

Munich Cancer Registry



- ▶ Incidence and Mortality
- ▶ Selection Matrix
- ▶ Homepage
- ▶ *Deutsch*

ICD-10 C60-C68: Urologic cancer

Survival

Year of diagnosis	1988-1997	1998-2014
Patients	13,392	68,729
Diseases	13,753	71,746
Cases evaluated	12,148	55,629
Creation date	03/02/2016	
Export date	12/23/2015	
Population	4.64 m	



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

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

<http://www.tumorregister-muenchen.de/en/facts/surv/sC6068E-ICD-10-C60-C68-Urologic-cancer-survival.pdf>

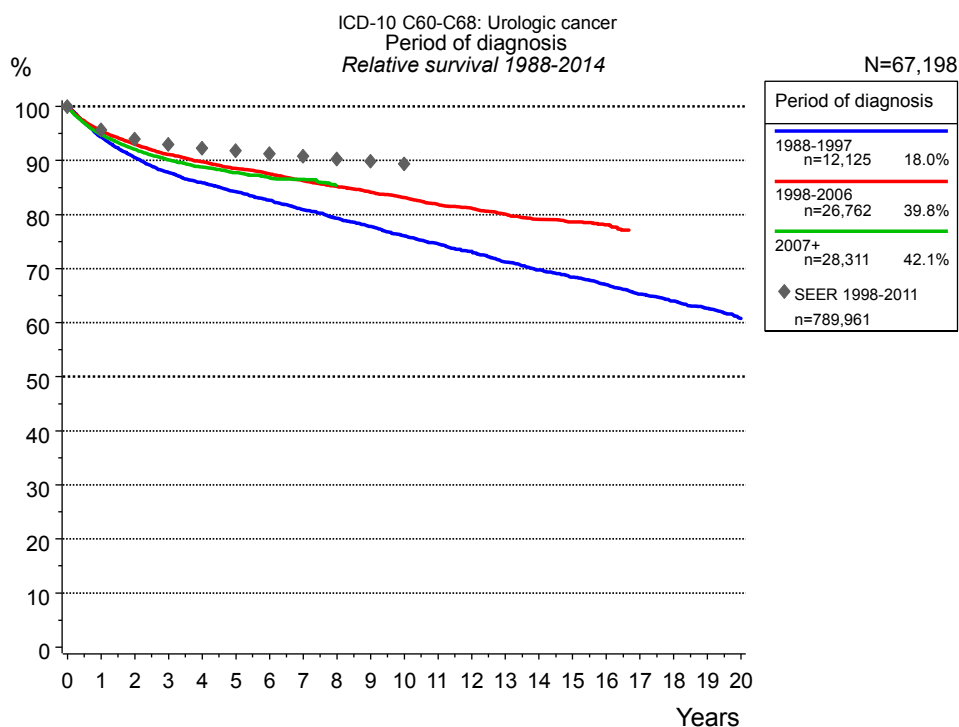


Figure 1a. Relative survival of patients with urologic cancer by period of diagnosis. Included in the evaluation are 67,198 cases diagnosed between 1988 and 2014.

The presented survival curves are derived from clinical records with valid follow-up informations, which means that death certificate cases (DCO) cases are omitted from the analysis. With this one restriction, the MCR has provided population-based statistics since 1998, collecting data on all cancer cases in the region of southern Bavaria. Historical data of previous time periods can be heavily selected, therefore, univariate survival comparisons of the presented time periods must be carefully considered. Nonetheless, all calculable survival curves are depicted to facilitate the comparison of long time follow-up analyses of relative survival between particular cancers.

Years	Period of diagnosis					
	1988-1997 n=12,125		1998-2006 n=26,762		2007+ n=28,311	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	90.6	94.4	92.4	95.5	92.0	94.7
2	83.6	90.5	87.1	93.0	86.8	92.1
3	78.1	87.8	82.7	91.1	82.5	90.1
4	73.5	85.9	78.9	89.8	78.8	88.8
5	69.4	84.2	75.3	88.5	75.5	87.7
6	65.6	82.6	71.9	87.5	72.3	86.8
7	61.9	80.9	68.6	86.2	69.6	86.5
8	58.5	79.3	65.4	85.2		
9	55.3	77.8	62.3	84.1		
10	52.1	76.1	59.3	83.2		
11	49.3	74.6	56.1	81.9		
12	46.5	73.1	53.5	81.2		
13	43.6	71.2	50.6	80.0		
14	41.2	69.7	48.0	79.1		
15	38.9	68.4	45.9	78.6		
16	36.7	67.0	43.6	78.1		
17	34.4	65.3				
18	32.4	64.0				
19	30.4	62.7				
20	28.4	60.8				

Table 1b. Observed (obs.) and relative (rel.) survival of patients with urologic cancer by period of diagnosis for period 1988-2014 (N=67,198).

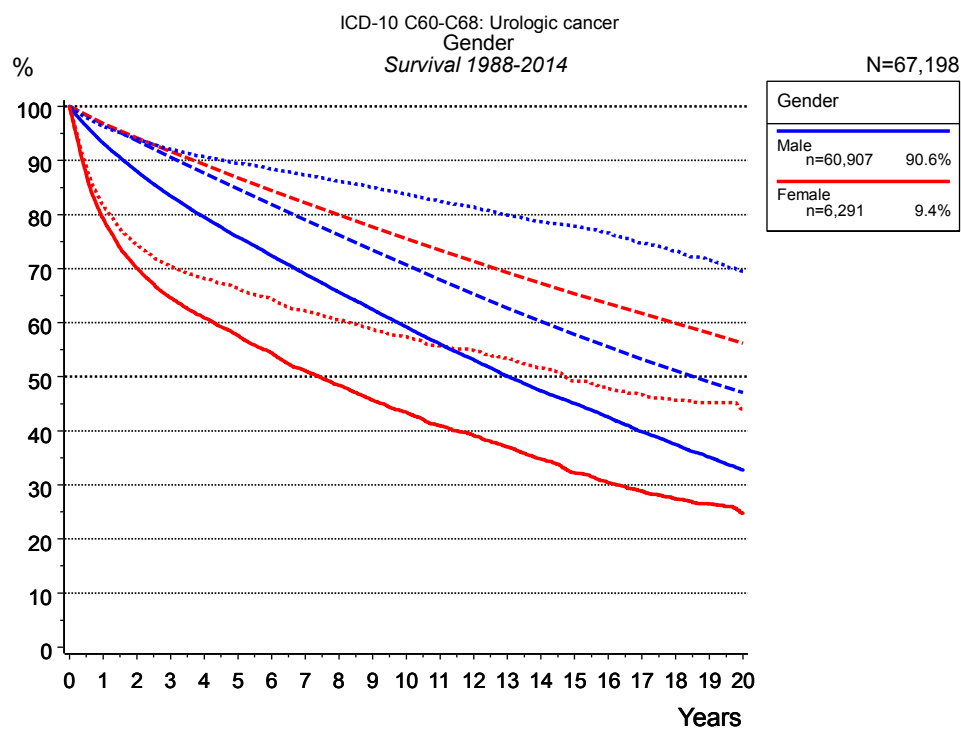


Figure 2a. Survival of patients with urologic cancer by gender. Included in the evaluation are 67,198 cases diagnosed between 1988 and 2014.

Years	Gender			
	Male n=60,907		Female n=6,291	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	93.2	96.3	79.2	81.8
2	88.0	94.0	70.1	74.4
3	83.5	92.1	64.5	70.4
4	79.5	90.7	60.9	68.2
5	75.8	89.5	57.6	66.4
6	72.4	88.4	54.4	64.4
7	69.0	87.3	51.1	62.2
8	65.7	86.2	48.4	60.6
9	62.4	85.0	45.7	58.8
10	59.2	83.8	43.4	57.4
11	56.1	82.5	41.0	55.7
12	53.2	81.4	39.2	54.9
13	50.1	79.8	37.1	53.4
14	47.4	78.6	34.8	51.6
15	45.1	77.8	32.2	49.2
16	42.5	76.6	30.4	47.8
17	39.8	74.7	28.9	46.7
18	37.5	73.3	27.4	45.7
19	35.1	71.6	26.5	45.2
20	32.8	69.5	24.8	44.0

Table 2b. Observed (obs.) and relative (rel.) survival of patients with urologic cancer by gender for period 1988-2014 (N=67,198).

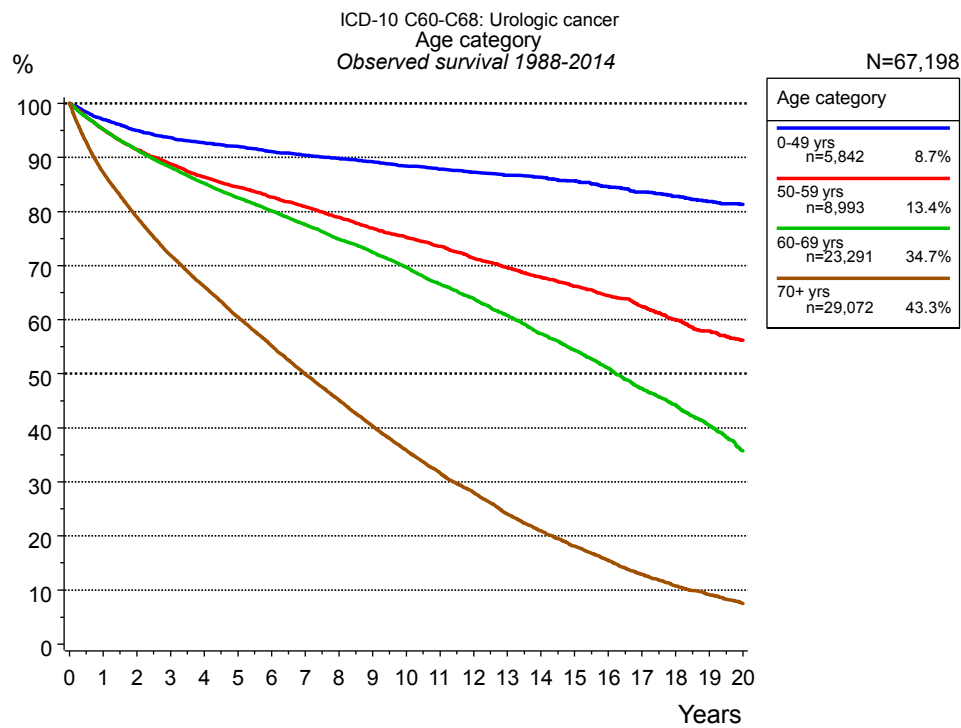


Figure 3a. Observed survival of patients with urologic cancer by age category. Included in the evaluation are 67,198 cases diagnosed between 1988 and 2014.

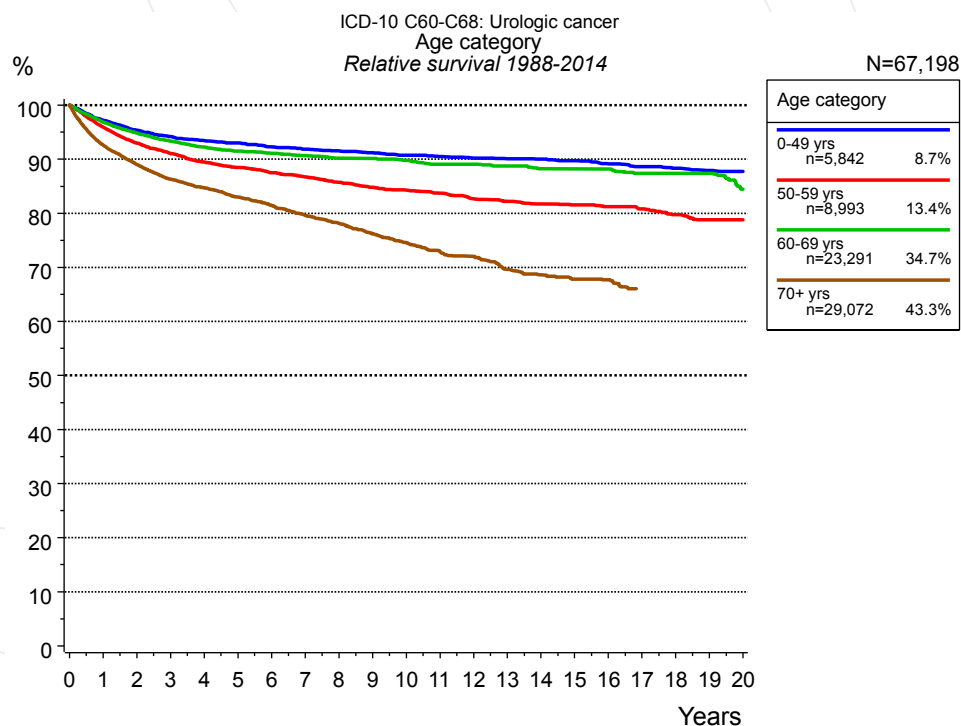


Figure 3b. Relative survival of patients with urologic cancer by age category. Included in the evaluation are 67,198 cases diagnosed between 1988 and 2014.

Years	Age category							
	0-49 yrs n=5,842		50-59 yrs n=8,993		60-69 yrs n=23,291		70+ yrs n=29,072	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	97.0	97.2	95.2	95.9	95.2	96.9	87.2	92.6
2	95.0	95.3	91.5	93.0	91.4	94.8	79.0	89.0
3	93.7	94.2	88.8	91.0	88.2	93.4	71.9	86.3
4	92.7	93.4	86.4	89.5	85.2	92.2	66.1	84.7
5	92.0	93.0	84.5	88.5	82.6	91.5	60.5	83.0
6	91.1	92.3	82.6	87.5	80.1	91.1	55.2	81.4
7	90.4	91.8	80.9	86.7	77.6	90.7	49.9	79.6
8	89.8	91.5	78.9	85.8	74.9	90.2	45.1	78.1
9	89.2	91.2	76.9	84.8	72.5	90.2	40.3	76.2
10	88.4	90.7	75.2	84.2	69.7	89.8	35.9	74.6
11	87.8	90.5	73.6	83.7	66.6	89.1	31.7	73.0
12	87.2	90.2	71.4	82.7	64.0	89.1	28.1	72.0
13	86.7	90.1	69.6	82.2	60.8	88.7	24.1	69.6
14	86.3	90.0	67.9	81.7	57.4	88.2	20.9	68.6
15	85.7	89.7	66.2	81.5	54.3	88.2	18.1	67.8
16	84.6	89.2	64.4	81.2	51.0	88.2	15.5	67.7
17	83.6	88.6	62.5	80.8	47.3	87.4		
18	82.8	88.3	60.0	79.8	44.2	87.4		
19	81.9	87.9	57.9	78.8	40.5	87.4		
20	81.3	87.7	56.2	78.8	35.8	84.5		

Table 3c. Observed (obs.) and relative (rel.) survival of patients with urologic cancer by age category for period 1988-2014 (N=67,198).

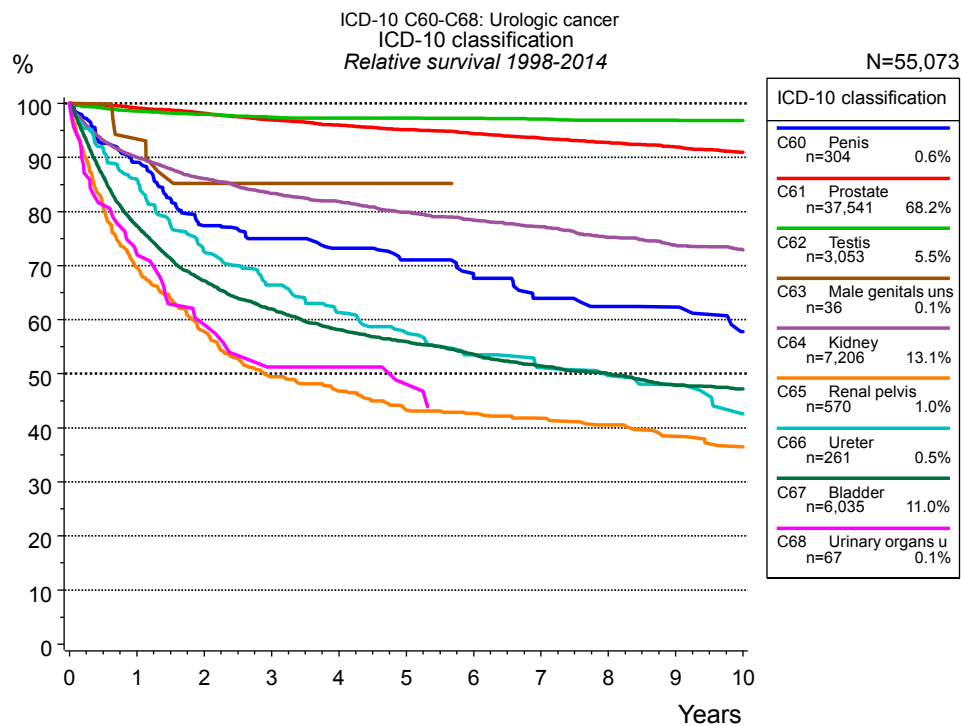


Figure 4a. Relative survival of patients with urologic cancer by ICD-10 classification. Included in the evaluation are 55,073 cases diagnosed between 1998 and 2014.

ICD-10 classification														
Years	C60 Penis		C61 Prostate		C62 Testis		C63 Male genitals unspec.		C64 Kidney		C65 Renal pelvis		C66 Ureter	
	n=304	n=304	n=37,541	n=37,541	n=3,053	n=3,053	n=36	n=36	n=7,206	n=7,206	n=570	n=570	n=261	n=261
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	86.3	89.1	96.0	99.2	98.3	98.6	91.4	93.4	88.0	90.0	67.0	69.7	82.4	85.9
2	72.2	77.4	92.0	98.2	97.6	98.0	79.6	85.2	82.2	86.1	53.6	57.8	67.0	72.6
3	68.2	75.0	87.8	96.9	96.7	97.5	79.6	85.2	77.8	83.4	43.9	49.5	58.8	66.4
4	64.5	73.2	84.0	96.0	96.4	97.3	76.3	85.2	74.5	81.8	39.9	46.8	51.9	61.3
5	60.6	71.1	80.3	95.1	96.1	97.3	72.5	85.2	71.0	79.9	35.5	43.3	47.2	57.6
6	55.8	67.7	76.8	94.4	95.7	97.2	68.0	85.2	67.8	78.4	33.8	42.6	42.0	53.5
7	51.3	63.9	73.3	93.6	95.3	97.1	68.0	85.2	65.0	77.1	32.0	41.8	38.5	51.1
8	48.7	62.4	69.8	92.8	94.7	96.9	68.0	85.2	61.7	75.2	29.9	40.5	36.0	49.7
9	47.7	62.3	66.4	91.9	94.4	96.9	68.0	85.2	58.8	73.8	27.5	38.4	34.2	48.0
10	41.6	57.8	62.9	90.9	94.0	96.8			56.5	72.9	25.4	36.5	28.8	42.5

ICD-10 classification				
<i>cont'd</i>	C67 Bladder n=6,035		C68 Urinary organs unspec. n=67	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	73.8	77.3	71.2	72.3
2	61.6	67.2	56.6	59.1
3	54.7	62.0	46.2	51.2
4	49.4	58.2	46.2	51.2
5	45.7	55.9	41.6	48.1
6	42.2	53.6	36.8	41.6
7	38.9	51.4		
8	36.4	50.0		
9	33.5	47.9		
10	31.9	47.2		

Table 4b. Observed (obs.) and relative (rel.) survival of patients with urologic cancer by ICD-10 classification for period 1998-2014 (N=55,073).

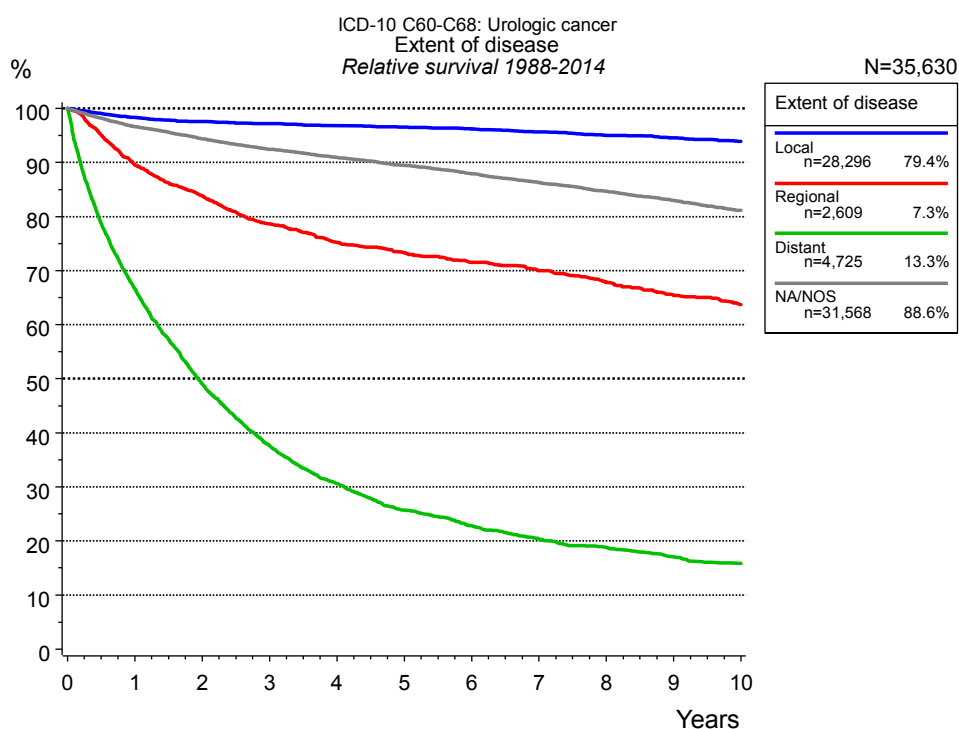


Figure 4c. Relative survival of patients with urologic cancer by extent of disease. For 58,589 of 67,198 cases diagnosed between 1988 and 2014 valid data could be obtained for this item. For a total of 35,630 cases an evaluable classification was established. The grey line represents the subgroup of 31,568 patients with missing values regarding extent of disease (47.0% of 67,198 patients, the percent values of all other categories are related to n=35,630).

Years	Extent of disease							
	Local n=28,296		Regional n=2,609		Distant n=4,725		NA/NOS n=31,568	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	95.5	98.4	87.6	89.5	64.2	66.6	93.1	96.6
2	92.1	97.6	80.2	83.8	45.7	49.1	87.8	94.4
3	89.1	97.2	73.6	78.6	33.9	37.6	83.0	92.4
4	86.2	96.8	68.8	75.2	26.8	30.7	78.7	90.9
5	83.2	96.5	65.6	73.3	21.8	25.7	74.7	89.5
6	80.3	96.2	62.5	71.5	18.8	22.8	70.7	87.9
7	77.3	95.6	59.7	70.0	16.4	20.4	66.9	86.3
8	74.2	95.0	56.4	67.8	14.8	18.8	63.1	84.7
9	71.3	94.5	53.0	65.4	13.1	17.1	59.5	83.0
10	68.3	93.9	50.3	63.7	12.0	15.9	55.9	81.1

Table 4d. Observed (obs.) and relative (rel.) survival of patients with urologic cancer by extent of disease for period 1988-2014 (N=35,630).

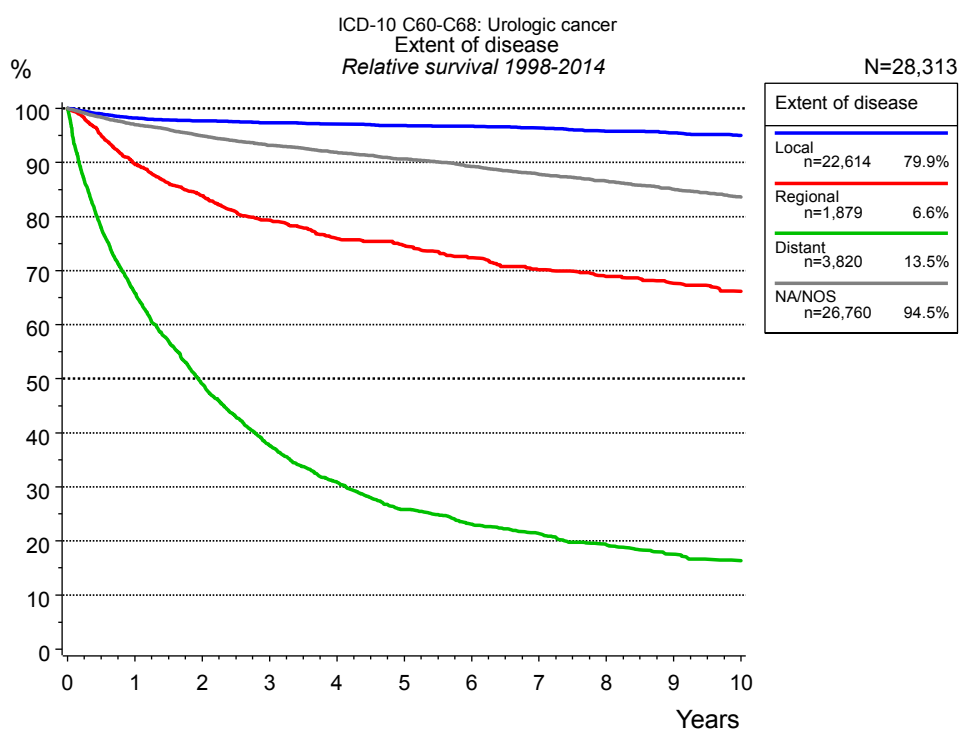


Figure 4e. Relative survival of patients with urologic cancer by extent of disease. For 47,723 of 55,073 cases diagnosed between 1998 and 2014 valid data could be obtained for this item. For a total of 28,313 cases an evaluable classification was established. The grey line represents the subgroup of 26,760 patients with missing values regarding extent of disease (48.6% of 55,073 patients, the percent values of all other categories are related to n=28,313).

Years	Extent of disease							
	Local n=22,614		Regional n=1,879		Distant n=3,820		NA/NOS n=26,760	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	95.5	98.3	87.8	89.6	63.6	65.8	93.8	97.0
2	92.4	97.7	80.4	83.9	45.9	49.0	88.8	94.9
3	89.5	97.4	74.5	79.3	34.1	37.7	84.3	93.2
4	86.7	97.1	69.8	75.9	27.2	30.9	80.3	91.9
5	83.7	96.8	67.2	74.6	22.1	25.8	76.6	90.7
6	81.0	96.7	63.8	72.4	19.3	23.1	72.8	89.2
7	78.1	96.4	60.3	70.1	17.4	21.4	69.1	87.8
8	75.1	95.8	57.9	68.9	15.3	19.3	65.7	86.6
9	72.2	95.5	55.5	67.7	13.6	17.6	62.1	85.0
10	69.3	95.0	53.2	66.2	12.5	16.4	58.7	83.6

Table 4f. Observed (obs.) and relative (rel.) survival of patients with urologic cancer by extent of disease for period 1998-2014 (N=28,313).

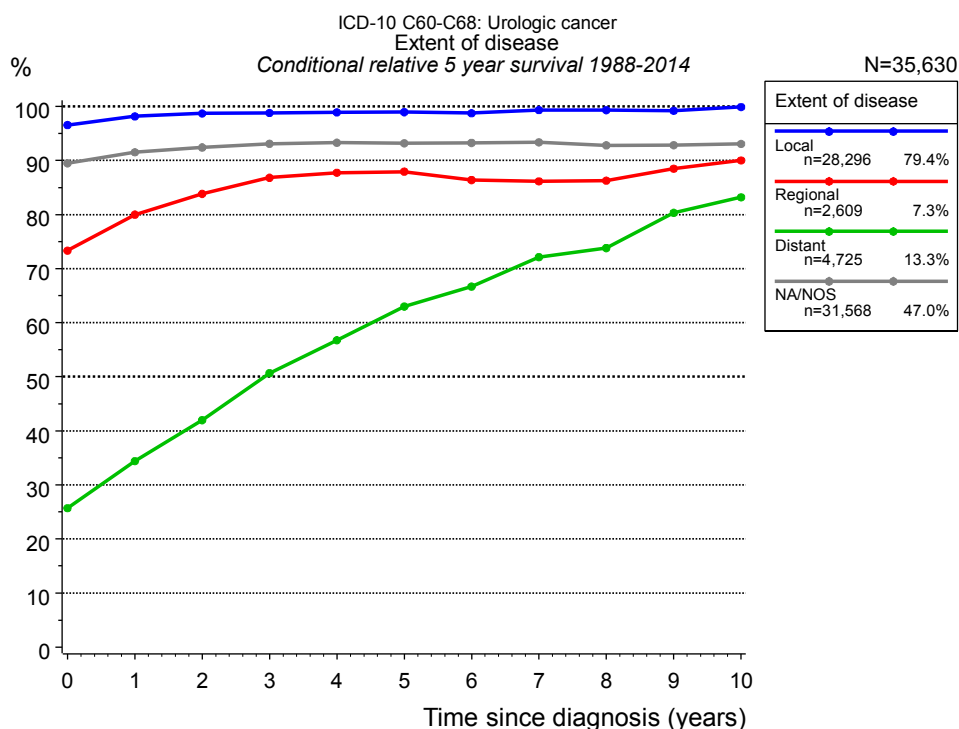


Figure 4g. Conditional relative 5-year survival of patients with urologic cancer by extent of disease. For 58,589 of 67,198 cases diagnosed between 1988 and 2014 valid data could be obtained for this item. For a total of 35,630 cases an evaluable classification was established. The grey line represents the subgroup of 31,568 patients with missing values regarding extent of disease (47.0% of 67,198 patients, the percent values of all other categories are related to n=35,630).

Years	Extent of disease							
	Local		Regional		Distant		NA/NOS	
	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs
0	28,296	96.6	2,609	73.3	4,725	25.7	31,568	89.5
1	25,405	98.2	2,111	80.0	2,894	34.4	27,897	91.5
2	22,959	98.7	1,774	83.8	1,925	42.0	25,218	92.4
3	20,414	98.8	1,469	86.8	1,329	50.7	22,559	93.1
4	18,106	98.9	1,246	87.7	976	56.8	20,234	93.3
5	16,064	98.9	1,051	87.9	726	63.0	18,028	93.2
6	14,465	98.7	940	86.4	574	66.7	15,563	93.3
7	12,934	99.3	837	86.1	441	72.1	13,059	93.4
8	11,291	99.3	717	86.3	356	73.8	10,771	92.8
9	10,029	99.2	644	88.5	278	80.3	8,819	92.8
10	8,810	99.9	566	90.0	222	83.2	6,979	93.1

Table 4h. Conditional relative 5-year survival of patients with urologic cancer by extent of disease for period 1988-2014 (N=35,630).

Conditional relative survival rates refer to the relative survival probability, in this case for 5 years after cancer diagnosis, compared to the age- and sex-matched population (=100%) under the condition of being alive for a certain time period (x-axis in Figure 4e). The results illustrate to what extent the cancer induced mortality of particular subgroups declines in the subsequent years after detection of the malignancy. For instance, according to the presented survival statistics, patients in the subgroup extent of disease="Local", who are alive at least 3 years after cancer diagnosis, the conditional relative 5-year survival rate is 98.8% (n=20,414).

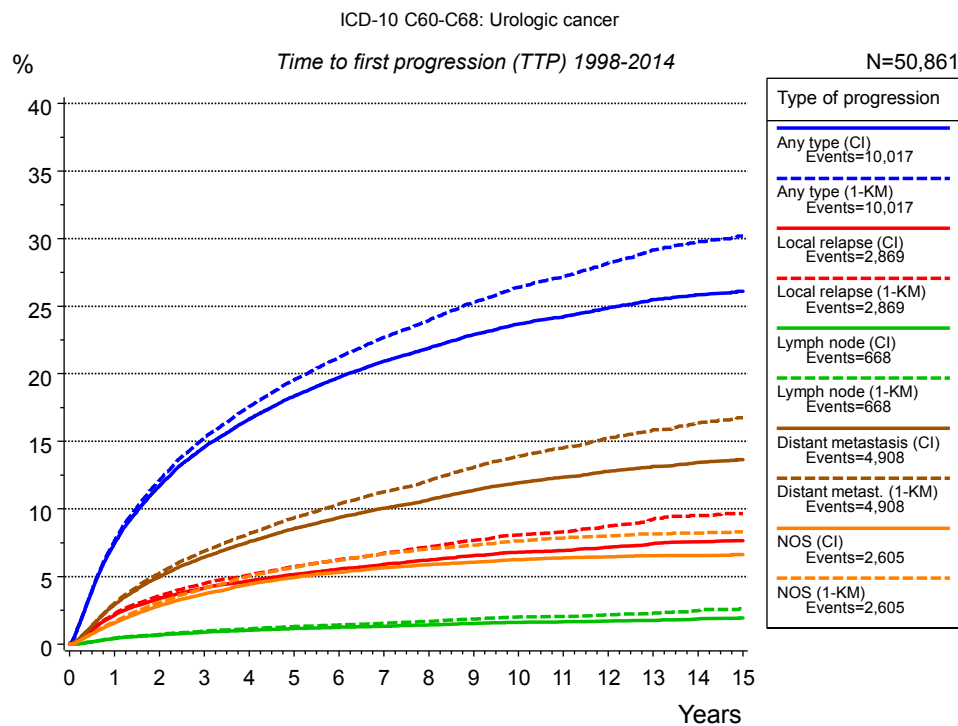


Figure 5a. Time to first progression of 50,861 patients with urologic cancer diagnosed between 1998 and 2014 (M0 only in solid cancers) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

Years	Type of progression						
	Any type (CI)	Any type (1-KM)	Local relapse (CI)	Local relapse (1-KM)	Lymph node (CI)	Lymph node (1-KM)	Distant metastasis (CI)
	n=50,861 %	n=50,861 %	n=50,861 %	n=50,861 %	n=50,861 %	n=50,861 %	n=50,861 %
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	7.5	7.6	2.2	2.2	0.4	0.4	2.9
2	11.7	12.1	3.4	3.6	0.7	0.7	5.0
3	14.6	15.2	4.1	4.5	0.9	1.0	6.4
4	16.6	17.6	4.7	5.1	1.0	1.1	7.6
5	18.3	19.5	5.2	5.7	1.2	1.3	8.6
6	19.7	21.2	5.6	6.2	1.2	1.4	9.4
7	20.9	22.7	5.9	6.7	1.3	1.5	10.1
8	21.9	23.9	6.2	7.2	1.4	1.7	10.7
9	22.9	25.3	6.6	7.7	1.5	1.8	11.4
10	23.7	26.4	6.8	8.1	1.6	2.0	12.0
11	24.2	27.2	6.9	8.3	1.7	2.0	12.3
12	24.9	28.2	7.2	8.7	1.7	2.2	12.8
13	25.5	29.1	7.4	9.2	1.8	2.3	13.2
14	25.9	29.8	7.6	9.5	1.9	2.5	13.5
15	26.1	30.2	7.7	9.7	1.9	2.6	13.7

<i>cont'd</i>	Type of progression		
	Distant metast. (1- KM)	NOS (CI)	NOS (1-KM)
	n=50,861	n=50,861	n=50,861
Years	%	%	%
0	0.0	0.0	0.0
1	3.0	1.6	1.7
2	5.2	2.8	3.1
3	6.9	3.7	4.1
4	8.2	4.4	5.0
5	9.4	4.9	5.7
6	10.4	5.3	6.2
7	11.3	5.7	6.7
8	12.1	5.9	7.0
9	13.1	6.1	7.3
10	13.9	6.3	7.6
11	14.5	6.4	7.9
12	15.2	6.5	8.0
13	15.9	6.5	8.2
14	16.4	6.6	8.2
15	16.7	6.6	8.3

Table 5b. Time to first progression of patients with urologic cancer for period 1998-2014 (N=50,861).

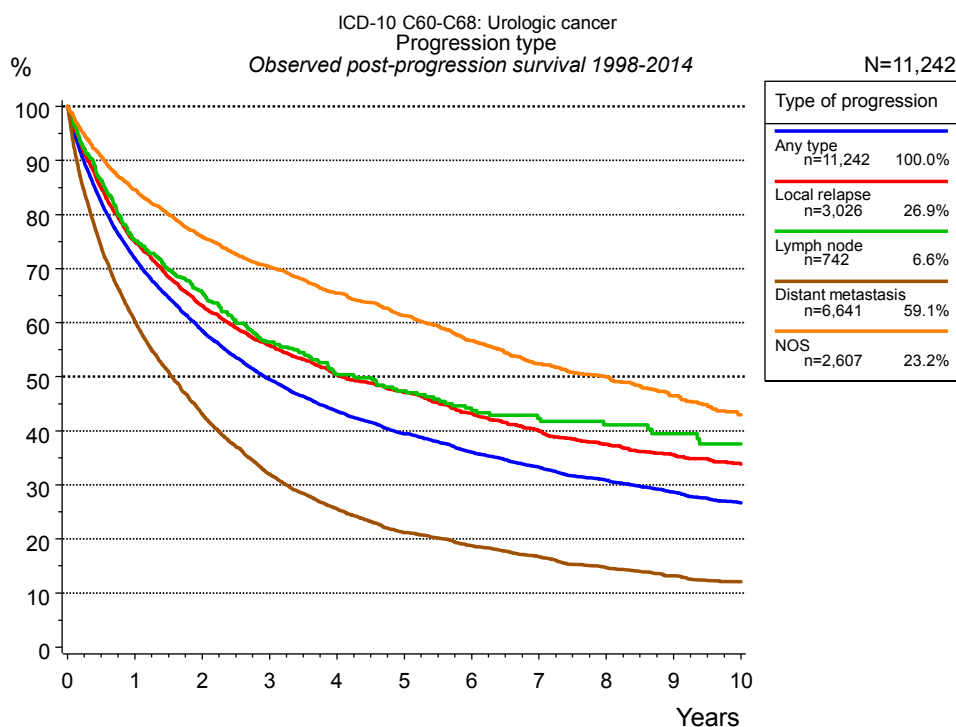


Figure 5c. Observed post-progression survival of 11,242 patients with urologic cancer diagnosed between 1998 and 2014. These 11,242 patients with documented progression events during their course of disease represent 20.6 % of the totally 54,614 evaluated cases (incl. M1, n=3,753, 6.9 %). Patients with cancer relapse documented via death certificates only were excluded (n=2,528, 4.6 %). Multiple progression types on different sites are included in the evaluation even when not occurring synchronously. The NOS (not otherwise specified) class is included under the condition, that it is the one and only progression type during the course of disease.

Medical record documentation often lacks the linguistic severity to distinguish between local relapse, regional lymph node metastasis and distant spread in solid cancers. Frequently, the statement “not specified” is the only information in registries regarding relapse of the disease. The category “Any type” denotes all cases who suffered from at least one relapse during the course of disease (incl. primary M1-status). Although, the real number of relapsed patients is likely to be much higher. The accumulated percentage of patients with local relapse or distant metastasis exceeds the 100% value because patients are potentially considered in more than one subgroup.

Years	Type of progression				
	Any type n=11,242 %	Local relapse n=3,026 %	Lymph node n=742 %	Distant metastasis n=6,641 %	NOS n=2,607 %
0	100.0	100.0	100.0	100.0	100.0
1	71.9	75.0	75.1	60.3	84.6
2	58.6	63.2	65.5	43.1	75.9
3	49.5	55.8	56.4	31.9	70.3
4	43.6	50.3	50.4	25.6	65.4
5	39.5	47.1	47.4	21.2	61.2
6	36.1	43.2	43.8	18.7	56.7
7	33.3	40.1	42.3	16.7	52.4
8	30.8	37.5	41.1	14.7	50.0
9	28.7	35.6	39.5	13.2	46.5
10	26.7	33.9	37.6	12.1	43.0

Table 5d. Observed post-progression survival of patients with urologic cancer for period 1998-2014 (N=11,242).

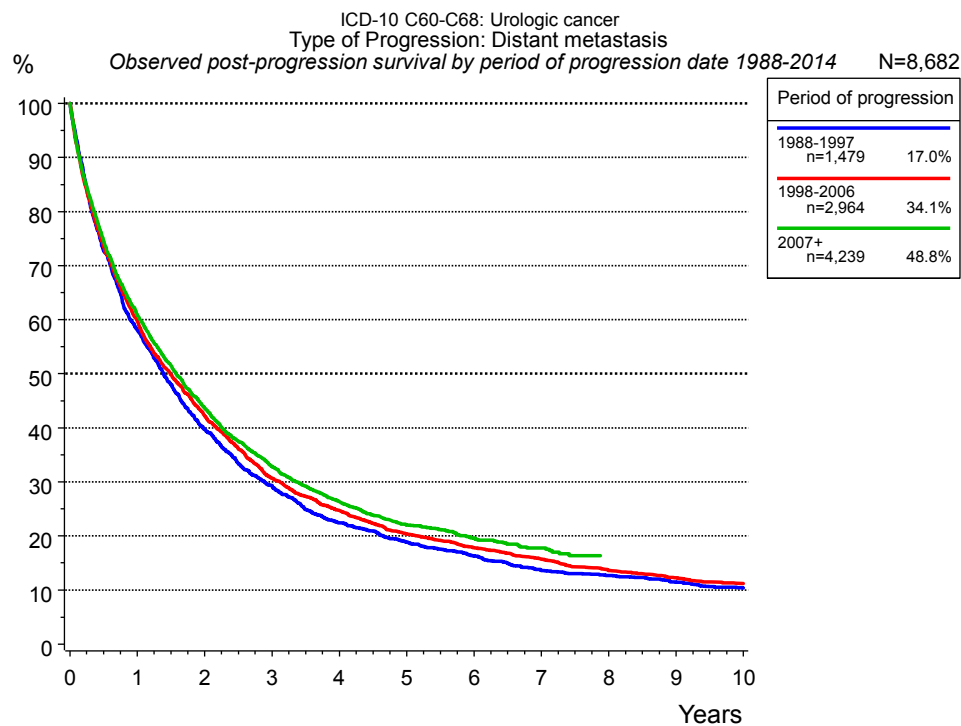


Figure 5e. Observed post-progression (distant metastasis) survival of 8,682 patients with urologic cancer diagnosed between 1988 and 2014 by period of progression.

Years	Period of progression		
	1988-1997 n=1,479	1998-2006 n=2,964	2007+ n=4,239
0	100.0	100.0	100.0
1	58.1	59.7	60.8
2	39.7	42.2	43.7
3	29.3	30.7	32.8
4	22.4	24.7	26.3
5	18.9	20.3	22.0
6	16.3	17.8	19.6
7	13.6	15.7	17.8
8	12.7	13.6	
9	11.4	12.2	
10	10.4	11.2	

Table 5f. Observed post-progression (distant metastasis) survival of patients with urologic cancer for period 1988-2014 by period of progression (N=8,682).

Shortcuts

MCR Munich Cancer Registry, Germany

NCI National Cancer Institute, USA

SEER Surveillance, Epidemiology, and End Results, USA

UICC Union for International Cancer Control, Geneva

DCO Death certificate only Death certificate provides the only notification to the registry.

NA Not available

NOS Not otherwise specified

OS Overall/Observed survival Overall/Observed survival (Kaplan-Meier estimate)

Date of entry: diagnosis
Event: death from any cause

RS Relative survival Survival compared to “general population”, ratio of observed to expected survival (Ederer II method), reflecting cancer specific survival

AS Assembled survival Assembled chart of observed, expected, relative survival

CS Conditional survival Survival probability under the condition of surviving a given period of time

TTP Time to progression Time to first progression / relapse
Date of entry: diagnosis
Event: (progression / relapse): first local-, lymph node recurrence, distant metastasis or unspecified progression

1-KM 1 minus Kaplan-Meier estimator
 (“inverse” Kaplan-Meier estimator)

CI Cumulative incidence
Death as competing risk (according to Kalbfleisch und Prentice)

PPS Post-progression survival Survival since first progression / relapse (Kaplan-Meier estimate)
Date of entry (progression / relapse): first local-, lymph node recurrence, distant metastasis or unspecified progression
Event: death from any cause

Recommended Citation

Munich Cancer Registry. Survival ICD-10 C60-C68: Urologic cancer [Internet]. 2016 [updated 2016 Mar 2; cited 2016 May 1]. Available from: <http://www.tumorregister-muenchen.de/en/facts/surv/sC6068E-ICD-10-C60-C68-Urologic-cancer-survival.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
1a Relative survival by period of diagnosis (chart)	2
1b Survival by period of diagnosis (table)	2
2a Survival by gender (chart)	3
2b Survival by gender (table)	3
3a Observed survival by age category (chart)	4
3b Relative survival by age category (chart)	4
3c Survival by age category (table)	5
4a Relative survival by ICD-10 classification (chart)	6
4b Survival by ICD-10 classification (table)	6
4c Relative survival by extent of disease 1988+ (chart)	8
4d Survival by extent of disease 1988+ (table)	8
4e Relative survival by extent of disease 1998+ (chart)	9
4f Survival by extent of disease 1998+ (table)	9
4g Conditional survival by extent of disease (chart)	10
4h Conditional survival by extent of disease (table)	10
5a Time to first progression (chart)	11
5b Time to first progression (table)	11
5c Observed post-progression survival (chart)	13
5d Observed post-progression survival (table)	13
5e Observed post-progression survival by period of progression (chart)	14
5f Observed post-progression survival by period of progression (table)	14