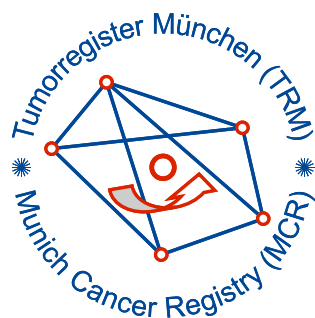


Munich Cancer Registry



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

ICD-10 C64-C68: Urinary tract cancer

Survival

Year of diagnosis	1988-1997	1998-2016
Patients	5,260	23,443
Diseases	5,350	24,423
Cases evaluated	4,565	16,082
Creation date	08/22/2018	
Export date	08/09/2018	
Population	4.81 m	



Munich Cancer Registry
Cancer Registry Bavaria - Upper Bavaria Regional Center
at Klinikum Grosshadern/IBE
Marchioninstr. 15
Munich, 81377
Germany

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

<https://www.tumorregister-muenchen.de/en/facts/surv/sC6468E-ICD-10-C64-C68-Urinary-tract-cancer-survival.pdf>

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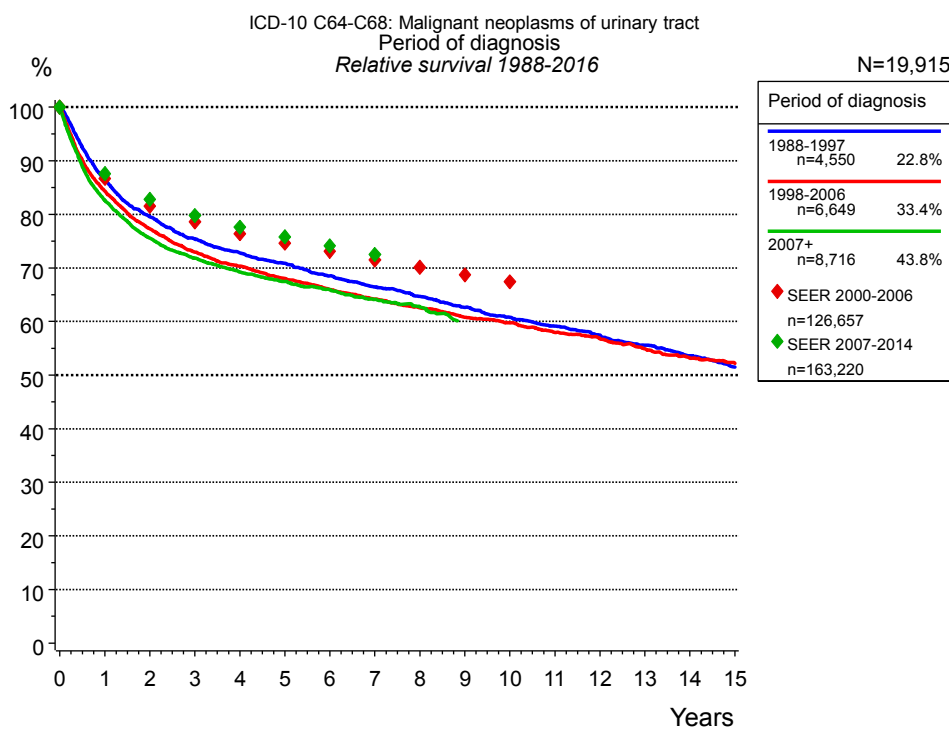


Figure 1a. Relative survival of patients with urinary tract cancer by period of diagnosis. Included in the evaluation are 19,915 cases diagnosed between 1988 and 2016.

The survival results of the SEER program (Surveillance, Epidemiology, and End Results) of the American National Cancer Institute (NCI) are summarized as the period of diagnosis from 2000 to 2014, and are represented by colored diamonds in order to facilitate comparisons between MCR and SEER.

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=4,550		1998-2006 n=6,649		2007+ n=8,716	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	83.5	86.6	81.5	84.4	79.9	82.6
2	74.3	79.5	72.3	77.3	70.9	75.6
3	68.2	75.4	66.2	73.0	65.5	71.8
4	63.9	72.8	62.0	70.3	61.3	69.3
5	60.3	70.8	58.2	68.0	58.0	67.5
6	56.6	68.5	54.7	66.0	54.9	66.0
7	53.3	66.4	51.6	64.2	51.8	64.2
8	50.3	64.7	48.8	62.5	49.0	62.7
9	47.3	62.6	46.0	60.8		
10	44.5	60.8	43.8	59.7		
11	42.0	59.1	41.1	57.9		
12	39.6	57.5	39.0	56.8		
13	37.1	55.6	36.4	54.9		
14	34.7	53.6	34.1	53.2		
15	32.3	51.5	32.3	52.2		

Table 1b. Observed (obs.) and relative (rel.) survival of patients with urinary tract cancer by period of diagnosis for period 1988-2016 (N=19,915).

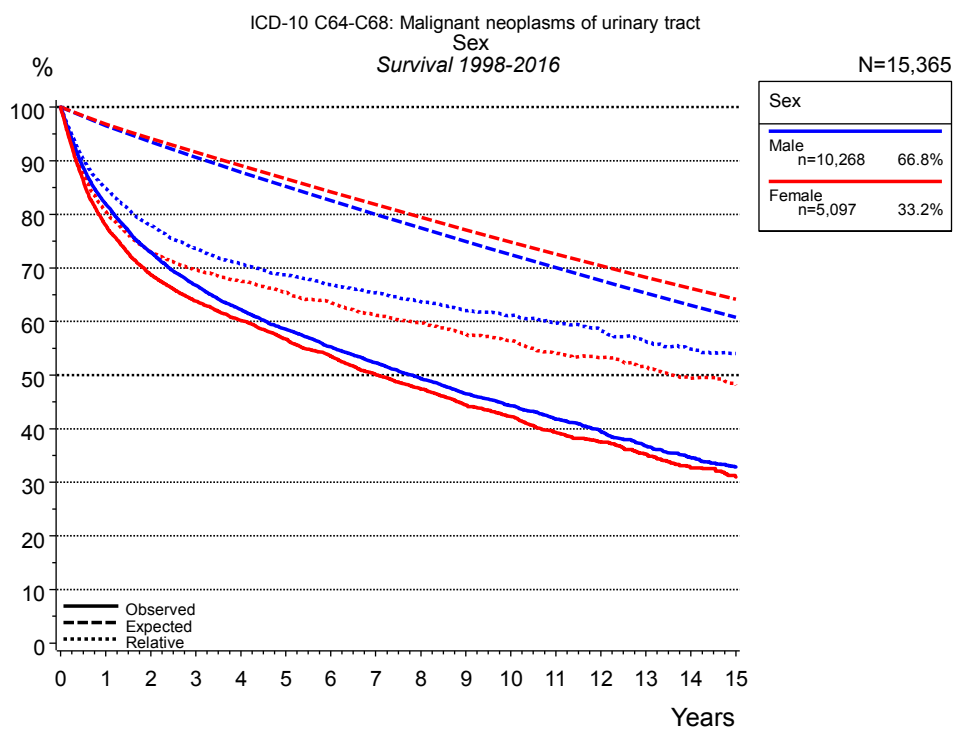


Figure 2a. Survival of patients with urinary tract cancer by sex. Included in the evaluation are 15,365 cases diagnosed between 1998 and 2016.

Years	Sex			
	Male n=10,268		Female n=5,097	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	81.9	84.8	77.9	80.5
2	72.9	78.0	68.7	73.0
3	66.8	73.6	63.8	69.6
4	62.2	70.8	60.2	67.5
5	58.6	68.7	56.7	65.4
6	55.3	66.9	53.5	63.5
7	52.3	65.4	50.1	61.2
8	49.4	63.7	47.4	59.7
9	46.5	62.0	44.4	57.6
10	44.3	61.1	42.3	56.5
11	41.8	59.6	39.3	54.1
12	39.5	58.3	37.5	53.2
13	36.8	56.3	35.3	51.6
14	34.6	54.8	32.7	49.4
15	32.9	54.0	31.0	48.1

Table 2b. Observed (obs.) and relative (rel.) survival of patients with urinary tract cancer by sex for period 1998-2016 (N=15,365).

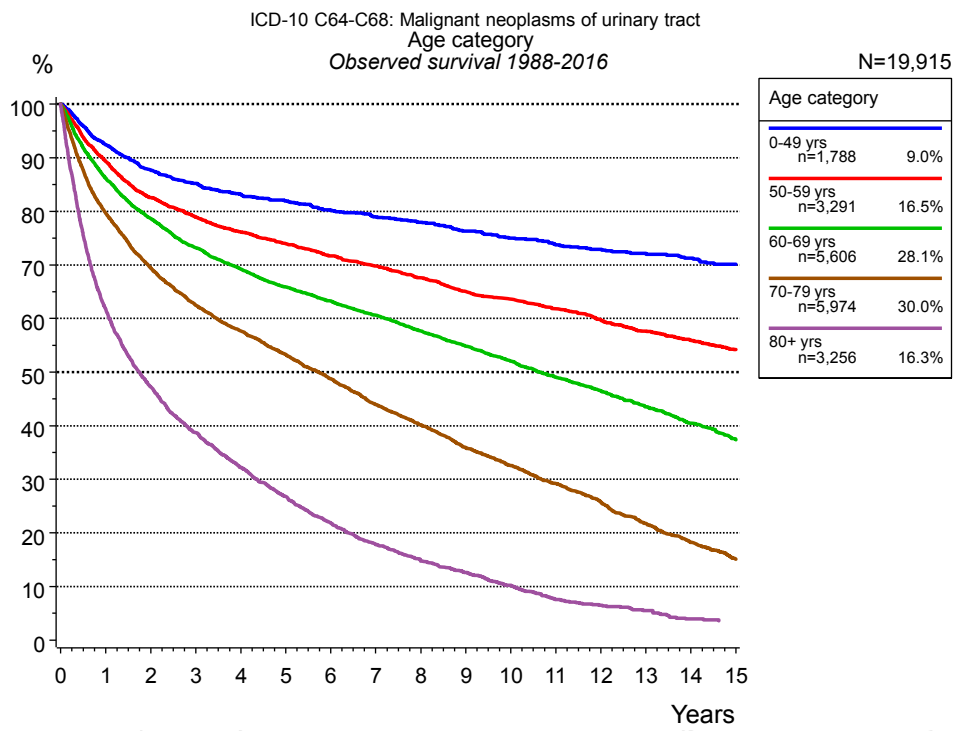


Figure 3a. Observed survival of patients with urinary tract cancer by age category. Included in the evaluation are 19,915 cases diagnosed between 1988 and 2016.

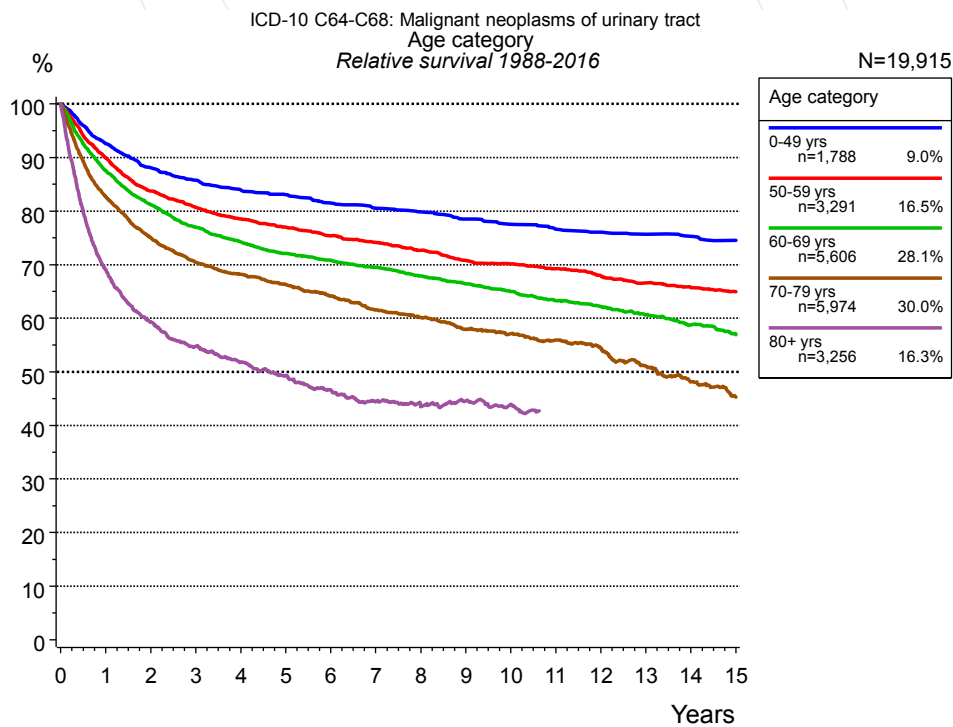


Figure 3b. Relative survival of patients with urinary tract cancer by age category. Included in the evaluation are 19,915 cases diagnosed between 1988 and 2016.

Years	Age category									
	0-49 yrs n=1,788		50-59 yrs n=3,291		60-69 yrs n=5,606		70-79 yrs n=5,974		80+ yrs n=3,256	
	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
1	92.4	92.6	89.3	89.9	86.2	87.5	79.6	82.6	61.8	69.1
2	87.6	88.0	82.6	83.7	78.6	81.2	69.4	75.0	47.2	59.2
3	85.2	85.8	78.9	80.7	73.2	77.0	62.5	70.4	38.7	54.8
4	83.2	83.9	76.1	78.5	69.2	74.2	57.6	68.1	32.2	51.8
5	82.0	83.0	73.9	77.0	65.9	72.1	53.3	66.3	26.8	49.3
6	80.2	81.5	71.7	75.4	63.2	70.8	48.7	64.1	21.9	46.6
7	79.0	80.5	69.8	74.1	60.6	69.5	43.9	61.5	17.8	44.4
8	78.0	79.8	67.5	72.7	57.7	67.9	40.1	60.1	14.8	43.5
9	76.3	78.5	65.0	70.8	54.8	66.4	35.9	57.9	12.6	44.6
10	75.0	77.5	63.6	70.2	52.0	65.0	32.6	57.0	10.2	43.9
11	73.7	76.6	61.8	69.2	49.0	63.3	29.2	55.9	7.6	40.8
12	72.9	76.1	59.7	67.9	46.5	62.2	25.8	54.4	6.5	44.3
13	72.2	75.7	57.6	66.6	43.6	60.6	21.8	51.1	5.5	47.5
14	71.3	75.3	55.9	65.8	40.4	58.8	18.2	48.1	3.9	45.0
15	70.2	74.6	54.2	64.9	37.4	56.9	15.1	45.3		

Table 3c. Observed (obs.) and relative (rel.) survival of patients with urinary tract cancer by age category for period 1988-2016 (N=19,915).

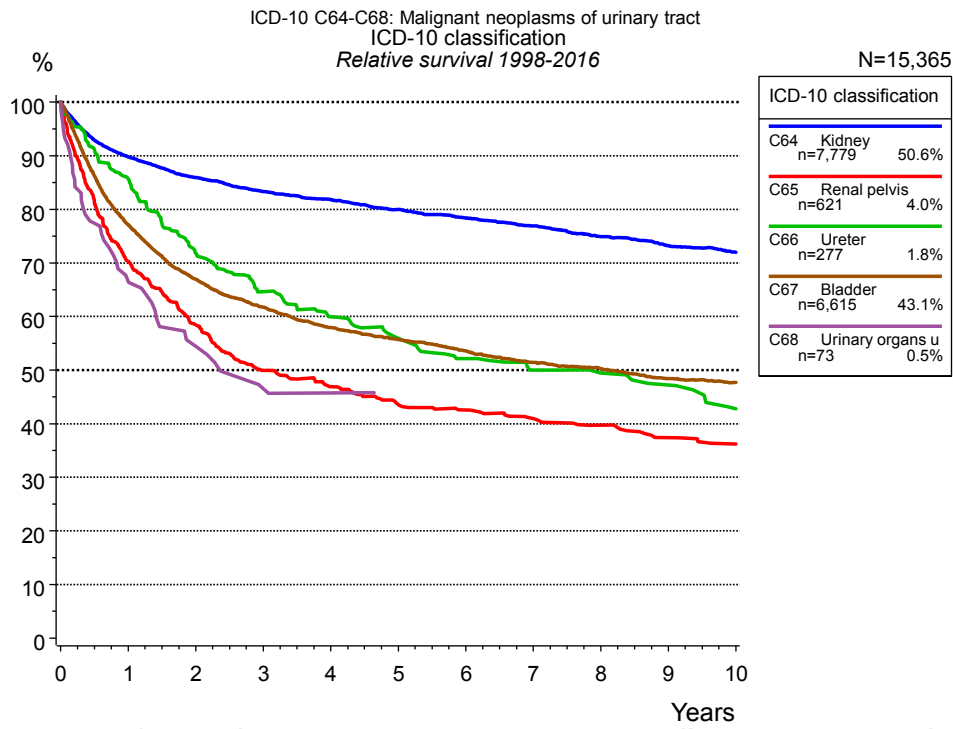


Figure 4a. Relative survival of patients with urinary tract cancer by ICD-10 classification. Included in the evaluation are 15,365 cases diagnosed between 1998 and 2016.

Years	ICD-10 classification									
	C64 Kidney n=7,779		C65 Renal pelvis n=621		C66 Ureter n=277		C67 Bladder n=6,615		C68 Urinary organs unspec. n=73	
	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
1	87.7	89.8	67.6	70.3	82.2	85.6	73.6	77.1	65.4	66.6
2	82.0	85.9	54.2	58.4	66.3	71.8	61.4	66.9	52.0	54.5
3	77.7	83.3	44.4	49.9	57.2	64.6	54.5	61.8	42.4	46.5
4	74.5	81.8	40.1	46.9	50.8	59.9	49.2	57.9	40.7	45.7
5	71.0	80.0	35.9	43.5	45.8	56.0	45.6	55.7		
6	67.8	78.4	33.8	42.6	40.9	52.1	42.2	53.6		
7	64.8	76.9	31.4	41.0	37.7	50.0	38.9	51.4		
8	61.4	74.9	29.3	39.7	35.8	49.5	36.6	50.2		
9	58.3	73.2	26.6	37.4	33.4	47.2	33.9	48.4		
10	55.8	72.0	25.1	36.2	28.9	42.8	32.2	47.7		

Table 4b. Observed (obs.) and relative (rel.) survival of patients with urinary tract cancer by ICD-10 classification for period 1998-2016 (N=15,365).

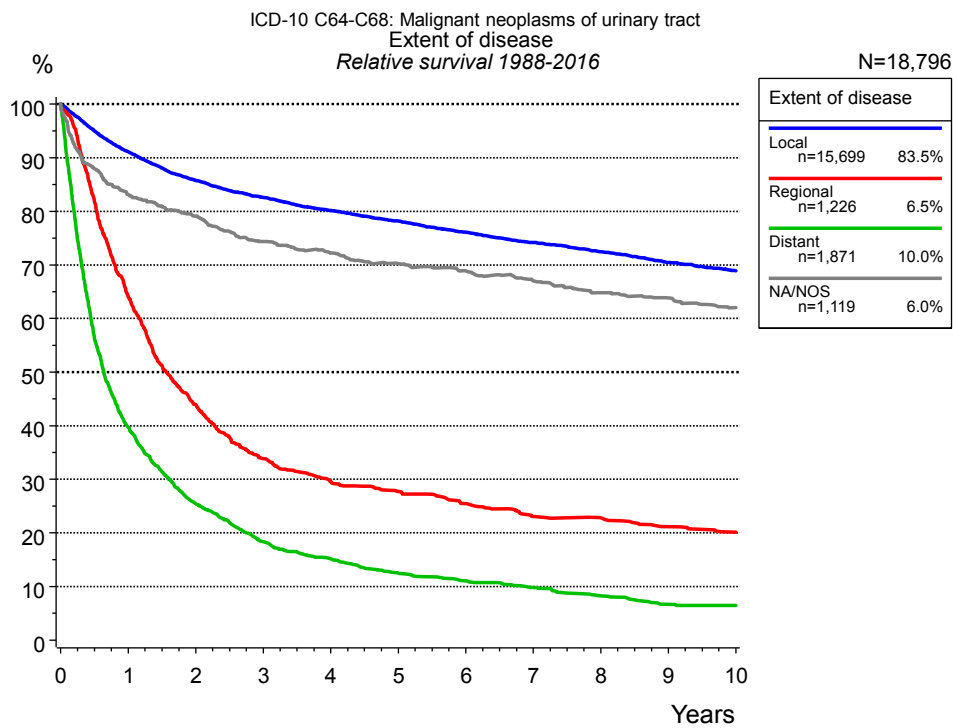


Figure 4c. Relative survival of patients with urinary tract cancer by extent of disease. For 18,826 of 19,915 cases diagnosed between 1988 and 2016 valid data could be obtained for this item. For a total of 18,796 cases an evaluable classification was established. The grey line represents the subgroup of 1,119 patients with missing values regarding extent of disease (5.6 % of 19,915 patients, the percent values of all other categories are related to n=18,796).

Years	Extent of disease							
	Local n=15,699		Regional n=1,226		Distant n=1,871		NA/NOS n=1,119	
	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	88.0	91.1	62.2	64.0	38.5	39.7	79.7	83.1
2	80.2	85.8	41.6	43.9	24.1	25.4	73.3	79.1
3	75.0	82.6	31.2	33.9	17.0	18.3	66.6	74.3
4	70.6	80.2	26.6	29.6	13.7	15.1	62.7	72.2
5	66.8	78.2	24.3	27.7	11.1	12.5	59.1	70.2
6	63.1	76.1	21.7	25.5	9.6	11.0	56.1	68.9
7	59.6	74.2	19.1	23.1	8.3	9.8	52.8	67.0
8	56.5	72.4	18.3	22.8	6.8	8.2	49.5	64.8
9	53.2	70.4	16.6	21.2	5.4	6.6	47.2	63.8
10	50.5	68.9	15.3	20.1	5.1	6.4	44.4	62.1

Table 4d. Observed (obs.) and relative (rel.) survival of patients with urinary tract cancer by extent of disease for period 1988-2016 (N=18,796).

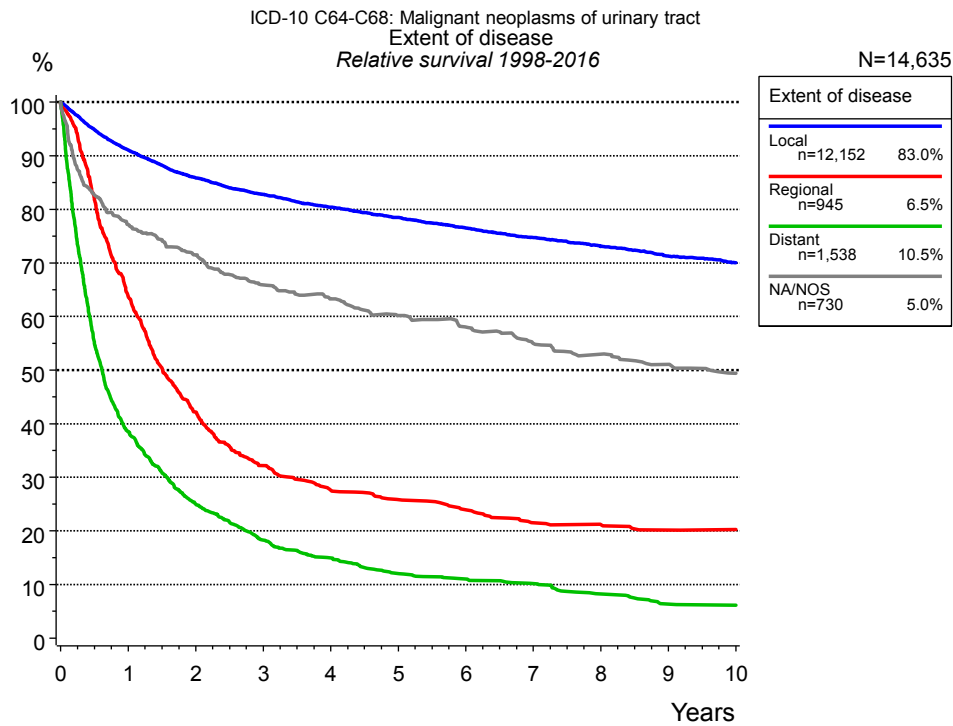


Figure 4e. Relative survival of patients with urinary tract cancer by extent of disease. For 14,658 of 15,365 cases diagnosed between 1998 and 2016 valid data could be obtained for this item. For a total of 14,635 cases an evaluable classification was established. The grey line represents the subgroup of 730 patients with missing values regarding extent of disease (4.8 % of 15,365 patients, the percent values of all other categories are related to n=14,635).

Years	Extent of disease							
	Local n=12,152		Regional n=945		Distant n=1,538		NA/NOS n=730	
	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	88.0	91.1	61.9	63.7	37.4	38.5	73.7	77.1
2	80.5	85.9	40.0	42.2	23.7	25.0	65.7	71.5
3	75.3	82.8	29.8	32.2	16.9	18.3	58.5	65.9
4	70.9	80.4	25.0	27.6	13.7	14.9	54.2	63.3
5	67.2	78.5	22.7	25.9	10.7	12.0	49.8	60.2
6	63.6	76.5	20.5	23.9	9.7	11.0	46.4	58.1
7	60.2	74.7	17.8	21.5	8.7	10.2	42.5	55.0
8	57.0	73.1	17.1	21.2	6.9	8.2	39.8	53.0
9	53.8	71.2	15.9	20.2	5.3	6.3	37.1	51.0
10	51.3	70.0	15.6	20.2	5.1	6.1	34.7	49.4

Table 4f. Observed (obs.) and relative (rel.) survival of patients with urinary tract cancer by extent of disease for period 1998-2016 (N=14,635).

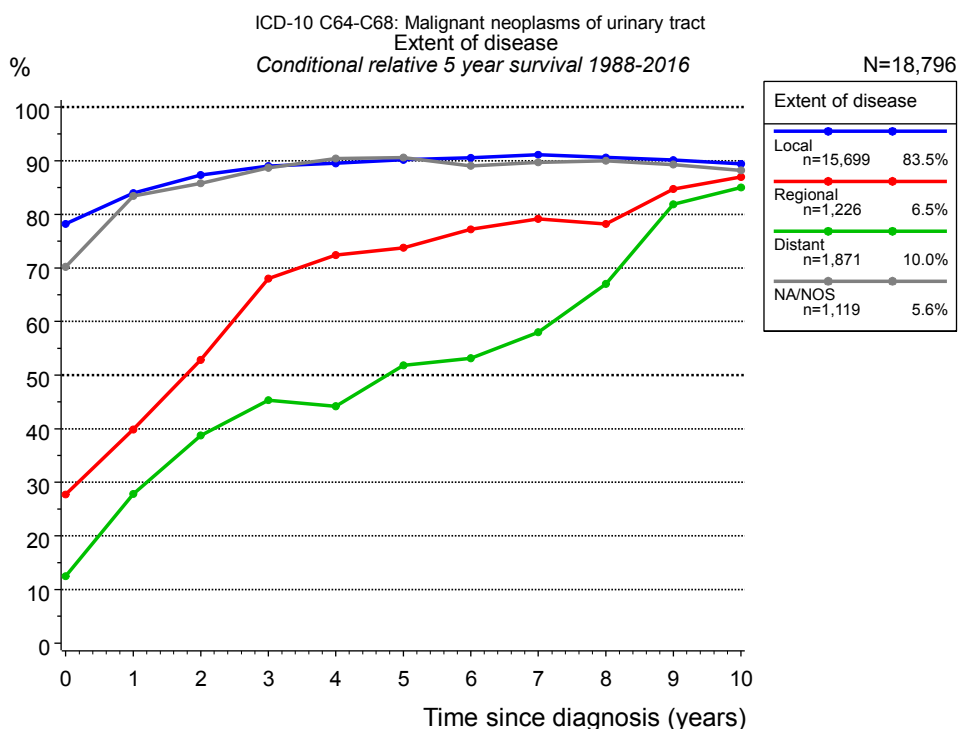


Figure 4g. Conditional relative 5-year survival of patients with urinary tract cancer by extent of disease. For 18,826 of 19,915 cases diagnosed between 1988 and 2016 valid data could be obtained for this item. For a total of 18,796 cases an evaluable classification was established. The grey line represents the subgroup of 1,119 patients with missing values regarding extent of disease (5.6 % of 19,915 patients, the percent values of all other categories are related to n=18,796).

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	15,699	78.2	1,226	27.7	1,871	12.5	1,119	70.2
1	12,998	83.9	710	39.9	689	27.8	855	83.4
2	11,226	87.3	440	52.8	404	38.7	768	85.8
3	9,888	89.0	298	68.0	274	45.3	687	88.7
4	8,732	89.5	233	72.4	205	44.2	619	90.4
5	7,732	90.2	196	73.8	156	51.8	559	90.6
6	6,775	90.5	167	77.2	118	53.2	507	89.1
7	5,903	91.1	138	79.2	95	58.0	455	89.7
8	5,132	90.6	119	78.2	71	67.0	406	90.0
9	4,370	90.1	101	84.7	53	81.9	362	89.3
10	3,756	89.4	86	87.0	42	85.1	329	88.2

Table 4h. Conditional relative 5-year survival of patients with urinary tract cancer by extent of disease for period 1988-2016 (N=18,796).

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 89.0% (n=9,888).

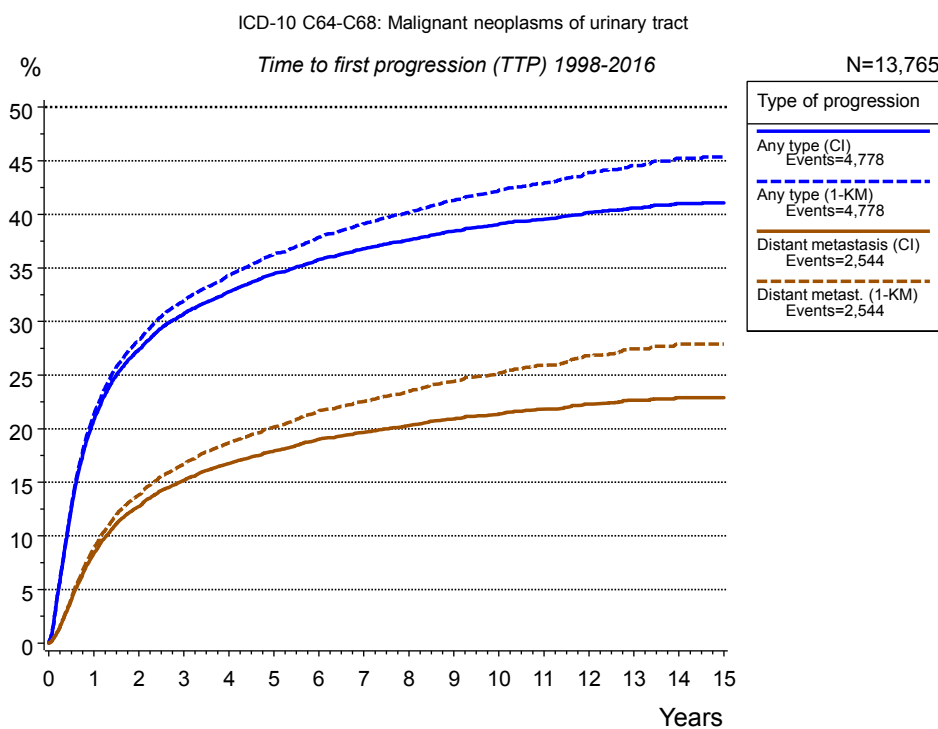


Figure 5a. Time to first progression of 13,765 patients with urinary tract cancer diagnosed between 1998 and 2016 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

Years	Type of progression			
	Any type (CI)	Any type (1-KM)	Distant metastasis (CI)	Distant metastasis (1-KM)
	n=13,765 %	n=13,765 %	n=13,765 %	n=13,765 %
0	0.0	0.0	0.0	0.0
1	20.8	21.4	8.4	8.9
2	27.4	28.3	12.7	13.8
3	30.7	31.9	15.2	16.7
4	32.8	34.3	16.8	18.7
5	34.5	36.3	17.9	20.2
6	35.7	37.8	19.0	21.7
7	36.8	39.1	19.7	22.5
8	37.6	40.2	20.3	23.5
9	38.4	41.3	20.9	24.4
10	39.1	42.3	21.4	25.2
11	39.5	42.9	21.8	25.9
12	40.2	43.9	22.3	26.8
13	40.6	44.5	22.7	27.5
14	41.0	45.2	22.9	27.9
15	41.1	45.4	22.9	27.9

Table 5b. Time to first progression of patients with urinary tract cancer for period 1998-2016 (N=13,765).

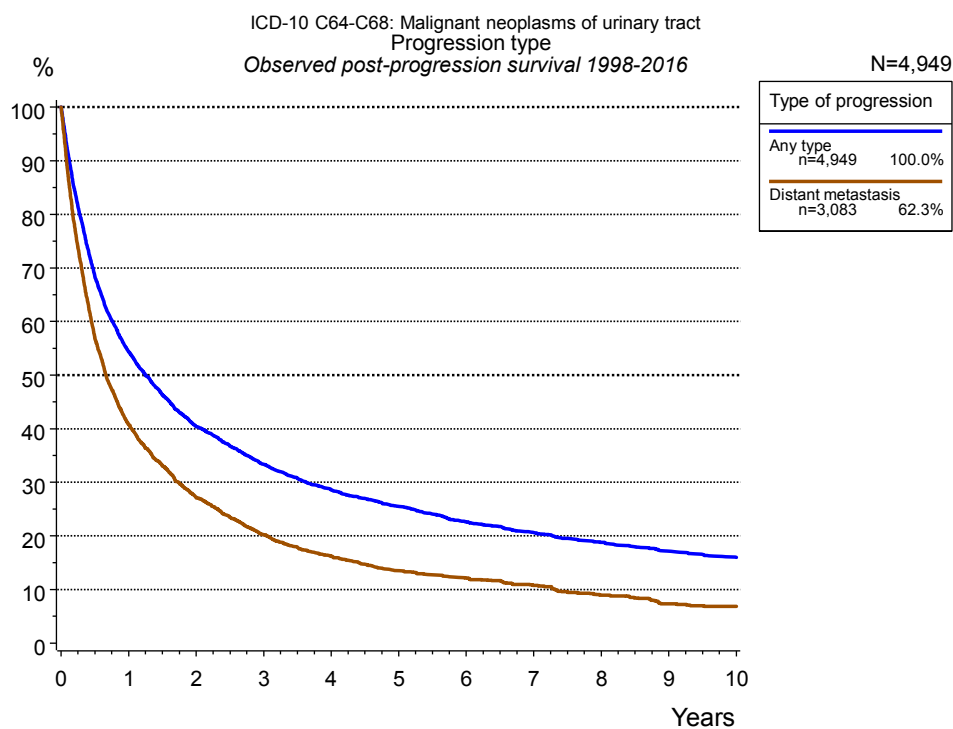


Figure 5c. Observed post-progression survival of 4,949 patients with urinary tract cancer diagnosed between 1998 and 2016. These 4,949 patients with documented progression events during their course of disease represent 32.4 % of the totally 15,261 evaluated cases (incl. M1, n=1,496, 9.8 %). Patients with cancer relapse documented via death certificates only were excluded (n=1,325, 8.7 %). Multiple progression types on different sites are included in the evaluation even when not occurring synchronously.

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=4,949 %	Distant metastasis n=3,083 %
0	100.0	100.0
1	54.4	40.8
2	40.4	27.2
3	33.3	20.2
4	28.6	16.2
5	25.4	13.5
6	22.6	12.1
7	20.6	10.8
8	18.8	8.9
9	17.1	7.3
10	16.0	6.9

Table 5d. Observed post-progression survival of patients with urinary tract cancer for period 1998-2016 (N=4,949).

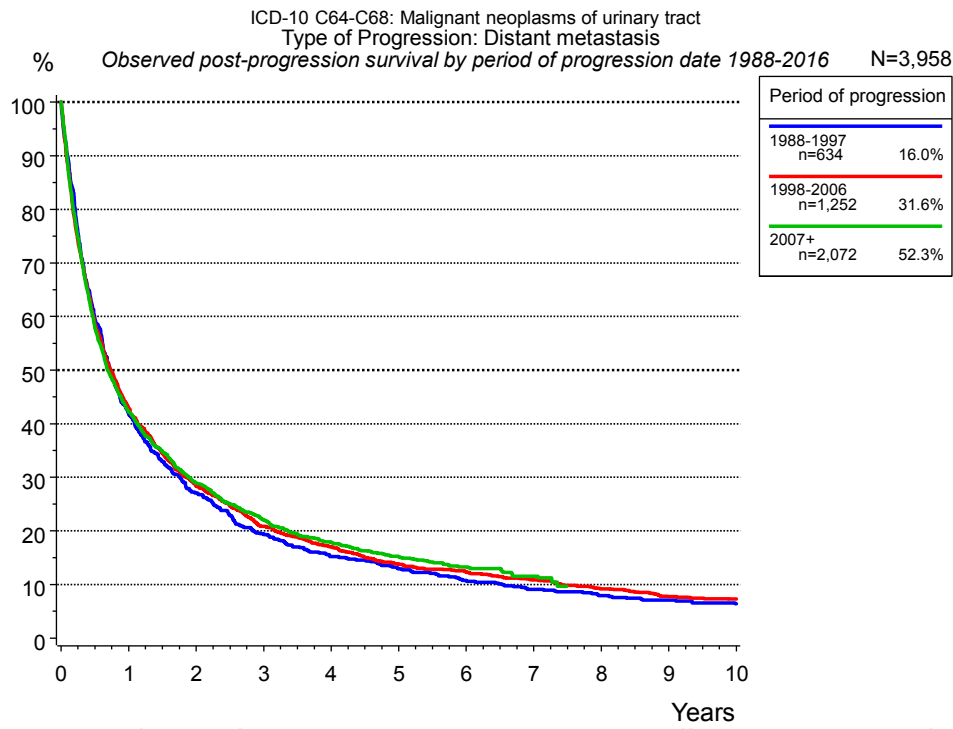


Figure 5e. Observed post-progression (distant metastasis) survival of 3,958 patients with urinary tract cancer diagnosed between 1988 and 2016 by period of progression.

Years	Period of progression		
	1988-1997 n=634 %	1988-2006 n=1,252 %	2007+ n=2,072 %
0	100.0	100.0	100.0
1	41.8	43.0	42.2
2	27.1	28.4	29.0
3	19.5	20.9	22.0
4	15.2	17.0	17.8
5	12.9	13.7	15.2
6	10.8	12.3	13.3
7	9.1	10.8	11.6
8	7.9	9.2	
9	7.1	7.7	
10	6.4	7.3	

Table 5f. Observed post-progression (distant metastasis) survival of patients with urinary tract cancer for period 1988-2016 by period of progression (N=3,958).

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 C64-C68: Urinary tract cancer [Internet]. 2018 [updated 2018 Aug 22; cited 2018 Oct 1]. Available from: <https://www.tumorregister-muenchen.de/en/facts/surv/sC6468E-ICD-10-C64-C68-Urinary-tract-cancer-survival.pdf>

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