Munich Cancer Registry

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- *Deutsch*

ICD-10 C80: CUP syndrome

Incidence and Mortality

Year of diagnosis	1998-2020
Patients	1,616
Diseases	1,617
Creation date	12/21/2021
Database export	12/20/2021
Population	4.95 m

Munich Cancer Registry
Cancer Registry Bavaria - Upper Bavaria Regional Center
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Marchioninistr. 15
Munich, 81377
Germany

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

https://www.tumorregister-muenchen.de/en/facts/base/bC80__E-ICD-10-C80-CUP-syndrome-incidence-and-mortality.pdf

Index of figures and tables

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

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

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

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

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

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

Munich Cancer Registry, December 2021

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

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

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

ICD-10 codes (ICD-10 2016) used for specifying cancer site

Code	Description
C80.-	Malignant neoplasm, without specification of site
C80.0	Malignant neoplasm, primary site unknown, so stated
C80.9	Malignant neoplasm, primary site unspecified

INCIDENCE

Table 1

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

Year of diagnosis	All cases n	DCO cases n	Prop. DCO %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %	
1998	146	116	79.5	2.7	1.9	100.0	100.0	
1999	90	79	87.8	4.2	1.9	98.9	100.0	
2000	79	72	91.1	4.1	1.8	100.0	100.0	
2001	62	58	93.5	3.7	1.8	100.0	100.0	
2002	131	125	95.4	5.9	1.9	100.0	100.0	#
2003	108	96	88.9	6.2	2.0	98.1	100.0	
2004	93	81	87.1	6.1	2.1	95.7	100.0	
2005	81	69	85.2	6.5	2.1	97.5	100.0	
2006	80	65	81.3	7.0	2.1	97.5	98.8	
2007	71	64	90.1	7.1	1.9	95.8	100.0	#
2008	83	66	79.5	7.5	1.9	92.8	100.0	
2009	60	48	80.0	7.7	1.7	96.7	100.0	
2010	63	58	92.1	7.6	1.1	96.8	96.8	
2011	71	58	81.7	7.5	1.3	94.4	100.0	
2012	70	62	88.6	7.5	1.3	94.3	100.0	
2013	69	56	81.2	8.3	1.2	95.7	98.6	
2014	52	42	80.8	8.4	1.6	94.2	100.0	
2015	45	39	86.7	8.4	1.4	97.8	100.0	
2016	38	30	78.9	8.4	1.2	89.5	94.7	
2017	53	46	86.8	8.8	1.6	94.3	100.0	
2018	58	52	89.7	8.7	1.4	94.8	100.0	
2019	12	5	41.7	8.9	0.0	83.3	100.0	
2020	2			8.8	0.0	50.0	100.0	##
1998-2020	1617	1387	85.8	8.8	1.9	96.8	99.6	

1,617 cases diagnosed 1998-2020 are related to a total of 1,616 patients. Currently, in 180 (11.1 %) of these 1,616 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 149 / 27 / 4 (9.2 % / 1.7 % / 0.2 %) 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 retreived from the respective headings.

How to interpret:
In 2018, a subgroup of 58 cases has been diagnosed, of which 8.7 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 1.4 % 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	58	39.7	45	77.6	1.7	1.7	100.0	100.0
1999	39	43.3	34	87.2	3.1	1.4	100.0	100.0
2000	44	55.7	38	86.4	2.8	1.3	100.0	100.0
2001	21	33.9	18	85.7	3.1	1.3	100.0	100.0
2002	61	46.6	57	93.4	7.2	1.3	100.0	100.0 #
2003	52	48.1	45	86.5	7.3	1.3	98.1	100.0
2004	36	38.7	28	77.8	7.1	1.4	91.7	100.0
2005	31	38.3	27	87.1	8.5	1.3	100.0	100.0
2006	41	51.3	34	82.9	9.1	1.1	97.6	97.6
2007	28	39.4	26	92.9	8.8	1.3	92.9	100.0 #
2008	35	42.2	27	77.1	9.0	1.1	88.6	100.0
2009	24	40.0	20	83.3	9.1	0.8	95.8	100.0
2010	27	42.9	23	85.2	9.1	0.9	96.3	96.3
2011	25	35.2	19	76.0	9.0	1.0	96.0	100.0
2012	27	38.6	20	74.1	8.9	1.1	85.2	100.0
2013	30	43.5	26	86.7	9.3	0.7	96.7	100.0
2014	26	50.0	19	73.1	9.8	0.9	92.3	100.0
2015	19	42.2	16	84.2	9.8	1.1	100.0	100.0
2016	15	39.5	9	60.0	9.9	1.4	80.0	86.7
2017	25	47.2	19	76.0	10.5	1.7	88.0	100.0
2018	29	50.0	25	86.2	10.5	3.0	96.6	100.0
2019	5	41.7	2	40.0	10.7	0.0	80.0	100.0
2020	0	##						
1998-2020	698	43.2	577	82.7	10.7	1.7	95.8	99.4

698 cases diagnosed 1998-2020 are related to a total of 697 patients. Currently, in 91 (13.1 %) of these 697 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 76 / 13 / 2 (10.9 % / 1.9 % / 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 retreived from the respective headings.

How to interpret:
In 2018, a subgroup of 29 cases has been diagnosed, of which 10.5 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 3.0 % 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	88	60.3	71	80.7	3.4	2.1	100.0	100.0	
1999	51	56.7	45	88.2	5.0	2.3	98.0	100.0	
2000	35	44.3	34	97.1	5.2	2.1	100.0	100.0	
2001	41	66.1	40	97.6	4.2	2.2	100.0	100.0	
2002	70	53.4	68	97.1	4.9	2.3	100.0	100.0	#
2003	56	51.9	51	91.1	5.3	2.5	98.2	100.0	
2004	57	61.3	53	93.0	5.3	2.6	98.2	100.0	
2005	50	61.7	42	84.0	4.9	2.7	96.0	100.0	
2006	39	48.8	31	79.5	5.3	2.8	97.4	100.0	
2007	43	60.6	38	88.4	5.8	2.3	97.7	100.0	#
2008	48	57.8	39	81.3	6.4	2.6	95.8	100.0	
2009	36	60.0	28	77.8	6.5	2.4	97.2	100.0	
2010	36	57.1	35	97.2	6.5	1.3	97.2	97.2	
2011	46	64.8	39	84.8	6.3	1.5	93.5	100.0	
2012	43	61.4	42	97.7	6.5	1.4	100.0	100.0	
2013	39	56.5	30	76.9	7.6	1.7	94.9	97.4	
2014	26	50.0	23	88.5	7.3	2.1	96.2	100.0	
2015	26	57.8	23	88.5	7.3	1.7	96.2	100.0	
2016	23	60.5	21	91.3	7.3	1.1	95.7	100.0	
2017	28	52.8	27	96.4	7.5	1.5	100.0	100.0	
2018	29	50.0	27	93.1	7.4	0.0	93.1	100.0	
2019	7	58.3	3	42.9	7.4	0.0	85.7	100.0	
2020	2	100.0			7.4	0.0	50.0	100.0	##
1998-2020	919	56.8	810	88.1	7.4	2.1	97.5	99.8	

919 cases diagnosed 1998-2020 are related to a total of 919 patients. Currently, in 89 (9.7 %) of these 919 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 73 / 14 / 2 (7.9 % / 1.5 % / 0.2 %) 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 retreived from the respective headings.

How to interpret:
In 2018, a subgroup of 29 cases has been diagnosed, of which 7.4 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 0.0 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 2

Incidence measures by year of diagnosis including DCO cases
(with respect to registry area expansion from 2.65 to 4.10 m as of 2002,
and from 4.10 to 4.94 m as of 2007, respectively)

Year of diagnosis	Males n	Females n	Males Inc. raw	Fem. Inc. raw	Males Inc. WS	Fem. Inc. WS	Males Inc. ES	Fem. Inc. ES	Males Inc. BRD-S	Fem. Inc. BRD-S
1998	58	88	5.2	7.5	3.1	2.2	4.8	3.7	6.6	5.5
1999	39	51	3.5	4.3	1.9	1.3	3.2	2.2	4.6	3.2
2000	44	35	3.9	2.9	2.2	0.7	3.6	1.3	5.0	1.8
2001	21	41	1.8	3.4	1.0	1.1	1.6	1.6	2.3	2.3
2002	61	70	3.3	3.6	1.7	0.9	2.7	1.6	3.9	2.4
2003	52	56	2.8	2.8	1.4	0.8	2.4	1.3	3.4	2.0
2004	36	57	1.9	2.9	1.0	0.8	1.7	1.4	2.3	2.0
2005	31	50	1.6	2.5	0.8	0.6	1.3	1.1	1.8	1.6
2006	41	39	2.1	1.9	1.0	0.5	1.7	0.9	2.5	1.2
2007	28	43	1.3	1.9	0.6	0.5	1.0	0.9	1.3	1.4
2008	35	48	1.6	2.1	0.7	0.7	1.2	1.0	1.6	1.4
2009	24	36	1.1	1.5	0.5	0.4	0.8	0.7	1.1	1.1
2010	27	36	1.2	1.5	0.6	0.4	0.9	0.7	1.1	1.0
2011	25	46	1.1	2.0	0.4	0.5	0.7	0.8	1.1	1.2
2012	27	43	1.2	1.8	0.6	0.4	0.8	0.7	1.2	1.0
2013	30	39	1.3	1.6	0.5	0.4	0.9	0.7	1.2	1.1
2014	26	26	1.1	1.1	0.4	0.3	0.7	0.4	1.0	0.7
2015	19	26	0.8	1.1	0.3	0.3	0.5	0.5	0.7	0.7
2016	15	23	0.6	0.9	0.3	0.2	0.4	0.4	0.6	0.6
2017	25	28	1.0	1.1	0.4	0.3	0.6	0.5	0.9	0.7
2018	29	29	1.2	1.2	0.4	0.3	0.7	0.5	1.0	0.7
2019	5	7	0.2	0.3	0.1	0.1	0.1	0.1	0.2	0.2
2020		2		0.1		0.1		0.1		0.1
1998–2020	698	919	1.5	1.9	0.7	0.5	1.1	0.8	1.5	1.2

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

Table 3

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	146	77.1	11.3	53.2	107	59.7	69.5	78.2	85.7	90.3
1999	90	77.5	12.6	36.1	95.8	59.4	70.6	79.4	86.8	90.8
2000	79	79.1	14.0	39.0	99.5	51.3	71.7	83.7	88.3	92.8
2001	62	77.9	14.9	0.5	94.9	64.7	69.8	81.0	87.5	91.0
2002	131	78.3	11.5	13.1	96.6	63.0	73.1	80.2	86.4	90.5
2003	108	78.6	13.4	21.5	97.9	61.6	72.7	81.5	88.5	91.0
2004	93	78.8	13.4	41.5	103	55.2	73.3	82.6	89.7	91.7
2005	81	79.9	11.4	49.7	99.4	61.1	72.3	81.8	88.5	93.1
2006	80	80.6	11.2	36.2	97.1	65.9	76.6	83.5	87.4	92.3
2007	71	77.9	12.8	22.0	98.3	63.3	71.2	79.7	86.0	90.6
2008	83	76.4	13.8	0.6	95.1	61.7	68.8	79.3	86.6	88.3
2009	60	78.6	10.7	40.8	98.0	66.2	70.1	80.8	86.6	90.4
2010	63	78.2	9.9	53.3	95.4	65.6	71.8	79.7	87.0	88.6
2011	71	80.3	10.0	52.7	96.8	67.3	72.8	82.0	88.5	91.2
2012	70	79.5	14.2	1.1	94.4	69.4	75.8	82.8	87.7	91.9
2013	69	77.9	12.2	39.2	96.9	59.1	71.0	81.5	85.5	90.4
2014	52	80.4	10.4	49.9	95.1	66.1	73.6	83.5	88.2	89.7
2015	45	81.4	10.3	56.6	102	65.4	75.0	82.8	89.4	93.0
2016	38	78.2	11.9	46.5	91.7	60.3	72.8	83.1	87.9	89.5
2017	53	80.3	10.8	53.5	96.6	62.8	76.3	80.1	89.6	93.1
2018	58	80.6	9.7	51.9	97.1	67.3	76.0	80.2	88.0	93.2
2019	12	74.4	12.3	52.0	89.8	53.7	68.1	77.1	83.1	88.4
2020	2	61.3	17.5	48.9	73.7	48.9	48.9	61.3	73.7	73.7
1998-2020	1617	78.7	12.1	0.5	107	62.2	72.5	81.3	87.4	91.1

Table 3a

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	Median 10%	25%	50%	75%	90%
1998	58	71.1	9.9	53.2	88.5	58.8	62.8	70.9	78.3	85.8
1999	39	74.3	13.8	36.1	94.9	55.8	63.0	76.8	86.2	91.4
2000	44	74.2	14.0	46.1	92.2	50.8	65.1	77.4	86.2	88.3
2001	21	73.4	11.0	48.8	92.2	64.7	66.7	73.1	81.8	87.2
2002	61	73.7	12.9	13.1	95.9	61.0	65.1	75.8	80.6	88.5
2003	52	77.2	14.5	27.7	97.9	63.1	70.6	80.1	88.5	91.2
2004	36	74.9	15.5	41.5	95.3	52.5	62.8	79.8	89.1	90.9
2005	31	73.4	11.5	55.8	96.4	59.5	63.5	72.3	81.5	88.7
2006	41	78.9	12.1	36.2	97.1	64.7	72.2	81.2	86.5	92.3
2007	28	73.7	12.8	43.2	95.2	55.5	65.4	72.9	84.9	92.2
2008	35	73.9	10.5	51.0	88.8	59.8	66.9	73.5	83.6	86.5
2009	24	78.0	10.3	55.9	91.5	65.4	68.4	79.8	87.9	90.2
2010	27	73.8	9.9	53.3	91.0	60.4	67.6	72.6	84.1	88.2
2011	25	77.1	9.8	52.7	96.8	67.3	70.9	76.1	82.2	89.5
2012	27	71.9	18.9	1.1	92.2	49.6	70.0	76.7	82.3	87.9
2013	30	75.3	12.3	39.2	93.9	60.5	70.3	76.4	83.0	90.2
2014	26	77.8	11.6	49.9	92.7	55.3	72.9	80.2	86.7	89.5
2015	19	81.7	9.4	56.6	97.2	70.1	76.8	82.8	87.5	90.7
2016	15	74.1	13.1	46.5	89.1	52.1	63.6	74.3	85.8	88.4
2017	25	78.9	10.3	58.2	92.4	62.6	73.2	79.9	87.0	90.5
2018	29	77.8	8.9	51.9	93.2	66.9	71.9	78.2	84.8	88.6
2019	5	75.3	7.6	66.6	86.0	66.6	69.6	75.8	78.4	86.0
1998–2020	698	75.2	12.5	1.1	97.9	59.2	68.1	77.2	84.6	89.5

Table 3b

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	88	81.1	10.5	54.1	107	65.6	75.3	83.0	88.7	91.7
1999	51	79.9	11.1	41.6	95.8	64.6	75.1	84.3	88.1	90.1
2000	35	85.2	11.5	39.0	99.5	72.4	82.1	87.6	92.7	96.6
2001	41	80.2	16.2	0.5	94.9	64.9	79.1	83.5	88.2	91.0
2002	70	82.3	8.3	52.3	96.6	71.8	79.2	83.3	88.3	90.9
2003	56	79.8	12.4	21.5	95.6	61.6	76.9	82.5	88.2	90.8
2004	57	81.3	11.3	51.7	103	63.5	75.4	83.3	89.8	93.0
2005	50	83.9	9.4	49.7	99.4	72.1	80.3	85.7	90.0	93.3
2006	39	82.3	10.0	54.5	95.0	67.5	79.7	84.8	88.4	92.7
2007	43	80.6	12.2	22.0	98.3	71.2	76.0	83.9	86.6	90.6
2008	48	78.2	15.7	0.6	95.1	63.9	74.2	82.9	87.8	90.3
2009	36	79.1	11.0	40.8	98.0	67.0	73.4	83.1	86.0	90.9
2010	36	81.6	8.5	57.2	95.4	71.0	76.1	83.6	88.1	90.4
2011	46	81.9	9.9	53.2	96.1	67.3	73.9	84.2	89.5	91.8
2012	43	84.3	7.1	65.5	94.4	73.3	81.7	85.3	88.6	92.3
2013	39	79.9	11.9	49.3	96.9	59.1	75.8	82.3	88.7	90.8
2014	26	83.1	8.3	62.2	95.1	68.9	77.5	84.6	88.9	92.4
2015	26	81.1	11.1	57.2	102	62.8	75.0	82.4	90.4	93.4
2016	23	80.9	10.5	54.6	91.7	61.9	75.5	83.7	89.0	90.4
2017	28	81.5	11.3	53.5	96.6	66.2	76.9	80.2	90.4	94.2
2018	29	83.3	9.9	55.9	97.1	68.3	78.1	84.5	90.7	94.6
2019	7	73.8	15.4	52.0	89.8	52.0	53.7	78.8	88.4	89.8
2020	2	61.3	17.5	48.9	73.7	48.9	48.9	61.3	73.7	73.7
1998-2020	919	81.3	11.2	0.5	107	66.7	76.7	83.8	88.6	92.1

Table 4

Age distribution by 5-year age group and sex for period 2007-2020 (incl. DCO)

Age at diagnosis Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4	2	0.3	0.3	1	0.3	0.3	1	0.2	0.2
5-9	0	0.0	0.3			0.3			0.2
10-14	0	0.0	0.3			0.3			0.2
15-19	0	0.0	0.3			0.3			0.2
20-24	1	0.1	0.4			0.3	1	0.2	0.5
25-29	1	0.1	0.5	1	0.3	0.6			0.5
30-34	0	0.0	0.5			0.6			0.5
35-39	1	0.1	0.7	1	0.3	1.0			0.5
40-44	2	0.3	0.9	1	0.3	1.3	1	0.2	0.7
45-49	7	0.9	1.9	3	1.0	2.2	4	0.9	1.6
50-54	15	2.0	3.9	8	2.5	4.8	7	1.6	3.2
55-59	19	2.5	6.4	11	3.5	8.3	8	1.9	5.1
60-64	30	4.0	10.4	17	5.4	13.7	13	3.0	8.1
65-69	66	8.8	19.3	44	14.0	27.6	22	5.1	13.2
70-74	86	11.5	30.8	47	14.9	42.5	39	9.0	22.2
75-79	118	15.8	46.6	50	15.9	58.4	68	15.7	38.0
80-84	139	18.6	65.2	53	16.8	75.2	86	19.9	57.9
85+	260	34.8	100.0	78	24.8	100.0	182	42.1	100.0
All ages	747	100.0		315	100.0		432	100.0	

Table 5

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

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males DCO rate n=250 %	Females DCO rate n=375 %	Males Prop.all cancers n=153686 %	Females Prop.all cancers n=155051 %
0- 4	1	1	0.1	0.1		100.0	0.5	0.6
5- 9								
10-14								
15-19								
20-24		1		0.1		100.0		0.2
25-29	1		0.0		100.0		0.1	
30-34								
35-39	1		0.0				0.1	
40-44	1	1	0.0	0.0			0.0	0.0
45-49	3	4	0.1	0.2	33.3	25.0	0.1	0.0
50-54	8	7	0.3	0.3	25.0	42.9	0.1	0.1
55-59	11	8	0.5	0.4	63.6	62.5	0.1	0.1
60-64	17	13	1.0	0.7	70.6	69.2	0.1	0.1
65-69	44	22	2.7	1.2	68.2	77.3	0.2	0.1
70-74	47	39	3.1	2.3	78.7	79.5	0.2	0.2
75-79	50	68	4.1	4.5	80.0	85.3	0.2	0.3
80-84	53	86	7.3	8.1	90.6	89.5	0.3	0.6
85+	77	182	16.5	17.5	93.5	94.5	0.7	1.1
All ages	314	432			79.6	86.8	0.2	0.3
Incidence								
Raw			1.0	1.3				
WS			0.4	0.3				
ES			0.6	0.6				
BRD-S			0.9	0.8				

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).

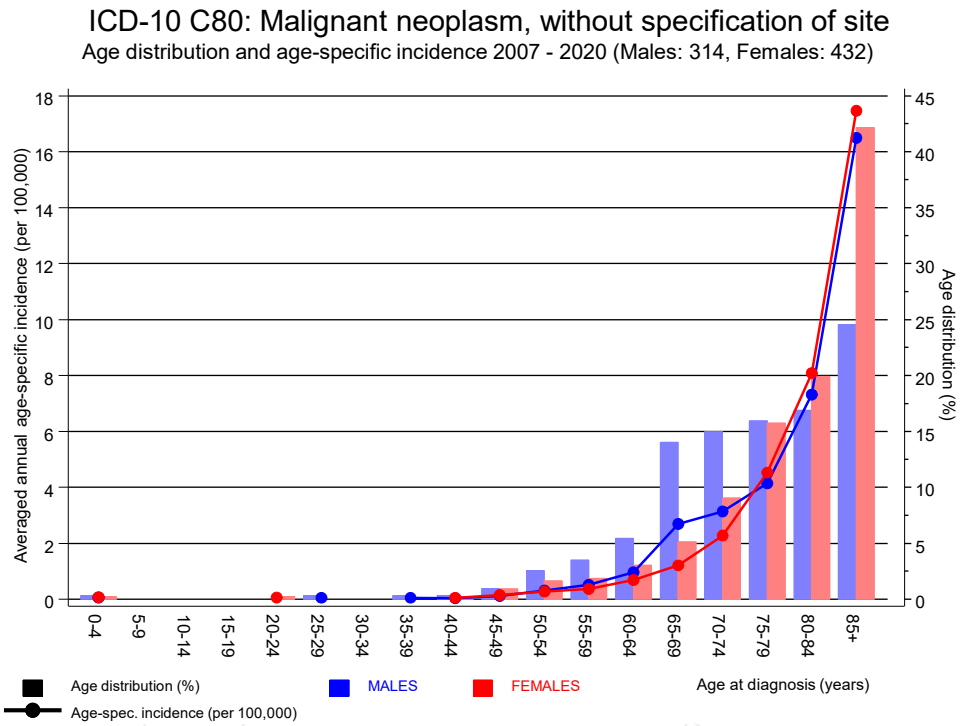


Figure 6. Age distribution (males: mean=75.9 yrs, median=77.4 yrs; females: mean=81.0 yrs, median=83.7 yrs) and age-specific incidence.

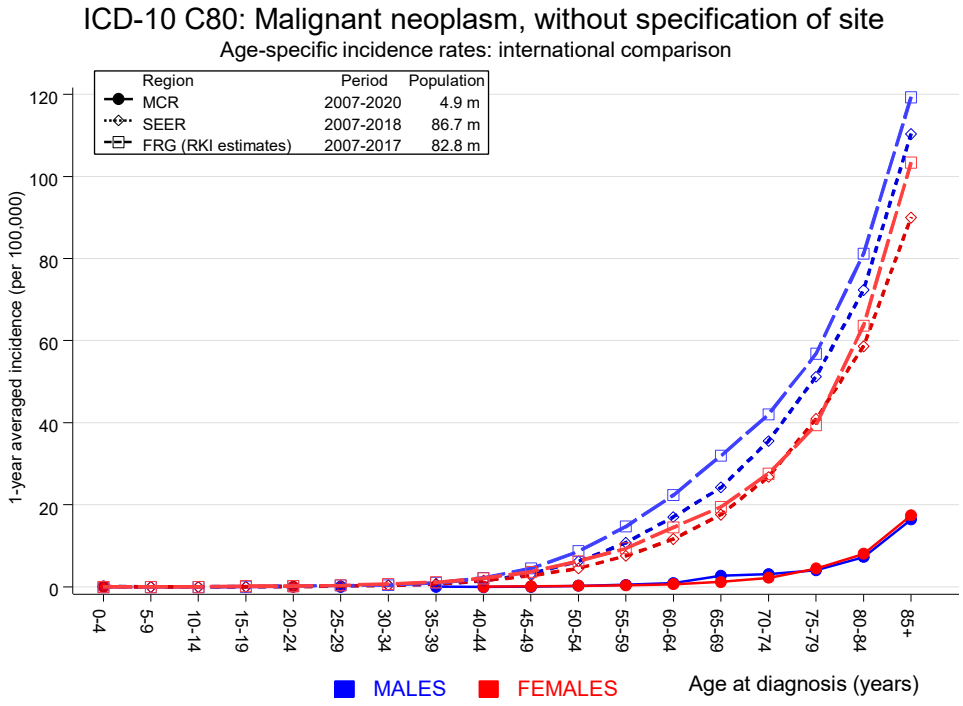


Figure 6a. Age-specific incidence in MCR registry areas compared to Germany (FRG, RKI estimates) and SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

Estimated age-specific patient population of Germany, latest update: 16 March 2021. German Centre for Cancer Registry Data, Robert Koch Institute (RKI), based on data of the population based cancer registries. http://www.krebsdaten.de. Last access: 08/17/2021
Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence - SEER 21 Regs Research Data, released April 2021, based on the November 2020 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 1998–2020

MALES

Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C07–C08	Salivary gland	1	0.0	81.9	2.1	456.3	#	29.2	
C09–C10	Oropharynx	1	0.1	19.5	0.5	108.8		28.1	
C18	Colon	2	0.6	3.6	0.4	13.1		42.9	50.0
C22	Liver	1	0.1	6.7	0.2	37.3		25.2	
C25	Pancreas	1	0.2	4.8	0.1	26.8		23.5	
C33–C34	Lung	8	0.6	12.7	5.5	24.9	#	218.1	12.5
C46,C49	Soft tissue	1	0.0	31.1	0.8	173.4		28.7	
C61	Prostate	2	1.6	1.3	0.2	4.6		12.8	
C64	Kidney	1	0.2	5.5	0.1	30.6		24.2	
C76–C79	CUP	2	0.1	20.9	2.5	75.4	#	56.4	
Not observed		0	2.0	0.0	0.0	1.8		-59.9	
All further malignancies		20	5.5	3.6	2.2	5.6	#	429.1	10.0

Patients	269
Median age at next malignancy (years)	70.2
Person-years	338
Mean observation time (years)	1.3
Median observation time (years)	0.3

The occurrence of further specified malignancy is statistically significant.

Table 7b

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

Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C09–C10	Oropharynx	2	0.0	131.4	15.9	474.8	#	53.7	
C16	Stomach	1	0.2	4.7	0.1	26.2		21.3	
C18	Colon	3	0.6	5.2	1.1	15.3	#	65.6	66.7
C22	Liver	1	0.1	15.7	0.4	87.5		25.3	
C25	Pancreas	2	0.2	8.0	1.0	29.0		47.3	
C33–C34	Lung	3	0.3	9.6	2.0	28.1	#	72.7	
C43	Malign. melanoma	1	0.2	6.1	0.2	34.1		22.6	100.0
C50	Breast	5	1.3	3.9	1.3	9.0	#	100.1	40.0
C53	Cervix uteri	1	0.1	17.4	0.4	97.0		25.5	
C56	Ovary	2	0.2	10.7	1.3	38.7	#	49.0	
C73	Thyroid	1	0.1	16.9	0.4	93.9		25.4	
C76–C79	CUP	1	0.1	9.0	0.2	49.9		24.0	
C82–C85	NHL	1	0.2	5.1	0.1	28.5		21.8	100.0
C91–C96	Leukaemia	1	0.1	12.8	0.3	71.6		24.9	
Not observed		0	1.3	0.0	0.0	2.9		-34.1	
All further malignancies		25	4.8	5.2	3.3	7.6	#	545.1	24.0

Patients	308
Median age at next malignancy (years)	73.0
Person-years	370
Mean observation time (years)	1.2
Median observation time (years)	0.4

The occurrence of further specified malignancy is statistically significant.

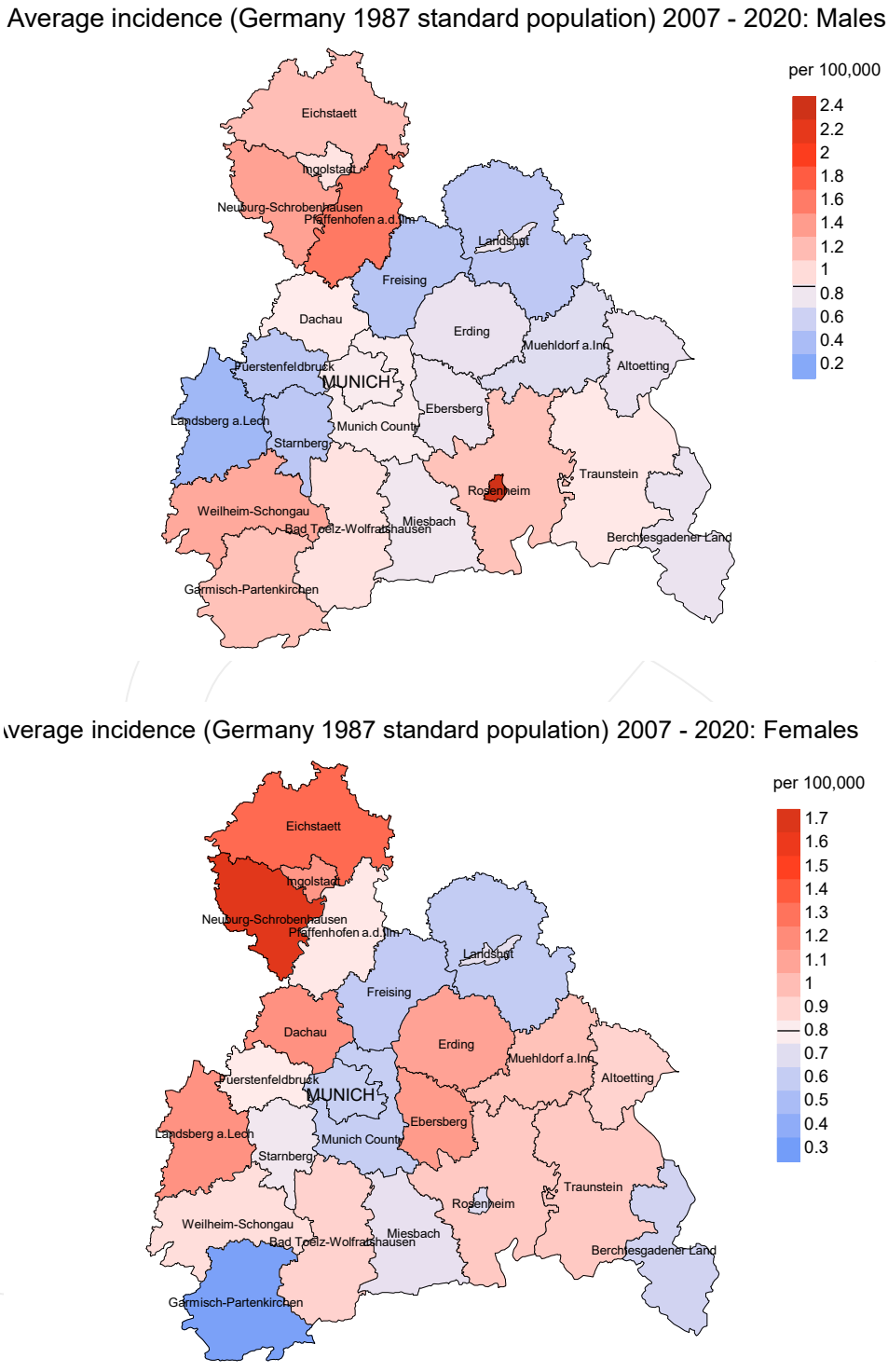
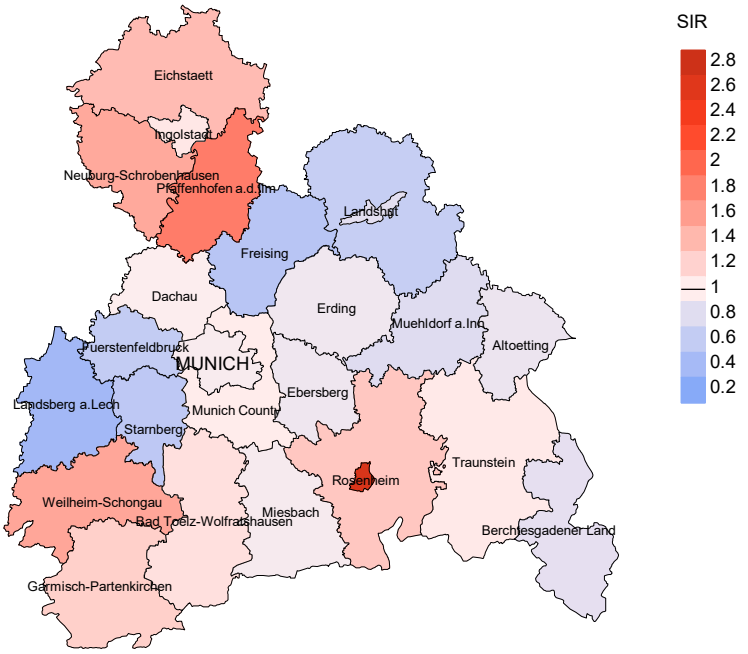


Figure 8a. Map of cancer incidence (german standard population, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.9/100,000 WS N=314, females 0.8/100,000 WS N=432).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,727 female residents (averaged) in the period from 2007 to 2020 a total of 16 women were identified with newly diagnosed CUP syndrome. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 1.1/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.5 and 2.2/100,000.

Standardized incidence ratio (SIR) 2007 - 2020: Males



Standardized incidence ratio (SIR) 2007 - 2020: Females

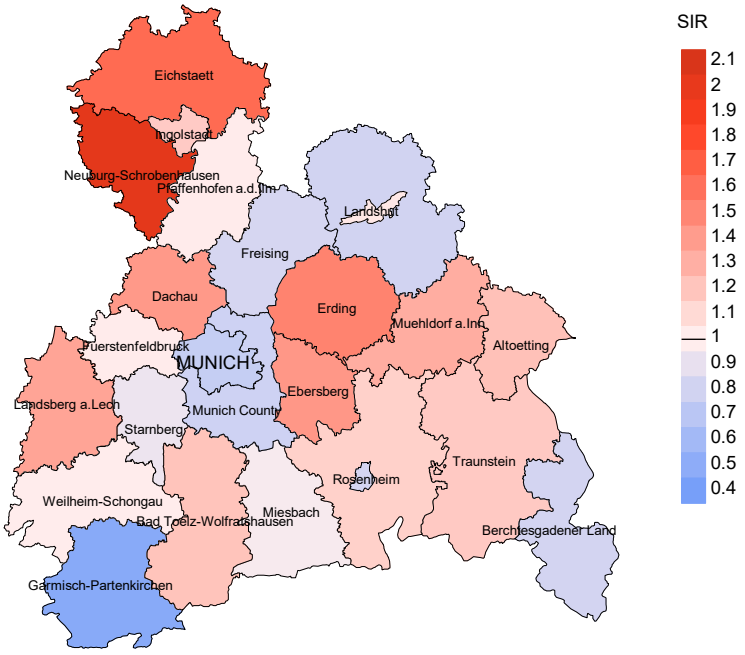


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=314, females N=432).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,153 female residents (averaged) in the period from 2007 to 2020 a total of 16 women were identified with newly diagnosed CUP syndrome. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.42. Though, the value of this parameter may vary with an underlying probability of 99% between 0.67 and 2.61, and is therefore not statistically striking.

MORTALITY

Table 9a

Annual cohorts: Incident cancers, follow-up status, proportion of DCO, deaths among the annual cohorts and proportion of available death certificates (with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.94 m as of 2007, respectively)

Year of diagnosis	Incident cases n	Prop. actively followed %	Prop. DCO %	Deaths n	Prop. deaths %	Prop. deaths with death certific. %
1998	146	100.0	79.5	146	100.0	98.6
1999	90	100.0	87.8	89	98.9	97.8
2000	79	100.0	91.1	79	100.0	98.7
2001	62	100.0	93.5	62	100.0	100.0
2002	131	100.0	95.4	131	100.0	100.0
2003	108	100.0	88.9	106	98.1	99.1
2004	93	100.0	87.1	89	95.7	100.0
2005	81	100.0	85.2	79	97.5	100.0
2006	80	98.8	81.3	78	97.5	98.7
2007	71	100.0	90.1	68	95.8	100.0
2008	83	100.0	79.5	77	92.8	98.7
2009	60	100.0	80.0	58	96.7	98.3
2010	63	96.8	92.1	61	96.8	98.4
2011	71	100.0	81.7	67	94.4	97.0
2012	70	100.0	88.6	66	94.3	100.0
2013	69	98.6	81.2	66	95.7	98.5
2014	52	100.0	80.8	49	94.2	100.0
2015	45	100.0	86.7	44	97.8	100.0
2016	38	94.7	78.9	34	89.5	97.1
2017	53	100.0	86.8	50	94.3	100.0
2018	58	100.0	89.7	55	94.8	98.2
2019	12	100.0	41.7	10	83.3	90.0
2020	2	100.0		1	50.0	100.0
1998-2020	1617	99.6	85.8	1565	96.8	99.0

Table 9b

Annual cohorts of incident cancers and deaths, proportion of death certificates and cases deceased within the same year of being diagnosed with cancer (incl. DCO)
(with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.94 m as of 2007, respectively)

Year of diagnosis/ death	Incident cases n	Deaths n	Prop. deaths with death certific. %	Deaths in same year n	Prop. deaths in same year %
1998	146	147	98.0	130	89.0
1999	90	85	100.0	72	80.0
2000	79	92	98.9	74	93.7
2001	62	54	98.1	47	75.8
2002	131	89	100.0	116	88.5
2003	108	64	98.4	84	77.8
2004	93	71	100.0	75	80.6
2005	81	53	100.0	62	76.5
2006	80	58	100.0	62	77.5
2007	71	41	100.0	51	71.8
2008	83	56	98.2	63	75.9
2009	60	47	100.0	49	81.7
2010	63	42	97.6	48	76.2
2011	71	41	97.6	55	77.5
2012	70	48	100.0	56	80.0
2013	69	36	100.0	57	82.6
2014	52	32	100.0	41	78.8
2015	45	31	100.0	37	82.2
2016	38	21	100.0	29	76.3
2017	53	36	100.0	46	86.8
2018	58	36	94.4	53	91.4
2019	12	11	72.7	8	66.7
2020	2	8	75.0	1	50.0
1998–2020	1617	1199	98.7	1316	81.4

Table 9c

Annual cohorts of deaths, proportion of cancer-related and non-cancer-related deaths, and cancer recorded on death certificates (incl. DCO)
(with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.94 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer-related %	Prop. non-cancer-related %	Prop. cancer recorded on death certificate %
1998	147	76.2	23.8	99.3
1999	85	85.9	14.1	98.8
2000	92	90.2	9.8	98.9
2001	54	88.9	11.1	98.1
2002	89	86.5	13.5	97.8
2003	64	93.8	6.3	100.0
2004	71	88.7	11.3	95.8
2005	53	90.6	9.4	96.2
2006	58	93.1	6.9	96.6
2007	41	95.1	4.9	97.6
2008	56	89.3	10.7	100.0
2009	47	91.5	8.5	100.0
2010	42	92.9	7.1	95.1
2011	41	92.7	7.3	97.5
2012	48	89.6	10.4	93.8
2013	36	91.7	8.3	100.0
2014	32	93.8	6.3	100.0
2015	31	96.8	3.2	100.0
2016	21	85.7	14.3	100.0
2017	36	91.7	8.3	91.7
2018	36	94.4	5.6	88.2
2019	11	72.7	27.3	87.5
2020	8	75.0	25.0	66.7
1998-2020	1199	88.6	11.4	97.5

Table 10a

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

Year of death	Deaths n	Age at death (all causes) Years	Age at death (cancer-related) Years	Age at death (non-cancer-related) Years	Age at death (according to death certificate) Years
1998	60	70.9	70.0	73.3	72.5
1999	38	77.7	77.3	86.3	77.7
2000	48	76.1	76.1	78.1	77.2
2001	16	76.7	76.7		77.3
2002	46	75.5	75.5	79.4	76.0
2003	29	80.6	79.3	89.2	80.6
2004	31	80.5	80.3	89.3	80.3
2005	17	72.1	72.1	76.1	72.0
2006	27	78.7	78.9	54.7	78.9
2007	25	79.7	78.0	85.6	79.7
2008	26	79.0	79.0	76.3	79.0
2009	19	80.0	80.0	84.2	80.0
2010	15	71.4	70.6	94.0	71.4
2011	16	81.2	81.2		81.2
2012	18	76.6	76.6	74.9	77.2
2013	16	77.7	77.7	78.8	77.7
2014	16	76.1	76.1		76.1
2015	14	80.8	81.2	70.3	80.8
2016	7	85.5	85.7	65.8	85.5
2017	13	86.4	87.0	79.5	87.0
2018	19	78.4	78.2	90.3	80.1
2019	5	78.4	78.4		80.1
2020	2	71.7	79.9	63.5	79.9
1998–2020	523	77.2	77.3	75.3	77.4

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	87	83.3	81.6	84.8	83.0
1999	47	84.3	84.3	85.1	84.3
2000	44	86.0	85.9	93.2	86.1
2001	38	83.9	84.4	81.0	84.4
2002	43	83.3	82.3	88.2	82.9
2003	35	84.4	84.4	75.7	84.6
2004	40	83.6	83.8	81.8	83.8
2005	36	86.2	85.5	91.0	86.2
2006	31	85.3	85.6	83.9	85.4
2007	16	78.5	78.4	101.7	78.4
2008	30	86.8	86.8	84.7	87.0
2009	28	78.1	80.0	73.6	78.1
2010	27	83.8	83.8	80.6	84.5
2011	25	84.3	84.2	86.1	84.3
2012	30	86.3	85.7	89.0	85.8
2013	20	82.7	82.4	85.1	82.7
2014	16	84.5	84.5	83.0	84.5
2015	17	78.9	78.9		78.9
2016	14	87.7	86.8	92.7	87.7
2017	23	81.6	81.0	94.0	81.0
2018	17	90.7	90.2	93.4	90.9
2019	6	87.4	88.4	86.5	88.4
2020	6	76.6	74.1	82.9	74.1
1998–2020	676	84.3	83.8	85.7	84.3

By 2018, Bavarians' life expectancy at birth is estimated at 79.3 years for boys and 83.8 years for girls.

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

Table 11a

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

Year of death	Deaths n	Mort. raw	MI-Index raw	Mort. WS	MI-Index WS	Mort. ES	MI-Index ES	Mort. BRD-S	MI-Index BRD-S
1998	45	4.1	0.78	2.4	0.78	3.7	0.77	4.9	0.75
1999	34	3.0	0.87	1.6	0.85	2.7	0.86	3.9	0.87
2000	44	3.9	1.00	2.2	1.00	3.6	0.99	4.8	0.96
2001	16	1.4	0.76	0.8	0.74	1.3	0.78	1.8	0.81
2002	42	2.3	0.69	1.2	0.67	1.9	0.69	2.8	0.70
2003	27	1.4	0.52	0.7	0.49	1.2	0.49	1.7	0.51
2004	28	1.5	0.78	0.8	0.74	1.3	0.77	1.8	0.79
2005	15	0.8	0.48	0.4	0.53	0.6	0.49	0.9	0.48
2006	26	1.4	0.63	0.6	0.67	1.1	0.64	1.5	0.63
2007	24	1.1	0.86	0.5	0.81	0.8	0.83	1.2	0.91
2008	24	1.1	0.69	0.5	0.62	0.8	0.65	1.1	0.70
2009	17	0.8	0.71	0.3	0.71	0.6	0.71	0.8	0.71
2010	14	0.6	0.52	0.3	0.54	0.4	0.52	0.5	0.49
2011	16	0.7	0.64	0.3	0.63	0.5	0.63	0.7	0.66
2012	16	0.7	0.59	0.3	0.50	0.5	0.57	0.7	0.58
2013	14	0.6	0.47	0.3	0.49	0.4	0.49	0.6	0.47
2014	16	0.7	0.64	0.3	0.65	0.4	0.64	0.6	0.65
2015	13	0.5	0.68	0.2	0.80	0.4	0.74	0.5	0.69
2016	6	0.2	0.40	0.1	0.29	0.2	0.35	0.2	0.38
2017	11	0.5	0.44	0.1	0.38	0.3	0.43	0.4	0.41
2018	18	0.7	0.62	0.3	0.64	0.5	0.64	0.6	0.62
2019	5	0.2	1.00	0.1	0.70	0.1	0.81	0.2	0.97
2020	1	0.0		0.0		0.0		0.0	
1998-2020	472	1.0	0.68	0.4	0.67	0.7	0.67	1.0	0.68

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	67	5.7	0.76	1.8	0.82	2.9	0.79	4.3	0.78
1999	39	3.3	0.76	1.0	0.75	1.7	0.76	2.5	0.77
2000	39	3.2	1.11	0.9	1.24	1.5	1.18	2.0	1.12
2001	32	2.6	0.78	0.6	0.58	1.1	0.69	1.8	0.77
2002	35	1.8	0.50	0.6	0.69	0.9	0.58	1.3	0.53
2003	33	1.7	0.59	0.4	0.52	0.8	0.58	1.2	0.58
2004	35	1.8	0.61	0.5	0.59	0.8	0.58	1.2	0.59
2005	33	1.7	0.66	0.4	0.67	0.7	0.68	1.1	0.68
2006	28	1.4	0.72	0.3	0.63	0.6	0.65	0.8	0.65
2007	15	0.6	0.35	0.2	0.37	0.3	0.38	0.5	0.37
2008	26	1.1	0.54	0.4	0.53	0.5	0.52	0.7	0.49
2009	26	1.1	0.72	0.3	0.69	0.5	0.72	0.8	0.76
2010	25	1.1	0.69	0.3	0.75	0.5	0.73	0.7	0.70
2011	22	0.9	0.48	0.2	0.48	0.4	0.48	0.6	0.49
2012	27	1.1	0.63	0.3	0.67	0.4	0.65	0.7	0.63
2013	19	0.8	0.49	0.2	0.44	0.3	0.45	0.5	0.47
2014	14	0.6	0.54	0.1	0.56	0.2	0.55	0.4	0.58
2015	17	0.7	0.65	0.2	0.67	0.3	0.67	0.5	0.70
2016	12	0.5	0.52	0.2	0.66	0.2	0.60	0.3	0.52
2017	22	0.9	0.79	0.2	0.83	0.4	0.80	0.5	0.79
2018	16	0.6	0.55	0.1	0.52	0.2	0.53	0.3	0.50
2019	3	0.1	0.43	0.0	0.40	0.1	0.41	0.1	0.35
2020	5	0.2	2.50	0.1	1.28	0.1	1.61	0.1	1.82
1998-2020	590	1.2	0.64	0.3	0.65	0.5	0.64	0.8	0.64

Table 12

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

Age at death Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4	1	0.2	0.2			0.0	1	0.4	0.4
5-9	0	0.0	0.2			0.0			0.4
10-14	0	0.0	0.2			0.0			0.4
15-19	0	0.0	0.2			0.0			0.4
20-24	0	0.0	0.2			0.0			0.4
25-29	0	0.0	0.2			0.0			0.4
30-34	0	0.0	0.2			0.0			0.4
35-39	0	0.0	0.2			0.0			0.4
40-44	0	0.0	0.2			0.0			0.4
45-49	1	0.2	0.5			0.0	1	0.4	0.8
50-54	6	1.4	1.8	3	1.5	1.5	3	1.2	2.0
55-59	11	2.5	4.3	6	3.1	4.6	5	2.0	4.0
60-64	20	4.5	8.8	11	5.6	10.3	9	3.6	7.6
65-69	43	9.7	18.5	29	14.9	25.1	14	5.6	13.3
70-74	52	11.7	30.2	30	15.4	40.5	22	8.8	22.1
75-79	69	15.5	45.7	25	12.8	53.3	44	17.7	39.8
80-84	80	18.0	63.7	39	20.0	73.3	41	16.5	56.2
85+	161	36.3	100.0	52	26.7	100.0	109	43.8	100.0
All ages	444	100.0		195	100.0		249	100.0	

Table 13

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2020
(**incl. multiple malignancies**)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	Males MI-index	Females Age-spec. mortal.	Females MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4		1			0.1	1.00		6.3
5- 9								
10-14								
15-19								
20-24								
25-29								
30-34								
35-39								
40-44								
45-49		1			0.0	0.25		0.1
50-54	3	3	0.1	0.38	0.1	0.43	0.1	0.1
55-59	6	5	0.3	0.55	0.2	0.63	0.1	0.1
60-64	11	9	0.6	0.65	0.5	0.69	0.2	0.2
65-69	29	14	1.8	0.66	0.8	0.64	0.3	0.2
70-74	30	22	2.0	0.64	1.3	0.56	0.3	0.3
75-79	25	44	2.1	0.50	2.9	0.65	0.2	0.4
80-84	39	41	5.4	0.74	3.9	0.48	0.4	0.4
85+	52	109	11.1	0.68	10.5	0.60	0.6	0.9
All ages	195	249					0.3	0.4
Mortality								
Raw			0.6	0.62	0.7	0.58		
WS			0.2	0.59	0.2	0.58		
ES			0.4	0.61	0.3	0.58		
BRD-S			0.5	0.62	0.5	0.57		
PYLL-70								
per 100,000			1.0		1.1			
ES			0.8		1.1			
AYLL-70			5.8		9.3			

Table 14a

Further malignancies in deaths in period 1998–2020
MALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03–C06	Oral cavity	1	1.4	1	100.0				
C09–C10	Oropharynx	2	2.9			1	50.0	1	50.0
C15	Oesophagus	1	1.4			1	100.0		
C16	Stomach	1	1.4					1	100.0
C18	Colon	5	7.2	2	40.0	3	60.0		
C19–C20	Rectum	1	1.4	1	100.0				
C22	Liver	1	1.4					1	100.0
C32	Larynx	3	4.3	3	100.0				
C33–C34	Lung	9	13.0	1	11.1	2	22.2	6	66.7
C43	Malign. melanoma	1	1.4	1	100.0				
C44	Skin others	6	8.7	3	50.0			3	50.0
C46,C49	Soft tissue	1	1.4			1	100.0		
C61	Prostate	20	29.0	16	80.0	2	10.0	2	10.0
C62	Testis	1	1.4	1	100.0				
C64	Kidney	2	2.9			2	100.0		
C67	Bladder	2	2.9	2	100.0				
C73	Thyroid	1	1.4	1	100.0				
C74–C80	Cancer others	1	1.4			1	100.0		
C76–C79	CUP	4	5.8			2	50.0	2	50.0
C81	Hodgkin lymphoma	1	1.4	1	100.0				
C82–C85	NHL	3	4.3	3	100.0				
C90	Mult. myeloma	2	2.9	2	100.0				
All further malignancies		69	100.0	38	55.1	15	21.7	16	23.2

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

Table 14b

Further malignancies in deaths in period 1998–2020
FEMALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03–C06	Oral cavity	1	1.3	1	100.0				
C16	Stomach	3	3.9	1	33.3	1	33.3	1	33.3
C18	Colon	7	9.1	3	42.9	2	28.6	2	28.6
C19–C20	Rectum	1	1.3	1	100.0				
C22	Liver	1	1.3					1	100.0
C23–C24	Bile	1	1.3			1	100.0		
C25	Pancreas	2	2.6					2	100.0
C26	GI cancer	2	2.6	1	50.0	1	50.0		
C33–C34	Lung	7	9.1	3	42.9	1	14.3	3	42.9
C43	Malign. melanoma	5	6.5	4	80.0			1	20.0
C44	Skin others	2	2.6	2	100.0				
C50	Breast	17	22.1	11	64.7	2	11.8	4	23.5
C53	Cervix uteri	2	2.6	1	50.0	1	50.0		
C54	Corpus uteri	7	9.1	7	100.0				
C56	Ovary	4	5.2	1	25.0	1	25.0	2	50.0
C64	Kidney	3	3.9	2	66.7			1	33.3
C67	Bladder	2	2.6	1	50.0	1	50.0		
C73	Thyroid	3	3.9	2	66.7			1	33.3
C76–C79	CUP	1	1.3			1	100.0		
C82–C85	NHL	4	5.2	3	75.0			1	25.0
C90	Mult. myeloma	1	1.3	1	100.0				
C91–C96	Leukaemia	1	1.3					1	100.0
All further malignancies		77	100.0	45	58.4	12	15.6	20	26.0

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 2007-2020
(**First primaries only** *)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	Males MI-index	Females Age-spec. mortal.	Females MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4		1			0.1	1.00		6.7
5- 9								
10-14								
15-19								
20-24								
25-29								
30-34								
35-39								
40-44								
45-49		1			0.0	0.25		0.1
50-54	3	3	0.1	0.38	0.1	0.50	0.1	0.1
55-59	5	5	0.2	0.50	0.2	0.71	0.1	0.2
60-64	10	8	0.6	0.77	0.4	0.73	0.2	0.2
65-69	24	12	1.5	0.62	0.7	0.60	0.3	0.2
70-74	27	20	1.8	0.64	1.2	0.56	0.3	0.3
75-79	23	37	1.9	0.55	2.5	0.67	0.3	0.5
80-84	28	39	3.9	0.65	3.7	0.49	0.4	0.5
85+	44	97	9.4	0.66	9.3	0.58	0.7	1.0
All ages	164	223					0.3	0.5
Mortality								
Raw			0.5	0.61	0.7	0.57		
WS			0.2	0.58	0.2	0.58		
ES			0.3	0.60	0.3	0.58		
BRD-S			0.5	0.60	0.4	0.57		
PYLL-70								
per 100,000			0.9		1.0			
ES			0.7		1.0			
AYLL-70			6.0		9.8			

* See corresponding tables with multiple malignancies.

Table 16

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2020
(**Single primaries only** *)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	Males MI-index	Females Age-spec. mortal.	Females MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4		1			0.1	1.00		6.7
5- 9								
10-14								
15-19								
20-24								
25-29								
30-34								
35-39								
40-44								
45-49								
50-54	3	3	0.1	0.38	0.1	0.60	0.1	0.1
55-59	5	5	0.2	0.50	0.2	0.71	0.1	0.2
60-64	8	7	0.5	0.67	0.4	0.70	0.2	0.2
65-69	23	10	1.4	0.61	0.6	0.56	0.3	0.2
70-74	25	18	1.7	0.60	1.0	0.51	0.3	0.3
75-79	23	35	1.9	0.55	2.3	0.65	0.3	0.5
80-84	28	39	3.9	0.65	3.7	0.49	0.4	0.6
85+	44	93	9.4	0.66	8.9	0.56	0.7	1.0
All ages	159	211					0.3	0.4
Mortality								
Raw			0.5	0.59	0.6	0.56		
WS			0.2	0.56	0.2	0.56		
ES			0.3	0.58	0.3	0.56		
BRD-S			0.4	0.59	0.4	0.56		
PYLL-70								
per 100,000			0.8		0.9			
ES			0.7		0.9			
AYLL-70			6.0		10.0			

* See corresponding tables with multiple malignancies.

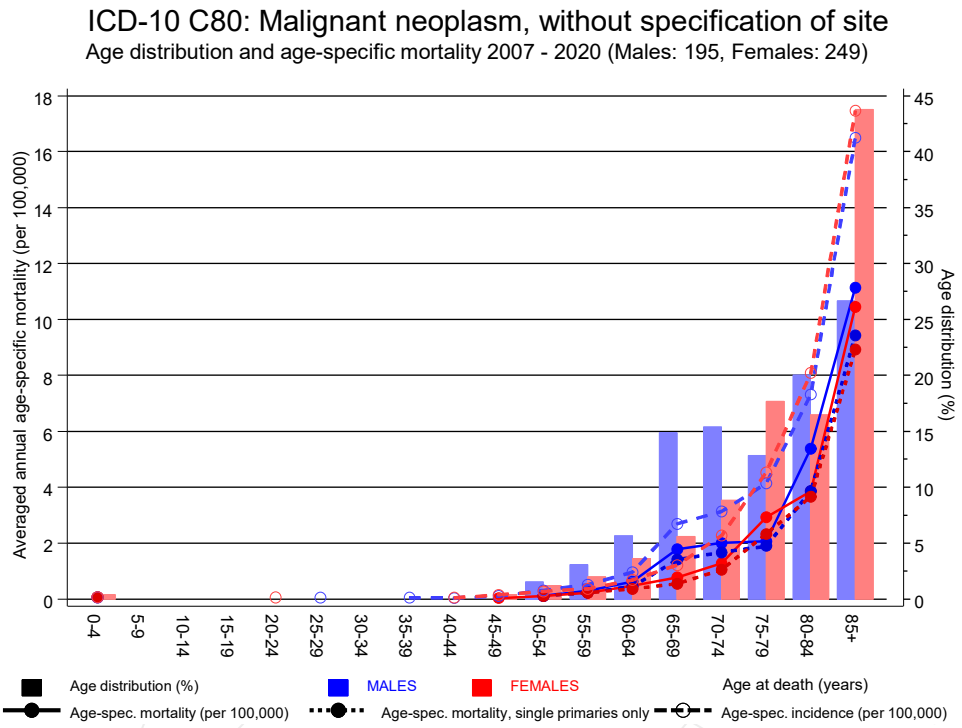


Figure 17. Distribution of age at death (bars; males: mean=76.9 yrs, median=78.3 yrs; females: mean=80.3 yrs, median=82.9 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

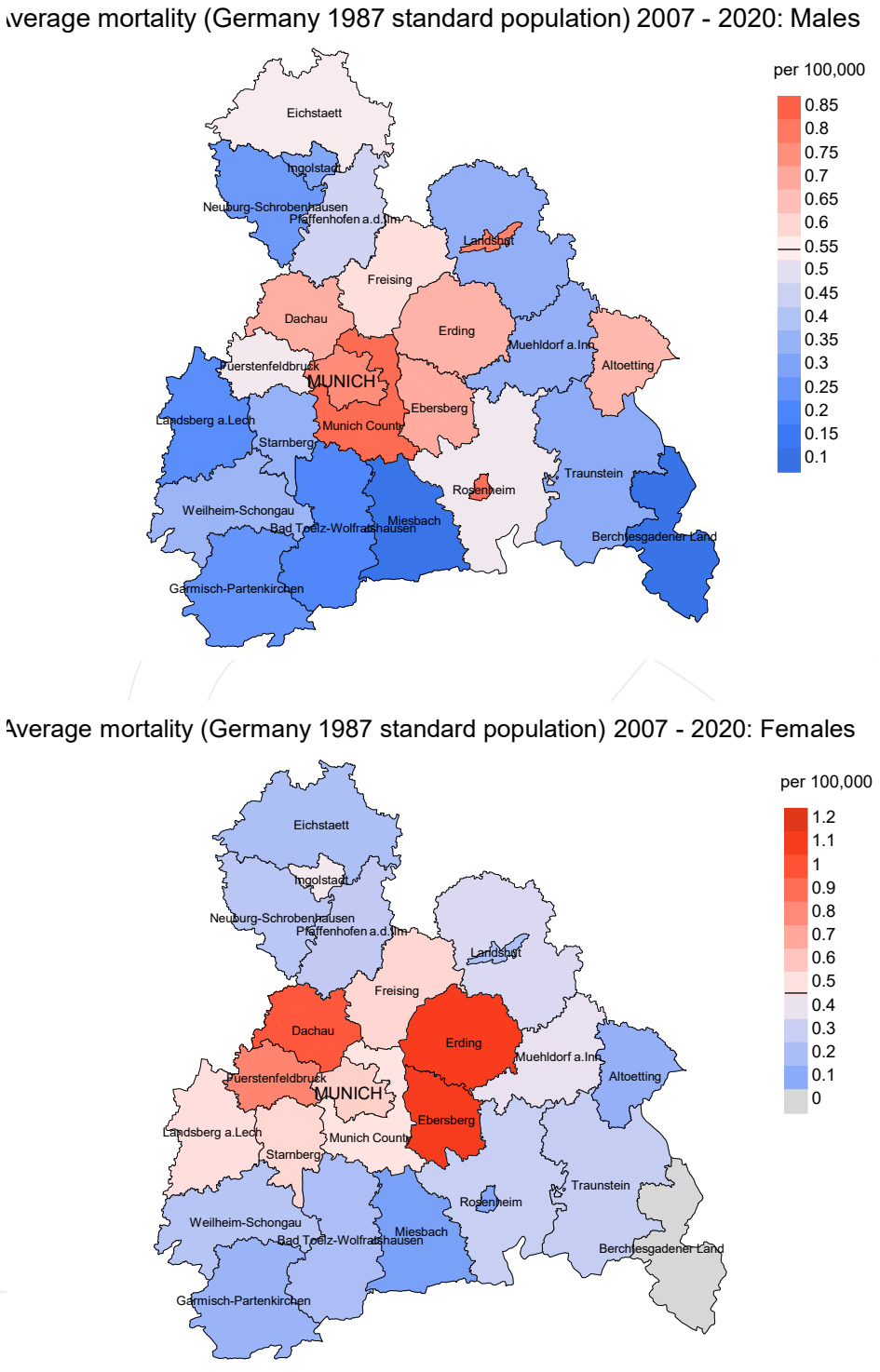
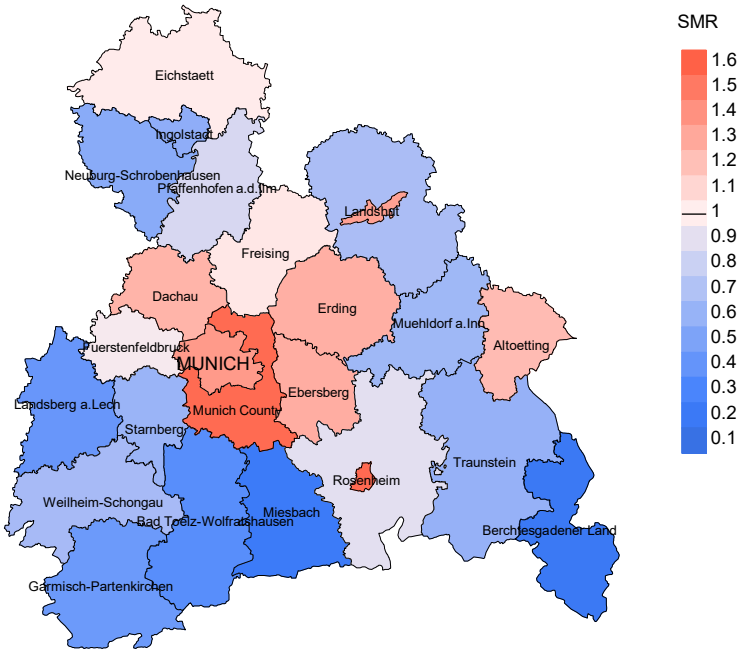


Figure 18a. Map of cancer mortality (german standard population) by county averaged for period 2007 to 2020. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.5/100,000 WS N=195, females 0.5/100,000 WS N=249).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,727 female residents (averaged) in the period from 2007 to 2020 a total of 16 women died from CUP syndrome. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 1.1/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.5 and 2.1/100,000.

Standardized mortality ratio (SMR) 2007 - 2020: Males



Standardized mortality ratio (SMR) 2007 - 2020: Females

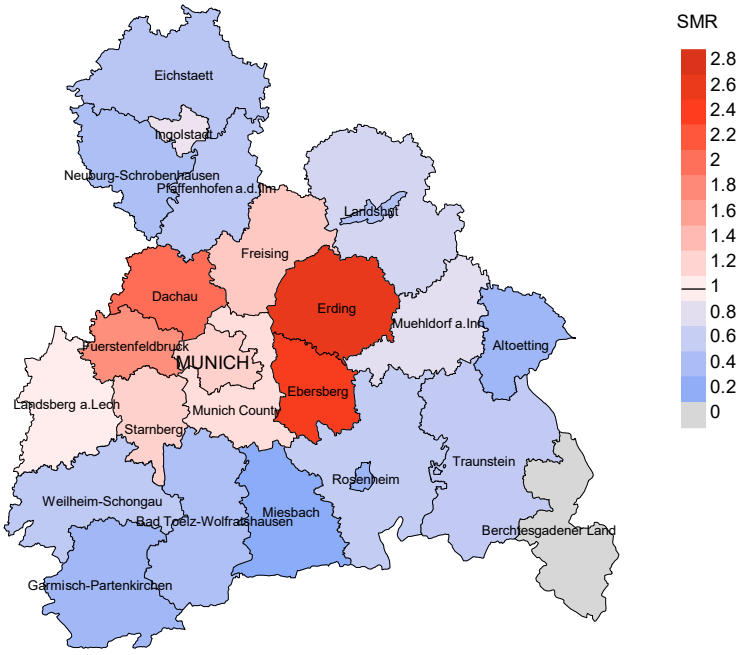


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=195, females N=249).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,153 female residents (averaged) in the period from 2007 to 2020 a total of 16 women died from CUP syndrome. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 2.46. Though, the value of this parameter may vary with an underlying probability of 99% between 1.17 and 4.54, and is therefore not statistically striking.

Statistical Notes

In all tables and figures the respective reference values should be carefully considered. The incidence rates include diagnoses (with multiple primary), and death certificate only (DCO) cases, where applicable. For mortality statistics patients, diagnoses and progressive course of disease are presented. In the calculations, all courses of disease are considered whereby progressions occurred and/or death certificate identified progressive cancers were ascertained. Additionally there are three groups of disease course to consider:

1. **All multiple primaries included**

   The mortality statistic describes the tumor-specific death, independent of any malignancy. The patient perspective, induced secondary malignancies, and the problem of multiple malignancies from the same primary tumor all have reasons for their inclusion.

2. **First singular primary** (no information about other prior or synchronous malignancy)

   The mortality statistic describes the cancer-related death for patients who have no therapeutic restrictions due to a previous or synchronous cancer. These statistics are comparable to studies that have exclusion criteria based on a second malignancy.

3. **Single primary** (no information about other prior, syn- or metachronous malignancy)

   The mortality statistic describes the tumor-specific death that occurs without any impact through secondary primaries, earlier, synchronous, later or induced. Precisely the difference between disease group 1 and 2 highlight the magnitude of the problem of secondary malignancies.

For this reason differences appear concerning official mono-causal mortality statistics. To judge the maximum deviation, 2 further tables are presented. In the first table the distribution of secondary malignancies before, at or after the described cancer are shown, that could be an alternative cause of death. In the second table, the age-specific mortality rates for all courses of disease, without designation of secondary malignancies are shown.

A previously minimally acknowledged statistic is the **age at death**, which allows for a good assessment of the quality of classification of the apparent tumor-specific death. For assumed tumor-independent deaths, the age of death should be estimated from the age of diagnosis and the normal life expectancy, whereas tumor-dependent deaths can be estimated from the age of diagnosis plus the average tumor-specific life expectancy. The comparison of different tumors demonstrates this association, if the causes of cancer and the competing cause of death are independent of each other (e.g. breast and colon versus head&neck and lung).

The ratio of mortality and incidence (mortality-to-incidence ratio, **MIR**, **MI-Index**) is a statistical index that allows for the evaluation of the quality of data. For diseases with poor prognoses, comparable values are obtained from all age groups, because to a large extent, the numerator and denominator contain the same cases. For tumors with a good prognosis, increasing and decreasing incidence and age-specific differences in prognosis can more strongly alter the MIR. Additionally, attention should be paid to the confidence intervals where fewer cases are reported.

The complexity of problems identified here emphasizes the importance of relative survival data for the appropriate analysis of long term results.

As a measurement of the burden of disease, the number of potential life years loss due to premature deaths in a cohort can be calculated (**PYLL**, potential years of life lost, standardized per 100,000 persons or per European standard) as well as the average loss of life years per individual (**AYLL**, average years of life lost). Depending upon the analytic aim (health economy, prevention, health care research) different methods exist for the generation of these measurements. In the results presented here, the age for a premature death is considered to be before 70 years, according to the guidelines of the OECD and the WHO (as seen in the abbreviation PYLL-70 or AYLL-70).

Shortcuts

MCR	Munich Cancer Registry (Tumorregister München)
GEKID	Association of Population-based Cancer Registries in Germany (Gesellschaft der epidemiologischen Krebsregister in Deutschland e.V.)
SEER	Surveillance, Epidemiology, and End Results (USA)
DCO	Death certificate only
BRD-S	German (FRG) standard population
ES	European standard population (old)
WS	World standard population
SIR	Standardized incidence ratio
CI	Confidence interval
EAR	Excess absolute risk = excess cancer cases (O - E) per 10,000 person-years
PYLL-70	Potential years of life lost prior to age 70 given a person dies before that age
AYLL-70	Average years of life lost prior to age 70 given a person dies before that age
SMR	Standardized mortality ratio
MI-index	Ratio of mortality to incidence, MIR
FRG	Federal Republic of Germany

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