

Munich Cancer Registry



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

ICD-10 C64: Kidney cancer

Incidence and Mortality

Year of diagnosis	1998-2019
Patients	12,738
Diseases	13,022
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/bC64__E-ICD-10-C64-Kidney-cancer-incidence-and-mortality.pdf

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

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

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

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

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

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

Munich Cancer Registry, January 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 2015) used for specifying cancer site

Code	Description
C64	Malignant neoplasm of kidney, except renal pelvis

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	401	43	10.7	11.7	14.1	67.6	96.0
1999	393	34	8.7	11.7	13.9	64.6	94.4
2000	362	40	11.0	13.3	13.7	67.4	95.9
2001	355	47	13.2	13.9	13.6	68.7	96.1
2002	608	92	15.1	15.5	13.6	72.5	98.0 #
2003	623	70	11.2	15.5	13.4	66.8	95.0
2004	628	78	12.4	16.2	13.1	62.1	96.0
2005	656	43	6.6	16.7	12.7	59.8	95.7
2006	642	49	7.6	16.8	12.4	59.0	92.2
2007	753	76	10.1	17.1	11.7	58.7	91.1 #
2008	771	70	9.1	17.6	11.0	53.2	97.4
2009	788	77	9.8	18.2	10.5	53.2	97.5
2010	774	62	8.0	18.6	9.8	46.9	97.3
2011	708	48	6.8	18.7	9.4	46.6	97.2
2012	714	54	7.6	19.0	8.7	44.8	97.3
2013	647	53	8.2	19.3	8.2	40.0	97.8
2014	743	63	8.5	19.7	7.8	38.9	97.0
2015	669	80	12.0	20.0	7.2	36.2	91.6
2016	563	66	11.7	20.3	6.5	33.7	98.2
2017	521	52	10.0	20.7	5.5	27.1	99.2
2018	404	11	2.7	20.8	4.5	16.3	99.3
2019	299	4	1.3	20.9	3.4	8.4	60.2 ##
1998-2019	13022	1212	9.3	20.9	14.1	50.1	95.3

13,022 cases diagnosed 1998-2019 are related to a total of 12,738 patients. Currently, in 4,162 (32.7 %) of these 12,738 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 3,164 / 764 / 234 (24.8 % / 6.0 % / 1.8 %) 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 521 cases has been diagnosed, of which 20.7 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 5.5 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 1a

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

Year of diagnosis	Males n	Males %	DCO cases n	Prop. DCO %	Prop. at least 1 further malign. prior + synchron. %	Prop. at least 1 further malign. after %	Prop. deaths %	Prop. actively followed %
1998	248	61.8	21	8.5	10.1	15.4	68.5	96.4
1999	241	61.3	20	8.3	11.0	15.1	63.9	94.2
2000	237	65.5	26	11.0	12.4	15.0	67.9	94.5
2001	212	59.7	23	10.8	13.1	14.9	67.9	96.7
2002	364	59.9	48	13.2	14.8	14.8	70.9	98.6 #
2003	390	62.6	37	9.5	15.4	14.6	65.6	94.1
2004	388	61.8	40	10.3	16.0	14.2	64.2	95.6
2005	417	63.6	22	5.3	16.7	13.7	58.3	96.6
2006	410	63.9	20	4.9	17.0	13.3	57.8	92.0
2007	484	64.3	36	7.4	17.6	12.5	58.9	90.7 #
2008	497	64.5	34	6.8	18.3	11.6	50.7	97.2
2009	489	62.1	45	9.2	19.1	11.1	52.1	97.5
2010	494	63.8	22	4.5	19.4	10.2	43.9	98.4
2011	456	64.4	32	7.0	19.5	9.6	45.6	97.4
2012	469	65.7	28	6.0	19.9	8.7	43.7	97.4
2013	420	64.9	24	5.7	20.3	8.1	39.3	98.3
2014	484	65.1	35	7.2	20.6	7.8	37.6	97.3
2015	457	68.3	46	10.1	21.0	7.2	34.8	91.9
2016	373	66.3	32	8.6	21.4	6.3	33.0	97.6
2017	341	65.5	25	7.3	21.8	5.2	25.5	99.1
2018	284	70.3	7	2.5	21.9	4.2	15.1	99.3
2019	202	67.6	1	0.5	21.9	4.1	6.9	64.4 ##
1998–2019	8357	64.2	624	7.5	21.9	15.4	48.7	95.4

8,357 cases diagnosed 1998-2019 are related to a total of 8,154 patients. Currently, in 2,819 (34.6 %) of these 8,154 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 2,101 / 541 / 177 (25.8 % / 6.6 % / 2.2 %) 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 retrieved from the respective headings.

How to interpret:

In 2017, a subgroup of 341 cases has been diagnosed, of which 21.8 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 5.2 % 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	153	38.2	22	14.4	14.4	11.8	66.0	95.4
1999	152	38.7	14	9.2	12.8	11.6	65.8	94.7
2000	125	34.5	14	11.2	14.9	11.5	66.4	98.4
2001	143	40.3	24	16.8	15.2	11.3	69.9	95.1
2002	244	40.1	44	18.0	16.5	11.3	75.0	97.1 #
2003	233	37.4	33	14.2	15.8	11.2	68.7	96.6
2004	240	38.2	38	15.8	16.6	11.1	58.8	96.7
2005	239	36.4	21	8.8	16.7	10.9	62.3	94.1
2006	232	36.1	29	12.5	16.5	10.7	61.2	92.7
2007	269	35.7	40	14.9	16.2	10.0	58.4	91.8 #
2008	274	35.5	36	13.1	16.4	9.8	57.7	97.8
2009	299	37.9	32	10.7	16.6	9.5	54.8	97.3
2010	280	36.2	40	14.3	17.2	9.0	52.1	95.4
2011	252	35.6	16	6.3	17.2	8.9	48.4	96.8
2012	245	34.3	26	10.6	17.5	8.8	46.9	97.1
2013	227	35.1	29	12.8	17.7	8.5	41.4	96.9
2014	259	34.9	28	10.8	18.0	7.8	41.3	96.5
2015	212	31.7	34	16.0	18.3	7.0	39.2	91.0
2016	190	33.7	34	17.9	18.5	6.9	35.3	99.5
2017	180	34.5	27	15.0	18.9	6.1	30.0	99.4
2018	120	29.7	4	3.3	19.0	5.2	19.2	99.2
2019	97	32.4	3	3.1	19.1	2.1	11.3	51.5 ##
1998–2019	4665	35.8	588	12.6	19.1	11.8	52.7	95.1

4,665 cases diagnosed 1998-2019 are related to a total of 4,584 patients. Currently, in 1,343 (29.3 %) of these 4,584 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 1,063 / 223 / 57 (23.2 % / 4.9 % / 1.2 %) 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 retrieved from the respective headings.

How to interpret:

In 2017, a subgroup of 180 cases has been diagnosed, of which 18.9 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 6.1 % 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	248	153	22.4	13.0	14.4	6.3	20.2	9.0	24.5	11.2
1999	241	152	21.5	12.8	13.3	6.6	19.2	9.2	23.6	11.1
2000	237	125	20.8	10.4	13.3	4.8	18.6	7.1	22.4	8.9
2001	212	143	18.3	11.8	11.0	5.5	15.8	8.1	19.7	10.1
2002	364	244	19.5	12.5	11.5	5.8	16.6	8.4	20.8	10.6
2003	390	233	20.8	11.8	12.5	5.4	17.5	7.7	21.2	9.8
2004	388	240	20.6	12.1	12.3	5.7	17.1	8.1	20.9	10.1
2005	417	239	22.0	12.0	12.6	5.6	18.0	7.9	21.5	10.1
2006	410	232	21.4	11.5	12.4	5.7	17.3	7.8	20.9	9.5
2007	484	269	21.8	11.6	12.3	5.3	17.4	7.4	21.3	9.4
2008	497	274	22.3	11.8	12.5	5.7	17.6	8.0	21.4	9.9
2009	489	299	21.9	12.9	12.0	6.0	17.0	8.4	21.1	10.6
2010	494	280	21.9	12.0	11.8	4.9	16.7	7.2	20.5	9.2
2011	456	252	20.4	10.8	11.0	5.4	15.5	7.2	18.8	8.8
2012	469	245	20.7	10.4	10.9	4.3	15.6	6.3	19.1	8.3
2013	420	227	18.2	9.5	9.7	4.4	13.7	6.1	16.7	7.6
2014	484	259	20.8	10.8	11.0	4.6	15.5	6.7	18.8	8.4
2015	457	212	19.2	8.7	9.7	3.8	13.9	5.3	17.3	6.7
2016	373	190	15.5	7.7	7.7	3.4	11.2	4.7	14.0	6.0
2017	341	180	14.1	7.3	7.2	2.9	10.3	4.2	12.7	5.5
2018	284	120	11.7	4.8	6.1	2.2	8.7	3.1	10.5	3.8
2019	202	97	8.3	3.9	4.4	1.8	6.2	2.5	7.4	3.1
1998-2019	8357	4665	19.0	10.2	10.5	4.6	14.8	6.6	18.0	8.2

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	Std.		Median						
		Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	401	65.3	13.8	2.8	99.7	49.4	58.7	65.9	75.1	80.3
1999	393	65.3	13.5	1.1	94.3	49.7	57.6	65.5	75.3	81.8
2000	362	65.5	13.3	0.3	93.5	48.8	57.9	66.2	75.1	80.8
2001	355	66.5	12.4	1.9	96.4	51.8	59.0	66.3	75.6	80.6
2002	608	67.6	13.2	0.1	96.2	50.0	60.6	68.9	76.8	82.3
2003	623	66.9	13.6	0.4	96.2	50.6	60.3	67.8	75.8	82.6
2004	628	66.4	13.9	0.0	94.1	48.9	60.1	67.6	76.0	81.8
2005	656	66.7	12.9	0.7	95.1	51.3	59.7	67.7	75.4	81.4
2006	642	66.2	14.5	0.2	95.5	48.4	59.5	67.8	75.5	81.5
2007	753	67.1	14.5	1.2	99.1	48.9	60.5	69.0	76.3	82.6
2008	771	66.8	13.8	0.2	98.1	49.9	59.2	68.2	76.2	82.8
2009	788	67.3	14.5	0.5	96.9	49.9	59.6	69.7	77.2	82.7
2010	774	67.9	13.5	5.4	100	48.5	59.4	70.0	77.0	83.4
2011	708	67.1	15.1	0.5	96.9	49.7	60.3	69.6	76.6	83.0
2012	714	68.0	13.4	1.4	93.1	50.9	60.2	70.2	77.5	83.1
2013	647	67.3	14.3	0.3	97.3	49.8	59.2	69.7	77.0	82.5
2014	743	68.0	13.4	1.2	97.0	52.1	60.2	69.8	76.8	83.8
2015	669	69.0	13.8	0.6	98.9	51.5	60.8	71.6	78.0	84.4
2016	563	68.9	13.7	2.4	94.8	51.7	60.7	71.0	78.8	83.7
2017	521	68.9	13.0	0.9	96.8	51.6	61.0	70.8	78.0	83.2
2018	404	66.9	12.4	27.4	92.7	50.6	58.5	67.9	76.8	81.7
2019	299	66.6	12.3	23.8	91.8	50.9	58.5	67.4	75.9	80.6
1998-2019	13022	67.2	13.7	0.0	100	50.2	59.7	68.8	76.7	82.6

Table 3a

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

Year of diagnosis	Cases n	Std.		Median						
		Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	248	63.4	13.5	5.0	91.9	46.7	56.4	64.5	72.7	78.5
1999	241	64.4	12.9	2.3	88.4	50.1	57.5	65.0	72.2	80.3
2000	237	63.6	13.4	0.3	93.5	47.6	56.2	65.0	72.0	78.5
2001	212	65.1	11.0	1.9	89.9	51.8	58.7	64.4	73.0	79.1
2002	364	65.9	13.0	0.1	96.2	47.2	58.6	67.6	74.6	80.4
2003	390	64.6	13.3	0.4	96.2	47.9	59.2	65.3	73.1	78.7
2004	388	64.8	13.8	0.0	93.6	48.6	58.0	66.3	73.6	79.9
2005	417	65.1	11.5	0.7	92.4	51.2	58.8	65.8	73.0	78.1
2006	410	64.8	13.2	0.8	95.4	48.2	58.8	66.5	73.5	78.6
2007	484	65.5	13.2	2.6	93.1	48.3	58.6	67.4	74.1	80.1
2008	497	65.7	13.3	0.2	98.1	49.1	57.9	67.5	74.4	81.2
2009	489	66.1	14.1	0.5	96.1	49.4	58.6	68.7	75.6	81.8
2010	494	65.5	12.9	5.4	93.5	47.2	56.7	68.3	74.8	80.7
2011	456	66.5	13.1	1.5	96.9	50.0	59.6	68.5	74.9	82.4
2012	469	66.2	13.8	1.4	93.1	48.4	57.5	69.0	75.8	82.4
2013	420	66.1	13.4	0.9	94.1	49.2	58.4	67.3	75.4	81.7
2014	484	66.8	13.4	1.2	97.0	51.6	59.0	68.1	75.8	81.9
2015	457	68.3	13.4	0.7	98.9	51.9	60.0	70.9	77.0	83.6
2016	373	68.2	12.7	13.7	94.8	52.0	59.7	69.8	77.6	83.4
2017	341	67.6	12.4	0.9	96.8	51.5	60.1	69.0	76.5	81.8
2018	284	66.1	12.1	29.1	92.7	50.6	57.4	67.1	75.8	81.6
2019	202	65.5	12.1	23.8	91.4	50.4	57.8	66.3	74.8	79.6
1998-2019	8357	65.9	13.1	0.0	98.9	49.4	58.5	67.3	75.0	80.8

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	153	68.2	13.7	2.8	99.7	56.2	61.3	70.0	77.5	84.0
1999	152	66.6	14.3	1.1	94.3	49.4	57.9	66.6	77.6	83.9
2000	125	69.2	12.3	37.2	91.4	54.5	60.7	70.5	77.9	86.4
2001	143	68.7	13.9	30.6	96.4	51.2	60.6	70.4	78.8	85.1
2002	244	70.0	13.1	2.4	93.6	54.7	63.7	72.3	78.9	83.8
2003	233	70.6	13.2	2.5	95.2	54.3	63.8	72.0	80.1	85.3
2004	240	69.0	13.7	18.5	94.1	50.3	62.7	70.3	78.2	84.6
2005	239	69.3	14.8	4.2	95.1	51.8	62.4	72.4	79.8	83.8
2006	232	68.5	16.2	0.2	95.5	49.6	61.1	71.7	79.2	85.7
2007	269	70.0	16.2	1.2	99.1	49.3	66.0	72.3	79.7	85.8
2008	274	68.8	14.5	0.6	96.1	51.8	61.6	69.5	78.9	84.2
2009	299	69.2	15.0	1.7	96.9	50.7	62.9	71.3	79.7	84.5
2010	280	71.9	13.5	5.4	100	54.0	64.5	72.8	81.0	88.0
2011	252	68.3	18.2	0.5	96.5	47.2	63.3	72.7	79.3	85.1
2012	245	71.4	12.0	9.7	92.4	56.4	66.0	72.9	80.0	83.9
2013	227	69.3	15.6	0.3	97.3	51.0	61.6	72.2	79.1	84.5
2014	259	70.3	13.2	2.5	94.3	53.1	62.4	73.1	79.5	85.8
2015	212	70.5	14.7	0.6	98.0	50.2	62.2	73.9	79.6	86.5
2016	190	70.1	15.5	2.4	93.6	50.9	63.8	73.4	80.1	85.0
2017	180	71.5	13.7	25.7	96.8	52.5	64.6	74.8	81.1	86.8
2018	120	68.7	13.1	27.4	91.8	51.2	61.5	70.9	78.6	83.9
2019	97	68.9	12.4	28.5	91.8	52.1	62.6	71.3	77.0	84.1
1998-2019	4665	69.6	14.5	0.2	100	51.9	62.7	72.0	79.3	85.0

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	52	0.6	0.6	25	0.5	0.5	27	0.9	0.9
5-9	16	0.2	0.8	9	0.2	0.6	7	0.2	1.2
10-14	7	0.1	0.9	3	0.1	0.7	4	0.1	1.3
15-19	2	0.0	0.9	1	0.0	0.7	1	0.0	1.3
20-24	10	0.1	1.0	7	0.1	0.8	3	0.1	1.4
25-29	19	0.2	1.3	11	0.2	1.0	8	0.3	1.7
30-34	40	0.5	1.7	22	0.4	1.4	18	0.6	2.3
35-39	118	1.4	3.2	84	1.5	3.0	34	1.2	3.5
40-44	191	2.3	5.4	136	2.5	5.5	55	1.9	5.4
45-49	340	4.1	9.5	264	4.8	10.3	76	2.6	8.0
50-54	577	6.9	16.4	429	7.9	18.2	148	5.1	13.1
55-59	730	8.7	25.2	554	10.2	28.3	176	6.1	19.2
60-64	890	10.7	35.8	637	11.7	40.0	253	8.7	27.9
65-69	1264	15.1	50.9	840	15.4	55.4	424	14.6	42.5
70-74	1379	16.5	67.5	933	17.1	72.6	446	15.4	57.9
75-79	1320	15.8	83.3	784	14.4	87.0	536	18.5	76.3
80-84	841	10.1	93.3	459	8.4	95.4	382	13.2	89.5
85+	558	6.7	100.0	252	4.6	100.0	306	10.5	100.0
All ages	8354	100.0		5450	100.0		2904	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=366 %	Females DCO rate n=348 %	Males	Females
							Prop.all cancers n=143063 %	Prop.all cancers n=144724 %
0- 4	23	26	1.5	1.8			10.9	16.1
5- 9	9	7	0.6	0.5			7.9	7.5
10-14	3	4	0.2	0.3		25.0	2.3	3.4
15-19	1	1	0.1	0.1			0.3	0.4
20-24	7	3	0.4	0.2			1.2	0.6
25-29	11	8	0.5	0.4			1.3	0.7
30-34	22	18	1.0	0.9			1.8	0.9
35-39	84	34	3.9	1.6			4.9	1.0
40-44	133	55	5.7	2.4	0.8		5.1	1.0
45-49	259	76	10.3	3.1	1.2	1.3	5.4	0.9
50-54	421	148	18.0	6.4	1.7	2.0	5.4	1.3
55-59	540	175	27.8	8.8	1.5	2.3	4.6	1.4
60-64	627	251	38.4	14.3	1.6	0.8	3.8	1.7
65-69	826	421	54.3	25.0	3.6	2.4	3.6	2.4
70-74	926	443	66.1	27.6	4.5	4.7	3.6	2.4
75-79	781	529	70.5	38.4	8.2	9.3	3.5	2.9
80-84	454	380	69.2	39.0	19.8	21.1	3.2	2.7
85+	252	305	59.1	31.6	44.0	58.0	2.6	2.0
All ages	5379	2884			6.8	12.1	3.8	2.0
Incidence								
Raw			17.9	9.3				
WS			9.4	4.1				
ES			13.4	5.8				
BRD-S			16.4	7.3				

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 C64: Malignant neoplasm of kidney, except renal pelvis
 Age distribution and age-specific incidence 2007 - 2019 (Males: 5379, Females: 2884)

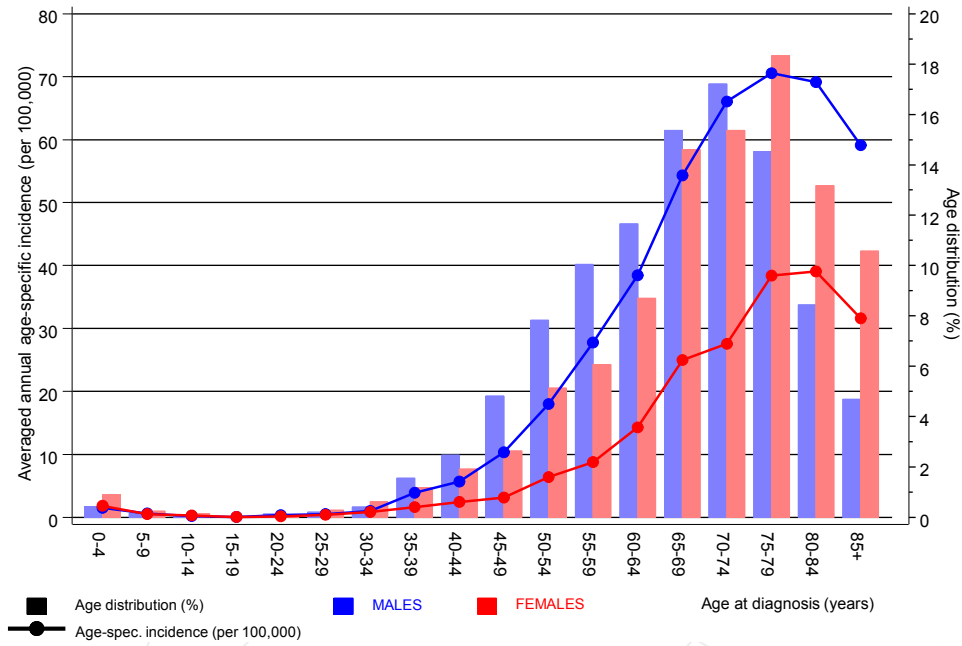


Figure 6. Age distribution (males: mean=66.5 yrs, median=68.4 yrs; females: mean=70.0 yrs, median=72.4 yrs) and age-specific incidence.

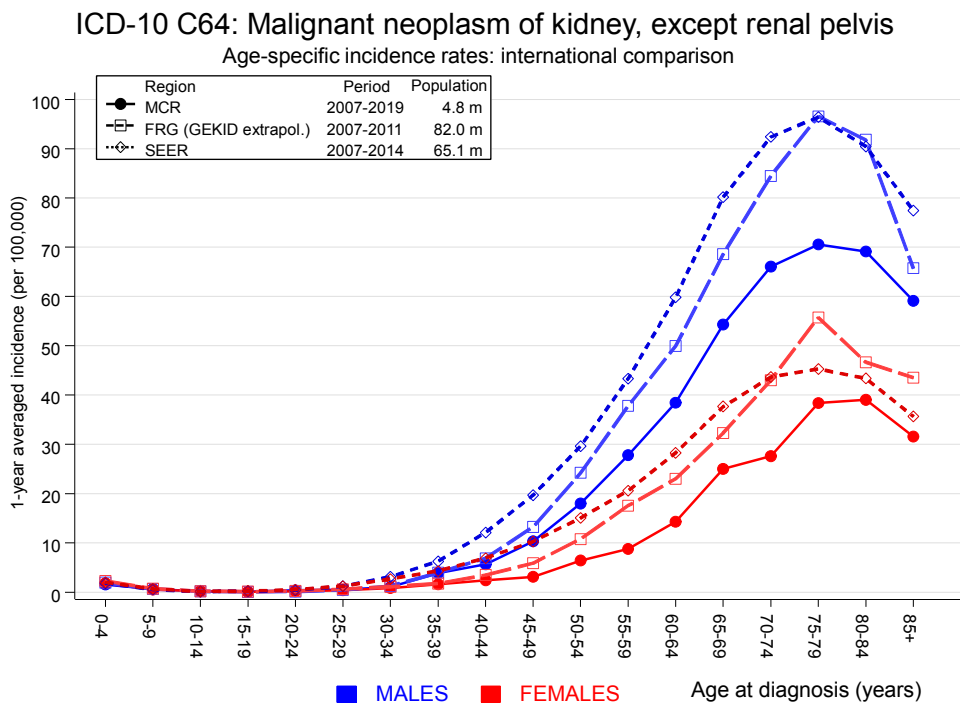


Figure 6a. Age-specific incidence in MCR registry areas compared to Germany (FRG, GEKID extrapolation) and SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

Extrapolated age-specific patient population of Germany, data status middle of 2010. Association of Population-based Cancer Registries in Germany (GEKID e.V.). Berlin, 2014. <http://www.gekid.de>. Last access: 02/11/2015
 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 %
C03-C06 Oral cavity	10	4.0	2.5	1.2	4.5 #	2.0	
C09-C10 Oropharynx	17	5.0	3.4	2.0	5.5 #	4.0	
C12-C13 Hypopharynx	6	2.7	2.2	0.8	4.8	1.1	
C15 Oesophagus	24	9.5	2.5	1.6	3.8 #	4.9	8.3
C16 Stomach	32	19.7	1.6	1.1	2.3 #	4.1	12.5
C17 Small intestine	11	2.9	3.8	1.9	6.8 #	2.7	
C18 Colon	111	48.2	2.3	1.9	2.8 #	21.1	8.1
C19-C20 Rectum	45	26.3	1.7	1.2	2.3 #	6.3	
C22 Liver	45	14.3	3.1	2.3	4.2 #	10.3	8.9
C23-C24 Bile	10	5.1	1.9	0.9	3.6	1.6	20.0
C25 Pancreas	50	19.1	2.6	1.9	3.4 #	10.4	18.0
C32 Larynx	13	5.0	2.6	1.4	4.5 #	2.7	7.7
C33-C34 Lung	176	58.8	3.0	2.6	3.5 #	39.3	11.4
C38,C45 Mesothelioma	7	3.5	2.0	0.8	4.1	1.2	14.3
C40-C41 Bone	3	0.4	7.7	1.6	22.5 #	0.9	
C43 Malign. melanoma	59	21.8	2.7	2.1	3.5 #	12.5	5.1
C46,C49 Soft tissue	13	2.8	4.7	2.5	8.0 #	3.4	
C48 Peritoneal	4	0.4	10.4	2.8	26.7 #	1.2	25.0
C61 Prostate	395	142.0	2.8	2.5	3.1 #	84.9	3.5
C62 Testis	8	1.2	6.6	2.9	13.1 #	2.3	
C64 Kidney	202	17.2	11.7	10.2	13.4 #	62.0	1.0
C65 Renal pelvis	14	2.2	6.3	3.5	10.6 #	4.0	
C66 Ureter	10	1.3	7.8	3.7	14.3 #	2.9	
C67 Bladder	66	23.1	2.9	2.2	3.6 #	14.4	7.6
C70-C72 CNS cancer	15	6.3	2.4	1.3	3.9 #	2.9	
C73 Thyroid	16	3.1	5.1	2.9	8.3 #	4.3	12.5
C76-C79 CUP	12	8.3	1.4	0.7	2.5	1.2	8.3
C82-C85 NHL	76	21.1	3.6	2.8	4.5 #	18.4	5.3
C90 Mult. myeloma	12	6.6	1.8	0.9	3.2	1.8	8.3
C91-C96 Leukaemia	14	7.6	1.8	1.0	3.1 #	2.2	14.3
Others, specified	22	10.8	2.0	1.3	3.1 #	3.8	9.1
Not observed	0	1.2	0.0	0.0	3.1	-0.4	
All further malignancies	1498	501.5	3.0	2.8	3.1 #	334.4	5.9

Patients	7573
Median age at next malignancy (years)	71.2
Person-years	29799
Mean observation time (years)	3.9
Median observation time (years)	2.1

The occurrence of further specified malignancy is statistically significant.

Further observed malignancies with count 1 to 2 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 1998–2019

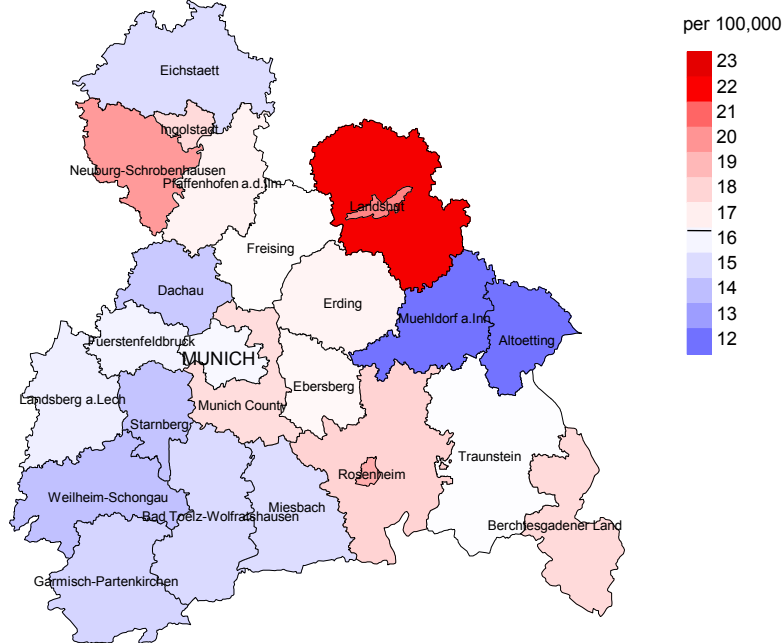
FEMALES

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C15 Oesophagus	3	1.3	2.4	0.5	6.9	1.1	
C16 Stomach	17	7.4	2.3	1.3	3.7 #	5.9	
C17 Small intestine	3	1.0	2.9	0.6	8.5	1.2	
C18 Colon	42	20.8	2.0	1.5	2.7 #	13.0	4.8
C19–C20 Rectum	15	8.4	1.8	1.0	2.9	4.0	6.7
C22 Liver	9	2.6	3.5	1.6	6.6 #	3.9	11.1
C23–C24 Bile	14	3.1	4.5	2.5	7.6 #	6.7	14.3
C25 Pancreas	26	9.9	2.6	1.7	3.8 #	9.8	26.9
C33–C34 Lung	53	14.9	3.5	2.7	4.6 #	23.3	11.3
C43 Malign. melanoma	17	7.2	2.4	1.4	3.8 #	6.0	
C46,C49 Soft tissue	3	1.2	2.6	0.5	7.5	1.1	
C50 Breast	147	58.3	2.5	2.1	3.0 #	54.2	2.7
C51 Vulva	6	2.2	2.7	1.0	5.9	2.3	16.7
C53 Cervix uteri	4	2.3	1.7	0.5	4.5	1.0	
C54 Corpus uteri	26	11.1	2.3	1.5	3.4 #	9.1	3.8
C56 Ovary	12	8.2	1.5	0.8	2.6	2.3	8.3
C64 Kidney	80	5.1	15.8	12.6	19.7 #	45.8	1.3
C65 Renal pelvis	4	0.7	5.9	1.6	15.0 #	2.0	
C66 Ureter	5	0.4	13.7	4.5	32.1 #	2.8	20.0
C67 Bladder	20	4.2	4.8	2.9	7.4 #	9.7	5.0
C70–C72 CNS cancer	6	2.7	2.2	0.8	4.9	2.0	33.3
C73 Thyroid	25	2.8	8.8	5.7	13.0 #	13.5	4.0
C76–C79 CUP	8	3.9	2.0	0.9	4.0	2.5	12.5
C82–C85 NHL	24	8.3	2.9	1.9	4.3 #	9.6	8.3
C90 Mult. myeloma	5	2.7	1.9	0.6	4.3	1.4	20.0
C91–C96 Leukaemia	10	3.1	3.2	1.5	5.9 #	4.2	10.0
Others, specified	11	4.4	2.5	1.2	4.5 #	4.0	18.2
Not observed	0	4.4	0.0	0.0	0.8 #	-2.7	
All further malignancies	595	202.5	2.9	2.7	3.2 #	239.8	6.6
Patients		4056					
Median age at next malignancy (years)		74.3					
Person-years		16369					
Mean observation time (years)		4.0					
Median observation time (years)		2.2					

The occurrence of further specified malignancy is statistically significant.

Further observed malignancies with count 1 are pooled in category "Others, specified".

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



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

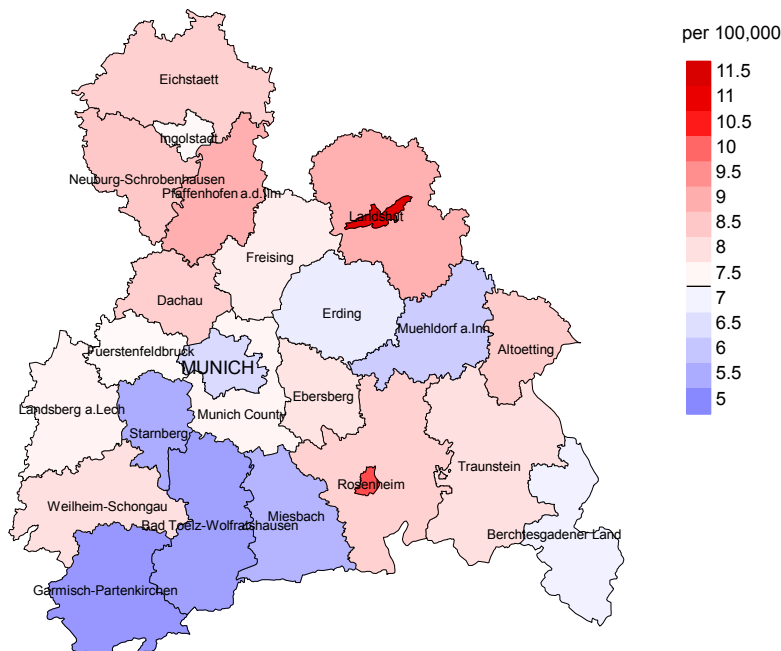
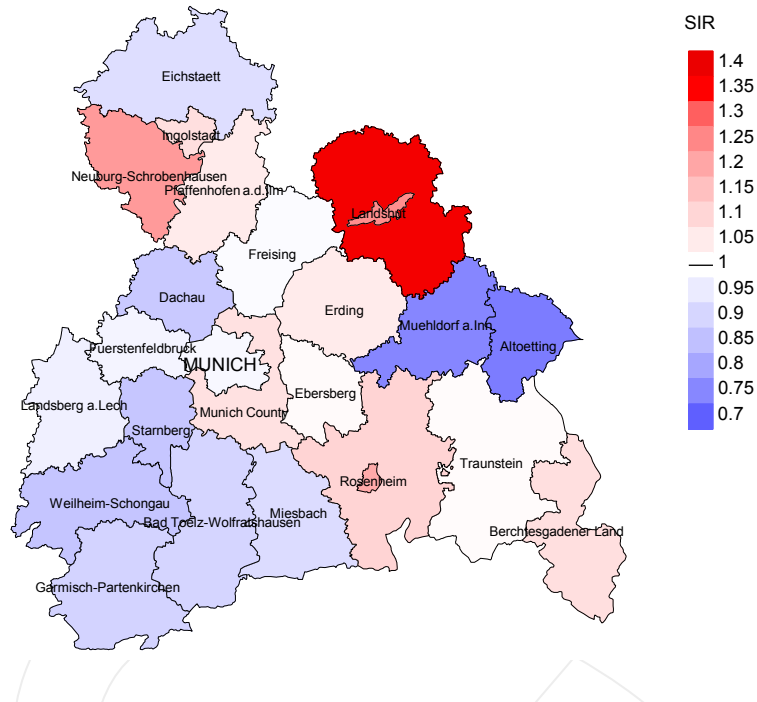


Figure 8a. Map of cancer incidence (german standard population, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 16.4/100,000 WS N=5,379, females 7.3/100,000 WS N=2,884).

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 87 women were identified with newly diagnosed kidney cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 7.9/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 5.9 and 10.4/100,000.

Standardized incidence ratio (SIR) 2007 - 2019: Males



Standardized incidence ratio (SIR) 2007 - 2019: Females

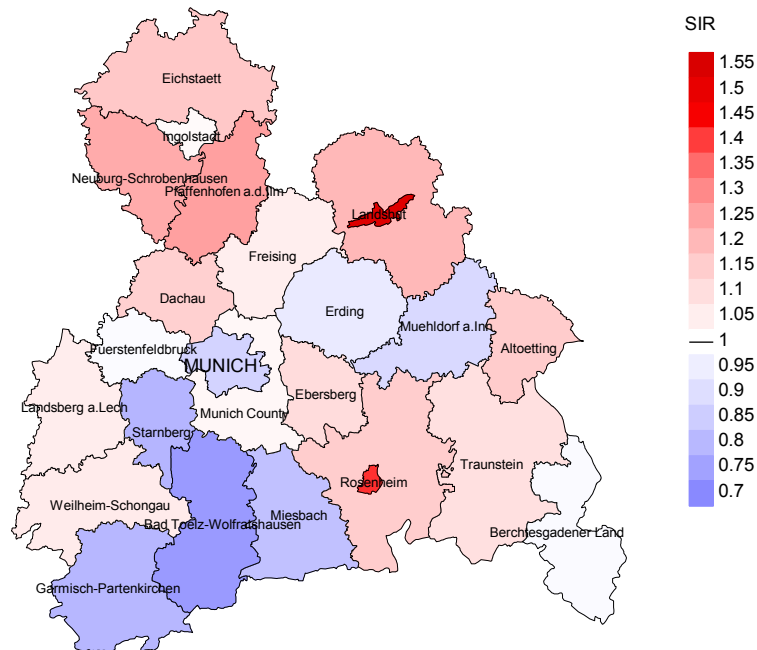


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=5,379, females N=2,884).

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 87 women were identified with newly diagnosed kidney cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.11. Though, the value of this parameter may vary with an underlying probability of 99% between 0.82 and 1.45, and is therefore not statistically striking.

MORTALITY

Table 9a

Annual cohorts: Incident cancers, follow-up status, proportion of DCO, deaths among the annual cohorts and proportion of available death certificates (with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.92 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	401	96.0	10.7	271	67.6	93.7
1999	393	94.4	8.7	254	64.6	94.1
2000	362	95.9	11.0	244	67.4	94.3
2001	355	96.1	13.2	244	68.7	97.5
2002	608	98.0	15.1	441	72.5	95.2
2003	623	95.0	11.2	416	66.8	95.9
2004	628	96.0	12.4	390	62.1	94.4
2005	656	95.7	6.6	392	59.8	94.6
2006	642	92.2	7.6	379	59.0	93.1
2007	753	91.1	10.1	442	58.7	93.2
2008	771	97.4	9.1	410	53.2	95.4
2009	788	97.5	9.8	419	53.2	92.6
2010	774	97.3	8.0	363	46.9	94.5
2011	708	97.2	6.8	330	46.6	93.0
2012	714	97.3	7.6	320	44.8	91.6
2013	647	97.8	8.2	259	40.0	92.3
2014	743	97.0	8.5	289	38.9	90.0
2015	669	91.6	12.0	242	36.2	90.9
2016	563	98.2	11.7	190	33.7	88.4
2017	521	99.2	10.0	141	27.1	81.6
2018	404	99.3	2.7	66	16.3	60.6
2019	299	60.2	1.3	25	8.4	68.0
1998-2019	13022	95.3	9.3	6527	50.1	92.9

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. %	Deaths in same year n	Prop. deaths in same year %
1998	401	214	93.9	63	15.7
1999	393	212	95.3	66	16.8
2000	362	206	95.1	54	14.9
2001	355	219	95.0	59	16.6
2002	608	322	96.9	125	20.6
2003	623	328	97.0	114	18.3
2004	628	342	96.8	110	17.5
2005	656	309	95.1	75	11.4
2006	642	345	97.7	91	14.2
2007	753	379	98.2	114	15.1
2008	771	408	99.0	108	14.0
2009	788	428	99.1	129	16.4
2010	774	455	98.5	119	15.4
2011	708	415	98.3	104	14.7
2012	714	479	98.1	119	16.7
2013	647	448	99.1	91	14.1
2014	743	440	98.4	106	14.3
2015	669	542	98.5	117	17.5
2016	563	512	99.4	102	18.1
2017	521	435	96.1	84	16.1
2018	404	348	41.1	27	6.7
2019	299	288	52.8	16	5.4
1998–2019	13022	8074	93.6	1993	15.3

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	214	65.0	35.0	79.1
1999	212	71.7	28.3	84.7
2000	206	71.8	28.2	81.6
2001	219	73.1	26.9	85.6
2002	322	70.2	29.8	85.6
2003	328	73.8	26.2	86.2
2004	342	69.0	31.0	81.9
2005	309	72.2	27.8	82.3
2006	345	69.9	30.1	77.2
2007	379	71.8	28.2	79.6
2008	408	69.6	30.4	80.9
2009	428	72.4	27.6	80.7
2010	455	67.3	32.7	76.6
2011	415	64.6	35.4	78.7
2012	479	60.5	39.5	71.3
2013	448	62.1	37.9	73.6
2014	440	60.7	39.3	69.5
2015	542	61.3	38.7	71.9
2016	512	57.0	43.0	70.9
2017	435	54.5	45.5	67.2
2018	348	43.1	56.9	57.3
2019	288	44.1	55.9	61.8
1998–2019	8074	64.2	35.8	76.4

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	143	70.7	69.4	76.6	70.1
1999	138	73.5	71.4	81.4	72.4
2000	123	72.4	68.7	79.2	71.2
2001	147	69.7	67.7	74.9	69.4
2002	188	73.8	73.2	74.6	73.8
2003	196	73.7	71.3	77.8	73.0
2004	203	73.7	72.4	77.2	73.6
2005	186	73.6	71.8	80.3	72.2
2006	220	73.1	71.3	77.0	72.3
2007	230	74.2	72.4	79.8	73.1
2008	265	74.5	72.7	78.1	73.9
2009	269	74.7	72.9	79.3	73.2
2010	276	75.4	74.0	78.6	74.4
2011	269	75.8	73.1	82.2	74.4
2012	277	77.0	74.9	80.7	75.5
2013	273	77.4	74.3	81.3	75.8
2014	280	77.3	74.6	81.9	75.9
2015	343	76.9	75.1	83.4	75.7
2016	325	78.2	76.3	81.0	77.4
2017	299	79.2	77.5	82.1	78.0
2018	235	79.1	77.1	80.8	78.7
2019	183	79.2	76.3	81.8	76.4
1998-2019	5068	75.8	73.5	80.1	74.4

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	71	80.8	77.7	82.4	81.1
1999	74	77.8	76.5	84.4	78.3
2000	83	76.5	76.5	76.9	77.8
2001	72	79.0	77.8	82.3	78.0
2002	134	78.1	75.7	82.5	76.9
2003	132	78.3	77.3	80.4	77.9
2004	139	81.1	79.9	83.1	80.8
2005	123	78.7	75.3	82.6	76.2
2006	125	79.4	78.7	80.5	78.6
2007	149	80.1	79.0	82.2	80.1
2008	143	80.4	78.1	83.8	78.1
2009	159	81.1	77.6	85.7	78.9
2010	179	81.3	79.1	85.7	80.3
2011	146	81.7	78.7	87.4	79.8
2012	202	80.4	77.6	84.1	78.3
2013	175	80.6	77.5	85.0	78.8
2014	160	82.5	80.2	85.9	80.5
2015	199	81.4	78.7	86.1	79.6
2016	187	82.6	77.8	86.3	80.1
2017	136	83.4	80.8	86.6	82.2
2018	113	83.2	80.8	85.6	80.5
2019	105	80.6	78.3	82.1	78.2
1998-2019	3006	80.7	78.3	84.3	79.3

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	99	8.9	0.40	5.2	0.37	8.1	0.40	10.9	0.44
1999	99	8.8	0.41	5.1	0.39	8.0	0.42	10.9	0.46
2000	89	7.8	0.38	4.5	0.34	6.9	0.38	9.5	0.43
2001	109	9.4	0.51	5.4	0.49	8.2	0.52	10.6	0.54
2002	136	7.3	0.38	3.9	0.34	6.3	0.38	8.7	0.42
2003	148	7.9	0.39	4.3	0.35	6.5	0.38	8.9	0.43
2004	144	7.7	0.38	4.0	0.33	6.2	0.37	8.4	0.41
2005	132	7.0	0.33	3.5	0.29	5.4	0.31	7.3	0.35
2006	162	8.5	0.41	4.3	0.35	6.4	0.38	8.6	0.42
2007	176	7.9	0.37	3.9	0.33	6.1	0.36	8.3	0.40
2008	183	8.2	0.37	3.9	0.32	6.1	0.35	8.4	0.39
2009	199	8.9	0.41	4.1	0.35	6.4	0.38	8.9	0.42
2010	185	8.2	0.38	3.7	0.32	5.8	0.35	8.1	0.40
2011	182	8.1	0.40	3.7	0.35	5.7	0.37	7.7	0.41
2012	169	7.4	0.37	3.1	0.29	5.0	0.33	6.9	0.37
2013	179	7.8	0.43	3.3	0.34	5.2	0.38	7.2	0.43
2014	163	7.0	0.34	3.0	0.28	4.7	0.31	6.3	0.34
2015	222	9.3	0.49	3.9	0.41	6.1	0.44	8.4	0.49
2016	201	8.4	0.54	3.5	0.46	5.4	0.49	7.5	0.54
2017	172	7.1	0.51	2.8	0.40	4.5	0.44	6.3	0.50
2018	101	4.1	0.36	1.7	0.28	2.6	0.31	3.6	0.35
2019	86	3.5	0.43	1.5	0.34	2.3	0.37	3.1	0.43
1998-2019	3336	7.6	0.40	3.5	0.34	5.5	0.37	7.4	0.42

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	40	3.4	0.26	1.1	0.18	1.9	0.21	2.6	0.24
1999	53	4.5	0.35	1.7	0.26	2.7	0.30	3.7	0.34
2000	59	4.9	0.47	1.8	0.37	2.9	0.41	4.1	0.46
2001	51	4.2	0.36	1.5	0.28	2.5	0.31	3.5	0.35
2002	90	4.6	0.37	1.7	0.30	2.7	0.32	3.6	0.35
2003	94	4.8	0.41	1.7	0.32	2.7	0.35	3.8	0.39
2004	92	4.7	0.39	1.5	0.28	2.4	0.31	3.5	0.35
2005	92	4.6	0.39	1.7	0.33	2.6	0.34	3.5	0.36
2006	79	3.9	0.34	1.3	0.23	2.0	0.26	2.9	0.31
2007	97	4.2	0.36	1.3	0.24	2.1	0.29	3.2	0.34
2008	101	4.4	0.37	1.4	0.25	2.3	0.28	3.2	0.33
2009	112	4.8	0.38	1.7	0.28	2.6	0.31	3.6	0.34
2010	121	5.2	0.43	1.6	0.33	2.6	0.36	3.9	0.42
2011	86	3.7	0.34	1.2	0.23	1.9	0.27	2.7	0.31
2012	121	5.1	0.50	1.6	0.38	2.6	0.42	3.9	0.47
2013	99	4.2	0.44	1.3	0.31	2.1	0.35	3.0	0.39
2014	105	4.4	0.41	1.3	0.29	2.1	0.32	3.1	0.37
2015	110	4.5	0.52	1.3	0.36	2.1	0.41	3.1	0.47
2016	91	3.7	0.48	1.2	0.37	1.9	0.40	2.6	0.45
2017	65	2.6	0.36	0.8	0.28	1.3	0.30	1.7	0.31
2018	49	2.0	0.41	0.5	0.22	0.8	0.27	1.3	0.33
2019	41	1.7	0.42	0.4	0.24	0.7	0.29	1.1	0.36
1998-2019	1848	4.0	0.40	1.3	0.29	2.1	0.32	3.0	0.37

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	3	0.1	0.1	3	0.1	0.1			0.0
10-14	2	0.1	0.1			0.1	2	0.2	0.2
15-19	1	0.0	0.2	1	0.0	0.2			0.2
20-24	1	0.0	0.2	1	0.0	0.2			0.2
25-29	3	0.1	0.3	2	0.1	0.3	1	0.1	0.3
30-34	2	0.1	0.4	2	0.1	0.4			0.3
35-39	8	0.2	0.6	4	0.2	0.6	4	0.3	0.6
40-44	17	0.5	1.1	11	0.5	1.1	6	0.5	1.1
45-49	45	1.3	2.4	35	1.6	2.7	10	0.8	1.9
50-54	97	2.8	5.2	70	3.2	5.8	27	2.3	4.2
55-59	150	4.4	9.6	116	5.2	11.0	34	2.8	7.0
60-64	260	7.6	17.2	204	9.2	20.2	56	4.7	11.7
65-69	410	12.0	29.2	279	12.6	32.8	131	10.9	22.6
70-74	572	16.7	46.0	424	19.1	51.9	148	12.4	35.0
75-79	692	20.3	66.2	445	20.1	72.0	247	20.6	55.6
80-84	634	18.6	84.8	354	16.0	88.0	280	23.4	79.0
85+	519	15.2	100.0	267	12.0	100.0	252	21.0	100.0
All ages	3416	100.0		2218	100.0		1198	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	3		0.2	0.33			12.0	
10-14		2			0.1	0.50		8.7
15-19	1		0.1	1.00			2.1	
20-24	1		0.1	0.14			1.5	
25-29	2	1	0.1	0.18	0.0	0.13	2.4	1.1
30-34	2		0.1	0.09			1.6	
35-39	4	4	0.2	0.05	0.2	0.12	1.6	1.1
40-44	11	6	0.5	0.08	0.3	0.11	1.9	0.7
45-49	35	10	1.4	0.14	0.4	0.13	2.6	0.6
50-54	70	27	3.0	0.17	1.2	0.18	2.8	1.1
55-59	116	34	6.0	0.21	1.7	0.19	2.8	1.0
60-64	204	56	12.5	0.33	3.2	0.22	3.4	1.2
65-69	279	131	18.3	0.34	7.8	0.31	3.2	2.0
70-74	424	148	30.3	0.46	9.2	0.33	3.8	1.8
75-79	445	247	40.2	0.57	17.9	0.47	3.9	2.7
80-84	354	280	53.9	0.78	28.8	0.74	3.8	3.3
85+	267	252	62.6	1.06	26.1	0.83	3.2	2.3
All ages	2218	1198					3.5	2.1
Mortality								
Raw			7.4	0.41	3.9	0.42		
WS			3.2	0.34	1.2	0.29		
ES			5.0	0.37	1.9	0.33		
BRD-S			6.8	0.42	2.7	0.38		
PYLL-70								
per 100,000			24.8		8.9			
ES			21.5		7.5			
AYLL-70			9.0		8.6			

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 ←%
C03-C06 Oral cavity	17	0.9	8	47.1	2	11.8	7	41.2
C09-C10 Oropharynx	28	1.5	11	39.3	2	7.1	15	53.6
C12-C13 Hypopharynx	10	0.5	3	30.0	1	10.0	6	60.0
C15 Oesophagus	34	1.8	9	26.5	1	2.9	24	70.6
C16 Stomach	63	3.4	23	36.5	8	12.7	32	50.8
C17 Small intestine	10	0.5	4	40.0	1	10.0	5	50.0
C18 Colon	163	8.7	57	35.0	32	19.6	74	45.4
C19-C20 Rectum	70	3.7	16	22.9	19	27.1	35	50.0
C21 Anus/canal	3	0.2	1	33.3			2	66.7
C22 Liver	53	2.8	8	15.1	10	18.9	35	66.0
C23-C24 Bile	16	0.9	2	12.5	1	6.3	13	81.3
C25 Pancreas	67	3.6	2	3.0	11	16.4	54	80.6
C32 Larynx	24	1.3	15	62.5	1	4.2	8	33.3
C33-C34 Lung	230	12.3	37	16.1	29	12.6	164	71.3
C38,C45 Mesothelioma	12	0.6	1	8.3	1	8.3	10	83.3
C40-C41 Bone	4	0.2	3	75.0			1	25.0
C43 Malign. melanoma	59	3.2	37	62.7	4	6.8	18	30.5
C44 Skin others	77	4.1	27	35.1	5	6.5	45	58.4
C46,C49 Soft tissue	19	1.0	7	36.8	2	10.5	10	52.6
C48 Peritoneal	5	0.3	1	20.0			4	80.0
C60 Penis	3	0.2			1	33.3	2	66.7
C61 Prostate	407	21.7	160	39.3	53	13.0	194	47.7
C62 Testis	10	0.5	9	90.0			1	10.0
C64 Kidney	128	6.8			38	29.7	90	70.3
C65 Renal pelvis	21	1.1	4	19.0	11	52.4	6	28.6
C66 Ureter	18	1.0	6	33.3	4	22.2	8	44.4
C67 Bladder	116	6.2	44	37.9	16	13.8	56	48.3
C68 Urethra	3	0.2	1	33.3			2	66.7
C69 Eye melanoma	4	0.2	3	75.0			1	25.0
C70-C72 CNS cancer	21	1.1	4	19.0	2	9.5	15	71.4
C73 Thyroid	21	1.1	9	42.9			12	57.1
C76-C79 CUP	27	1.4	12	44.4	2	7.4	13	48.1
C81 Hodgkin lymphoma	3	0.2	2	66.7			1	33.3
C82-C85 NHL	64	3.4	15	23.4	10	15.6	39	60.9
C90 Mult. myeloma	26	1.4	12	46.2	3	11.5	11	42.3
C91-C96 Leukaemia	22	1.2	2	9.1	1	4.5	19	86.4
Others, specified	15	0.8	7	46.7	3	20.0	5	33.3
All further malignancies	1873	100.0	562	30.0	274	14.6	1037	55.4

Further malignancies with number of cases 1 to 2 are pooled in category "Others, specified".

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

Table 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 ←%
C07-C08 Salivary gland	3	0.4	3	100.0				
C09-C10 Oropharynx	1	0.1	1	100.0				
C11 Nasopharynx	1	0.1			1	100.0		
C12-C13 Hypopharynx	1	0.1					1	100.0
C15 Oesophagus	4	0.5			1	25.0	3	75.0
C16 Stomach	26	3.2	6	23.1	8	30.8	12	46.2
C18 Colon	55	6.7	15	27.3	8	14.5	32	58.2
C19-C20 Rectum	27	3.3	7	25.9	5	18.5	15	55.6
C21 Anus/canal	2	0.2			1	50.0	1	50.0
C22 Liver	12	1.5	2	16.7	4	33.3	6	50.0
C23-C24 Bile	18	2.2	1	5.6	4	22.2	13	72.2
C25 Pancreas	44	5.4	3	6.8	5	11.4	36	81.8
C26 GI cancer	2	0.2					2	100.0
C30-C31 Sinuses	1	0.1					1	100.0
C32 Larynx	1	0.1					1	100.0
C33-C34 Lung	77	9.4	8	10.4	11	14.3	58	75.3
C38,C45 Mesothelioma	1	0.1					1	100.0
C40-C41 Bone	1	0.1	1	100.0				
C43 Malign. melanoma	21	2.6	11	52.4	3	14.3	7	33.3
C44 Skin others	24	2.9	15	62.5			9	37.5
C46,C49 Soft tissue	7	0.9	3	42.9	1	14.3	3	42.9
C48 Peritoneal	2	0.2			1	50.0	1	50.0
C50 Breast	188	23.1	97	51.6	18	9.6	73	38.8
C51 Vulva	1	0.1					1	100.0
C52 Vagina	1	0.1	1	100.0				
C53 Cervix uteri	17	2.1	10	58.8	1	5.9	6	35.3
C54 Corpus uteri	33	4.0	18	54.5	5	15.2	10	30.3
C55,C57 Fem. genitals un	4	0.5	3	75.0			1	25.0
C56 Ovary	27	3.3	8	29.6	4	14.8	15	55.6
C64 Kidney	52	6.4			14	26.9	38	73.1
C65 Renal pelvis	3	0.4	1	33.3	1	33.3	1	33.3
C66 Ureter	3	0.4	1	33.3	2	66.7		
C67 Bladder	35	4.3	9	25.7	9	25.7	17	48.6
C68 Urethra	1	0.1	1	100.0				
C68 Urinary org.	2	0.2	1	50.0			1	50.0
C69 Eye melanoma	2	0.2	1	50.0	1	50.0		
C70-C72 CNS cancer	10	1.2			2	20.0	8	80.0
C73 Thyroid	29	3.6	11	37.9	2	6.9	16	55.2
C74-C80 Cancer others	3	0.4	1	33.3	1	33.3	1	33.3
C76-C79 CUP	18	2.2	3	16.7	1	5.6	14	77.8
C81 Hodgkin lymphoma	1	0.1	1	100.0				

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 ←%
C82–C85 NHL	36	4.4	14	38.9	7	19.4	15	41.7
C90 Mult. myeloma	9	1.1	1	11.1	1	11.1	7	77.8
C91–C96 Leukaemia	9	1.1	1	11.1	3	33.3	5	55.6
All further malignancies	815	100.0	259	31.8	125	15.3	431	52.9

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.	Males MI-index	Females Age- spec. mortal.	Females MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4								
5- 9	3		0.2	0.33			12.5	
10-14								
15-19	1		0.1	1.00			2.2	
20-24	1		0.1	0.17			1.7	
25-29	2	1	0.1	0.20	0.0	0.13	2.6	1.2
30-34	2		0.1	0.10			1.6	
35-39	3	4	0.1	0.04	0.2	0.12	1.3	1.2
40-44	10	5	0.4	0.08	0.2	0.11	1.9	0.7
45-49	32	8	1.3	0.13	0.3	0.12	2.6	0.6
50-54	56	23	2.4	0.15	1.0	0.18	2.5	1.1
55-59	95	29	4.9	0.22	1.5	0.20	2.6	1.0
60-64	166	40	10.2	0.33	2.3	0.21	3.3	1.1
65-69	210	103	13.8	0.36	6.1	0.31	3.1	2.0
70-74	311	111	22.2	0.49	6.9	0.33	3.7	1.8
75-79	309	187	27.9	0.60	13.6	0.47	3.7	2.7
80-84	238	214	36.3	0.84	22.0	0.81	3.5	3.3
85+	180	209	42.2	1.16	21.7	0.90	3.0	2.4
All ages	1619	934					3.3	2.1
Mortality								
Raw			5.4	0.40	3.0	0.42		
WS			2.4	0.33	0.9	0.28		
ES			3.7	0.36	1.5	0.32		
BRD-S			5.0	0.41	2.1	0.37		
PYLL-70								
per 100,000			20.6		6.9			
ES			18.1		5.7			
AYLL-70			9.4		8.5			

* 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.	MI-index	Females Age- spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4								
5- 9	3		0.2	0.33			12.5	
10-14								
15-19	1		0.1	1.00			2.2	
20-24	1		0.1	0.17			1.7	
25-29	2	1	0.1	0.20	0.0	0.13	2.6	1.2
30-34	2		0.1	0.11			1.6	
35-39	3	2	0.1	0.04	0.1	0.06	1.3	0.6
40-44	10	3	0.4	0.08	0.1	0.07	1.9	0.4
45-49	28	8	1.1	0.12	0.3	0.13	2.3	0.6
50-54	49	20	2.1	0.15	0.9	0.16	2.2	1.0
55-59	80	26	4.1	0.21	1.3	0.20	2.3	0.9
60-64	139	31	8.5	0.32	1.8	0.18	2.8	0.8
65-69	163	91	10.7	0.32	5.4	0.31	2.4	1.8
70-74	227	80	16.2	0.43	5.0	0.28	2.8	1.3
75-79	210	137	19.0	0.47	9.9	0.38	2.6	2.1
80-84	151	160	23.0	0.60	16.4	0.66	2.4	2.5
85+	104	157	24.4	0.72	16.3	0.71	1.9	1.9
All ages	1173	716					2.5	1.6
Mortality								
Raw			3.9	0.33	2.3	0.35		
WS			1.8	0.28	0.7	0.24		
ES			2.7	0.30	1.2	0.28		
BRD-S			3.6	0.34	1.6	0.32		
PYLL-70								
per 100,000			17.9		5.7			
ES			15.8		4.7			
AYLL-70			9.9		8.3			

* See corresponding tables with multiple malignancies.

ICD-10 C64: Malignant neoplasm of kidney, except renal pelvis
 Age distribution and age-specific mortality 2007 - 2019 (Males: 2218, Females: 1198)

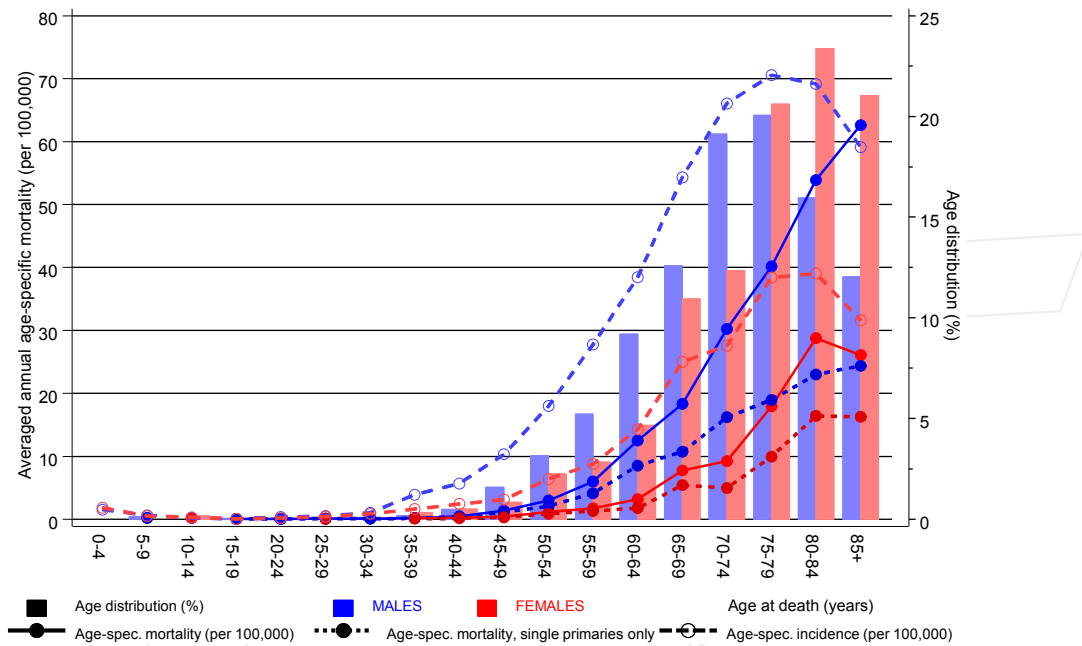
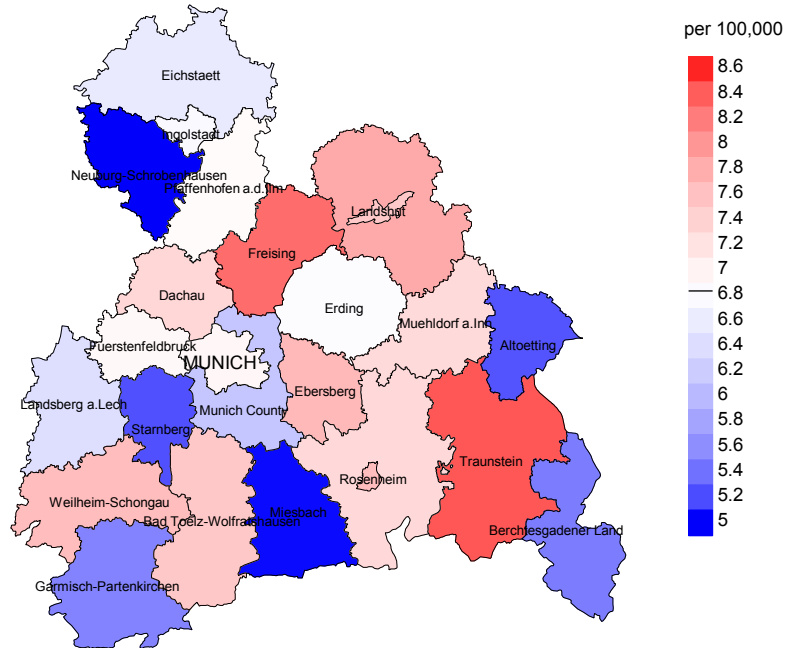


Figure 17. Distribution of age at death (bars; males: mean=67.4 yrs, median=68.5 yrs; females: mean=70.7 yrs, median=72.4 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

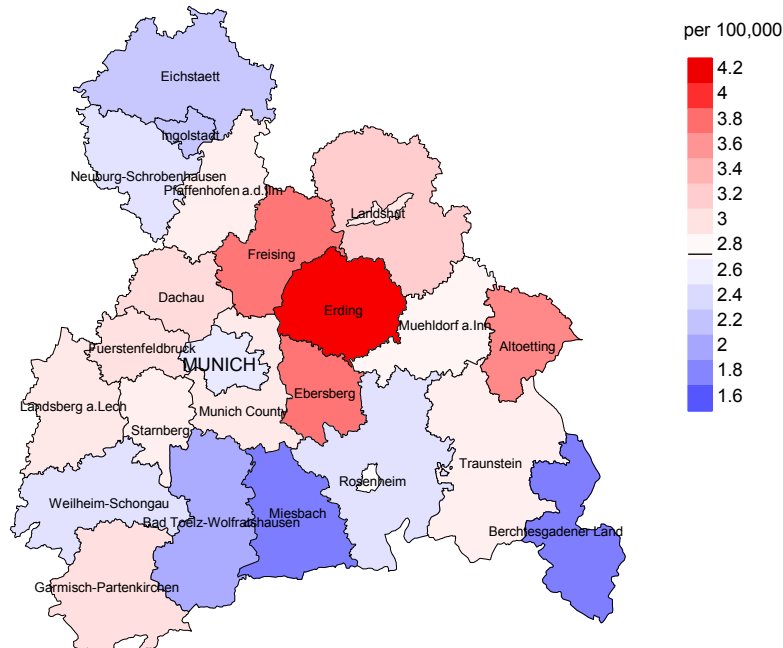
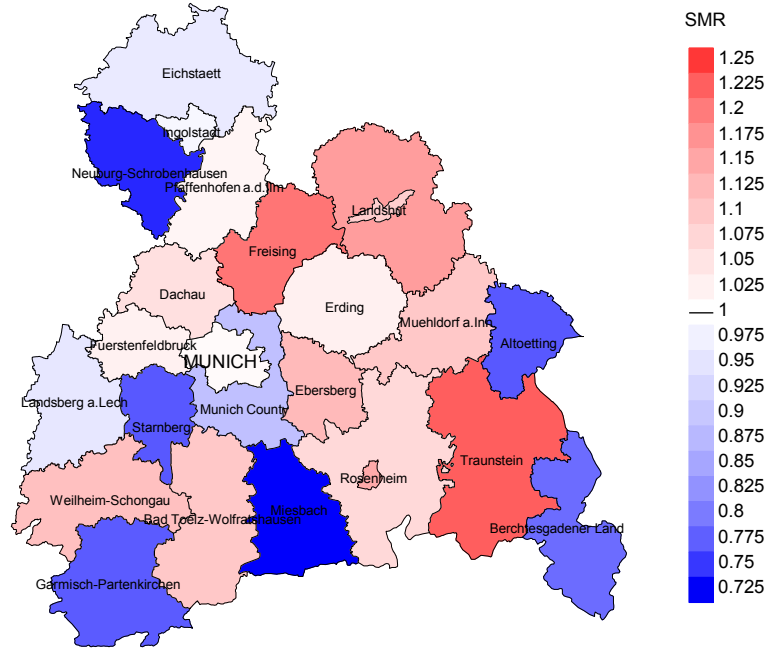


Figure 18a. Map of cancer mortality (german standard population) by county averaged for period 2007 to 2019. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 6.8/100,000 WS N=2,218, females 2.7/100,000 WS N=1,198).

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 47 women died from kidney cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 3.8/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 2.5 and 5.5/100,000.

Standardized mortality ratio (SMR) 2007 - 2019: Males



Standardized mortality ratio (SMR) 2007 - 2019: Females

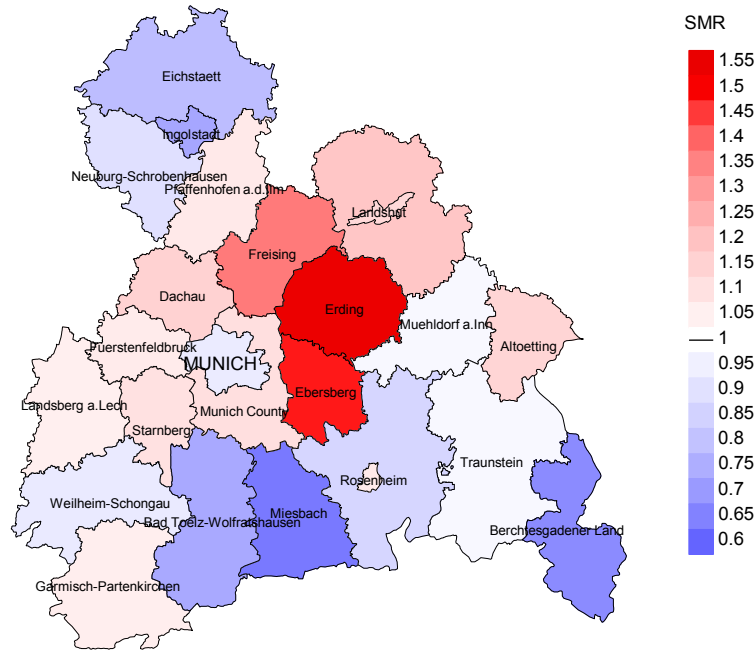


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=2,218, females N=1,198).

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 47 women died from kidney cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 1.47. Though, the value of this parameter may vary with an underlying probability of 99% between 0.98 and 2.12, 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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