

Munich Cancer Registry



- ▶ Baseline statistics
- ▶ Selection Matrix
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Munich Cancer Registry at Munich Cancer Center
Marchioninstr. 15
Munich, 81377
Germany

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

Cancer statistics: Survival

C67: Bladder cancer

Year of diagnosis	1978-1987	1988-1997	1998-2011
Patients	648	2,156	6,996
Diseases	648	2,156	7,001
Creation date	04/01/2013		
Export date	01/03/2013		
Population	4.5 m		



http://www.tumorregister-muenchen.de/en/facts/surv/surv_C67__E.pdf

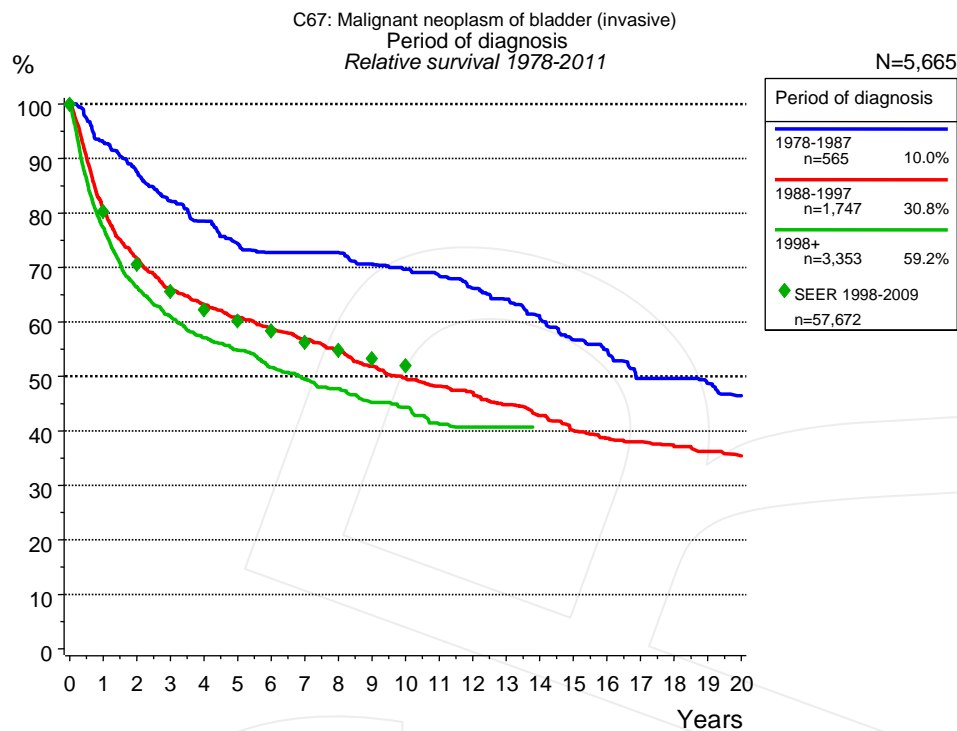


Figure 1a. Relative survival of patients with bladder cancer by period of diagnosis. Included in the evaluation are 5,665 cases diagnosed between 1978 and 2011.

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 2009, and are represented by green 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					
	1978-1987 n=565		1988-1997 n=1,747		1998+ n=3,353	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	89.5	93.0	77.0	81.0	73.7	77.3
2	81.0	87.5	65.0	71.6	60.7	66.3
3	73.4	82.2	57.3	66.0	53.7	61.0
4	67.3	78.5	52.6	63.2	48.4	57.1
5	61.5	74.4	48.7	60.9	44.7	54.8
6	57.9	72.7	45.0	58.7	40.5	51.6
7	55.9	72.7	41.8	56.8	37.3	49.4
8	53.2	72.7	38.6	54.7	35.0	47.7
9	49.8	70.6	35.2	51.8	31.7	45.2
10	46.9	69.6	32.3	49.6	30.1	44.3
11	44.2	68.5	30.2	48.2	26.8	41.2
12	40.9	66.2	28.3	47.1	25.9	40.7
13	38.0	64.2	25.9	44.8	25.1	40.7
14	34.4	60.6	23.7	42.8		
15	30.8	56.7	21.3	40.1		
16	28.6	54.9	19.7	38.6		
17	24.8	49.6	18.6	38.0		
18	24.1	49.6	17.3	37.1		
19	22.2	48.7	16.3	36.3		
20	20.4	46.4	15.3	35.4		

Table 1b. Observed (obs.) and relative (rel.) survival of patients with bladder cancer by period of diagnosis for period 1978-2011 (N=5,665).

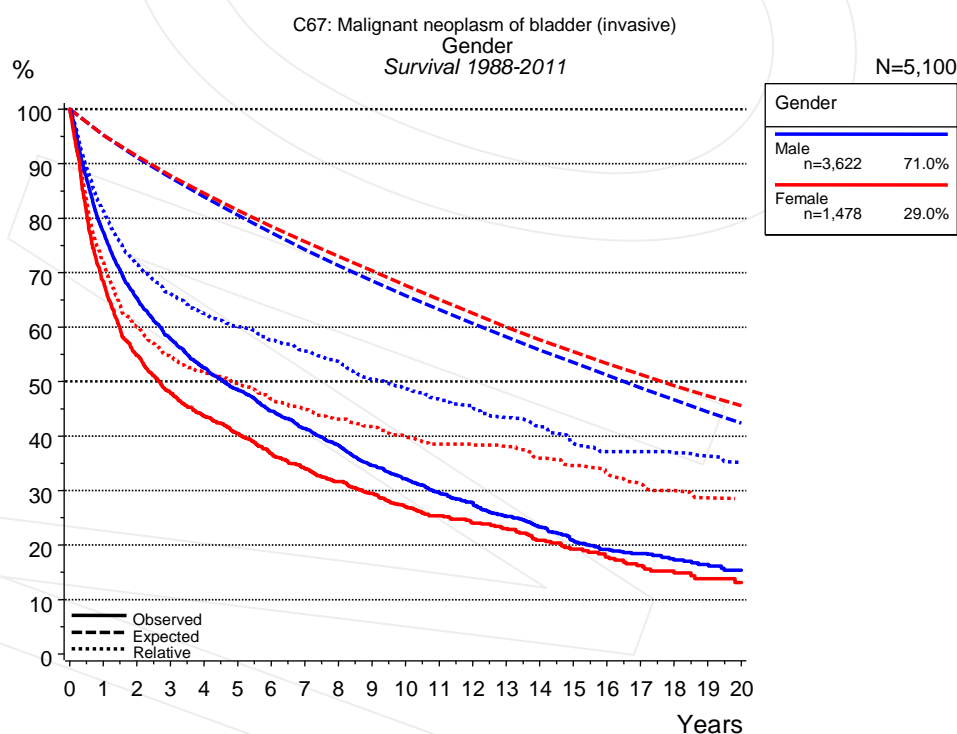


Figure 2a. Survival of patients with bladder cancer by gender. Included in the evaluation are 5,100 cases diagnosed between 1988 and 2011.

Years	Gender			
	Male n=3,622		Female n=1,478	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	77.5	81.4	68.3	71.7
2	65.2	71.6	54.8	59.9
3	57.8	66.1	47.9	54.5
4	52.5	62.5	43.7	51.6
5	48.5	60.2	40.5	49.6
6	44.6	57.6	36.8	46.8
7	41.3	55.6	34.0	44.9
8	38.3	53.7	31.6	43.1
9	34.6	50.4	29.5	41.8
10	32.1	48.7	27.0	39.8
11	29.6	46.8	25.4	38.5
12	27.8	45.6	24.0	38.3
13	25.2	43.4	23.0	38.1
14	23.3	41.7	20.8	36.0
15	20.8	38.7	19.3	34.6
16	19.2	37.2	17.8	33.1
17	18.5	37.2	16.2	31.2
18	17.3	36.9	14.8	30.0
19	16.4	36.3	13.8	28.7
20	15.4	35.2	13.1	27.8

Table 2b. Observed (obs.) and relative (rel.) survival of patients with bladder cancer by gender for period 1988-2011 (N=5,100).

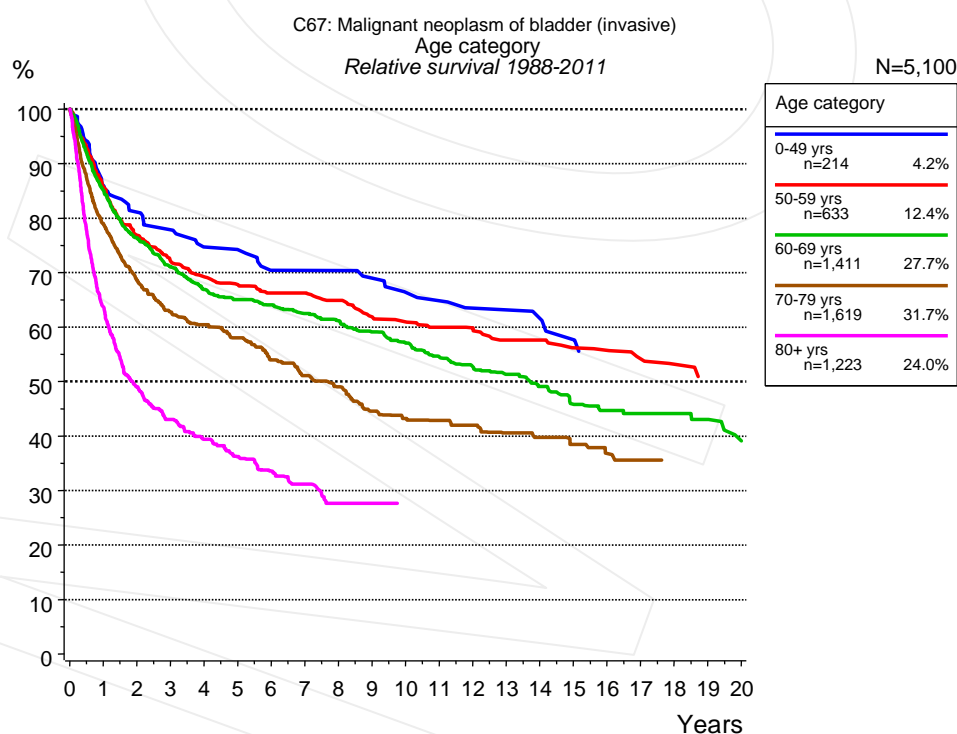


Figure 3a. Relative survival of patients with bladder cancer by age category. Included in the evaluation are 5,100 cases diagnosed between 1988 and 2011.

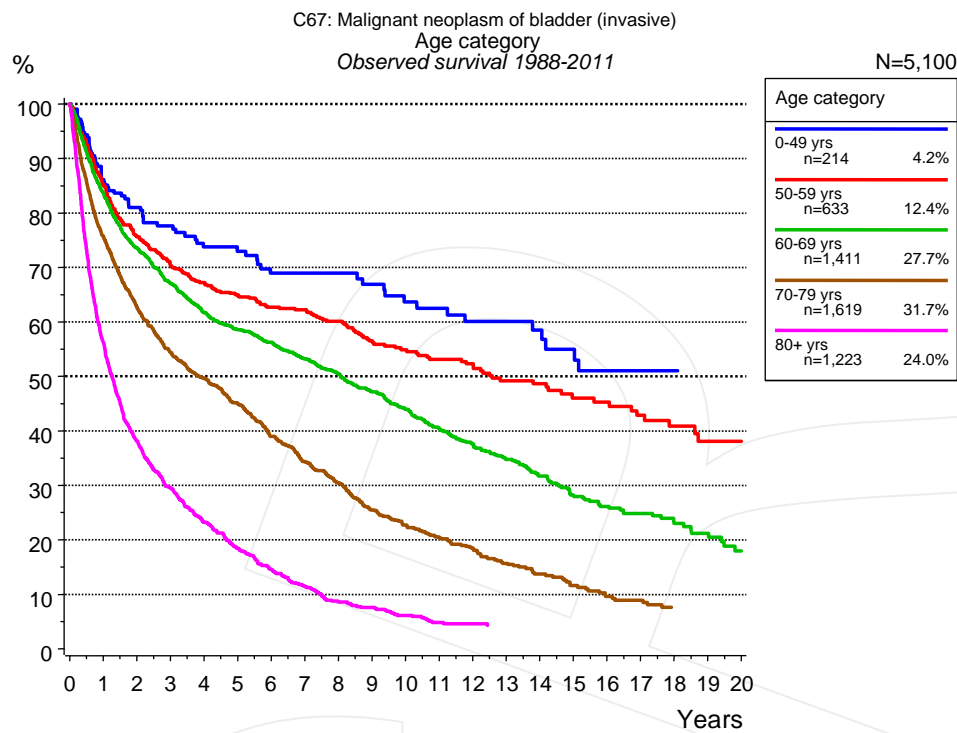


Figure 3b. Observed survival of patients with bladder cancer by age category. Included in the evaluation are 5,100 cases diagnosed between 1988 and 2011.

Years	Age category									
	0-49 yrs n=214		50-59 yrs n=633		60-69 yrs n=1,411		70-79 yrs n=1,619		80+ yrs n=1,223	
	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	86.1	85.9	85.1	85.7	83.7	85.1	75.5	78.9	56.4	63.8
2	81.0	81.1	75.7	76.9	73.6	76.4	62.5	68.5	38.1	49.0
3	77.6	77.8	70.3	72.1	67.0	71.0	54.4	62.7	29.5	43.0
4	73.7	74.7	67.2	69.2	61.7	66.9	49.7	60.4	23.2	39.4
5	73.0	74.2	65.0	67.8	58.5	65.0	45.0	58.0	18.5	36.2
6	68.9	70.4	62.7	66.2	56.3	64.0	39.0	54.0	14.6	33.6
7	68.9	70.4	62.2	66.2	53.2	62.5	34.3	51.1	11.4	31.2
8	68.9	70.3	60.1	64.9	50.5	61.2	30.5	49.0	8.6	27.6
9	66.9	69.0	56.5	61.9	47.1	59.1	25.5	44.6	7.6	27.6
10	63.6	66.3	54.9	61.0	43.9	57.1	22.7	43.2		
11	62.5	64.8	53.1	60.0	40.4	54.5	20.4	42.9		
12	60.1	63.5	52.3	59.8	37.6	52.7	18.4	42.0		
13	60.1	63.1	49.2	57.6	34.8	51.3	15.7	40.6		
14	58.5	61.5	48.7	57.6	31.7	49.1	13.7	39.7		
15	54.9	57.7	46.1	56.2	28.2	45.8	11.6	38.5		
16			45.3	55.7	26.1	44.7	9.6	36.8		
17			42.9	54.2	24.8	44.2	8.9	35.6		
18			40.9	53.2	23.0	44.2				
19					21.2	43.0				
20					17.9	39.1				

Table 3c. Observed (obs.) and relative (rel.) survival of patients with bladder cancer by age category for period 1988-2011 (N=5,100).

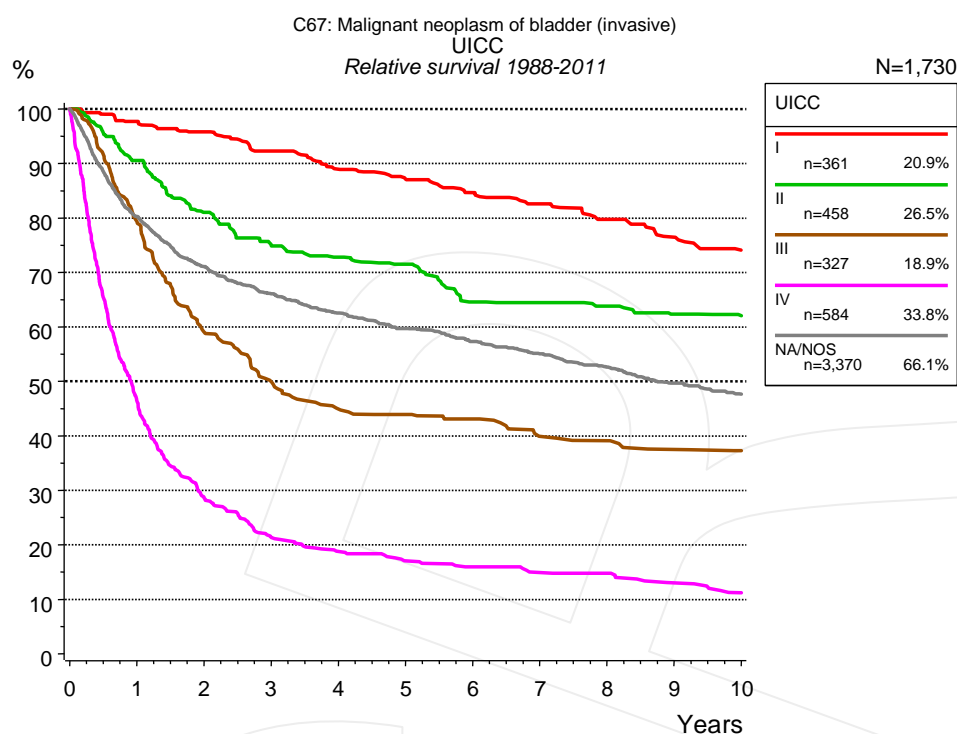


Figure 4a. Relative survival of patients with bladder cancer by UICC. For 4,686 of 5,100 cases diagnosed between 1988 and 2011 valid data could be obtained for this item. For a total of 1,730 cases an evaluable classification was established. The grey line represents the subgroup of 3,370 patients with missing values regarding UICC (66.1% of 5,100 patients, the percent values of all other categories are related to n=1,730).

		UICC									
		I n=361		II n=458		III n=327		IV n=584		NA/NOS n=3,370	
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		94.7	97.7	87.9	90.6	77.2	79.3	45.0	46.4	75.8	80.3
2		89.7	95.8	76.1	81.1	56.2	59.0	26.8	28.6	63.9	71.0
3		83.6	92.3	68.4	75.0	46.5	49.9	19.4	21.4	56.7	66.0
4		77.7	88.9	64.3	72.8	40.7	44.9	16.5	18.8	51.4	62.5
5		73.5	87.1	61.3	71.5	38.9	43.9	14.5	17.1	47.1	59.7
6		69.0	84.6	53.3	64.6	37.0	43.1	13.2	16.0	43.2	57.3
7		65.1	82.5	51.6	64.5	32.8	39.9	12.0	14.9	39.8	55.1
8		60.5	79.8	49.3	63.8	31.7	39.1	11.7	14.8	36.5	52.6
9		56.1	76.5	46.3	62.4	29.3	37.5	9.9	13.0	33.1	49.7
10		51.9	74.1	44.6	62.1	27.9	37.3	8.2	11.2	30.5	47.7

Table 4b. Observed (obs.) and relative (rel.) survival of patients with bladder cancer by UICC for period 1988-2011 (N=1,730).

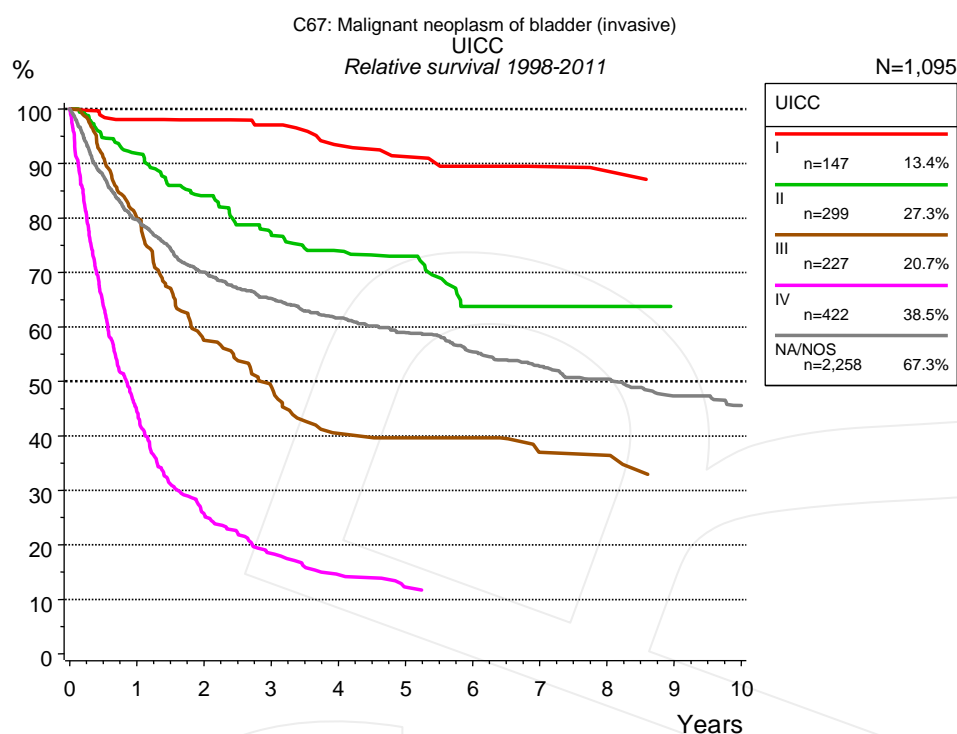


Figure 4c. Relative survival of patients with bladder cancer by UICC. For 3,132 of 3,353 cases diagnosed between 1998 and 2011 valid data could be obtained for this item. For a total of 1,095 cases an evaluable classification was established. The grey line represents the subgroup of 2,258 patients with missing values regarding UICC (67.3% of 3,353 patients, the percent values of all other categories are related to n=1,095).

Years	UICC									
	I		II		III		IV		NA/NOS	
	n=147		n=299		n=227		n=422		n=2,258	
	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	96.5	98.1	89.7	91.9	77.8	79.9	43.2	44.4	75.3	79.7
2	94.2	98.0	79.7	84.1	54.6	57.5	24.2	25.7	63.1	70.0
3	90.8	97.1	71.1	77.0	45.9	49.0	17.0	18.4	56.2	65.2
4	84.6	93.4	66.4	74.0	36.6	40.5	12.9	14.5	50.9	61.6
5	80.9	91.3	63.8	73.0	35.0	39.6	10.6	12.2	46.8	59.0
6	77.8	89.5	53.9	63.8	35.0	39.6	10.0	11.5	42.2	55.4
7	75.6	89.4	52.7	63.8	30.2	37.0			38.5	52.8
8	72.9	88.6	51.3	63.8	30.2	36.4			35.6	50.4
9	69.4	86.5	49.0	63.8					31.9	47.4
10	69.4	85.0	49.0	62.9					29.6	45.6

Table 4d. Observed (obs.) and relative (rel.) survival of patients with bladder cancer by UICC for period 1998-2011 (N=1,095).

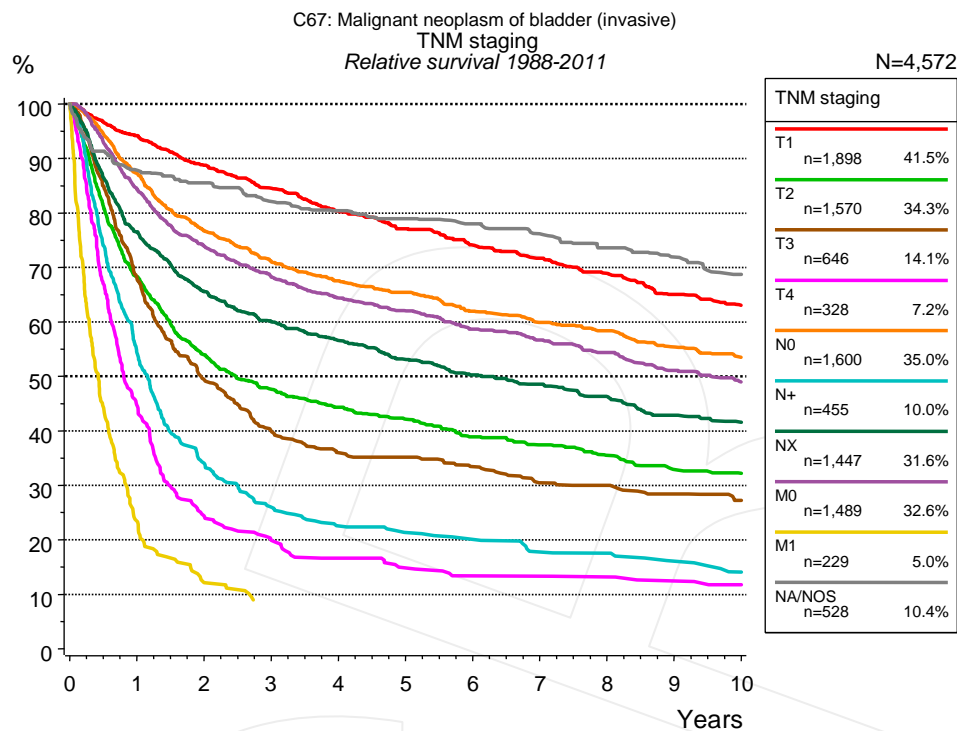


Figure 4e. Relative survival of patients with bladder cancer by TNM staging. For 4,686 of 5,100 cases diagnosed between 1988 and 2011 valid data could be obtained for this item. For a total of 4,572 cases an evaluable classification was established. The accumulated percentage exceeds the 100% value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 528 patients with missing values regarding TNM staging (10.4% of 5,100 patients, the percent values of all other categories are related to n=4,572).

TNM staging															
Years	T1 n=1,898		T2 n=1,570		T3 n=646		T4 n=328		N0 n=1,600		N+ n=455		NX n=1,447		
	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	89.8	94.2	64.6	68.3	65.7	68.1	42.9	44.7	84.3	87.3	52.9	54.4	71.9	76.5	
2	81.0	88.7	48.5	54.0	46.3	49.3	22.5	24.3	71.6	76.7	32.1	34.0	58.3	65.6	
3	73.9	84.5	41.0	47.6	36.3	39.9	17.8	19.9	64.1	71.1	23.8	26.0	50.8	60.0	
4	67.4	80.4	36.5	44.3	31.8	36.0	14.5	16.6	58.9	67.5	20.1	22.6	45.6	56.6	
5	62.1	77.1	33.3	42.2	30.4	35.2	12.5	14.8	55.1	65.4	18.3	21.4	40.8	53.1	
6	57.3	74.1	29.4	38.9	27.7	33.4	10.9	13.4	50.4	61.9	16.9	20.1	36.9	50.3	
7	53.3	71.7	27.1	37.4	24.4	30.5	10.9	13.4	46.9	59.9	14.5	17.8	34.1	48.6	
8	49.1	68.9	24.6	35.5	23.6	30.0	10.4	13.2	44.3	58.4	14.1	17.5	31.1	46.3	
9	44.7	65.0	21.9	32.9	21.6	28.4	9.4	12.4	40.5	55.4	12.4	16.1	27.6	42.9	
10	41.4	63.0	20.6	32.2	19.8	27.2	8.4	11.7	37.6	53.5	10.5	14.1	25.6	41.6	

cont'd	TNM staging					
	M0 n=1,489		M1 n=229		NA/NOS n=528	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
Years						
0	100.0	100.0	100.0	100.0	100.0	100.0
1	81.0	84.4	22.8	23.4	84.0	87.8
2	68.2	73.9	11.2	12.1	79.0	85.5
3	60.6	68.2			72.6	82.1
4	55.2	64.4			68.6	80.4
5	51.1	62.0			65.2	78.9
6	46.6	58.7			61.8	78.0
7	43.3	56.6			57.8	76.1
8	40.3	54.4			54.1	73.6
9	36.3	51.1			50.6	71.9
10	33.4	49.0			46.6	68.7

Table 4f. Observed (obs.) and relative (rel.) survival of patients with bladder cancer by TNM staging for period 1988-2011 (N=9,662).

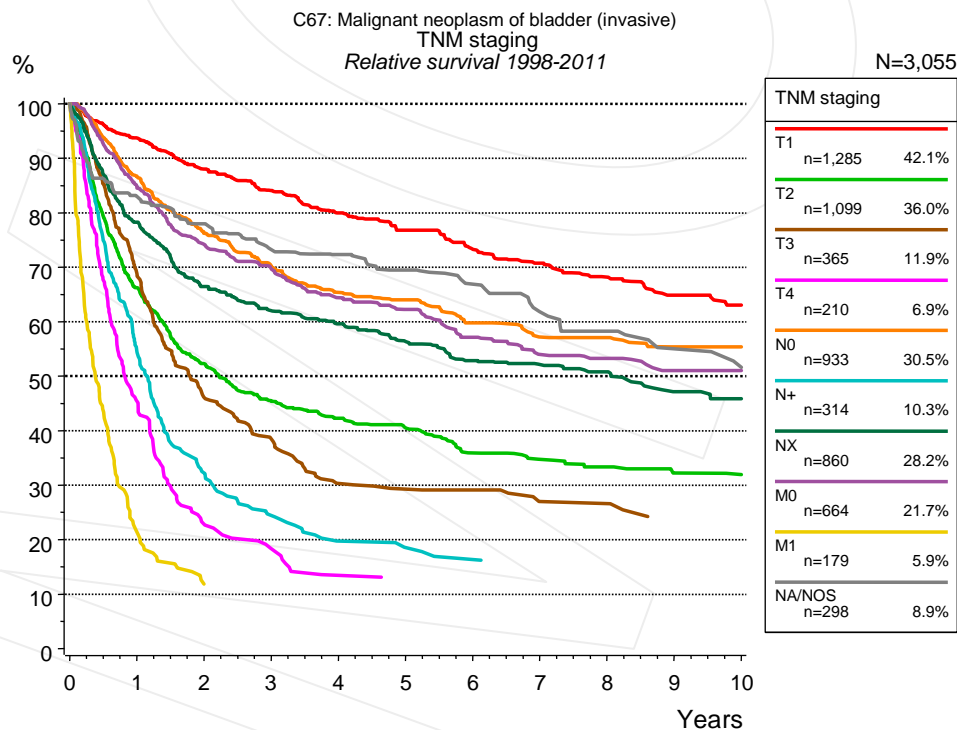


Figure 4g. Relative survival of patients with bladder cancer by TNM staging. For 3,132 of 3,353 cases diagnosed between 1998 and 2011 valid data could be obtained for this item. For a total of 3,055 cases an evaluable classification was established. The accumulated percentage exceeds the 100% value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 298 patients with missing values regarding TNM staging (8.9% of 3,353 patients, the percent values of all other categories are related to n=3,055).

TNM staging															
	T1 n=1,285		T2 n=1,099		T3 n=365		T4 n=210		N0 n=933		N+ n=314		NX n=860		
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	89.5	93.7	62.7	66.3	66.5	68.6	43.8	45.4	84.0	86.7	53.1	54.4	74.0	78.3	
2	80.8	88.0	47.2	52.3	43.6	46.1	21.7	22.8	71.7	76.2	30.8	32.2	59.8	66.5	
3	74.2	84.1	39.5	45.4	35.6	38.5	16.6	18.3	64.2	70.2	22.8	24.4	53.3	62.0	
4	67.8	80.0	35.3	42.3	27.1	30.3	11.9	13.4	58.0	65.4	17.7	19.7	49.0	59.6	
5	62.7	76.8	32.7	40.5	25.6	29.3			55.0	64.0	16.2	18.5	44.4	56.3	
6	57.6	73.3	27.9	35.9	25.0	29.1			49.8	59.8	14.6	16.3	40.0	52.9	
7	53.5	70.8	25.9	34.7	21.8	27.0			46.0	57.2			37.7	52.1	
8	49.7	68.2	24.3	33.3	21.8	26.6			44.9	57.1			35.6	50.8	
9	45.4	64.9	22.4	32.2					41.7	55.4			31.3	47.1	
10	42.6	63.0	21.7	31.9					41.0	55.4			29.7	45.9	

TNM staging						
<i>cont'd</i>	M0 n=664		M1 n=179		NA/NOS n=298	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	81.9	84.8	21.3	21.3	79.0	83.0
2	69.3	74.1	11.0	11.9	71.2	78.0
3	63.0	69.7			64.1	73.3
4	56.2	64.4			60.7	72.3
5	52.5	62.2			56.4	69.5
6	46.9	57.2			52.1	66.9
7	42.7	54.0			46.1	61.8
8	41.1	53.3			43.0	58.3
9	37.9	51.0			38.7	55.0
10	37.2	51.0			35.5	51.6

Table 4h. Observed (obs.) and relative (rel.) survival of patients with bladder cancer by TNM staging for period 1998-2011 (N=5,909).

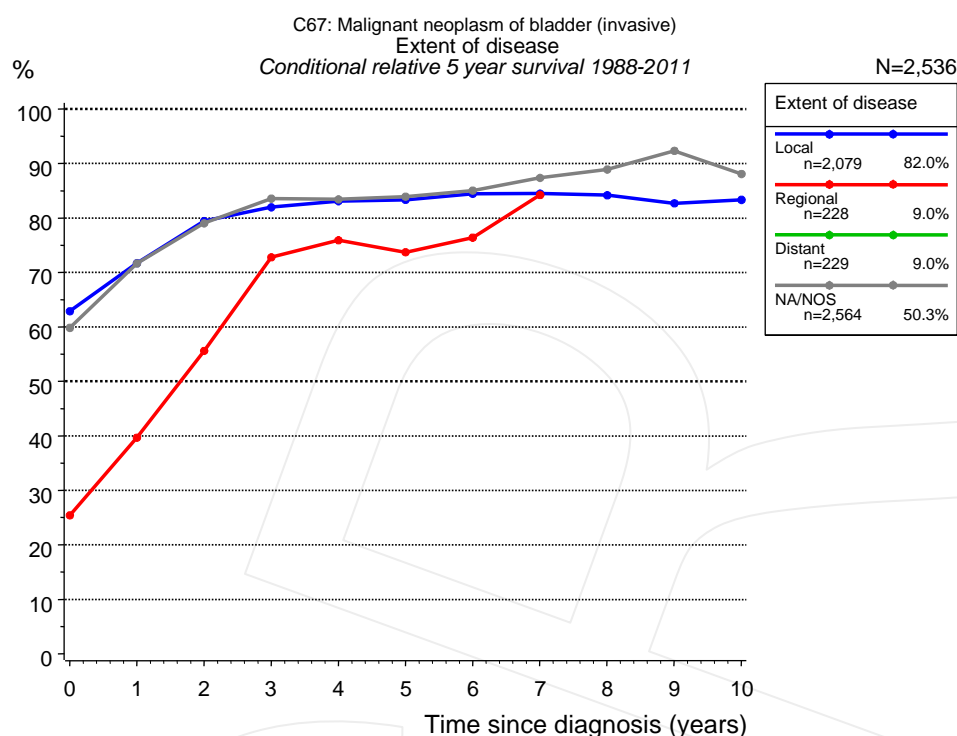


Figure 4i. Conditional relative 5-year survival of patients with bladder cancer by extent of disease. For 4,686 of 5,100 cases diagnosed between 1988 and 2011 valid data could be obtained for this item. For a total of 2,536 cases an evaluable classification was established. The grey line represents the subgroup of 2,564 patients with missing values regarding extent of disease (50.3% of 5,100 patients, the percent values of all other categories are related to n=2,536).

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	2,079	62.9	228	25.4	229		2,564	59.8
1	1,557	71.7	121	39.7			1,887	71.7
2	1,229	79.4	69	55.6			1,483	79.0
3	1,009	82.0	47	72.8			1,221	83.6
4	828	83.1	40	75.9			1,044	83.4
5	685	83.3	35	73.7			872	83.9
6	560	84.4	31	76.4			730	85.0
7	486	84.5	26	84.2			626	87.4
8	415	84.2					536	88.9
9	345	82.7					445	92.3
10	298	83.3					373	88.1

Table 4j. Conditional relative 5-year survival of patients with bladder cancer by extent of disease for period 1988-2011 (N=2,536).

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 4g). 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 82.0% (n=1,009).

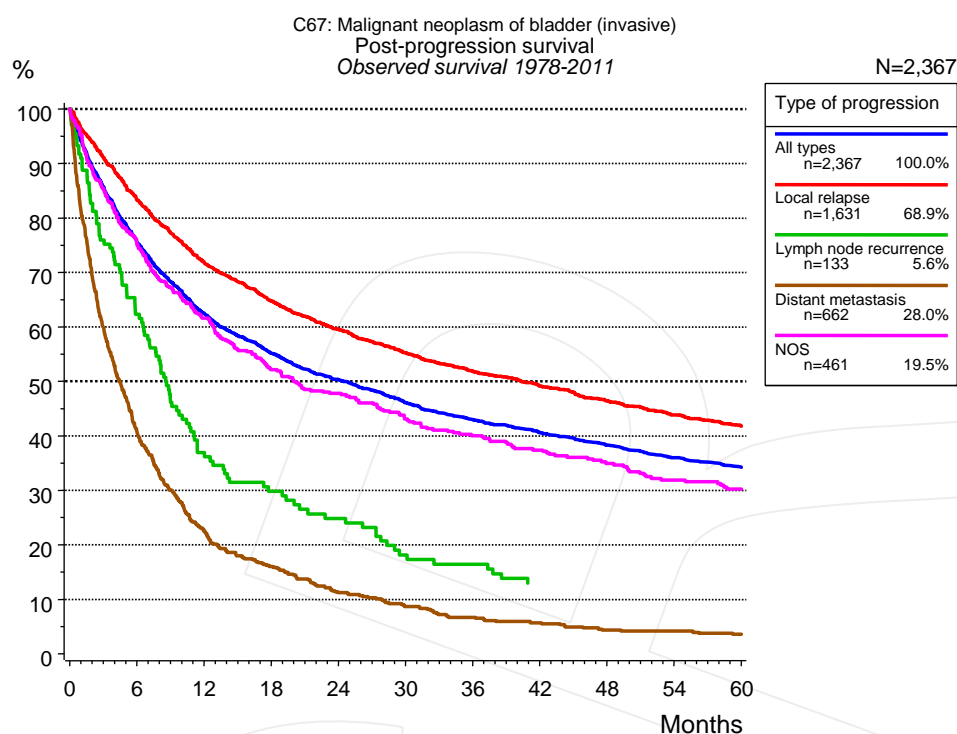


Figure 5a. Observed post-progression survival of 2,367 patients with bladder cancer diagnosed between 1978 and 2011 (incl. M1). These 2,367 patients with documented progression events during their course of disease represent 41.8% of the totally 5,665 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=525, 9.3%). 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 “All types” 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.

Months	Type of progression				
	All types n=2,367 %	Local relapse n=1,631 %	Lymph node recurrence n=133 %	Distant metastasis n=662 %	NOS n=461 %
0	100.0	100.0	100.0	100.0	100.0
12	62.5	71.9	36.9	22.4	61.6
24	50.3	59.5	24.9	11.2	47.8
36	43.0	51.9	16.4	6.7	40.0
48	38.3	46.4		4.3	34.9
60	34.2	41.8		3.5	30.3

Table 5b. Observed post-progression survival of patients with bladder cancer for period 1978-2011 (N=2,367).

Shortcuts

AS	Assembled survival chart (observed, expected, relative)
CS	Conditional survival
DCO	Death certificate only. The death certificate provides the only notification to the registry.
MCR	Munich Cancer Registry, Germany (Tumorregister München)
NA	Not available
NCI	National Cancer Institute, USA
NOS	Not otherwise specified
OS	Observed/overall survival (Kaplan-Meier estimate)
PPS	Post-progression survival
RS	Relative Survival. Ratio of observed and expected survival (derived from the normal population)
SEER	Surveillance, Epidemiology, and End Results, USA
TTP	Time to progression Date of entry: Date of diagnosis Event (Progression): First local recurrence, lymph node relapse or distant metastasis, unspecified recurrence First all-cause recurrence is illustrated by survival curves (Kaplan-Meier estimate). First local recurrence, lymph node relapse or distant metastasis are depicted cumulatively, where applicable ("reverse" Kaplan-Meier estimate).
UICC	Union for International Cancer Control, Geneva

Recommended Citation

Munich Cancer Registry. Survival C67: Bladder cancer [Internet]. 2013 [updated 2013 Apr 1; cited 2013 May 1]. Available from: http://www.tumorregister-muenchen.de/en/facts/surv/surv_C67__E.pdf

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