1 and 1.4/100,000.

Standardized mortality ratio (SMR) 2007 - 2019: Males



Standardized mortality ratio (SMR) 2007 - 2019: Females



**Figure 18b.** Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2019. 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=94, females N=452).

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 2019 a total of 6 women died from peritoneal cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.49. Though, the value of this parameter may vary with an underlying probability of 99% between 0.12 and 1.27, 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

**Recommended Citation**

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