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

C65: Renal pelvis cancer

Year of diagnosis	1998-2013
Patients	959
Diseases	969
Creation date	05/19/2015
Export date	12/30/2014
Population	4.64 m

http://www.tumorregister-muenchen.de/en/facts/base/base_C65__E.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
C65	Malignant neoplasm of renal pelvis

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	33	1	3.0	57.6	84.8	97.0	
1999	35			62.9	82.9	100.0	
2000	33	1	3.0	66.7	78.8	100.0	
2001	34			47.1	76.5	100.0	
2002	65	2	3.1	53.8	80.0	100.0	#
2003	55	3	5.5	60.0	78.2	98.2	
2004	52	4	7.7	57.7	76.9	96.2	
2005	70			68.6	72.9	100.0	
2006	68	1	1.5	58.8	66.2	92.6	
2007	72			55.6	76.4	94.4	# ##
2008	77	1	1.3	58.4	61.0	81.8	
2009	71			62.0	66.2	87.3	
2010	78	1	1.3	62.8	66.7	88.5	
2011	83	3	3.6	66.3	54.2	75.9	
2012	80	1	1.3	63.8	55.0	81.3	
2013	63	1	1.6	54.0	28.6	95.2	###
1998-2013	969	19	2.0	60.2	66.9	91.4	

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	33	20	13	60.6
1999	35	22	13	62.9
2000	33	19	14	57.6
2001	34	18	16	52.9
2002	65	41	24	63.1
2003	55	37	18	67.3
2004	52	31	21	59.6
2005	70	43	27	61.4
2006	68	32	36	47.1
2007	72	50	22	69.4
2008	77	46	31	59.7
2009	71	44	27	62.0
2010	78	48	30	61.5
2011	83	50	33	60.2
2012	80	43	37	53.8
2013	63	44	19	69.8
1998-2013	969	588	381	60.7

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	20	13	1.8	1.1	1.0	0.5	1.7	0.8	2.4	1.0
1999	22	13	2.0	1.1	1.3	0.5	1.8	0.8	2.2	1.0
2000	19	14	1.7	1.2	0.9	0.6	1.5	0.8	2.1	1.0
2001	18	16	1.6	1.3	0.9	0.6	1.3	0.9	1.7	1.1
2002	41	24	2.2	1.2	1.2	0.5	1.8	0.7	2.6	1.0
2003	37	18	2.0	0.9	1.0	0.3	1.6	0.5	2.2	0.7
2004	31	21	1.6	1.1	0.9	0.4	1.3	0.6	1.8	0.8
2005	43	27	2.3	1.4	1.2	0.5	1.8	0.8	2.3	1.1
2006	32	36	1.7	1.8	0.7	0.8	1.3	1.1	1.9	1.5
2007	50	22	2.3	1.0	1.1	0.3	1.7	0.5	2.3	0.7
2008	46	31	2.1	1.3	1.0	0.5	1.5	0.7	2.0	1.1
2009	44	27	2.0	1.2	1.0	0.4	1.4	0.6	1.8	0.9
2010	48	30	2.1	1.3	0.9	0.5	1.5	0.7	2.0	1.0
2011	50	33	2.2	1.4	1.0	0.6	1.5	0.8	2.0	1.0
2012	43	37	1.9	1.6	0.9	0.6	1.4	0.9	1.8	1.3
2013	44	19	1.9	0.8	0.8	0.3	1.3	0.4	1.8	0.6
1998-2013	588	381	2.0	1.2	1.0	0.5	1.5	0.7	2.1	1.0

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	33	73.5	10.9	46.8	90.1	56.7	70.3	74.8	81.4	86.7
1999	35	66.8	11.6	41.5	88.2	49.1	61.4	69.4	74.7	78.2
2000	33	70.6	10.6	37.3	88.4	58.2	65.5	71.6	77.2	82.5
2001	34	70.4	9.8	51.1	86.8	61.0	63.7	69.8	79.2	84.6
2002	65	71.9	11.7	46.0	96.4	56.3	62.6	72.9	81.0	83.8
2003	55	72.7	12.0	38.4	97.3	60.2	65.6	74.2	81.3	84.7
2004	52	72.3	10.1	50.6	87.9	57.6	64.7	74.8	80.1	83.5
2005	70	70.8	12.0	37.7	92.1	55.3	64.4	71.4	80.2	84.7
2006	68	73.6	10.0	52.1	91.8	59.6	66.6	74.5	81.2	85.9
2007	72	72.0	11.0	40.5	90.5	59.0	66.1	73.8	79.2	85.2
2008	77	72.8	11.1	20.5	91.1	60.3	67.6	73.5	81.5	84.4
2009	71	71.4	11.1	41.3	95.9	57.0	65.4	72.8	78.9	84.8
2010	78	73.5	9.1	51.6	92.9	60.2	68.1	73.8	80.2	84.7
2011	83	73.2	10.3	42.2	96.9	62.0	67.5	72.4	80.7	87.4
2012	80	72.8	10.3	41.4	90.9	58.4	67.3	74.6	80.0	84.6
2013	63	73.2	10.5	35.6	91.2	61.1	69.0	74.4	82.0	84.2
1998-2013	969	72.2	10.8	20.5	97.3	57.6	66.4	73.2	80.2	84.7

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	20	76.4	9.7	56.1	90.1	60.7	72.8	76.7	84.9	88.2
1999	22	63.8	12.4	41.5	78.2	41.9	53.8	69.1	74.0	76.3
2000	19	73.2	8.7	56.3	88.4	61.2	67.2	73.0	80.9	85.5
2001	18	71.2	9.3	51.7	86.8	61.0	64.0	70.7	78.3	86.5
2002	41	70.8	10.2	46.0	88.2	58.4	62.6	72.7	79.0	82.5
2003	37	71.1	12.9	38.4	97.3	50.7	64.1	73.8	81.1	83.4
2004	31	70.1	10.0	50.6	83.8	54.7	60.6	73.1	78.9	81.2
2005	43	69.5	12.0	37.7	92.1	54.6	63.3	69.1	79.1	84.2
2006	32	74.8	9.7	53.4	87.6	56.5	70.1	77.8	82.9	85.0
2007	50	70.6	10.3	42.8	89.3	56.5	65.8	72.0	78.3	81.5
2008	46	71.0	9.3	49.3	90.0	58.0	65.9	71.4	75.9	83.5
2009	44	68.9	10.4	44.8	87.9	55.9	63.4	70.4	75.6	80.8
2010	48	73.4	8.8	51.6	92.9	60.4	68.4	72.6	78.9	84.2
2011	50	73.6	9.7	48.1	96.9	61.3	68.5	72.8	80.8	85.0
2012	43	71.5	11.4	41.4	89.6	53.2	63.2	73.6	79.3	85.3
2013	44	71.6	10.8	35.6	86.6	55.8	67.7	74.1	80.4	82.7
1998-2013	588	71.3	10.6	35.6	97.3	56.3	65.6	72.6	78.9	83.7

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	13	68.9	11.5	46.8	86.0	53.6	59.3	72.2	74.8	82.5
1999	13	71.9	8.2	61.4	88.2	63.6	67.0	69.4	78.2	84.0
2000	14	67.2	12.3	37.3	82.5	50.1	60.6	70.9	75.9	79.0
2001	16	69.5	10.6	51.1	84.9	53.1	62.2	69.1	80.4	84.6
2002	24	73.8	13.9	47.0	96.4	51.0	62.8	78.5	83.0	92.7
2003	18	76.1	9.3	60.9	93.1	61.7	68.9	77.5	82.6	87.8
2004	21	75.7	9.6	57.6	87.9	60.1	71.2	79.0	81.4	86.5
2005	27	73.0	11.8	43.7	91.7	56.2	66.4	74.9	80.9	85.1
2006	36	72.5	10.2	52.1	91.8	60.1	65.1	73.3	77.8	87.9
2007	22	75.3	12.1	40.5	90.5	60.7	69.3	77.7	83.8	87.3
2008	31	75.4	13.0	20.5	91.1	64.1	69.4	78.9	83.4	85.9
2009	27	75.5	11.2	41.3	95.9	63.1	70.1	76.9	82.3	86.6
2010	30	73.7	9.7	54.7	88.8	56.8	66.2	76.0	81.0	84.7
2011	33	72.8	11.3	42.2	90.9	63.4	67.4	71.9	80.0	88.0
2012	37	74.2	8.8	53.0	90.9	61.4	68.9	76.2	80.9	84.4
2013	19	77.0	8.8	61.5	91.2	67.0	70.1	74.4	84.3	91.1
1998-2013	381	73.6	10.9	20.5	96.4	60.1	67.4	74.8	81.2	86.0

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.%
20-24	1	0.1	0.1			0.0	1	0.3	0.3
25-29	0	0.0	0.1			0.0			0.3
30-34	0	0.0	0.1			0.0			0.3
35-39	5	0.5	0.6	4	0.7	0.7	1	0.3	0.5
40-44	10	1.0	1.7	6	1.0	1.7	4	1.0	1.6
45-49	17	1.8	3.4	12	2.0	3.7	5	1.3	2.9
50-54	39	4.0	7.4	29	4.9	8.7	10	2.6	5.5
55-59	49	5.1	12.5	32	5.4	14.1	17	4.5	10.0
60-64	98	10.1	22.6	61	10.4	24.5	37	9.7	19.7
65-69	140	14.4	37.0	84	14.3	38.8	56	14.7	34.4
70-74	198	20.4	57.5	136	23.1	61.9	62	16.3	50.7
75-79	162	16.7	74.2	93	15.8	77.7	69	18.1	68.8
80-84	160	16.5	90.7	91	15.5	93.2	69	18.1	86.9
85+	90	9.3	100.0	40	6.8	100.0	50	13.1	100.0
All ages	969	100.0		588	100.0		381	100.0	

Included in the statistics are 104.3% multiple primaries in males and 79.5% 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=10 %	Females DCO rate n=9 %	Males Prop.all cancers n=158258 %	Females Prop.all cancers n=153136 %
0- 4			0.0	0.0				
5- 9			0.0	0.0				
10-14			0.0	0.0				
15-19			0.0	0.0				
20-24		1	0.0	0.1				0.2
25-29			0.0	0.0				
30-34			0.0	0.0				
35-39	4	1	0.2	0.0			0.2	0.0
40-44	5	4	0.2	0.2			0.2	0.1
45-49	12	5	0.5	0.2	8.3		0.2	0.1
50-54	29	10	1.4	0.5			0.3	0.1
55-59	31	17	1.7	0.9		5.9	0.2	0.1
60-64	61	37	3.4	2.0			0.3	0.2
65-69	84	54	5.3	3.1		1.9	0.3	0.3
70-74	135	62	10.5	4.1	0.7		0.5	0.3
75-79	92	69	11.1	5.8	3.3	1.4	0.4	0.4
80-84	91	69	18.2	7.4	1.1	5.8	0.7	0.4
85+	40	50	11.7	5.6	10.0	4.0	0.4	0.3
All ages	584	379			1.7	2.4	0.4	0.2
Incidence								
Raw			2.0	1.2				
WS			1.0	0.5				
ES			1.5	0.7				
BRD-S			2.0	1.0				

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 %
C16	Stomach	2	1.1	1.9	0.2	6.8		8.4	
C17	Small intestine	2	0.1	18.4	2.2	66.4	#	16.9	
C18	Colon	2	2.5	0.8	0.1	2.9		-4.3	
C19-C20	Rectum	2	1.2	1.6	0.2	5.8		6.8	
C22	Liver	2	0.6	3.2	0.4	11.5		12.3	50.0
C25	Pancreas	4	0.9	4.6	1.3	11.9	#	28.1	
C33-C34	Lung	6	2.7	2.2	0.8	4.9		29.7	50.0
C43	Malign. melanoma	4	0.9	4.6	1.3	11.9	#	28.1	
C60	Penis	2	0.1	37.2	4.5	134.3	#	17.4	
C61	Prostate	24	6.9	3.5	2.2	5.2	#	153.4	4.2
C64	Kidney	8	0.8	10.4	4.5	20.5	#	64.8	
C65	Renal pelvis	5	0.1	47.0	15.3	109.7	#	43.9	
C66	Ureter	21	0.1	362.3	224.3	553.8	#	187.7	
C67	Bladder	37	1.2	31.8	22.4	43.8	#	321.1	18.9
C68	Urethra	4	0.0	257.2	70.1	658.6	#	35.7	
Other primaries		5	1.2	4.3	1.4	10.1	#	34.4	20.0
Not observed		0	3.4	0.0	0.0	1.1		-30.6	
All mult. primaries		130	23.6	5.5	4.6	6.5	#	953.7	10.0

Patients	417
Median age at second malignancy (years)	73.3
Person-years	1116
Mean observation time (years)	2.7
Median observation time (years)	1.5

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 %
C25	Pancreas	2	0.5	3.8	0.5	13.7		18.0	50.0
C33-C34	Lung	4	0.7	5.5	1.5	14.1	#	40.0	
C50	Breast	9	3.0	3.0	1.4	5.7	#	73.3	22.2
C64	Kidney	4	0.3	14.4	3.9	36.8	#	45.5	25.0
C65	Renal pelvis	3	0.0	82.1	16.9	239.8	#	36.3	
C66	Ureter	11	0.0	601.3	300.2	1076	#	134.3	
C67	Bladder	24	0.2	102.8	65.9	152.9	#	290.8	8.3
Other primaries		4	1.5	2.7	0.7	6.8		30.6	
Not observed		0	4.5	0.0	0.0	0.8	#	-55.2	
All mult. primaries		61	10.8	5.6	4.3	7.2	#	613.6	9.8

Patients	269
Median age at second malignancy (years)	77.6
Person-years	817
Mean observation time (years)	3.0
Median observation time (years)	1.6

The occurrence of second malignancy is statistically significant.

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

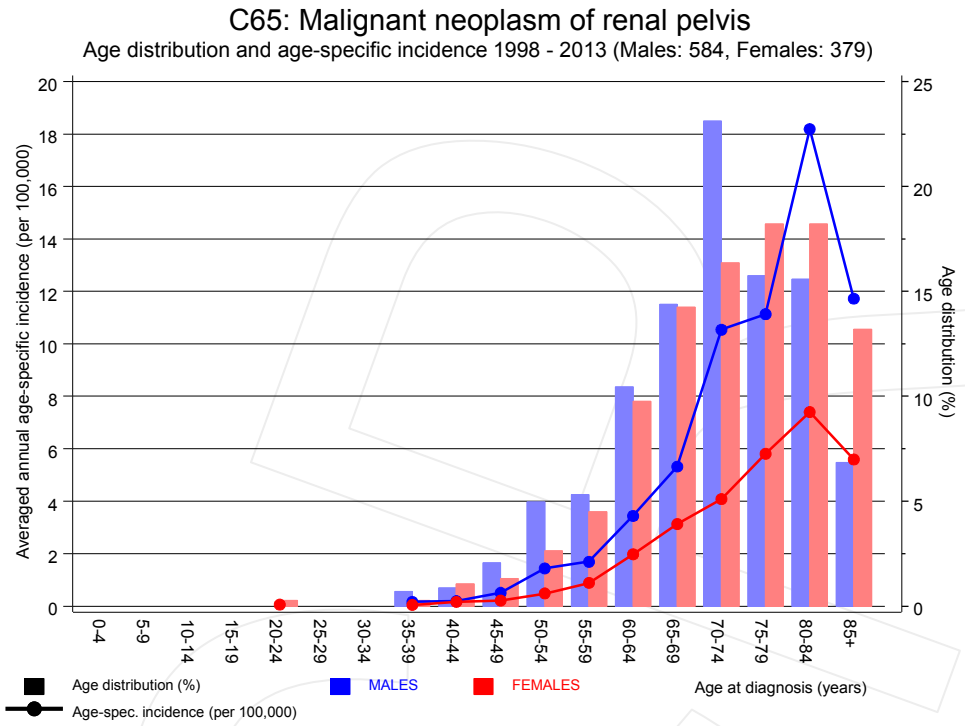


Figure 7. Age distribution and age-specific incidence

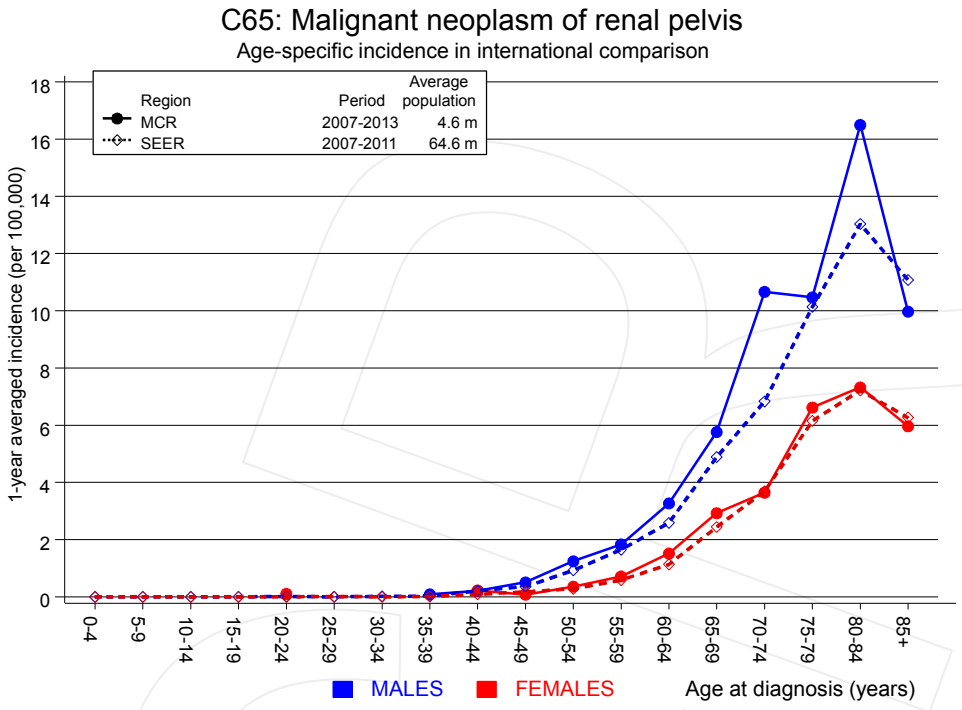


Figure 7a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).

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.

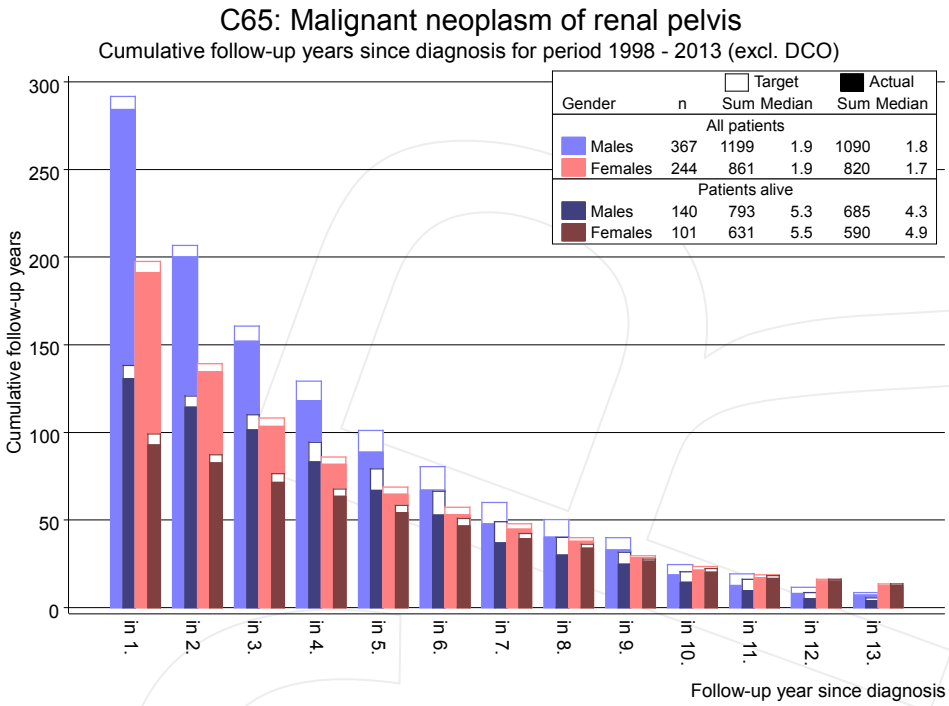
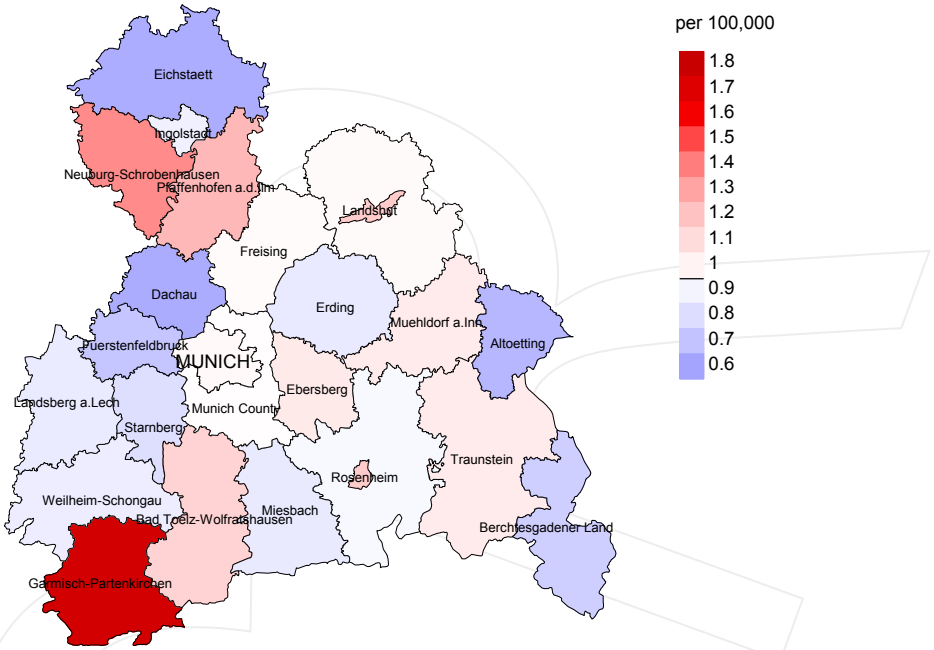


Figure 8. Cumulative follow-up years depending on time since diagnosis

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

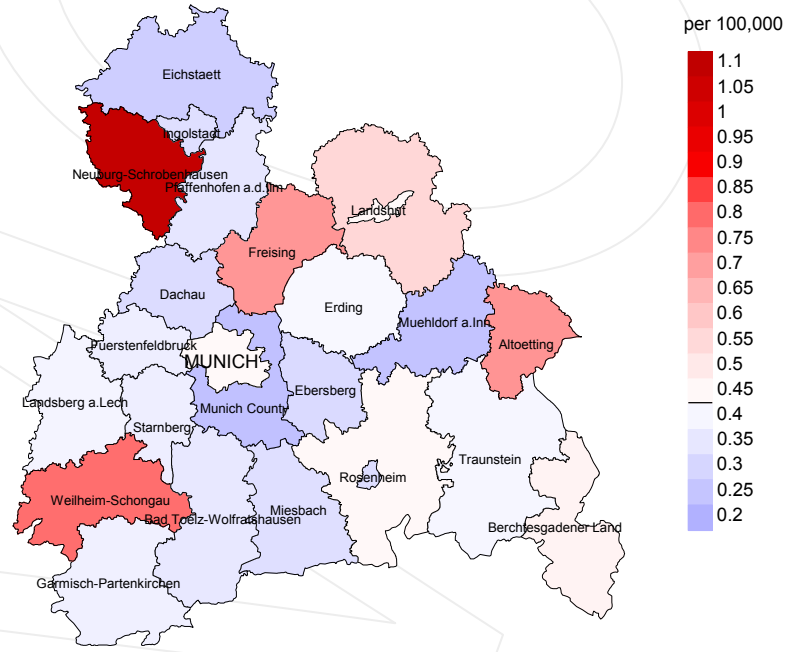
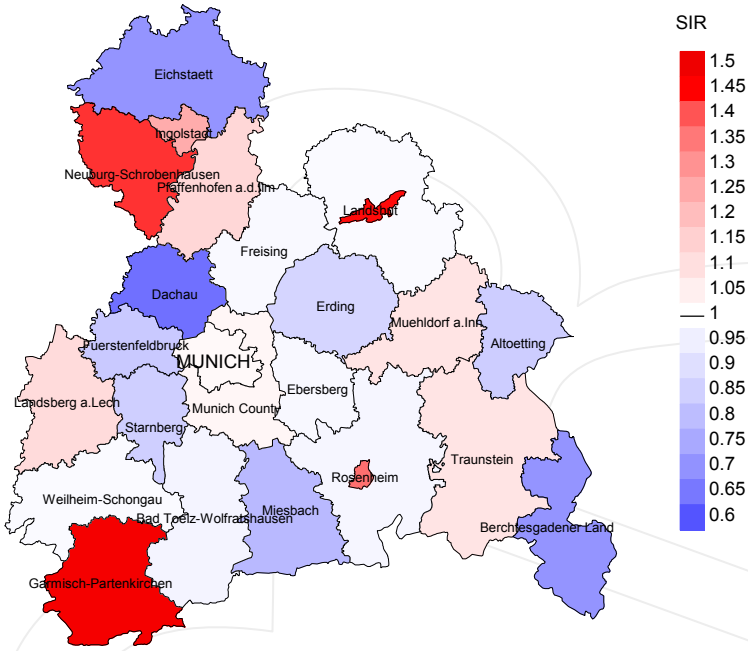


Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 0.9/100,000 WS N=323, females 0.4/100,000 WS N=197).

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 5 women were identified with newly diagnosed renal pelvis cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 0.3/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.1 and 1.0/100,000.

Standardized incidence ratio (SIR) 2007 - 2013: Males



Standardized incidence ratio (SIR) 2007 - 2013: Females

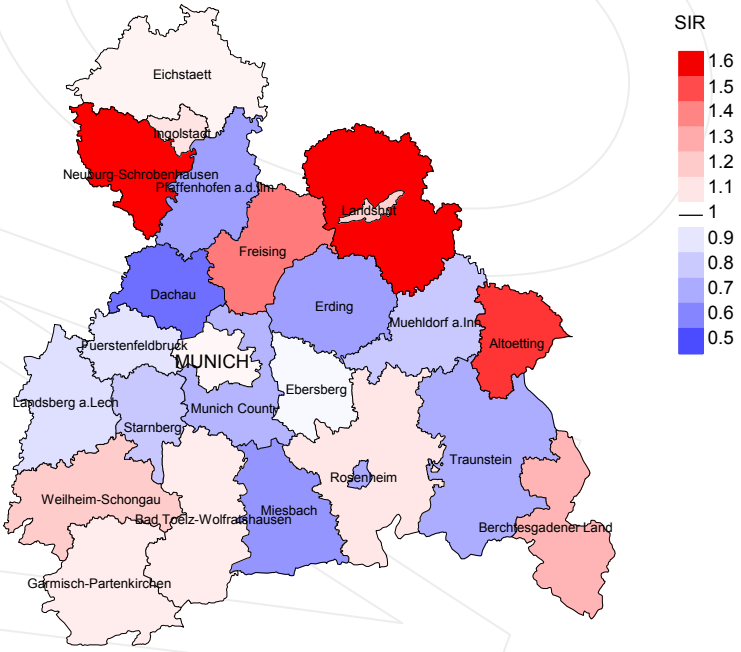


Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=323, females N=197).

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 5 women were identified with newly diagnosed renal pelvis cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.97. Though, the value of this parameter may vary with an underlying probability of 99% between 0.21 and 2.76, 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	33	97.0	3.0	28	84.8	96.4
1999	35	100.0		29	82.9	96.6
2000	33	100.0	3.0	26	78.8	96.2
2001	34	100.0		26	76.5	92.3
2002	65	100.0	3.1	52	80.0	98.1
2003	55	98.2	5.5	43	78.2	97.7
2004	52	96.2	7.7	40	76.9	97.5
2005	70	100.0		51	72.9	96.1
2006	68	92.6	1.5	45	66.2	100.0
2007	72	94.4		55	76.4	96.4
2008	77	81.8	1.3	47	61.0	100.0
2009	71	87.3		47	66.2	97.9
2010	78	88.5	1.3	52	66.7	100.0
2011	83	75.9	3.6	45	54.2	97.8
2012	80	81.3	1.3	44	55.0	93.2
2013	63	95.2	1.6	18	28.6	100.0
1998-2013	969	91.4	2.0	648	66.9	97.4

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	33	15	93.3	4	12.1
1999	35	20	100.0	8	22.9
2000	33	29	93.1	7	21.2
2001	34	25	100.0	10	29.4
2002	65	35	100.0	11	16.9
2003	55	48	93.8	16	29.1
2004	52	38	94.7	14	26.9
2005	70	47	97.9	15	21.4
2006	68	45	100.0	9	13.2
2007	72	63	95.2	19	26.4
2008	77	44	100.0	12	15.6
2009	71	56	100.0	16	22.5
2010	78	60	100.0	17	21.8
2011	83	78	97.4	19	22.9
2012	80	54	98.1	18	22.5
2013	63	60	100.0	9	14.3
1998-2013	969	717	97.9	204	21.1

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	15	66.7	33.3	64.3
1999	20	85.0	15.0	80.0
2000	29	65.5	34.5	88.9
2001	25	68.0	32.0	84.0
2002	35	80.0	20.0	80.0
2003	48	75.0	25.0	86.7
2004	38	76.3	23.7	86.1
2005	47	85.1	14.9	87.0
2006	45	80.0	20.0	84.4
2007	63	77.8	22.2	86.7
2008	44	86.4	13.6	90.9
2009	56	76.8	23.2	78.6
2010	60	75.0	25.0	83.3
2011	78	85.9	14.1	93.4
2012	54	68.5	31.5	75.5
2013	60	70.0	30.0	81.7
1998-2013	717	77.1	22.9	84.3

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	10	75.6	76.3	74.9	81.0
1999	8	81.0	77.1	85.8	77.1
2000	21	76.5	73.1	85.6	76.1
2001	14	74.5	71.9	79.7	73.8
2002	18	74.1	76.1	65.4	76.1
2003	32	77.5	76.3	82.5	76.7
2004	20	78.4	77.2	82.3	77.2
2005	27	71.8	68.8	75.7	68.8
2006	26	74.2	73.0	79.1	74.0
2007	42	76.0	74.7	78.8	76.0
2008	25	77.0	76.0	83.7	75.9
2009	34	73.6	71.7	80.2	71.7
2010	34	78.5	77.5	85.5	77.6
2011	53	75.0	74.4	89.3	74.4
2012	30	78.4	75.0	87.0	77.4
2013	37	76.2	75.5	84.5	75.5
1998-2013	431	75.8	74.5	81.6	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 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	5	82.7	72.1	85.7	72.1
1999	12	75.6	76.3	73.9	75.2
2000	8	77.0	74.5	88.9	75.4
2001	11	77.6	70.2	87.9	74.9
2002	17	79.8	79.6	80.5	79.6
2003	16	76.5	77.4	75.6	77.4
2004	18	80.0	79.5	83.5	79.5
2005	20	74.7	71.6	88.0	71.6
2006	19	77.3	75.3	85.0	74.2
2007	21	78.4	76.9	85.6	77.5
2008	19	80.0	76.5	87.5	79.5
2009	22	78.9	76.2	92.7	77.4
2010	26	79.8	79.3	85.1	78.9
2011	25	82.2	78.8	90.1	80.6
2012	24	76.5	75.8	77.9	75.7
2013	23	81.1	75.5	83.5	78.0
1998-2013	286	78.5	76.5	84.8	77.4

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	7	0.6	0.37	0.3	0.35	0.6	0.36	0.7	0.32
1999	7	0.6	0.33	0.3	0.27	0.6	0.34	0.9	0.43
2000	14	1.2	0.74	0.7	0.75	1.1	0.75	1.6	0.75
2001	10	0.9	0.56	0.5	0.57	0.8	0.58	1.0	0.55
2002	16	0.9	0.39	0.4	0.37	0.7	0.39	1.1	0.41
2003	25	1.3	0.68	0.6	0.63	1.1	0.69	1.6	0.73
2004	17	0.9	0.55	0.4	0.46	0.7	0.50	1.1	0.60
2005	23	1.2	0.53	0.6	0.49	0.9	0.52	1.3	0.54
2006	21	1.1	0.66	0.5	0.72	0.8	0.67	1.1	0.61
2007	33	1.5	0.66	0.7	0.65	1.2	0.67	1.6	0.67
2008	23	1.0	0.50	0.4	0.44	0.7	0.49	1.1	0.56
2009	27	1.2	0.64	0.5	0.59	0.8	0.61	1.1	0.64
2010	27	1.2	0.56	0.5	0.55	0.8	0.56	1.2	0.58
2011	46	2.0	0.92	0.8	0.87	1.3	0.91	1.9	0.92
2012	20	0.9	0.47	0.3	0.39	0.6	0.42	0.8	0.45
2013	26	1.1	0.59	0.5	0.58	0.8	0.60	1.1	0.60
1998-2013	342	1.2	0.59	0.5	0.55	0.9	0.58	1.2	0.60

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	3	0.3	0.23	0.1	0.22	0.2	0.21	0.2	0.24
1999	10	0.8	0.77	0.3	0.55	0.5	0.65	0.7	0.77
2000	5	0.4	0.36	0.2	0.32	0.3	0.34	0.4	0.37
2001	7	0.6	0.44	0.3	0.42	0.4	0.42	0.5	0.42
2002	12	0.6	0.50	0.2	0.44	0.4	0.48	0.5	0.53
2003	11	0.6	0.61	0.2	0.63	0.3	0.62	0.4	0.67
2004	12	0.6	0.57	0.2	0.52	0.3	0.53	0.5	0.56
2005	17	0.9	0.63	0.3	0.66	0.5	0.65	0.7	0.62
2006	15	0.7	0.42	0.3	0.37	0.5	0.40	0.6	0.44
2007	16	0.7	0.73	0.2	0.71	0.4	0.74	0.6	0.81
2008	15	0.6	0.48	0.2	0.51	0.4	0.49	0.5	0.47
2009	16	0.7	0.59	0.2	0.63	0.4	0.60	0.5	0.59
2010	18	0.8	0.62	0.2	0.49	0.4	0.53	0.6	0.59
2011	21	0.9	0.66	0.3	0.56	0.5	0.60	0.6	0.64
2012	17	0.7	0.46	0.3	0.44	0.4	0.43	0.5	0.41
2013	16	0.7	0.84	0.2	0.79	0.3	0.82	0.5	0.87
1998-2013	211	0.7	0.56	0.2	0.51	0.4	0.53	0.5	0.56

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.%
20-24	1	0.2	0.2			0.0	1	0.5	0.5
25-29	0	0.0	0.2			0.0			0.5
30-34	0	0.0	0.2			0.0			0.5
35-39	0	0.0	0.2			0.0			0.5
40-44	6	1.1	1.3	3	0.9	0.9	3	1.4	1.9
45-49	5	0.9	2.1	3	0.9	1.7	2	0.9	2.8
50-54	14	2.5	4.7	11	3.2	4.9	3	1.4	4.2
55-59	33	5.9	10.6	23	6.7	11.6	10	4.7	8.9
60-64	38	6.8	17.4	24	7.0	18.6	14	6.5	15.4
65-69	57	10.2	27.5	40	11.6	30.1	17	7.9	23.4
70-74	121	21.6	49.2	79	22.9	53.0	42	19.6	43.0
75-79	107	19.1	68.3	59	17.1	70.1	48	22.4	65.4
80-84	109	19.5	87.8	65	18.8	89.0	44	20.6	86.0
85+	68	12.2	100.0	38	11.0	100.0	30	14.0	100.0
All ages	559	100.0		345	100.0		214	100.0	

Included in the statistics are 104.3% multiple primaries in males and 79.5% 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			0.0		0.0			
5- 9			0.0		0.0			
10-14			0.0		0.0			
15-19			0.0		0.0			
20-24		1	0.0		0.1	1.00		2.0
25-29			0.0		0.0			
30-34			0.0		0.0			
35-39			0.0		0.0			
40-44	3	3	0.1	0.50	0.1	0.75	0.4	0.3
45-49	3	2	0.1	0.25	0.1	0.40	0.2	0.1
50-54	11	3	0.5	0.38	0.1	0.30	0.3	0.1
55-59	23	10	1.3	0.72	0.5	0.59	0.4	0.2
60-64	24	14	1.4	0.39	0.7	0.38	0.3	0.2
65-69	40	17	2.5	0.48	1.0	0.30	0.3	0.2
70-74	79	42	6.2	0.58	2.8	0.68	0.6	0.4
75-79	59	48	7.1	0.63	4.0	0.70	0.4	0.4
80-84	65	44	13.0	0.71	4.7	0.64	0.6	0.4
85+	38	30	11.1	0.95	3.4	0.60	0.4	0.2
All ages	345	214					0.4	0.3
Mortality								
Raw			1.2	0.59	0.7	0.56		
WS			0.5	0.56	0.2	0.51		
ES			0.9	0.58	0.4	0.53		
BRD-S			1.2	0.60	0.5	0.56		
PYLL-70								
per 100,000			3.4		1.9			
ES			3.0		1.6			
AYLL-70			8.8		10.0			

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 ←%
C18	Colon	20	5.5	14	70.0	1	5.0	5	25.0
C19-C20	Rectum	6	1.6	5	83.3			1	16.7
C25	Pancreas	7	1.9	1	14.3	1	14.3	5	71.4
C33-C34	Lung	22	6.0	9	40.9			13	59.1
C44	Skin others	4	1.1	2	50.0			2	50.0
C61	Prostate	49	13.5	31	63.3	9	18.4	9	18.4
C64	Kidney	18	4.9	5	27.8	9	50.0	4	22.2
C65	Renal pelvis	7	1.9					7	100.0
C66	Ureter	32	8.8	7	21.9	21	65.6	4	12.5
C67	Bladder	150	41.2	87	58.0	19	12.7	44	29.3
C68	Urethra	4	1.1			1	25.0	3	75.0
C68	Urinary org.	6	1.6	2	33.3	2	33.3	2	33.3
C70-C72	CNS cancer	4	1.1	3	75.0			1	25.0
C82-C85	NHL	4	1.1	3	75.0			1	25.0
C90	Mult. myeloma	5	1.4	1	20.0			4	80.0
Other primaries		26	7.1	16	61.5			10	38.5
All mult. primaries		364	100.0	186	51.1	63	17.3	115	31.6

Multiple primaries with number of cases 1 to 3 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 ←%
C17	Small intestine	2	1.2	1	50.0			1	50.0
C18	Colon	4	2.4	2	50.0	2	50.0		
C19-C20	Rectum	3	1.8	3	100.0				
C25	Pancreas	3	1.8					3	100.0
C33-C34	Lung	7	4.2	3	42.9	1	14.3	3	42.9
C44	Skin others	2	1.2			2	100.0		
C50	Breast	22	13.2	16	72.7			6	27.3
C53	Cervix uteri	6	3.6	5	83.3			1	16.7
C54	Corpus uteri	2	1.2	2	100.0				
C55,C57	Fem. genitals un	2	1.2	1	50.0			1	50.0
C56	Ovary	3	1.8	3	100.0				
C64	Kidney	6	3.6	2	33.3	1	16.7	3	50.0
C65	Renal pelvis	4	2.4					4	100.0
C66	Ureter	23	13.8	8	34.8	11	47.8	4	17.4
C67	Bladder	68	40.7	22	32.4	14	20.6	32	47.1
C82-C85	NHL	2	1.2	1	50.0			1	50.0
C90	Mult. myeloma	2	1.2	1	50.0			1	50.0
Other primaries		6	3.6	5	83.3			1	16.7
All mult. primaries		167	100.0	75	44.9	31	18.6	61	36.5

Multiple primaries with number of cases 1 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			0.0		0.0			
10-14			0.0		0.0			
15-19			0.0		0.0			
20-24		1	0.0		0.1	1.00		2.1
25-29			0.0		0.0			
30-34			0.0		0.0			
35-39			0.0		0.0			
40-44	2	2	0.1	0.50	0.1	1.00	0.3	0.2
45-49	3	2	0.1	0.30	0.1	0.67	0.2	0.1
50-54	5	1	0.2	0.29	0.0	0.14	0.2	0.0
55-59	11	6	0.6	0.52	0.3	0.50	0.2	0.1
60-64	16	9	0.9	0.41	0.5	0.35	0.2	0.2
65-69	22	12	1.4	0.58	0.7	0.34	0.2	0.2
70-74	33	24	2.6	0.49	1.6	0.69	0.3	0.3
75-79	30	29	3.6	0.75	2.4	0.63	0.3	0.3
80-84	33	26	6.6	0.79	2.8	0.62	0.4	0.3
85+	17	20	5.0	0.85	2.2	0.59	0.3	0.2
All ages	172	132					0.3	0.2
Mortality								
Raw			0.6	0.57	0.4	0.54		
WS			0.3	0.53	0.2	0.50		
ES			0.4	0.56	0.2	0.51		
BRD-S			0.6	0.60	0.3	0.54		
PYLL-70								
per 100,000			2.0		1.3			
ES			1.7		1.1			
AYLL-70			8.9		10.2			

* 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			0.0		0.0			
10-14			0.0		0.0			
15-19			0.0		0.0			
20-24		1	0.0		0.1	1.00		2.3
25-29			0.0		0.0			
30-34			0.0		0.0			
35-39			0.0		0.0			
40-44	1	2	0.0	0.50	0.1	1.00	0.1	0.2
45-49	3	1	0.1	0.33	0.0	0.50	0.2	0.1
50-54	4	1	0.2	0.33	0.0	0.20	0.2	0.0
55-59	9	5	0.5	0.75	0.3	0.45	0.2	0.1
60-64	13	7	0.7	0.48	0.4	0.58	0.2	0.2
65-69	14	9	0.9	0.56	0.5	0.39	0.2	0.2
70-74	23	16	1.8	0.59	1.1	0.59	0.3	0.2
75-79	18	21	2.2	0.62	1.8	0.54	0.2	0.3
80-84	18	20	3.6	0.55	2.1	0.69	0.3	0.3
85+	11	10	3.2	0.58	1.1	0.38	0.2	0.1
All ages	114	93					0.2	0.2
Mortality								
Raw			0.4	0.55	0.3	0.53		
WS			0.2	0.53	0.1	0.52		
ES			0.3	0.54	0.2	0.52		
BRD-S			0.4	0.55	0.2	0.53		
PYLL-70								
per 100,000			1.5		1.1			
ES			1.3		0.9			
AYLL-70			9.3		10.8			

* See corresponding tables with multiple primaries.

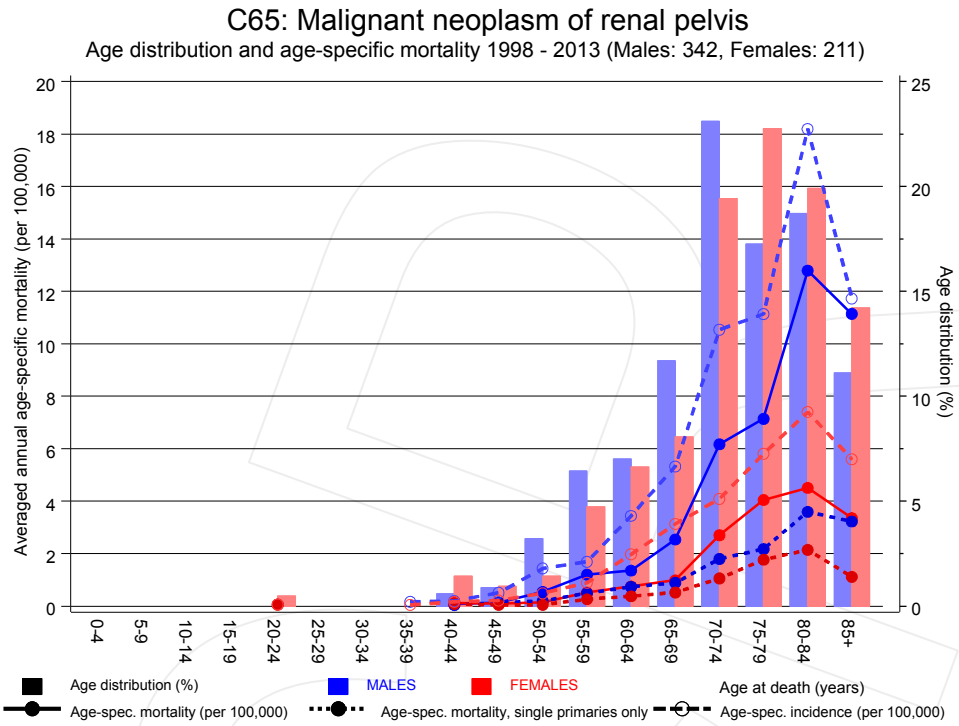
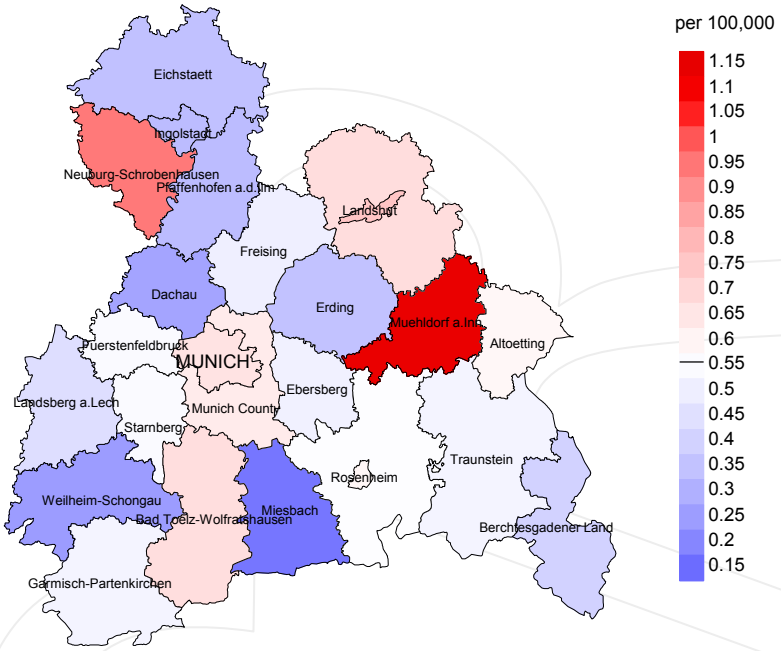


Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

The difference between age at diagnosis (Table 3) and age at renal pelvis 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

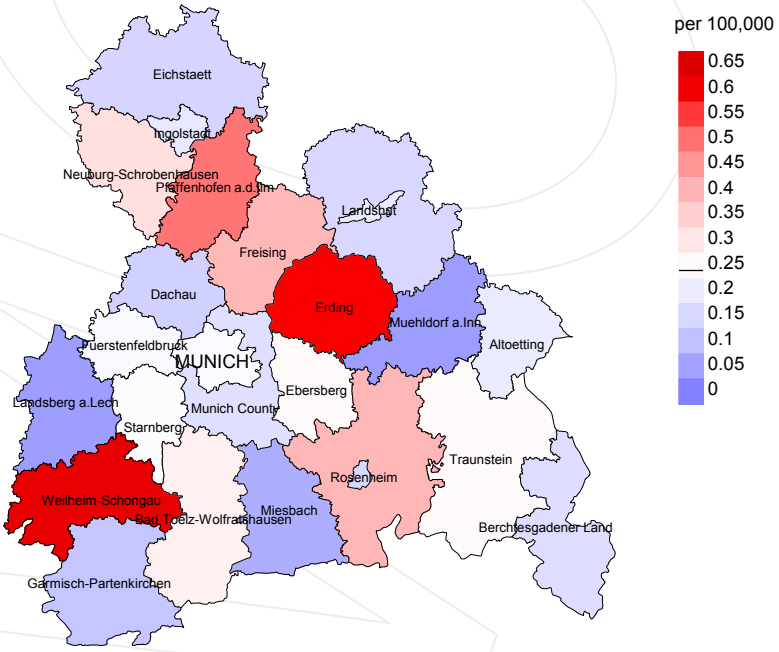
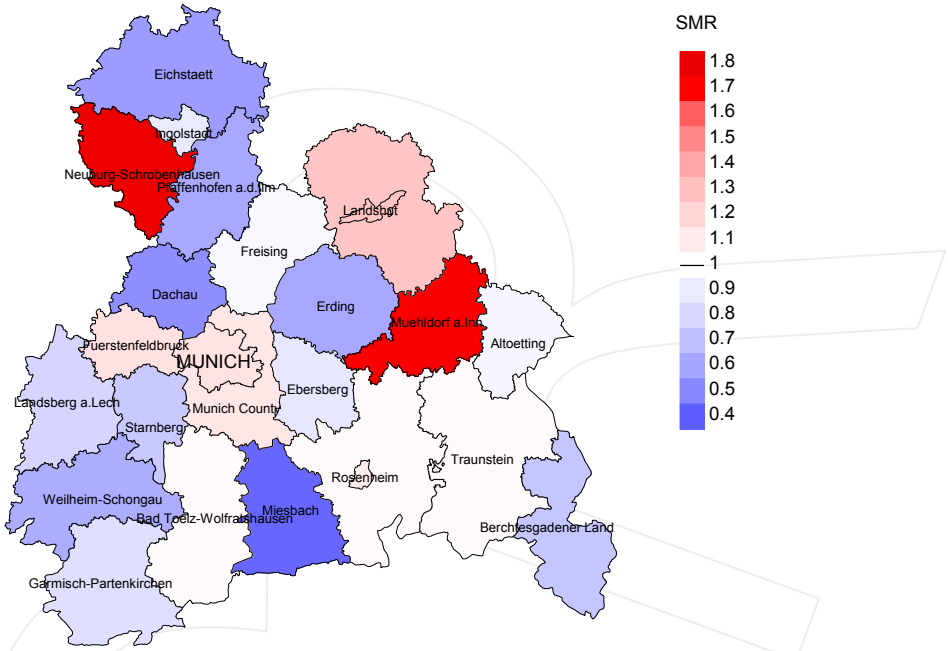


Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2013. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 0.6/100,000 WS N=202, females 0.2/100,000 WS N=118).

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 5 women died from renal pelvis cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.3/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.1 and 0.8/100,000.

Standardized mortality ratio (SMR) 2007 - 2013: Males



Standardized mortality ratio (SMR) 2007 - 2013: Females

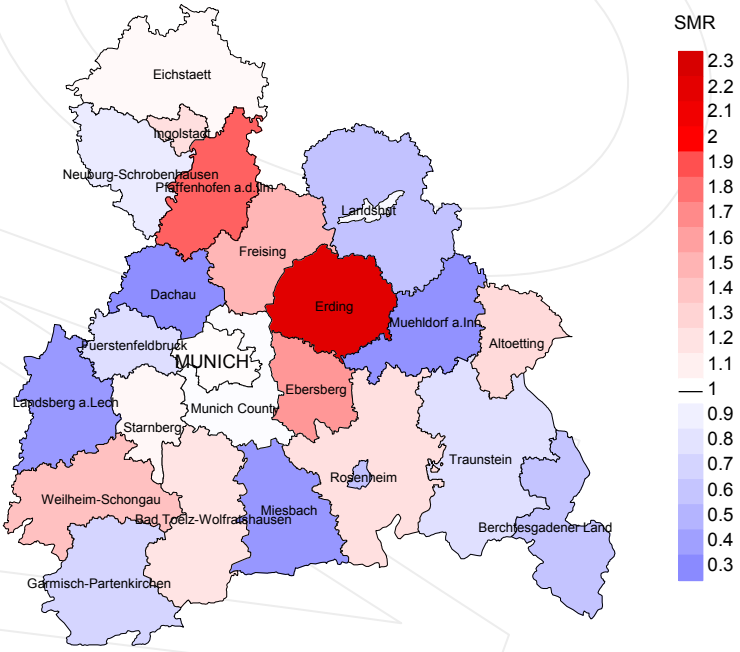


Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=202, females N=118).

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 5 women died from renal pelvis cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 1.64. Though, the value of this parameter may vary with an underlying probability of 99% between 0.35 and 4.65, 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 C65: Renal pelvis cancer [Internet]. 2015 [updated 2015 May 19; cited 2015 Jul 1]. Available from: http://www.tumorregister-muenchen.de/en/facts/base/base_C65__E.pdf

Copyright

Disclaimer

Index of figures and tables