Munich Cancer Registry

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

ICD-10 C64: Kidney cancer

Survival

Year of diagnosis	1988-1997	1998-2014
Patients	2,778	10,012
Diseases	2,809	10,221
Cases evaluated	2,454	7,281

Creation date	03/02/2016
Export date	12/23/2015
Population	4.64 m

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

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

http://www.tumorregister-muenchen.de/en/facts/surv/sC64__E-ICD-10-C64-Kidney-cancer-survival.pdf

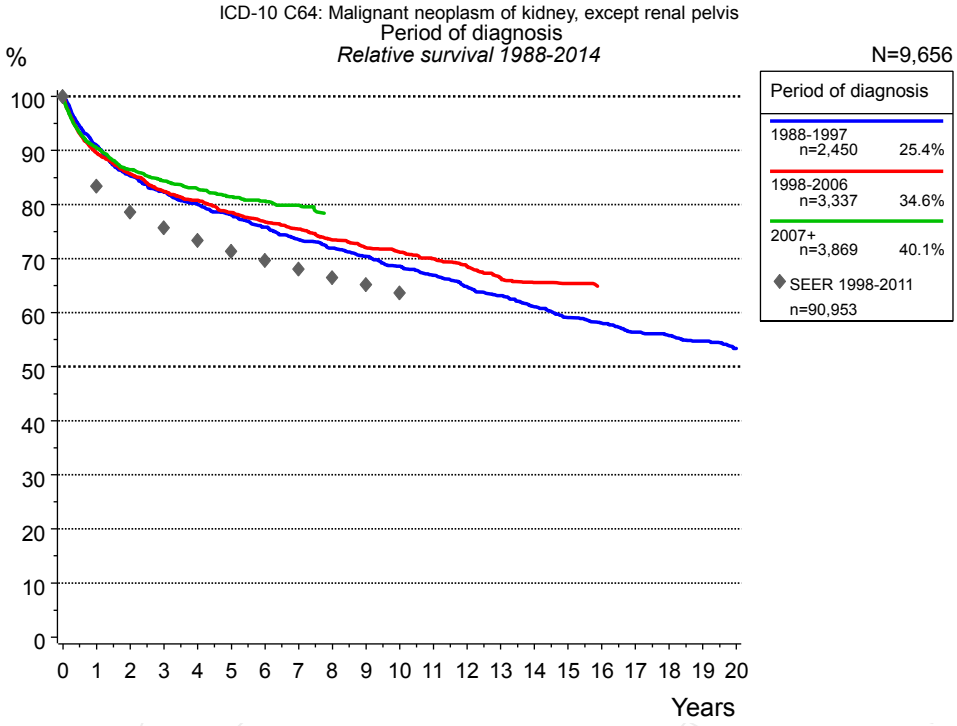

Figure 1a. Relative survival of patients with kidney cancer by period of diagnosis. Included in the evaluation are 9,656 cases diagnosed between 1988 and 2014.

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 1998 to 2011, and are represented by gray 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.

	Period of diagnosis					
	1988-1997 n=2,450		1998-2006 n=3,337		2007+ n=3,869	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	88.7	90.9	87.4	89.5	88.4	90.5
2	81.2	85.3	81.8	85.6	82.6	86.4
3	76.6	82.4	76.9	82.4	78.7	84.3
4	72.7	80.0	73.6	80.8	75.5	82.9
5	69.1	78.1	69.9	78.5	72.2	81.4
6	65.6	75.8	66.5	76.8	69.7	80.6
7	61.9	73.5	63.7	75.4	67.0	79.8
8	59.1	71.9	60.4	73.5		
9	56.3	70.3	57.6	72.0		
10	53.5	68.6	55.3	71.2		
11	50.8	66.9	52.8	70.0		
12	47.9	64.8	50.2	68.5		
13	45.4	63.1	47.2	66.5		
14	42.7	61.1	45.1	65.6		
15	40.2	59.1	43.9	65.4		
16	38.3	58.0				
17	36.2	56.4				
18	34.7	55.8				
19	33.1	54.7				
20	31.1	53.4				

Table 1b. Observed (obs.) and relative (rel.) survival of patients with kidney cancer by period of diagnosis for period 1988-2014 (N=9,656).

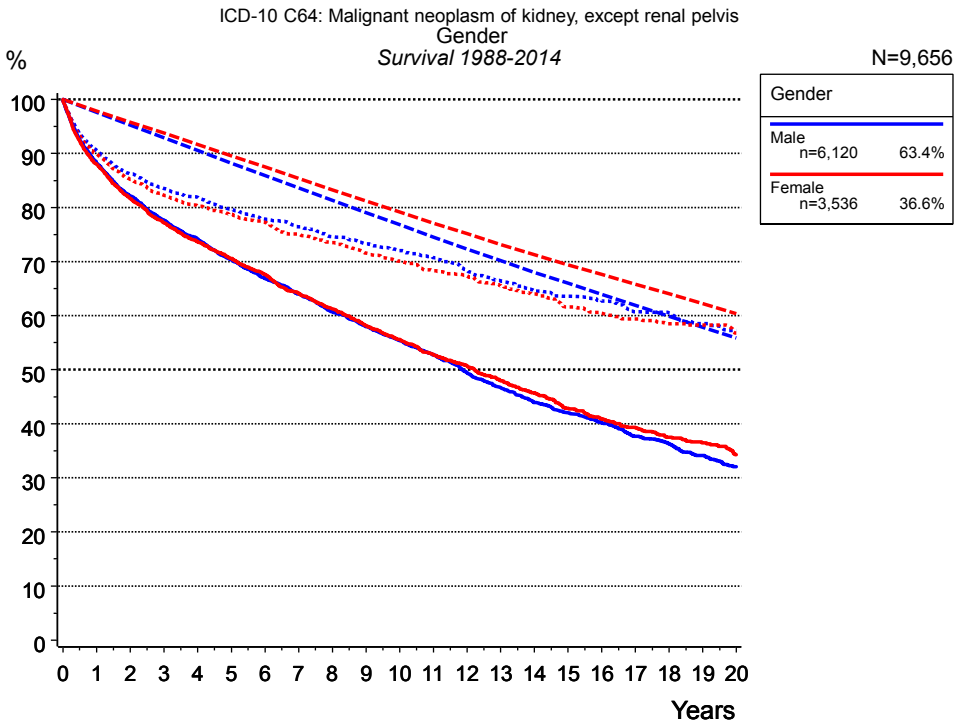

Figure 2a. Survival of patients with kidney cancer by gender. Included in the evaluation are 9,656 cases diagnosed between 1988 and 2014.

	Gender			
	Male n=6,120		Female n=3,536	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	88.2	90.4	88.0	89.9
2	82.1	86.2	81.6	85.2
3	77.6	83.5	77.1	82.2
4	74.2	81.9	73.7	80.3
5	70.3	79.7	70.6	78.7
6	66.9	77.9	67.6	77.2
7	63.9	76.5	64.1	75.1
8	60.7	74.6	61.2	73.5
9	58.0	73.3	58.1	71.6
10	55.3	72.0	55.6	70.1
11	52.7	70.7	52.8	68.4
12	49.4	68.3	50.7	67.4
13	46.7	66.5	48.1	65.6
14	43.9	64.5	45.7	64.0
15	42.0	63.6	42.8	61.6
16	40.1	62.7	40.9	60.4
17	37.7	60.7	39.3	59.4
18	36.2	60.5	37.5	58.5
19	34.1	58.5	36.5	58.2
20	32.1	57.2	34.3	56.8

Table 2b. Observed (obs.) and relative (rel.) survival of patients with kidney cancer by gender for period 1988-2014 (N=9,656).

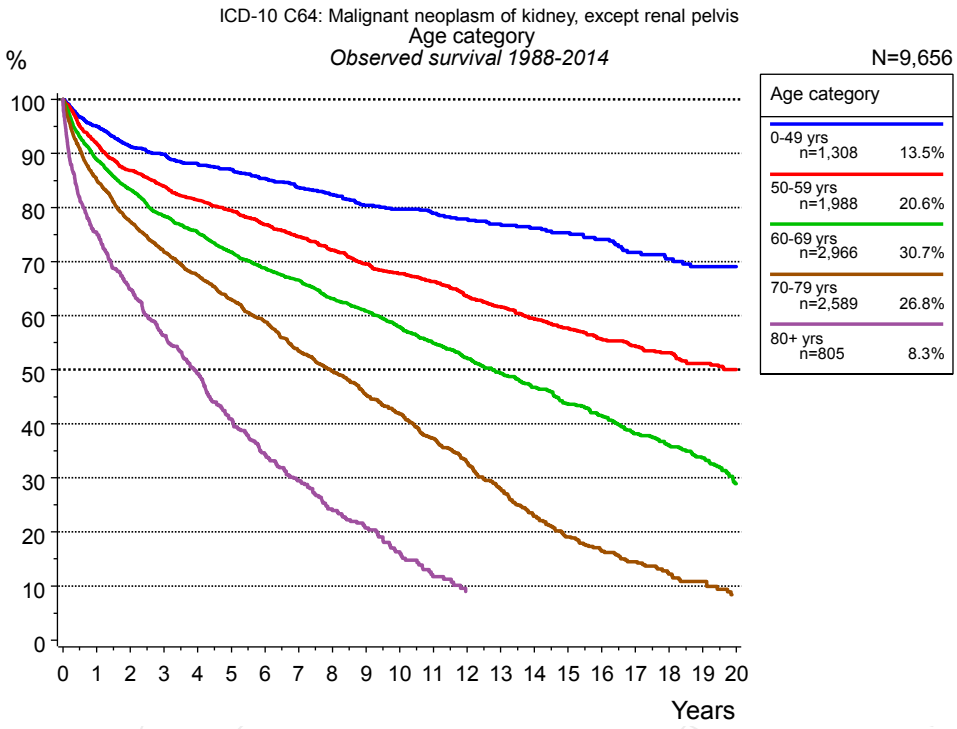

Figure 3a. Observed survival of patients with kidney cancer by age category. Included in the evaluation are 9,656 cases diagnosed between 1988 and 2014.

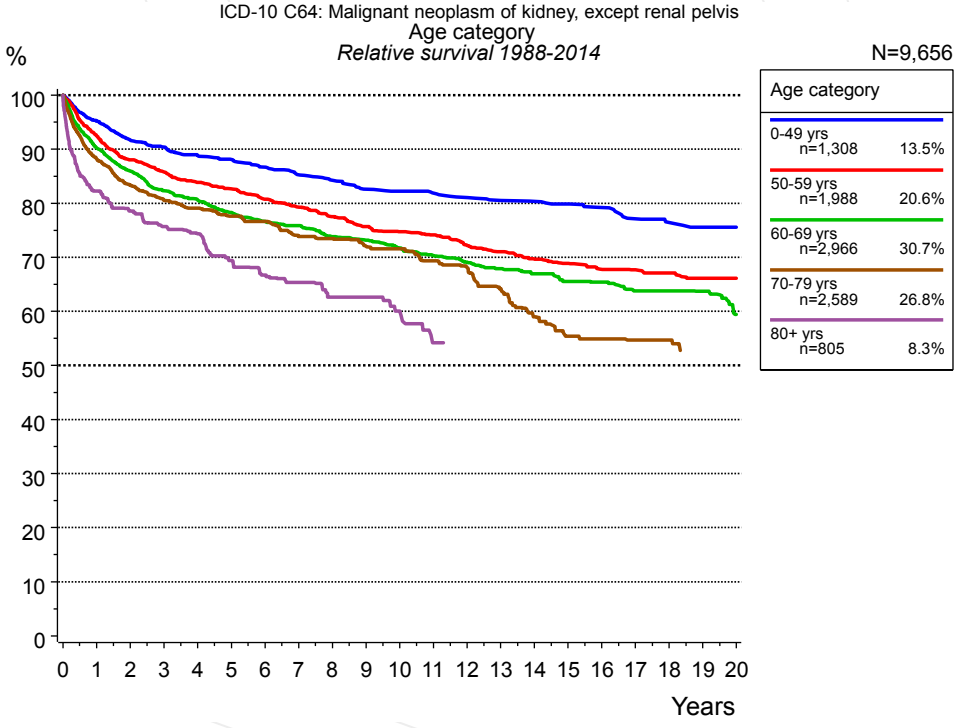

Figure 3b. Relative survival of patients with kidney cancer by age category. Included in the evaluation are 9,656 cases diagnosed between 1988 and 2014.

	Age category									
	0-49 yrs n=1,308		50-59 yrs n=1,988		60-69 yrs n=2,966		70-79 yrs n=2,589		80+ yrs n=805	
Years	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	95.0	95.2	91.8	92.4	88.8	90.2	85.2	88.2	75.3	82.3
2	91.2	91.6	86.8	88.0	83.3	85.9	77.4	83.3	64.8	78.6
3	89.8	90.4	83.9	85.8	78.5	82.3	71.7	80.5	56.3	75.7
4	88.1	88.8	81.3	83.9	75.4	80.6	67.4	79.1	49.3	74.4
5	87.0	88.1	79.4	82.6	71.8	78.3	62.9	77.6	40.9	69.4
6	85.4	86.7	76.8	80.8	68.8	76.6	58.8	76.6	34.4	66.7
7	83.7	85.3	74.7	79.3	66.6	75.9	53.4	73.9	29.5	65.4
8	82.4	84.3	72.1	77.5	63.1	73.8	49.8	73.4	23.9	62.6
9	80.4	82.6	69.5	75.7	60.9	73.2	45.4	72.1	20.7	62.6
10	79.7	82.2	67.8	74.7	57.9	71.7	41.8	71.6	16.3	60.1
11	78.9	81.9	66.3	74.1	55.0	70.3	37.4	69.3	11.7	54.2
12	77.9	81.0	63.6	72.2	52.2	69.1	32.9	68.1		
13	77.0	80.5	61.7	71.1	49.3	67.9	28.0	64.2		
14	76.2	80.3	59.4	69.7	46.8	66.9	22.9	59.0		
15	75.4	79.8	57.7	68.9	43.6	65.5	19.1	55.4		
16	74.1	79.2	55.6	67.8	41.4	65.4	16.4	54.9		
17	71.7	77.1	54.4	67.7	38.2	63.8	14.5	54.7		
18	70.5	76.4	53.1	67.1	35.9	63.8	12.2	54.7		
19	69.1	75.6	51.1	66.1	33.7	63.7				
20	69.1	75.6	50.0	66.1	29.0	59.4				

Table 3c. Observed (obs.) and relative (rel.) survival of patients with kidney cancer by age category for period 1988-2014 (N=9,656).

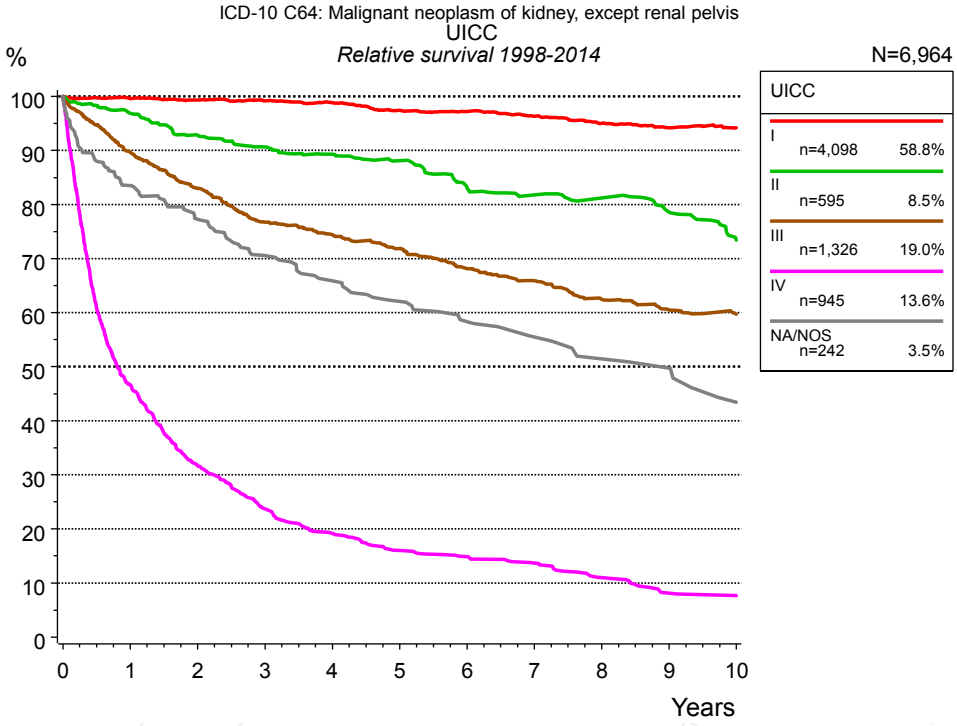

Figure 4a. Relative survival of patients with kidney cancer by UICC. For 6,983 of 7,206 cases diagnosed between 1998 and 2014 valid data could be obtained for this item. For a total of 6,964 cases an evaluable classification was established. The grey line represents the subgroup of 242 patients with missing values regarding UICC (3.4% of 7,206 patients, the percent values of all other categories are related to n=6,964).

	UICC									
	I n=4,098		II n=595		III n=1,326		IV n=945		NA/NOS n=242	
Years	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	97.7	99.6	94.9	96.9	87.1	89.6	45.3	46.6	81.2	83.5
2	95.4	99.3	88.9	92.8	78.4	83.0	30.1	31.7	73.1	77.3
3	93.2	99.2	84.9	90.6	70.3	76.7	22.0	23.7	64.9	70.6
4	90.7	98.8	81.7	89.3	66.2	74.4	17.6	19.2	59.4	65.9
5	87.3	97.4	78.7	88.1	62.0	71.9	14.3	16.0	55.2	62.1
6	85.0	97.2	72.3	83.2	56.8	68.1	13.1	14.8	50.7	58.4
7	82.1	96.3	69.4	81.8	53.3	65.9	11.8	13.7	47.0	55.5
8	78.8	95.0	67.1	81.2	48.7	62.5	9.2	11.0	43.2	51.5
9	76.1	94.2	63.3	78.6	45.6	60.5	6.8	8.1	41.7	49.8
10	73.9	94.2	57.8	73.4	43.5	59.7	6.5	7.7	35.1	43.5

Table 4b. Observed (obs.) and relative (rel.) survival of patients with kidney cancer by UICC for period 1998-2014 (N=6,964).

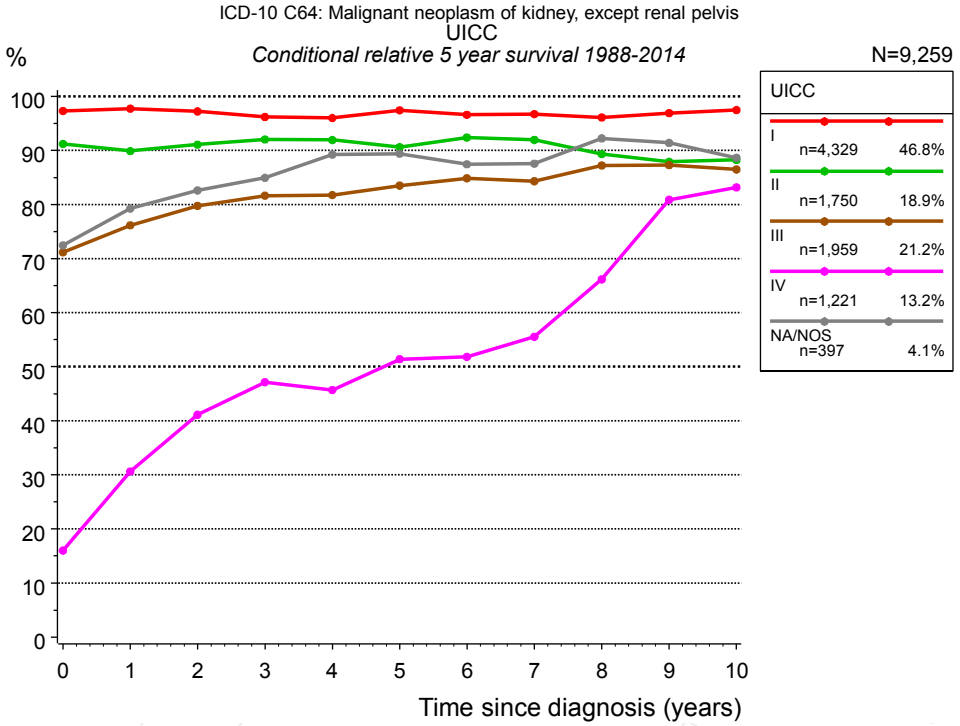

Figure 4c. Conditional relative 5-year survival of patients with kidney cancer by UICC. For 9,290 of 9,656 cases diagnosed between 1988 and 2014 valid data could be obtained for this item. For a total of 9,259 cases an evaluable classification was established. The grey line represents the subgroup of 397 patients with missing values regarding UICC (4.1% of 9,656 patients, the percent values of all other categories are related to n=9,259).

	UICC									
	I		II		III		IV		NA/NOS	
Years	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs
0	4,329	97.3	1,750	91.2	1,959	71.2	1,221	16.0	397	72.5
1	3,910	97.7	1,615	89.9	1,605	76.2	539	30.7	324	79.3
2	3,568	97.2	1,486	91.1	1,368	79.8	339	41.1	288	82.6
3	3,209	96.2	1,398	92.0	1,181	81.6	228	47.1	252	84.9
4	2,858	96.0	1,315	91.9	1,051	81.7	173	45.7	222	89.2
5	2,474	97.4	1,232	90.6	911	83.5	131	51.4	196	89.4
6	2,143	96.6	1,125	92.4	781	84.8	107	51.8	170	87.5
7	1,806	96.7	1,043	92.0	683	84.3	83	55.6	148	87.6
8	1,503	96.1	988	89.3	575	87.2	64	66.2	129	92.2
9	1,257	96.9	921	87.9	495	87.3	43	80.9	124	91.4
10	1,042	97.5	840	88.3	418	86.5	33	83.2	112	88.6

Table 4d. Conditional relative 5-year survival of patients with kidney cancer by UICC for period 1988-2014 (N=9,259).

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 4a). 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 UICC="I", who are alive at least 3 years after cancer diagnosis, the conditional relative 5-year survival rate is 96.2% (n=3,209).

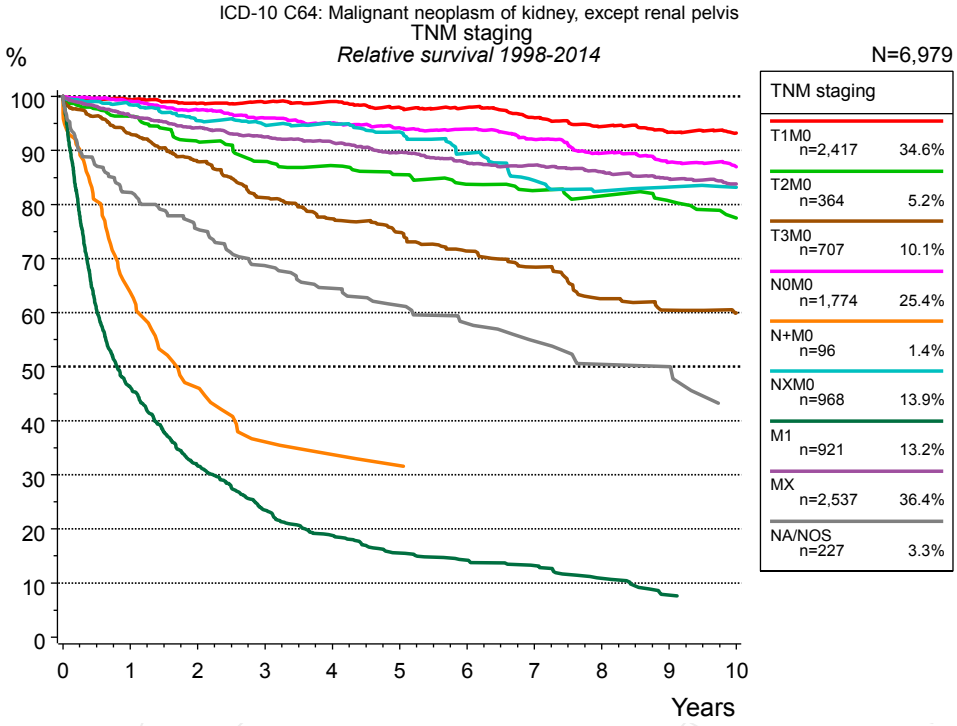

Figure 4e. Relative survival of patients with kidney cancer by TNM staging. For 6,983 of 7,206 cases diagnosed between 1998 and 2014 valid data could be obtained for this item. For a total of 6,979 cases an evaluable classification was established. The accumulated percentage exceeds the 100% value because patients are potientially considered in more than one subgroup. The grey line represents the subgroup of 227 patients with missing values regarding TNM staging (3.2 % of 7,206 patients, the percent values of all other categories are related to n=6,979).

	TNM staging													
	T1M0 n=2,417		T2M0 n=364		T3M0 n=707		N0M0 n=1,774		N+M0 n=96		NXM0 n=968		M1 n=921	
Years	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	97.5	99.4	94.5	96.3	90.4	93.1	97.2	99.1	62.0	63.8	96.3	98.4	45.0	46.2
2	94.8	98.7	87.9	91.7	83.0	88.0	93.5	97.5	44.9	46.1	91.3	95.5	30.1	31.7
3	93.0	98.9	82.8	88.0	74.4	81.3	90.0	96.0	34.1	36.1	88.6	94.7	21.8	23.5
4	91.0	99.0	80.0	87.2	68.7	77.4	87.1	95.1	31.1	33.8	86.6	94.9	17.3	18.8
5	87.9	97.9	76.7	85.5	64.5	74.9	84.2	94.2	29.5	31.7	83.1	93.4	13.9	15.5
6	85.8	98.0	73.1	83.8	59.5	71.4	81.9	94.0			77.6	89.5	12.6	14.3
7	82.0	96.0	70.2	82.6	55.5	68.4	78.2	92.1			71.7	84.5	11.4	13.2
8	78.5	94.4	67.8	81.6	48.9	62.6	74.0	89.5			68.0	82.5	9.2	10.9
9	75.6	93.4	65.1	80.7	46.0	60.5	70.6	87.8			66.9	83.2	6.6	7.8
10	73.4	93.2	61.5	77.5	44.1	59.9	68.1	87.0			65.7	83.2	6.3	7.3

TNM staging				
cont'd	MX		NA/NOS	
	n=2,537		n=227	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	94.2	96.3	79.9	82.2
2	90.1	94.2	71.2	75.4
3	86.3	92.5	63.0	68.7
4	83.3	91.5	58.2	64.5
5	79.6	89.7	54.3	61.3
6	75.8	87.7	50.2	58.0
7	73.5	87.3	46.1	54.7
8	70.3	86.0	41.8	50.4
9	67.3	84.8	41.8	50.0
10	64.6	83.8	33.9	42.1

Table 4f. Observed (obs.) and relative (rel.) survival of patients with kidney cancer by TNM staging for period 1998-2014 (N=9,784).

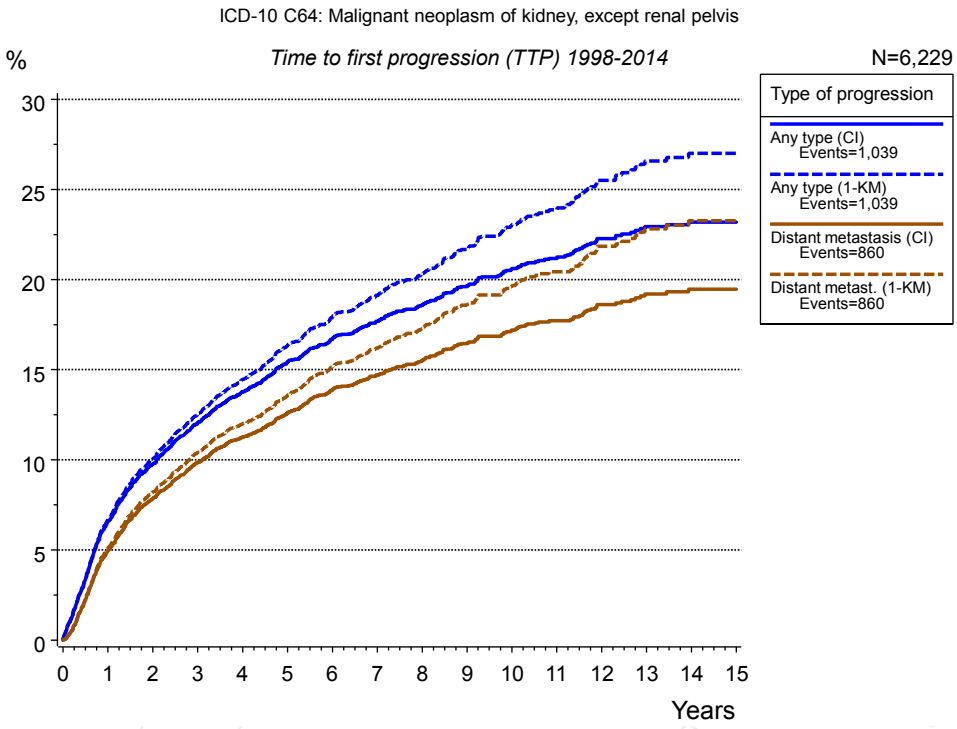

Figure 5a. Time to first progression of 6,229 patients with kidney cancer diagnosed between 1998 and 2014 (M0 only in solid cancers) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	Type of progression			
	Any type (CI)	Any type (1-KM)	Distant metastasis (CI)	Distant metast. (1-KM)
	n=6,229	n=6,229	n=6,229	n=6,229
Years	%	%	%	%
0	0.0	0.0	0.0	0.0
1	6.6	6.7	4.9	5.1
2	9.8	10.1	7.9	8.2
3	12.0	12.5	9.9	10.4
4	13.8	14.5	11.3	12.0
5	15.4	16.4	12.6	13.6
6	16.7	17.9	13.9	15.1
7	17.7	19.1	14.7	16.2
8	18.6	20.3	15.5	17.3
9	19.7	21.7	16.5	18.6
10	20.6	23.1	17.2	19.7
11	21.2	23.9	17.7	20.4
12	22.3	25.5	18.6	21.8
13	22.9	26.6	19.2	22.8
14	23.2	27.0	19.5	23.3
15	23.2	27.0	19.5	23.3

Table 5b. Time to first progression of patients with kidney cancer for period 1998-2014 (N=6,229).

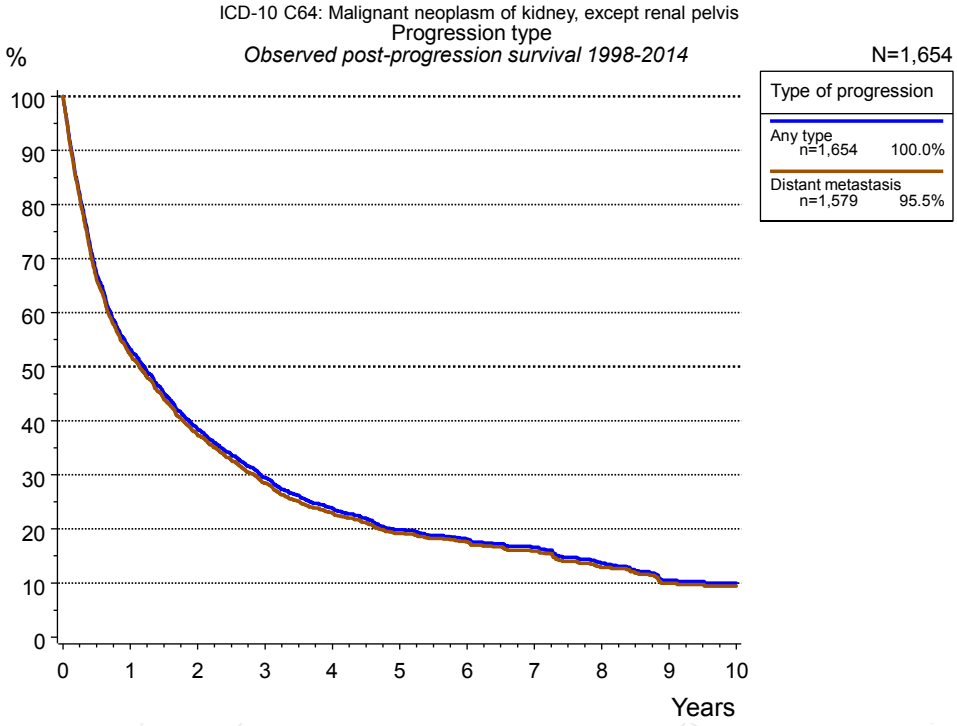

Figure 5c. Observed post-progression survival of 1,654 patients with kidney cancer diagnosed between 1998 and 2014. These 1,654 patients with documented progression events during their course of disease represent 23.2 % of the totally 7,137 evaluated cases (incl. M1, n=908, 12.7 %). Patients with cancer relapse documented via death certificates only were excluded (n=293, 4.1 %). Multiple progression types on different sites are included in the evaluation even when not occuring 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 potientially considered in more than one subgroup.

	Type of progression	
	Any type	Distant metastasis
	n=1,654	n=1,579
Years	%	%
0	100.0	100.0
1	53.2	52.2
2	38.4	37.4
3	29.4	28.5
4	23.8	22.9
5	19.8	19.2
6	18.1	17.6
7	16.6	15.9
8	13.7	12.9
9	10.5	10.0
10	10.0	9.4

Table 5d. Observed post-progression survival of patients with kidney cancer for period 1998-2014 (N=1,654).

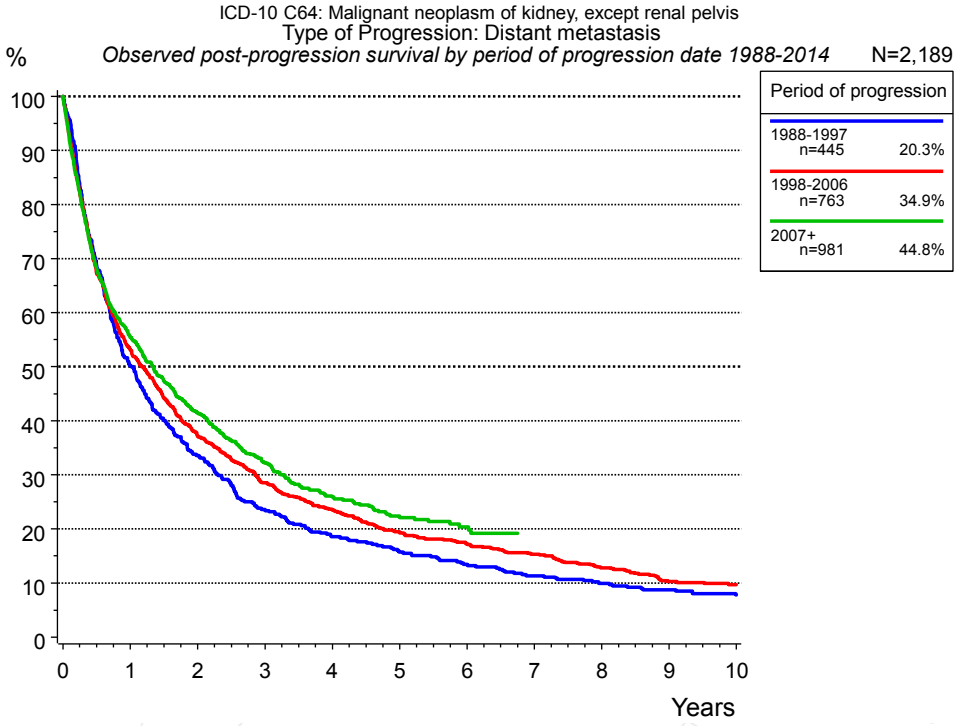

Figure 5e. Observed post-progression (distant metastasis) survival of 2,189 patients with kidney cancer diagnosed between 1988 and 2014 by period of progression.

	Period of progression		
	1988-1997 n=445	1998-2006 n=763	2007+ n=981
Years	%	%	%
0	100.0	100.0	100.0
1	50.0	53.2	55.4
2	33.6	37.3	41.5
3	23.6	28.5	32.2
4	18.5	23.5	25.9
5	15.8	19.2	22.1
6	13.4	17.3	20.4
7	11.3	15.3	19.2
8	9.9	12.8	
9	8.8	10.3	
10	7.8	9.7	

Table 5f. Observed post-progression (distant metastasis) survival of patients with kidney cancer for period 1988-2014 by period of progression (N=2,189).

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: Kidney cancer [Internet]. 2016 [updated 2016 Mar 2; cited 2016 May 1]. Available from: http://www.tumorregister-muenchen.de/en/facts/surv/sC64__E-ICD-10-C64-Kidney-cancer-survival.pdf

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