Munich Cancer Registry

- Survival
- Selection Matrix
- Homepage
- *Deutsch*

Munich Cancer Registry at Munich Cancer Center
Marchioninistr. 15
Munich, 81377
Germany

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

Cancer statistics: Baseline statistics

C64-C68: Urinary tract cancer

Year of diagnosis	1998-2013
Patients	19,224
Diseases	19,968
Creation date	05/19/2015
Export date	12/30/2014
Population	4.64 m

http://www.tumorregister-muenchen.de/en/facts/base/base_C6468E.pdf

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 4.64 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. The time-delayed acquisition of data and the occasionally high DCO-rates indicate optimizing reserves, among others, because of current financial and legal conditions that hinder the analyses.

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, May 2015

[#] 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 2.51 million to 3.96 in 2002, and to 4.52 million in 2007). Death certificates from 2014 are incorporated into these analyses.

[##] 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. A high proportion of DCO cases (≥5%) in particular cancer types indicate insufficient participation of specific cancer specializations.

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
C67.-	Malignant neoplasm of bladder
C68.-	Malignant neoplasm of other and unspecified urinary organs

INCIDENCE

Table 1

Patient cohorts by year of diagnosis including DCO cases and multiple primaries, and with proportion of deaths and active follow-up

Year of diagnosis	Cases n	DCO cases n	Prop. DCO %	Prop. mult. primaries %	Prop. deaths %	Prop. actively followed %	
1998	770	59	7.7	33.1	69.0	98.2	
1999	732	53	7.2	34.2	68.7	98.1	
2000	707	69	9.8	35.1	67.2	97.7	
2001	723	66	9.1	35.0	66.7	98.3	
2002	1338	181	13.5	37.4	71.4	98.2	#
2003	1317	149	11.3	35.1	65.9	97.3	
2004	1300	147	11.3	38.1	62.2	97.7	
2005	1343	97	7.2	38.4	55.4	96.5	
2006	1389	98	7.1	37.0	57.7	93.9	
2007	1496	123	8.2	36.4	53.2	83.9	# ##
2008	1561	133	8.5	38.4	51.4	70.9	
2009	1556	126	8.1	40.7	50.3	70.5	
2010	1537	125	8.1	39.8	46.0	67.9	
2011	1496	107	7.2	38.5	44.1	69.3	
2012	1469	112	7.6	37.7	37.3	66.6	
2013	1234	115	9.3	37.4	25.9	97.6	###
1998-2013	19968	1760	8.8	37.4	54.0	85.5	

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

Since 2007 the percentage of actively followed patients sharply declined compared to the previous years. This is a consequence of ambiguous data protection rules that currently forbid cancer registries in Bavaria to obtain the essential life status informations from competent registration offices.

Please be aware that data of recent annual patient cohorts may not yet be fully processed. Therefore, the presented figures and tables are potentially related to different time periods as pointed out in the respective headlines or legends.

Table 1a

Patient cohorts by year of diagnosis and gender
including DCO cases

Year of diagnosis	All n	Males n	Females n	Prop. males %
1998	770	502	268	65.2
1999	732	494	238	67.5
2000	707	467	240	66.1
2001	723	447	276	61.8
2002	1338	875	463	65.4
2003	1317	891	426	67.7
2004	1300	863	437	66.4
2005	1343	896	447	66.7
2006	1389	925	464	66.6
2007	1496	1001	495	66.9
2008	1561	1052	509	67.4
2009	1556	1044	512	67.1
2010	1537	1026	511	66.8
2011	1496	1010	486	67.5
2012	1469	1011	458	68.8
2013	1234	837	397	67.8
1998-2013	19968	13341	6627	66.8

Table 2

Incidence measures by year of diagnosis and gender including DCO cases
(with respect to registry area expansion from 2.51 to 3.96 m as of 2002,
and from 3.96 to 4.64 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	502	268	45.3	22.8	27.9	10.3	41.5	15.1	53.6	19.2
1999	494	238	44.1	20.1	26.6	9.6	39.6	13.8	51.1	17.2
2000	467	240	41.0	20.0	24.5	8.3	36.6	12.6	48.1	16.5
2001	447	276	38.6	22.7	22.8	9.6	33.9	14.6	43.4	18.9
2002	875	463	47.0	23.6	25.7	10.0	39.6	14.8	52.8	19.2
2003	891	426	47.5	21.6	26.4	8.8	39.4	13.2	51.7	17.2
2004	863	437	45.9	22.1	25.1	9.0	37.4	13.5	49.0	17.8
2005	896	447	47.3	22.5	25.3	9.4	37.8	13.8	48.8	17.9
2006	925	464	48.3	23.1	25.5	10.2	38.0	14.6	49.7	18.5
2007	1001	495	45.2	21.4	23.6	8.8	35.1	12.9	45.3	16.9
2008	1052	509	47.3	21.9	24.1	9.3	36.1	13.5	46.8	17.5
2009	1044	512	46.8	22.0	23.5	8.9	35.2	13.1	46.0	17.2
2010	1026	511	45.5	21.8	22.4	7.9	33.5	12.2	43.4	16.2
2011	1010	486	44.2	20.6	21.7	8.9	32.3	12.5	41.7	15.8
2012	1011	458	44.3	19.4	21.2	7.4	31.9	11.2	42.2	15.1
2013	837	397	36.6	16.8	17.5	7.0	26.3	10.1	34.7	12.8
1998-2013	13341	6627	44.9	21.3	23.5	8.8	35.2	13.0	45.8	16.9

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

Table 3

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	770	68.6	13.6	2.8	99.7	51.6	61.1	69.9	77.8	85.3
1999	732	67.9	12.7	1.1	94.3	52.6	59.5	68.3	77.1	84.1
2000	707	69.2	12.6	0.3	99.7	53.6	61.4	70.0	78.2	85.2
2001	723	69.2	12.3	1.9	96.4	53.5	61.5	69.4	78.3	84.9
2002	1338	70.9	12.2	2.4	99.5	55.4	63.4	72.2	79.6	85.9
2003	1317	70.4	13.0	0.4	103	54.4	63.2	71.3	79.3	85.6
2004	1300	70.1	13.1	0.0	99.0	54.2	62.7	71.2	79.2	85.1
2005	1343	69.9	12.8	0.7	101	54.6	62.6	70.8	79.0	84.6
2006	1389	70.0	13.4	0.2	101	53.6	63.1	71.2	78.8	85.2
2007	1496	70.2	13.4	1.2	101	53.4	64.0	71.3	79.3	85.3
2008	1561	70.5	12.9	0.6	100	53.5	63.6	71.5	79.6	85.6
2009	1556	70.5	13.1	0.5	103	53.8	63.5	71.8	79.8	85.1
2010	1537	71.1	12.9	5.4	100	53.7	63.4	72.3	80.6	86.5
2011	1496	70.7	13.8	0.5	97.6	53.3	63.5	72.2	79.9	86.5
2012	1469	71.3	12.4	1.4	103	54.9	64.4	72.9	80.1	85.0
2013	1234	71.0	13.2	0.3	101	54.0	64.1	72.2	80.2	86.0
1998-2013	19968	70.3	13.0	0.0	103	53.9	63.0	71.5	79.4	85.4

Table 3a

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	502	67.6	13.5	5.0	95.6	50.7	60.1	68.9	76.6	84.3
1999	494	67.1	12.3	2.3	94.1	52.6	59.4	67.1	76.0	82.7
2000	467	67.6	12.7	0.3	99.7	52.3	60.7	68.1	76.7	81.6
2001	447	67.5	11.2	1.9	95.1	53.3	60.7	67.4	75.6	81.4
2002	875	69.9	11.7	32.7	97.6	54.8	62.7	70.9	78.2	83.8
2003	891	69.0	12.8	0.4	101	53.3	62.1	69.7	77.6	83.7
2004	863	68.6	12.9	0.0	98.8	53.4	61.4	69.7	77.7	82.8
2005	896	68.7	11.7	0.7	101	54.6	61.7	69.0	77.0	82.9
2006	925	69.3	12.5	0.8	101	54.1	62.7	70.0	77.9	83.6
2007	1001	69.1	12.6	1.3	101	53.2	63.0	70.1	77.3	83.7
2008	1052	69.8	12.5	1.8	100	52.7	62.9	70.7	78.5	85.0
2009	1044	69.6	12.6	0.5	97.4	53.3	62.5	70.8	78.3	84.1
2010	1026	69.3	12.6	5.4	99.1	52.3	61.2	70.8	78.5	84.1
2011	1010	70.3	12.7	1.5	96.9	52.8	62.8	71.4	79.1	85.8
2012	1011	70.3	12.5	1.4	103	53.8	62.8	72.2	79.1	84.3
2013	837	70.5	12.3	2.0	98.6	54.4	63.8	71.7	79.2	84.6
1998-2013	13341	69.3	12.5	0.0	103	53.3	62.0	70.3	77.9	83.9

Table 3b

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

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	268	70.5	13.7	2.8	99.7	55.0	62.6	72.4	79.3	86.2
1999	238	69.4	13.5	1.1	94.3	52.6	60.8	71.6	78.7	85.6
2000	240	72.4	11.9	37.2	94.5	58.7	63.6	73.9	81.0	87.4
2001	276	72.0	13.4	30.6	96.4	54.2	64.2	73.7	81.2	88.2
2002	463	72.8	12.8	2.4	99.5	57.9	65.3	74.1	81.9	87.7
2003	426	73.2	13.0	2.5	103	56.8	65.6	75.1	82.6	87.9
2004	437	72.9	13.1	18.5	99.0	56.5	65.0	74.8	82.2	88.3
2005	447	72.3	14.6	4.2	98.8	54.0	64.3	74.9	82.1	88.7
2006	464	71.3	15.1	0.2	96.7	52.5	64.6	74.0	81.7	87.5
2007	495	72.4	14.6	1.2	99.1	55.6	67.0	74.7	82.3	87.1
2008	509	71.9	13.6	0.6	97.0	56.0	64.7	73.7	81.9	86.9
2009	512	72.4	13.7	2.5	103	55.5	66.2	74.3	82.1	87.0
2010	511	74.6	12.8	5.4	100	56.5	68.3	75.7	84.3	89.4
2011	486	71.5	15.8	0.5	97.6	53.6	65.2	74.1	81.6	88.0
2012	458	73.5	11.9	9.7	96.4	58.0	67.3	75.2	82.0	87.1
2013	397	72.0	14.8	0.3	101	52.6	65.2	73.6	81.6	88.2
1998-2013	6627	72.4	13.8	0.2	103	55.6	65.2	74.2	81.9	87.7

Table 4

Age distribution by 5-year age group and gender for period 1998-2013 (incl. DCO)

Age at diagnosis Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4	71	0.4	0.4	38	0.3	0.3	33	0.5	0.5
5-9	20	0.1	0.5	10	0.1	0.4	10	0.2	0.6
10-14	5	0.0	0.5	3	0.0	0.4	2	0.0	0.7
15-19	3	0.0	0.5			0.4	3	0.0	0.7
20-24	11	0.1	0.6	4	0.0	0.4	7	0.1	0.8
25-29	21	0.1	0.7	13	0.1	0.5	8	0.1	1.0
30-34	65	0.3	1.0	35	0.3	0.8	30	0.5	1.4
35-39	203	1.0	2.0	136	1.0	1.8	67	1.0	2.4
40-44	305	1.5	3.5	224	1.7	3.5	81	1.2	3.6
45-49	595	3.0	6.5	453	3.4	6.9	142	2.1	5.8
50-54	945	4.7	11.2	706	5.3	12.2	239	3.6	9.4
55-59	1505	7.5	18.8	1088	8.2	20.3	417	6.3	15.7
60-64	2254	11.3	30.1	1656	12.4	32.7	598	9.0	24.7
65-69	3004	15.0	45.1	2155	16.2	48.9	849	12.8	37.5
70-74	3258	16.3	61.4	2260	16.9	65.8	998	15.1	52.6
75-79	3095	15.5	76.9	2003	15.0	80.8	1092	16.5	69.1
80-84	2441	12.2	89.1	1465	11.0	91.8	976	14.7	83.8
85+	2167	10.9	100.0	1092	8.2	100.0	1075	16.2	100.0
All ages	19968	100.0		13341	100.0		6627	100.0	

Included in the statistics are 50.4% multiple primaries in males and 36.1% in females.

Table 5

Age-specific incidence, DCO rate and proportion of all cancers
for period 1998-2013

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males DCO rate n=926 %	Females DCO rate n=804 %	Males Prop.all cancers n=158258 %	Females Prop.all cancers n=153136 %
0- 4	36	32	2.4	2.3			11.1	13.1
5- 9	10	9	0.7	0.6			5.7	7.2
10-14	3	2	0.2	0.1			1.8	1.2
15-19		3	0.0	0.2				1.0
20-24	4	7	0.2	0.4			0.7	1.3
25-29	13	8	0.6	0.4			1.3	0.7
30-34	35	30	1.5	1.4	2.9		2.3	1.5
35-39	136	65	5.5	2.7			6.0	1.7
40-44	219	80	8.4	3.2	0.9		6.8	1.3
45-49	447	140	18.9	6.1	0.4	0.7	8.4	1.6
50-54	688	237	34.1	11.5	1.3	0.4	8.0	2.1
55-59	1063	414	57.9	21.5	2.0	2.2	7.3	3.0
60-64	1622	592	91.5	31.6	2.7	1.4	7.5	3.4
65-69	2105	831	133.3	48.2	3.8	3.4	7.7	4.4
70-74	2199	981	171.7	64.6	4.3	5.5	8.2	5.3
75-79	1966	1070	237.9	90.1	7.9	7.6	9.5	6.1
80-84	1434	956	286.6	102.5	13.8	18.1	10.5	6.1
85+	1084	1066	317.9	119.3	29.3	42.1	10.9	6.2
All ages	13064	6523			7.1	12.3	8.3	4.3
Incidence								
Raw			43.9	21.0				
WS			23.0	8.7				
ES			34.4	12.8				
BRD-S			44.9	16.6				

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

Table 6a

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of second primaries for period 1998-2013
MALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C03-C06	Oral cavity	12	4.6	2.6	1.4	4.6	#	2.3	8.3
C07-C08	Salivary gland	2	1.3	1.5	0.2	5.4		0.2	
C09-C10	Oropharynx	13	5.4	2.4	1.3	4.1	#	2.4	
C12-C13	Hypopharynx	6	3.0	2.0	0.7	4.3		0.9	
C15	Oesophagus	24	10.0	2.4	1.5	3.6	#	4.4	12.5
C16	Stomach	44	25.9	1.7	1.2	2.3	#	5.6	6.8
C17	Small intestine	12	2.8	4.2	2.2	7.4	#	2.8	
C18	Colon	121	61.2	2.0	1.6	2.4	#	18.6	6.6
C19-C20	Rectum	50	32.6	1.5	1.1	2.0	#	5.4	6.0
C21	Anus/canal	3	1.2	2.6	0.5	7.5		0.6	33.3
C22	Liver	37	16.2	2.3	1.6	3.1	#	6.5	13.5
C23-C24	Bile	10	5.9	1.7	0.8	3.1		1.3	20.0
C25	Pancreas	43	21.5	2.0	1.4	2.7	#	6.7	30.2
C26	GI cancer	3	0.8	3.7	0.8	10.8		0.7	66.7
C32	Larynx	13	5.7	2.3	1.2	3.9	#	2.3	
C33-C34	Lung	224	69.8	3.2	2.8	3.7	#	48.0	13.4
C38,C45	Mesothelioma	3	3.9	0.8	0.2	2.2		-0.3	66.7
C43	Malign. melanoma	57	22.5	2.5	1.9	3.3	#	10.7	1.8
C46,C49	Soft tissue	10	3.1	3.2	1.5	5.9	#	2.1	
C48	Peritoneal	4	0.4	9.9	2.7	25.4	#	1.1	25.0
C60	Penis	5	1.4	3.7	1.2	8.6	#	1.1	
C61	Prostate	849	178.1	4.8	4.5	5.1	#	208.6	5.2
C62	Testis	6	1.2	4.9	1.8	10.7	#	1.5	
C64	Kidney	154	20.4	7.6	6.4	8.8	#	41.6	10.4
C65	Renal pelvis	59	2.5	23.3	17.8	30.1	#	17.6	
C66	Ureter	44	1.4	31.4	22.8	42.1	#	13.2	
C67	Bladder	108	27.9	3.9	3.2	4.7	#	24.9	6.5
C68	Urethra	27	0.4	72.2	47.6	105.0	#	8.3	
C68	Urinary org.	2	0.4	5.7	0.7	20.6		0.5	100.0
C70-C72	CNS cancer	10	7.6	1.3	0.6	2.4		0.8	10.0
C73	Thyroid	8	3.5	2.3	1.0	4.6		1.4	
C76-C79	CUP	23	10.4	2.2	1.4	3.3	#	3.9	13.0
C81	Hodgkin lymphoma	2	1.1	1.8	0.2	6.5		0.3	
C82-C85	NHL	56	24.0	2.3	1.8	3.0	#	9.9	7.1
C90	Mult. myeloma	14	7.8	1.8	1.0	3.0		1.9	
C91-C96	Leukaemia	19	10.0	1.9	1.1	3.0	#	2.8	36.8
Other primaries		7	6.3	1.1	0.4	2.3		0.2	
Not observed		0	1.3	0.0	0.0	2.9		-0.4	

Patients	8456
Median age at second malignancy (years)	72.0
Person-years	32153
Mean observation time (years)	3.8
Median observation time (years)	2.6

The occurrence of second malignancy is statistically significant.

Observed second primaries with count 1 are pooled in category "Other primaries".

Table 6b

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of second primaries for period 1998-2013
FEMALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C03-C06	Oral cavity	2	1.1	1.8	0.2	6.4		0.6	
C15	Oesophagus	3	1.1	2.7	0.6	7.9		1.2	
C16	Stomach	16	8.2	2.0	1.1	3.2	#	5.0	6.3
C17	Small intestine	3	0.9	3.4	0.7	9.8		1.3	
C18	Colon	42	22.3	1.9	1.4	2.5	#	12.6	4.8
C19-C20	Rectum	20	9.3	2.2	1.3	3.3	#	6.8	10.0
C21	Anus/canal	2	1.0	1.9	0.2	7.0		0.6	
C22	Liver	3	2.5	1.2	0.3	3.6		0.3	33.3
C23-C24	Bile	12	3.3	3.6	1.9	6.4	#	5.5	25.0
C25	Pancreas	25	9.6	2.6	1.7	3.8	#	9.8	32.0
C26	GI cancer	2	0.4	4.6	0.6	16.6		1.0	
C33-C34	Lung	53	13.7	3.9	2.9	5.0	#	25.0	13.2
C43	Malign. melanoma	7	6.6	1.1	0.4	2.2		0.3	28.6
C46,C49	Soft tissue	2	1.1	1.8	0.2	6.4		0.5	
C48	Peritoneal	2	0.7	2.9	0.3	10.4		0.8	
C50	Breast	103	56.4	1.8	1.5	2.2	#	29.7	8.7
C51	Vulva	2	2.1	0.9	0.1	3.4		-0.1	
C53	Cervix uteri	12	2.4	5.1	2.6	8.8	#	6.1	8.3
C54	Corpus uteri	18	11.0	1.6	1.0	2.6		4.5	11.1
C55,C57	Fem. genitals un	3	0.6	5.2	1.1	15.3	#	1.5	33.3
C56	Ovary	11	8.4	1.3	0.7	2.3		1.7	18.2
C64	Kidney	64	5.3	12.1	9.3	15.5	#	37.4	15.6
C65	Renal pelvis	25	0.7	37.9	24.5	55.9	#	15.5	
C66	Ureter	20	0.3	58.7	35.9	90.7	#	12.5	
C67	Bladder	47	4.2	11.1	8.1	14.7	#	27.2	4.3
C68	Urethra	2	0.1	30.8	3.7	111.4	#	1.2	
C70-C72	CNS cancer	2	2.8	0.7	0.1	2.6		-0.5	100.0
C73	Thyroid	16	2.9	5.5	3.2	9.0	#	8.3	
C76-C79	CUP	8	4.0	2.0	0.9	4.0		2.6	12.5
C82-C85	NHL	19	8.1	2.3	1.4	3.7	#	6.9	10.5
C90	Mult. myeloma	3	2.7	1.1	0.2	3.3		0.2	
C91-C96	Leukaemia	10	3.4	2.9	1.4	5.4	#	4.2	20.0
Other primaries		5	2.2	2.2	0.7	5.2		1.8	20.0
Not observed		0	2.8	0.0	0.0	1.3		-1.8	
All mult. primaries		564	202.1	2.8	2.6	3.0	#	230.5	10.8

Patients	4106
Median age at second malignancy (years)	74.6
Person-years	15699
Mean observation time (years)	3.8
Median observation time (years)	2.5

The occurrence of second malignancy is statistically significant.

Observed second primaries with count 1 are pooled in category "Other primaries".

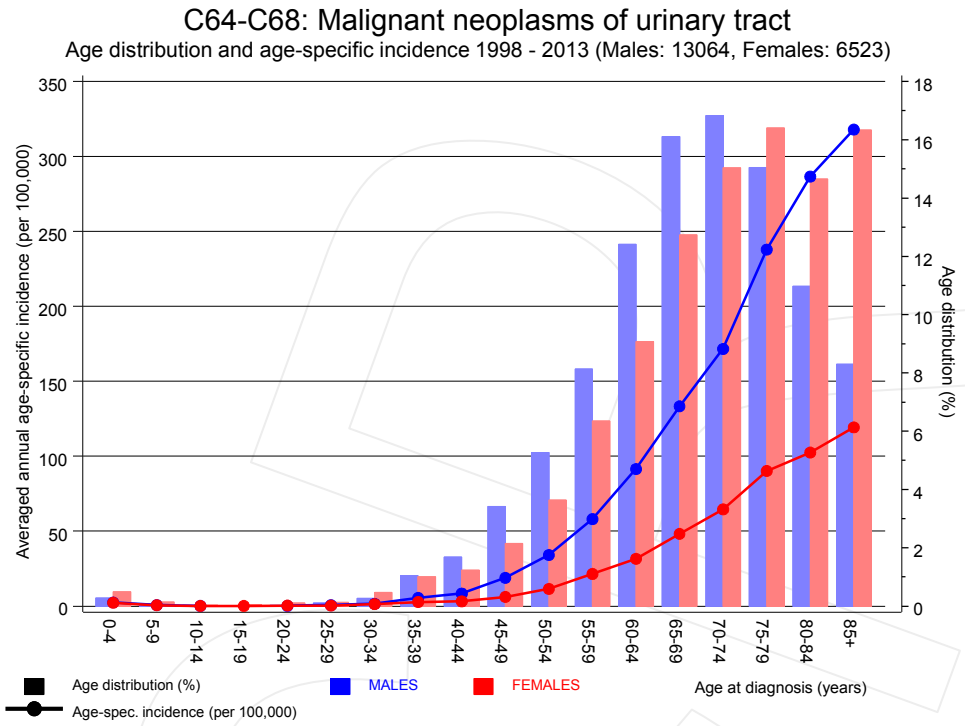


Figure 7. Age distribution and age-specific incidence

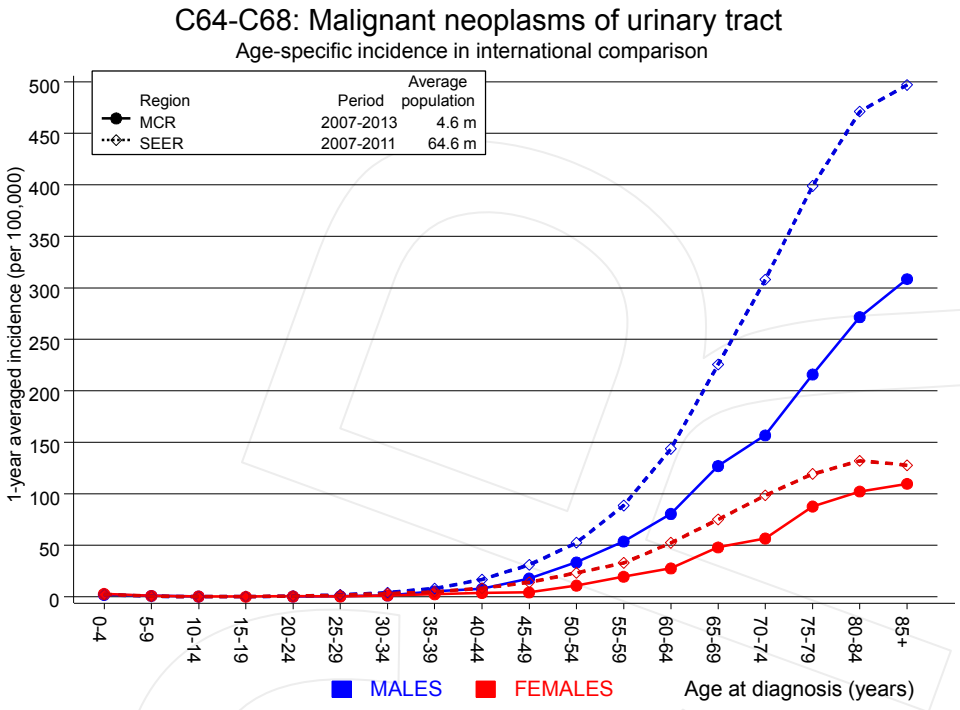


Figure 7a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

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

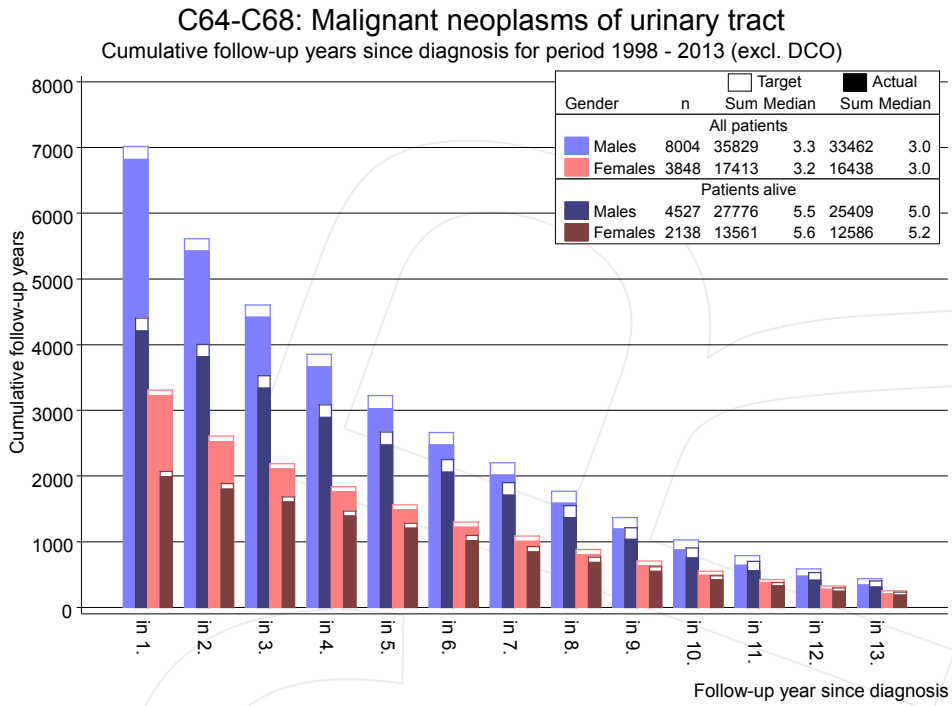
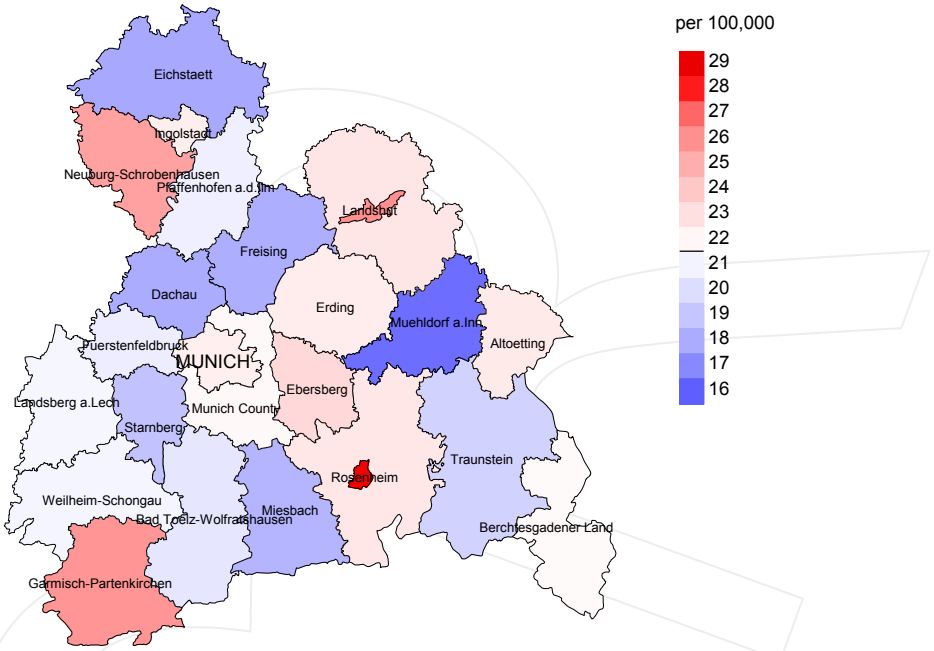


Figure 8. Cumulative follow-up years depending on time since diagnosis

The increase of the lost to follow-up rate can be interpreted as a consequence of a declining number of survivors over time.

Average incidence (world standard population) 2007 - 2013: Males



Average incidence (world standard population) 2007 - 2013: Females

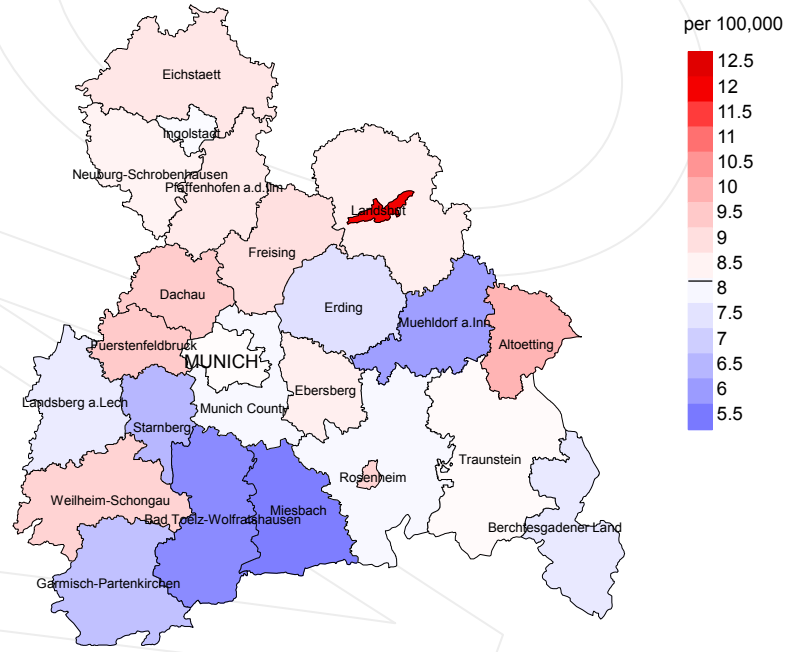
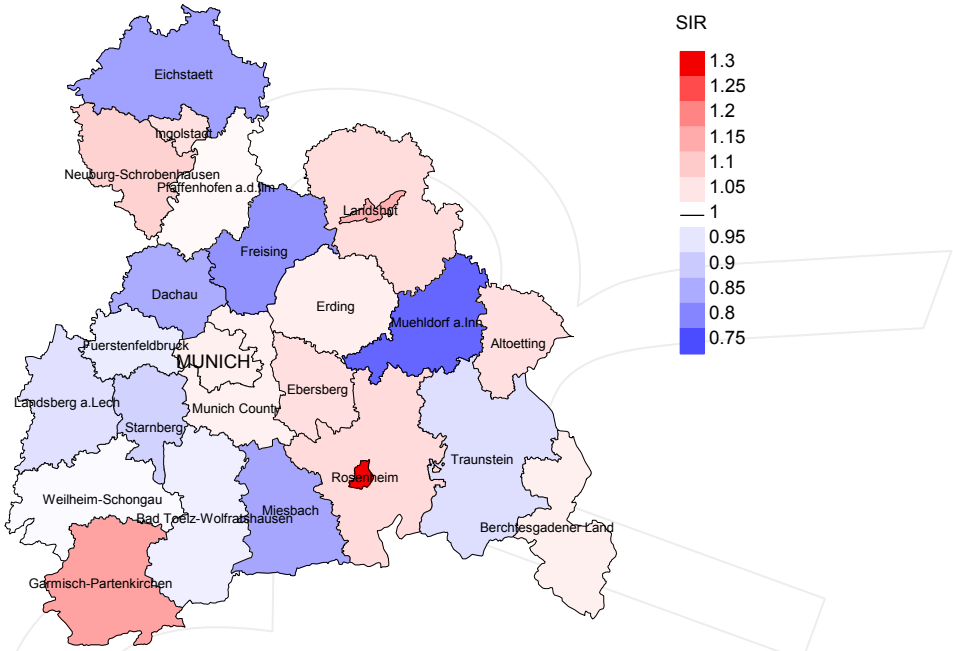


Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 21.6/100,000 WS N=6,817, females 8.2/100,000 WS N=3,307).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,928 female residents (averaged) in the period from 2007 to 2013 a total of 97 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 8.6/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 6.2 and 12.0/100,000.

Standardized incidence ratio (SIR) 2007 - 2013: Males



Standardized incidence ratio (SIR) 2007 - 2013: Females

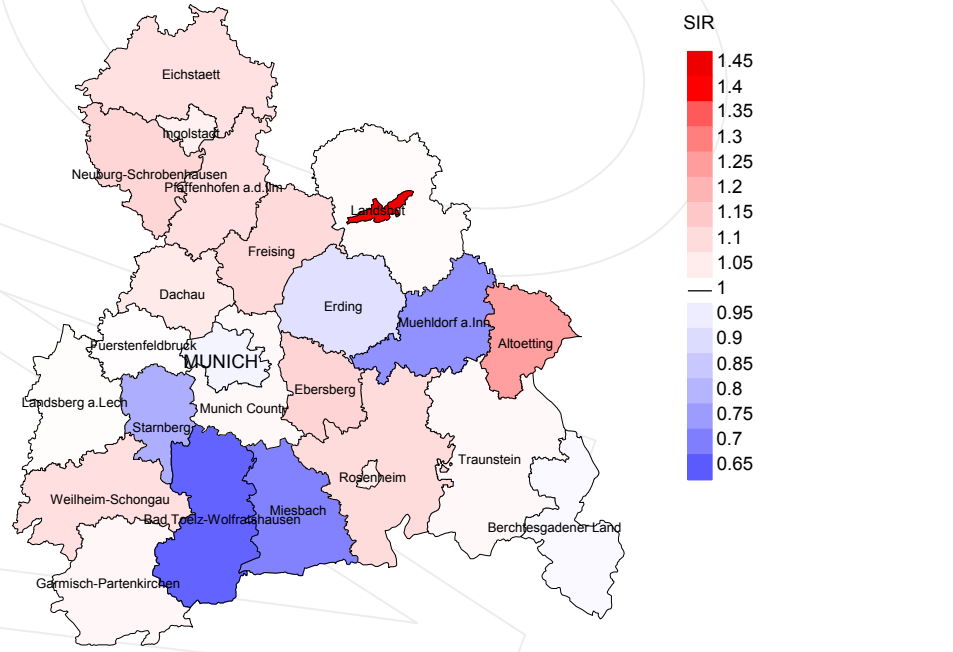


Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=6,817, females N=3,307).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,642 female residents (averaged) in the period from 2007 to 2013 a total of 97 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 1.12. Though, the value of this parameter may vary with an underlying probability of 99% between 0.85 and 1.45, and is therefore not statistically striking.

MORTALITY

Table 10a

Patient cohorts of incident cancers by year of diagnosis, follow-up status, proportion of DCO, deaths among the annual cohorts, and proportion of available death certificates (with respect to registry area expansion from 2.51 to 3.96 m as of 2002, and from 3.96 to 4.64 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	770	98.2	7.7	531	69.0	93.8
1999	732	98.1	7.2	503	68.7	95.2
2000	707	97.7	9.8	475	67.2	95.8
2001	723	98.3	9.1	482	66.7	96.3
2002	1338	98.2	13.5	956	71.4	96.5
2003	1317	97.3	11.3	868	65.9	97.9
2004	1300	97.7	11.3	808	62.2	97.4
2005	1343	96.5	7.2	744	55.4	97.2
2006	1389	93.9	7.1	802	57.7	98.8
2007	1496	83.9	8.2	796	53.2	97.7
2008	1561	70.9	8.5	802	51.4	99.0
2009	1556	70.5	8.1	782	50.3	98.7
2010	1537	67.9	8.1	707	46.0	98.2
2011	1496	69.3	7.2	660	44.1	96.7
2012	1469	66.6	7.6	548	37.3	95.3
2013	1234	97.6	9.3	320	25.9	92.5
1998-2013	19968	85.5	8.8	10784	54.0	97.0

Table 10b

Annual cohorts of incident cancers and deaths, proportion of death certificates and cases deceased the same year of cancer diagnosis
(incl. DCO)
(with respect to registry area expansion from 2.51 to 3.96 m as of 2002, and from 3.96 to 4.64 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	770	484	92.6	134	17.4
1999	732	458	95.2	142	19.4
2000	707	471	95.1	130	18.4
2001	723	476	95.8	124	17.2
2002	1338	702	96.6	301	22.5
2003	1317	810	96.8	290	22.0
2004	1300	794	96.9	265	20.4
2005	1343	785	96.6	219	16.3
2006	1389	835	97.4	237	17.1
2007	1496	950	97.8	274	18.3
2008	1561	948	98.9	279	17.9
2009	1556	1023	99.2	325	20.9
2010	1537	1066	98.7	295	19.2
2011	1496	1016	98.4	288	19.3
2012	1469	1103	98.6	301	20.5
2013	1234	1012	99.0	234	19.0
1998-2013	19968	12933	97.5	3838	19.2

Table 10c

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 2.51 to 3.96 m as of 2002, and from 3.96 to 4.64 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer-related %	Prop. non-cancer-related %	Prop. cancer recorded on death certificate %
1998	484	64.3	35.7	81.7
1999	458	70.1	29.9	83.0
2000	471	69.0	31.0	83.7
2001	476	69.1	30.9	85.1
2002	702	71.4	28.6	85.7
2003	810	70.5	29.5	84.4
2004	794	70.3	29.7	84.0
2005	785	71.2	28.8	83.1
2006	835	71.1	28.9	80.9
2007	950	72.7	27.3	82.6
2008	948	71.5	28.5	82.2
2009	1023	71.7	28.3	83.0
2010	1066	68.0	32.0	80.2
2011	1016	67.9	32.1	82.5
2012	1103	64.6	35.4	77.1
2013	1012	65.0	35.0	77.0
1998-2013	12933	69.3	30.7	81.9

Table 11a

Medians of age at death according to the grouping in Table 10
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	319	76.0	74.7	77.9	75.5
1999	301	76.5	74.3	81.2	75.4
2000	310	76.8	73.7	80.4	76.5
2001	312	75.9	73.7	80.2	74.9
2002	443	76.4	75.1	78.9	76.0
2003	547	76.2	74.9	80.5	75.8
2004	509	76.7	75.6	79.9	76.3
2005	515	76.7	75.3	80.0	76.0
2006	536	75.8	74.2	79.7	75.0
2007	627	76.8	75.4	79.9	75.9
2008	642	77.2	75.7	80.4	76.2
2009	691	77.3	74.9	82.0	75.9
2010	691	77.8	76.1	81.7	77.1
2011	685	77.3	75.0	82.0	76.3
2012	727	78.9	77.3	82.2	78.0
2013	685	78.3	76.2	81.8	77.3
1998-2013	8540	77.0	75.4	80.5	76.2

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 11b

Medians of age at death according to the grouping in Table 10
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	165	81.8	79.4	82.7	81.8
1999	157	78.9	78.5	80.0	79.2
2000	161	78.7	78.6	80.4	78.9
2001	164	80.7	79.0	87.3	80.3
2002	259	79.8	78.5	83.4	79.4
2003	263	80.1	79.3	80.8	80.0
2004	285	81.2	80.0	83.6	80.8
2005	270	81.3	79.1	83.4	80.6
2006	299	81.1	79.7	84.0	80.0
2007	323	80.8	79.7	84.0	80.6
2008	306	80.8	79.0	85.6	80.0
2009	332	80.9	78.7	84.3	79.6
2010	375	82.2	80.5	85.7	81.3
2011	331	82.2	79.5	87.7	80.5
2012	376	81.4	78.4	85.5	79.6
2013	327	80.9	78.1	85.2	78.9
1998-2013	4393	80.9	79.0	84.5	80.1

By 2010, life expectancy for a newborn male in Germany is 77.5 years compared with 82.6 years for his female counterpart.

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 12a

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	206	18.6	0.41	10.4	0.38	17.1	0.42	24.4	0.46
1999	205	18.3	0.42	10.3	0.39	16.7	0.43	24.3	0.48
2000	206	18.1	0.45	10.0	0.42	16.3	0.45	23.3	0.49
2001	217	18.7	0.49	10.3	0.46	16.6	0.49	23.2	0.54
2002	315	16.9	0.37	8.7	0.34	14.3	0.37	20.4	0.39
2003	382	20.4	0.44	10.3	0.40	16.7	0.43	23.8	0.47
2004	356	18.9	0.42	9.3	0.38	15.2	0.42	21.8	0.45
2005	358	18.9	0.41	9.0	0.37	14.6	0.40	21.1	0.44
2006	387	20.2	0.43	9.7	0.39	15.5	0.42	21.7	0.45
2007	464	20.9	0.48	9.7	0.43	15.9	0.46	22.5	0.51
2008	456	20.5	0.44	9.0	0.38	14.8	0.42	21.6	0.47
2009	494	22.1	0.49	9.8	0.43	15.7	0.46	22.1	0.49
2010	473	21.0	0.48	9.0	0.41	14.6	0.45	20.8	0.50
2011	478	20.9	0.48	9.0	0.42	14.4	0.45	19.9	0.48
2012	471	20.6	0.48	8.4	0.41	13.9	0.45	19.8	0.48
2013	459	20.1	0.56	8.3	0.48	13.5	0.52	19.1	0.56
1998-2013	5927	19.9	0.45	9.3	0.40	15.1	0.44	21.4	0.48

Table 12b

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	106	9.0	0.40	3.0	0.29	4.9	0.33	7.1	0.37
1999	116	9.8	0.49	3.5	0.37	5.6	0.41	7.9	0.46
2000	119	9.9	0.50	3.4	0.41	5.5	0.44	7.9	0.48
2001	112	9.2	0.41	3.1	0.32	5.0	0.35	7.3	0.39
2002	186	9.5	0.41	3.3	0.34	5.3	0.36	7.3	0.39
2003	189	9.6	0.45	3.2	0.37	5.2	0.40	7.3	0.42
2004	202	10.2	0.47	3.2	0.36	5.2	0.39	7.4	0.43
2005	202	10.2	0.46	3.3	0.37	5.3	0.39	7.4	0.42
2006	207	10.3	0.45	3.4	0.34	5.4	0.38	7.6	0.42
2007	228	9.9	0.46	3.0	0.34	5.0	0.39	7.4	0.44
2008	222	9.6	0.45	3.1	0.34	5.0	0.37	7.0	0.41
2009	240	10.3	0.48	3.4	0.39	5.4	0.42	7.6	0.45
2010	253	10.8	0.50	3.2	0.41	5.3	0.44	7.7	0.48
2011	212	9.0	0.45	2.9	0.33	4.6	0.38	6.5	0.42
2012	242	10.3	0.55	3.2	0.45	5.2	0.48	7.5	0.51
2013	199	8.4	0.51	2.7	0.39	4.3	0.43	6.0	0.47
1998-2013	3035	9.8	0.47	3.2	0.36	5.1	0.40	7.2	0.43

Table 13

Age distribution of age at death (cancer-related) for period 1998-2013
(**incl. multiple primaries**)

Age at death Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
0-4	1	0.0	0.0	1	0.0	0.0			0.0
5-9	5	0.1	0.1	2	0.0	0.0	3	0.1	0.1
10-14	1	0.0	0.1			0.0	1	0.0	0.1
15-19	0	0.0	0.1			0.0			0.1
20-24	3	0.0	0.1	2	0.0	0.1	1	0.0	0.2
25-29	3	0.0	0.1	1	0.0	0.1	2	0.1	0.2
30-34	3	0.0	0.2	2	0.0	0.1	1	0.0	0.3
35-39	14	0.1	0.3	8	0.1	0.3	6	0.2	0.4
40-44	44	0.5	0.8	28	0.4	0.7	16	0.5	0.9
45-49	99	1.0	1.8	71	1.1	1.8	28	0.9	1.8
50-54	234	2.5	4.3	166	2.6	4.4	68	2.1	4.0
55-59	454	4.8	9.1	350	5.5	10.0	104	3.3	7.2
60-64	725	7.6	16.7	549	8.7	18.6	176	5.5	12.8
65-69	1095	11.5	28.2	790	12.5	31.1	305	9.6	22.4
70-74	1579	16.6	44.8	1130	17.9	49.0	449	14.1	36.5
75-79	1705	17.9	62.7	1146	18.1	67.1	559	17.6	54.0
80-84	1753	18.4	81.1	1095	17.3	84.4	658	20.7	74.7
85+	1793	18.9	100.0	989	15.6	100.0	804	25.3	100.0
All ages	9511	100.0		6330	100.0		3181	100.0	

Included in the statistics are 50.4% multiple primaries in males and 36.1% in females.

Table 14

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2013
(**incl. multiple primaries**)

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	1		0.1	0.03	0.0		3.0	
5- 9	2	3	0.1	0.20	0.2	0.30	5.3	7.5
10-14		1	0.0		0.1	0.50		3.2
15-19			0.0		0.0			
20-24	2	1	0.1	0.50	0.1	0.14	2.2	2.0
25-29	1	2	0.0	0.08	0.1	0.25	0.9	1.7
30-34	2	1	0.1	0.06	0.0	0.03	1.1	0.4
35-39	8	6	0.3	0.06	0.3	0.09	2.0	1.2
40-44	28	16	1.1	0.13	0.6	0.20	3.3	1.4
45-49	71	28	3.0	0.16	1.2	0.20	3.9	1.4
50-54	166	68	8.2	0.24	3.3	0.28	5.0	2.2
55-59	350	104	19.1	0.32	5.4	0.25	5.9	2.2
60-64	549	176	31.0	0.33	9.4	0.29	6.2	2.7
65-69	790	305	50.0	0.37	17.7	0.36	6.6	3.7
70-74	1130	449	88.2	0.50	29.6	0.45	8.3	4.5
75-79	1146	559	138.7	0.57	47.1	0.51	8.7	5.2
80-84	1095	658	218.8	0.75	70.5	0.67	10.1	5.9
85+	989	804	290.0	0.91	90.0	0.75	11.1	5.9
All ages	6330	3181					7.9	4.4
Mortality								
Raw			21.3	0.47	10.2	0.48		
WS			9.9	0.42	3.3	0.38		
ES			16.1	0.46	5.3	0.41		
BRD-S			22.9	0.50	7.6	0.45		
PYLL-70								
per 100,000			61.2		23.6			
ES			54.0		20.3			
AYLL-70			8.3		8.8			

The rates underestimate the prognosis if other synchronous cancers are prognostic unfavorable.

Table 15a

Multiple primaries in deaths in period 1998-2013
MALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C09-C10	Oropharynx	34	0.9	17	50.0	2	5.9	15	44.1
C15	Oesophagus	44	1.2	9	20.5	2	4.5	33	75.0
C16	Stomach	110	2.9	35	31.8	9	8.2	66	60.0
C18	Colon	268	7.1	126	47.0	36	13.4	106	39.6
C19-C20	Rectum	131	3.4	58	44.3	18	13.7	55	42.0
C22	Liver	59	1.6	12	20.3	11	18.6	36	61.0
C25	Pancreas	80	2.1	5	6.3	9	11.3	66	82.5
C32	Larynx	38	1.0	27	71.1	1	2.6	10	26.3
C33-C34	Lung	463	12.2	70	15.1	42	9.1	351	75.8
C43	Malign. melanoma	94	2.5	53	56.4	5	5.3	36	38.3
C44	Skin others	135	3.6	62	45.9	8	5.9	65	48.1
C61	Prostate	1072	28.2	355	33.1	257	24.0	460	42.9
C64	Kidney	155	4.1			36	23.2	119	76.8
C65	Renal pelvis	127	3.3			17	13.4	110	86.6
C66	Ureter	97	2.6			22	22.7	75	77.3
C67	Bladder	311	8.2			45	14.5	266	85.5
C68	Urethra	47	1.2			12	25.5	35	74.5
C70-C72	CNS cancer	52	1.4	16	30.8	6	11.5	30	57.7
C76-C79	CUP	53	1.4	19	35.8	6	11.3	28	52.8
C82-C85	NHL	98	2.6	35	35.7	14	14.3	49	50.0
C90	Mult. myeloma	42	1.1	10	23.8	7	16.7	25	59.5
C91-C96	Leukaemia	61	1.6	9	14.8	4	6.6	48	78.7
Other primaries		230	6.1	86	37.4	19	8.3	125	54.3
All mult. primaries		3801	100.0	1004	26.4	588	15.5	2209	58.1

Multiple primaries with number of cases 1 to 26 are pooled in category "Other primaries".

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 multiple malignancy.

Table 15b

Multiple primaries in deaths in period 1998-2013
FEMALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C16	Stomach	39	2.8	12	30.8	8	20.5	19	48.7
C18	Colon	109	7.7	47	43.1	13	11.9	49	45.0
C19-C20	Rectum	46	3.2	21	45.7	6	13.0	19	41.3
C22	Liver	12	0.8	2	16.7	4	33.3	6	50.0
C23-C24	Bile	16	1.1			3	18.8	13	81.3
C25	Pancreas	56	3.9	2	3.6	6	10.7	48	85.7
C33-C34	Lung	113	8.0	13	11.5	16	14.2	84	74.3
C43	Malign. melanoma	30	2.1	17	56.7	1	3.3	12	40.0
C44	Skin others	34	2.4	17	50.0	2	5.9	15	44.1
C50	Breast	267	18.8	162	60.7	17	6.4	88	33.0
C51	Vulva	13	0.9	9	69.2	1	7.7	3	23.1
C53	Cervix uteri	72	5.1	55	76.4	7	9.7	10	13.9
C54	Corpus uteri	67	4.7	46	68.7	10	14.9	11	16.4
C56	Ovary	51	3.6	20	39.2	8	15.7	23	45.1
C64	Kidney	60	4.2			12	20.0	48	80.0
C65	Renal pelvis	41	2.9			8	19.5	33	80.5
C66	Ureter	31	2.2			13	41.9	18	58.1
C67	Bladder	133	9.4			17	12.8	116	87.2
C70-C72	CNS cancer	27	1.9	7	25.9	5	18.5	15	55.6
C73	Thyroid	24	1.7	13	54.2	1	4.2	10	41.7
C76-C79	CUP	26	1.8	4	15.4	1	3.8	21	80.8
C82-C85	NHL	36	2.5	13	36.1	8	22.2	15	41.7
C91-C96	Leukaemia	29	2.0	3	10.3	4	13.8	22	75.9
Other primaries		86	6.1	26	30.2	15	17.4	45	52.3
All mult. primaries		1418	100.0	489	34.5	186	13.1	743	52.4

Multiple primaries with number of cases 1 to 10 are pooled in category "Other primaries".

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 multiple malignancy.

Table 16

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2013
(**Singular 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			0.0		0.0			
5- 9	2	1	0.1	0.20	0.1	0.13	5.6	2.7
10-14		1	0.0		0.1	0.50		3.4
15-19			0.0		0.0			
20-24	2	1	0.1	0.50	0.1	0.14	2.4	2.1
25-29	1	2	0.0	0.08	0.1	0.25	1.0	1.8
30-34	2	1	0.1	0.06	0.0	0.04	1.1	0.5
35-39	8	6	0.3	0.06	0.3	0.10	2.1	1.3
40-44	24	11	0.9	0.12	0.4	0.16	3.0	1.1
45-49	64	22	2.7	0.15	1.0	0.18	3.9	1.3
50-54	120	52	5.9	0.21	2.5	0.26	4.2	2.0
55-59	271	82	14.8	0.31	4.3	0.25	5.3	2.0
60-64	438	117	24.7	0.33	6.2	0.25	5.9	2.2
65-69	578	245	36.6	0.38	14.2	0.38	6.0	3.7
70-74	747	313	58.3	0.49	20.6	0.42	7.0	4.0
75-79	777	424	94.0	0.59	35.7	0.51	7.8	4.9
80-84	704	495	140.7	0.79	53.1	0.71	8.7	5.6
85+	664	630	194.7	0.93	70.5	0.75	9.9	5.7
All ages	4402	2403					6.9	4.1
Mortality								
Raw			14.8	0.46	7.7	0.47		
WS			7.0	0.40	2.5	0.36		
ES			11.3	0.44	4.0	0.40		
BRD-S			15.8	0.49	5.7	0.44		
PYLL-70								
per 100,000			48.2		17.7			
ES			42.4		15.2			
AYLL-70			8.6		8.7			

* See corresponding tables with multiple primaries.

Table 17

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2013
(**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			0.0		0.0			
5- 9	2	1	0.1	0.20	0.1	0.13	5.7	2.8
10-14		1	0.0		0.1	0.50		3.7
15-19			0.0		0.0			
20-24	1	1	0.1	0.25	0.1	0.14	1.3	2.3
25-29	1	2	0.0	0.08	0.1	0.25	1.1	1.9
30-34	2		0.1	0.06	0.0		1.1	
35-39	8	4	0.3	0.07	0.2	0.07	2.2	0.9
40-44	21	7	0.8	0.12	0.3	0.12	2.8	0.8
45-49	58	18	2.5	0.16	0.8	0.16	3.8	1.2
50-54	98	46	4.9	0.20	2.2	0.25	3.8	2.0
55-59	216	70	11.8	0.30	3.6	0.23	4.7	2.0
60-64	339	92	19.1	0.32	4.9	0.24	5.1	2.0
65-69	414	202	26.2	0.34	11.7	0.35	4.9	3.6
70-74	509	239	39.7	0.43	15.7	0.37	5.7	3.6
75-79	517	335	62.6	0.49	28.2	0.45	6.5	4.7
80-84	464	393	92.7	0.61	42.1	0.62	7.3	5.3
85+	473	526	138.7	0.72	58.9	0.65	8.8	5.6
All ages	3123	1937					5.8	3.9
Mortality								
Raw			10.5	0.39	6.2	0.42		
WS			5.1	0.35	2.0	0.32		
ES			8.1	0.38	3.2	0.36		
BRD-S			11.1	0.41	4.6	0.39		
PYLL-70								
per 100,000			38.9		14.5			
ES			34.3		12.6			
AYLL-70			9.0		8.7			

* See corresponding tables with multiple primaries.

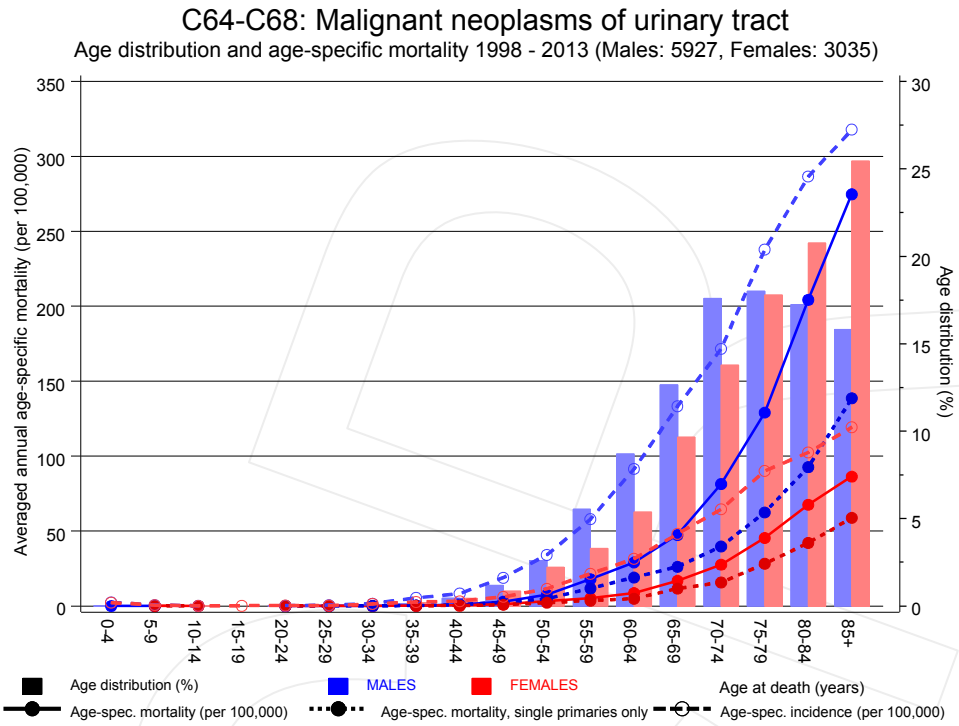
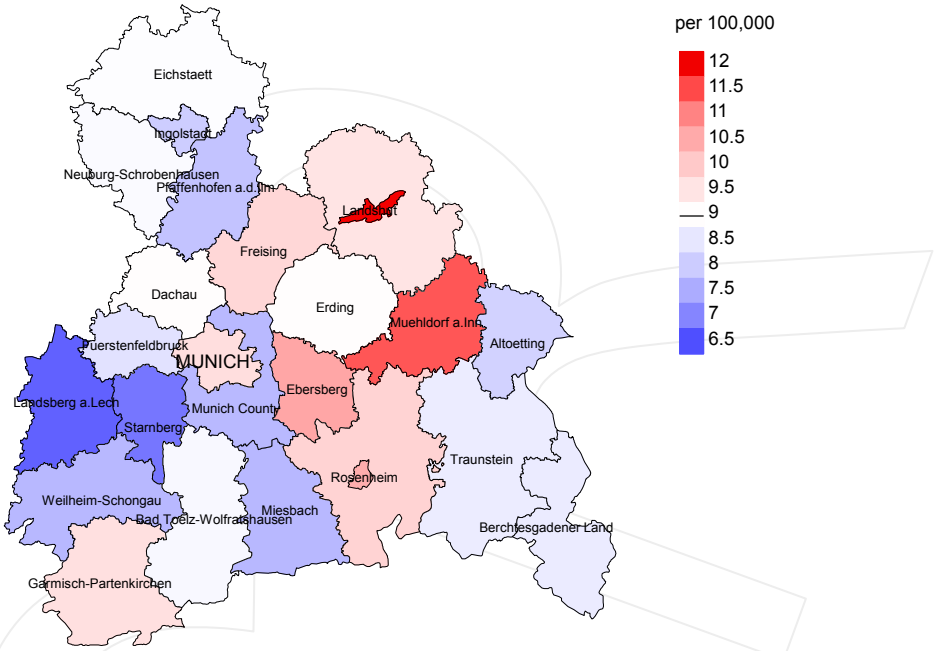


Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

Average mortality (world standard population) 2007 - 2013: Males



Average mortality (world standard population) 2007 - 2013: Females

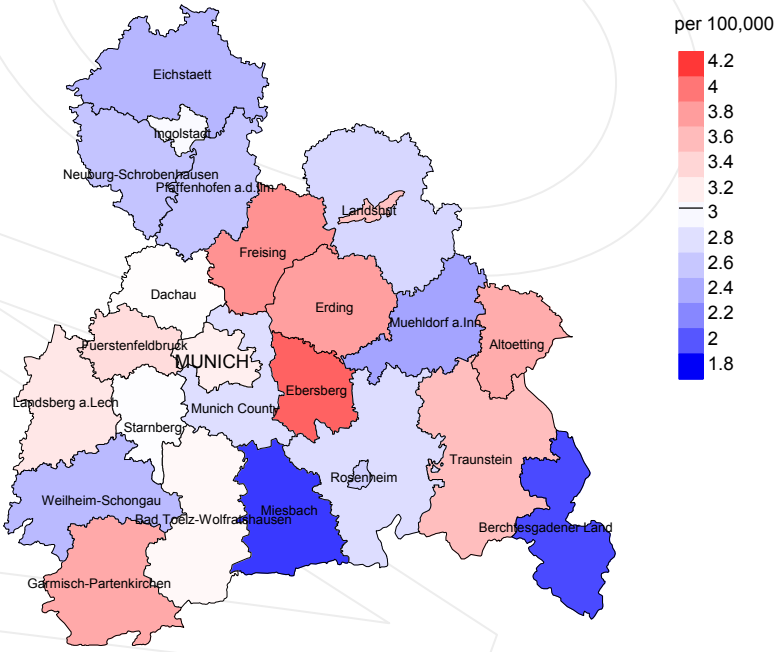
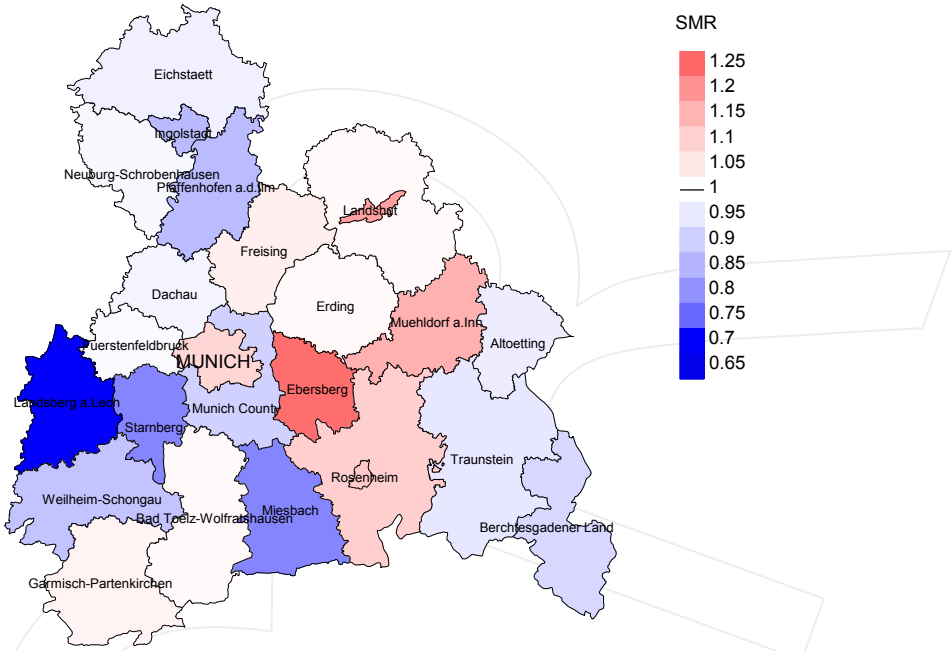


Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2013. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 9.0/100,000 WS N=3,244, females 3.1/100,000 WS N=1,577).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,928 female residents (averaged) in the period from 2007 to 2013 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 4.1/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 2.6 and 6.6/100,000.

Standardized mortality ratio (SMR) 2007 - 2013: Males



Standardized mortality ratio (SMR) 2007 - 2013: Females

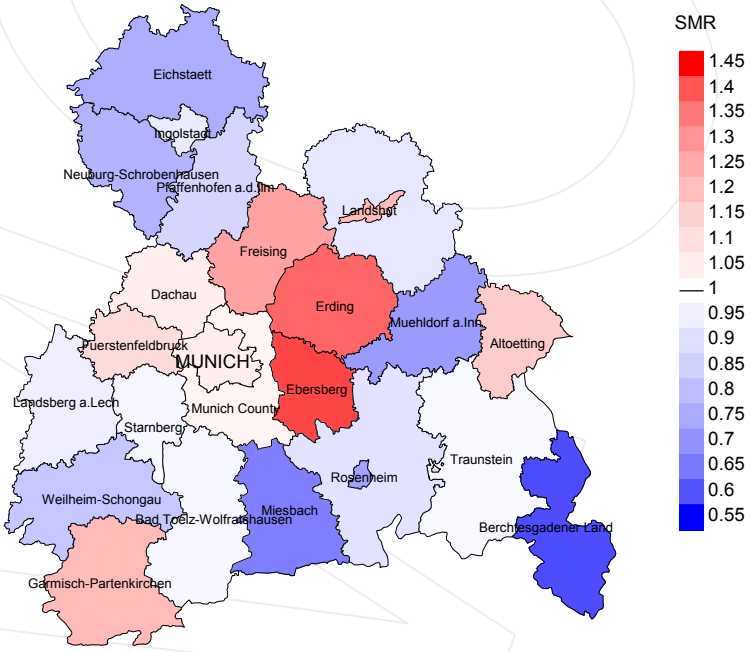


Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=3,244, females N=1,577).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,642 female residents (averaged) in the period from 2007 to 2013 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 1.41. Though, the value of this parameter may vary with an underlying probability of 99% between 0.98 and 1.97, 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. For mortality statistics patients, diagnoses and progressive course of disease are presented. In the calculations, all courses of disease are considered whereby progressions occurred and/or death certificate identified progressive cancers were ascertained. Additionally there are three groups of disease course to consider:

1. **All multiple primaries included**

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

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

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

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

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

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

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

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

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

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

Shortcuts

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

Recommended Citation

Munich Cancer Registry. Baseline statistics C64-C68: Urinary tract cancer [Internet]. 2015 [updated 2015 May 19; cited 2015 Jul 1]. Available from: http://www.tumorregister-muenchen.de/en/facts/base/base_C6468E.pdf

Copyright

Disclaimer

Index of figures and tables