Munich Cancer Registry



- ▶ Survival
- ▶ Selection Matrix
- ▶ Homepage

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

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

Cancer statistics: Baseline statistics

C60: Penile cancer

Year of diagnosis	1998-2011
Patients	301
Diseases	301
Creation date	04/02/2013
Export date	01/03/2013
Population (males)	2.2 m



http://www.tumorregister-muenchen.de/en/facts/base/base_C60__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 4.5 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.

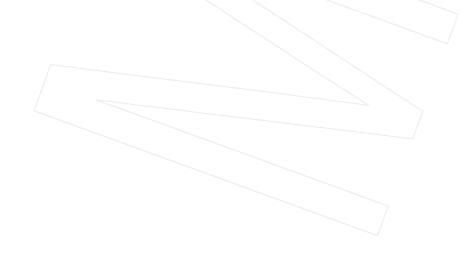
The foot notes describe the currentness of the data. The baseline statistics and survival data are updated annually. This yearly analysis comprises the Annual Report of the MCR. The time-delayed acquisition of data and the occasionally high DCO-rates indicate optimizing reserves, among others, because 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, April 2013

- 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 2011 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.



INCIDENCE

Table 1

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

				Prop.		Prop.
		DCO	Prop.	mult.	Prop.	actively
Year of	Cases #	cases	DCO	primaries	deaths	followed
diagnosis	n	/n	%	્ર	%	%
1998	11	/ 1 /	9.1	36.4	63.6	100.0
1999	13			15.4	69.2	100.0
2000	9			/11.1 /	44.4	88.9
2001	11	1	9.1	45.5	54.5	100.0
2002	27	1	3.7	33.3	66.7	100.0
2003	30	1	3.3	16.7	70.0	100.0
2004	19			47.4	57.9	89.5
2005	19	2	10.5	31.6	68.4	89.5
2006	21	1	4.8	14.3	47.6	90.5
2007	32	1	3.1	28.1	40.6	81.3 ##
2008	24			25.0	54.2	62.5
2009	24	1	4.2	16.7	41.7	66.7
2010	41			24.4	31.7	95.1
2011	20	2	10.0	30.0	15.0	45.0 ###
1998-2011	301	11	3.7	26.2	50.2	85.7

[#] 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 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 4.52 m as of 2007, respectively)

Year of diagnosis	Cases n	Incidence raw	Incidence WS	Incidence ES	Incidence BRD-S
1998	11	1.0	0.6	0.9	1.5
1999	13	1.2	0.7	1.0	1.3
	_				
2000	9	/0.8	0.4	0.7	0.9
2001	11	0.9	0.5	0.8	1.2
2002	27	1.4	0.8	1.2	1.6
2003	30	1.6	0.9	1.3	1.7
2004	19	1.0	0.5	0.8	1.1
2005	19	1.0	0.5	0.8	1.0
2006	21	1.1	0.6	0.8	1.1
2007	32	1.4	0.8	1.2	1.5
2008	24	1.1	0.5	0.8	1.1
2009	24	1.1	0.6	0.9	1.0
2010	41	1.8	1.0	1.4	1.7
2011	20	0.9	0.4	0.6	0.7
	/				
1998-2011	301	1.2	0.6	1.0	1.2

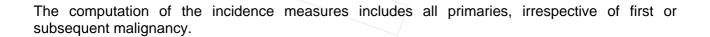


Table 3

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

Year of	Cases		Std.					Median		
diagnosis	n	Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	11	71.4	10.3	51.9	82.9	58.6	65.5	70.6	81.5	82.7
1999	13	65.7	13.7	44.7	92.4	49.0	59.2	61.2	74.8	83.9
2000	9	69.9	12.3	57,3	89.0	57.3	60.7	63.7	83.0	89.0
2001	11	67.3	15.6	35.6	85.5	48.6	58.7	70.3	82.0	82.1
2002	27	68.1	11.9	42.6	90.1	49.9	61.2	70.5	76.8	82.4
2003	30	68.1	12.6	43.2	93.1	52.8	60.4	67.0	79.5	82.5
2004	19	73.2	10.3	59.3	91.0	59.7	64.4	72.0	84.0	89.1
2005	19	69.9	10.8	44.2	85.0	46.0	65.2	71.4	77.6	83.3
2006	21	65.6	12.6	42.2	81.6	46.2	59.8	66.4	78.1	80.6
2007	32	67.5	15.0	41.4	94.3	48.3	56.7	65.0	81.8	88.7
2008	24	69.4	13.3	42.8	94.4	46.9	62.3	71.6	79.7	83.0
2009	24	64.7	12.3	42.1	89.4	48.2	56.0	63.7	73.3	81.1
2010	41	69.6	11.4	48.7	92.7	56.2	63.0	69.9	75.2	86.0
2011	20	67.8	8.2	50.6	83.5	56.2	60.6	70.7	73.5	74.7
1998-2011	301	68.3	12.2	35.6	94.4	50.9	60.5	68.8	76.8	83.8

Table 4 $\label{eq:Age_distribution} \mbox{Age distribution by 5-year age group for period 1998-2011} \mbox{ (incl. DCO)}$

Age at diagnosis	Cases			
Years	n	%	Cum.%	
35-39	1	0.3	0.3	
40-44	12	4.0	4.3	
45-49	14	4.7	9.0	
50-54	/ 15	5.0	14.0	
55-59	28	9.3	23.3	
60-64	54	17.9	41.2	
65-69	33	11.0	52.2	
70-74	54	17.9	70.1	
75-79	27	9.0	79.1	
80-84	41	13.6	92.7	
85+	22	7.3	100.0	
All ages	301	100.0		

Included in the statistics are 33.6% multiple primaries.

Table 5

Age-specific incidence, DCO rate and proportion of all cancers for period 1998-2011

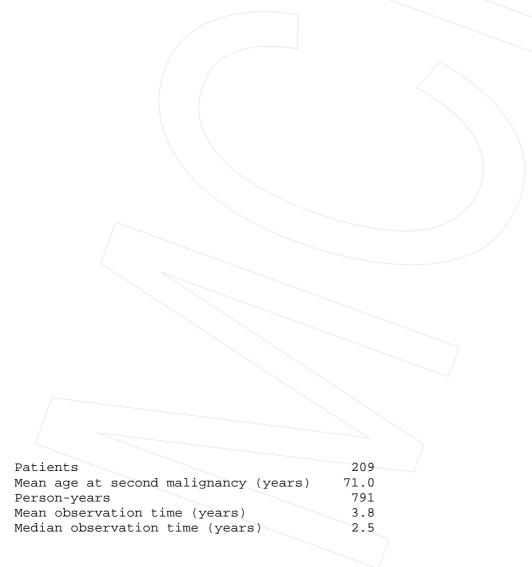
				Prop. all	
Age at			DCO rate	cancers	
diagnosis	Cases	Age-spec.	n=11	n=132509	
Years	n	incidence	8	%	
0- 4		0.0			
5- 9		0.0			
10-14					
15-19		0.0			
20-24		0.0			
25-29		0.0			
30-34		0.0			
35-39	_1	0.0		0.1	
40-44	12	0.5		0.4	
45-49	14	0.3		0.3	
50-54	15	0.9		0.2	
55-59	28	1.8	7.1	0.2	
60-64	54	3.5	7.1	0.3	
65-69	33	2.4		0.1	
70-74	54	5.2	1.9	0.2	
75-79	27	4.0	7.4	0.2	
80-84	41	10.1	12.2	0.4	
85+	22	7.9	4.5	0.3	
All ages	301		3.7	0.2	
Incidence					
Raw		1.2			
WS		0.6			
ES		1.0			
BRD-S		1.2			

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 6

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of second primaries for period 1998-2011

%
16.7
4.3
50.0
16.7
13.3
5



The occurrence of second malignancy is statistically significant.

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

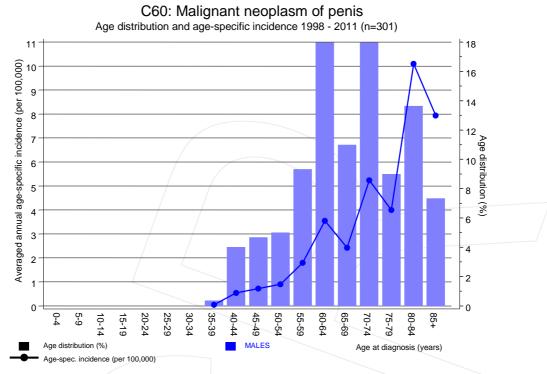


Figure 7. Age distribution and age-specific incidence



C60: Malignant neoplasm of penis

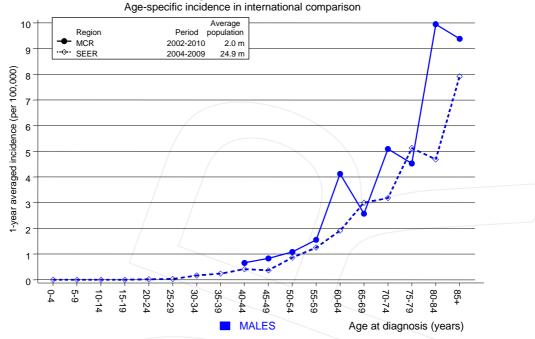


Figure 7a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).



Reference:

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence - SEER 18 Regs Research Data, released April 2012, based on the November 2011 submission. http://www.seer.cancer.gov.

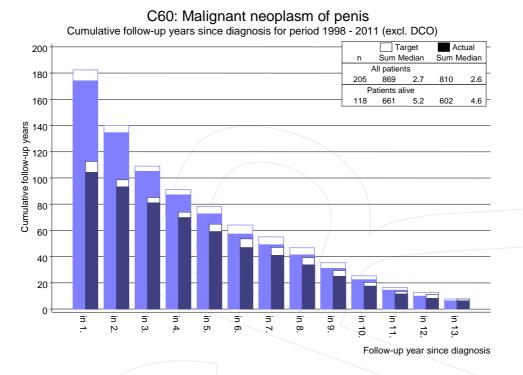


Figure 8. Cumulative follow-up years depending on time since diagnosis

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) 2003 - 2008

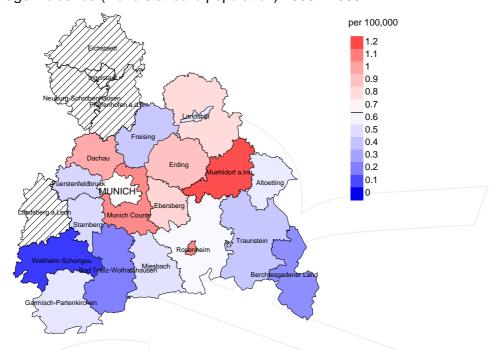
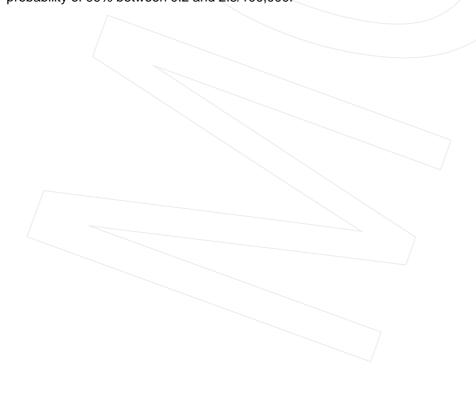


Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (0.6/100,000 WS N=140). Since cancer data are not available in some counties until 2007, the local incidence rates were not calculated, and the map tiles show as shaded.

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 61,449 male residents (averaged) in the period from 2003 to 2008 a total of 5 men were identified with newly diagnosed penile cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 0.8/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.2 and 2.5/100,000.



Standardized incidence ratio (SIR) 2003 - 2008

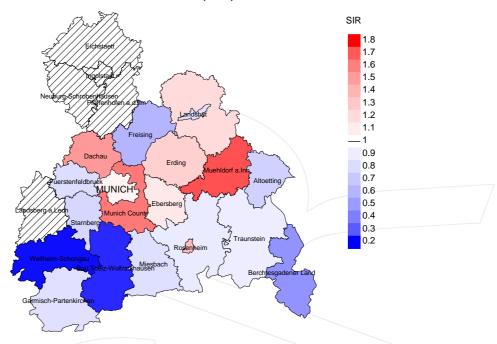
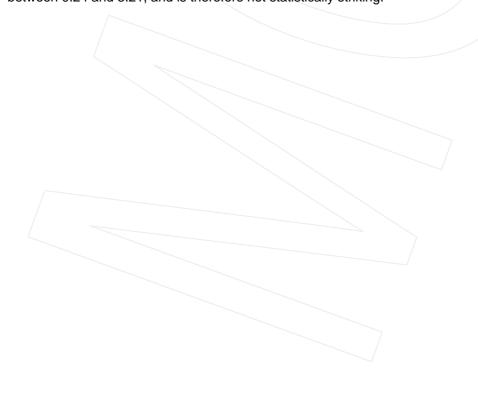


Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (N=140). Since cancer data are not available in some counties until 2007, the local SIR values were not calculated, and the map tiles show as shaded.

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 61,449 male residents (averaged) in the period from 2003 to 2008 a total of 5 men were identified with newly diagnosed penile cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.13. Though, the value of this parameter may vary with an underlying probability of 99% between 0.24 and 3.21, 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 4.52 m as of 2007, respectively)

		Prop.				Prop. deaths
	Incident	actively	Prop.		Prop.	with death
Year of	cases	followed	DCO	Deaths	deaths	certific.
diagnosis	n	%	%	/ n /	%	%
1998	11	100.0	9.1	7	63.6	100.0
1999	13	100.0		9	69.2	100.0
2000	9	88.9		4	44.4	100.0
2001	11	100.0	9.1	6	54.5	100.0
2002	27	100.0	3.7	18	66.7	94.4
2003	30	100.0	3.3	21	70.0	100.0
2004	19	89.5		11	57.9	90.9
2005	19	89.5	10.5	13/	68.4	100.0
2006	21	90.5	4.8	10	47.6	80.0
2007	32	81.3	3.1	13	40.6	100.0
2008	24	62.5		13	54.2	100.0
2009	24	66.7	4.2	10	41.7	100.0
2010	41	95.1		13	31.7	100.0
2011	20	45.0	10.0	3	15.0	100.0
1998-2011	301	85.7	3.7	151	50.2	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)

			Prop. deaths		Prop.
Year of	Incident		with death	Deaths in	deaths in
diagnosis/	cases	Deaths	certific.	same year	same year
death	n	n	%	n	%
1998	11	8	100.0	2	18.2
1999	13	8	87.5	1	7.7
2000	9	3	100.0		
2001	11	9	100.0	/ 1	9.1
2002	27	8	87.5	3	11.1
2003	30	11	90.9	5	16.7
2004	19	18	100.0	2	10.5
2005	19	18	100.0	4	21.1
2006	21	12	83.3	1	4.8
2007	32	21	95.2	6	18.8
2008	24	16	93.8	3	12.5
2009	24	15	100.0	_ 2	8.3
2010	41 /	19	100.0	2	4.9
2011	20	23	100.0	3	15.0
1998-2011	301	189	96.3	35	11.6

Table 10c

Annual cohorts of deaths, proportion of cancer-related and not 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 4.52 m as of 2007, respectively)

				Prop.	
				cancer	
		Prop.	Prop.	recorded	
		cancer-	not cancer-	on death	
Year of	Deaths	related	related	certificate	
death	n /	ે જ	%	%	
1000		F0 0	F0 0		
1998	8	50.0	50.0	75.0	
1999	8	75.0	25.0	85.7	
2000	3	66.7	33.3	100.0	
2001	9	44.4	55.6	66.7	
2002	8	37.5	62.5	71.4	
2003	11	54.5	45.5	70.0	
2004	18	44.4	55.6	72.2	
2005	18	50.0	50.0	72.2	
2006	12	50.0	50.0	70.0	
2007	21	81.0	19.0	85.0	
2008	16	56.3	43.8	80.0	
2009	/ 15	60.0	40.0	80.0	
2010	19	68.4	31.6	73.7	
2011	23	60.9	39.1	73.9	
1998-2011	189	58.2	41.8	75.8	

Table 11

Means of age at death according to the grouping in Table 10

					Age at
		Age at	Age at	Age at	death
		death	death	death	(according
		(all	(cancer-	(not cancer-	to death
Year of	Deaths	causes)	related)	related)	certificate)
death	n	Years	Years	Years	Years
1998	8	76.8	75.2	78.5	73.9
1999	8	73.9	76.0	67.8	80.7
2000	3	50.1	51.8	46.9	50.1
2001	9	79.4	77.6	80.9	79.1
2002	8	70.6	72.6	69.3	74.0
2003	11	73.4	69.4	78.3	70.6
2004	18	76.7	72.0	80.4	76.4
2005	18	76.2	69.9	82.5	72.3
2006	12	74.3	67.8	80.8	70.1
2007	21	73.6	71.3	83.2	71.3
2008	16	76.5	75.8	77.5	73.6
2009	15	74.5	74.7	74.2	72.7
2010	19	74.8	70.1	85.0	71.0
2011	23/	75.7	74.0	78.2	75.1
1998-2011	189	74.8	72.1	78.5	73.0



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 12

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

			D ₁	y year	or death				
Year of	Deaths	Mort.	MI-Index	Mort.	MI-Index	Mort.	MI-Index	Mort.	MI-Index
death	n	raw	raw	WS	WS	ES	ES	BRD-S	BRD-S
1998	4	0.4	0.36	0.2	0.33	0.3	0.36	0.6	0.40
1999	6	0.5	0.46	0.3	0.42	0.5	0.49	0.6	0.50
2000	2	0.2	0.22	0.1	0.34	0.2	0.28	0.2	0.22
2001	4	0.3	0.36	0.2	0.35	0.3	0.40	0.5	0.41
2002	3	0.2	0.11	0.1	0.09	0.1	0.11	0.2	0.13
2003	6	0.3	0.20	0.2	0.17	0.2	0.18	0.4	
2004	8	0.4	0.42	0.2	0.42	0.3	0.43	0.5	0.43
2005	9	0.5	0.47	0.2	0.49	0.4	0.51	0.6	0.53
2006	6	0.3	0.29	0.2	0.28	0.3		0.3	0.29
2007	17	0.8		0.4		0.6		0.8	0.54
2008	9	0.4		0.2		0.3		0.4	
2009	9	0.4		0.2		0.3		0.4	
2010	13	0.6		0.3		0.4		0.5	
2011	14	0.6	0.70	0.3	0.69	0.5	0.73	0.6	0.78
1998-2011	110	0.4	0.37	0.2	0.34	0.3	0.36	0.5	0.39

Table 13

Age distribution of age at death (cancer-related) for period 1998-2011 (incl. multiple primaries)

Age at				
death	Cases			
Years	n	90	Cum.%	
40 - 44	/ 1	0.9	0.9	
45-49	7	6.4	7.3	
50-54	/ 2	1.8	9.1	
55-59	6	5.5	14.5	
60-64	/ 11	10.0	24.5	
65-69	19	17.3	41.8	
70-74	13	11.8	53.6	
75-79	23	20.9	74.5	
80-84	12	10.9	85.5	
85+	16	14.5	100.0	
All ages	110	100.0		

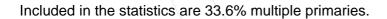


Table 14

Age-specific mortality (cancer-related) and proportion of all cancers for period 1998-2011 (incl. multiple primaries)

Age at death	Cases	Age-spec.		Prop. all cancers	
Years	n	mortality	MI-index	%	
lears	11	mortarity	MI-IIIdex	•	
0 - 4		0.0			
5- 9		0.0			
10-14		0.0			
15-19		0.0			
20-24		0.0			
25-29		0.0			
30-34		0.0			
35-39		0.0			
40-44	1	0.0	0.08	0.1	
45-49	7	0.4	0.50	0.5	
50-54	2	0.1	0.13	0.1	
55-59	6	0.4	0.21	0.1	
60-64	11	0.7	0.20	0.1	
65-69	19	1.4	0.58	0.2	
70-74	13	1.3	0.24	0.1	
75-79	23	3.4	0.85	0.2	
80-84	12	3.0	0.29	0.1	
85+	16	5.8	0.73	0.2	
All ages	110			0.2	
Mortality					
Raw		0.4	0.37		
WS		0.2	0.34		
ES		0.3	0.36		
BRD-S		0.5	0.39		
PYLL-70					
per 100,000		1.9			
ES		1.6			
AYLL-70		9.2			

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

Table 15

Multiple primaries in deaths in period 1998-2011

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn- chron ±30d n	Syn- chron ±30d ←%	Post n	Post ←%
	1	1.8	1	100.0				
C11 Nasopharynx	1 /	1.8					1	100.0
C15 Oesophagus	1/	1.8					1	100.0
C16 Stomach		1.8					1	100.0
C18 Colon	1 3	5.4	2	66.7			1	33.3
C19-C20 Rectum	4	7.1	3	75.0			1	25.0
C22 Liver	/ 1	1.8					1	100.0
C25 Pancreas	/ 1	1.8					1	100.0
C33-C34 Lung	7	12.5	_ 1	14.3	/2	28.6	4	57.1
C44 Skin others	3	5.4	2	66.7			1	33.3
C61 Prostate	14	25.0	11	78.6			3	21.4
C64 Kidney	4	7.1	2	50.0	1	25.0	1	25.0
C65 Renal pelvis	1	1.8	1	100.0				
C67 Bladder	6	10.7	3	50.0	1	16.7	_ 2	33.3
C68 Urethra	1	1.8					1	100.0
C70-C72 CNS cancer	1	1.8					1 /	100.0
C73 Thyroid	1	1.8	1	100.0				
C76-C79 CUP	/ 1	1.8	1	100.0				
C82-C85 NHL	3	5.4	1	33.3			2	66.7
C91-C96 Leukaemia	1	1.8					1	100.0
All mult. primaries	56	100.0	29	51.8	4	7.1	23	41.1

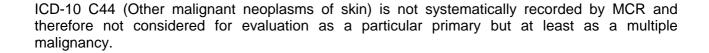


Table 16

Age-specific mortality (cancer-related) and proportion of all cancers for period 1998-2011

(Singular primaries only *)

Age at death	Cases	Age-spec.		Prop. all cancers	
Years	n	mortality	MI-index	%	
0- 4		0.0			
5- 9		0.0			
10-14		0.0			
15-19		0.0			
20-24		0.0			
25-29		0.0			
30-34		0.0			
35-39		0.0			
40-44	1	0.0	0.09	0.1	
45-49	5	0.3	0.42	0.4	
50-54	2	0.1	0.14	0.1	
55-59	6	0.4	0.26	0.1	
60-64	10	0.7	0.22	0.2	
65-69	13	1.0	0.43	0.2	
70-74	9	0.9	0.20	0.1	
75-79	20	3.0	1.00	0.2	
80-84	8	2.0	0.26	0.1	
85+	10	3.6	0.67	0.2	
All ages	84			0.2	
Mortality					
Raw		0.3	0.34		
WS		0.2	0.32		
ES		0.3	0.34		
BRD-S		0.4	0.36		
PYLL-70					
per 100,000		1.6			
ES		1.4			
AYLL-70		9.7			

^{*} See corresponding tables with multiple primaries.

Table 17

Age-specific mortality (cancer-related) and proportion of all cancers for period 1998-2011

(Single primaries only *)

Age at death	Cases	Age-spec.		Prop. all cancers	
Years	n	mortality	MI-index	%	
Iears	11	mortarity	MI-IIIGEX	6	
0- 4		0.0			
5- 9		0.0			
10-14		0.0			
15-19		0.0			
20-24		0.0			
25-29		0.0			
30-34		0.0			
35-39		0.0			
40-44	1	0.0	0.09	0.2	
45-49	4	0.2	0.36	0.3	
50-54	2	0.1	0.15	0.1	
55-59	6	0.4	0.29	0.1	
60-64	7	0.5	0.18	0.1	
65-69	13	1.0	0.48	0.2	
70-74	7	0.7	0.18	0.1	
75-79	13	1.9	0.72	0.2	
80-84	8	2.0	0.30	0.1	
85+	8	2.9	0.57	0.2	
All ages	69			0.1	
Mortality					
Raw		0.3	0.31		
WS		0.1	0.29		
ES		0.2	0.31		
BRD-S		0.3	0.33		
PYLL-70					
per 100,000		1.4			
ES		1.2			
AYLL-70		9.5			

^{*} See corresponding tables with multiple primaries.

C60: Malignant neoplasm of penis

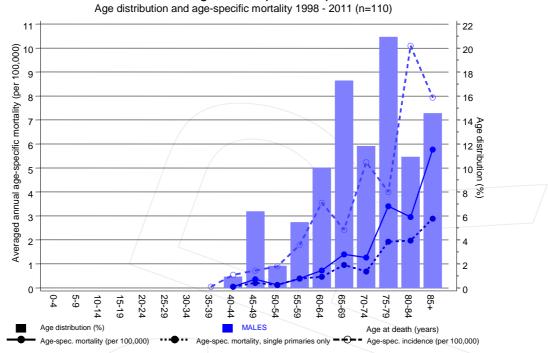


Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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



Average mortality (world standard population) 2003 - 2008

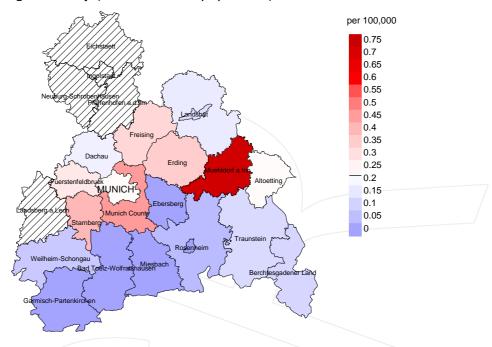


Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2003 to 2008. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (0.2/100,000 WS N=51). Since cancer data are not available in some counties until 2007, the local mortality rates were not calculated, and the map tiles show as shaded.

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 61,449 male residents (averaged) in the period from 2003 to 2008 a total of 0 men died from penile cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.0/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.0 and 1.4/100,000.



Standardized mortality ratio (SMR) 2003 - 2008

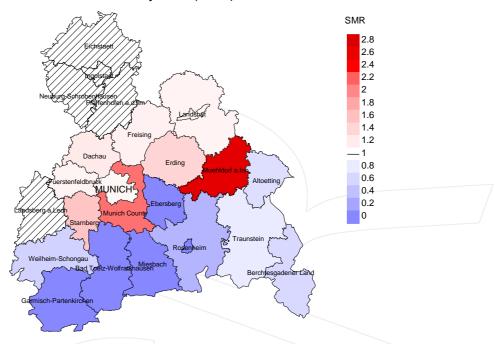


Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (N=51). Since cancer data are not available in some counties until 2007, the local SMR values were not calculated, and the map tiles show as shaded.

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 61,449 male residents (averaged) in the period from 2003 to 2008 a total of 0 men died from penile cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.00. Though, the value of this parameter may vary with an underlying probability of 99% between 0.00 and 3.34, 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 tumor-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

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) FRG Federal Republic of Germany

GEKID Association of Population-based Cancer Registries in Germany

(Gesellschaft der epidemiologischen Krebsregister in Deutschland e.V.)

LCL Lower confidence limit

MI-index Ratio between mortality and incidence

MCR Munich Cancer Registry (Tumorregister München)

PYLL-70 Potential years of life lost prior to age 70 given a person dies before that age

SEER Surveillance, Epidemiology, and End Results (USA)

SIR Standardized incidence ratio
SMR Standardized mortality ratio
UCL Upper confidence limit
WS World standard population

Recommended Citation

Munich Cancer Registry. Baseline statistics C60: Penile cancer [Internet]. 2013 [updated 2013 Apr 2; cited 2013 Jun 1]. Available from: http://www.tumorregister-muenchen.de/en/facts/base/base_C60__E.pdf

Copyright

The content of the public web site provided by the Munich Cancer Registry is available worldwide and free of charge. All documents are free to download, utilize, copy, print-out and distribute, providing that the MCR is referenced.

Disclaimer

The Munich Cancer Registry reserves the right to not be responsible for the topicality, correctness, completeness or quality of the information provided. Liability claims regarding damage caused by the use of any information provided, including any kind of information which is incomplete or incorrect, will therefore be rejected.

Index of figures and tables

Fig./Tbl		Page
1	Pts cohorts, DCO, mult. prim., follow-up / yr	3
2	Incidence by year of diagnosis	4
3	Age distribution parameters by year of diagnosis	5
4	Age distribution by 5-year age group	6
5	Age-specific incidence and DCO rate	7
6	Standardized incidence ratio of second primaries	8
7	Age distribution and age-specific incidence (chart)	9
7a	Age-specific incidence internationally (chart)	10
8	Cumulative follow-up years (chart)	11
9a	Map of cancer incidence (WS) by county (chart)	12
9b	Standardized incidence ratio (SIR) by county (chart)	13
10a	Pts incident cohorts and mortality / yr	14
10b	Incidence and mortality by year of diagnosis	15
10c	Cancer-related deaths, death certification available / yr	16
11	Means of age at death / yr	17
12	Mortality by year of death	18
13	Distribution of age at death	19
14	Age-specific mortality	20
15	Multiple primaries in deaths	21
16	Age-specific mortality (first primaries)	22
17	Age-specific mortality (single primaries)	23
18	Age distribution and age-specific mortality (chart)	24
19a	Map of cancer mortality (WS) by county (chart)	25
19b	Standardized mortality ratio (SMR) by county (chart)	26