

Munich Cancer Registry



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

ICD-10 C64-C66, C68: Urinary tract cancer

Incidence and Mortality

Year of diagnosis	1998-2019
Patients	15,168
Diseases	15,679
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/bC6466E-ICD-10-C64-C66-C68-Urinary-tract-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
C65	Malignant neoplasm of renal pelvis
C66	Malignant neoplasm of ureter
C68.-	Malignant neoplasm of other and unspecified urinary organs

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	469	55	11.7	16.6	16.4	71.0	96.4
1999	457	50	10.9	16.4	16.1	68.5	95.2
2000	425	53	12.5	17.5	16.0	69.6	96.5
2001	421	50	11.9	17.7	15.9	72.2	96.7
2002	717	106	14.8	18.9	15.9	75.0	98.3 #
2003	713	80	11.2	18.7	15.8	68.7	95.1
2004	717	86	12.0	19.1	15.6	64.4	96.1
2005	786	48	6.1	19.8	15.2	63.1	95.9
2006	761	52	6.8	19.9	14.9	62.4	92.6
2007	875	83	9.5	20.0	14.3	61.8	92.0 #
2008	916	80	8.7	20.6	13.7	57.1	97.4
2009	918	78	8.5	21.1	13.2	56.6	97.6
2010	927	67	7.2	21.7	12.6	52.5	97.6
2011	874	63	7.2	22.1	12.3	51.3	97.7
2012	880	66	7.5	22.5	11.5	51.1	97.8
2013	827	66	8.0	23.1	10.9	47.4	97.8
2014	909	75	8.3	23.6	10.3	45.3	97.4
2015	807	87	10.8	24.0	9.7	41.5	92.7
2016	715	78	10.9	24.4	8.9	41.1	98.5
2017	663	61	9.2	24.9	8.0	32.3	99.4
2018	525	15	2.9	25.1	6.9	21.7	99.2
2019	377	9	2.4	25.2	6.1	11.4	65.0 ##
1998-2019	15679	1408	9.0	25.2	16.4	54.1	95.8

15,679 cases diagnosed 1998-2019 are related to a total of 15,168 patients. Currently, in 5,724 (37.7 %) of these 15,168 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 4,043 / 1,228 / 453 (26.7 % / 8.1 % / 3.0 %) 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 retrieved from the respective headings.

How to interpret:

In 2017, a subgroup of 663 cases has been diagnosed, of which 24.9 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 8.0 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 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	288	61.4	27	9.4	16.0	17.6	71.9	96.9
1999	281	61.5	30	10.7	16.7	17.4	68.0	95.0
2000	276	64.9	36	13.0	17.5	17.2	71.0	95.3
2001	246	58.4	25	10.2	17.9	17.2	70.7	97.2
2002	432	60.3	58	13.4	19.5	17.1	73.8	98.8 #
2003	445	62.4	43	9.7	19.7	16.9	67.6	93.9
2004	442	61.6	43	9.7	19.9	16.7	66.5	95.7
2005	502	63.9	23	4.6	20.6	16.2	62.2	96.6
2006	473	62.2	21	4.4	20.7	15.8	61.3	92.6
2007	567	64.8	39	6.9	21.0	15.2	62.1	91.7 #
2008	582	63.5	38	6.5	21.7	14.4	54.0	97.1
2009	575	62.6	46	8.0	22.5	13.8	55.8	97.6
2010	593	64.0	25	4.2	22.9	13.1	51.1	98.7
2011	563	64.4	43	7.6	23.4	12.4	51.5	97.9
2012	571	64.9	34	6.0	23.9	11.5	50.3	97.9
2013	541	65.4	32	5.9	24.6	10.7	47.1	98.0
2014	593	65.2	41	6.9	25.1	10.3	44.5	97.5
2015	547	67.8	48	8.8	25.5	9.9	39.3	92.9
2016	482	67.4	42	8.7	26.0	8.9	41.9	98.1
2017	439	66.2	31	7.1	26.5	7.7	31.4	99.3
2018	363	69.1	9	2.5	26.7	6.0	19.3	99.4
2019	255	67.6	4	1.6	26.8	6.2	11.0	67.5 ##
1998–2019	10056	64.1	738	7.3	26.8	17.6	52.9	95.8

10,056 cases diagnosed 1998-2019 are related to a total of 9,695 patients. Currently, in 3,883 (40.1 %) of these 9,695 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 2,670 / 865 / 348 (27.5 % / 8.9 % / 3.6 %) patients exist having 2 / 3 / 4+ malignancies.

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

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

How to interpret:

In 2017, a subgroup of 439 cases has been diagnosed, of which 26.5 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 7.7 % 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	181	38.6	28	15.5	17.7	14.2	69.6	95.6
1999	176	38.5	20	11.4	16.0	14.0	69.3	95.5
2000	149	35.1	17	11.4	17.4	13.9	67.1	98.7
2001	175	41.6	25	14.3	17.3	13.7	74.3	96.0
2002	285	39.7	48	16.8	18.0	13.7	76.8	97.5 #
2003	268	37.6	37	13.8	17.3	13.7	70.5	97.0
2004	275	38.4	43	15.6	18.0	13.6	61.1	96.7
2005	284	36.1	25	8.8	18.5	13.4	64.8	94.7
2006	288	37.8	31	10.8	18.6	13.3	64.2	92.7
2007	308	35.2	44	14.3	18.4	12.6	61.4	92.5 #
2008	334	36.5	42	12.6	18.8	12.5	62.6	97.9
2009	343	37.4	32	9.3	18.9	12.2	58.0	97.7
2010	334	36.0	42	12.6	19.7	11.7	55.1	95.8
2011	311	35.6	20	6.4	19.9	11.9	50.8	97.4
2012	309	35.1	32	10.4	20.2	11.5	52.8	97.7
2013	286	34.6	34	11.9	20.6	11.2	47.9	97.6
2014	316	34.8	34	10.8	21.0	10.3	46.8	97.2
2015	260	32.2	39	15.0	21.3	9.2	46.2	92.3
2016	233	32.6	36	15.5	21.6	9.0	39.5	99.1
2017	224	33.8	30	13.4	22.0	8.7	33.9	99.6
2018	162	30.9	6	3.7	22.1	8.8	27.2	98.8
2019	122	32.4	5	4.1	22.3	5.9	12.3	59.8 ##
1998-2019	5623	35.9	670	11.9	22.3	14.2	56.1	95.7

5,623 cases diagnosed 1998-2019 are related to a total of 5,473 patients. Currently, in 1,841 (33.6 %) of these 5,473 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 1,373 / 363 / 105 (25.1 % / 6.6 % / 1.9 %) 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 224 cases has been diagnosed, of which 22.0 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 8.7 % 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 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	288	181	26.0	15.4	16.4	7.3	23.6	10.5	29.3	13.2
1999	281	176	25.1	14.8	15.5	7.5	22.5	10.5	28.0	12.8
2000	276	149	24.2	12.4	15.2	5.7	21.7	8.4	26.7	10.6
2001	246	175	21.2	14.4	12.6	6.7	18.4	9.8	23.2	12.4
2002	432	285	23.2	14.6	13.4	6.7	19.7	9.6	25.0	12.2
2003	445	268	23.7	13.6	14.0	6.0	19.8	8.7	24.5	11.1
2004	442	275	23.5	13.9	13.7	6.3	19.4	9.1	24.2	11.5
2005	502	284	26.5	14.3	15.0	6.5	21.5	9.2	26.3	11.9
2006	473	288	24.7	14.3	13.9	6.8	19.8	9.6	24.5	11.8
2007	567	308	25.6	13.3	14.1	5.9	20.2	8.3	25.1	10.7
2008	582	334	26.1	14.4	14.3	6.6	20.5	9.3	25.2	11.9
2009	575	343	25.8	14.7	13.9	6.6	19.8	9.4	24.8	12.1
2010	593	334	26.3	14.3	13.6	5.8	19.7	8.6	24.7	11.1
2011	563	311	25.2	13.3	13.1	6.4	18.8	8.6	23.3	10.6
2012	571	309	25.2	13.1	12.9	5.2	18.7	7.8	23.4	10.4
2013	541	286	23.5	12.0	12.0	5.1	17.2	7.4	21.7	9.4
2014	593	316	25.4	13.1	12.9	5.5	18.6	8.0	23.0	10.2
2015	547	260	23.0	10.7	11.2	4.3	16.4	6.3	20.7	8.0
2016	482	233	20.1	9.5	9.6	4.1	14.1	5.7	18.1	7.2
2017	439	224	18.2	9.1	8.9	3.4	13.0	5.1	16.3	6.8
2018	363	162	14.9	6.5	7.6	2.7	10.8	3.9	13.4	5.0
2019	255	122	10.5	4.9	5.3	2.1	7.6	3.0	9.3	3.8
1998-2019	10056	5623	22.8	12.3	12.2	5.4	17.6	7.7	21.8	9.8

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	Std.		Min.	Max.	Median				
		Mean	dev.			10%	25%	50%	75%	90%
1998	469	66.4	13.6	2.8	99.7	50.0	59.0	67.7	76.0	82.2
1999	457	66.0	13.3	1.1	94.3	51.0	58.2	66.1	76.0	82.0
2000	425	66.4	13.0	0.3	93.5	49.5	58.9	67.0	75.4	81.3
2001	421	67.4	12.1	1.9	96.4	52.8	60.7	67.6	76.8	81.1
2002	717	68.3	13.1	0.1	99.5	50.8	61.3	69.7	77.2	82.7
2003	713	67.8	13.5	0.4	99.6	51.5	60.8	68.6	76.8	83.2
2004	717	67.2	13.7	0.0	94.9	49.2	60.6	68.5	76.5	82.2
2005	786	67.4	13.0	0.7	95.1	51.5	60.3	68.3	76.6	82.1
2006	761	67.3	14.1	0.2	95.5	49.9	60.2	68.9	76.4	83.0
2007	875	68.0	14.1	1.2	99.1	50.2	61.6	69.8	77.0	83.6
2008	916	67.8	13.5	0.2	98.1	51.2	60.6	69.1	77.1	83.3
2009	918	67.9	14.2	0.5	96.9	50.3	60.6	70.2	77.8	83.1
2010	927	68.7	13.1	5.4	100	50.9	60.5	70.5	77.7	83.9
2011	874	68.3	14.5	0.5	96.9	50.9	61.3	70.4	77.6	84.4
2012	880	69.1	13.1	1.4	93.1	52.4	61.3	71.3	78.9	83.4
2013	827	68.7	13.8	0.3	101	51.0	61.2	71.0	78.3	83.4
2014	909	69.1	13.1	1.2	98.9	53.5	61.0	71.0	77.8	84.7
2015	807	70.0	13.5	0.6	98.9	52.4	61.9	72.3	78.5	85.1
2016	715	70.0	13.3	2.4	96.0	53.1	62.2	72.3	79.4	84.5
2017	663	70.1	12.5	0.9	96.8	53.6	62.9	72.6	78.5	83.5
2018	525	68.6	12.1	27.4	93.4	52.8	60.8	70.0	78.0	82.3
2019	377	68.5	12.2	23.8	93.6	52.0	60.6	70.9	77.7	82.4
1998-2019	15679	68.3	13.4	0.0	101	51.5	60.8	69.9	77.5	83.4

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	288	64.9	13.5	5.0	91.9	49.0	58.0	65.9	74.7	79.7
1999	281	64.9	12.8	2.3	89.5	50.1	57.6	65.7	74.1	80.3
2000	276	64.7	13.2	0.3	93.5	48.0	57.1	65.9	73.2	79.9
2001	246	65.9	11.0	1.9	89.9	52.3	59.4	65.3	74.7	80.0
2002	432	66.7	12.8	0.1	96.2	48.9	59.1	68.3	75.7	81.3
2003	445	65.5	13.4	0.4	99.6	48.3	59.8	65.8	74.3	80.7
2004	442	65.6	13.7	0.0	94.9	49.0	58.8	67.4	74.7	80.1
2005	502	66.0	11.7	0.7	93.3	51.5	59.3	66.7	73.7	79.7
2006	473	65.9	13.1	0.8	95.4	49.5	59.8	67.3	74.6	80.3
2007	567	66.4	12.9	2.6	93.1	49.7	59.3	68.0	75.0	80.6
2008	582	66.5	13.0	0.2	98.1	49.9	58.9	68.2	74.6	81.9
2009	575	66.6	13.8	0.5	96.1	49.6	59.0	69.2	75.9	82.1
2010	593	66.9	12.8	5.4	93.5	48.5	59.1	69.4	76.0	81.5
2011	563	67.7	12.8	1.5	96.9	51.0	60.7	69.3	75.9	82.8
2012	571	67.4	13.6	1.4	93.1	50.3	59.3	69.8	77.2	83.0
2013	541	67.6	13.1	0.9	94.1	50.0	59.8	69.8	76.8	82.3
2014	593	68.2	13.2	1.2	97.0	53.1	60.4	70.2	77.1	83.6
2015	547	69.1	13.0	0.7	98.9	52.5	61.0	71.5	77.9	83.7
2016	482	69.6	12.4	13.7	94.8	53.7	61.3	71.5	78.6	83.7
2017	439	68.8	12.1	0.9	96.8	52.6	61.6	70.5	77.1	82.2
2018	363	67.6	11.8	29.1	93.4	51.6	59.8	68.5	76.8	81.7
2019	255	67.5	12.1	23.8	93.6	51.3	59.1	70.0	76.7	81.0
1998-2019	10056	67.0	12.9	0.0	99.6	50.6	59.6	68.5	76.1	81.8

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	181	68.9	13.4	2.8	99.7	56.3	61.7	70.3	78.0	84.3
1999	176	67.7	14.0	1.1	94.3	51.8	58.8	68.8	77.7	85.5
2000	149	69.4	12.2	37.2	91.4	54.5	60.8	71.4	78.2	86.4
2001	175	69.4	13.3	30.6	96.4	53.1	61.7	71.2	78.9	85.1
2002	285	70.6	13.2	2.4	99.5	54.7	63.7	72.4	79.9	85.0
2003	268	71.4	12.9	2.5	96.5	56.3	64.3	72.4	80.9	85.8
2004	275	69.7	13.5	18.5	94.6	52.5	63.4	71.3	79.4	84.7
2005	284	69.8	14.7	4.2	95.1	52.2	63.0	72.7	80.2	84.4
2006	288	69.4	15.4	0.2	95.5	52.1	62.7	71.9	79.0	85.9
2007	308	70.8	15.8	1.2	99.1	53.0	66.3	73.1	80.4	85.8
2008	334	70.1	14.2	0.6	96.1	54.1	63.6	71.5	80.0	84.9
2009	343	70.1	14.7	1.7	96.9	51.4	64.5	72.6	79.9	84.5
2010	334	72.0	13.1	5.4	100	54.6	64.3	73.0	80.9	87.8
2011	311	69.4	17.1	0.5	96.5	50.8	64.3	72.7	79.7	85.7
2012	309	72.3	11.6	9.7	92.8	56.8	67.2	73.8	80.6	84.4
2013	286	70.8	14.7	0.3	101	52.6	64.6	73.5	79.9	84.8
2014	316	70.9	12.7	2.5	98.9	54.0	63.1	73.4	79.6	85.9
2015	260	71.9	14.3	0.6	98.0	52.3	65.4	74.3	80.9	88.2
2016	233	70.8	14.9	2.4	96.0	52.4	64.5	73.8	80.3	86.5
2017	224	72.5	13.0	25.7	96.8	54.7	66.7	75.2	81.4	86.9
2018	162	70.8	12.4	27.4	91.8	54.3	63.3	74.1	79.8	84.1
2019	122	70.5	12.2	28.5	93.4	52.8	64.1	72.6	79.0	84.1
1998-2019	5623	70.5	14.0	0.2	101	53.5	63.8	72.8	79.9	85.6

Table 4

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

Age at diagnosis Years	Cases n	Males			Females				
		%	Cum.%	n	%	Cum.%	n	%	Cum.%
0-4	52	0.5	0.5	25	0.4	0.4	27	0.8	0.8
5-9	16	0.2	0.7	9	0.1	0.5	7	0.2	1.0
10-14	7	0.1	0.7	3	0.0	0.6	4	0.1	1.1
15-19	2	0.0	0.8	1	0.0	0.6	1	0.0	1.1
20-24	11	0.1	0.9	7	0.1	0.7	4	0.1	1.2
25-29	20	0.2	1.1	12	0.2	0.9	8	0.2	1.4
30-34	40	0.4	1.4	22	0.3	1.2	18	0.5	1.9
35-39	121	1.2	2.6	87	1.3	2.5	34	1.0	2.9
40-44	203	2.0	4.6	143	2.1	4.6	60	1.7	4.6
45-49	359	3.5	8.1	280	4.2	8.8	79	2.2	6.8
50-54	634	6.2	14.3	470	7.0	15.9	164	4.6	11.5
55-59	820	8.0	22.4	618	9.3	25.1	202	5.7	17.2
60-64	1048	10.3	32.6	757	11.3	36.5	291	8.2	25.4
65-69	1515	14.8	47.5	1006	15.1	51.6	509	14.4	39.8
70-74	1731	16.9	64.4	1189	17.8	69.4	542	15.3	55.1
75-79	1697	16.6	81.0	1017	15.2	84.6	680	19.2	74.3
80-84	1170	11.5	92.5	663	9.9	94.6	507	14.3	88.6
85+	767	7.5	100.0	362	5.4	100.0	405	11.4	100.0
All ages	10213	100.0		6671	100.0		3542	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=428 %	Females DCO rate n=392 %	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	4	0.4	0.2			1.2	0.8
25-29	12	8	0.6	0.4			1.4	0.7
30-34	22	18	1.0	0.9			1.8	0.9
35-39	87	34	4.1	1.6			5.1	1.0
40-44	140	60	6.0	2.7	0.7		5.4	1.0
45-49	275	79	11.0	3.2	1.1	1.3	5.7	0.9
50-54	459	163	19.6	7.1	1.5	1.8	5.9	1.4
55-59	601	200	30.9	10.0	1.8	2.0	5.1	1.6
60-64	736	288	45.1	16.4	1.6	1.4	4.5	2.0
65-69	983	501	64.6	29.7	3.2	2.6	4.3	2.8
70-74	1160	534	82.8	33.2	4.5	4.7	4.5	2.9
75-79	1001	666	90.4	48.4	7.5	8.0	4.5	3.7
80-84	648	499	98.7	51.3	15.9	17.6	4.6	3.5
85+	361	399	84.7	41.3	36.8	50.1	3.7	2.6
All ages	6528	3491			6.6	11.2	4.6	2.4
Incidence								
Raw			21.7	11.2				
WS			11.1	4.8				
ES			16.0	6.8				
BRD-S			19.9	8.7				

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

ICD-10 C64-C66, C68: Malignant neoplasms of urinary tract
 Age distribution and age-specific incidence 2007 - 2019 (Males: 6528, Females: 3491)

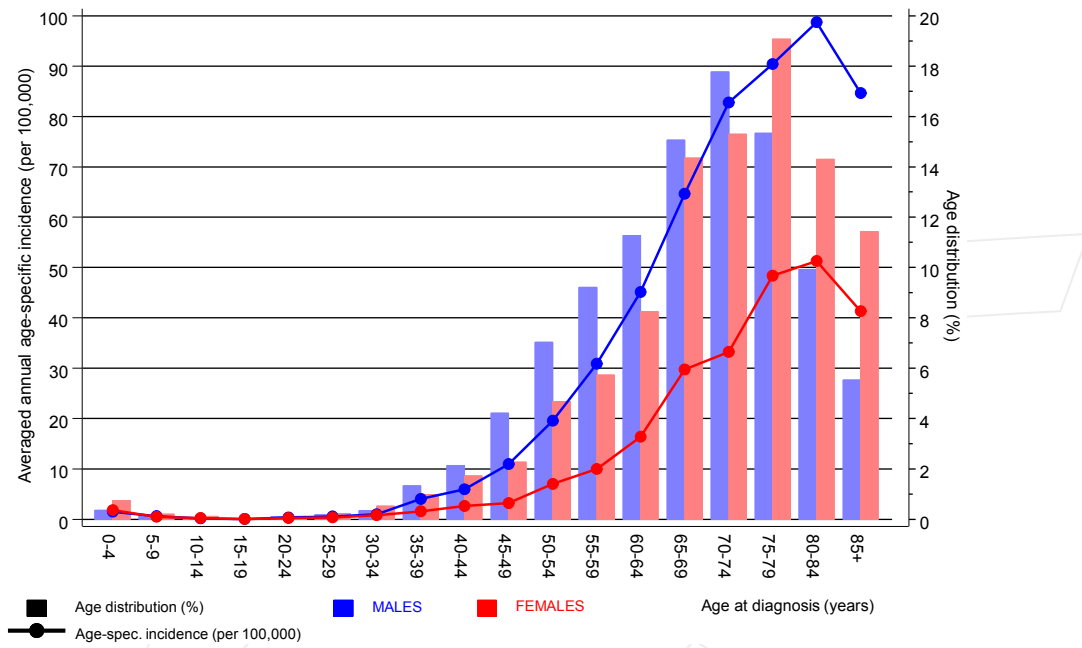


Figure 6. Age distribution (males: mean=67.7 yrs, median=69.6 yrs; females: mean=70.9 yrs, median=73.4 yrs) and age-specific incidence.

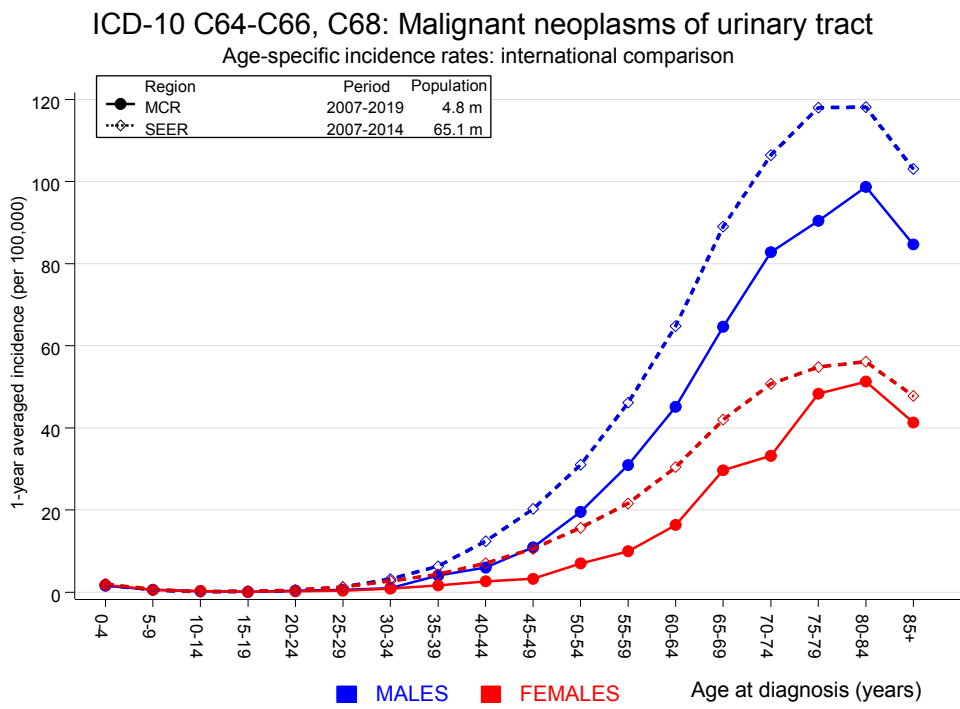


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence - SEER 18 Regs Research Data, released April 2019, based on the November 2018 submission. <http://www.seer.cancer.gov>.

Table 7a

Standardized incidence ratio (SIR, with 95% confidence limits),
excess absolute risk (EAR) and DCO rate of further malignancies
for period 1998–2019

MALES

Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C03-C06 Oral cavity	10	4.6	2.2	1.0	4.0 #	1.6	
C09-C10 Oropharynx	17	5.6	3.0	1.8	4.9 #	3.4	
C12-C13 Hypopharynx	7	3.1	2.3	0.9	4.7	1.2	
C15 Oesophagus	28	10.9	2.6	1.7	3.7 #	5.0	10.7
C16 Stomach	40	23.1	1.7	1.2	2.4 #	5.0	10.0
C17 Small intestine	14	3.3	4.2	2.3	7.0 #	3.1	
C18 Colon	128	56.4	2.3	1.9	2.7 #	21.2	8.6
C19-C20 Rectum	49	30.4	1.6	1.2	2.1 #	5.5	
C22 Liver	49	16.6	3.0	2.2	3.9 #	9.6	10.2
C23-C24 Bile	11	6.0	1.8	0.9	3.3	1.5	18.2
C25 Pancreas	58	22.4	2.6	2.0	3.3 #	10.5	19.0
C32 Larynx	14	5.7	2.5	1.3	4.1 #	2.5	7.1
C33-C34 Lung	208	68.0	3.1	2.7	3.5 #	41.3	13.9
C38,C45 Mesothelioma	7	4.1	1.7	0.7	3.6	0.9	14.3
C40-C41 Bone	3	0.4	6.7	1.4	19.6 #	0.8	
C43 Malign. melanoma	68	25.2	2.7	2.1	3.4 #	12.6	4.4
C46,C49 Soft tissue	14	3.2	4.3	2.4	7.3 #	3.2	
C48 Peritoneal	4	0.4	9.0	2.5	23.2 #	1.1	25.0
C60 Penis	6	1.4	4.1	1.5	9.0 #	1.3	
C61 Prostate	525	164.1	3.2	2.9	3.5 #	106.6	4.8
C62 Testis	8	1.3	6.0	2.6	11.9 #	2.0	
C64 Kidney	223	19.8	11.2	9.8	12.8 #	60.0	4.0
C65 Renal pelvis	53	2.6	20.4	15.3	26.6 #	14.9	
C66 Ureter	54	1.5	35.8	26.9	46.7 #	15.5	
C67 Bladder	261	27.2	9.6	8.5	10.8 #	69.0	9.6
C68 Urethra	16	0.5	30.5	17.4	49.5 #	4.6	
C68 Urinary org.	14	0.4	35.7	19.5	59.9 #	4.0	71.4
C70-C72 CNS cancer	17	7.2	2.3	1.4	3.8 #	2.9	5.9
C73 Thyroid	16	3.5	4.5	2.6	7.3 #	3.7	12.5
C76-C79 CUP	14	9.8	1.4	0.8	2.4	1.2	7.1
C82-C85 NHL	81	24.6	3.3	2.6	4.1 #	16.7	6.2
C90 Mult. myeloma	14	7.7	1.8	1.0	3.0	1.9	14.3
C91-C96 Leukaemia	14	8.9	1.6	0.9	2.6	1.5	14.3
Others, specified	18	10.4	1.7	1.0	2.7 #	2.2	11.1
Not observed	0	1.2	0.0	0.0	3.0	-0.4	
All further malignancies	2063	581.7	3.5	3.4	3.7 #	437.4	7.5

Patients	9033
Median age at next malignancy (years)	72.0
Person-years	33864
Mean observation time (years)	3.7
Median observation time (years)	1.9

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

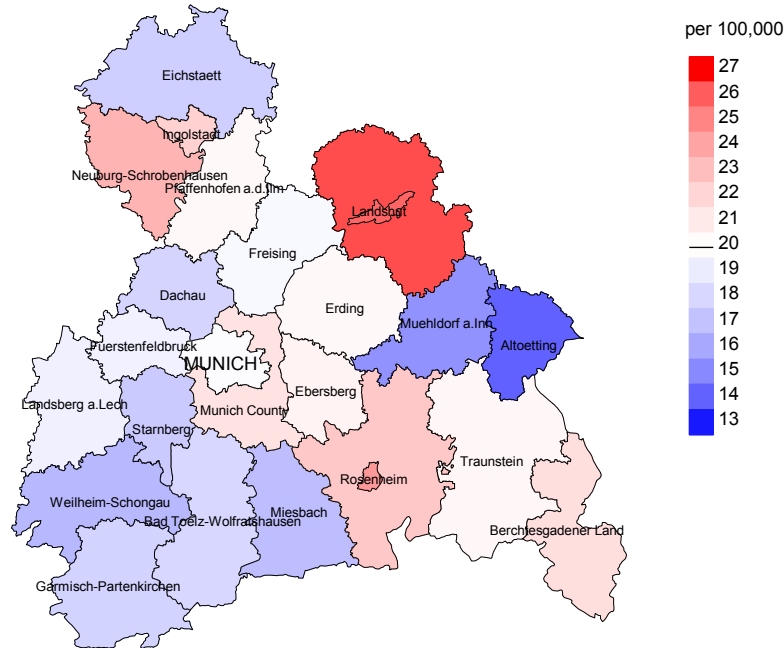
Diagnosis	Observed n	Expected n	SIR	CI 95%	CI 95%	EAR	DCO %
C15 Oesophagus	3	1.5	2.1	0.4	6.0	0.8	
C16 Stomach	20	8.5	2.3	1.4	3.6 #	6.1	
C17 Small intestine	4	1.2	3.4	0.9	8.6	1.5	
C18 Colon	47	24.1	1.9	1.4	2.6 #	12.3	6.4
C19–C20 Rectum	16	9.7	1.6	0.9	2.7	3.4	6.3
C22 Liver	9	3.0	3.0	1.4	5.7 #	3.2	11.1
C23–C24 Bile	15	3.6	4.2	2.3	6.9 #	6.1	13.3
C25 Pancreas	30	11.5	2.6	1.8	3.7 #	9.9	26.7
C33–C34 Lung	71	17.2	4.1	3.2	5.2 #	28.8	12.7
C43 Malign. melanoma	18	8.3	2.2	1.3	3.4 #	5.2	5.6
C46,C49 Soft tissue	5	1.3	3.7	1.2	8.7 #	2.0	
C50 Breast	166	66.9	2.5	2.1	2.9 #	53.1	4.8
C51 Vulva	6	2.6	2.3	0.9	5.1	1.8	16.7
C53 Cervix uteri	5	2.6	1.9	0.6	4.4	1.3	
C54 Corpus uteri	28	12.8	2.2	1.5	3.2 #	8.1	3.6
C56 Ovary	14	9.4	1.5	0.8	2.5	2.5	14.3
C64 Kidney	96	5.8	16.5	13.4	20.2 #	48.3	11.5
C65 Renal pelvis	18	0.8	22.8	13.5	36.1 #	9.2	
C66 Ureter	26	0.4	61.8	40.4	90.5 #	13.7	
C67 Bladder	110	4.9	22.6	18.6	27.2 #	56.3	10.0
C68 Urethra	2	0.1	29.6	3.6	106.9 #	1.0	
C68 Urinary org.	6	0.1	62.5	22.9	136.1 #	3.2	50.0
C70–C72 CNS cancer	7	3.1	2.3	0.9	4.7	2.1	28.6
C73 Thyroid	26	3.2	8.1	5.3	11.9 #	12.2	3.8
C76–C79 CUP	10	4.6	2.2	1.1	4.0 #	2.9	10.0
C82–C85 NHL	26	9.5	2.7	1.8	4.0 #	8.8	7.7
C90 Mult. myeloma	6	3.1	1.9	0.7	4.2	1.6	16.7
C91–C96 Leukaemia	11	3.6	3.1	1.5	5.5 #	4.0	9.1
Others, specified	12	6.4	1.9	1.0	3.3	3.0	16.7
Not observed	0	3.7	0.0	0.0	1.0	-2.0	
All further malignancies	813	233.3	3.5	3.2	3.7 #	310.6	8.9

Patients	4891
Median age at next malignancy (years)	74.8
Person-years	18667
Mean observation time (years)	3.8
Median observation time (years)	1.9

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

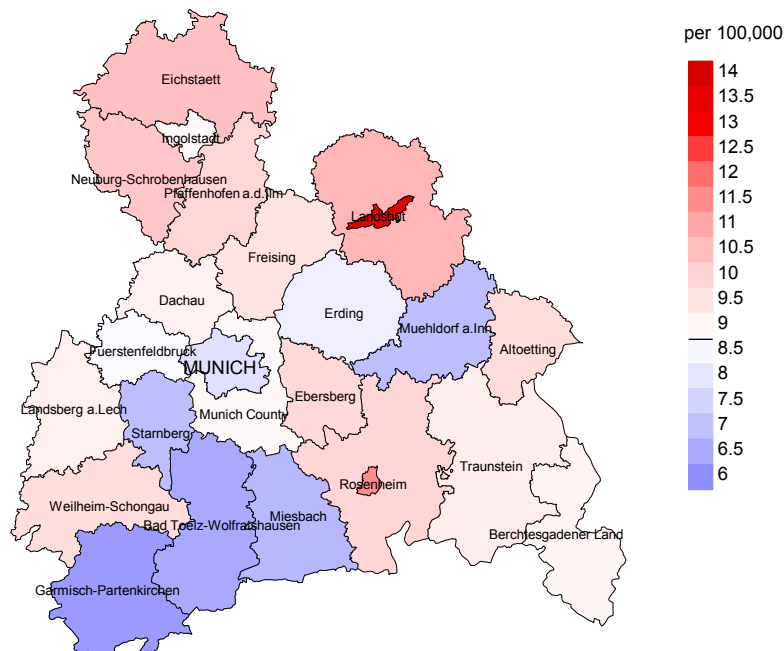
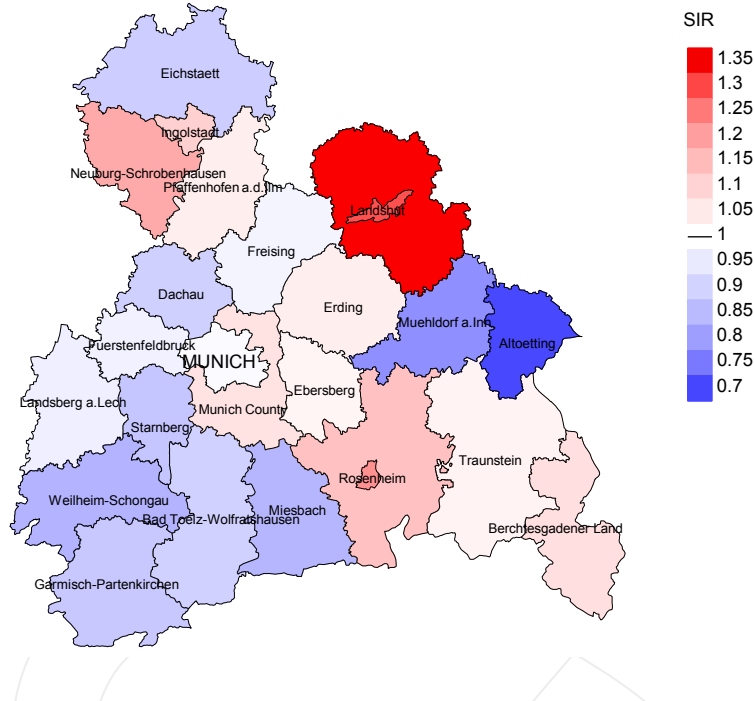


Figure 8a. Map of cancer incidence (german standard population, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 19.9/100,000 WS N=6,528, females 8.7/100,000 WS N=3,491).

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 108 women were identified with newly diagnosed urinary tract cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 9.8/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 7.5 and 12.6/100,000.

Standardized incidence ratio (SIR) 2007 - 2019: Males



Standardized incidence ratio (SIR) 2007 - 2019: Females

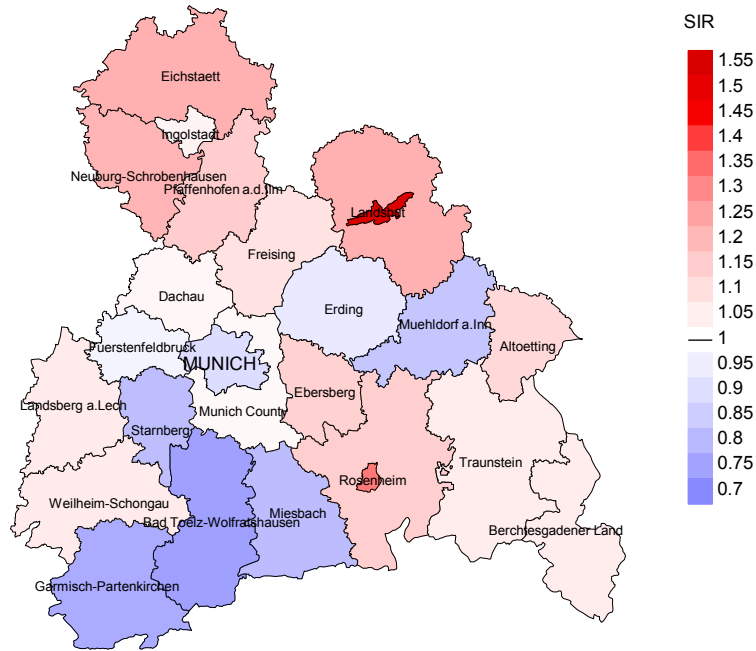


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=6,528, females N=3,491).

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 108 women were identified with newly diagnosed urinary tract cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.14. Though, the value of this parameter may vary with an underlying probability of 99% between 0.87 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	469	96.4	11.7	333	71.0	94.6
1999	457	95.2	10.9	313	68.5	94.2
2000	425	96.5	12.5	296	69.6	94.9
2001	421	96.7	11.9	304	72.2	97.4
2002	717	98.3	14.8	538	75.0	95.5
2003	713	95.1	11.2	490	68.7	95.9
2004	717	96.1	12.0	462	64.4	94.4
2005	786	95.9	6.1	496	63.1	94.6
2006	761	92.6	6.8	475	62.4	93.9
2007	875	92.0	9.5	541	61.8	93.7
2008	916	97.4	8.7	523	57.1	96.0
2009	918	97.6	8.5	520	56.6	93.3
2010	927	97.6	7.2	487	52.5	95.1
2011	874	97.7	7.2	448	51.3	93.8
2012	880	97.8	7.5	450	51.1	91.8
2013	827	97.8	8.0	392	47.4	93.1
2014	909	97.4	8.3	412	45.3	89.6
2015	807	92.7	10.8	335	41.5	91.0
2016	715	98.5	10.9	294	41.1	84.7
2017	663	99.4	9.2	214	32.3	80.4
2018	525	99.2	2.9	114	21.7	56.1
2019	377	65.0	2.4	43	11.4	74.4
1998-2019	15679	95.8	9.0	8480	54.1	92.8

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 4.92 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	469	252	93.7	78	16.6
1999	457	251	96.0	88	19.3
2000	425	260	95.4	76	17.9
2001	421	258	95.7	75	17.8
2002	717	377	97.3	149	20.8
2003	713	411	96.4	140	19.6
2004	717	401	96.8	130	18.1
2005	786	378	95.8	102	13.0
2006	761	420	97.6	105	13.8
2007	875	467	97.6	140	16.0
2008	916	499	99.2	136	14.8
2009	918	511	99.2	153	16.7
2010	927	543	98.5	141	15.2
2011	874	550	98.2	144	16.5
2012	880	572	98.3	154	17.5
2013	827	566	99.1	130	15.7
2014	909	571	98.8	142	15.6
2015	807	664	98.3	143	17.7
2016	715	641	99.5	140	19.6
2017	663	581	95.2	118	17.8
2018	525	436	39.4	44	8.4
2019	377	374	52.7	29	7.7
1998–2019	15679	9983	93.4	2557	16.3

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	252	65.1	34.9	79.2
1999	251	74.5	25.5	85.1
2000	260	72.3	27.7	83.9
2001	258	72.5	27.5	85.8
2002	377	71.4	28.6	85.8
2003	411	74.5	25.5	86.4
2004	401	70.3	29.7	82.2
2005	378	74.1	25.9	83.1
2006	420	71.2	28.8	78.5
2007	467	72.6	27.4	81.1
2008	499	71.5	28.5	81.4
2009	511	73.4	26.6	80.9
2010	543	68.9	31.1	77.9
2011	550	69.1	30.9	81.5
2012	572	62.2	37.8	72.2
2013	566	64.5	35.5	75.9
2014	571	66.4	33.6	75.2
2015	664	63.4	36.6	73.4
2016	641	61.5	38.5	74.1
2017	581	58.0	42.0	70.5
2018	436	44.7	55.3	61.0
2019	374	46.0	54.0	67.0
1998–2019	9983	66.2	33.8	78.1

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	163	71.4	69.5	76.4	70.5
1999	157	73.7	72.4	83.2	73.0
2000	162	73.5	69.7	78.9	72.5
2001	169	70.5	69.5	76.2	70.2
2002	218	74.3	73.6	74.6	74.7
2003	250	74.6	72.9	79.1	73.9
2004	232	74.3	73.2	77.3	73.6
2005	223	73.6	71.8	79.7	72.4
2006	261	73.9	72.4	77.4	72.9
2007	292	74.7	72.6	79.8	73.6
2008	316	74.9	73.4	78.7	74.4
2009	324	74.4	73.4	79.2	73.2
2010	327	75.5	74.1	78.6	74.6
2011	357	75.9	73.6	82.5	74.9
2012	336	77.3	75.3	80.7	75.7
2013	350	77.5	74.9	81.7	76.5
2014	362	77.1	75.1	82.1	76.1
2015	426	77.5	75.6	83.1	76.3
2016	410	78.1	76.3	81.2	77.4
2017	393	78.7	77.0	82.5	77.9
2018	295	78.9	75.8	80.8	77.9
2019	242	79.4	76.0	81.1	76.4
1998-2019	6265	76.1	74.0	80.4	74.9

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	89	80.8	77.7	82.4	80.9
1999	94	77.3	76.7	80.5	78.7
2000	98	76.7	76.3	77.8	77.4
2001	89	78.9	75.9	84.2	77.8
2002	159	78.5	75.6	82.5	76.9
2003	161	78.8	77.7	80.6	78.4
2004	169	81.1	80.0	83.1	80.7
2005	155	78.2	75.1	83.1	76.0
2006	159	78.9	78.2	81.6	77.8
2007	175	80.0	78.7	82.3	79.9
2008	183	80.4	78.1	85.0	78.4
2009	187	80.9	77.6	85.7	78.6
2010	216	81.0	78.5	85.6	79.5
2011	193	81.9	79.3	87.3	80.4
2012	236	80.1	77.3	84.1	77.6
2013	216	80.5	77.3	84.8	78.8
2014	209	81.7	79.7	86.1	80.2
2015	238	81.2	78.6	86.3	79.6
2016	231	82.5	78.6	86.5	79.9
2017	188	82.8	80.5	87.0	81.5
2018	141	83.1	80.7	85.7	81.4
2019	132	80.5	78.5	82.8	78.2
1998-2019	3718	80.6	78.3	84.5	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	114	10.3	0.40	6.0	0.37	9.3	0.40	12.4	0.43
1999	118	10.5	0.43	6.0	0.39	9.5	0.43	13.3	0.48
2000	117	10.3	0.43	5.8	0.39	9.2	0.43	12.7	0.49
2001	125	10.8	0.52	6.1	0.50	9.4	0.52	12.3	0.54
2002	160	8.6	0.37	4.5	0.34	7.3	0.38	10.2	0.41
2003	191	10.2	0.44	5.4	0.39	8.4	0.43	11.7	0.49
2004	168	8.9	0.38	4.5	0.33	7.2	0.37	9.9	0.42
2005	162	8.6	0.33	4.3	0.30	6.7	0.32	9.1	0.36
2006	192	10.0	0.42	5.0	0.37	7.7	0.40	10.4	0.43
2007	222	10.0	0.40	4.9	0.36	7.7	0.39	10.5	0.43
2008	224	10.1	0.39	4.7	0.33	7.4	0.37	10.4	0.42
2009	242	10.8	0.43	5.0	0.37	7.8	0.40	10.7	0.44
2010	226	10.0	0.39	4.5	0.34	7.0	0.37	9.9	0.41
2011	257	11.5	0.47	5.1	0.40	8.0	0.43	10.8	0.47
2012	213	9.4	0.39	3.8	0.31	6.2	0.34	8.7	0.38
2013	236	10.3	0.45	4.3	0.37	6.8	0.41	9.6	0.45
2014	236	10.1	0.40	4.2	0.33	6.7	0.36	9.2	0.40
2015	285	12.0	0.53	4.9	0.44	7.7	0.48	10.8	0.53
2016	272	11.3	0.58	4.6	0.49	7.3	0.53	10.1	0.57
2017	235	9.7	0.55	3.8	0.44	6.0	0.48	8.6	0.54
2018	133	5.5	0.37	2.3	0.31	3.5	0.33	4.8	0.36
2019	114	4.7	0.46	2.0	0.38	3.0	0.41	4.1	0.45
1998-2019	4242	9.6	0.43	4.4	0.37	6.9	0.40	9.5	0.44

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	50	4.3	0.28	1.5	0.21	2.4	0.23	3.3	0.26
1999	69	5.8	0.40	2.2	0.30	3.5	0.34	4.8	0.39
2000	71	5.9	0.48	2.2	0.38	3.5	0.42	4.9	0.46
2001	62	5.1	0.36	1.9	0.29	3.0	0.31	4.2	0.35
2002	109	5.6	0.38	2.1	0.31	3.3	0.34	4.5	0.37
2003	115	5.8	0.43	2.1	0.35	3.3	0.38	4.6	0.42
2004	114	5.8	0.43	1.9	0.30	3.0	0.34	4.3	0.38
2005	119	6.0	0.43	2.3	0.37	3.4	0.38	4.6	0.39
2006	107	5.3	0.38	1.8	0.27	2.9	0.31	4.0	0.34
2007	118	5.1	0.39	1.5	0.26	2.6	0.32	3.9	0.37
2008	133	5.7	0.41	1.9	0.29	3.0	0.32	4.2	0.36
2009	135	5.8	0.40	2.0	0.30	3.1	0.33	4.3	0.36
2010	148	6.3	0.45	2.0	0.35	3.2	0.38	4.8	0.44
2011	123	5.3	0.40	1.7	0.27	2.7	0.32	3.8	0.37
2012	143	6.1	0.48	1.9	0.38	3.1	0.41	4.5	0.45
2013	129	5.4	0.46	1.7	0.33	2.7	0.37	3.9	0.41
2014	144	6.0	0.46	1.8	0.34	2.9	0.37	4.3	0.43
2015	136	5.6	0.53	1.7	0.39	2.7	0.44	3.9	0.50
2016	122	5.0	0.53	1.6	0.40	2.4	0.44	3.5	0.49
2017	102	4.1	0.46	1.2	0.35	1.9	0.38	2.7	0.40
2018	63	2.5	0.39	0.7	0.25	1.1	0.29	1.7	0.33
2019	58	2.3	0.48	0.6	0.31	1.1	0.36	1.6	0.42
1998-2019	2370	5.2	0.43	1.7	0.32	2.7	0.35	3.8	0.39

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	0.0	0.1			0.1	2	0.1	0.1
15-19	1	0.0	0.1	1	0.0	0.1			0.1
20-24	2	0.0	0.2	1	0.0	0.2	1	0.1	0.2
25-29	3	0.1	0.2	2	0.1	0.2	1	0.1	0.3
30-34	2	0.0	0.3	2	0.1	0.3			0.3
35-39	9	0.2	0.5	5	0.2	0.5	4	0.3	0.5
40-44	21	0.5	1.0	13	0.4	0.9	8	0.5	1.0
45-49	51	1.1	2.1	40	1.4	2.3	11	0.7	1.7
50-54	125	2.8	4.9	90	3.1	5.4	35	2.3	4.0
55-59	193	4.3	9.3	148	5.1	10.5	45	2.9	6.9
60-64	330	7.4	16.7	258	8.9	19.4	72	4.6	11.5
65-69	510	11.5	28.1	346	12.0	31.4	164	10.6	22.1
70-74	763	17.1	45.3	555	19.2	50.6	208	13.4	35.5
75-79	899	20.2	65.5	580	20.0	70.6	319	20.5	56.0
80-84	848	19.1	84.6	487	16.8	87.4	361	23.2	79.2
85+	687	15.4	100.0	364	12.6	100.0	323	20.8	100.0
All ages	4449	100.0		2895	100.0		1554	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	1	0.1	0.14	0.1	0.25	1.5	2.6
25-29	2	1	0.1	0.17	0.0	0.13	2.4	1.1
30-34	2		0.1	0.09			1.6	
35-39	5	4	0.2	0.06	0.2	0.12	2.1	1.1
40-44	13	8	0.6	0.09	0.4	0.13	2.3	1.0
45-49	40	11	1.6	0.15	0.5	0.14	3.0	0.7
50-54	90	35	3.8	0.20	1.5	0.21	3.6	1.4
55-59	148	45	7.6	0.25	2.3	0.23	3.6	1.3
60-64	258	72	15.8	0.35	4.1	0.25	4.3	1.6
65-69	346	164	22.8	0.35	9.7	0.33	4.0	2.5
70-74	555	208	39.6	0.48	13.0	0.39	5.0	2.5
75-79	580	319	52.4	0.58	23.2	0.48	5.1	3.5
80-84	487	361	74.2	0.75	37.1	0.72	5.2	4.2
85+	364	323	85.4	1.01	33.5	0.81	4.4	2.9
All ages	2895	1554					4.5	2.7
Mortality								
Raw			9.6	0.44	5.0	0.45		
WS			4.1	0.37	1.5	0.32		
ES			6.5	0.40	2.5	0.36		
BRD-S			8.9	0.45	3.6	0.41		
PYLL-70								
per 100,000			30.5		11.2			
ES			26.4		9.4			
AYLL-70			8.9		8.5			

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	20	0.8	10	50.0	2	10.0	8	40.0
C09-C10 Oropharynx	34	1.3	16	47.1	2	5.9	16	47.1
C12-C13 Hypopharynx	13	0.5	5	38.5	1	7.7	7	53.8
C15 Oesophagus	38	1.4	10	26.3	1	2.6	27	71.1
C16 Stomach	71	2.7	26	36.6	8	11.3	37	52.1
C17 Small intestine	13	0.5	7	53.8	1	7.7	5	38.5
C18 Colon	209	7.9	90	43.1	34	16.3	85	40.7
C19-C20 Rectum	90	3.4	30	33.3	21	23.3	39	43.3
C21 Anus/canal	6	0.2	3	50.0	1	16.7	2	33.3
C22 Liver	56	2.1	9	16.1	10	17.9	37	66.1
C23-C24 Bile	18	0.7	2	11.1	2	11.1	14	77.8
C25 Pancreas	77	2.9	3	3.9	12	15.6	62	80.5
C32 Larynx	29	1.1	18	62.1	2	6.9	9	31.0
C33-C34 Lung	274	10.3	52	19.0	32	11.7	190	69.3
C38,C45 Mesothelioma	12	0.5	1	8.3	1	8.3	10	83.3
C43 Malign. melanoma	70	2.6	46	65.7	4	5.7	20	28.6
C44 Skin others	109	4.1	48	44.0	5	4.6	56	51.4
C46,C49 Soft tissue	22	0.8	9	40.9	2	9.1	11	50.0
C48 Peritoneal	6	0.2	2	33.3			4	66.7
C61 Prostate	565	21.2	250	44.2	84	14.9	231	40.9
C62 Testis	15	0.6	14	93.3			1	6.7
C64 Kidney	154	5.8	16	10.4	46	29.9	92	59.7
C65 Renal pelvis	54	2.0	16	29.6	28	51.9	10	18.5
C66 Ureter	43	1.6	24	55.8	13	30.2	6	14.0
C67 Bladder	404	15.2	199	49.3	62	15.3	143	35.4
C68 Urethra	7	0.3	5	71.4			2	28.6
C68 Urinary org.	5	0.2	3	60.0	1	20.0	1	20.0
C69 Eye melanoma	5	0.2	4	80.0			1	20.0
C70-C72 CNS cancer	26	1.0	6	23.1	2	7.7	18	69.2
C73 Thyroid	22	0.8	10	45.5			12	54.5
C76-C79 CUP	34	1.3	16	47.1	4	11.8	14	41.2
C82-C85 NHL	82	3.1	26	31.7	13	15.9	43	52.4
C90 Mult. myeloma	28	1.1	13	46.4	3	10.7	12	42.9
C91-C96 Leukaemia	23	0.9	2	8.7	1	4.3	20	87.0
Others, specified	26	1.0	13	50.0	3	11.5	10	38.5
All further malignancies	2660	100.0	1004	37.7	401	15.1	1255	47.2

Further malignancies with number of cases 1 to 4 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 ←%
C03-C06 Oral cavity	2	0.2	1	50.0			1	50.0
C07-C08 Salivary gland	3	0.3	3	100.0				
C09-C10 Oropharynx	2	0.2	1	50.0			1	50.0
C15 Oesophagus	5	0.4			1	20.0	4	80.0
C16 Stomach	32	2.7	9	28.1	8	25.0	15	46.9
C17 Small intestine	4	0.3	2	50.0			2	50.0
C18 Colon	74	6.3	28	37.8	10	13.5	36	48.6
C19-C20 Rectum	35	3.0	14	40.0	5	14.3	16	45.7
C21 Anus/canal	2	0.2			1	50.0	1	50.0
C22 Liver	12	1.0	2	16.7	4	33.3	6	50.0
C23-C24 Bile	18	1.5	1	5.6	4	22.2	13	72.2
C25 Pancreas	48	4.1	4	8.3	5	10.4	39	81.3
C26 GI cancer	2	0.2					2	100.0
C33-C34 Lung	101	8.6	13	12.9	15	14.9	73	72.3
C43 Malign. melanoma	26	2.2	15	57.7	3	11.5	8	30.8
C44 Skin others	43	3.7	26	60.5	2	4.7	15	34.9
C46,C49 Soft tissue	9	0.8	3	33.3	1	11.1	5	55.6
C48 Peritoneal	3	0.3	1	33.3	1	33.3	1	33.3
C50 Breast	243	20.8	141	58.0	18	7.4	84	34.6
C51 Vulva	6	0.5	4	66.7			2	33.3
C53 Cervix uteri	33	2.8	25	75.8	1	3.0	7	21.2
C54 Corpus uteri	44	3.8	28	63.6	5	11.4	11	25.0
C55,C57 Fem. genitals un	7	0.6	5	71.4			2	28.6
C56 Ovary	35	3.0	13	37.1	5	14.3	17	48.6
C64 Kidney	62	5.3	3	4.8	17	27.4	42	67.7
C65 Renal pelvis	24	2.0	7	29.2	11	45.8	6	25.0
C66 Ureter	10	0.9	5	50.0	3	30.0	2	20.0
C67 Bladder	139	11.9	48	34.5	22	15.8	69	49.6
C68 Urethra	2	0.2	2	100.0				
C68 Urinary org.	4	0.3	3	75.0			1	25.0
C69 Eye melanoma	2	0.2	1	50.0	1	50.0		
C70-C72 CNS cancer	11	0.9			2	18.2	9	81.8
C73 Thyroid	32	2.7	14	43.8	2	6.3	16	50.0
C74-C80 Cancer others	3	0.3	1	33.3	1	33.3	1	33.3
C76-C79 CUP	22	1.9	4	18.2	2	9.1	16	72.7
C82-C85 NHL	42	3.6	18	42.9	8	19.0	16	38.1
C90 Mult. myeloma	11	0.9	2	18.2	1	9.1	8	72.7
C91-C96 Leukaemia	10	0.9	2	20.0	3	30.0	5	50.0
Others, specified	8	0.7	3	37.5	1	12.5	4	50.0

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 ←%
All further malignancies	1171	100.0	452	38.6	163	13.9	556	47.5

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

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

Table 15

Age-specific mortality (cancer-related) and proportion of all cancers
for period 2007-2019
(**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	1	0.1	0.17	0.1	0.25	1.7	2.7
25-29	2	1	0.1	0.18	0.0	0.13	2.6	1.2
30-34	2		0.1	0.10			1.6	
35-39	4	4	0.2	0.05	0.2	0.12	1.8	1.2
40-44	11	7	0.5	0.09	0.3	0.14	2.1	1.0
45-49	36	9	1.4	0.14	0.4	0.13	2.9	0.7
50-54	66	25	2.8	0.17	1.1	0.19	3.0	1.2
55-59	111	34	5.7	0.23	1.7	0.22	3.1	1.1
60-64	195	45	12.0	0.34	2.6	0.21	3.9	1.2
65-69	245	130	16.1	0.37	7.7	0.34	3.6	2.5
70-74	369	144	26.3	0.50	9.0	0.37	4.3	2.3
75-79	366	227	33.1	0.61	16.5	0.48	4.4	3.3
80-84	294	261	44.8	0.84	26.8	0.78	4.3	4.0
85+	219	253	51.4	1.13	26.2	0.87	3.7	2.9
All ages	1925	1141					3.9	2.5
Mortality								
Raw			6.4	0.43	3.7	0.44		
WS			2.8	0.35	1.1	0.31		
ES			4.4	0.39	1.8	0.35		
BRD-S			5.9	0.43	2.6	0.40		
PYLL-70								
per 100,000			23.8		8.2			
ES			20.7		6.7			
AYLL-70			9.3		8.4			

* 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	1	0.1	0.17	0.1	0.25	1.7	2.8
25-29	2	1	0.1	0.18	0.0	0.13	2.6	1.2
30-34	2		0.1	0.11			1.6	
35-39	4	2	0.2	0.05	0.1	0.06	1.8	0.6
40-44	11	5	0.5	0.09	0.2	0.11	2.1	0.7
45-49	32	8	1.3	0.13	0.3	0.13	2.6	0.6
50-54	57	22	2.4	0.17	1.0	0.17	2.6	1.1
55-59	92	30	4.7	0.22	1.5	0.21	2.6	1.0
60-64	164	34	10.1	0.35	1.9	0.19	3.3	0.9
65-69	184	112	12.1	0.33	6.6	0.34	2.7	2.2
70-74	268	100	19.1	0.46	6.2	0.31	3.3	1.6
75-79	246	163	22.2	0.49	11.8	0.39	3.1	2.4
80-84	190	198	28.9	0.62	20.3	0.68	3.0	3.1
85+	127	181	29.8	0.72	18.8	0.67	2.3	2.2
All ages	1384	857					2.9	2.0
Mortality								
Raw			4.6	0.36	2.8	0.38		
WS			2.1	0.31	0.9	0.27		
ES			3.2	0.33	1.4	0.30		
BRD-S			4.3	0.36	2.0	0.34		
PYLL-70								
per 100,000			20.5		6.8			
ES			18.0		5.6			
AYLL-70			9.8		8.2			

* See corresponding tables with multiple malignancies.

ICD-10 C64-C66, C68: Malignant neoplasms of urinary tract
 Age distribution and age-specific mortality 2007 - 2019 (Males: 2895, Females: 1554)

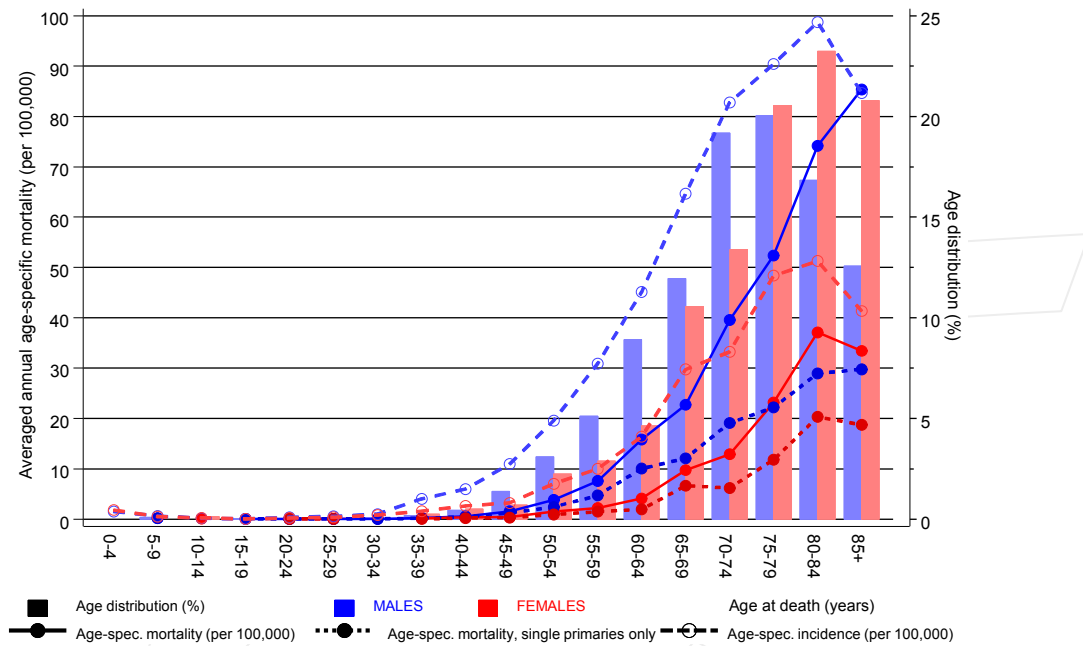
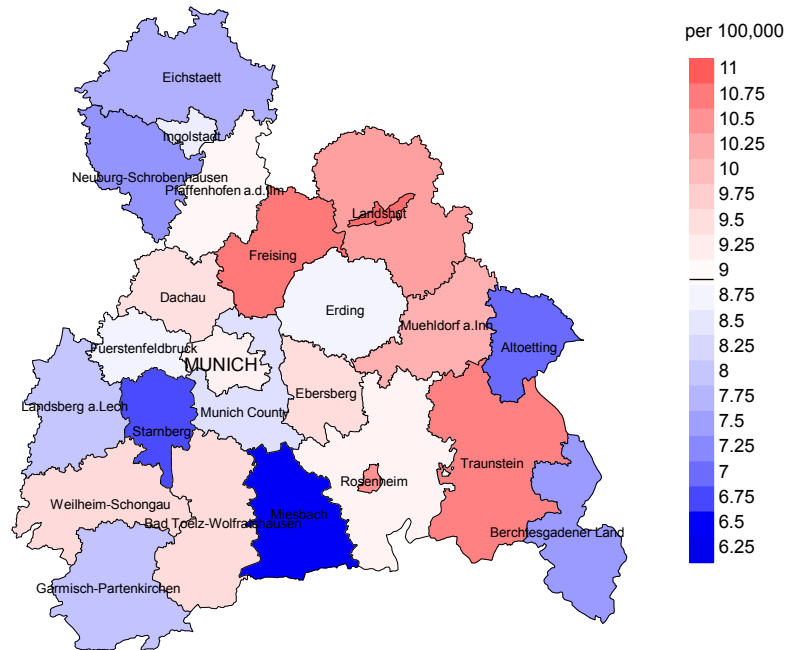


Figure 17. Distribution of age at death (bars; males: mean=68.6 yrs, median=69.7 yrs; females: mean=71.6 yrs, median=73.4 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

The difference between age at diagnosis (Table 3) and age at urinary tract 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

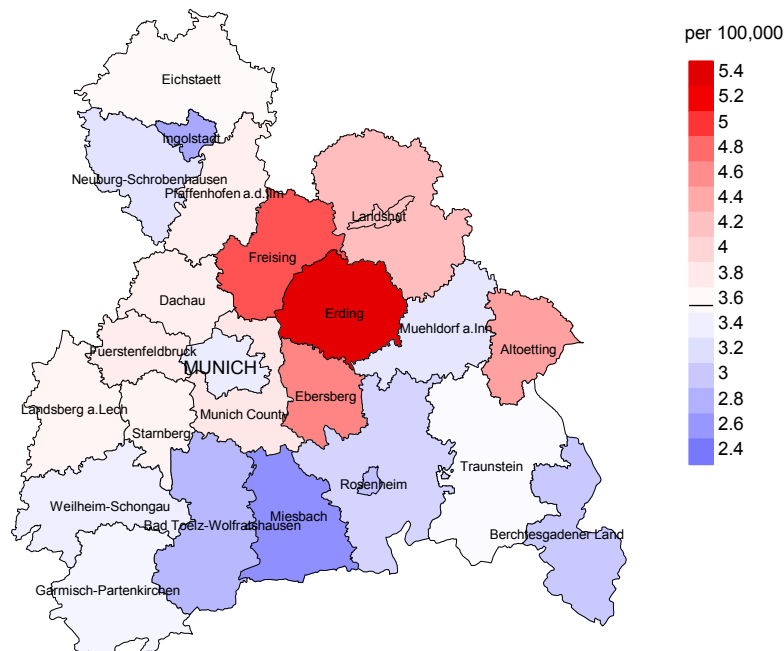
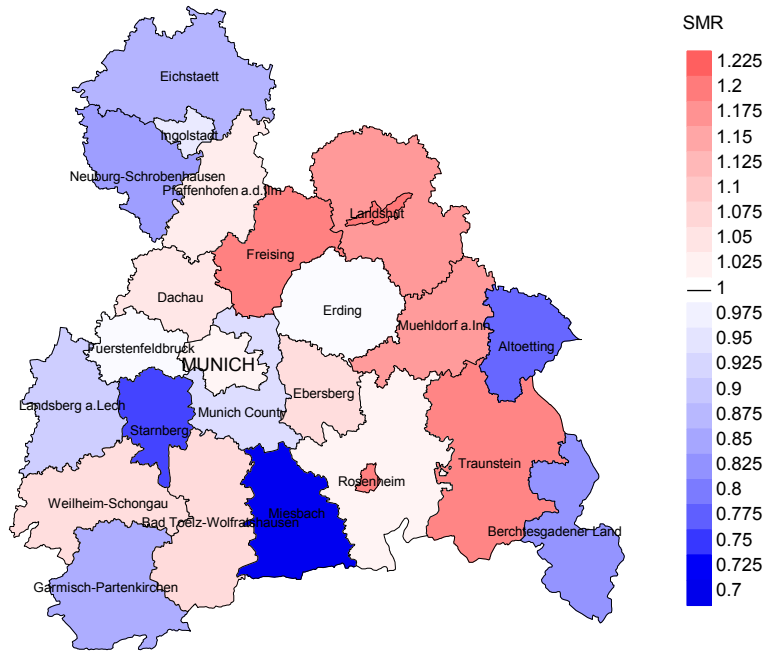


Figure 18a. Map of cancer mortality (german standard population) by county averaged for period 2007 to 2019. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 8.9/100,000 WS N=2,895, females 3.6/100,000 WS N=1,554).

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 57 women died from urinary tract cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 4.7/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 3.2 and 6.6/100,000.

Standardized mortality ratio (SMR) 2007 - 2019: Males



Standardized mortality ratio (SMR) 2007 - 2019: Females

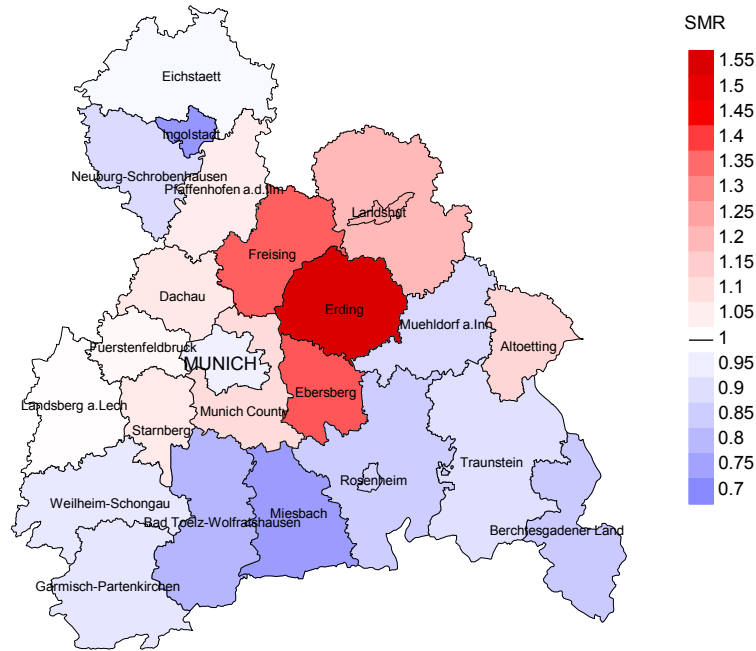


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2019. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=2,895, females N=1,554).

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 57 women died from urinary tract cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 1.37. Though, the value of this parameter may vary with an underlying probability of 99% between 0.95 and 1.92, 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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