Munich Cancer Registry

- Survival
- Selection Matrix
- Homepage
- *Deutsch*

ICD-10 C80: CUP syndrome

Incidence and Mortality

Year of diagnosis	1998-2016
Patients	2,733
Diseases	2,733
Creation date	08/21/2018
Export date	08/09/2018
Population	4.81 m

Munich Cancer Registry
Cancer Registry Bavaria - Upper Bavaria Regional Center
at Klinikum Grosshadern/IBE
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, August 2018

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

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

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

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

Code	Description
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	124	4	3.2	0.0	6.5	97.6	100.0
1999	93	4	4.3	0.0	6.6	98.9	98.9
2000	80	1	1.3	0.0	6.7	97.5	100.0
2001	78			0.0	6.7	96.2	97.4
2002	155	5	3.2	0.0	6.6	96.1	100.0 #
2003	139	3	2.2	0.0	6.6	96.4	100.0
2004	175	1	0.6	0.0	6.4	96.6	97.7
2005	141	5	3.5	0.0	6.5	94.3	97.2
2006	139	2	1.4	0.0	6.2	90.6	97.8
2007	171	2	1.2	0.0	6.0	94.7	96.5 #
2008	170	1	0.6	0.0	5.6	90.0	92.4
2009	153	1	0.7	0.0	5.3	92.2	94.8
2010	158	2	1.3	0.0	4.9	90.5	92.4
2011	207	3	1.4	0.0	4.4	90.3	92.3
2012	179	2	1.1	0.0	4.1	88.8	92.7
2013	167	1	0.6	0.0	3.9	89.2	92.2
2014	156	1	0.6	0.0	4.7	81.4	91.7
2015	147	8	5.4	0.0	4.4	88.4	99.3
2016	101	2	2.0	0.0	5.9	56.4	80.2 ##
1998-2016	2733	48	1.8		6.5	90.9	95.3

2,733 cases diagnosed 1998-2016 are related to a total of 2,733 patients. Currently, in 178 (6.5 %) of these 2,733 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 163 / 13 / 2 (6.0 % / 0.5 % / 0.1 %) patients exist having 2 / 3 / 4+ malignancies.

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

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

How to interpret:
In 2014, a subgroup of 156 cases has been diagnosed, of which 0.0 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 4.7 % 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	61	49.2	1	1.6	0.0	6.7	98.4	100.0	
1999	50	53.8	2	4.0	0.0	6.7	98.0	98.0	
2000	33	41.3			0.0	6.8	100.0	100.0	
2001	45	57.7			0.0	6.7	95.6	95.6	
2002	80	51.6	4	5.0	0.0	6.6	96.3	100.0	#
2003	70	50.4	1	1.4	0.0	6.4	97.1	100.0	
2004	89	50.9			0.0	6.3	95.5	97.8	
2005	63	44.7	1	1.6	0.0	6.3	92.1	95.2	
2006	70	50.4	1	1.4	0.0	5.8	94.3	98.6	
2007	86	50.3	1	1.2	0.0	5.5	96.5	98.8	#
2008	97	57.1	1	1.0	0.0	4.6	89.7	91.8	
2009	65	42.5	1	1.5	0.0	4.2	95.4	95.4	
2010	81	51.3	1	1.2	0.0	3.6	91.4	92.6	
2011	104	50.2	1	1.0	0.0	3.2	93.3	95.2	
2012	98	54.7	1	1.0	0.0	2.7	86.7	89.8	
2013	83	49.7			0.0	2.6	90.4	91.6	
2014	70	44.9	1	1.4	0.0	2.7	84.3	91.4	
2015	68	46.3	2	2.9	0.0	1.7	83.8	100.0	
2016	50	49.5	1	2.0	0.0	0.0	62.0	84.0	##
1998-2016	1363	49.9	20	1.5		6.7	91.6	95.4	

1,363 cases diagnosed 1998-2016 are related to a total of 1,363 patients. Currently, in 91 (6.7 %) of these 1,363 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 83 / 6 / 2 (6.1 % / 0.4 % / 0.1 %) patients exist having 2 / 3 / 4+ malignancies.

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

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

How to interpret:
In 2014, a subgroup of 70 cases has been diagnosed, of which 0.0 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 2.7 % 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	63	50.8	3	4.8	0.0	6.4	96.8	100.0	
1999	43	46.2	2	4.7	0.0	6.6	100.0	100.0	
2000	47	58.8	1	2.1	0.0	6.6	95.7	100.0	
2001	33	42.3			0.0	6.6	97.0	100.0	
2002	75	48.4	1	1.3	0.0	6.5	96.0	100.0	#
2003	69	49.6	2	2.9	0.0	6.8	95.7	100.0	
2004	86	49.1	1	1.2	0.0	6.5	97.7	97.7	
2005	78	55.3	4	5.1	0.0	6.7	96.2	98.7	
2006	69	49.6	1	1.4	0.0	6.6	87.0	97.1	
2007	85	49.7	1	1.2	0.0	6.4	92.9	94.1	#
2008	73	42.9			0.0	6.5	90.4	93.2	
2009	88	57.5			0.0	6.3	89.8	94.3	
2010	77	48.7	1	1.3	0.0	6.2	89.6	92.2	
2011	103	49.8	2	1.9	0.0	5.6	87.4	89.3	
2012	81	45.3	1	1.2	0.0	5.5	91.4	96.3	
2013	84	50.3	1	1.2	0.0	5.0	88.1	92.9	
2014	86	55.1			0.0	6.5	79.1	91.9	
2015	79	53.7	6	7.6	0.0	6.9	92.4	98.7	
2016	51	50.5	1	2.0	0.0	11.8	51.0	76.5	##
1998-2016	1370	50.1	28	2.0		6.4	90.2	95.2	

1,370 cases diagnosed 1998-2016 are related to a total of 1,370 patients. Currently, in 87 (6.4 %) of these 1,370 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 80 / 7 / 0 (5.8 % / 0.5 % / 0.0 %) 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 2014, a subgroup of 86 cases has been diagnosed, of which 0.0 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 6.5 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 2

Incidence measures by year of diagnosis including DCO cases
(with respect to registry area expansion from 2.65 to 4.10 m as of 2002,
and from 4.10 to 4.81 m as of 2007, respectively)

Year of diagnosis	Males n	Females n	Males Inc. raw	Fem. Inc. raw	Males Inc. WS	Fem. Inc. WS	Males Inc. ES	Fem. Inc. ES	Males Inc. BRD-S	Fem. Inc. BRD-S
1998	61	63	5.5	5.4	3.4	1.9	5.0	3.1	6.0	4.4
1999	50	43	4.5	3.6	2.7	1.5	4.0	2.3	5.0	2.9
2000	33	47	2.9	3.9	1.9	1.8	2.7	2.6	3.2	3.2
2001	45	33	3.9	2.7	2.3	1.3	3.5	1.8	4.6	2.2
2002	80	75	4.3	3.8	2.5	1.7	3.7	2.5	4.8	3.1
2003	70	69	3.7	3.5	2.0	1.5	3.1	2.2	4.0	2.8
2004	89	86	4.7	4.4	2.7	1.8	3.9	2.6	4.9	3.5
2005	63	78	3.3	3.9	2.0	1.5	2.8	2.4	3.3	3.2
2006	70	69	3.7	3.4	1.9	1.3	2.9	2.0	3.8	2.7
2007	86	85	3.9	3.7	2.2	1.5	3.2	2.2	4.0	2.9
2008	97	73	4.4	3.1	2.1	1.2	3.3	1.9	4.3	2.5
2009	65	88	2.9	3.8	1.5	1.7	2.2	2.5	2.8	3.0
2010	81	77	3.6	3.3	1.8	1.3	2.7	1.9	3.4	2.5
2011	104	103	4.6	4.4	2.2	1.8	3.3	2.6	4.4	3.4
2012	98	81	4.3	3.4	2.4	1.3	3.2	2.0	4.0	2.6
2013	83	84	3.6	3.5	1.8	1.4	2.6	2.1	3.4	2.7
2014	70	86	3.0	3.6	1.4	1.5	2.1	2.2	2.7	2.7
2015	68	79	2.9	3.2	1.4	1.1	2.1	1.7	2.6	2.3
2016	50	51	2.1	2.1	1.1	0.9	1.5	1.3	1.9	1.6
1998-2016	1363	1370	3.7	3.6	2.0	1.4	2.9	2.2	3.6	2.8

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	124	70.5	13.1	30.2	96.7	53.7	60.3	72.2	79.9	86.5
1999	93	70.4	12.7	23.4	93.6	54.4	61.7	70.1	78.0	88.1
2000	80	66.7	14.8	28.6	91.9	47.1	56.3	67.6	78.3	87.2
2001	78	68.1	13.7	38.7	97.6	50.6	58.1	67.0	79.0	87.8
2002	155	68.6	13.3	30.7	96.0	51.3	59.8	69.5	79.8	86.0
2003	139	70.5	13.4	36.2	100	54.6	62.0	71.7	78.7	89.1
2004	175	69.1	12.1	34.1	97.4	53.8	61.6	69.2	79.6	83.1
2005	141	68.8	13.5	28.2	96.6	51.9	58.8	68.8	79.2	85.0
2006	139	70.8	12.5	32.6	97.9	53.8	62.3	71.4	80.4	84.9
2007	171	69.9	13.0	16.5	99.2	53.7	62.4	70.8	79.0	85.0
2008	170	71.5	11.7	31.9	99.5	56.2	65.2	72.4	80.0	85.2
2009	153	69.0	13.5	37.4	92.4	51.3	58.8	70.4	79.7	86.1
2010	158	72.4	12.6	27.1	96.2	57.1	63.1	71.6	83.2	89.0
2011	207	71.7	12.9	8.1	99.9	55.3	65.0	72.3	80.8	85.9
2012	179	69.8	14.8	0.7	96.8	51.9	61.8	71.6	80.4	85.9
2013	167	70.3	11.8	26.0	92.7	53.7	63.1	71.8	79.1	83.1
2014	156	69.9	12.7	33.6	102	51.7	62.3	71.6	79.0	83.2
2015	147	72.4	14.0	27.6	97.7	54.4	62.7	74.2	82.4	90.6
2016	101	68.9	13.1	21.1	95.1	53.7	60.7	71.9	78.1	83.9
1998-2016	2733	70.1	13.1	0.7	102	53.5	61.5	71.1	79.9	86.0

Table 3a

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	61	65.7	13.7	30.2	93.3	49.3	57.2	65.6	75.1	85.4
1999	50	67.6	12.8	23.4	93.6	53.1	60.2	66.9	74.1	86.0
2000	33	63.8	11.5	45.1	86.7	48.4	51.0	64.6	72.7	78.3
2001	45	67.3	12.2	38.7	97.6	52.9	58.1	66.7	76.2	80.1
2002	80	66.6	13.3	30.7	89.6	49.3	56.7	68.8	77.2	82.2
2003	70	68.5	11.7	40.6	91.2	54.8	61.2	69.1	77.1	81.9
2004	89	66.3	11.7	34.4	92.9	51.3	57.7	65.2	76.6	81.8
2005	63	63.1	12.7	28.2	90.3	47.8	54.7	64.7	69.7	81.2
2006	70	68.5	12.8	32.6	89.4	51.9	59.6	70.2	78.6	84.7
2007	86	67.2	12.9	16.5	90.8	51.1	59.7	66.7	77.7	83.2
2008	97	70.1	10.1	31.9	88.4	57.1	65.4	69.7	78.0	83.1
2009	65	69.2	11.5	37.4	90.4	53.4	63.1	70.5	76.6	83.3
2010	81	71.4	11.6	39.1	92.6	57.5	64.3	70.4	82.1	87.5
2011	104	70.7	11.2	18.0	94.6	58.6	65.5	71.3	77.6	84.4
2012	98	67.6	15.3	0.7	89.6	53.4	61.8	69.6	76.5	83.3
2013	83	68.6	11.3	26.0	89.5	54.2	62.4	69.2	78.3	81.8
2014	70	68.6	13.2	33.6	102	50.9	61.8	71.7	77.6	81.8
2015	68	67.5	12.9	27.6	93.7	51.5	57.8	67.1	78.6	83.7
2016	50	67.8	12.8	21.1	87.0	55.6	60.7	69.8	78.1	80.5
1998-2016	1363	68.0	12.5	0.7	102	52.8	60.0	68.8	77.1	83.1

Table 3b

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	63	75.1	10.7	50.3	96.7	59.4	65.6	77.2	82.5	88.1
1999	43	73.5	12.0	50.4	93.0	56.5	64.2	73.3	84.3	89.1
2000	47	68.7	16.5	28.6	91.9	43.0	57.7	72.1	80.9	88.3
2001	33	69.2	15.7	39.6	96.0	47.1	57.9	67.3	81.6	88.5
2002	75	70.8	13.0	38.9	96.0	53.5	61.4	73.5	81.3	87.5
2003	69	72.6	14.7	36.2	100	52.0	64.7	72.3	83.4	91.7
2004	86	72.1	11.7	34.1	97.4	59.2	65.8	72.9	81.2	84.1
2005	78	73.5	12.4	35.1	96.6	56.1	65.0	76.1	81.1	88.9
2006	69	73.1	11.7	40.7	97.9	55.3	66.9	74.7	82.3	87.1
2007	85	72.7	12.5	41.4	99.2	56.4	65.1	73.5	82.3	87.1
2008	73	73.3	13.3	39.7	99.5	55.9	65.2	75.7	82.8	87.5
2009	88	68.9	14.9	37.9	92.4	49.7	55.9	68.9	81.3	87.2
2010	77	73.4	13.7	27.1	96.2	56.7	62.5	74.5	84.5	89.3
2011	103	72.8	14.4	8.1	99.9	54.4	64.8	74.5	82.2	88.1
2012	81	72.5	14.0	37.3	96.8	51.9	63.0	75.8	83.5	87.4
2013	84	71.9	12.1	40.7	92.7	53.7	65.8	73.8	79.9	86.6
2014	86	70.9	12.3	34.2	94.7	54.6	63.7	71.6	79.8	86.0
2015	79	76.5	13.6	37.5	97.7	55.4	69.2	78.3	87.1	92.6
2016	51	69.9	13.5	41.2	95.1	50.0	58.3	73.3	80.9	85.8
1998-2016	1370	72.3	13.3	8.1	100	53.9	63.3	74.0	82.2	88.1

Table 4

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

Age at diagnosis Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4	2	0.1	0.1	2	0.2	0.2			0.0
5-9	1	0.1	0.2			0.2	1	0.1	0.1
10-14	1	0.1	0.2	1	0.1	0.4			0.1
15-19	2	0.1	0.4	2	0.2	0.6			0.1
20-24	1	0.1	0.4	1	0.1	0.7			0.1
25-29	4	0.2	0.7	3	0.4	1.1	1	0.1	0.2
30-34	4	0.2	0.9	3	0.4	1.5	1	0.1	0.4
35-39	10	0.6	1.6	5	0.6	2.1	5	0.6	1.0
40-44	30	1.9	3.4	9	1.1	3.2	21	2.6	3.6
45-49	42	2.6	6.0	18	2.2	5.5	24	3.0	6.6
50-54	85	5.3	11.3	43	5.4	10.8	42	5.2	11.8
55-59	145	9.0	20.3	83	10.3	21.2	62	7.7	19.5
60-64	152	9.4	29.8	90	11.2	32.4	62	7.7	27.1
65-69	228	14.2	43.9	135	16.8	49.3	93	11.5	38.7
70-74	255	15.8	59.8	143	17.8	67.1	112	13.9	52.5
75-79	236	14.7	74.5	118	14.7	81.8	118	14.6	67.2
80-84	217	13.5	87.9	92	11.5	93.3	125	15.5	82.7
85+	194	12.1	100.0	54	6.7	100.0	140	17.3	100.0
All ages	1609	100.0		802	100.0		807	100.0	

Table 5

Age-specific incidence, DCO rate and proportion of all cancers
for period 2007-2016

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males DCO rate n=10 %	Females DCO rate n=13 %	Males Prop.all cancers n=113978 %	Females Prop.all cancers n=112253 %
0- 4	2		0.2				1.0	
5- 9		1		0.1				1.2
10-14	1		0.1				0.9	
15-19	2		0.2				0.8	
20-24	1		0.1				0.2	
25-29	3	1	0.2	0.1			0.4	0.1
30-34	3	1	0.2	0.1			0.3	0.1
35-39	5	5	0.3	0.3			0.4	0.2
40-44	9	21	0.5	1.2			0.4	0.5
45-49	18	24	0.9	1.3			0.5	0.3
50-54	43	42	2.5	2.5			0.7	0.5
55-59	83	62	5.9	4.2			0.9	0.7
60-64	90	62	7.3	4.7			0.7	0.5
65-69	135	93	11.4	7.2	0.7	1.1	0.7	0.7
70-74	143	112	12.9	8.8	1.4		0.7	0.8
75-79	118	118	14.8	11.8	0.8		0.7	0.9
80-84	92	125	20.0	17.7	2.2	4.0	0.8	1.1
85+	54	140	17.6	19.1	7.4	5.0	0.7	1.1
All ages	802	807			1.2	1.6	0.7	0.7
Incidence								
Raw			3.5	3.4				
WS			1.8	1.4				
ES			2.6	2.0				
BRD-S			3.3	2.6				

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).

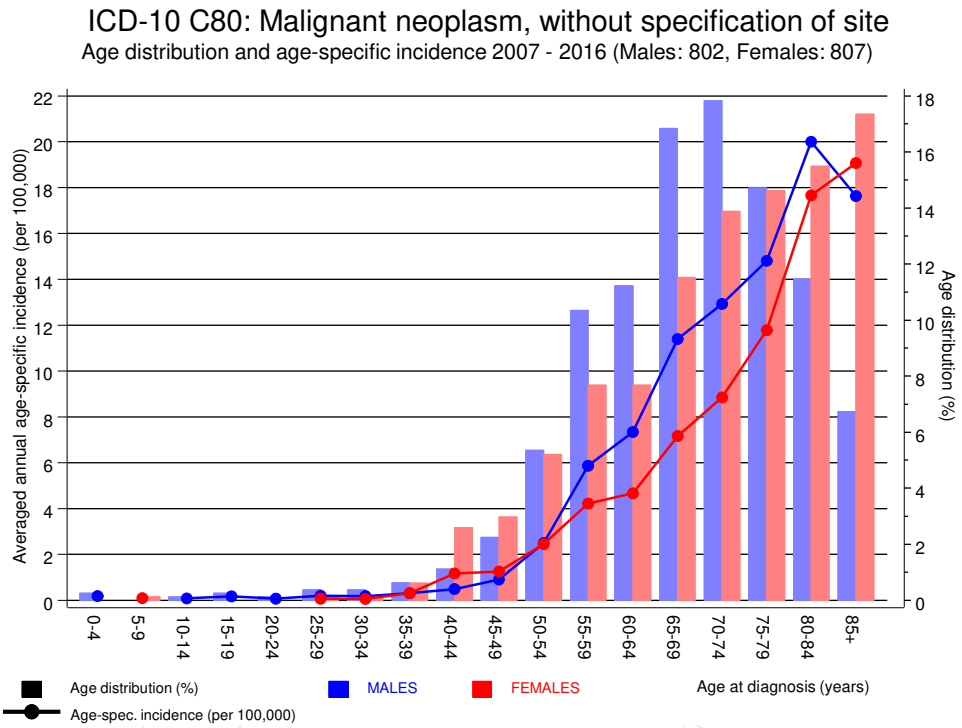


Figure 6. Age distribution (males: mean=69.0 yrs, median=70.3 yrs; females: mean=72.3 yrs, median=74.0 yrs) and age-specific incidence.

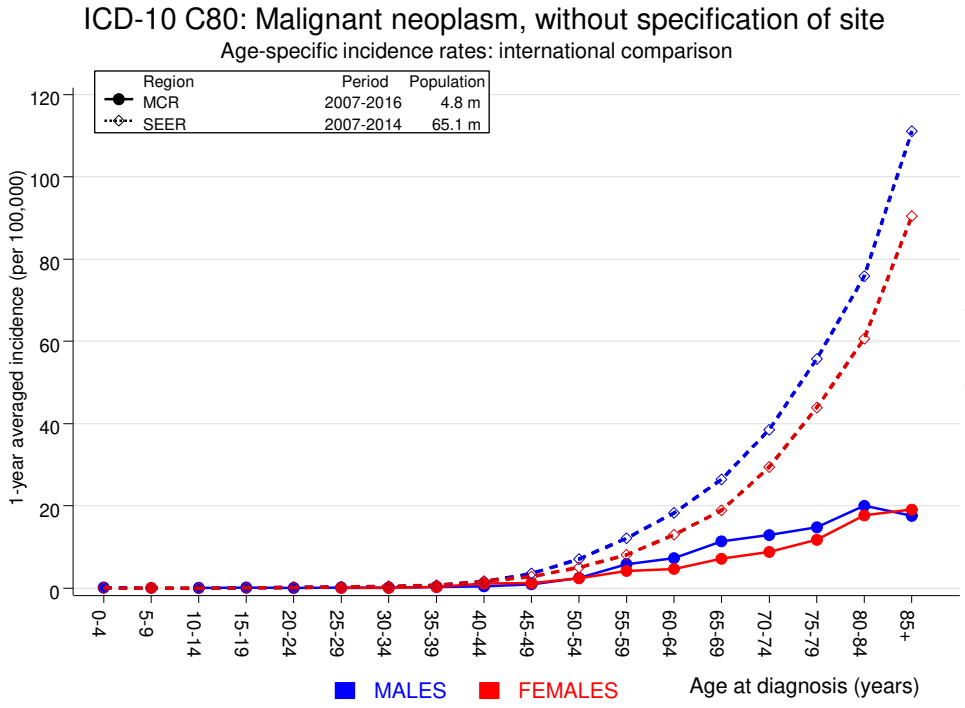


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

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

Table 7a

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

MALES

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C03–C06 Oral cavity	2	0.2	12.9	1.6	46.7	#	16.9	
C16 Stomach	4	0.7	5.4	1.5	13.9	#	29.8	50.0
C18 Colon	6	1.8	3.4	1.3	7.4	#	38.7	33.3
C19–C20 Rectum	2	1.0	2.0	0.2	7.4		9.3	
C22 Liver	4	0.5	7.9	2.1	20.1	#	31.9	75.0
C23–C24 Bile	2	0.2	11.1	1.3	40.1	#	16.6	
C25 Pancreas	4	0.7	6.0	1.6	15.3	#	30.4	50.0
C32 Larynx	2	0.2	10.4	1.3	37.7	#	16.5	
C33–C34 Lung	21	2.1	9.8	6.1	15.0	#	172.2	38.1
C38,C45 Mesothelioma	3	0.1	24.8	5.1	72.6	#	26.3	
C61 Prostate	14	5.2	2.7	1.5	4.5	#	80.0	14.3
C64 Kidney	4	0.6	6.3	1.7	16.2	#	30.7	50.0
C67 Bladder	2	0.8	2.4	0.3	8.8		10.8	
C70–C72 CNS cancer	3	0.2	12.6	2.6	36.8	#	25.2	
C73 Thyroid	3	0.1	25.6	5.3	75.0	#	26.3	
C82–C85 NHL	3	0.7	4.0	0.8	11.8		20.6	
Others, specified	8	1.5	5.5	2.4	10.8	#	59.7	50.0
Not observed	0	1.6	0.0	0.0	2.3		-14.6	
All further malignancies	87	18.3	4.8	3.8	5.9	#	627.4	28.7

Patients	1292
Median age at next malignancy (years)	68.6
Person-years	1095
Mean observation time (years)	0.8
Median observation time (years)	0.3

The occurrence of further malignancy listed is statistically significant.

Observed further malignancies with count 1 are pooled in category “Others, specified”.

Table 7b

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

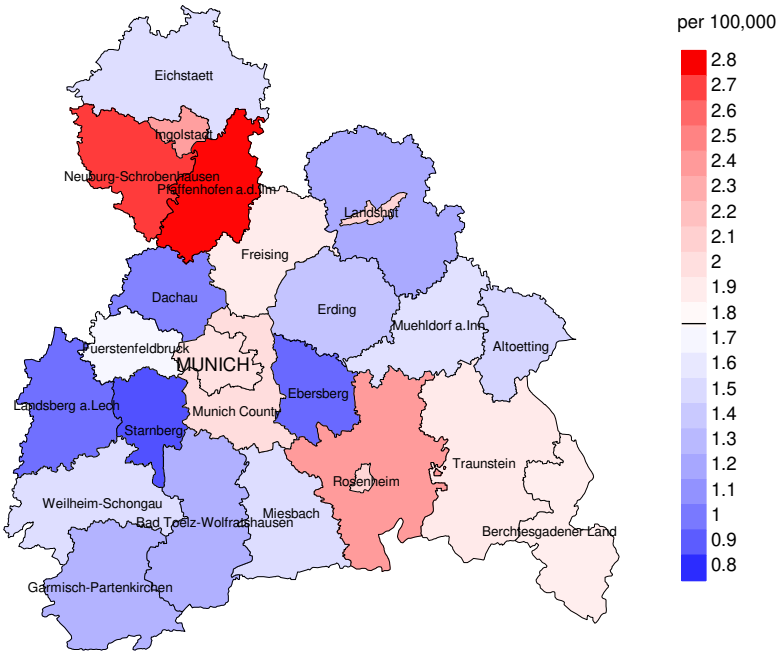
Diagnosis		Observed n	Expected n	SIR	CI 95%	CI 95%		EAR	DCO %
C16	Stomach	2	0.5	3.7	0.4	13.3		12.3	
C17	Small intestine	4	0.1	60.7	16.5	155.5	#	33.0	
C18	Colon	9	1.5	6.1	2.8	11.6	#	63.3	55.6
C22	Liver	3	0.2	17.3	3.6	50.7	#	23.7	66.7
C23–C24	Bile	3	0.2	14.3	3.0	41.8	#	23.4	66.7
C25	Pancreas	4	0.6	6.2	1.7	15.8	#	28.2	75.0
C33–C34	Lung	12	1.0	12.1	6.2	21.1	#	92.5	33.3
C50	Breast	16	4.1	3.9	2.2	6.4	#	100.1	18.8
C56	Ovary	7	0.6	12.4	5.0	25.5	#	54.1	57.1
C82–C85	NHL	3	0.5	5.5	1.1	16.0	#	20.6	33.3
C90	Mult. myeloma	2	0.2	11.3	1.4	41.0	#	15.3	
Others, specified		11	2.4	4.7	2.3	8.3	#	72.6	18.2
Not observed		0	2.2	0.0	0.0	1.7		−18.6	
All further malignancies		76	14.1	5.4	4.3	6.8	#	520.4	34.2

Patients	1290
Median age at next malignancy (years)	69.5
Person-years	1190
Mean observation time (years)	0.9
Median observation time (years)	0.3

The occurrence of further malignancy listed is statistically significant.

Observed further malignancies with count 1 are pooled in category “Others, specified”.

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



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

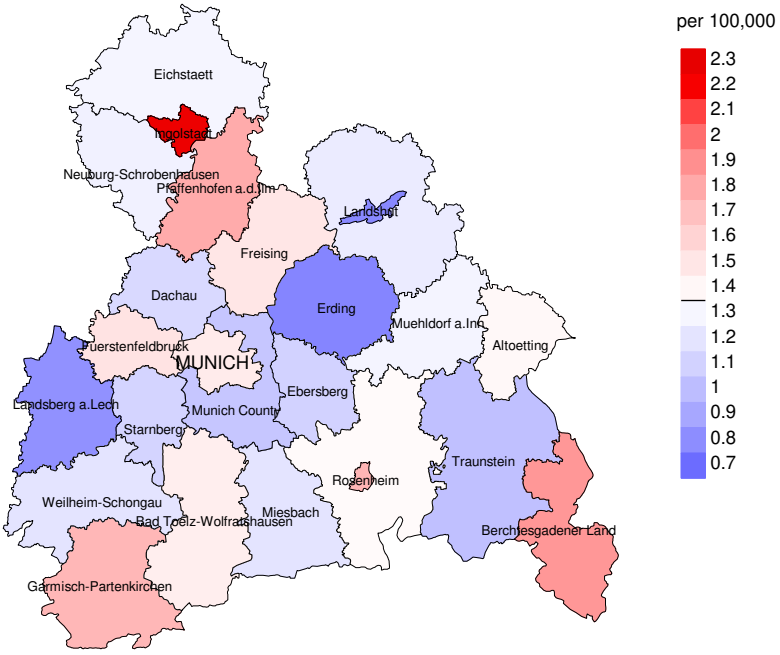
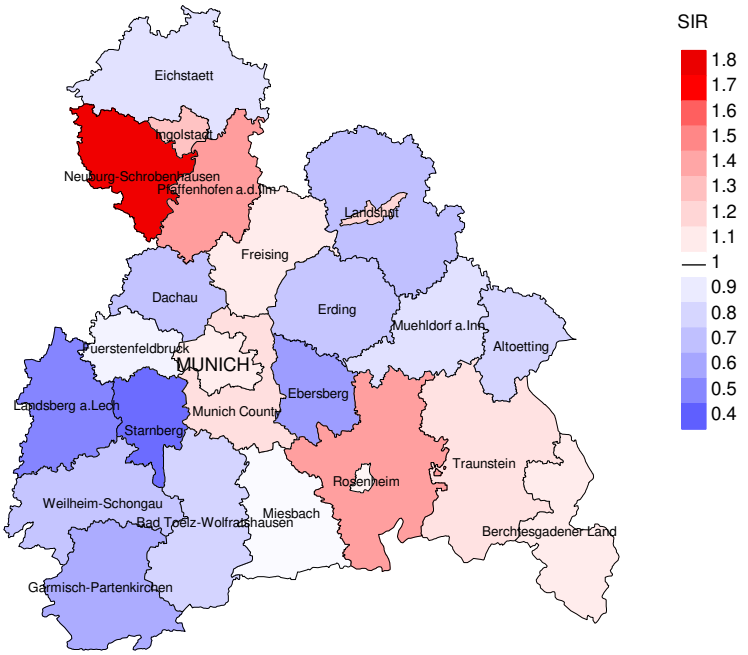


Figure 8a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 1.8/100,000 WS N=802, females 1.4/100,000 WS N=807).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 17 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 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.5 and 2.3/100,000.

Standardized incidence ratio (SIR) 2007 - 2016: Males



Standardized incidence ratio (SIR) 2007 - 2016: Females

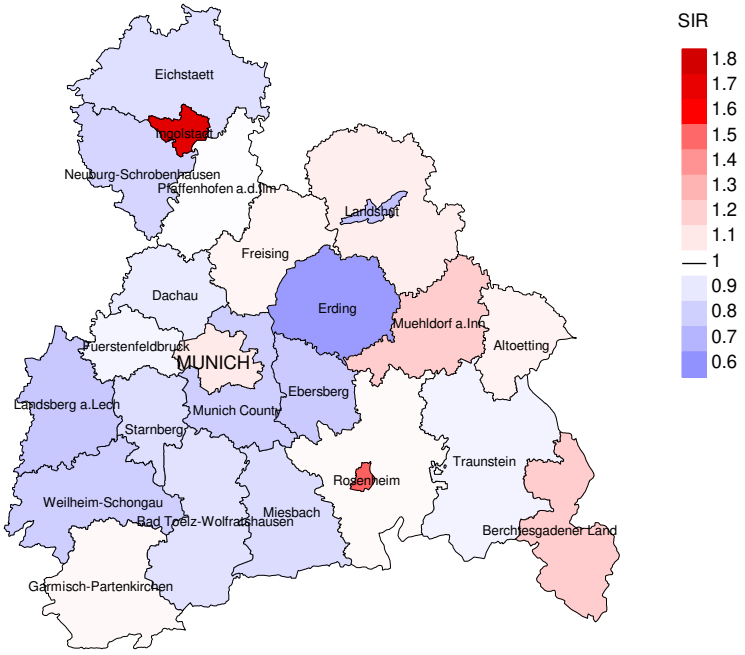


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=802, females N=807).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 17 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 0.78. Though, the value of this parameter may vary with an underlying probability of 99% between 0.38 and 1.42, and is therefore not statistically striking.

MORTALITY

Table 9a

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

Year of diagnosis	Incident cases n	Prop. actively followed %	Prop. DCO %	Deaths n	Prop. deaths %	Prop. deaths with death certific. %
1998	124	100.0	3.2	121	97.6	91.7
1999	93	98.9	4.3	92	98.9	92.4
2000	80	100.0	1.3	78	97.5	92.3
2001	78	97.4		75	96.2	98.7
2002	155	100.0	3.2	149	96.1	97.3
2003	139	100.0	2.2	134	96.4	98.5
2004	175	97.7	0.6	169	96.6	98.2
2005	141	97.2	3.5	133	94.3	97.7
2006	139	97.8	1.4	126	90.6	98.4
2007	171	96.5	1.2	162	94.7	96.9
2008	170	92.4	0.6	153	90.0	98.0
2009	153	94.8	0.7	141	92.2	97.2
2010	158	92.4	1.3	143	90.5	97.9
2011	207	92.3	1.4	187	90.3	97.9
2012	179	92.7	1.1	159	88.8	96.2
2013	167	92.2	0.6	149	89.2	97.3
2014	156	91.7	0.6	127	81.4	95.3
2015	147	99.3	5.4	130	88.4	97.7
2016	101	80.2	2.0	57	56.4	93.0
1998-2016	2733	95.3	1.8	2485	90.9	96.8

Table 9b

Annual cohorts of incident cancers and deaths, proportion of death certificates and cases deceased within the same year of being diagnosed with cancer (incl. DCO)
(with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.81 m as of 2007, respectively)

Year of diagnosis/ death	Incident cases n	Deaths n	Prop. deaths with death certific. %	Deaths in same year n	Prop. deaths in same year %
1998	124	107	94.4	75	60.5
1999	93	104	91.3	61	65.6
2000	80	81	91.4	49	61.3
2001	78	67	97.0	45	57.7
2002	155	101	98.0	70	45.2
2003	139	128	96.1	69	49.6
2004	175	163	99.4	94	53.7
2005	141	139	97.8	79	56.0
2006	139	138	97.1	72	51.8
2007	171	156	98.7	94	55.0
2008	170	168	97.0	96	56.5
2009	153	136	98.5	73	47.7
2010	158	154	98.1	89	56.3
2011	207	179	98.3	124	59.9
2012	179	171	95.9	104	58.1
2013	167	148	98.6	89	53.3
2014	156	154	95.5	77	49.4
2015	147	164	99.4	98	66.7
2016	101	105	98.1	53	52.5
1998-2016	2733	2563	97.2	1511	55.3

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 4.81 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer-related %	Prop. non-cancer-related %	Prop. cancer recorded on death certificate %
1998	107	100.0		98.0
1999	104	100.0		97.9
2000	81	100.0		93.2
2001	67	100.0		93.8
2002	101	100.0		96.0
2003	128	100.0		97.6
2004	163	100.0		96.9
2005	139	100.0		97.1
2006	138	100.0		95.5
2007	156	100.0		96.8
2008	168	100.0		95.1
2009	136	100.0		96.3
2010	154	100.0		92.7
2011	179	100.0		96.0
2012	171	100.0		93.9
2013	148	100.0		94.5
2014	154	100.0		93.2
2015	164	100.0		95.1
2016	105	100.0		95.1
1998-2016	2563	100.0		95.5

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	56	66.4	66.4		66.3
1999	50	69.0	69.0		67.9
2000	39	67.1	67.1		65.6
2001	33	68.6	68.6		69.0
2002	57	67.5	67.5		67.6
2003	61	71.5	71.5		70.9
2004	84	68.6	68.6		68.2
2005	68	66.1	66.1		66.1
2006	68	70.1	70.1		69.7
2007	74	66.2	66.2		66.7
2008	87	69.1	69.1		68.5
2009	71	70.4	70.4		70.4
2010	72	72.1	72.1		71.6
2011	93	70.8	70.8		70.4
2012	91	71.7	71.7		71.4
2013	75	70.4	70.4		70.0
2014	74	74.4	74.4		73.9
2015	77	70.6	70.6		70.3
2016	54	71.6	71.6		71.6
1998-2016	1284	69.9	69.9		69.5

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	51	76.8	76.8		76.7
1999	54	77.9	77.9		78.1
2000	42	70.3	70.3		68.5
2001	34	76.6	76.6		77.7
2002	44	79.7	79.7		77.8
2003	67	72.1	72.1		72.3
2004	79	75.9	75.9		76.1
2005	71	74.0	74.0		73.6
2006	70	75.1	75.1		74.3
2007	82	76.2	76.2		76.1
2008	81	75.2	75.2		75.0
2009	65	75.6	75.6		75.6
2010	82	74.4	74.4		73.7
2011	86	77.5	77.5		75.6
2012	80	76.5	76.5		76.0
2013	73	78.2	78.2		77.2
2014	80	73.5	73.5		72.9
2015	87	77.2	77.2		76.6
2016	51	74.6	74.6		74.4
1998-2016	1279	75.6	75.6		75.2

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

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

Table 11a

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

Year of death	Deaths n	Mort. raw	MI-Index raw	Mort. WS	MI-Index WS	Mort. ES	MI-Index ES	Mort. BRD-S	MI-Index BRD-S
1998	56	5.1	0.92	3.1	0.91	4.6	0.92	5.6	0.93
1999	50	4.5	1.00	2.8	1.03	4.2	1.03	5.2	1.03
2000	39	3.4	1.18	2.1	1.11	3.0	1.15	3.7	1.13
2001	33	2.8	0.73	1.7	0.73	2.6	0.73	3.5	0.76
2002	57	3.1	0.71	1.8	0.71	2.7	0.71	3.4	0.71
2003	61	3.3	0.87	1.7	0.86	2.7	0.88	3.7	0.93
2004	84	4.5	0.94	2.4	0.91	3.7	0.94	4.8	0.97
2005	68	3.6	1.08	2.0	1.03	3.0	1.06	3.6	1.10
2006	68	3.6	0.97	1.9	1.00	2.9	0.99	3.7	0.99
2007	74	3.3	0.86	1.9	0.86	2.7	0.85	3.3	0.83
2008	87	3.9	0.90	2.0	0.93	2.9	0.90	3.8	0.89
2009	71	3.2	1.09	1.6	1.10	2.5	1.12	3.2	1.13
2010	72	3.2	0.89	1.5	0.87	2.4	0.89	3.1	0.89
2011	93	4.2	0.89	2.0	0.90	3.0	0.91	3.9	0.90
2012	91	4.0	0.93	1.8	0.78	2.8	0.87	3.7	0.94
2013	75	3.3	0.90	1.6	0.89	2.4	0.91	3.0	0.90
2014	74	3.2	1.06	1.3	0.91	2.0	0.96	2.8	1.06
2015	77	3.2	1.13	1.6	1.13	2.4	1.13	2.9	1.13
2016	54	2.2	1.08	1.0	0.99	1.6	1.03	2.0	1.07
1998-2016	1284	3.5	0.94	1.8	0.91	2.7	0.93	3.4	0.95

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	51	4.3	0.81	1.6	0.84	2.6	0.82	3.5	0.78
1999	54	4.6	1.26	1.7	1.13	2.7	1.16	3.7	1.24
2000	42	3.5	0.89	1.6	0.90	2.4	0.91	2.9	0.92
2001	34	2.8	1.03	1.2	0.93	1.8	0.98	2.2	1.01
2002	44	2.2	0.59	0.8	0.49	1.3	0.53	1.7	0.55
2003	67	3.4	0.97	1.5	1.03	2.3	1.02	2.8	1.00
2004	79	4.0	0.92	1.5	0.83	2.3	0.86	3.1	0.89
2005	71	3.6	0.91	1.4	0.92	2.2	0.89	2.8	0.87
2006	70	3.5	1.01	1.4	1.05	2.1	1.05	2.8	1.04
2007	82	3.6	0.96	1.3	0.86	2.0	0.90	2.7	0.91
2008	81	3.5	1.11	1.3	1.10	2.0	1.08	2.7	1.07
2009	65	2.8	0.74	1.1	0.64	1.7	0.67	2.2	0.73
2010	82	3.5	1.06	1.4	1.10	2.1	1.12	2.7	1.09
2011	86	3.7	0.83	1.3	0.75	2.0	0.78	2.8	0.83
2012	80	3.4	0.99	1.3	0.97	2.0	0.98	2.6	1.00
2013	73	3.1	0.87	1.0	0.73	1.6	0.77	2.2	0.80
2014	80	3.3	0.93	1.3	0.89	2.0	0.89	2.5	0.92
2015	87	3.6	1.10	1.2	1.16	1.9	1.13	2.5	1.12
2016	51	2.1	1.00	0.7	0.82	1.1	0.87	1.5	0.91
1998-2016	1279	3.3	0.93	1.3	0.88	1.9	0.90	2.5	0.91

Table 12

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

Age at death Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4									
5-9									
10-14									
15-19	1	0.1	0.1	1	0.1	0.1			0.0
20-24	1	0.1	0.1	1	0.1	0.3			0.0
25-29	1	0.1	0.2	1	0.1	0.4			0.0
30-34	3	0.2	0.4	3	0.4	0.8			0.0
35-39	7	0.5	0.8	3	0.4	1.2	4	0.5	0.5
40-44	19	1.2	2.1	8	1.0	2.2	11	1.4	2.0
45-49	31	2.0	4.1	13	1.7	3.9	18	2.3	4.3
50-54	58	3.8	7.9	33	4.3	8.2	25	3.3	7.6
55-59	129	8.4	16.3	76	9.9	18.1	53	6.9	14.5
60-64	149	9.7	26.0	88	11.5	29.6	61	8.0	22.4
65-69	216	14.1	40.1	129	16.8	46.4	87	11.3	33.8
70-74	240	15.6	55.7	132	17.2	63.5	108	14.1	47.8
75-79	239	15.6	71.3	122	15.9	79.4	117	15.3	63.1
80-84	208	13.6	84.8	86	11.2	90.6	122	15.9	79.0
85+	233	15.2	100.0	72	9.4	100.0	161	21.0	100.0
All ages	1535	100.0		768	100.0		767	100.0	

Table 13

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

Age at death Years	Males n	Females n	Males Age-spec. mortal.	Males MI-index	Females Age-spec. mortal.	Females MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4								
5- 9								
10-14								
15-19	1		0.1	0.50			2.3	
20-24	1		0.1	1.00			1.8	
25-29	1		0.1	0.33			1.4	
30-34	3		0.2	1.00			2.9	
35-39	3	4	0.2	0.60	0.3	0.80	1.5	1.4
40-44	8	11	0.4	0.89	0.6	0.52	1.6	1.6
45-49	13	18	0.7	0.72	0.9	0.75	1.1	1.4
50-54	33	25	1.9	0.77	1.5	0.60	1.6	1.3
55-59	76	53	5.4	0.92	3.6	0.85	2.2	1.9
60-64	88	61	7.2	0.98	4.6	0.98	1.8	1.6
65-69	129	87	10.9	0.96	6.7	0.94	1.8	1.6
70-74	132	108	11.9	0.92	8.5	0.96	1.4	1.6
75-79	122	117	15.3	1.03	11.7	0.99	1.4	1.7
80-84	86	122	18.7	0.93	17.2	0.98	1.1	1.8
85+	72	161	23.5	1.33	21.9	1.15	1.1	1.7
All ages	768	767					1.5	1.7
Mortality								
Raw			3.4	0.96	3.2	0.95		
WS			1.6	0.92	1.2	0.88		
ES			2.5	0.95	1.8	0.90		
BRD-S			3.2	0.96	2.4	0.93		
PYLL-70								
per 100,000			16.7		13.1			
ES			14.7		10.9			
AYLL-70			9.5		10.1			

Table 14a

Further malignancies in deaths in period 1998-2016
MALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C12-C13 Hypopharynx	1	1.1					1	100.0
C15 Oesophagus	1	1.1					1	100.0
C16 Stomach	4	4.3					4	100.0
C18 Colon	7	7.5					7	100.0
C19-C20 Rectum	2	2.2					2	100.0
C22 Liver	5	5.4					5	100.0
C23-C24 Bile	1	1.1					1	100.0
C25 Pancreas	4	4.3					4	100.0
C26 GI cancer	1	1.1					1	100.0
C32 Larynx	1	1.1					1	100.0
C33-C34 Lung	21	22.6					21	100.0
C38,C45 Mesothelioma	3	3.2					3	100.0
C43 Malign. melanoma	1	1.1					1	100.0
C44 Skin others	12	12.9					12	100.0
C48 Peritoneal	1	1.1					1	100.0
C61 Prostate	12	12.9					12	100.0
C64 Kidney	4	4.3					4	100.0
C65 Renal pelvis	1	1.1					1	100.0
C67 Bladder	3	3.2					3	100.0
C70-C72 CNS cancer	3	3.2					3	100.0
C73 Thyroid	3	3.2					3	100.0
C82-C85 NHL	2	2.2					2	100.0
All further malignancies	93	100.0					93	100.0

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 14b

Further malignancies in deaths in period 1998-2016
FEMALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C16	Stomach	2	2.4					2	100.0
C17	Small intestine	2	2.4					2	100.0
C18	Colon	10	11.9					10	100.0
C19-C20	Rectum	1	1.2					1	100.0
C22	Liver	4	4.8					4	100.0
C23-C24	Bile	2	2.4					2	100.0
C25	Pancreas	5	6.0					5	100.0
C26	GI cancer	1	1.2					1	100.0
C33-C34	Lung	13	15.5					13	100.0
C37	Thymus	1	1.2					1	100.0
C43	Malign. melanoma	1	1.2					1	100.0
C44	Skin others	2	2.4					2	100.0
C50	Breast	21	25.0					21	100.0
C56	Ovary	9	10.7					9	100.0
C64	Kidney	1	1.2					1	100.0
C65	Renal pelvis	1	1.2					1	100.0
C67	Bladder	1	1.2					1	100.0
C73	Thyroid	1	1.2					1	100.0
C74-C80	Cancer others	1	1.2					1	100.0
C82-C85	NHL	2	2.4					2	100.0
C90	Mult. myeloma	1	1.2					1	100.0
C91-C96	Leukaemia	2	2.4					2	100.0
All further malignancies		84	100.0					84	100.0

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 2007-2016
(**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								
5- 9								
10-14								
15-19	1		0.1	0.50			2.4	
20-24	1		0.1	1.00			2.0	
25-29	1		0.1	0.33			1.5	
30-34	3		0.2	1.00			2.9	
35-39	3	4	0.2	0.60	0.3	0.80	1.6	1.6
40-44	8	11	0.4	0.89	0.6	0.52	1.8	1.8
45-49	13	18	0.7	0.72	0.9	0.75	1.2	1.6
50-54	33	25	1.9	0.77	1.5	0.60	1.8	1.5
55-59	76	53	5.4	0.92	3.6	0.85	2.6	2.2
60-64	88	61	7.2	0.98	4.6	0.98	2.1	2.0
65-69	129	87	10.9	0.96	6.7	0.94	2.2	2.1
70-74	132	108	11.9	0.92	8.5	0.96	1.8	2.0
75-79	122	117	15.3	1.03	11.7	0.99	1.8	2.2
80-84	86	122	18.7	0.93	17.2	0.98	1.6	2.3
85+	72	161	23.5	1.33	21.9	1.15	1.5	2.2
All ages	768	767					1.9	2.1
Mortality								
Raw			3.4	0.96	3.2	0.95		
WS			1.6	0.92	1.2	0.88		
ES			2.5	0.95	1.8	0.90		
BRD-S			3.2	0.96	2.4	0.93		
PYLL-70								
per 100,000			16.7		13.1			
ES			14.7		10.9			
AYLL-70			9.5		10.1			

* See corresponding tables with multiple malignancies.

Table 16

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

Age at death Years	Males n	Females n	Males Age-spec. mortal.	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	0.50			2.4	
20-24	1		0.1	1.00			2.0	
25-29	1		0.1	0.33			1.5	
30-34	3		0.2	1.00			2.9	
35-39	3	4	0.2	0.60	0.3	0.80	1.6	1.6
40-44	8	11	0.4	0.89	0.6	0.55	1.8	1.9
45-49	13	16	0.7	0.72	0.8	0.73	1.3	1.4
50-54	31	23	1.8	0.82	1.3	0.59	1.7	1.4
55-59	72	49	5.1	0.89	3.3	0.83	2.5	2.1
60-64	79	53	6.4	0.94	4.0	1.02	1.9	1.8
65-69	121	77	10.2	0.96	5.9	0.92	2.1	1.9
70-74	122	101	11.0	0.92	8.0	0.93	1.8	2.0
75-79	111	107	13.9	0.98	10.7	0.99	1.7	2.0
80-84	84	116	18.3	0.95	16.4	0.97	1.6	2.3
85+	64	150	20.9	1.23	20.4	1.12	1.5	2.1
All ages	714	707					1.8	2.0
Mortality								
Raw			3.1	0.94	3.0	0.94		
WS			1.5	0.91	1.1	0.87		
ES			2.3	0.93	1.7	0.89		
BRD-S			2.9	0.94	2.2	0.91		
PYLL-70								
per 100,000			15.9		12.0			
ES			13.9		10.0			
AYLL-70			9.6		10.3			

* See corresponding tables with multiple malignancies.

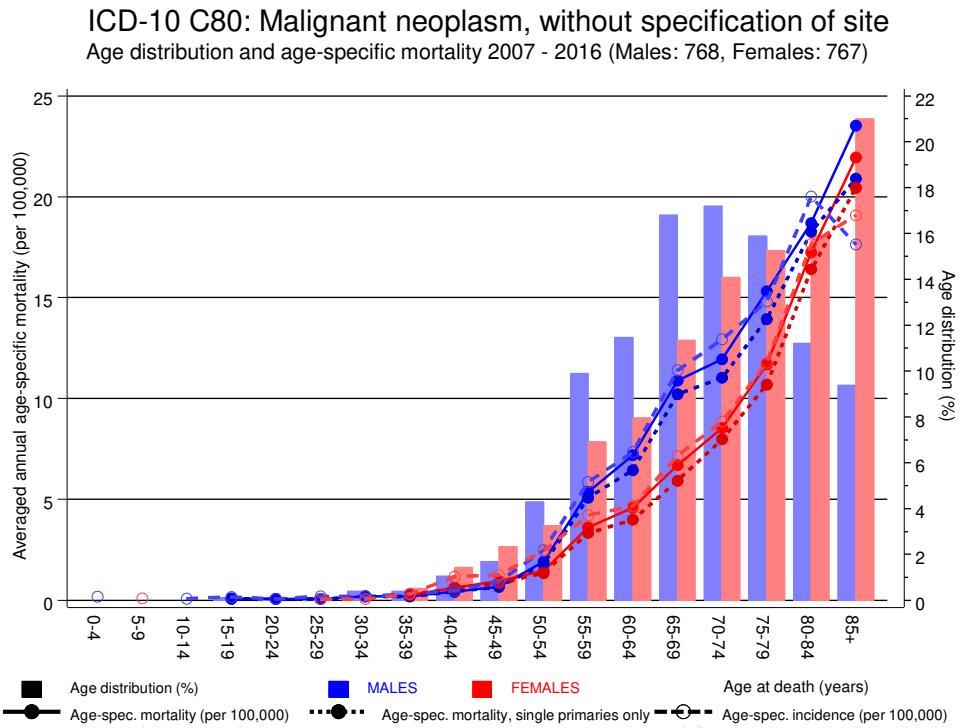
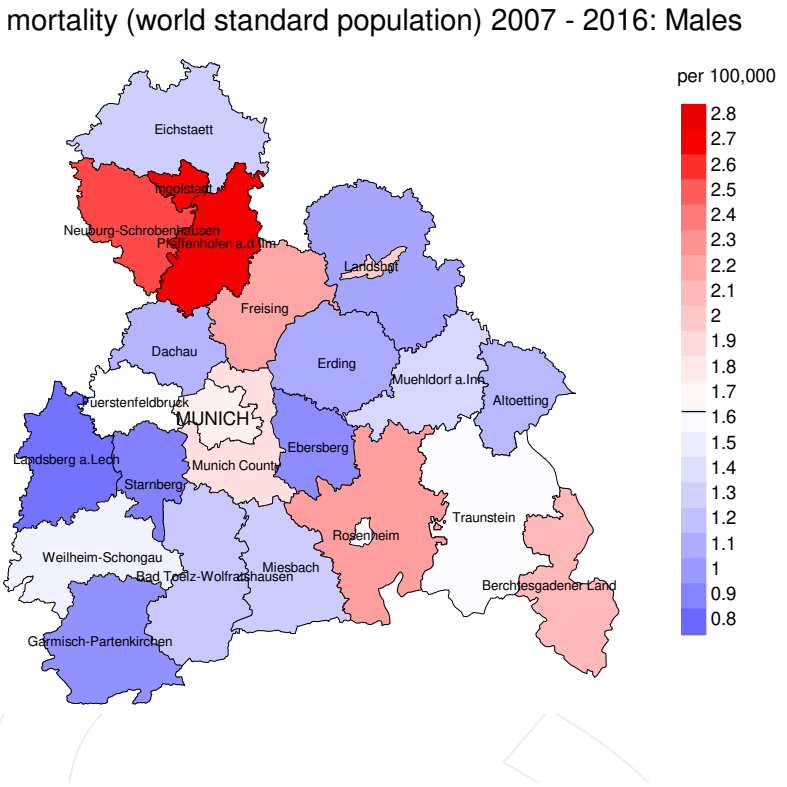


Figure 17. Distribution of age at death (bars; males: mean=69.3 yrs, median=70.1 yrs; females: mean=73.4 yrs, median=74.9 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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



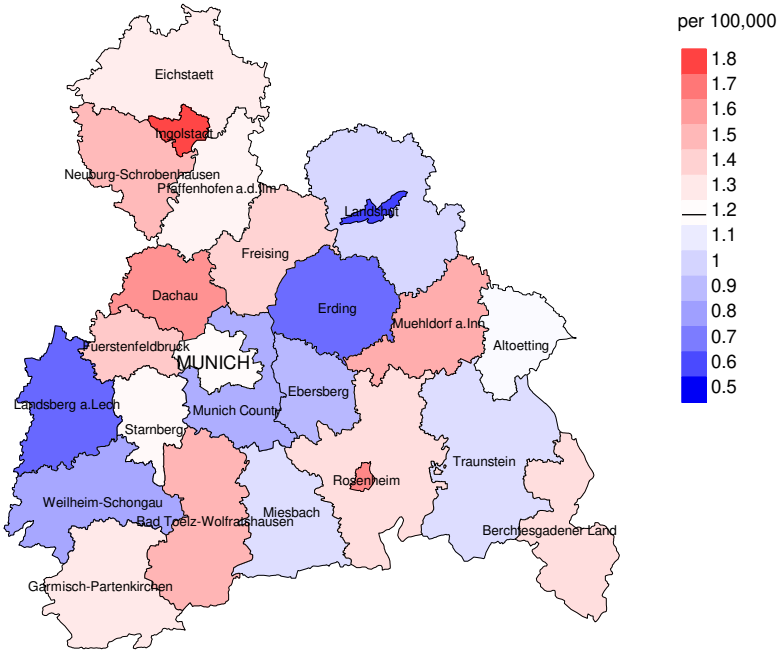
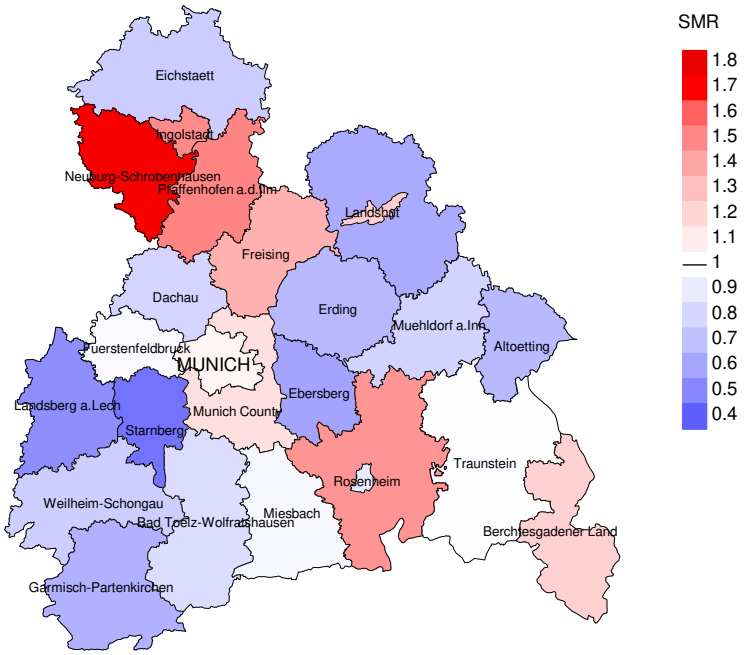


Figure 18a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2016. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 1.6/100,000 WS N=768, females 1.2/100,000 WS N=767).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 16 women died from CUP syndrome. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.9/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.4 and 2.0/100,000.

Standardized mortality ratio (SMR) 2007 - 2016: Males



Standardized mortality ratio (SMR) 2007 - 2016: Females

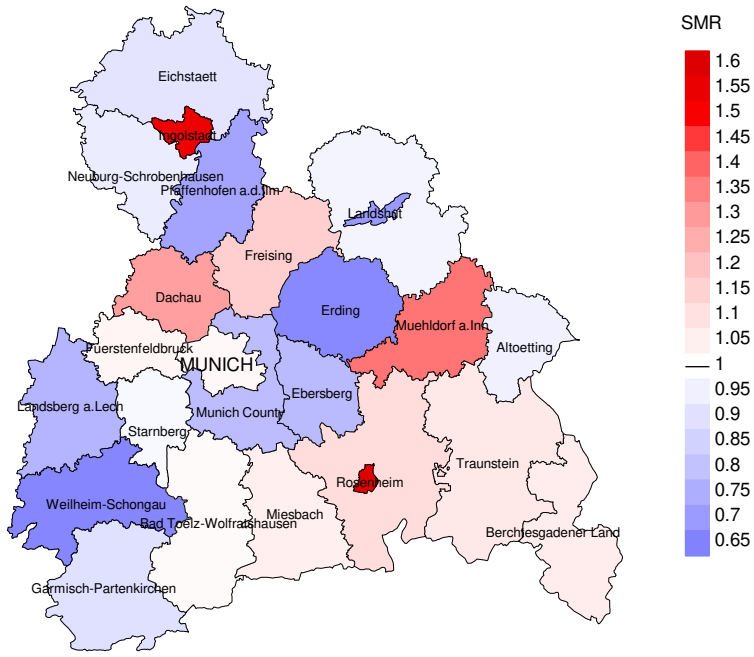


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2016. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=768, females N=767).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 66,416 female residents (averaged) in the period from 2007 to 2016 a total of 16 women died from CUP syndrome. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.78. Though, the value of this parameter may vary with an underlying probability of 99% between 0.37 and 1.44, and is therefore not statistically striking.

Statistical Notes

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

1. **All multiple primaries included**

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

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

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

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

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

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

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

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

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

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

Shortcuts

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

Recommended Citation

Munich Cancer Registry. ICD-10 C80: CUP syndrome - Incidence and Mortality [Internet]. 2018 [updated 2018 Aug 21; cited 2018 Oct 1]. Available from: https://www.tumorregister-muenchen.de/en/facts/base/bC80__E-ICD-10-C80-CUP-syndrome-incidence-and-mortality.pdf

Copyright

Disclaimer